

Appin Mine Annual Review FY25

Table of Contents

1. STATEMENT OF COMPLIANCE.....	9
2. INTRODUCTION.....	12
2.1 Sale of Illawarra Coal Holdings	12
2.2 Background	12
2.3 Overview of Operations.....	12
2.4 Mine Contacts	14
3. APPROVALS.....	14
4. OPERATIONS SUMMARY	17
4.1 Mining	17
4.2 Mineral Processing.....	19
4.3 Ore and Product Stockpiles.....	19
4.4 Construction	19
4.5 Land Preparation.....	23
4.6 Exploration.....	24
5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW	27
6. ENVIRONMENTAL PERFORMANCE.....	30
6.1 Air Pollution	30
6.2 Erosion and Sediment	38
6.3 Surface Water	40
6.4 Contaminated Land.....	63
6.5 Threatened Fauna and Flora	64
6.6 Weeds.....	70
6.7 Blasting	71
6.8 Noise	71
6.9 Visual and Stray Light	80
6.10 Aboriginal Heritage.....	80
6.11 Natural Heritage	81
6.12 Bushfire	81
6.13 Mine Subsidence	81
6.14 Hazardous Material Management.....	102
6.15 Methane Management	103
6.16 Waste Management.....	107

6.17 North Cliff.....	112
7. WATER MANAGEMENT	115
7.1 Water Licences.....	115
7.2 Compensatory Water	116
7.3 Groundwater	118
7.4 Surface Water	119
7.5 Rainfall.....	121
8. REHABILITATION	122
8.1 Rehabilitation for the Reporting Period	122
8.2 Research.....	129
8.3 Rehabilitation Management Plan	129
9. COMMUNITY	129
9.1 Complaints	130
9.2 Community Engagement.....	132
9.3 CPP	135
9.4 Other Partnerships	136
10. INDEPENDENT AUDIT	136
10.1 Environmental Audits.....	136
10.2 Environmental Risk Register	139
11. INCIDENTS, NON-COMPLIANCES AND EXCEEDANCES DURING THE REPORTING PERIOD	139
12. ACTIVITIES PROPOSED IN THE NEXT REPORTING PERIOD	148
12.1 Mine Operations.....	148
12.2 Exploration.....	148
12.3 Projects	149
12.4 Environmental Management.....	150
12.5 Community.....	150
12.6 Rehabilitation.....	150
13. REFERENCES AND ASSOCIATED DOCUMENTS.....	151
13.1 References	151
13.2 Acronyms used in Annual Review	152
13.3 Management Plans.....	156
14. PLANS	157
Plan 1: Regional Location Plan showing Mining Domains	158

Plan 2: Appin Shaft and Pit Top Locality Plan	159
Plan 3: Site Layout and Monitoring Locations – Appin East Pit Top.....	160
Plan 4: Site Layout and Monitoring Locations – Appin West Pit Top	161
Plan 5: Site Layout – Ventilation Shafts 1 and 2	162
Plan 6: Site Layout – Ventilation Shaft 3	163
Plan 7: Site Layout and Monitoring Locations – Ventilation Shaft 6	164
Plan 8: Site Layout and Monitoring Locations – Ventilation Shafts 7 and 8 (AMVA Project).....	165
Plan 9: Site Layout and Monitoring Locations – Appin North Pit Top and WCCPP	166
Plan 10: Site Layout and Monitoring Locations – Appin North Pit Top.....	167
Plan 11: Site Layout and Monitoring Locations – WCCPP	168
Plan 12: Site Layout – North Cliff Pit Top	169
Plan 13: Land Preparation Plan – CWEA	170
Plan 14: Georges River Stream Features.....	171
Plan 15: Appin Area 7 and 9 Surface Water Monitoring Locations – FY25	172
Plan 16: Appin Area 7 and 9 Impacts and Triggers – FY25	173
Plan 17: Appin Area 7 and 9 Groundwater Monitoring – FY25.....	174
Plan 18: Appin Longwall Extraction – FY25 Actual and FY26 Forecast.....	175
Plan 19: Biodiversity Offset Areas	176
Plan 20: Appin Exploration Activity – FY25.....	177
Plan 21: Planned Appin Exploration Activity – FY26	178
15. APPENDICES	179
Appendix 1: EPL 2504 Annual Return – FY25.....	179
Appendix 2: Appin Mine Project Approval Condition Compliance Report.....	180
Appendix 3: Community Complaints Report – FY25.....	233
Appendix 4: Appin Mine Long-Term Environmental Monitoring Data.....	235
Appendix 5: Annual CWEA Rehabilitation Report.....	284
Appendix 6: Annual <i>Persoonia hirsuta</i> Condition Monitoring Report.....	285
Appendix 7: Appin West BioBank Site Annual Report – 2024/2025	286
Appendix 8: Nepean River BioBank Site Annual Report – 2024/2025	287
Appendix 9: Cataract River BioBank Site Passive Management Annual Report – 2024/2025.....	288
Appendix 10: Ventilation Shaft 6 Offset Annual Monitoring Report – 2024.....	289
Appendix 11: Ventilation Shaft 6 Bush Regeneration Report – 2024/2025	290

Appendix 12: EPBC Approval 2010/5350 Compliance Report – FY25.....	291
Appendix 13: WaterNSW Special and Controlled Areas Consent (F2020/1545) – Annual Statement of Compliance	292
Appendix 14: Annual Rehabilitation Report.....	293

Figures

Figure 1: RoM production – Appin Mine (in million tonnes per annum [Mtpa])	18
Figure 2: PM ₁₀ Maximum 24-hour Moving Average at Appin East AE-PF3.....	33
Figure 3: PM ₁₀ Maximum 24-hour Moving Average at Appin East AE-PF1	34
Figure 4: PM ₁₀ Maximum 24-hour Moving Average at Appin North W-PF1.....	34
Figure 5: PM ₁₀ Maximum 24-hour Moving Average at Vent Shaft 6 VS6-PF1.....	35
Figure 6: PM ₁₀ Maximum 24-hour Moving Average at Vent Shaft 8 VS8-PF1.....	35
Figure 7: Monthly Average PM ₁₀ data – AMVA Project17F16F	37
Figure 8: Monthly Average PM _{2.5} data – AMVA Project ¹⁷	38
Figure 9: <i>P. hirsuta</i> condition and population within the Offset Area during the 2024 summer monitoring period.....	66
Figure 10: FY25 GHG Emissions – Appin Mine.....	104
Figure 11: FY15 to FY25 GHG Emissions – Appin Mine.....	105
Figure 12: FY19 – FY25 Diversion and Landfill Comparison 28F27F	109
Figure 13: FY25 rainfall data – Menangle (BoM site #68216).....	121
Figure 14: FY19 – FY25 Annual Rainfall – Appin East (AE-PF3 P28 DustTrak).....	121
Figure 15: FY12 – FY25 Annual Rainfall – Menangle (BoM site #68216)	122
Figure 16: FY25 Community Complaints for Appin Mine.....	131
Figure 17: Community complaints from FY18 – FY25 for Appin Mine	132

Tables

Table 1: Annual Review Title Block	7
Table 2: Statement of Compliance	9
Table 3: Non-compliances	10
Table 4: Mine Contacts.....	14
Table 5: Project Approvals associated with Appin Mine	14
Table 6: Mining Leases and Licences associated with Appin Mine	15
Table 7: Exploration Licences/Authorisations associated with Appin Mine.....	16
Table 8: AA7 Longwall Start and Finish Dates.....	17
Table 9: Production Summary.....	18
Table 10: Boreholes completed during the reporting period	26
Table 11: Actions from Previous Annual Review.....	27
Table 12: Particulate matter long-term criteria.....	32

Table 13: Particulate matter short-term criteria	32
Table 14: Long term criteria for deposited dust.....	32
Table 15: Particulate matter criteria for AMVA Project	32
Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine.....	43
Table 17: Summary of Compliance with EPL Discharge Volume Limits across Appin Mine.....	58
Table 18: Noise Survey Points and Results	73
Table 19: Predicted vs Observed Impacts for Landscape Features for AA7	84
Table 20: DCCEEW feedback to the FY24 Appin Mine Annual Review and ICHPL responses.....	86
Table 21: Predicted vs Observed Impacts for Aquatic Ecology	88
Table 22: Predicted vs Observed Impacts for Terrestrial Ecology for AA7 and AA9	91
Table 23: Predicted vs Observed Impacts for Surface Infrastructure for Appin	94
Table 24: Predicted vs Observed Impacts for Landscape Features for Area 5	99
Table 25: Predicted vs Observed Impacts for Surface Water for Area 5	100
Table 26: Summary of Greenhouse Emissions – Appin Mine	104
Table 27: Main waste quantities for Appin Mine	107
Table 28: CWEA – Capacity and Status	110
Table 29: Water Take – Appin Mine	116
Table 30: Compensatory Water – Groundwater Bores.....	117
Table 31: Potable Water Usage for Appin West.....	119
Table 32: Potable Water Usage for Appin East	120
Table 33: Water Usage Comparison – Appin North.....	120
Table 34: Environmental Audits undertaken during reporting period.....	137
Table 35: Non-compliances during the reporting period.....	139
Table 36: Exceedances of criteria during reporting period	142
Table 37: Incidents during the reporting period	144
Table 38: Regulatory actions during reporting period	146
Table 39: Acronyms used in Annual Review	152
Table 40: Management Plans.....	156

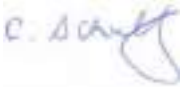
Table 1: Annual Review Title Block

Name of operation	Appin Mine
Name of operator	Gear M Illawarra Met Coal Pty Ltd trading as GM ³
Project approval #	08_0150
Name of holder of development consent / project approval	Illawarra Coal Holdings Pty Ltd
Mining lease #	CCL 767, CCL 724, CL 388, CL 381, ML 1382, ML 1433, ML 1473, ML 1574, ML 1678, ML 1698, ML 1832, ML 1847, ML 1874, MPL 200, MPL 201
Name of holder of mining lease	Illawarra Coal Holdings Pty Ltd, Endeavour Coal Pty Ltd
Water approvals #	10WAI17285, 10WAI17999, 10WAI03794, 10WAI18778, 10WAI18766, 10MW119346
Name of holder of water approvals	Endeavour Coal Pty Ltd
RMP start date	27 June 2025
RMP end date	27 June 2028
Annual Review start date	1 July 2024
Annual Review end date	30 June 2025

I, Chris Schultz certify that this audit report is a true and accurate record of the compliance status of Appin Mine for the period 1 July 2024 – 30 June 2025 and that I am authorised to make this statement on behalf of Illawarra Coal Holdings Pty Ltd and Endeavour Coal Pty Ltd.

Note.

- a) *The Annual Review is an 'environmental audit' for the purposes of section 9.39 (2) of the Environmental Planning and Assessment Act 1979. Section 9.42 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	Chris Schultz
Title of authorised reporting officer	Superintendent Environment and Community
Signature of authorised reporting officer	
Date	24 September 2025

1. STATEMENT OF COMPLIANCE

Table 2: Statement of Compliance

Approval	Purpose	Compliant?
08_0150	Project Approval under Section 75J of the <i>EP&A Act 1979</i> . ¹	No
EPBC 2010/5350	Bulli Seam Operations (BSO) Expansion Approval under Sections 130(1) and 133 of the <i>EPBC Act 1999</i> .	Yes
EPBC 2010/5722	Appin Mine Ventilation Shaft 6 Approval under Sections 130(1) and 133 of the <i>EPBC Act 1999</i> .	Yes
EPL 2504	Environment Protection Licence (EPL) for Appin Mine	No
WaterNSW Access Consent		
F2020/1545 ²	Special and Controlled Areas access	Yes
Mining Lease / Sub-Lease	Number	
Consolidated Coal Lease (CCL)	724	Yes
CCL	767	Yes
Coal Lease (CL)	381	Yes
CL	388	No
Mining Purposes Lease (MPL)	200	Yes
MPL	201	No
Mining Lease (ML)	1382	Yes
ML	1433	Yes
ML	1473	Yes
ML	1574	Yes
ML	1678	Yes
ML	1698	No
ML	1832	Yes
ML	1847	Yes
ML	1874	Yes

¹ A notice of Modification under Section 75W of the *Environmental Planning and Assessment Act 1979* dated 28 October 2016 incorporated the Ventilation Shaft 6 Approval requirements into the Project Approval.

² Annual Statement of Compliance provided in Appendix 15.

Water Approval / Access Licence	Number	
Water Approval	10WAI17285 – Mountbatten	Yes
Water Approval	10WAI17999 – Brennans Creek Dam	Yes
Water Approval	10WAI03794 – Brennans Creek Dam Diversion	Yes
Water Approval	10WAI18778 – Appin	Yes
Water Approval	10WAI18766 – West Cliff	Yes
Water Access Licence (WAL)	36481 – Appin North	Yes
WAL	36477 – Appin West	Yes
WAL	37464 – Appin West	Yes
WAL	44376 – Appin North	Yes
WAL	35519 – Brennans Creek Dam	Yes
WAL	30145 – Mountbatten	Yes

Table 3: Non-compliances					
Relevant approval	Condition #	Condition description (summary)	Compliance status	Comment	Where addressed in Annual Review
EPL 2504	Condition L2.4	Water discharged to meet EPL water quality concentration limits.	Non-compliant	Exceedance of water quality concentration limits for Biochemical Oxygen Demand (BOD) at LDP 23 and 38.	Section 11
PA 08_0150	Condition 15 of Schedule 4				
<i>Mining Act</i>	Section 292C(3)	Requirement to pay levies by due date.	Non-compliant	Levies not paid by due date due to administrative error.	Section 11
ML 1698	N/A	Petroleum to be listed as Mineral of Interest.	Non-compliant	Gas was extracted when petroleum was not listed as a Mineral of Interest.	Section 11

Compliance status key for Table 3.

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 than required under approval conditions)

Refer to Section 11 for more detail regarding the non-compliances listed in Table 3.

The predictions and Statement of Commitments from the BSO Project Environmental Assessment (EA) are incorporated into the Appin Mine federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and state *Environmental Planning and Assessment Act 1979* (EP&A Act) Project Approval conditions. An assessment of compliance with the conditions of these approvals is considered to be an assessment of compliance against the predictions in the EA. An assessment of compliance with the state and federal conditions is provided in:

- Appendix 1: EPL 2504 Annual Return – FY25;
- Appendix 2: Appin Mine Project Approval Condition Compliance Report; and
- Appendix 12: EPBC Approval 2010/5350 Compliance Report – FY25.

2. INTRODUCTION

2.1 Sale of Illawarra Coal Holdings

On 29 February 2024 South32 Limited (South32) announced that they had entered into a binding agreement for the sale of Illawarra Coal Holdings Pty Ltd (ICHPL) to Gear M Illawarra Met Coal Pty Ltd, trading as GM³, an entity owned by Golden Energy and Resources Pte Ltd (GEAR) and M Resources Pty Ltd. The transaction was completed on 29 August 2024. A Transitional Service Agreement was in place until 30 April 2025.

2.2 Background

This Annual Review for Appin Mine details the environment and community performance for the period 1 July 2024 to 30 June 2025, and meets the requirements set out in the *Post approval requirements for State significant mining developments – Annual Review Guideline* (NSW DPE, October 2015).

The Annual Review has been prepared to meet the requirements of Condition 4 of Schedule 6 of the Bulli Seam Operations (BSO) Project Approval 08_0150, as modified (the Project Approval).

A copy of the report is publicly available via the GM³ website at [link](#).

2.3 Overview of Operations

The NSW Government granted approval for the BSO Project in December 2011. The BSO Project combined the Appin Mine and West Cliff Colliery mining operations and provided for the continuation of coal mining operations to 31 December 2041. Appin Mine underground longwall operations have transitioned wholly to the Appin Area 7 (AA7) mining domain following completion of longwall activities at West Cliff in early 2016 and in Appin Area 9 (AA9) in FY23. The locations of underground mining domains and surface facilities associated with Appin Mine are illustrated in Plan 1 and Plan 2 respectively.

Appin Mine consists of the merged Appin and Tower Collieries. Appin Mine is owned and operated by Endeavour Coal Pty Ltd, a subsidiary company of ICHPL which is wholly owned by GM³ (since August 2024). Appin Colliery (located at Appin) commenced operations in 1962 and Tower Colliery (located at Douglas Park) commenced operations in 1978. The underground infrastructure, roadways, conveyor and ventilation systems were joined in 2003 to become Appin Mine. The original Appin Colliery (now Appin Colliery – East Pit Top) is located adjacent to Appin Village, approximately 37 kilometres (km) northwest of Wollongong.

Tower Colliery (now Appin Colliery – West Pit Top) was officially opened in November 1978. Following the sinking of the access and ventilation shafts, underground development of the mine was undertaken from 1978 through to 1988 when longwall operations were introduced. Tower Colliery completed the extraction of 20 longwall blocks between 1988 and September 2002. The mine was redeveloped underground to establish mining operations in the AA7 and AA9 mining domains.

Key areas associated with the current Appin operations include the Appin Colliery – East (Appin East) Pit Top site (Plan 3), the Appin Colliery – West (Appin West) Pit Top site (Plan 4), the Appin East Ventilation Shaft 1 and 2 site (Plan 5), the Appin East Ventilation Shaft 3 site (Plan 6), the Appin West Ventilation Shaft 6 site and Douglas North Sub-station site (Plan 7) and the Appin Mine Ventilation and Access (AMVA) Project (Ventilation Shafts 7 and 8) site (Plan 8)³.

Appin Colliery – North⁴ (Appin North) Pit Top and the West Cliff Coal Preparation Plant (WCCPP) is located approximately 26 km northwest of Wollongong, NSW.

ICHPL has conducted underground coal mining operations at Appin North since 1997. Prior to this, Appin North was operated by Kembla Coal and Coke Pty Limited. Longwall mining at Appin North concluded in early 2016. The last mining area, Area 5, was completed in February 2016 and consists of part of CCL 767 and CL 381, which were both transferred from Appin Colliery to Appin North in 1997. Operations at Appin North were merged with Appin Mine in February 2016.

Key areas of the Appin North site include the Pit Top (Plan 9 and Plan 10), the Coal Wash Emplacement Area (CWEA) (Plan 9) and WCCPP (Plan 11). The redundant North Cliff Mine site is surrounded by the Dharawal National Park (Plan 12).

³ Currently under construction.

⁴ Formerly West Cliff Colliery.

2.4 Mine Contacts

The site contacts for Appin Mine are provided in Table 4.

Table 4: Mine Contacts		
Position	Name	Number
General Manager Appin Mine	Andy Hyslop	(02) 4629 4752
Specialist Environment – Appin West and East	James Alchin	0414 731 756
Specialist Environment – Appin North and WCCPP	Zarah Anderson ⁵	0421 557 827
Superintendent Environment and Community	Antony Leone ⁶	0448 056 176
Community Call Line		1800 102 210

3. APPROVALS

Table 5, Table 6 and Table 7 describe the Project Approvals, Mining Leases, Licences and Exploration Leases associated with Appin Mine.

Table 5: Project Approvals associated with Appin Mine			
Document	Issue Date	Expiry date	
Project Approval MP08_0256 – Appin Gas Drainage Project – Initial	Oct 2009	Consolidated into Project Approval	
Project Approval MP08_0256 – MOD 1	Dec 2010	Consolidated into Project Approval	
Project Approval MP08_0256 – MOD 2	Feb 2012	Consolidated into Project Approval	
Project Approval MPI0_0079	4 May 2011	Consolidated into Project Approval	
Project Approval MP 08_0150 – BSO Project (NSW Government)	22 Dec 2011	31 Dec 2041	
Project Approval MP 08_0150 – MOD 1	2 Apr 2015	31 Dec 2041	
Project Approval MP 08_0150 – MOD 2	28 Oct 2016	31 Dec 2041	
Project Approval MP 08_0150 – MOD 3	12 Apr 2022	31 Dec 2041	
Project Approval MP 08_0150 – MOD 4 ⁷			
Project Approval MP 08_0150 – MOD 5	9 Aug 2024	31 Dec 2041	

⁵ Pollyanna Barlow was the Specialist Environment for the reporting period.

⁶ Chris Schultz was the Superintendent Environment over the reporting period.

⁷ The MOD 4 application was submitted for assessment in June 2025.

Project Approval MP 08_0150 – MOD 6	11 Oct 2024	31 Dec 2041
Project Approval 2010/5350 – BSO Expansion (<i>EPBC Act</i>)	15 May 2012	15 May 2042
Project Approval 2010/5722 – Ventilation Shaft 6 (<i>EPBC Act</i>)	1 Apr 2011	1 Apr 2041

Table 6: Mining Leases and Licences associated with Appin Mine			
Mining Lease / Sub-Lease	Number	Issue Date	Expiry Date
CCL	724	4 Jul 1991	18 Dec 2031
CCL	767	29 Oct 1991	8 Jul 2029
CL	381	24 Oct 1991	24 Oct 2033
CL	388	22 Jan 1992	22 Jan 2034
MPL	200	13 Jan 1982	13 Jan 2045
MPL	201	13 Jan 1982	13 Jan 2045
ML	1382	20 Dec 1995	20 Dec 2037
ML	1433	24 Jul 1998	20 Dec 2037
ML	1473	20 Nov 2000	19 Nov 2042
ML	1574	9 Jul 2008	30 Dec 2023
ML	1678	27 Sep 2012	26 Sep 2033
ML	1698	26 Jun 2014	25 Jun 2035
ML	1832	9 Aug 2022	9 Aug 2043
ML	1847	28 Feb 2023	28 Feb 2044
ML	1874	20 Feb 2024	20 Feb 2045
ML	1892	4 Sep 2025	4 Sep 2046
EPL	2504	14 Feb 2001	No expiry
Water Approvals	10WAI17999	15 Nov 2012	14 Nov 2027
	10WAI03794	1 Jul 2011	30 Jun 2034
	10WAI18778	1 Jul 2013	18 Feb 2028
	10WAI18766	1 Jul 2013	24 Jun 2028
	10WAI17285	15 Nov 2011	14 Nov 2026
	10MWI19346	29 Jul 2024	29 Jul 2034
WAL	36481 – Appin North	N/A	
WAL	44376 – Appin North	N/A	

Table 6: Mining Leases and Licences associated with Appin Mine

WAL	45593 – Appin North ⁸	N/A	
WAL	36477 – Appin West	N/A	
WAL	37464 – Appin West	N/A	
WAL	35519 – Brennans Creek Dam	N/A	
WAL	30145 – Mountbatten	N/A	
Radiation Licence	5061052 – WCCPP/ Appin East	26 Jul 2025	26 July 2026
WaterNSW Access Consent	F2020/1545	19 Jul 2024	30 Sep 2025

Table 7: Exploration Licences/Authorisations associated with Appin Mine

Exploration Licence (EL)/ Authorisation	Site	Issue Date	Expiry Date
AUTH 199	West Cliff	27 Jun 1980	27 Jun 2028
AUTH 201	Appin	27 Jun 1980	27 Jun 2028
AUTH 248	Appin	13 May 1981	13 May 2026
AUTH 306	West Cliff	19 Jul 1983	19 Jul 2025 ⁹
AUTH 312	Appin	10 Aug 1983	10 Aug 2025
AUTH 370	Appin	8 May 1986	8 May 2025 ⁹
AUTH 395	Appin	23 Nov 1987	23 Nov 2025
AUTH 396	Appin/West Cliff	28 Jun 1988	27 Jun 2028
AUTH 397	West Cliff	4 Aug 1987	4 Aug 2028
AUTH 432	West Cliff	12 Feb 1991	12 Feb 2025 ⁹
EL 4470	Appin	5 Jan 1993	5 Jan 2026
EL 8972	Appin	29 Apr 2020	29 Apr 2026

⁸ Issued 11 August 2025.

⁹ Renewal lodged – pending assessment.

4. OPERATIONS SUMMARY

4.1 Mining

4.1.1 Longwall Status

Appin Mine underground longwall mining operations transitioned to AA7 and AA9 following completion of longwall mining activities at Appin North (West Cliff Area 5) in early 2016. In FY23 AA9 operations were completed, and operations have transitioned wholly to AA7. Appin Mine extracts coal from the Bulli Seam within the Southern Coalfield. Appin Mine underground longwall mining operations are accessed from three (3) surface locations: Appin North, Appin West and Appin East.

Longwall (LW) 710 commenced on 1 November 2023 and was completed on 9 June 2025. The panel was divided into two (2) sections (LW710A and LW710B) with a total length of 4058 metres (m). LW711 commenced on 2 July 2025 and is currently being extracted (Plan 18).

The start and finish dates for longwalls in the current Appin mining domain are provided in Table 8.

Table 8: AA7 Longwall Start and Finish Dates		
Longwall Number	Start Date	Finish Date
701	27 Oct 2007	9 May 2008
702	18 Sep 2008	20 Apr 2009
703	22 Oct 2009	3 Mar 2011
704	7 May 2011	29 Jul 2012
705	7 Sep 2012	27 Mar 2014
706	23 Apr 2014	28 Nov 2015
707A	7 Jan 2016	16 Aug 2016
707B	26 Sep 2016	19 Jun 2018
708A	2 Apr 2019	20 Oct 2019
708B	24 Apr 2020	3 Jan 2022
709	22 Feb 2022	8 Oct 2023
710A	1 Nov 2023	16 June 2024
710B	18 June 2024	9 June 2025

4.1.2 Longwall Production

Appin Mine extracted 4.389 million tonnes of Run of Mine (RoM) coal via roadway development and longwall extraction methods in FY25. The RoM production levels from FY09 through to the current reporting period are provided in Figure 1.

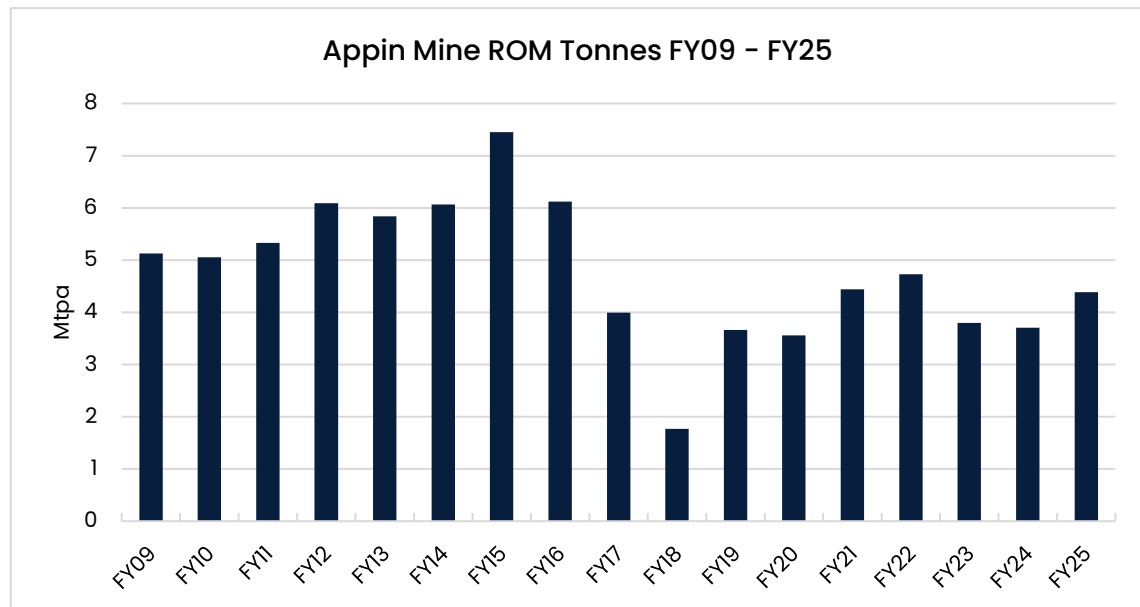


Figure 1: RoM production – Appin Mine (in million tonnes per annum [Mtpa])

The average yield for the reporting period was 81%. The production and waste summary for the reporting period is provided in Table 9.

Table 9: Production Summary				
	Approval Limit	Previous Reporting Period	This Reporting Period	Next Reporting Period ¹⁰
Waste rock/ Overburden	N/A	N/A	N/A	N/A
RoM Coal/Ore (Mt)	10.5	3.707	4.389	4.985
Coarse Reject (Coal Wash Mt) ¹¹	N/A	0.652	0.842	0.950
Saleable Product (Mt)	9.3 ¹²	3.055	3.547	4.035

¹⁰ Estimate.

¹¹ Total processing waste produced at WCCPP for Annual Review period only – does not include coal wash produced at Dendrobium CPP.

¹² Transport Limit.

4.2 Mineral Processing

Mineral processing facilities include the WCCPP, the CWEA and the Dendrobium Coal Preparation Plant (DCPP) (located at the Port Kembla Steelworks). The majority of RoM coal from Appin Mine is directed to the WCCPP for processing. The CWEA is used to emplace coal wash from the WCCPP and DCPP (if beneficial reuse options are not available). RoM coal is transported to the WCCPP by:

- coal trucks from the Appin East site, along Appin and Wedderburn Roads; and
- Bulk Coal Winder (BCW) at Appin North, transported underground from AA7.

RoM coal from Appin Mine may also be transported to the DCPP via Mt Ousley on an 'as required' basis to maintain work continuity and maintain reduced stockpile sizes at the Appin sites. No coal was transported directly to the DCPP during the reporting period.

Clean coal from the WCCPP is trucked to BlueScope Steel (Port Kembla Steelworks) coal handling facilities or to the Port Kembla Coal Terminal (PKCT) for distribution.

Daily road haulage volumes associated with both the Appin and WCCPP sites is available on the GM³ website using this [link](#).

4.3 Ore and Product Stockpiles

No coal is stockpiled at Appin West. RoM coal is transported underground to Appin East or the WCCPP. The Appin West coal storage bins are currently under care and maintenance.

Appin East has a total raw coal stockpiling capacity of up to 50,000 tonnes. The stockpile is recovered with front-end loaders and transferred directly into the coal haulage trucks for transport by road to either the WCCPP or DCPP.

Appin North operates six (6) primary coal stockpiles for both clean coal and raw coal.

4.4 Construction

The following construction activities were undertaken during the FY25 reporting period.

4.4.1 Appin West Ventilation Shaft 6

During the reporting period, automated pump switching and level sensors were installed on the water supply from the Nepean River to prevent excess water usage. Pumps automatically shut off when the site water storages are full, preventing potential overflow events.

4.4.2 Appin East Stockpile Spray Upgrades

In FY25, the stockpile spray system at the Appin East stockpile area was upgraded to improve coverage and ultimately reduce the potential for dust emissions (Plate 1). New larger diameter pipework and sprinkler heads were installed, along with a new recycled water supply pump and associated cabling capable of delivering sufficient water from the main dam. The system is controlled by a programmable logic controller (PLC) timer and cycles through each sprinkler to provide adequate water suppression without creating excessive runoff.



Plate 1: Appin East Stockpile Dust Suppression Sprays

4.4.3 AMVA Project

In April 2022, a modification of the Project Approval (MOD 3) was granted (pursuant to Section 4.55(2) of the *EP&A Act*, following an EA process, to allow for the construction and operation of two (2) ventilation shafts, mine access infrastructure and improved site access at 345 Menangle Road, Menangle NSW, referred to as the AMVA Project.

Works in the FY25 reporting period included:

- *Electrical Infrastructure Works*: Completion of installation of 11 kV supply from Menangle Road connection point to the site. Completion of installation of the ventilation fan switchyard and 33kV connection point.

- *Shaft Pre-Sinking:* Pre-sinking of the No. 7 and 8 shafts to the required depth (~50 m depth), construction of a shaft collar (required to hold the temporary headframe and winder), construction of the headframe and winders and associated noise mitigation required for 24-hour shaft sinking to occur.
- *Shaft main sinking:* Main sink of the No. 8 shaft commenced in October 2024 and No. 7 shaft commenced in April 2025 and will be ongoing until the shafts reach their target depth of 560 m and 590 m respectively.
- *Services installation:* Completion of installation of service boreholes for power, communications, compressed air and gas monitoring.

4.4.4 Appin North Operational Purpose Deduction (OPD) Haul Road Construction

The construction of the OPD Haul Road upgrade to connect the WCCPP with the CWEA and stockpile No. 4 commenced in FY24 and continued in FY25. The project provided for the beneficial use of coal wash from the DCCP to form the haul road base. Delays have been experienced due to complications associated with the supply of coal wash. An application to extend the OPD was submitted to and approved by the EPA. It is anticipated that the project will be completed in FY26.

4.4.5 Minor Improvement Projects

4.4.5.1 Appin North

The following improvement projects were implemented or progressed at Appin North during the reporting period.

- The Brennans Creek Dam (BCD) pump at the discharge point LDP 10 was replaced.
- Engineering, communications, and functional specifications were finalised for the Appin North Sewage Treatment Plant (STP) with upgrades to the PLC unit, SCADA system, mechanical components and automation of the irrigation pump scheduled for completion early FY26.
- New 30,000 L self-bunded diesel tank installed at Appin North Pit Top.
- Works undertaken to strengthen the substructure of the 8000 tonne WCCPP product bins. Ongoing works planned as part of the structural review to reinstate design capacity.
- The engineering and design phase for the lifting and upgrade of Wedderburn Road was completed. Construction is scheduled to commence in CY26.
- Amendments were made to the timing of monitoring in the CWEA rehabilitation areas of the Broad-Headed Snake habitat and bee hotels to better observe species activity.

- Seed was collected from *Persoonia hirsuta* individuals around Appin North. The seed collected has since been germinated and maintained at the Mount Annan Botanic Gardens to supplement future translocations.
- The removal and emplacement of remaining coal wash that had been stored at Appin North for beneficial reuse continued.
- The Appin North fire system upgrade project was completed.
- Installation of the new contractor crib room and bathrooms for WCCPP was completed.

The upgrade to the showers at Appin North Pit Top did not occur and the priority of these upgrades has been reevaluated.

4.4.5.2 Appin West

The following improvement projects were implemented or progressed at Appin West during the reporting period.

- The surface water dam perlite filter system was serviced.
- Ongoing repairs of all sealed areas and roads across the Pit Top.
- Old steel structures and components were recycled via a licensed waste contractor as part of the ongoing Appin Mine housekeeping campaign.
- Temporary bunds were placed on site from Appin East to increase storage at the oil shed.
- Concrete diversion bund installed at the waste sorting area to reduce the potential for stormwater to enter the oil/water separation system.
- Diesel compressors installed at Ventilation Shaft No. 6 following a fire at the permanent compressors. Refer to Section 11 for more details.
- The upgrade of sewage system level sensors for the holding and treated effluent dams at Appin West commenced in FY25 and is expected to be completed in FY26.

The diesel backup fan project for Ventilation Shaft 6 was not completed during the reporting period.

4.4.5.3 Appin East

The following improvement projects were implemented or progressed at Appin East during the reporting period.

- The first flush system clean out was undertaken as silt build up was observed within these areas.

- Old steel structures and components in the laydown area were recycled via a licensed waste contractor as part of the ongoing Appin Mine house keeping campaign.
- A live water quality monitor was installed in the settling dam.
- Commissioning of the Appin East dosing system was completed.
- A diversion drain was installed above the settling dam to control flows and reduce bank erosion during heavy rain.
- The upgrade to the coal bins was completed.

The upgrade of the bulk diesel bund, planned for FY25, was not completed.

4.4.5.4 General

Access tracks to the biodiversity monitoring points in the Ventilation Shaft No. 6 Offset area were trimmed back in FY25 to provide access for the 2025 and future monitoring periods.

One (1) transformer was changed out in the reporting period and quotes were requested for the replacement of three (3) others.

4.5 Land Preparation

4.5.1 *Emplacement Operations*

The following works were undertaken during the reporting period at the CWEA:

- 1.7 ha of landform establishment and topsoiling in preparation for seeding; and
- continued deposition of coal wash.

The rehabilitated emplacement areas were inspected regularly to assess the progress and effectiveness of the rehabilitation. The monitoring program consists of quarterly inspections undertaken by the Specialist Environment, that are supplemented by an extensive annual monitoring program. The annual monitoring program was undertaken in Spring FY25 and the report is provided in Appendix 5.

4.5.2 *AMVA Project*

During the FY25 reporting period, earthworks were undertaken at the AMVA Project site for electrical installation, high voltage switchyard installation, service borehole construction, emulsion bunker construction, ventilation fan switchyards and transformer skids. Spoil from the No. 8 and No. 7 shaft pre-sink and main sink was used as engineered fill to construct the visual bund around the southwest perimeter of the site. Refer to Plate 2.



Plate 2: Aerial view of AMVA Project site under construction (April 2025)

4.6 Exploration

During the reporting period, eight (8) boreholes were drilled in the BSO Project Area, including:

- two (2) surface to in-seam (STIS) holes for dyke definition to assist mine planning;
- five (5) standard coal exploration boreholes (one (1) currently in-progress at time of Annual Review report preparation, and another one (1) commenced during FY24, but completed during the FY25 Annual Review reporting period); and
- one (1) abandoned hole due to casing pressure issues.

All boreholes were drilled under approvals pertaining to the following exploration titles:

- five (5) were drilled in EL 4470 (including one (1) abandoned hole);
- one (1) was drilled in AUTH 396; and
- two (2) were drilled in AUTH 248.

Drilling activities completed during the reporting period are summarised in Table 10. Plan 20 shows the location of prospecting activities completed across Appin during the FY25 reporting period.

Prior to exploration occurring, all borehole sites are subjected to a Review of Environmental Factors (REF). Additionally, landholder negotiations and access agreements are established. Objectives are agreed to with the landowner prior to works commencing. They are guided by the stipulations in the REF document and associated activity approvals prepared for each exploration campaign.

Standard exploration holes typically target the Bulli and/or Wongawilli coal seams, extending to the American Creek Coal Member or beyond. All exploration carried out on mining and/or overlying exploration tenements across the BSO Project Area is to assist with future mine planning for Appin Mine by testing coal quality, geotechnical properties, gas characteristics and seam continuity as well as to further delineate structures which may impact on mining. Surface to in-seam (STIS) holes do not sample the coal seam as per traditional exploration techniques. They do, however, contribute to the understanding of localised structural geology ahead of current longwall mining operations.

Table 10: Boreholes completed during the reporting period

Title No.	Program	Hole Name (Alternative Name)	Easting	Northing	Drill Type	Hole Purpose	Borehole Total Depth	Drilling Start Date	Borehole Comments
EL 4470	Survey AA	S2677 (A-NI-15)	289222.94	6221097.72	Partly cored - borehole chipped to target depths prior to coring.	Coal quality.	687.58 m.	18/07/2024	Coal quality exploration. Hole reported as in-progress in the FY24 Annual Review report. This borehole was fully packer tested, and piezometer instrumentation installed.
EL 4470	Survey AA	S2678 (A-NI-18)	289206.38	6221664.57	Partly cored - borehole chipped to target depths prior to coring.	Coal quality.	705.55 m.	11/10/2024	Coal quality exploration.
EL 4470	Survey AA	S2679 and S2679A (A-N4-480)	289123.20 and 289122.02	6222155.06 and 6222159.18	Partly cored - borehole chipped to target depths prior to coring.	Coal quality.	300.36 m and 729.49 m.	21/11/2024	Coal quality exploration. The original hole, S2679, was abandoned above coal seam level due to casing pressure issues. The re-drill hole S2679A, is located on the same drill pad site.
AUTH 248	AP-A7_LW713_STIS / APO0001796	S2680 (Appin LW713 STIS)	289508.18	6219794.89	Open/chip - borehole drilled using open-hole methods from surface to total depth.	Surface to in-seam (STIS).	1824 m (total metres drilled) 575 m (true vertical depth).	02/10/2024	Dyke definition for mine planning.
EL 4470	Survey AA	S2683 (A-N3-10)	288496.35	6222101.72	Partly cored - borehole chipped to target depths prior to coring.	Coal quality.	702.43 m.	12/02/2025	Coal quality exploration
AUTH 396	Appin LW713 Area 9 Dyke STIS Borehole/ APO0001930	S2684 (A-N4-01)	286845.06	6218255.69	Open/chip - borehole drilled using open-hole methods from surface to total depth.	Surface to in-seam (STIS).	2238 m (total metres drilled) 732 m (true vertical depth).	13/02/2025	Dyke definition for mine planning.
AUTH 248	Survey V	S2686 (A-NI-33)	286317.00 ¹³	6219669.00 ¹³	Partly cored - borehole chipped to target depths prior to coring.	Coal quality.	738 m (drilling in progress).	02/05/2025	Coal quality exploration. Borehole is to be fully packer tested, and then piezometers to be installed.

¹³ Final survey pick up has not yet been completed.

5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

Activities identified by ICHPL in the FY24 Annual Review to be completed in the FY25 reporting period are listed in Table 11.

Three (3) actions were identified by DCCEEW relating to the FY24 Annual Review.

Table 11: Actions from Previous Annual Review		
Action Required	Requested by	Section in Annual Review
<i>Appin North</i>		
• Shower upgrades at the Appin North Pit Top.	ICHPL	Section 4.4.5.1
• Installation of a new contractor crib room and bath rooms for WCCPP.	ICHPL	Section 4.4.5.1
• Structural review of the 8000 tonne WCCCP product bins to reinstate designed capacity.	ICHPL	Section 4.4.5.1
• Upgrade of the haul road system between the CWEA and the WCCPP.	ICHPL	Section 4.4.4
• Engineering for the lifting and upgrade of Wedderburn Road with construction in the design phase over FY24, with work to commence in FY25.	ICHPL	Section 4.4.5.1
• Implement works following investigations in FY23 into upgrading the sewage treatment system.	ICHPL	Section 4.4.5.1
• Removal/emplacement of remaining coal wash that had been stored at Appin North for beneficial reuse to continue over FY25.	ICHPL	Section 4.4.5.1
• Further upgrades to the Appin North Fire Systems including additional pipeline replacement and pump upgrades that were commenced in FY24, with completion scheduled for FY25.	ICHPL	Section 4.4.5.1

Appin West

• Continuation of concreting of unsealed areas within the laydown area and unsealed main access to the waste sorting and laydown areas.	ICHPL	Section 4.4.5.2
• Upgrade of sewage system level sensors for the holding and treated effluent dams.	ICHPL	Section 4.4.5.2
-

Appin East

• Commissioning of the surface water automated dosing system.	ICHPL	Section 4.4.5.3
• Completion of upgrade to coal stockpile area dust suppression system.	ICHPL	Section 4.4.2
• Upgrade of the bulk diesel bund.	ICHPL	Section 4.4.5.3
-

Ventilation Shaft 6

• Level sensors to be installed at Ventilation Shaft 6 surface water storage tanks.	ICHPL	Section 4.4.1
• Continuation of procurement and design for the Diesel Backup Fan at Ventilation Shaft 6.	ICHPL	Section 4.4.5.2
-

AMVA Project

• Continuation of major construction works at AMVA.	ICHPL	Section 4.4.3
-

General

• Switchyard upgrades across multiple sites to replace old infrastructure.	ICHPL	Section 4.4.5.4
• Update the Annual Report to provide a clear and complete overview of groundwater management for the whole of Appin Mine operation, including:	DCCEEW	Section 6.13.2.3
-

a. The most recently available groundwater data – preferably in hydrographs and contour maps (or similarly accessible format). b. Groundwater performance criteria and trigger levels. c. Contingency and Trigger Action Response Plan for any trigger level comparing performance targets to measured data – preferably in hydrographs and figures (or similarly accessible format).		
• Investigate the need to include additional third-party bores in the water compensatory agreement.	DCCEEW	Section 7.2
• Annual Report should include a discussion on model validation demonstrating a comparison between the predicted and occurring impacts of connectivity and subsidence. This should include an analysis of groundwater levels in monitoring bores and dissolved methane concentrations. If found necessary, the groundwater model should be improved to ensure it remains ‘fit for purpose’.	DCCEEW	Section 6.13.2.3
<i>Environmental Management</i>		
• Continue aquatic health monitoring in the Georges River.	ICHPL	Section 6.3.3.3
• Continue monitoring of the <i>Persoonia hirsuta</i> translocations (1-3).	ICHPL	Section 6.5.2.2
• Update the monitoring program in the CWEA for the Broad-headed Snake habitat, bee habitat and nest boxes following recommendations from Niche.	ICHPL	Section 4.4.5.1

Continue to explore uses of remote sensing to supplement the CWEA rehabilitation monitoring program.	ICHPL	Section 8.12.1

Continue improving housekeeping across all Pit Tops, including recycling redundant steel structures and components.	ICHPL	Section 6.16.2

Rehabilitation

Continuation of Georges River remediation.	ICHPL	Section 8.1.4

Removal of powerlines between North Cliff and WCCPP (pending approval).	ICHPL	Section 6.17.6

Continuation of shaft sealing planning at North Cliff.	ICHPL	Section 6.17.6

Discussions regarding the rehabilitation options and feasibility analysis for decommissioning and rehabilitation of the Bulli Shafts 1, 2 and 3.	ICHPL	Section 8.1.3

Progress recommendations from the Revegetation Targeted Assessment Program (TAP).	ICHPL	Section 8.3

6. ENVIRONMENTAL PERFORMANCE

6.1 Air Pollution

6.1.1 Environmental Management

Air quality is managed in accordance with the approved Appin Mine Air Quality and Greenhouse Gas Management Plan (AQMP), which details the air quality and emissions control measures for the project, compliance procedures, monitoring programs, evaluation protocols, notification and communication processes.

The AQMP has been prepared to comply with the intent and requirements of Condition 12 of Schedule 4 of the Project Approval.

The AQMP incorporates:

- Use of real-time air quality monitors: fixed and portable laser photometers.
- Visual inspections and audits.

Details of continuous air quality monitoring locations for Appin Mine are provided in the AQMP, available on the GM³ website.

6.1.2 Environmental Performance

6.1.2.1 General

Results of air quality monitoring for the DustTrak units¹⁴ are reported in the 14-day Report, in accordance with Section 66 (6) of the *Protection of the Environment Operations (POEO) Act*, and Condition 11 of Schedule 6 of the Project Approval; and on an annual basis to the Environment Protection Authority (EPA) via the EPL Annual Return (Appendix 1) and in the Annual Review. The 14-day Report is available on the GM³ website using this [link](#).

A comprehensive summary of all air monitoring results from the DustTrak units for Appin Mine is provided in this section. Graphs of long-term trends are provided in Appendix 4.

ICHPL uses the monitoring results from the photometers for comparison with health and amenity criteria. The photometers provide real-time monitoring results which can be correlated with site operations and wind direction.

6.1.2.2 Real-time Monitoring

The fixed photometer (AE-PF3) located at the Appin East Pit Top adjacent to the helipad is used to provide an indication of compliance against both the long-term criteria and short-term criteria for particulate matter (as listed in Table 12, Table 13 and Table 14).

The photometers AE-PF1 (located at the coal haulage exit at Appin East), W-PF1 (located adjacent to Wedderburn Road), VS6-PF1 (located next to Ventilation Shaft 6) and VS8-PF1 (located north of the AMVA Project site) are used to inform operational activities and are not used for assessment of compliance. The VS8-PF1 monitor was installed and commissioned in October 2024.

As described in the AQMP, alerts from these monitors are sent by text-message/email to the Specialist Environment and operational personnel when levels $\geq 50 \mu\text{g}/\text{m}^3$ (greater than the PM_{10} criteria) are recorded, to enable the mobilisation of water trucks or road sweepers as required.

¹⁴ AE-PF1, AE-PF3, W-PF1 and VS6-PF1. VS8-PF1

The SiteHive units at the AMVA Project site: FINNS (located on the western side boundary), TED (located on the northern end) and FOCK (located on the south-eastern boundary) are also used to inform performance of site operational activities and are not used for assessment of compliance.

The additional air quality criteria for the AMVA Project site are provided in Table 15. The locations of the photometers are shown on Plan 3, Plan 8 and Plan 9.

Table 12: Particulate matter long-term criteria

Pollutant	Averaging Period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m ³
Particulate matter <10 µm (PM ₁₀)	Annual	30 µg/m ³

Table 13: Particulate matter short-term criteria

Pollutant	Averaging Period	Criterion
Particulate matter <10 µm (PM ₁₀)	24-hour	50 µg/m ³

Table 14: Long term criteria for deposited dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Table 15: Particulate matter criteria for AMVA Project

Pollutant	Averaging Period	Criterion
Particulate matter <10 µm (PM ₁₀)	Annual	25 µg/m ³
Particulate matter <2.5 µm (PM _{2.5})	Annual	8 µg/m ³
Particulate matter <2.5 µm (PM _{2.5})	24-hour	25 µg/m ³

Operational Areas

Exceedance against the short-term criteria was observed at Vent Shaft 6 VS6-PF1 and Vent Shaft 8 VS8-PF1 during April 2025. The elevated 24-hour result (above 50 $\mu\text{g}/\text{m}^3$) was caused by regional air quality influences around the Sydney South-west region with visible smoke present. Results from the photometers are presented in Figure 2, Figure 3, Figure 4, Figure 5 and Figure 6.

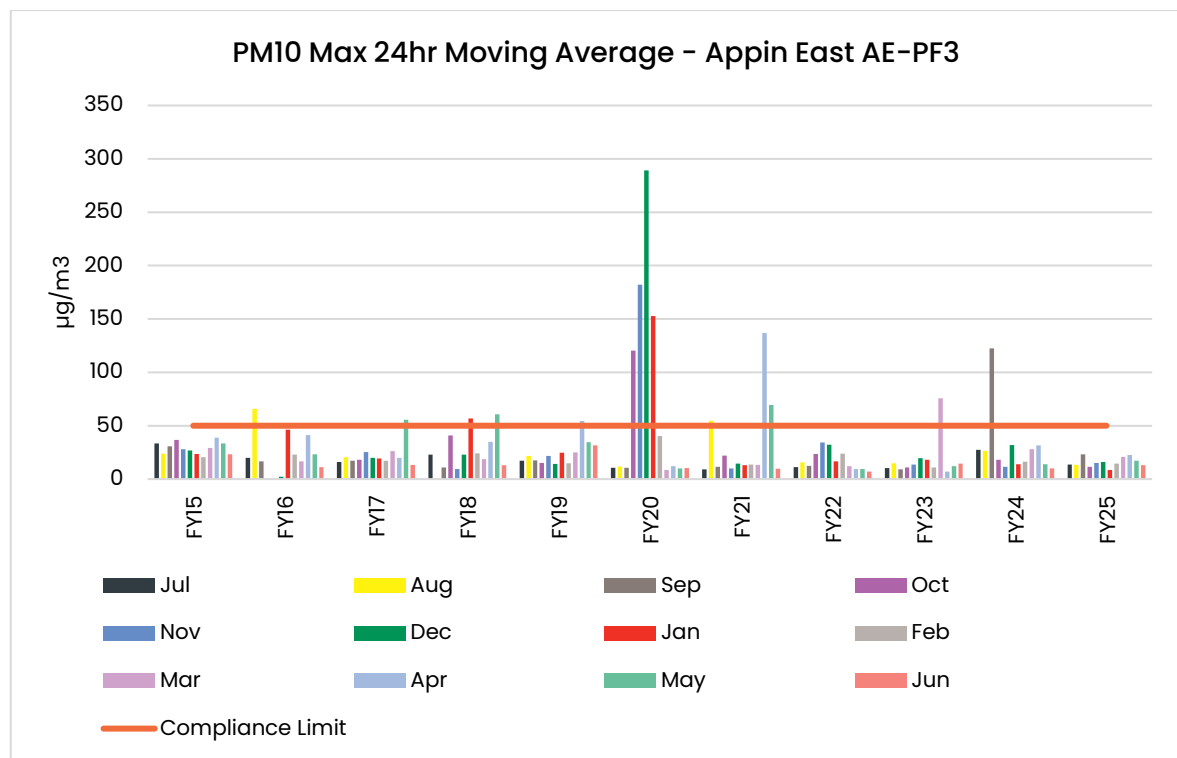


Figure 2: PM₁₀ Maximum 24-hour Moving Average at Appin East AE-PF3

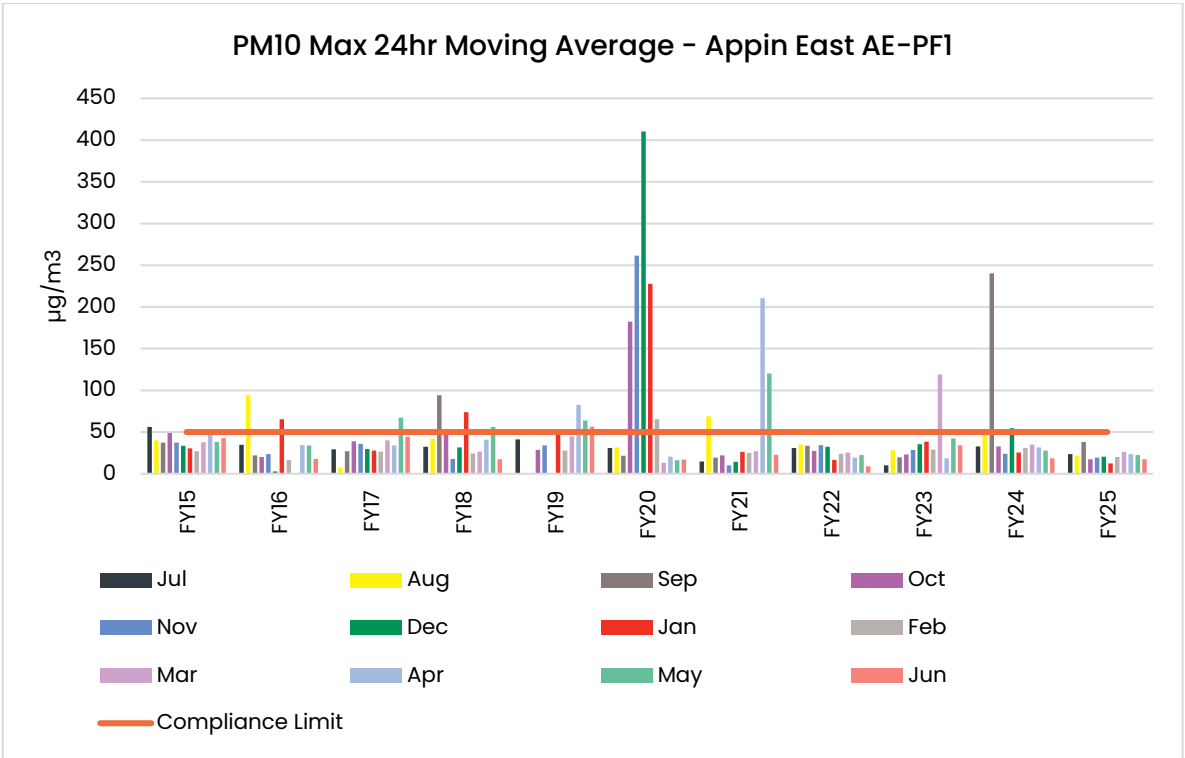


Figure 3: PM₁₀ Maximum 24-hour Moving Average at Appin East AE-PF1

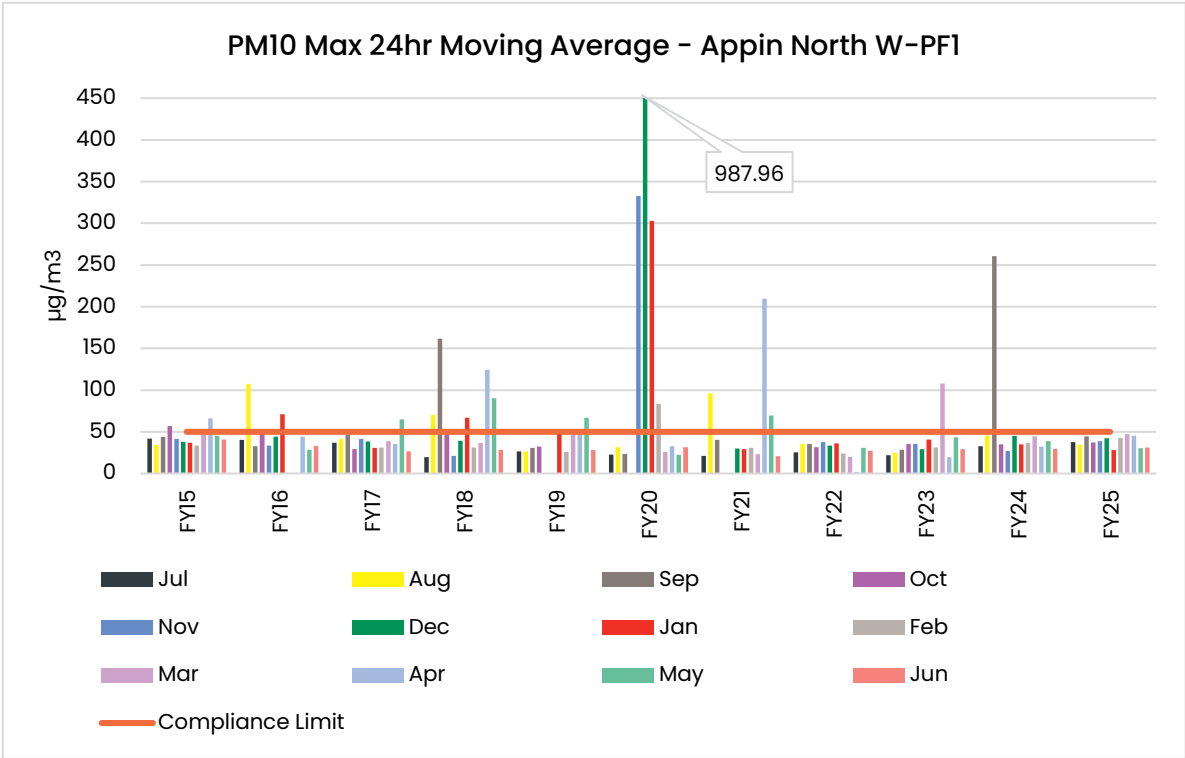


Figure 4: PM₁₀ Maximum 24-hour Moving Average at Appin North W-PF1

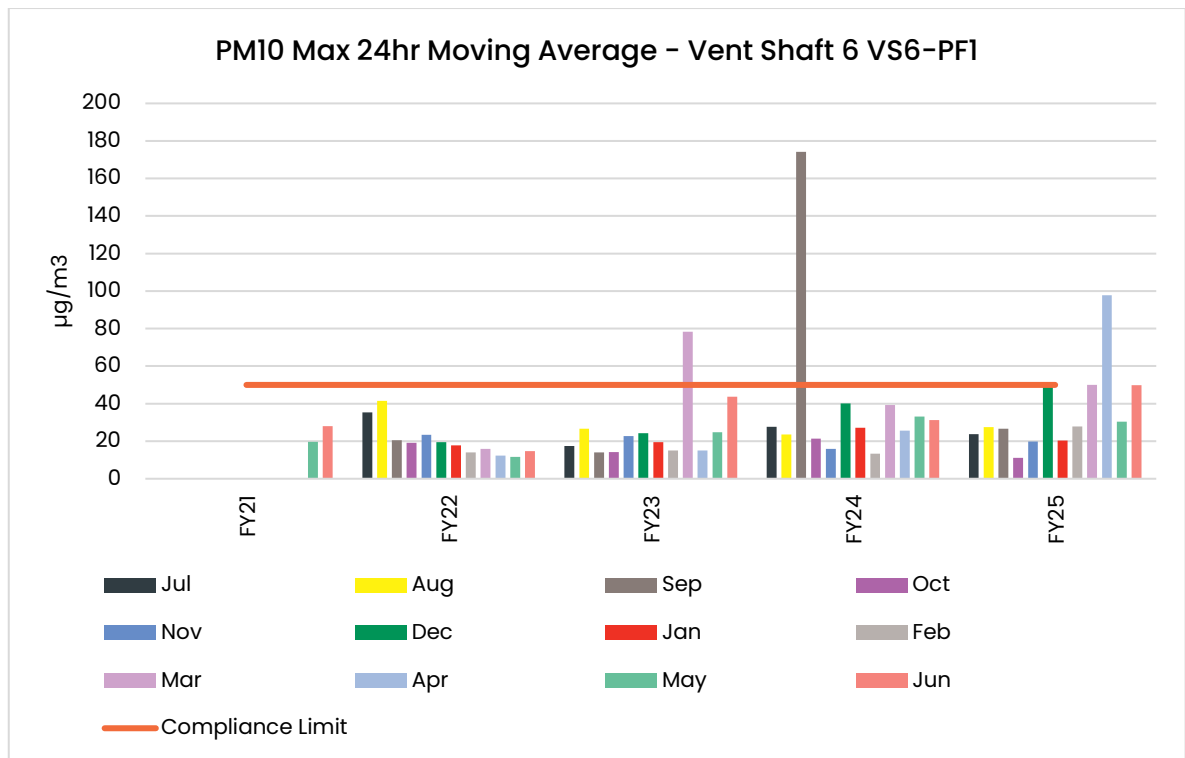


Figure 5: PM₁₀ Maximum 24-hour Moving Average at Vent Shaft 6 VS6-PF1

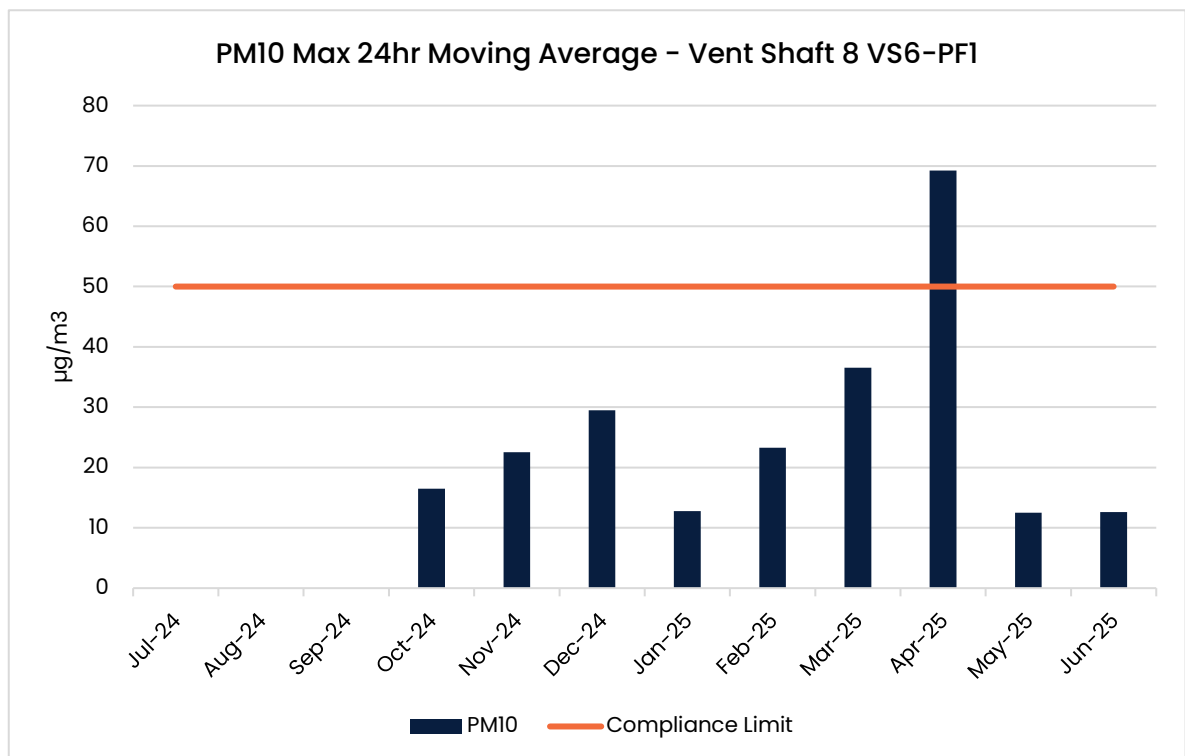


Figure 6: PM₁₀ Maximum 24-hour Moving Average at Vent Shaft 8 VS8-PF1

The annual average for PM₁₀ over the reporting period at each monitoring location was:

- AE-PF3 – 4.65 µg/m³
- AE-PF1 – 7.45 µg/m³
- W-PF1 – 14.51 µg/m³
- VS6-PF1 – 11.61 µg/m³
- VS8-PF1¹⁵ – 7.33 µg/m³

TSP is estimated based on the continuous PM₁₀ data, and this result is compared to the annual TSP criteria (in Table 12) to assess compliance. The PM₁₀ and TSP ratio has been determined to be approximately 64%.¹⁶ Using this calculation, compliance was achieved with TSP criteria in FY25.

Compliance against the long-term criteria for deposited dust will be assessed as achieved if compliance with PM₁₀ criteria has been met, as noted in the approved AQMP. As PM₁₀ criteria have been met for the reporting period, compliance with long-term criteria for deposited dust as outlined in Table 14 has been determined to be achieved.

AMVA Project

As noted, the SiteHive air quality monitors located at the AMVA Project site are used to inform the performance of site operational activities, which may include implementing controls such as increasing water cart usage and/or ceasing or relocating activities in accordance with the Air Quality Trigger Action Response Plan (TARP) and Construction Environmental Management Plan (CEMP).¹⁷

If elevated particulate matter levels are noted, ICHPL will review the site data and imagery taken at monitoring locations, site logs and local and regional air quality data to determine the potential cause of the elevated particulate matter levels, suitability of existing controls and any opportunities to improve air quality management.

In the event of a complaint, ICHPL will review real time data, site information and local and regional air quality data to determine the cause. If it is determined that construction

¹⁵ Unit was installed in October 24 and started receiving data at this time.

¹⁶ The PM₁₀ and TSP ratio is assessed based on Dendrobium Mine air quality data between 2012 and 2021. The methodology has been endorsed by EPA.

¹⁷ The SiteHive monitors are located within the site boundary and are not used for a determination of compliance with air quality criteria.

activities may be contributing to the elevated particulate matter levels, attended or targeted monitoring will be undertaken to confirm the ongoing performance of the activity.

Monthly average PM₁₀ and PM_{2.5} data for the AMVA Project measured by the Site Hive Units is presented in Figure 7 and Figure 8 respectively.

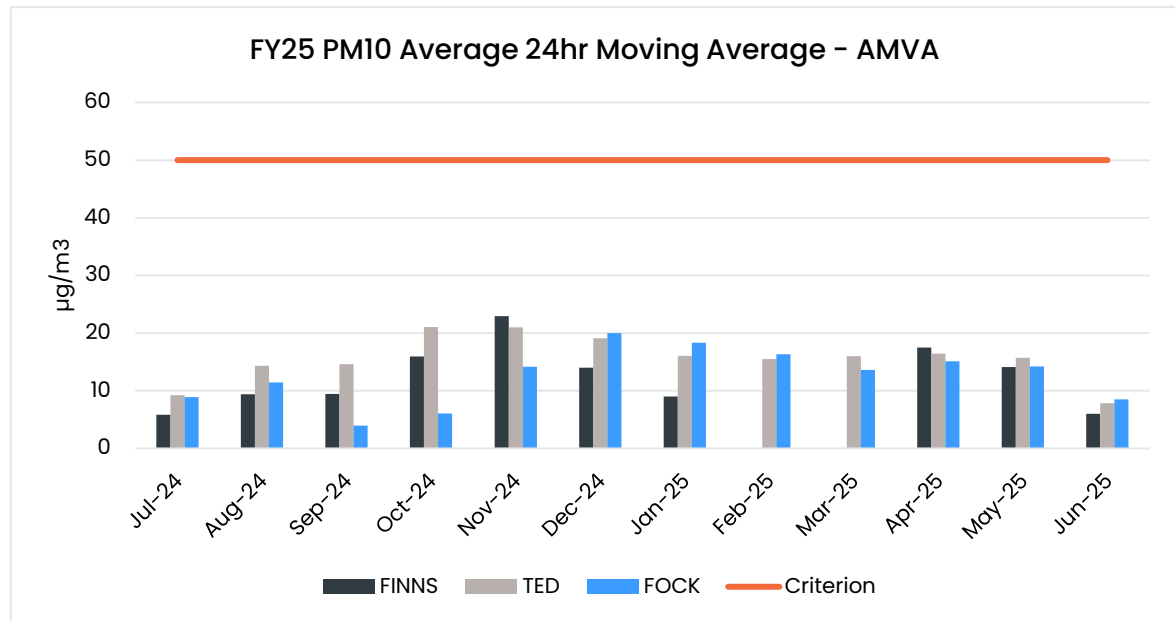


Figure 7: Monthly Average PM₁₀ data - AMVA Project¹⁸

¹⁸ Data considered to be invalid has been removed from the calculation. The SiteHive monitors have experienced significant issues with condensation and high humidity affecting the accuracy of results and equipment was also periodically operating erratically. The dust sensor is light-based, therefore when water droplets form on the sensor the light is refracted in a way that causes a spike in readings. Months where data is not presented indicates periods where maintenance was being undertaken on the monitor.

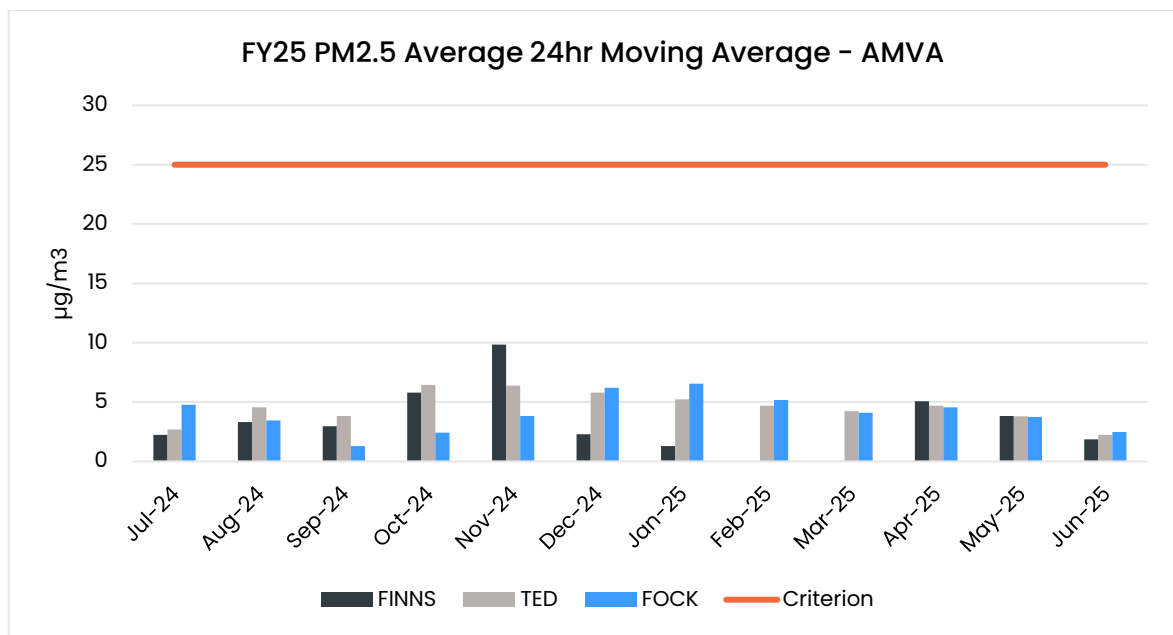


Figure 8: Monthly Average PM_{2.5} data - AMVA Project¹⁸

The rolling average for PM₁₀ (24hr) measured at the VS8 Photometer (DustTrak) is shown in Appendix 4. It shows the rolling average tracking at ~10 µg/m³, well below the short term criteria of 50 µg/m³. Maximums were well below the short term criteria in all months except April, where a regional air quality event caused an exceedance of the short term criteria on and around 13 April 2025.

6.2 Erosion and Sediment

6.2.1 Environmental Management

Most activities at the Appin East, Appin West and Appin North Pit Top operational sites are undertaken on relatively flat areas. Highly trafficked areas are generally sealed. There are minimal unsealed areas at the pit tops. Internal unsealed roads are maintained to prevent dust, primarily through dust suppression sprays and water cart operations. Grading activities and other relevant road repair activities are conducted to maintain unsealed roads and to manage runoff. Sediment fences are installed where required to retain sediment in the disturbed area and away from drainage and/or seepage points.

Sediment is controlled by multiple techniques across Appin Mine, with the primary methodology being gravimetric separation using a series of dams and water treatment facilities. Water treatment techniques include the use of flocculation and coagulation to increase the rate that particles settle out of suspension. Discharged water is monitored for suspended solids in accordance with EPL 2504.

The water management system across Appin Mine is regularly inspected by the site environmental representatives to check that each system is operating as efficiently as possible.

Construction activities continued at the AMVA Project site in FY25. A range of erosion and sediment control measures were implemented that are described in Section 6.2.1.5.

6.2.1.1 Appin West

A fixed sprinkler system, water spray trailer and mobile road sweepers have been used as required during the reporting period to minimise dust emissions.

Operational areas at the Appin West Pit Top are contained within the catchment of the surface water dams, which are designed to capture and treat a 1:10 year, 72-hour rainfall event. The surface water dam includes a spillway designed for up to a 1:100-year rainfall event to maintain the engineering integrity of the structure and reduce the risk of erosion and sediment release (through LDP 25). Prior to the release of water from the surface water dam (via LDP 23 into Sandy Gully), water passes through a perlite filter (StormFilter®) unit which is designed to remove suspended solids and insoluble oil and grease.

6.2.1.2 Ventilation Shaft 6

The majority of the Ventilation Shaft 6 site is either vegetated or sealed, therefore surface runoff no longer requires treatment under normal operating conditions. Localised erosion and sediment control measures are implemented as required.

6.2.1.3 Appin East

Appin East Pit Top utilises a series of surface water ponds capable of holding up to 22 ML of surface water. The surface water management system is split into two (2) dams. These dams are used to capture, treat and recycle surface and stormwater runoff from the Appin East Pit Top catchment area.

Due to particle suspension of on-site dust and coal fines, surface and stormwater generated from pit top runoff requires treatment prior to capture and storage in the surface dams. Surface water is dosed with a coagulant and flocculant prior to gravimetric separation, before passing through an overflow pipe into the main surface dam. Water from the main dam is used for dust suppression. Water can also be pumped into the sediment dam where it is drawn through the secondary-treatment system, the Dynasand filter, for discharge into the Georges River through LDP 19.

6.2.1.4 Appin North

The potential for erosion at the CWEA is managed in accordance with the CWEA Management Plan. The following activities are undertaken to minimise the likelihood of erosion within the CWEA:

- compaction of emplaced material;

- profiling of finished areas to designed gradients;
- placement of boulders and logs; and
- revegetation of the CWEA (once material is emplaced to meet design criteria).

Sediment is controlled by a series of sediment ponds, which have a combined capacity of ~200 ML. Water is treated at several locations across the site prior to transfer into BCD to comply with the water quality limits in EPL 2504.

6.2.1.5 AMVA Project

Construction activities on the site over the reporting period are noted in Section 4.4.7. Erosion and sediment control measures implemented at the site during these construction activities included the establishment and use of clean water diversion drains, catch drains for dirty water, and the use of a sediment pond. The sediment pond has a total capacity of 24.5 ML and has treated all rain events that have occurred satisfactorily. Temporary controls included sediment fences, coir logs and geofabrics. These were maintained throughout the period.

6.2.2 *Environmental Performance*

Routine water quality monitoring of total suspended solids (TSS) across Appin Mine has not identified any issues associated with erosion and sedimentation. The Appin West, Appin East, Appin North and the AMVA Project sites are operating within the licence limits for TSS.

6.3 *Surface Water*

6.3.1 *Environmental Management*

Surface water management across Appin Mine is undertaken in accordance with EPL 2504 and the approved Appin Mine Water Management Plan (WMP). The WMP details the control measures, compliance procedures, monitoring programs, evaluation protocols, notification and communication processes for water management at Appin Mine. The plan has been prepared to satisfy Condition 16 of Schedule 4 of the Project Approval.

The site water management systems are provided in the WMP which is available on the GM³ website at [link](#).

6.3.2 Environmental Improvements

6.3.2.1 Appin West

The filter modules at LDP 23 are planned to undergo routine maintenance annually or at shorter intervals if required, including replacement of the filters and screens. These filter modules were changed out once in FY25.

LDP 23, LDP 24 and LDP 38 water meters were inspected and tested by an external water equipment specialist early in FY26.

All oily water separators undergo quarterly routine servicing, including complete cleaning and change out of the coalescing and baffle plates (passive separators) if damaged, and annual servicing and sleeve replacement of the centrifugal (active) separator.

6.3.2.2 Appin East

Appin East utilises a coagulant and flocculant dosing system to treat surface water runoff entering the surface water dams prior to controlled discharge to the environment. Upgrades to the system to allow for automated and variable dosing rates to accommodate fluctuations in surface water flow rate and changes in water quality were completed in FY25.

The silt trap/dosing pit associated with the main surface water dam underwent routine maintenance during this reporting period, including silt removal.

The first flush system has undergone routine maintenance and cleaning during the reporting period.

The Dynasand filtration system was inspected and required no servicing.

All oily water separators undergo quarterly routine servicing, including complete cleaning and change out of the coalescing and baffle plates (passive separators) if damaged.

Two (2) condensate cleaners for the compressor condensate were inspected and serviced during the reporting period.

6.3.2.3 Appin North

Inspections of BCD are conducted regularly by ICHPL under the Dam Safety Management System. Surveillance reports are prepared every five (5) years by the consultant geotechnical engineer.

The operation of the Appin North Water Treatment Plant (WTP) has resulted in improvements in the overall water quality entering Brennans Creek.

Surface run-off associated with the CWEA is managed as detailed in the approved CWEA Management Plan which is available on the GM³ website using this [link](#).

6.3.3 Environmental Performance

Results of surface water monitoring are reported in the 14-day Report as per the requirements of Section 66(6) of the *POEO Act* and Condition 11 of Schedule 6 of the Project Approval; and on an annual basis to the EPA via the Annual Return (see Appendix 1) and in the Annual Review. The 14-day Report is accessible on the GM³ website using this [link](#).

A summary of results from the Appin Mine monitoring program is included in Table 16.

6.3.3.1 Water Quality

There were two (2) non-compliances recorded over the reporting period, one (1) at LDP 23 and one (1) at LDP 38 for BOD, and three (3) exceedances, including one (1) at LDP 24 for Total Nitrogen, and one (1) at LDP 4 and one (1) at LDP 38 for BOD. Refer to Section 11 for further information.

The trends for discharge water quality remain relatively consistent over the life of the operation. Long term trends are available in Appendix 4.

6.3.3.2 Water Discharge

There were no non-compliances with the EPL 2504 discharge volume limits over the reporting period.

The overall trends for discharge volumes are relatively consistent over the life of the operation, taking into account the influence of rainfall. Discharge volumes are provided in Table 17.

Graphs of long-term trends for water quality and discharge are provided in Appendix 4.

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 4	Yes	BOD BOD concentrations remained well-below the EPL 100-percentile concentration limit (50 mg/L) during the reporting period. One (1) exceedance of the 50-percentile water quality criteria (30 mg/L) was recorded during the reporting period in June 2025. Power isolation of the STP aeration tank in May/June 2025 for the PLC upgrade (Section 4.4.5.1) caused an accumulation of biomass and algae in the sample chamber. This was the likely cause of the exceedance. The BOD concentration returned to normal levels in July 2025. The average BOD for all samples during the reporting period was 10.0 mg/L. Compliance was achieved with the 50-percentile limit within the EPL.	Point 4 - BOD <table><tr><th>Month</th><th>BOD (mg/L)</th></tr><tr><td>Jul-24</td><td>11</td></tr><tr><td>Aug-24</td><td>6</td></tr><tr><td>Sep-24</td><td>3</td></tr><tr><td>Oct-24</td><td>14</td></tr><tr><td>Nov-24</td><td>8</td></tr><tr><td>Dec-24</td><td>5</td></tr><tr><td>Jan-25</td><td>10</td></tr><tr><td>Feb-25</td><td>5</td></tr><tr><td>Mar-25</td><td>13</td></tr><tr><td>Apr-25</td><td>4</td></tr><tr><td>May-25</td><td>8</td></tr><tr><td>Jun-25</td><td>33</td></tr></table>	Month	BOD (mg/L)	Jul-24	11	Aug-24	6	Sep-24	3	Oct-24	14	Nov-24	8	Dec-24	5	Jan-25	10	Feb-25	5	Mar-25	13	Apr-25	4	May-25	8	Jun-25	33
	Month	BOD (mg/L)																											
Jul-24	11																												
Aug-24	6																												
Sep-24	3																												
Oct-24	14																												
Nov-24	8																												
Dec-24	5																												
Jan-25	10																												
Feb-25	5																												
Mar-25	13																												
Apr-25	4																												
May-25	8																												
Jun-25	33																												
Yes	pH Typical and expected compliance against pH criteria was observed in FY25. pH units remained steady, in-line with long-term trends dictated by temperature and quality of water from grey water sources on site. The average pH for all samples during the reporting period was 7.78. This is a slight decrease from the previous year's average of 8.01 pH units.	Point 4 - pH <table><tr><th>Month</th><th>pH</th></tr><tr><td>Jul-24</td><td>7.6</td></tr><tr><td>Aug-24</td><td>7.9</td></tr><tr><td>Sep-24</td><td>7.1</td></tr><tr><td>Oct-24</td><td>7.4</td></tr><tr><td>Nov-24</td><td>8.0</td></tr><tr><td>Dec-24</td><td>8.2</td></tr><tr><td>Jan-25</td><td>7.9</td></tr><tr><td>Feb-25</td><td>7.8</td></tr><tr><td>Mar-25</td><td>8.0</td></tr><tr><td>Apr-25</td><td>8.1</td></tr><tr><td>May-25</td><td>7.7</td></tr><tr><td>Jun-25</td><td>7.6</td></tr></table>	Month	pH	Jul-24	7.6	Aug-24	7.9	Sep-24	7.1	Oct-24	7.4	Nov-24	8.0	Dec-24	8.2	Jan-25	7.9	Feb-25	7.8	Mar-25	8.0	Apr-25	8.1	May-25	7.7	Jun-25	7.6	
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Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 10	Yes	Point 10 electrical conductivity (EC), pH, and turbidity is monitored via an in line continuous monitoring system and results are shown in these graphs. All instances of no data / gaps on the graph are a function of 'no discharge conducted' periods. pH Continuous Monitoring Typical and expected compliance against pH limits was achieved in FY25, with no instances of limit exceedance for daily average or grab samples. The average pH for grab samples taken in FY25 was 8.74. This is a slight decrease from the FY24 average of 8.86 pH units.	Point 10 - pH Daily Average
	Yes	EC Continuous Monitoring Compliance against EC limits was achieved in FY25, with no instances of limit exceedance for daily average or grab samples. The EC data shows typical trends of variance influenced by rainfall. Troughs in EC correlate with high rainfall events, with steady increases related to periods of low rainfall and overall drier conditions. The average EC for grab samples taken during FY25 was 1386 µS/cm, a decrease from the FY24 average of 1573 µS/cm.	Point 10 - EC Daily Average

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

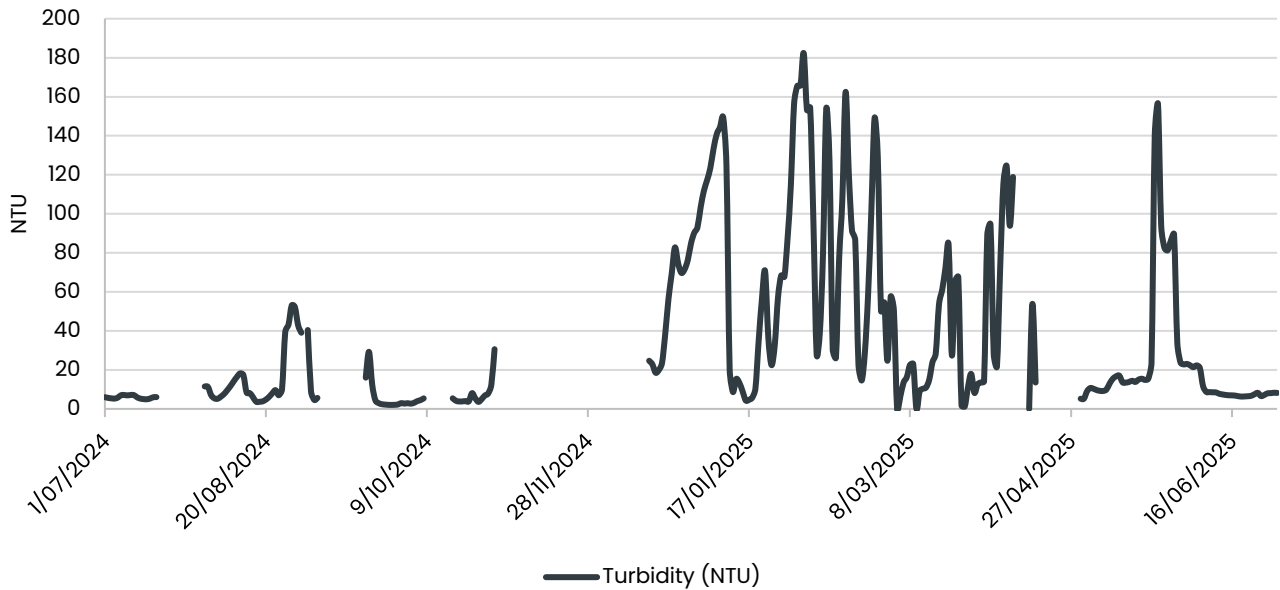
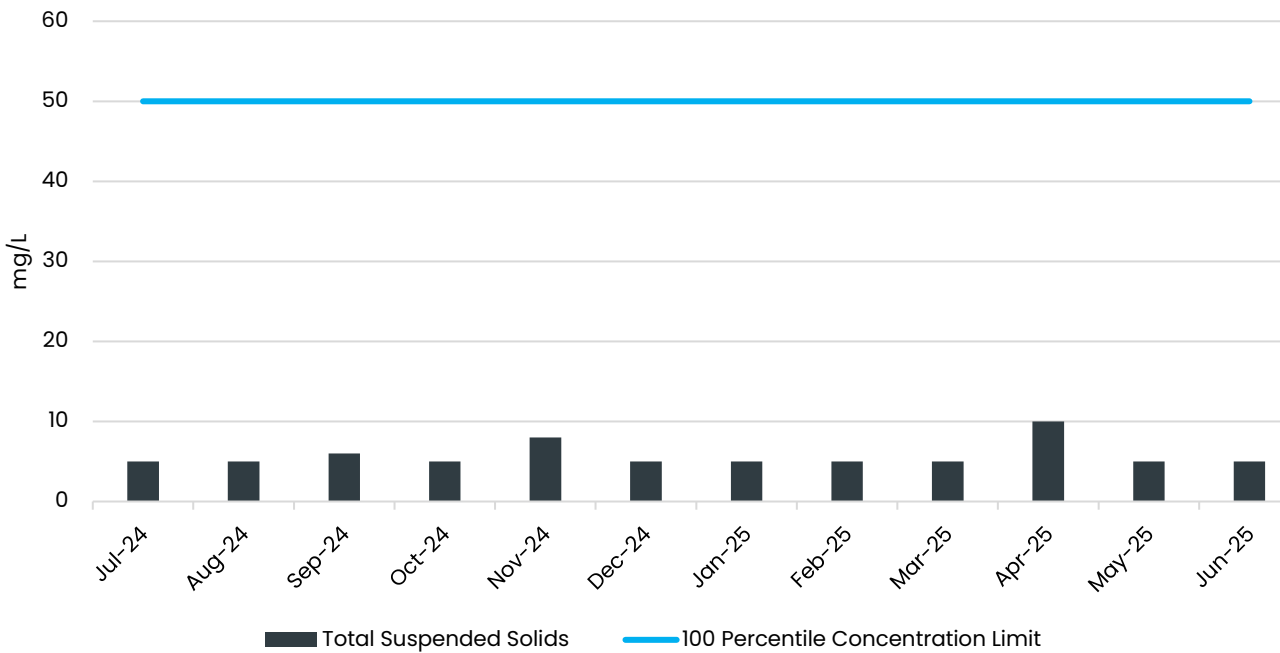
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 10	N/A	Turbidity Continuous Monitoring There is no licence limit for turbidity. The turbidity data shows typical trends of variance influenced by rainfall, where peaks are generally attributed to high rainfall events, causing large catchment inflows to BCD.	Point 10 - Turbidity Daily Average 
	Yes	TSS TSS and total dissolved solids (TDS) remained well-below the applicable limits. There were no exceedances of alkalinity (as calcium carbonate), aluminium, arsenic, cadmium, cobalt, copper, lead, manganese, nickel, zinc, bicarbonate alkalinity, nitrogen (total), oxidised nitrogen, or chemical oxygen demand.	Point 10 - TSS 

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

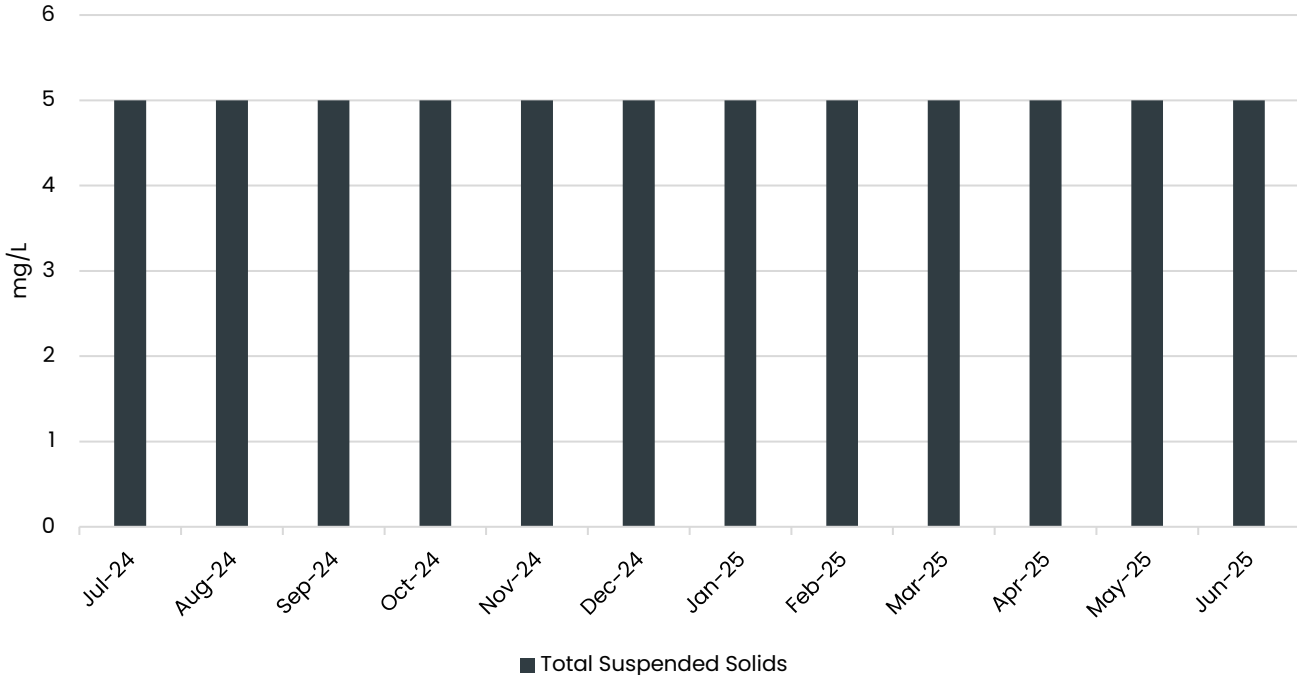
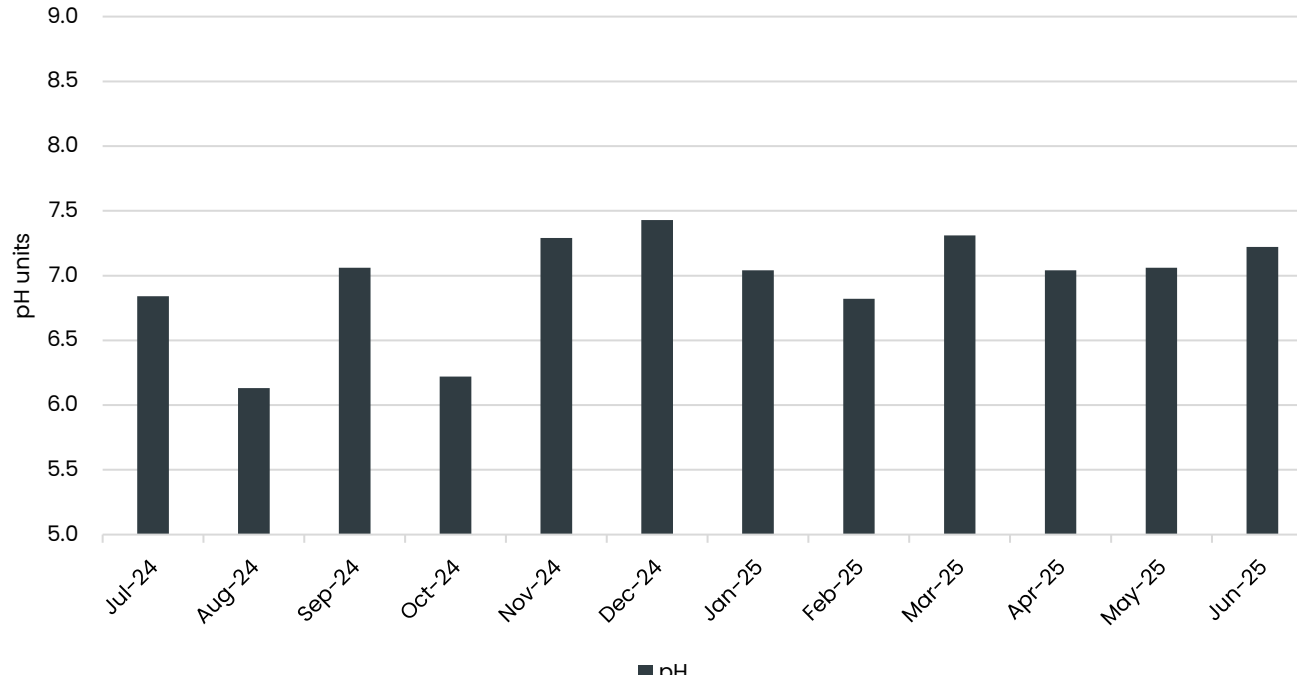
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 11	N/A	There are no EPL water quality limits for Point 11. Point 11 is within the Georges River, upstream from the confluence of Brennans Creek and downstream from Point 19. TSS The TSS data remained in-line with previous reporting periods, with concentrations remaining below the limit of detection and steady throughout FY25.	Point 11 - TSS  <table><tr><th>Month</th><th>TSS (mg/L)</th></tr><tr><td>Jul-24</td><td>5</td></tr><tr><td>Aug-24</td><td>5</td></tr><tr><td>Sep-24</td><td>5</td></tr><tr><td>Oct-24</td><td>5</td></tr><tr><td>Nov-24</td><td>5</td></tr><tr><td>Dec-24</td><td>5</td></tr><tr><td>Jan-25</td><td>5</td></tr><tr><td>Feb-25</td><td>5</td></tr><tr><td>Mar-25</td><td>5</td></tr><tr><td>Apr-25</td><td>5</td></tr><tr><td>May-25</td><td>5</td></tr><tr><td>Jun-25</td><td>5</td></tr></table>	Month	TSS (mg/L)	Jul-24	5	Aug-24	5	Sep-24	5	Oct-24	5	Nov-24	5	Dec-24	5	Jan-25	5	Feb-25	5	Mar-25	5	Apr-25	5	May-25	5	Jun-25	5
		Month	TSS (mg/L)																										
Jul-24	5																												
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Feb-25	5																												
Mar-25	5																												
Apr-25	5																												
May-25	5																												
Jun-25	5																												
		pH Lower pH levels detected for August and October 2024 are consistent with lower freshwater flows in the Georges River due to low rainfall, combined with the influence from water discharged from Point 19; where the pH of the water released was lower than average in those months.	Point 11 - pH  <table><tr><th>Month</th><th>pH</th></tr><tr><td>Jul-24</td><td>6.8</td></tr><tr><td>Aug-24</td><td>6.1</td></tr><tr><td>Sep-24</td><td>7.0</td></tr><tr><td>Oct-24</td><td>6.2</td></tr><tr><td>Nov-24</td><td>7.3</td></tr><tr><td>Dec-24</td><td>7.4</td></tr><tr><td>Jan-25</td><td>7.0</td></tr><tr><td>Feb-25</td><td>6.8</td></tr><tr><td>Mar-25</td><td>7.3</td></tr><tr><td>Apr-25</td><td>7.0</td></tr><tr><td>May-25</td><td>7.0</td></tr><tr><td>Jun-25</td><td>7.2</td></tr></table>	Month	pH	Jul-24	6.8	Aug-24	6.1	Sep-24	7.0	Oct-24	6.2	Nov-24	7.3	Dec-24	7.4	Jan-25	7.0	Feb-25	6.8	Mar-25	7.3	Apr-25	7.0	May-25	7.0	Jun-25	7.2
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Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

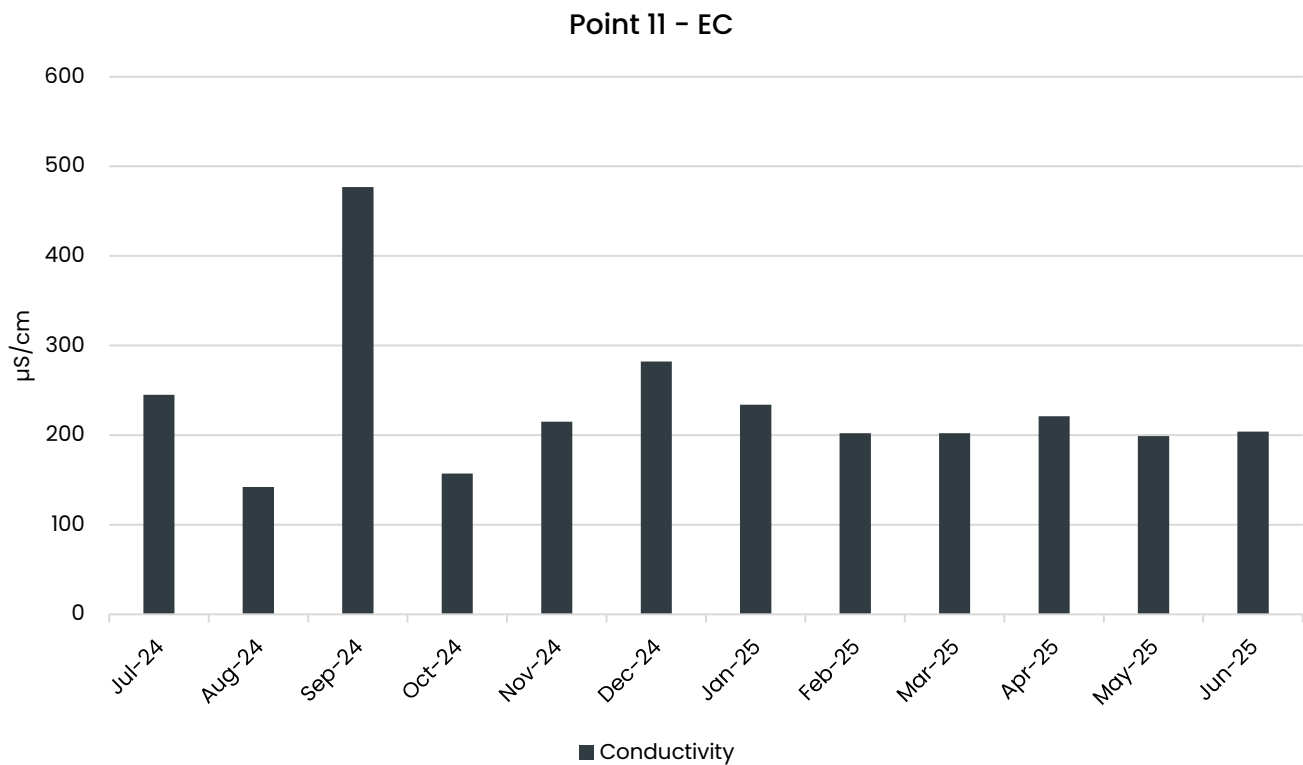
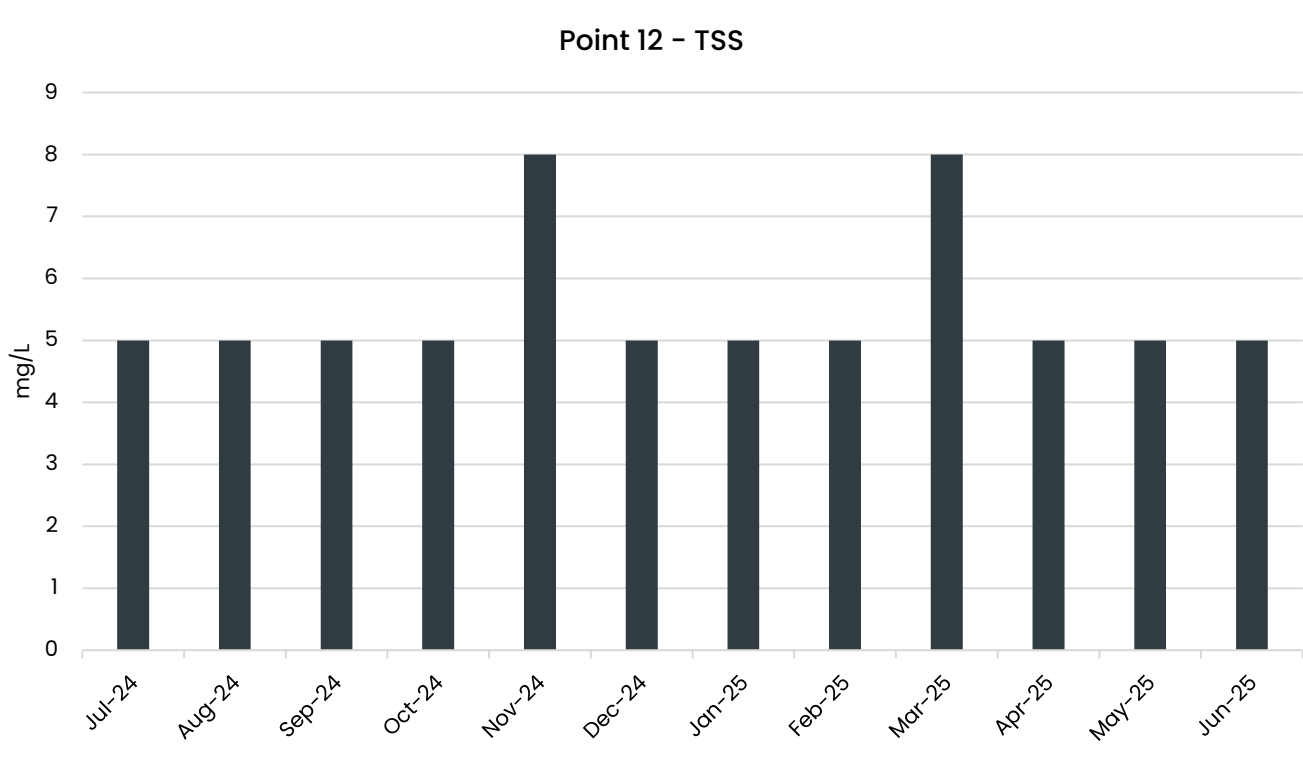
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 11	N/A	EC EC trends remained in-line with previous years, with fluctuations dependant on freshwater flows in the Georges River. The peak in September 2024 is a combination of lower flows and Point 19 water discharge.	Point 11 - EC <table><tr><th>Month</th><th>Conductivity (µS/cm)</th></tr><tr><td>Jul-24</td><td>240</td></tr><tr><td>Aug-24</td><td>140</td></tr><tr><td>Sep-24</td><td>480</td></tr><tr><td>Oct-24</td><td>150</td></tr><tr><td>Nov-24</td><td>210</td></tr><tr><td>Dec-24</td><td>280</td></tr><tr><td>Jan-25</td><td>230</td></tr><tr><td>Feb-25</td><td>200</td></tr><tr><td>Mar-25</td><td>200</td></tr><tr><td>Apr-25</td><td>220</td></tr><tr><td>May-25</td><td>200</td></tr><tr><td>Jun-25</td><td>200</td></tr></table>	Month	Conductivity (µS/cm)	Jul-24	240	Aug-24	140	Sep-24	480	Oct-24	150	Nov-24	210	Dec-24	280	Jan-25	230	Feb-25	200	Mar-25	200	Apr-25	220	May-25	200	Jun-25	200
Month	Conductivity (µS/cm)																												
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Nov-24	210																												
Dec-24	280																												
Jan-25	230																												
Feb-25	200																												
Mar-25	200																												
Apr-25	220																												
May-25	200																												
Jun-25	200																												
Point 12	N/A	There are no EPL water quality limits for Point 12. Point 12 is situated in the Georges River downstream of the Brennans Creek confluence. Water quality at Point 12 is generally consistent with the discharge chemistry at Point 10/40. TSS The TSS data shows concentrations remaining low (generally below the limit of detection) and steady throughout FY25, with slight elevations recorded in November 2024 and March 2025.	Point 12 - TSS <table><tr><th>Month</th><th>Total Suspended Solids (mg/L)</th></tr><tr><td>Jul-24</td><td>5</td></tr><tr><td>Aug-24</td><td>5</td></tr><tr><td>Sep-24</td><td>5</td></tr><tr><td>Oct-24</td><td>5</td></tr><tr><td>Nov-24</td><td>8</td></tr><tr><td>Dec-24</td><td>5</td></tr><tr><td>Jan-25</td><td>5</td></tr><tr><td>Feb-25</td><td>5</td></tr><tr><td>Mar-25</td><td>8</td></tr><tr><td>Apr-25</td><td>5</td></tr><tr><td>May-25</td><td>5</td></tr><tr><td>Jun-25</td><td>5</td></tr></table>	Month	Total Suspended Solids (mg/L)	Jul-24	5	Aug-24	5	Sep-24	5	Oct-24	5	Nov-24	8	Dec-24	5	Jan-25	5	Feb-25	5	Mar-25	8	Apr-25	5	May-25	5	Jun-25	5
Month	Total Suspended Solids (mg/L)																												
Jul-24	5																												
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May-25	5																												
Jun-25	5																												

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 12	N/A	pH Trends can be attributed to periods of lower rainfall combined with lower water discharge from Point 10 due to rehabilitation works on the Georges River. During these periods, the majority of flows were made up from Point 40 discharge water, which recorded pH values lower than the upstream baseline.	Point 12 - pH
	N/A	EC Similarly to pH, trends in EC are generally influenced by rainfall and discharge from Point 10, whereby lower EC values are recorded in months where Point 40 discharge water represent most of the flows.	Point 12 - EC
Point 18	N/A	No discharge from this point occurred during the reporting period.	

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 19	Yes	pH Compliance against pH criteria was achieved in FY25. pH units remained steady in-line with long-term trends influenced by rainfall and temperature. Typically, higher rainfall months see slightly increased pH, with less influence from flocculant and coagulant dosing chemicals.	Point 19 - pH <table><tr><th>Month</th><th>pH</th></tr><tr><td>Jul-24</td><td>7.5</td></tr><tr><td>Aug-24</td><td>7.2</td></tr><tr><td>Sep-24</td><td>7.3</td></tr><tr><td>Oct-24</td><td>6.6</td></tr><tr><td>Nov-24</td><td>7.2</td></tr><tr><td>Dec-24</td><td>7.3</td></tr><tr><td>Jan-25</td><td>7.5</td></tr><tr><td>Feb-25</td><td>8.0</td></tr><tr><td>Mar-25</td><td>7.2</td></tr><tr><td>Apr-25</td><td>8.1</td></tr><tr><td>May-25</td><td>7.2</td></tr><tr><td>Jun-25</td><td>7.7</td></tr></table>	Month	pH	Jul-24	7.5	Aug-24	7.2	Sep-24	7.3	Oct-24	6.6	Nov-24	7.2	Dec-24	7.3	Jan-25	7.5	Feb-25	8.0	Mar-25	7.2	Apr-25	8.1	May-25	7.2	Jun-25	7.7
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TSS The TSS concentrations in FY25 followed the long-term trends of being well below the EPL 100-percentile concentration limit (and generally below the limit of detection). Historically, there has never been an exceedance of this water quality criteria, with the highest recorded TSS concentration at <50% of the 100-percentile limit.	Point 19 - TSS <table><tr><th>Month</th><th>Total Suspended Solids (mg/L)</th></tr><tr><td>Jul-24</td><td>4</td></tr><tr><td>Aug-24</td><td>4</td></tr><tr><td>Sep-24</td><td>5</td></tr><tr><td>Oct-24</td><td>4</td></tr><tr><td>Nov-24</td><td>4</td></tr><tr><td>Dec-24</td><td>4</td></tr><tr><td>Jan-25</td><td>4</td></tr><tr><td>Feb-25</td><td>4</td></tr><tr><td>Mar-25</td><td>4</td></tr><tr><td>Apr-25</td><td>4</td></tr><tr><td>May-25</td><td>4</td></tr><tr><td>Jun-25</td><td>4</td></tr></table>	Month	Total Suspended Solids (mg/L)	Jul-24	4	Aug-24	4	Sep-24	5	Oct-24	4	Nov-24	4	Dec-24	4	Jan-25	4	Feb-25	4	Mar-25	4	Apr-25	4	May-25	4	Jun-25	4		
Month	Total Suspended Solids (mg/L)																												
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Jun-25	4																												

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data

Point 23	Yes	pH Compliance against pH limits was achieved in FY25. pH units remained steady in-line with long-term trends dictated by rainfall and temperature. In-situ monitoring was carried out with a portable water quality meter prior to any given discharge during the reporting period. There have only been two (2) exceedances of the pH criterion at this location since February 2014.

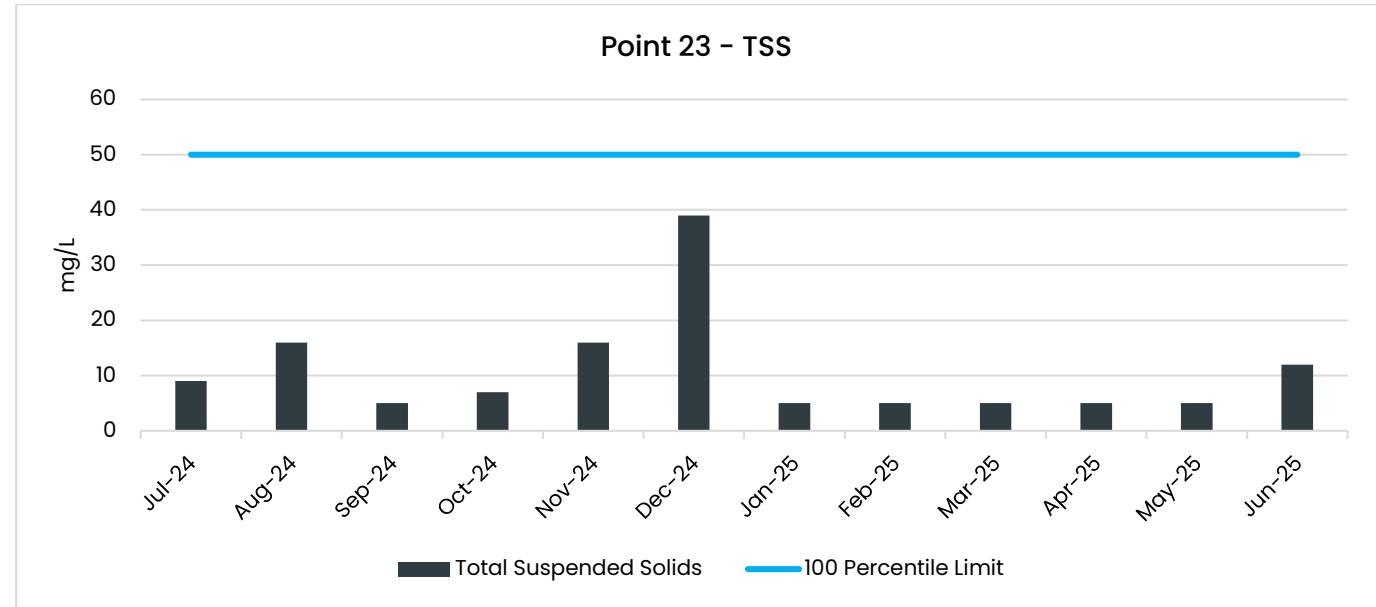
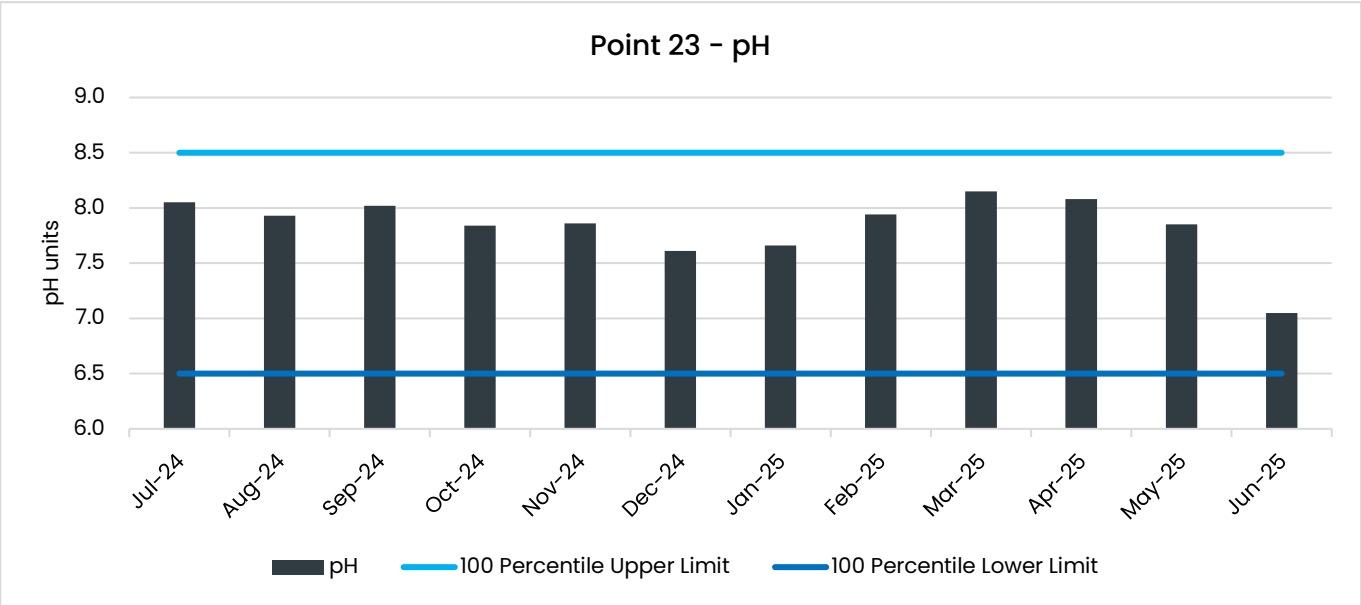


Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 23	No	BOD BOD concentrations in FY25 followed the long-term trends of being well below the EPL 100-percentile concentration limit, except for December 2024. This was due to low water levels and die off of some aquatic vegetation, with levels returning to normal following the event.	Point 23 - BOD <table><tr><th>Month</th><th>BOD (mg/L)</th></tr><tr><td>Jul-24</td><td>5</td></tr><tr><td>Aug-24</td><td>6</td></tr><tr><td>Sep-24</td><td>4</td></tr><tr><td>Oct-24</td><td>3</td></tr><tr><td>Nov-24</td><td>7</td></tr><tr><td>Dec-24</td><td>52</td></tr><tr><td>Jan-25</td><td>2</td></tr><tr><td>Feb-25</td><td>6</td></tr><tr><td>Mar-25</td><td>6</td></tr><tr><td>Apr-25</td><td>4</td></tr><tr><td>May-25</td><td>7</td></tr><tr><td>Jun-25</td><td>5</td></tr></table>	Month	BOD (mg/L)	Jul-24	5	Aug-24	6	Sep-24	4	Oct-24	3	Nov-24	7	Dec-24	52	Jan-25	2	Feb-25	6	Mar-25	6	Apr-25	4	May-25	7	Jun-25	5
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Feb-25	6																												
Mar-25	6																												
Apr-25	4																												
May-25	7																												
Jun-25	5																												
Point 24	Yes	pH Compliance against the pH criterion was achieved in FY25. pH units fluctuated in-line with feed plant parameters and the changing chemistry of the source water. Continuous pH monitoring during discharge events occurred during the reporting period. Historically, only one (1) exceedance has been documented since records began in 2012.	Point 24 - pH <table><tr><th>Month</th><th>pH</th></tr><tr><td>Jul-24</td><td>7.9</td></tr><tr><td>Aug-24</td><td>7.5</td></tr><tr><td>Sep-24</td><td>7.6</td></tr><tr><td>Oct-24</td><td>7.9</td></tr><tr><td>Nov-24</td><td>7.6</td></tr><tr><td>Dec-24</td><td>7.8</td></tr><tr><td>Jan-25</td><td>7.6</td></tr><tr><td>Feb-25</td><td>7.7</td></tr><tr><td>Mar-25</td><td>6.9</td></tr><tr><td>Apr-25</td><td>7.7</td></tr><tr><td>May-25</td><td>7.9</td></tr><tr><td>Jun-25</td><td>7.4</td></tr></table>	Month	pH	Jul-24	7.9	Aug-24	7.5	Sep-24	7.6	Oct-24	7.9	Nov-24	7.6	Dec-24	7.8	Jan-25	7.6	Feb-25	7.7	Mar-25	6.9	Apr-25	7.7	May-25	7.9	Jun-25	7.4
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Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

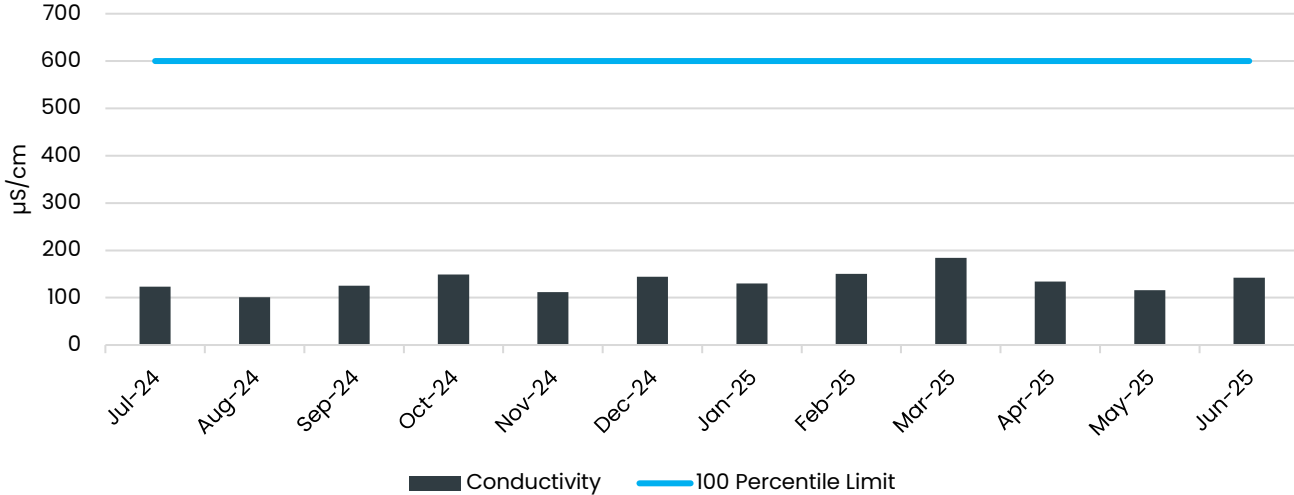
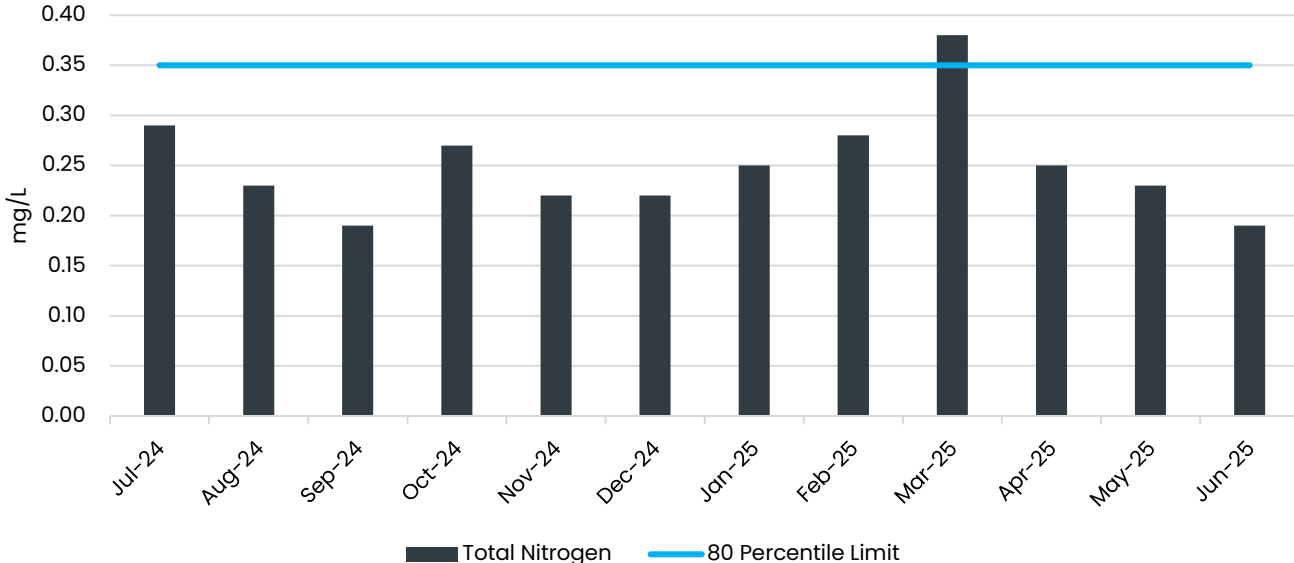
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 24	Yes	EC EC levels were well below the EPL 100-percentile concentration limit in FY25. This performance is achieved through discharge control. Continuous EC monitoring during discharge events occurred during the reporting period.	Point 24 - EC  <table><tr><th>Month</th><th>Conductivity (µS/cm)</th></tr><tr><td>Jul-24</td><td>120</td></tr><tr><td>Aug-24</td><td>100</td></tr><tr><td>Sep-24</td><td>120</td></tr><tr><td>Oct-24</td><td>140</td></tr><tr><td>Nov-24</td><td>110</td></tr><tr><td>Dec-24</td><td>140</td></tr><tr><td>Jan-25</td><td>130</td></tr><tr><td>Feb-25</td><td>150</td></tr><tr><td>Mar-25</td><td>180</td></tr><tr><td>Apr-25</td><td>130</td></tr><tr><td>May-25</td><td>110</td></tr><tr><td>Jun-25</td><td>140</td></tr></table>	Month	Conductivity (µS/cm)	Jul-24	120	Aug-24	100	Sep-24	120	Oct-24	140	Nov-24	110	Dec-24	140	Jan-25	130	Feb-25	150	Mar-25	180	Apr-25	130	May-25	110	Jun-25	140
	Month	Conductivity (µS/cm)																											
Jul-24	120																												
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Mar-25	180																												
Apr-25	130																												
May-25	110																												
Jun-25	140																												
	Yes	Total Nitrogen Total Nitrogen levels during the reporting period were generally consistently below the 80-percentile limit, however one (1) exceedance of the 80-percentile concentration limit of 0.35 mg/L was recorded on 20 March 2025, with a result of 0.38 mg/L. When the 80-percentile was calculated for FY25, compliance with the limit was achieved.	Point 24 - Total Nitrogen  <table><tr><th>Month</th><th>Total Nitrogen (mg/L)</th></tr><tr><td>Jul-24</td><td>0.29</td></tr><tr><td>Aug-24</td><td>0.23</td></tr><tr><td>Sep-24</td><td>0.19</td></tr><tr><td>Oct-24</td><td>0.27</td></tr><tr><td>Nov-24</td><td>0.22</td></tr><tr><td>Dec-24</td><td>0.22</td></tr><tr><td>Jan-25</td><td>0.25</td></tr><tr><td>Feb-25</td><td>0.28</td></tr><tr><td>Mar-25</td><td>0.38</td></tr><tr><td>Apr-25</td><td>0.25</td></tr><tr><td>May-25</td><td>0.23</td></tr><tr><td>Jun-25</td><td>0.19</td></tr></table>	Month	Total Nitrogen (mg/L)	Jul-24	0.29	Aug-24	0.23	Sep-24	0.19	Oct-24	0.27	Nov-24	0.22	Dec-24	0.22	Jan-25	0.25	Feb-25	0.28	Mar-25	0.38	Apr-25	0.25	May-25	0.23	Jun-25	0.19
Month	Total Nitrogen (mg/L)																												
Jul-24	0.29																												
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Dec-24	0.22																												
Jan-25	0.25																												
Feb-25	0.28																												
Mar-25	0.38																												
Apr-25	0.25																												
May-25	0.23																												
Jun-25	0.19																												

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

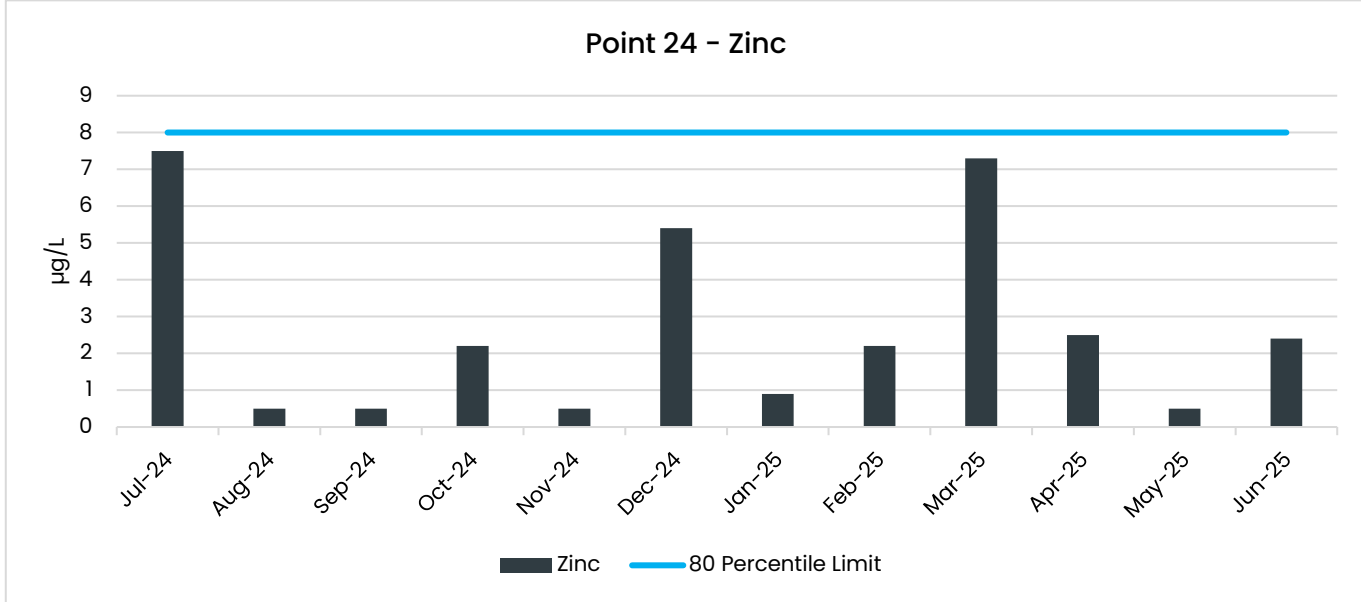
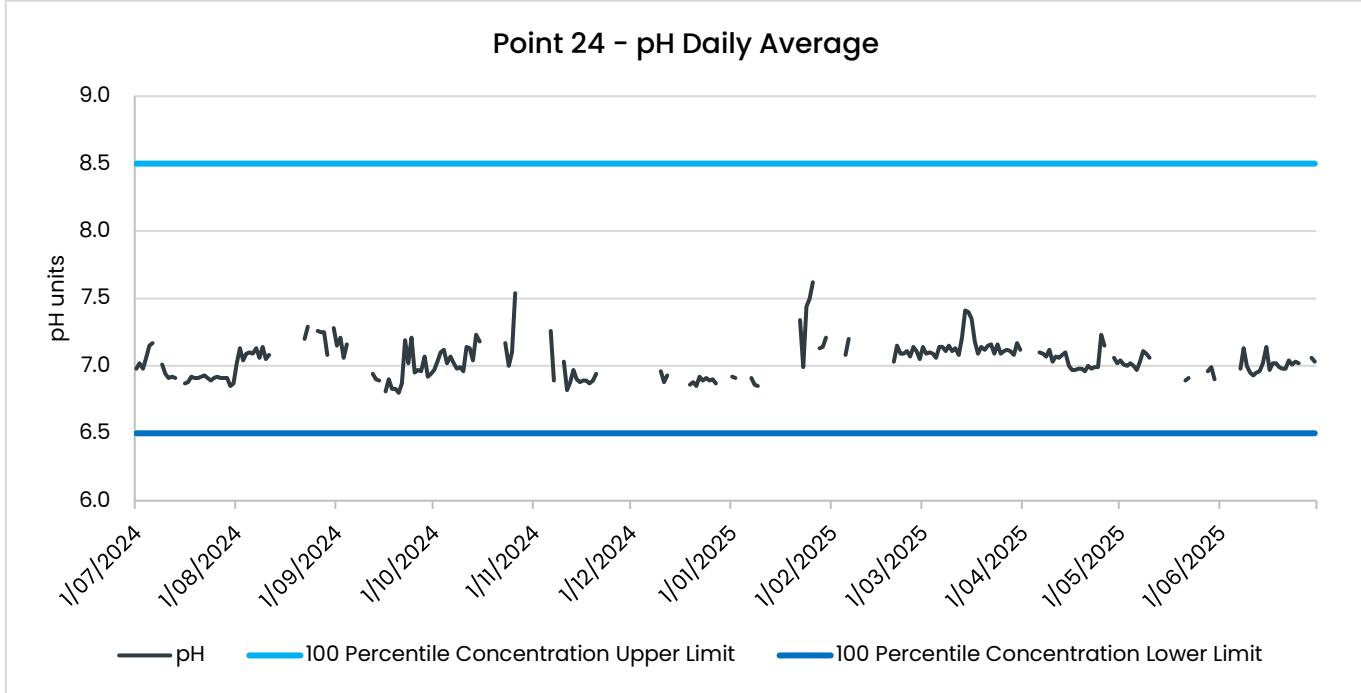
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																										
Point 24	Yes	Zinc Compliance with zinc limits was achieved during the reporting period, with no results above the 80-percentile limit.	Point 24 - Zinc  <table><caption>Point 24 - Zinc Data (Estimated)</caption><tr><th>Month</th><th>Zinc (µg/L)</th></tr><tr><td>Jul-24</td><td>7.5</td></tr><tr><td>Aug-24</td><td>0.5</td></tr><tr><td>Sep-24</td><td>0.5</td></tr><tr><td>Oct-24</td><td>2.2</td></tr><tr><td>Nov-24</td><td>0.5</td></tr><tr><td>Dec-24</td><td>5.5</td></tr><tr><td>Jan-25</td><td>0.8</td></tr><tr><td>Feb-25</td><td>2.2</td></tr><tr><td>Mar-25</td><td>7.5</td></tr><tr><td>Apr-25</td><td>2.5</td></tr><tr><td>May-25</td><td>0.5</td></tr><tr><td>Jun-25</td><td>2.5</td></tr></table>	Month	Zinc (µg/L)	Jul-24	7.5	Aug-24	0.5	Sep-24	0.5	Oct-24	2.2	Nov-24	0.5	Dec-24	5.5	Jan-25	0.8	Feb-25	2.2	Mar-25	7.5	Apr-25	2.5	May-25	0.5	Jun-25	2.5
	Month	Zinc (µg/L)																											
Jul-24	7.5																												
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Jan-25	0.8																												
Feb-25	2.2																												
Mar-25	7.5																												
Apr-25	2.5																												
May-25	0.5																												
Jun-25	2.5																												
	Yes	pH Continuous Monitoring Similarly to the grab sample results for the reporting period, compliance against pH limits was achieved in FY25. <i>N.B. All instances of no data/gaps on the graph are a function of 'no discharge conducted' periods.</i>	Point 24 - pH Daily Average  <table><caption>Point 24 - pH Daily Average Data (Estimated)</caption><tr><th>Date</th><th>pH</th></tr><tr><td>1/07/2024</td><td>7.0</td></tr><tr><td>1/08/2024</td><td>7.0</td></tr><tr><td>1/09/2024</td><td>7.0</td></tr><tr><td>1/10/2024</td><td>7.0</td></tr><tr><td>1/11/2024</td><td>7.0</td></tr><tr><td>1/12/2024</td><td>7.0</td></tr><tr><td>1/01/2025</td><td>7.0</td></tr><tr><td>1/02/2025</td><td>7.0</td></tr><tr><td>1/03/2025</td><td>7.0</td></tr><tr><td>1/04/2025</td><td>7.0</td></tr><tr><td>1/05/2025</td><td>7.0</td></tr><tr><td>1/06/2025</td><td>7.0</td></tr></table>	Date	pH	1/07/2024	7.0	1/08/2024	7.0	1/09/2024	7.0	1/10/2024	7.0	1/11/2024	7.0	1/12/2024	7.0	1/01/2025	7.0	1/02/2025	7.0	1/03/2025	7.0	1/04/2025	7.0	1/05/2025	7.0	1/06/2025	7.0
Date	pH																												
1/07/2024	7.0																												
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1/11/2024	7.0																												
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1/06/2025	7.0																												

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 24	Yes	EC Continuous Monitoring The EC data shows plant performance remained relatively consistent over the reporting period. The limit of 600 µS/cm is applicable to the 24-hour moving average, calculated for each hour of the day. Compliance with this limit was achieved over the reporting period. Treated water from the Appin West WTP continued to be required for reuse underground, resulting in less discharge to the environment during FY25. <i>N.B. All instances of no data/gaps on the graph are a function of 'no discharge' periods.</i>	Point 24 - EC Daily Average
Point 38	No	BOD There was one (1) exceedance of the 100-percentile water quality criteria of 50 mg/L in July 2024, with a result of 74 mg/L recorded. One (1) exceedance of the 50-percentile water quality criteria of 30 mg/L was recorded during the reporting period in June 2025¹⁹. Details of these exceedances are provided in Section 11. The aeration rate within the STP digester was increased as a result of these exceedances as per advice from the wastewater maintenance expert.	Point 38 - BOD

¹⁹ The 50-percentile of BOD at Point 38 over the 12-month reporting period is 18 mg/L, which is below the 50-percentile limit.

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

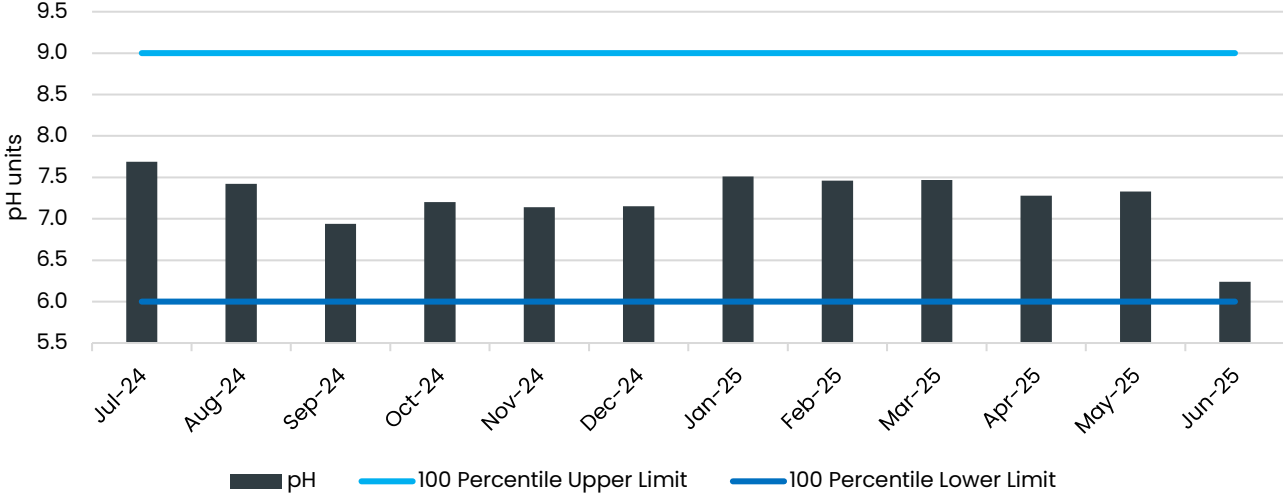
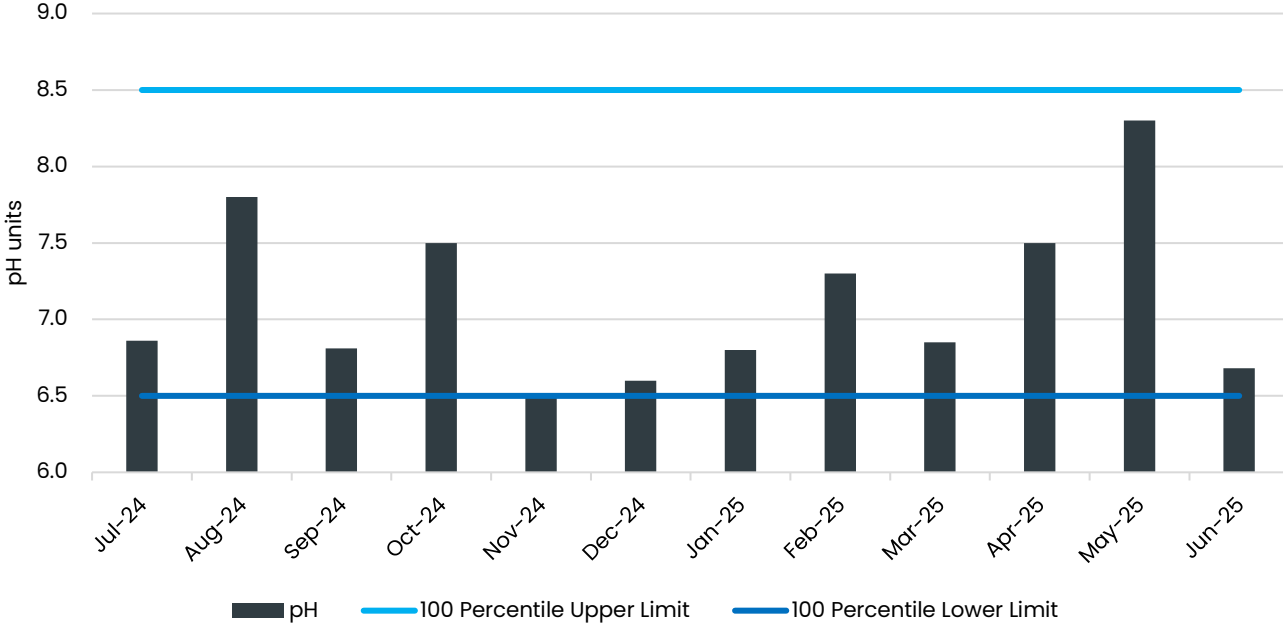
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 38	Yes	pH pH units remained steady in FY25, in-line with long-term trends influenced by temperature and quality of water from grey water sources on site.	Point 38 - pH 
Point 40	Yes	Flows from Appin North WTP are discharged into Brennans Creek at LDP 40, which is adjacent to LDP 10. In-situ water quality from the Appin North WTP, represented in the graphs, were within the EPL water quality concentration limits in FY25. pH The pH remained within EPL compliance limits for FY25. The pH units fluctuate based on the quality of water sent for treatment and the corresponding dosing methods. The WTP includes a continuous monitoring control system with dual pH probes, which sends non-compliant water back through the treatment system.	Point 40 - pH 

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

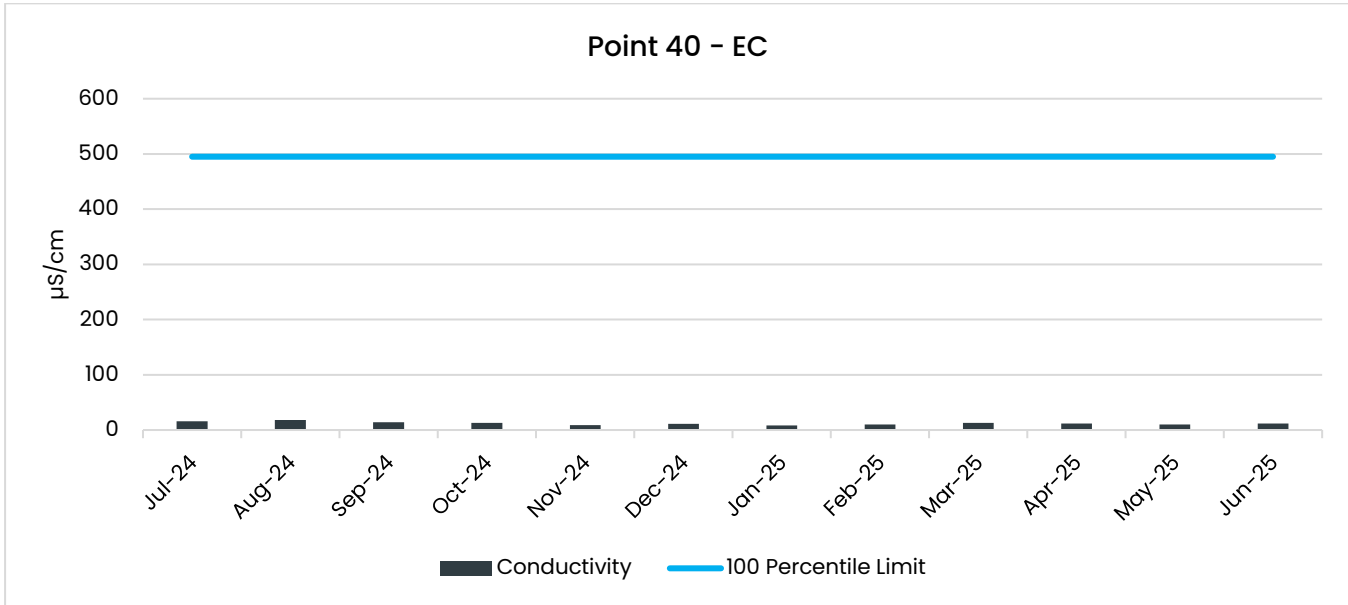
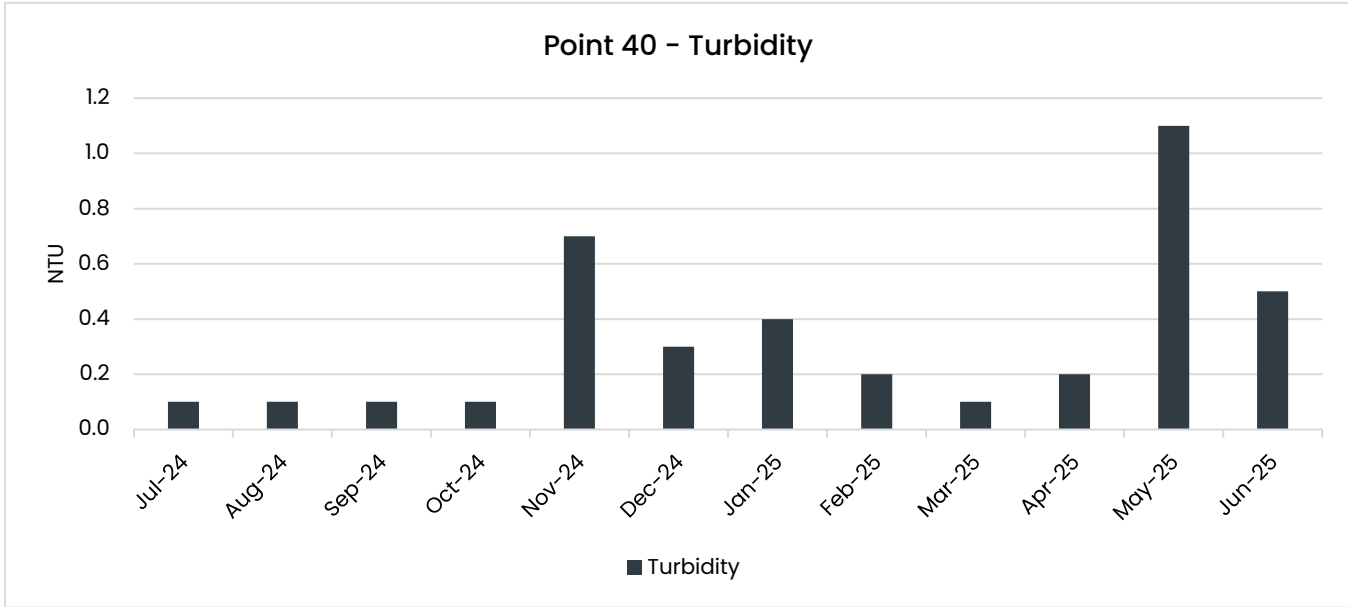
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 40	Yes	EC EC remained consistently low over the monitoring period as expected.	
	Yes	Turbidity Turbidity showed a slight increase in variance from the previous monitoring period, though remained consistently low with an average 0.33 NTU for FY25. All other parameters including aluminium, bicarbonate alkalinity, cobalt, copper, nickel, zinc, and nitrogen (total) remained consistent with trends and within EPL compliance limits. Long term trends are available in Appendix 4.	

Table 16: Summary of Compliance with EPL Water Quality Limits across Appin Mine

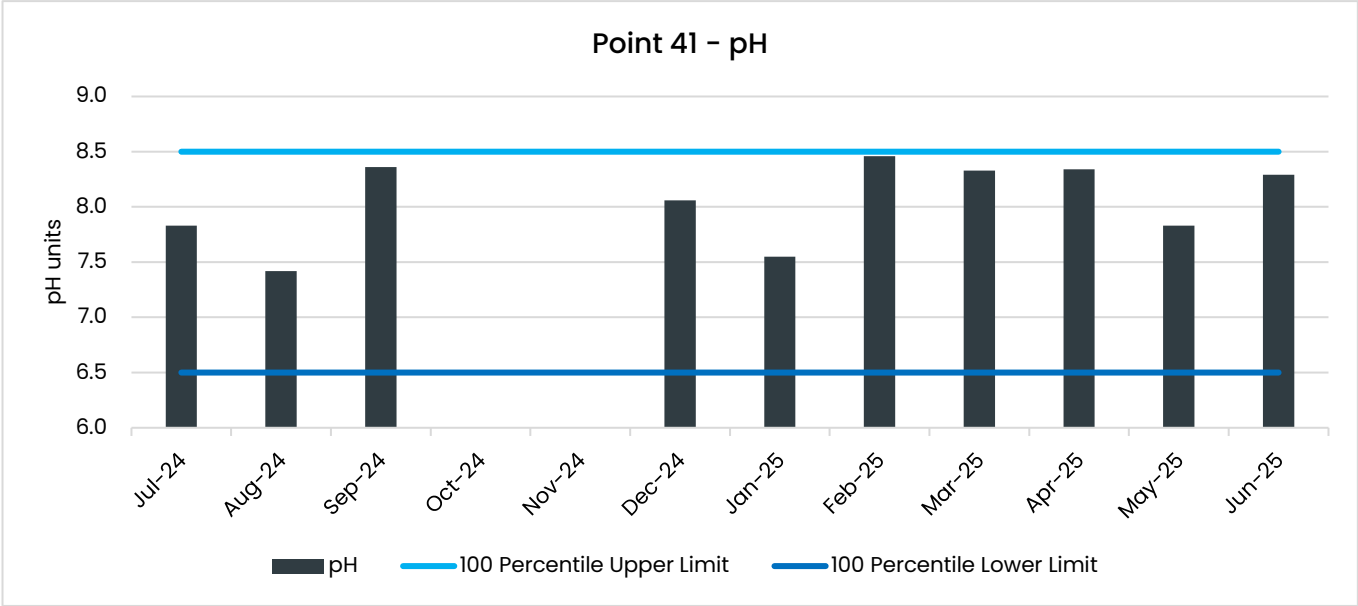
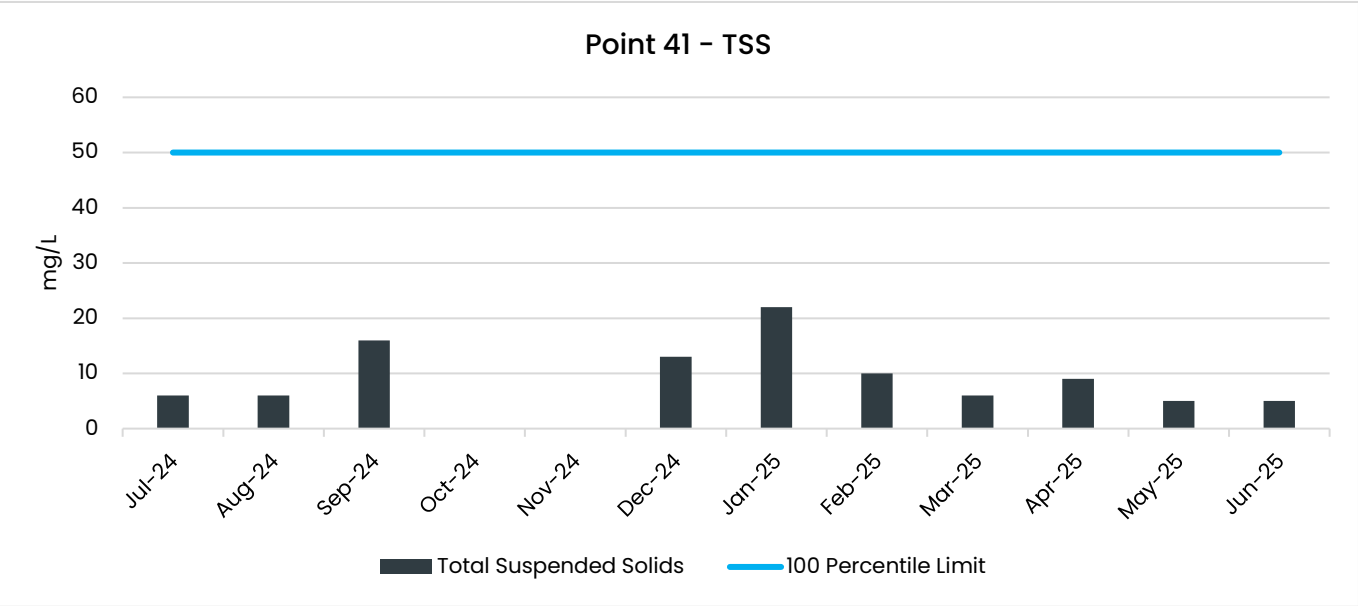
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data
Point 41	Yes	pH and TSS	
		pH and TSS are sampled and analysed monthly during discharge via a grab sample. pH was within the 100-percentile upper and lower limits. TSS was within the 100-percentile limit.	
		No discharge occurred in October and November 2024.	
Point 43	N/A	No discharge occurred through LDP 43 during the reporting period.	

Table 17: Summary of Compliance with EPL Discharge Volume Limits across Appin Mine

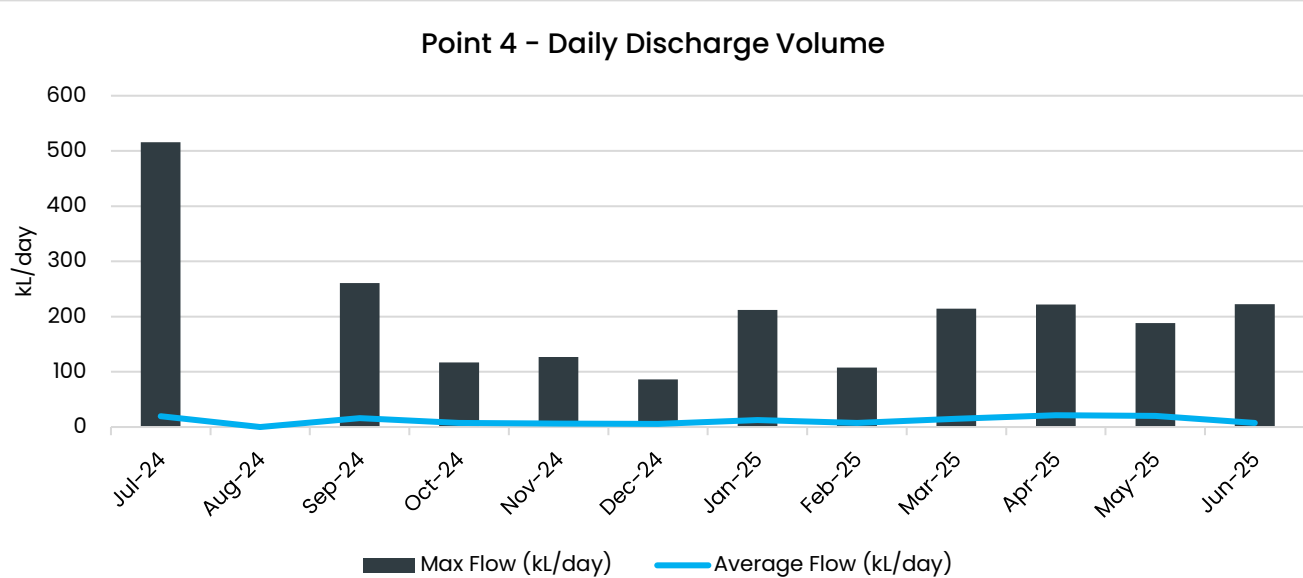
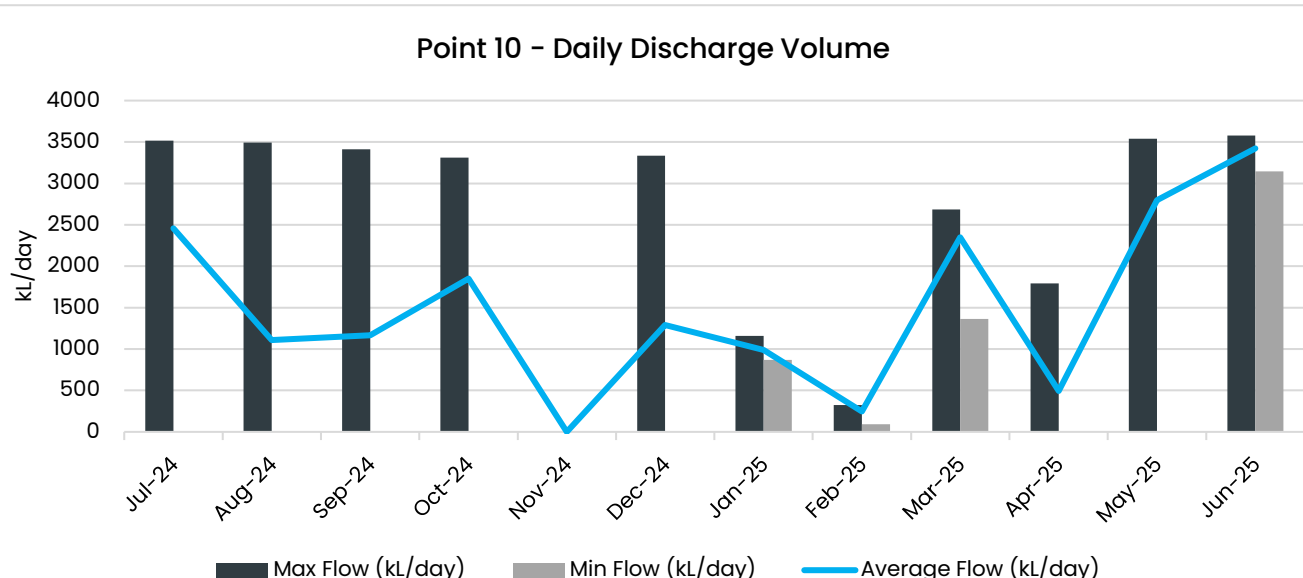
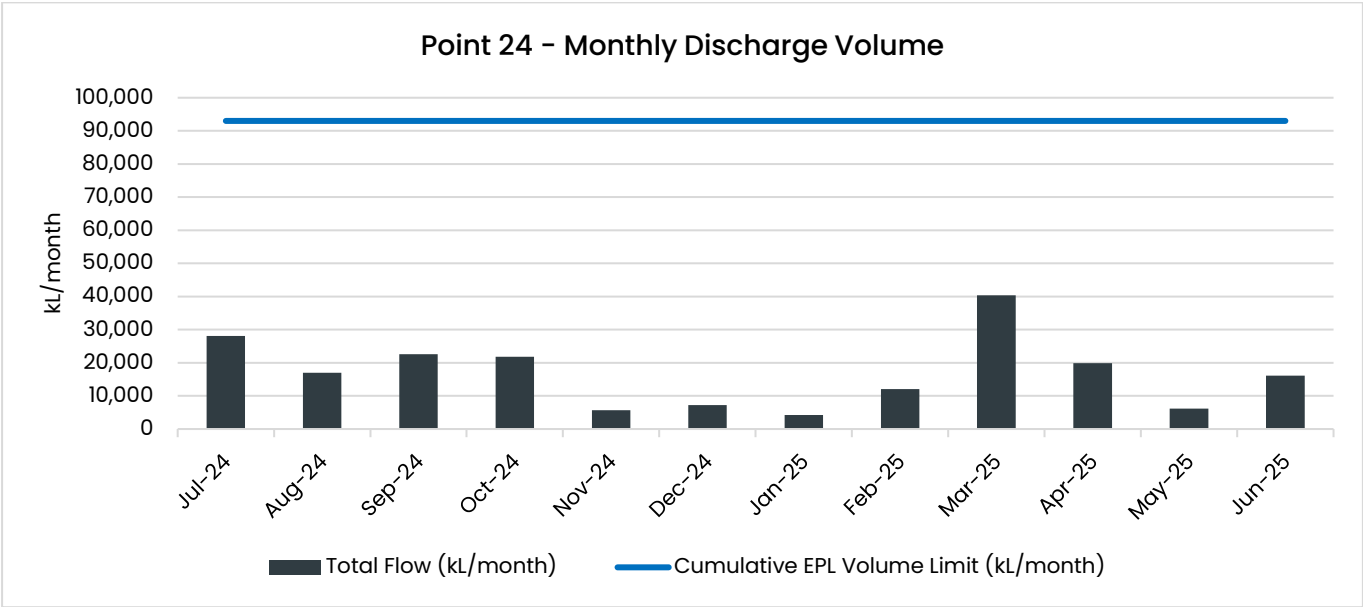
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																																																				
Point 4	N/A	Point 4 discharges fluctuate depending on monthly rainfall and the use of bathhouse facilities at Appin North. Irrigation occurs on average one (1) to two (2) times per month for approximately three (3) hours at a time. The STP operates under a licence issued by Wollondilly Shire Council (WSC). Flow data is recorded through a flow meter via telemetry. Zero values indicate that there was no discharge in that month.	Point 4 - Daily Discharge Volume <table><tr><th>Month</th><th>Max Flow (kL/day)</th><th>Average Flow (kL/day)</th></tr><tr><td>Jul-24</td><td>510</td><td>20</td></tr><tr><td>Aug-24</td><td>0</td><td>0</td></tr><tr><td>Sep-24</td><td>260</td><td>20</td></tr><tr><td>Oct-24</td><td>110</td><td>10</td></tr><tr><td>Nov-24</td><td>120</td><td>10</td></tr><tr><td>Dec-24</td><td>80</td><td>10</td></tr><tr><td>Jan-25</td><td>210</td><td>20</td></tr><tr><td>Feb-25</td><td>100</td><td>10</td></tr><tr><td>Mar-25</td><td>210</td><td>20</td></tr><tr><td>Apr-25</td><td>220</td><td>20</td></tr><tr><td>May-25</td><td>180</td><td>20</td></tr><tr><td>Jun-25</td><td>220</td><td>10</td></tr></table>	Month	Max Flow (kL/day)	Average Flow (kL/day)	Jul-24	510	20	Aug-24	0	0	Sep-24	260	20	Oct-24	110	10	Nov-24	120	10	Dec-24	80	10	Jan-25	210	20	Feb-25	100	10	Mar-25	210	20	Apr-25	220	20	May-25	180	20	Jun-25	220	10													
Month	Max Flow (kL/day)	Average Flow (kL/day)																																																					
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Apr-25	220	20																																																					
May-25	180	20																																																					
Jun-25	220	10																																																					
Point 10	N/A	Point 10 records controlled flows from BCD via a floating offtake into the Georges River via Brennans Creek. Point 10 was labelled Point 13 in previous reporting periods to include flow data from the reclaim pond (formerly “Point 10”). However, since April 2023, reclaim pond water has been pumped back into BCD. In the EPL variation dated 5 June 2024, Point 13 was removed and flows from BCD are now recorded as Point 10. The only other discharge from BCD is from the overflow spillway (Point 1). Flows are automated based on BCD water level and operate in accordance with the BCD TARP. Water levels fluctuate based on monthly rainfall and the water demand of site operations. Flows were adjusted throughout the reporting period to manage water levels in the Georges River to implement downstream rehabilitation works. High rainfall events in May 2025 resulted in increased water levels in BCD and the requirement to discharge for the remainder of FY25 to maintain safe dam levels.	Point 10 - Daily Discharge Volume <table><tr><th>Month</th><th>Max Flow (kL/day)</th><th>Min Flow (kL/day)</th><th>Average Flow (kL/day)</th></tr><tr><td>Jul-24</td><td>3500</td><td>2400</td><td>2400</td></tr><tr><td>Aug-24</td><td>3500</td><td>1100</td><td>1100</td></tr><tr><td>Sep-24</td><td>3400</td><td>1100</td><td>1100</td></tr><tr><td>Oct-24</td><td>3300</td><td>1800</td><td>1800</td></tr><tr><td>Nov-24</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Dec-24</td><td>3300</td><td>1300</td><td>1300</td></tr><tr><td>Jan-25</td><td>1100</td><td>800</td><td>1000</td></tr><tr><td>Feb-25</td><td>200</td><td>100</td><td>200</td></tr><tr><td>Mar-25</td><td>2600</td><td>1300</td><td>2300</td></tr><tr><td>Apr-25</td><td>1700</td><td>400</td><td>400</td></tr><tr><td>May-25</td><td>3500</td><td>2700</td><td>2700</td></tr><tr><td>Jun-25</td><td>3500</td><td>3100</td><td>3400</td></tr></table>	Month	Max Flow (kL/day)	Min Flow (kL/day)	Average Flow (kL/day)	Jul-24	3500	2400	2400	Aug-24	3500	1100	1100	Sep-24	3400	1100	1100	Oct-24	3300	1800	1800	Nov-24	0	0	0	Dec-24	3300	1300	1300	Jan-25	1100	800	1000	Feb-25	200	100	200	Mar-25	2600	1300	2300	Apr-25	1700	400	400	May-25	3500	2700	2700	Jun-25	3500	3100	3400
Month	Max Flow (kL/day)	Min Flow (kL/day)	Average Flow (kL/day)																																																				
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May-25	3500	2700	2700																																																				
Jun-25	3500	3100	3400																																																				
Point 13	N/A	Point 13 was removed from the EPL (variation dated 5 June 2024).																																																					
Point 18	Yes	No discharge occurred from this point during the reporting period.																																																					

Table 17: Summary of Compliance with EPL Discharge Volume Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data																																																																	
Point 19	Yes	The FY25 discharge volume for LDP 19 was steady and is dependent on rainfall. Daily maximum flow was below the EPL volume limit, due to flow rate constraints with the system set-up. Pump capacities are the limiting factor to achieve compliance. During the reporting period, the pump was replaced which increased flows, however, still remain below the limit. Average flow for the 12-month period and long-term trends show expected peaks and troughs.	Point 19 - Daily Discharge Volume <table><thead><tr><th>Month</th><th>Max Flow (kL/day)</th><th>Min Flow (kL/day)</th><th>Average Flow (kL/day)</th><th>EPL Volume Limit (kL/day)</th></tr></thead><tbody><tr><td>Jul-24</td><td>1150</td><td>0</td><td>600</td><td>2000</td></tr><tr><td>Aug-24</td><td>1550</td><td>0</td><td>200</td><td>2000</td></tr><tr><td>Sep-24</td><td>1500</td><td>0</td><td>200</td><td>2000</td></tr><tr><td>Oct-24</td><td>1550</td><td>0</td><td>300</td><td>2000</td></tr><tr><td>Nov-24</td><td>1550</td><td>0</td><td>250</td><td>2000</td></tr><tr><td>Dec-24</td><td>1600</td><td>0</td><td>450</td><td>2000</td></tr><tr><td>Jan-25</td><td>1650</td><td>0</td><td>850</td><td>2000</td></tr><tr><td>Feb-25</td><td>1900</td><td>0</td><td>350</td><td>2000</td></tr><tr><td>Mar-25</td><td>1850</td><td>0</td><td>450</td><td>2000</td></tr><tr><td>Apr-25</td><td>1850</td><td>0</td><td>500</td><td>2000</td></tr><tr><td>May-25</td><td>1900</td><td>0</td><td>1100</td><td>2000</td></tr><tr><td>Jun-25</td><td>1900</td><td>0</td><td>550</td><td>2000</td></tr></tbody></table>	Month	Max Flow (kL/day)	Min Flow (kL/day)	Average Flow (kL/day)	EPL Volume Limit (kL/day)	Jul-24	1150	0	600	2000	Aug-24	1550	0	200	2000	Sep-24	1500	0	200	2000	Oct-24	1550	0	300	2000	Nov-24	1550	0	250	2000	Dec-24	1600	0	450	2000	Jan-25	1650	0	850	2000	Feb-25	1900	0	350	2000	Mar-25	1850	0	450	2000	Apr-25	1850	0	500	2000	May-25	1900	0	1100	2000	Jun-25	1900	0	550	2000
Month	Max Flow (kL/day)	Min Flow (kL/day)	Average Flow (kL/day)	EPL Volume Limit (kL/day)																																																																
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May-25	1900	0	1100	2000																																																																
Jun-25	1900	0	550	2000																																																																
Point 24	Yes	Daily maximum discharge volume limits, and monthly cumulative limits were compliant during the reporting period. Daily maximum flows fluctuated in-line with plant requirements. Where treated water is required for reuse underground, this results in less discharge to the environment.	Point 24 - Daily Discharge Volume <table><thead><tr><th>Month</th><th>Max Flow (kL/day)</th><th>Min Flow (kL/day)</th><th>Average Flow (kL/day)</th><th>EPL Volume Limit (kL/day)</th></tr></thead><tbody><tr><td>Jul-24</td><td>2000</td><td>0</td><td>900</td><td>4700</td></tr><tr><td>Aug-24</td><td>2050</td><td>0</td><td>500</td><td>4700</td></tr><tr><td>Sep-24</td><td>1850</td><td>0</td><td>700</td><td>4700</td></tr><tr><td>Oct-24</td><td>2350</td><td>0</td><td>700</td><td>4700</td></tr><tr><td>Nov-24</td><td>750</td><td>0</td><td>200</td><td>4700</td></tr><tr><td>Dec-24</td><td>1700</td><td>0</td><td>250</td><td>4700</td></tr><tr><td>Jan-25</td><td>900</td><td>0</td><td>200</td><td>4700</td></tr><tr><td>Feb-25</td><td>1750</td><td>0</td><td>400</td><td>4700</td></tr><tr><td>Mar-25</td><td>2250</td><td>250</td><td>1300</td><td>4700</td></tr><tr><td>Apr-25</td><td>1650</td><td>0</td><td>700</td><td>4700</td></tr><tr><td>May-25</td><td>1300</td><td>0</td><td>200</td><td>4700</td></tr><tr><td>Jun-25</td><td>1550</td><td>0</td><td>500</td><td>4700</td></tr></tbody></table>	Month	Max Flow (kL/day)	Min Flow (kL/day)	Average Flow (kL/day)	EPL Volume Limit (kL/day)	Jul-24	2000	0	900	4700	Aug-24	2050	0	500	4700	Sep-24	1850	0	700	4700	Oct-24	2350	0	700	4700	Nov-24	750	0	200	4700	Dec-24	1700	0	250	4700	Jan-25	900	0	200	4700	Feb-25	1750	0	400	4700	Mar-25	2250	250	1300	4700	Apr-25	1650	0	700	4700	May-25	1300	0	200	4700	Jun-25	1550	0	500	4700
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Table 17: Summary of Compliance with EPL Discharge Volume Limits across Appin Mine

Monitoring Site	EPL Compliant (Yes/No)	Comments	Data



Point 38

Yes

FY25 daily discharge volumes for LDP 38 were compliant during the reporting period.

With discharge volumes dictated by sewage production and rainfall received on site, long-term trends are variable, which can be expected with fluctuations in personnel hours.

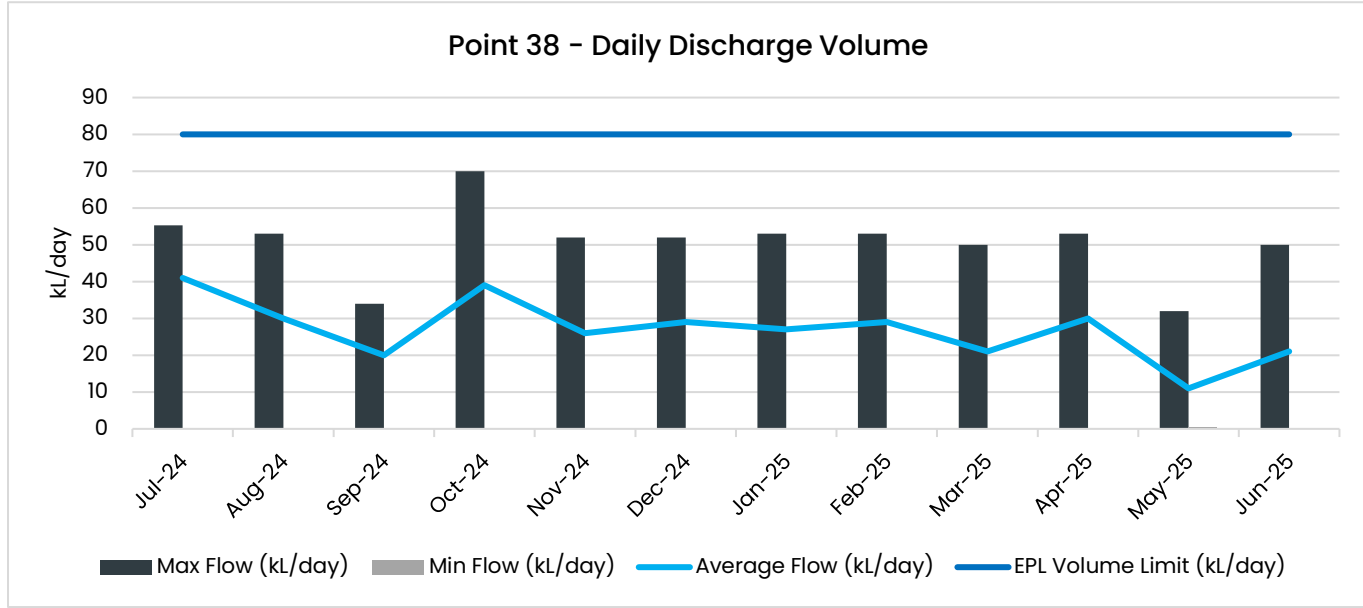


Table 17: Summary of Compliance with EPL Discharge Volume Limits across Appin Mine

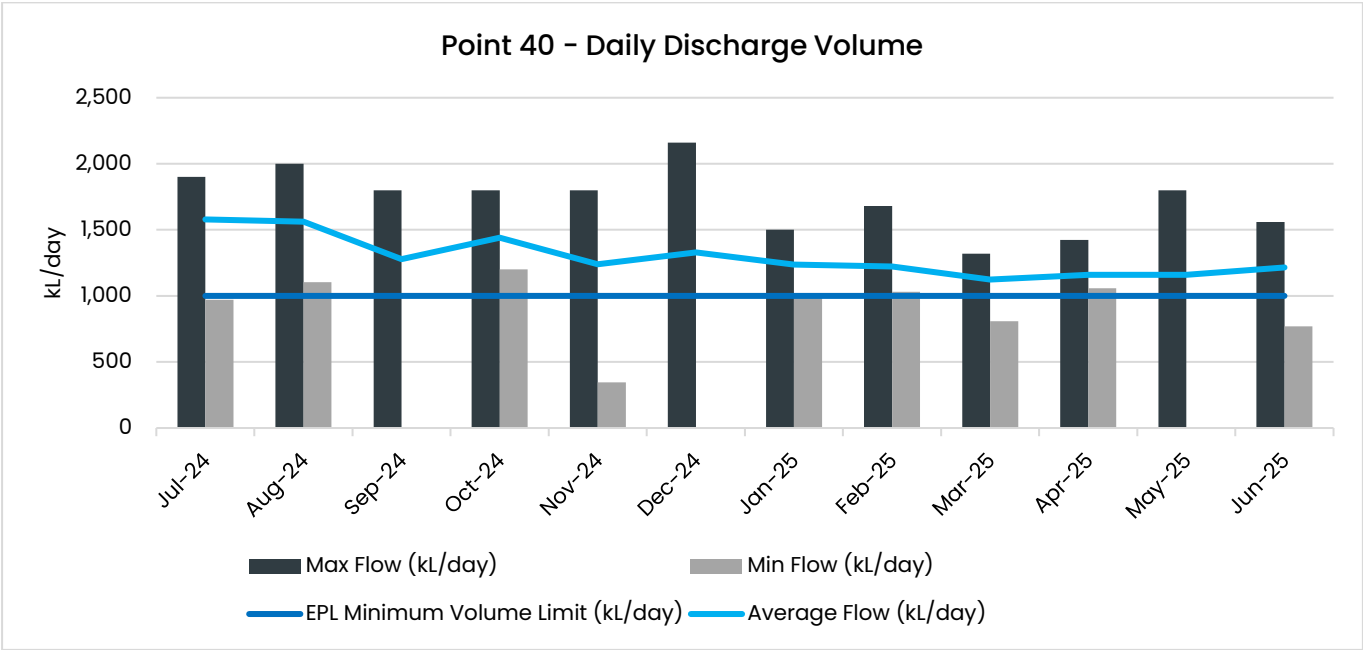
Monitoring Site	EPL Compliant (Yes/No)	Comments	Data

Point 40

Yes

Discharge from LDP 40 consists of flows from the Appin North WTP into the Georges River via Brennans Creek. The discharge waters are comprised of treated water from the CWEA underdrainage and Appin Mine underground workings.

Flow volumes varied over FY25, although continued to meet the EPL minimum discharge volume limit of 1 ML/day averaged over the month.



6.3.3.3 Georges River Aquatic Health Monitoring Program

The last report of the Georges River Aquatic Health Monitoring Program (GRAHMP) was submitted to the EPA in April 2024. While this program was completed, monitoring of the Georges River continued into FY25, with the following items being completed:

- biannual macroinvertebrate monitoring in December 2024 and May 2025;
- pool level monitoring, which is continuous from the installation date, with data downloaded biannually;
- flow monitoring, assessed biannually, at site GR_UFS; and
- water chemistry and in-situ water quality readings taken during biannual macroinvertebrate monitoring.

The summary report (Niche, 2025) on the aquatic health monitoring program in Autumn 2025 (and relevant previous seasons) concluded that:

Although there were reductions in Ephemeroptera, Plecoptera, Tricoptera (EPT) taxa indices recorded during Autumn 2025 at upstream and downstream sites (when compared to Spring and Autumn 2024), these scores are indicative of continued apparent trends as part of the long-term monitoring program and no indicators of any acute stream health issues were identified associated with mine water discharge.

These increases and decreases of macroinvertebrate index scores are likely attributed to the changes in site specific microhabitat compositions, and changes to this associated with weather events and above average rainfalls for the locality.

The differences in relative declines or relative increases among the sites likely reflect site specific habitat constraints and how these factors influence the type of change observed.

Reports prepared under the GRAHMP, Environmental Improvement Programs and Pollution Reduction Programs (PRP) are available on the GM³ website at [link](#).

A draft PRP to improve the water quality of discharges from the Appin North site was provided to GM³ by the EPA in FY25. Discussions with the EPA are ongoing.

6.3.3.4 Appin Mine WTP Discharge Toxicity Investigation (2024-2025)

In FY24 ICHPL conducted ecotoxicity monitoring specifically targeted at both the Appin North (LDP 40) and Appin West (LDP 24) WTP discharges. This monitoring aimed to identify potential causes of toxicity of the WTP discharges as well as test the hypothesis of low ionic composition being the potential cause of toxicity. The results from this monitoring are reported in the FY24 Annual Review.

In FY25, the findings from this investigation were used to inform an additional ecotoxicity study that investigated the outcome of potential blending scenarios to reduce overall toxicity of the WTP discharges.

The in-house study looked at two (2) blending scenarios for each WTP discharge (LDP 40 and LDP 24). Both WTP discharges were blended with waters high in calcium, magnesium and sodium. However, the blending waters also contained levels of pollutants that would need to be reduced to meet discharge EPL criteria for both WTPs. Both scenarios tested concentrations of the blending water hypothesized to reduce toxicity, as well as a more reserved concentration that would stay within licence discharge limits for both WTPs, whilst still providing a level of blending that may reduce toxicity.

The general blending scenarios are listed below:

- For LDP 40, the permeate from the Appin North WTP was blended with high nutrient waters from the BCD Reclaim Pond at two (2) separate concentrations: 86% LDP 40 to 14% Reclaim Pond and 91.4% LDP 40 to 8.6% Reclaim Pond.
- For LDP 24, the permeate from the Appin West WTP was blended with treated backwash waters at two (2) separate concentrations: 94.4% LDP 24 to 5.6% treated backwash and 96.7% LDP 24 to 3.3% treated backwash.

The outcomes of this study showed promising reductions in toxicity for both the Appin North and Appin West WTP discharges under the above treatments. Overall, all blending scenarios were deemed non-toxic for *Ceriodaphnia* 7-day survival. All blending scenarios showed levels of toxicity toward *Ceriodaphnia* reproduction, however there was a significant reduction in toxicity. A general outline of toxicity is below:

- For LDP 40, baseline EC50 for survival and reproduction was 16.5 and 14.7%, respectively. The EC50 for survival and reproduction for both the 96.3% and 94.4% blends yielded EC50 estimates >100% indicating a major reduction in toxicity.
- For LDP 24, baseline EC50 for survival and reproduction was 30.8 and 32.6%, respectively. The EC50 for survival and reproduction for both the 96.3% and 94.4% blends all yielded EC50 estimates >100%, indicating a major reduction in toxicity.

Results from the blending scenarios will be used to inform potential treatment methods for both WTPs. However, further investigation is required to reduce toxicity whilst complying with discharge limits for both treatments. This will be explored further throughout FY26 as part of future PRPs.

6.4 Contaminated Land

No significant land pollution events occurred during the reporting period at Appin Mine.

6.5 Threatened Fauna and Flora

6.5.1 Environmental Management

Threatened flora and fauna communities at Appin Mine are managed in accordance with the following approved plans:

- CWEA Management Plan;
- Broad-headed Snake and Southern Brown Bandicoot Management Plan;
- *Persoonia hirsuta* Offset Management Plan;
- Biodiversity Management Plan;
- Ventilation Shaft 6 Biodiversity Offset Strategy;
- Shale Sandstone Transition Forest Offset Management Plan; and
- Adaptive Management Plan for Water Sensitive EPBC Listed Species.

These plans include the management and mitigation measures for threatened species or habitats that occur on Appin Mine sites and are available on the GM³ website at [link](#).

Persoonia hirsuta is listed as “Endangered” under both the NSW *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. A substantial population of *P. hirsuta* exists on the Appin North site. Several naturally occurring *P. hirsuta* plants are located within operational areas such as high voltage transmission lines. During the December 2024 monitoring period, a total of 127 *P. hirsuta* were identified within the *P. hirsuta* biodiversity offset area. The total population count within the offset area includes both natural recruitment and individuals from two (2) translocations that have occurred at Appin North. A third translocation has also been conducted in the rehabilitating CWEA area in an attempt to better understand and boost baseline populations (see section 6.5.2.2). Naturally recruited *P. hirsuta* plants have also been identified within the rehabilitating CWEA (refer to Appendix 5) and along the Dam Road.

Acacia bynoeana is listed as “Endangered” under the BC Act and “Vulnerable” under the EPBC Act. The species has been recorded along roads, tracks and disturbed areas at Appin North. During FY25 several additional plants were identified along the Dam Road.

Pultenaea aristata is listed as “Vulnerable” under the BC Act and the EPBC Act. The species has been recorded in areas of impeded drainage in woodland adjoining the main access road and in the vicinity of the southern extent of the Stage 3 CWEA.

Flora and fauna aspects associated with mine subsidence are detailed in Section 6.13.

6.5.2 Environmental Performance

6.5.2.1 Broad-headed Snake and Southern Brown Bandicoot

There have been no instances in the reporting period that required the implementation of mitigation measures for Broad-headed Snakes or Southern Brown Bandicoots (as outlined in the approved management plan).

In FY22, four (4) artificial Broad-headed Snake habitats were placed in the CWEA rehabilitation (Stages 1-3) to encourage an increase in Broad-headed Snake populations in the area (Refer to FY22 Annual Review for details).

Monitoring of these habitats was included in the FY25 monitoring period during late August 2024. No Broad-headed Snakes were identified during the monitoring event, however positive observations were made to suggest habitat is still considered suitable.

6.5.2.2 *Persoonia hirsuta* – Ongoing Research and Conservation Management

The twelfth round of annual condition monitoring of the *P. hirsuta* population at Appin North was conducted during the reporting period. The monitoring was undertaken in accordance with the approved *P. hirsuta* Offset Management Plan, which complies with Condition 2 of EPBC Approval 2010/5350 (the EPBC Approval). The monitoring was completed in Summer 2024 during the peak flowering period for the species. The report is included as Appendix 6.

In accordance with Condition 3 of the EPBC Approval, ICHPL has undertaken targeted research on *P. hirsuta* that has been outlined in the *P. hirsuta* Research Report, submitted to the Department of Agriculture, Water and the Environment (DAWE)²⁰ in June 2021. The *P. hirsuta* Research Report is available on the GM³ website at [link](#).

There have been three (3) *P. hirsuta* translocations across the Appin North site between 2019 and 2022 (refer to the relevant Annual Reviews for details on each translocation). The translocated plants continued to be monitored during FY25. The total Offset Area plant population and health over time is shown in Figure 9 and the full report of current populations is provided in Appendix 6.

²⁰ Now DCCEEW (Commonwealth).

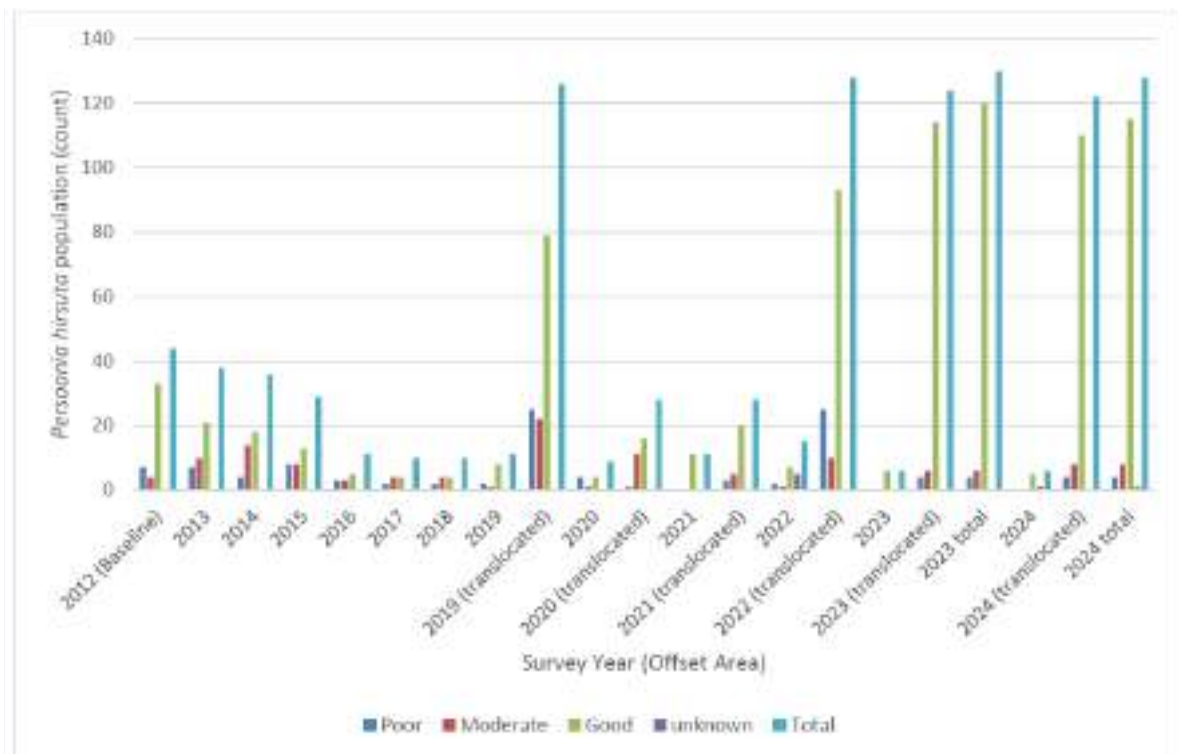


Figure 9: *P. hirsuta* condition and population within the Offset Area during the 2024 summer monitoring period

In FY23 ICHPL installed nine (9) artificial bee habitats to help support native pollinator networks around Appin North. Habitats were installed within the *P. hirsuta* Offset Area, *P. hirsuta* translocation sites and around the CWEA rehabilitation area. These habitats were monitored as part of the FY25 monitoring program and were found to be populated by various bee and wasp species that could support pollination for *P. hirsuta* and other native flowering species (see Plate 3).



Plate 3: Occupied artificial bee habitat in *P. hirsuta* translocation area. RHS image shows population by a Native Resin Bee and a Native Masked Bee (known pollinator of *P. hirsuta*)

6.5.2.3 Shale Sandstone Transition Forest Offset (SSTF)/BioBank Site

The Appin West BioBanking Agreement was finalised and executed on 1 February 2017. The offset is managed in accordance with the BioBanking Agreement 215 (BA 215). BA 215 details an annual works program (weed management, tree planting, monitoring etc). These works are carried out by Landcare and are summarised in the 2025 Annual Report provided as Appendix 7.

6.5.2.4 Nepean River Biodiversity Stewardship Site

BA 382 was issued on 8 May 2018 for the Nepean River Biobanking site. The site provides in-perpetuity management and security for 67.41 ha of woodland and forest communities, including two (2) critically endangered ecological communities, as well as habitat that supports the threatened Cumberland Plain Land Snail.

BA 382 details an annual works program, including weed management, tree planting and monitoring. These works are carried out by Landcare and are summarised in the 2024/2025 Annual Report, provided as Appendix 8.

6.5.2.5 Cataract River BioBank Site

BA 345 for the Cataract River BioBank Site was finalised on 6 February 2019. The site provides in-perpetuity management of approximately 8.53 ha (Lot 1, DP 572548). The property contains a critically endangered ecological community. ICHPL has been required to undertake passive monitoring of the site up until May 2025 when the BioBanking Trust Fund Deposit reached 80 percent of the Total Fund Deposit.

As of May 2025, the Cataract River BioBank Site has moved from passive to active management, which will be undertaken by ICHPL. The next reporting period will include passive management actions between February and May 2025, as well as active management reporting from May 2025 onwards.

Three (3) areas from which asbestos was removed were rehabilitated in 2020 with 500 seedlings of local grass, shrub species and 50 seedlings representing canopy species local to the area. The most recent 2025 monitoring observed the continued success of the plantings in this area. The growth of native seedlings can be observed in Plate 4. Plant guards are planned to be removed in the next reporting period.



Plate 4: Regrowth of native seedlings in area previously contaminated with asbestos (image from May 2025)

No stock incursions were observed during the annual site visit on 2 December 2024. No evidence of grazing was observed in the quarterly visits. However, there were several piles of horse manure observed within the site area, which implies stock incursion has occurred. Fences and gates were observed to be intact during inspections and biobanking signage was present.

Increased weed growth along the boundary fence was observed in the 2024 passive monitoring period and is most likely attributed to the favourable weather conditions experienced in the region.

The Annual Report for BA 345 is provided as Appendix 9.

6.5.2.6 Ventilation Shaft 6 Offset

Offset Area (MZ5) is located to the north of the Ventilation Shaft 6 site on the Mountbatten property at Douglas Park NSW (Plan 7). The initial inspection of MZ5 resulted in identification of a population of the threatened plant, *Pimelea spicata* (Spiked Rice-Flower), adding significant conservation value to the Offset Area. A formal monitoring program has been implemented for both the management of the native vegetation on the site and the extent and health of the *P. spicata* population.

Landcare was engaged to undertake weed management at the site during the reporting period. The works focused on the treatment/removal of African Olive and Blackberry, which are prevalent in the area. This will continue throughout FY26.

In 2024, the woodland plots in MZ5 and MZ6 scored below the benchmark for species richness for all growth form groups. The overall average native plant species richness (NPSR) for MZ5 and MZ6 was 16.7 and 26 respectively, representing a significant increase from 2023, following a decrease for both zones between 2022 and 2023. The NPSR remains below benchmark in both MZ5 and MZ6. This trend has been observed since 2014. However, when the BAM methodology was introduced in 2017, the updated benchmark values are much higher and represent the ideal condition state for good quality remnant vegetation on a state level. The benchmark condition provided may therefore be unrepresentative of the local remnant vegetation condition. Moreover, all results for MZ6 in 2023 and 2024 were inclusive of one (1) plot only (MZ6_006) due to the inaccessibility of plots MZ6_007 and MZ6_008 (as opposed to the three (3) plots monitored from 2012–2022). Plot data for MZ6_007 and MZ6_008 were not recorded in 2024 due to the areas being inaccessible as a result of the dense thicket of exotic species such as African Olive, African Boxthorn and Lantana, in addition to Native Blackthorn.

An assessment of the change in size and distribution of the threatened plant population of *P. spicata* is undertaken every five (5) years and was not required in the FY25 reporting period. The Ventilation Shaft 6 Offset Annual Monitoring Report is provided in Appendix 10.

Recommendations in relation to the on-going management of the site include:

- Continue to verify the integrity of fencing through regular inspections of the site. Continue to exclude stock from MZ5.
- Continue bush regeneration works to target exotic vine Cape Ivy and Moth Vine within better condition areas. Target herbaceous weeds and introduced grasses

within woodland areas. Areas which have had woody weed removal should be followed up to promote native regeneration.

- Targeted treatment of woody weeds, primarily African Olive, Lantana, African Box Thorn and Blackberry throughout MZ5 and MZ6. Targeted removal of Chilean Needle Grass and selective removal/trimming of areas of Native Blackthorn thicket surrounding eucalypts to limit Bell Miner populations.
- Confirm bush regeneration staff are familiar with *Pimelea spicata*.
- Consult with a suitably qualified bush regeneration company to develop a management plan for the thinning of Native Blackthorn thickets and increasing native diversity in MZ5 and MZ6 areas via tubestock planting and/or direct seeding.

Refer to Appendix 11 for the Ventilation Shaft 6 Bush Regeneration Report.

6.6 Weeds

6.6.1 Environmental Management and Performance

Weed control activities were carried out as required by a licensed contractor based on feedback received from inspections and bushfire/safety hazard identification activities throughout the reporting period.

6.6.1.1 Appin East and Appin West

Environmental inspections (which include weed identification) are undertaken at the Appin East and Appin West sites. When noxious weeds are identified they are removed and treated. During the reporting period active weed management included:

- regular spraying/slashing of weed zones by licenced contractors; and
- regular inspections that review the effectiveness of weed management activities.

6.6.1.2 Appin North

Ongoing grounds maintenance is undertaken by a contractor who has a regular schedule of work. The annual CWEA rehabilitation monitoring program includes the identification of weeds present and proposed management strategies to control weed growth within the CWEA. Targeted weed control within the CWEA was undertaken by a contractor during the reporting period which included slashing of perennial grasses and targeted weed spraying.

Additional weed spraying occurred throughout the reporting period around Appin North and WCCPP by site-based contractors, with particular focus on Crofton Weed and Pampas Grass removal.

6.7 Blasting

6.7.1 Operational Blasting

No surface blasting activities were undertaken at Appin Mine during the reporting period. Minor blasting activities underground are undertaken in accordance with approved management plans.

6.7.2 Construction Blasting

An application to modify blasting hours at the AMVA Project (MOD 6) was submitted on 29 May 2024 and was approved on 17 October 2024. This extended blasting hours to Monday to Saturday 7 am to 10 pm and Sunday 8 am to 10 pm. A further application for 24/7 blasting was submitted on 23 January 2025 and was approved on 5 February 2025.

Controlled blasting for the No. 8 shaft main sink commenced on 26 October 2024 and fifty four (54) blasts have been undertaken in the reporting period. Controlled blasting for the No. 7 shaft main sink commenced 4 April 2025 and twelve (12) blasts were undertaken in the reporting period.

Blast overpressure and vibration were compliant with Condition 3 of Schedule 4A of the Project Approval and night time L_{AFmax} complied with Condition 5 of Schedule 4A of the Project Approval. A compliance report was provided to the Department in June 2025.

Monitoring has confirmed that the blast noise attenuation measures implemented have been successful. Main sink blasting is generally inaudible to nearby residents. One (1) complaint was received during main sink blasting which was regarding inconsistencies with the blasting advice email notification process.

6.8 Noise

6.8.1 Operational Noise

6.8.1.1 Environmental Management

Noise across Appin Mine is managed in accordance with the approved Noise Management Plan (NMP). The plan was prepared to satisfy Condition 5 of Schedule 4 of the Project Approval and details the relevant noise criteria, compliance procedures and controls relating to the mining operations. The NMP is available on the GM³ website.

6.8.1.2 Monitoring Program

A noise monitoring program has been developed to comply with Condition 5(f) of Schedule 4 of the Project Approval.

Assessment criteria have been established for each monitoring location, as outlined in the NMP. The criteria enable an assessment of compliance to be made against the noise levels outlined in the Project Approval.

The program consists of attended monitoring using handheld portable monitors and real time noise monitoring. The attended monitoring is undertaken at the nominated monitoring locations to confirm compliance as part of the NMP.

6.8.1.3 Environmental Performance

Quarterly attended monitoring was conducted by a qualified noise consultant in accordance with the approved monitoring program for the reporting period. Results of the monitoring are reported in the 14-day Report on the GM³ website and summarised in Table 18.

Temporary noise attenuation barriers were erected at Ventilation Shaft 6 to mitigate potential noise impacts until a replacement shed is constructed for the replacement compressors that are operating at the site due to fire damage (refer to Section 11 for more details).

Continuous noise monitoring for the reporting period was undertaken adjacent to the Heavy Vehicle Entry/Exit for Appin East. This was to identify if truck movement noise posed a potential issue to the operation. All noise generated by truck movements was consistent and did not identify any issues.

No exceedances of noise impact assessment criteria were recorded over the reporting period during quarterly attended monitoring. Graphs of long-term noise monitoring trends are provided in Appendix 4.

Table 18: Noise Survey Points and Results

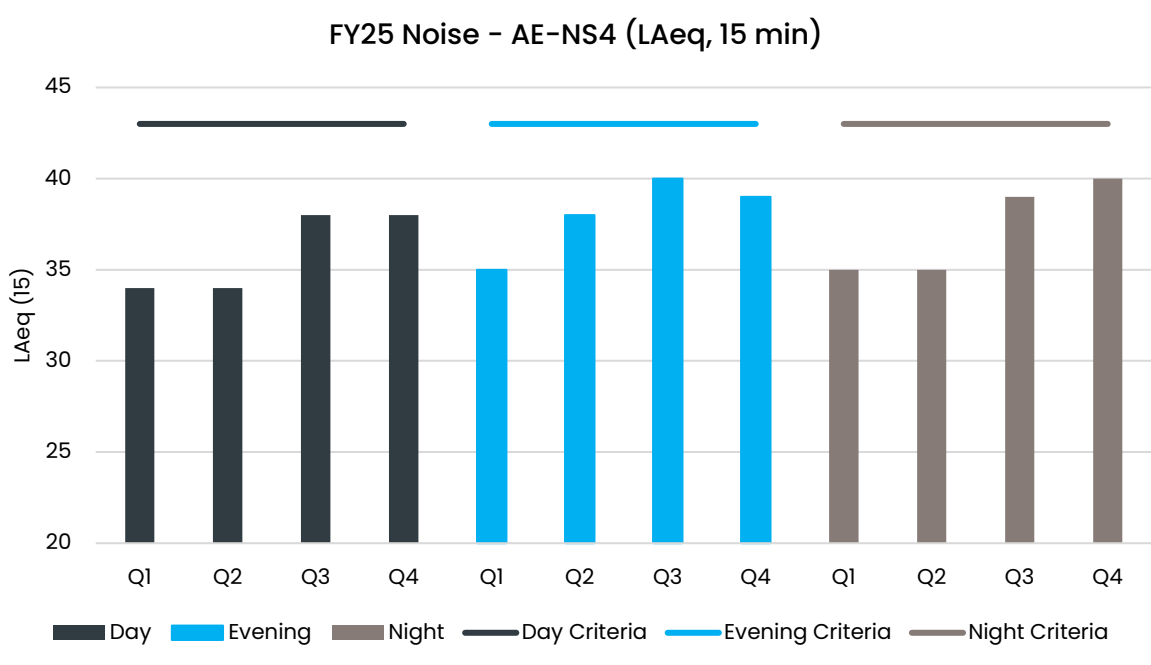
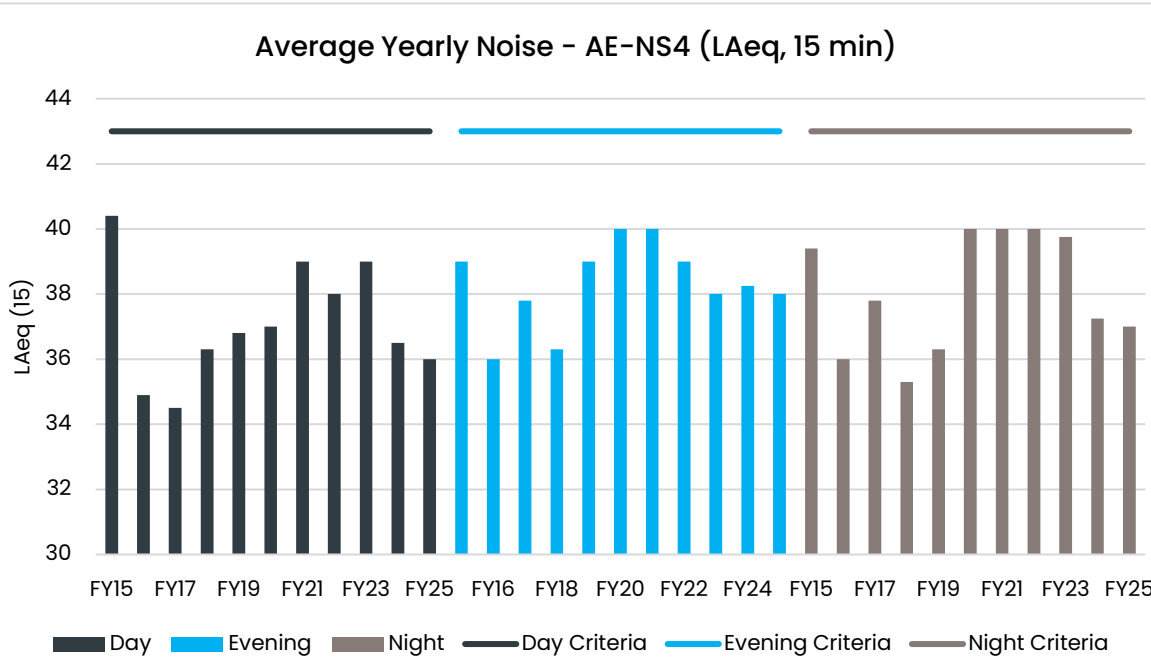
Survey Point ID	Type	Receivers	Assessment Criteria		Locality	Function	Data Summary	Comments																																																																				
			LAeq (15min)	LA1 (1min)																																																																								
AE-NS4	Attended	Appin township	43 (day, evening and night)	52 (night)	Located in paddock between Illawarra and Toggarai St North of Pit Top behind receiver 137.	Noise from AE Pit Top.	FY25 Noise - AE-NS4 (LAeq, 15 min) <table><caption>FY25 Noise - AE-NS4 (LAeq, 15 min)</caption><tr><th>Quarter</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>Q1</td><td>34</td><td>35</td><td>35</td></tr><tr><td>Q2</td><td>34</td><td>38</td><td>35</td></tr><tr><td>Q3</td><td>38</td><td>40</td><td>39</td></tr><tr><td>Q4</td><td>38</td><td>39</td><td>40</td></tr></table> Average Yearly Noise - AE-NS4 (LAeq, 15 min) <table><caption>Average Yearly Noise - AE-NS4 (LAeq, 15 min)</caption><tr><th>Fiscal Year</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>FY15</td><td>40</td><td>35</td><td>36</td></tr><tr><td>FY16</td><td>35</td><td>36</td><td>37</td></tr><tr><td>FY17</td><td>34</td><td>37</td><td>38</td></tr><tr><td>FY18</td><td>36</td><td>38</td><td>39</td></tr><tr><td>FY19</td><td>37</td><td>39</td><td>40</td></tr><tr><td>FY20</td><td>38</td><td>40</td><td>40</td></tr><tr><td>FY21</td><td>39</td><td>40</td><td>40</td></tr><tr><td>FY22</td><td>38</td><td>39</td><td>39</td></tr><tr><td>FY23</td><td>37</td><td>38</td><td>38</td></tr><tr><td>FY24</td><td>36</td><td>37</td><td>37</td></tr><tr><td>FY25</td><td>35</td><td>36</td><td>36</td></tr></table> Compliant Compliance with the assessment criteria was achieved in FY25. Noise generated from site was audible at the monitoring location. Appin Road still dominates as the overriding noise source.	Quarter	Day	Evening	Night	Q1	34	35	35	Q2	34	38	35	Q3	38	40	39	Q4	38	39	40	Fiscal Year	Day	Evening	Night	FY15	40	35	36	FY16	35	36	37	FY17	34	37	38	FY18	36	38	39	FY19	37	39	40	FY20	38	40	40	FY21	39	40	40	FY22	38	39	39	FY23	37	38	38	FY24	36	37	37	FY25	35	36	36	
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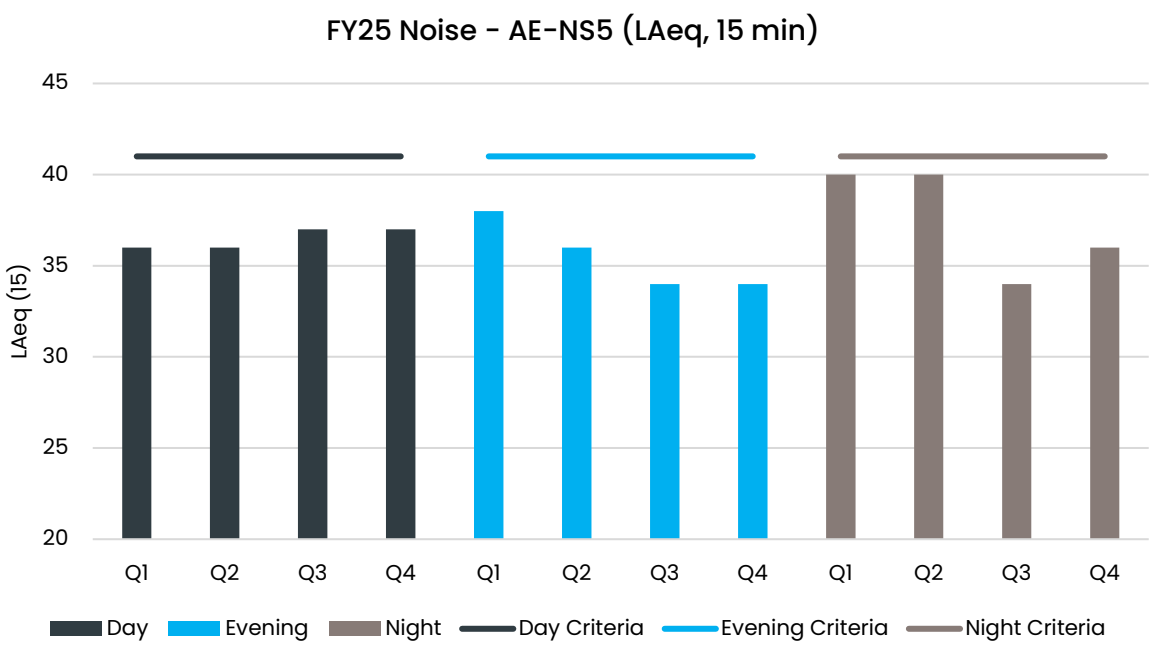
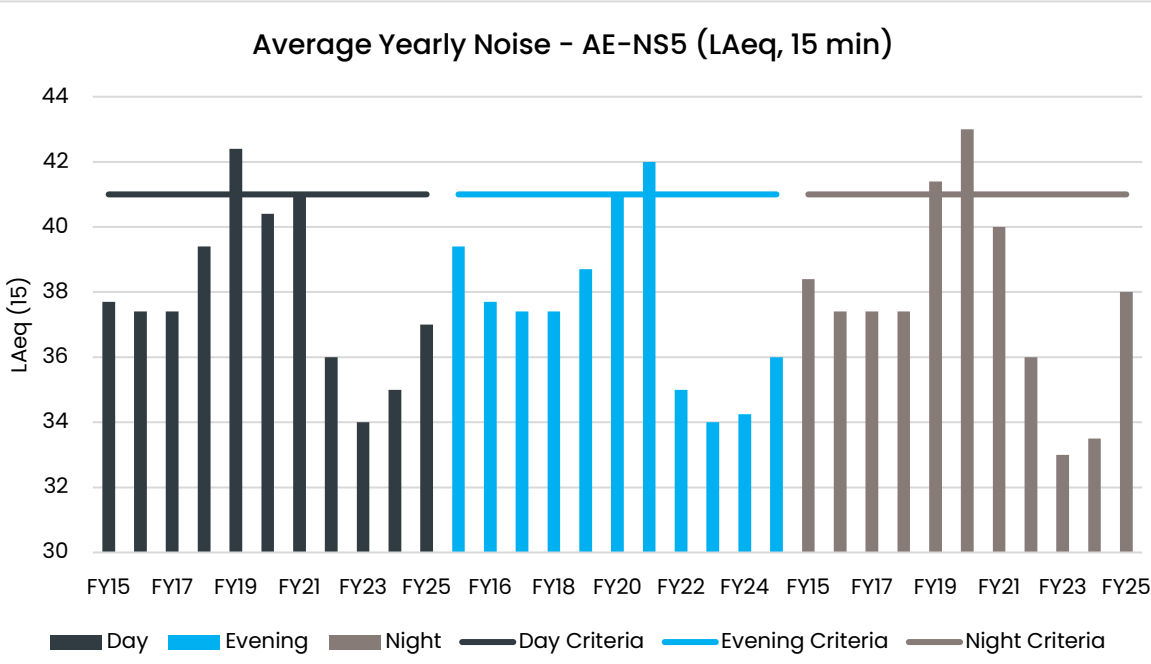
Survey Point ID	Type	Receivers	Assessment Criteria		Locality	Function	Data Summary	Comments
			LA _{eq} (15 min)	LA _I (1 min)				
AE-NS5	Attended	Appin Ventilation Shaft 1 and 2 receivers.	41 (day, evening and night)	50 (night)	Northamptondale Road between Ventilation Shaft 2 Site and power plant project and the nearest residential receivers in the South to East quadrant from site.	Noise levels between Shaft Site and the nearest residential receivers to the south-east.	FY25 Noise - AE-NS5 (LAeq, 15 min)  Average Yearly Noise - AE-NS5 (LAeq, 15 min) 	Compliant Compliance was achieved with the assessment criteria in FY25. Noise generated from site was audible at the monitoring location.

Table 18: Noise Survey Points and Results

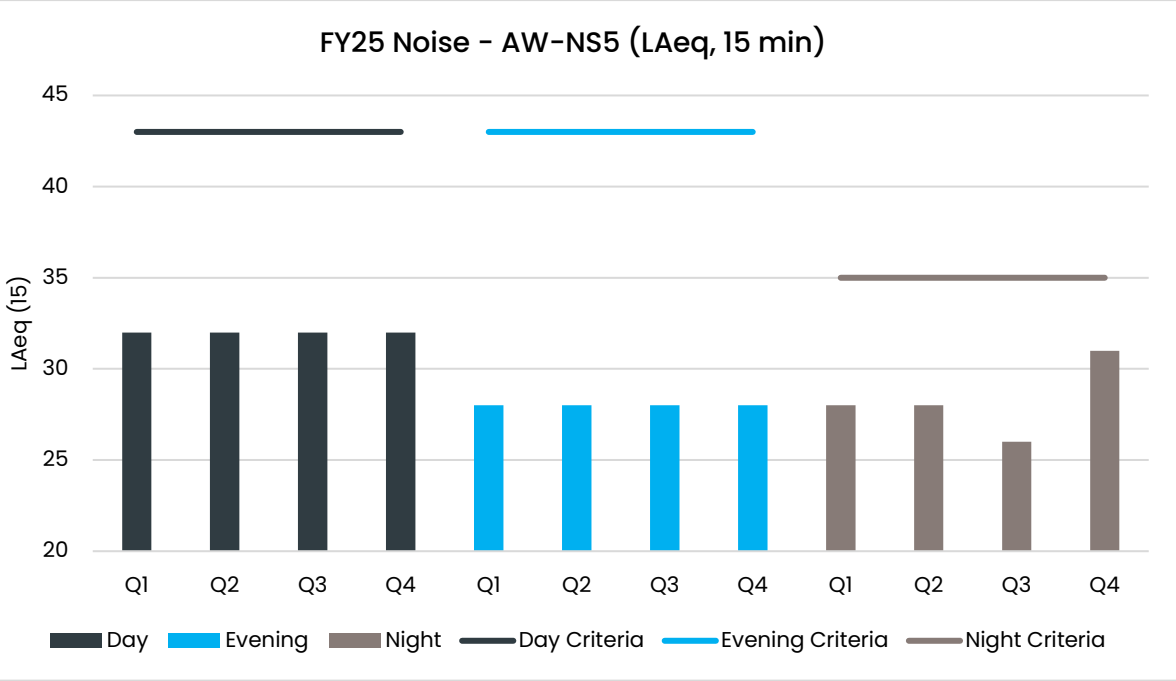
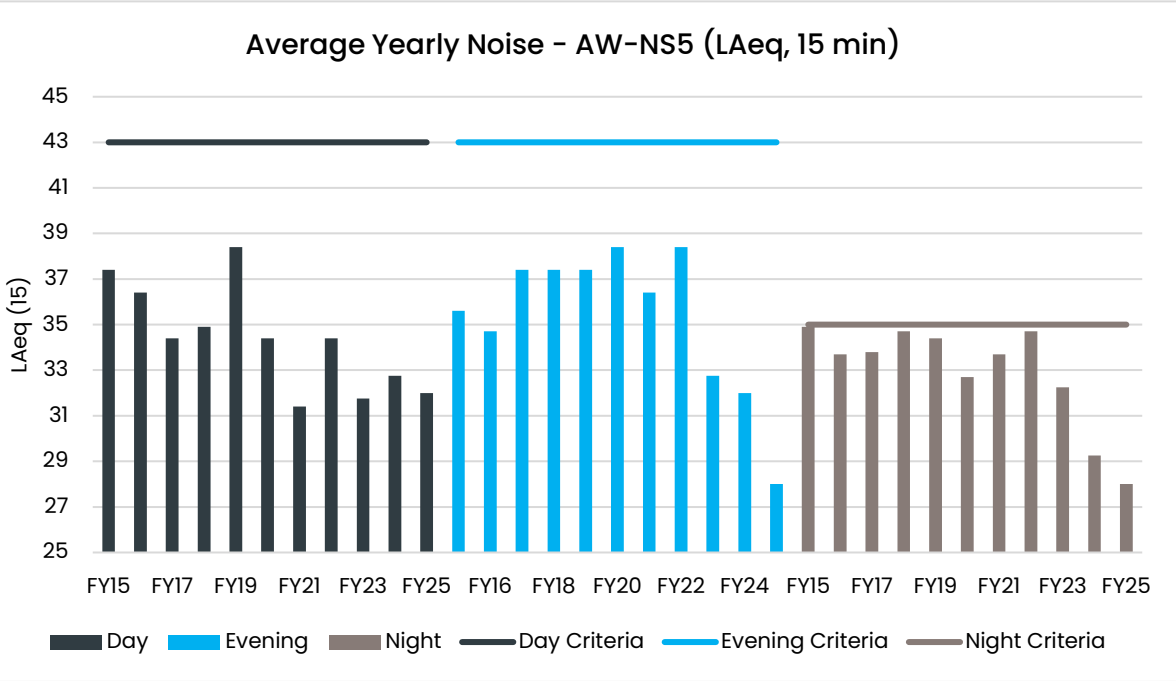
Survey Point ID	Type	Receivers	Assessment Criteria		Locality	Function	Data Summary	Comments
			LA _{eq} (15 min)	LA _I (1 min)				
AW-NS5	Attended	All other Appin West receivers.	43 (day and evening)	53 (night)	Between the nearest residential receivers on Douglas Park Drive and the Appin West Pit Top.	Noise level at Appin West property boundary.		Compliant Compliance with the assessment criteria was achieved in FY25. A decline in noise levels can be observed in the long-term trend.
			35 (night)			Noise levels between Appin West and the nearest residential receivers on Douglas Park Drive.		

Table 18: Noise Survey Points and Results

Survey Point ID	Type	Receivers	Assessment Criteria		Locality	Function	Data Summary	Comments																																																																
			LA _{eq} (15min)	LA _I (1min)																																																																				
VS6 Central	Attended	Douglas Park Township and Receivers.	45 day and evening) 39 (night)	49 (night)	Duggan Street behind Douglas Park Public School.	Noise level between Ventilation Shaft 6 and the nearest residential receivers to the West of the site.	FY25 Noise - VS6 Central (LAeq, 15 min) <table><caption>FY25 Noise - VS6 Central (LAeq, 15 min)</caption><tr><th>Quarter</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>Q1</td><td>33</td><td>31</td><td>31</td></tr><tr><td>Q2</td><td>33</td><td>31</td><td>31</td></tr><tr><td>Q3</td><td>35</td><td>31</td><td>31</td></tr><tr><td>Q4</td><td>31</td><td>31</td><td>30</td></tr></table> Average Yearly Noise - VS6 Central (LAeq, 15 min) <table><caption>Average Yearly Noise - VS6 Central (LAeq, 15 min)</caption><tr><th>Fiscal Year</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>FY16</td><td>37</td><td>34</td><td>34</td></tr><tr><td>FY17</td><td>34</td><td>34</td><td>34</td></tr><tr><td>FY18</td><td>30</td><td>34</td><td>34</td></tr><tr><td>FY19</td><td>37</td><td>38</td><td>39</td></tr><tr><td>FY20</td><td>33</td><td>43</td><td>35</td></tr><tr><td>FY21</td><td>34</td><td>36</td><td>32</td></tr><tr><td>FY22</td><td>38</td><td>39</td><td>36</td></tr><tr><td>FY23</td><td>30</td><td>30</td><td>30</td></tr><tr><td>FY24</td><td>29</td><td>30</td><td>31</td></tr><tr><td>FY25</td><td>33</td><td>31</td><td>31</td></tr></table>	Quarter	Day	Evening	Night	Q1	33	31	31	Q2	33	31	31	Q3	35	31	31	Q4	31	31	30	Fiscal Year	Day	Evening	Night	FY16	37	34	34	FY17	34	34	34	FY18	30	34	34	FY19	37	38	39	FY20	33	43	35	FY21	34	36	32	FY22	38	39	36	FY23	30	30	30	FY24	29	30	31	FY25	33	31	31	Compliant: Compliance with the assessment criteria was achieved in FY25. Site noise was not audible and the dominant noise source was the Hume Highway, with other sources such as local traffic, train and fauna across each sampling period. Long term trend analysis shows the FY25 average results are typically within historic trends.
Quarter	Day	Evening	Night																																																																					
Q1	33	31	31																																																																					
Q2	33	31	31																																																																					
Q3	35	31	31																																																																					
Q4	31	31	30																																																																					
Fiscal Year	Day	Evening	Night																																																																					
FY16	37	34	34																																																																					
FY17	34	34	34																																																																					
FY18	30	34	34																																																																					
FY19	37	38	39																																																																					
FY20	33	43	35																																																																					
FY21	34	36	32																																																																					
FY22	38	39	36																																																																					
FY23	30	30	30																																																																					
FY24	29	30	31																																																																					
FY25	33	31	31																																																																					

Table 18: Noise Survey Points and Results

Survey Point ID	Type	Receivers	Assessment Criteria		Locality	Function	Data Summary	Comments						
			LAeq (15min)	LA1 (1min)										
LA1 (1min)														
AE-NS4	Attended	Various (see above).	N/A	49 to 53 (see graph).	Various (see above).									Compliant: Noise levels measured were below the assessment criteria for LA1,1min across all monitoring sites for FY25. Long-term graphs are provided in Appendix 4.
AE-NS5														
AW-NS4														
VS6														
Central														

6.8.2 Construction Noise

6.8.2.1 Monitoring Program

Noise monitoring protocols for the AMVA Project are outlined in the AMVA Project CEMP and can be summarised as:

- Continuous real-time (unattended) noise monitoring.
- Attended noise monitoring undertaken quarterly at, or nearby, receivers.

Real-time (unattended) noise monitoring is undertaken continuously, at the three (3) locations as shown on Plan 8. These locations were selected as they were in the direction of the receivers at the relevant site boundary. Monitoring at these locations enables the assessment of noise levels being generated by site in the direction of receivers and allows for operational management of noise at the site. Data collected by the monitors is reviewed regularly to evaluate noise levels. Real-time monitoring is a key tool used by the AMVA team to inform, monitor and improve environmental performance for noise.

Attended noise monitoring is undertaken quarterly at, or nearby, receivers to:

- Develop a greater understanding of noise impacts generated by shaft sinking activities at receivers.
- Inform engineering requirements for noise mitigation during the main sink.
- Provide information which will assist ICHPL and their contractors in managing activities in accordance with the Project Approval.

6.8.2.2 Environmental Performance

Four (4) attended monitoring campaigns were undertaken in FY25 with no exceedances of the noise impact assessment criteria in Condition 2C of Schedule 4 of the Project Approval recorded.

6.8.2.3 Noise Agreements and Acquisitions

Receiver R3 has been acquired by Endeavour Coal Pty Ltd and therefore is not considered a sensitive receiver. Receivers R2 and R16 have entered into negotiated noise agreements with Endeavour Coal Pty Ltd.

6.9 Visual and Stray Light

6.9.1 Operational Sites

The Appin West Pit Top is not directly visible by nearby residential receivers. Lighting located on the personnel and materials winder is partially visible from some residences at Wilton, however it has not been raised by the community as an issue.

At Appin East, operations are not directly visible from nearby residential receiver locations. Lighting located at the top of the coal storage bins is partially visible from some residences, however it has not been raised by the community as an issue.

Due to the relatively remote location of Appin North, there are no identified lighting issues.

To minimise the visual disturbance from the Ventilation Shaft 6 site, exposed areas have been revegetated. The most significant feature for minimising visibility of the site is the earthen noise barrier. This bund was also revegetated.

No changes to lighting or other structures were undertaken in FY25 across Appin sites that would enhance visibility or light intrusiveness to the nearby sensitive receptors.

6.9.2 AMVA Project

Native tree screen planting was undertaken in late 2021 at the AMVA Project site consistent with a conceptual road alignment.

As a result of the change to the road alignment, there was a requirement to remove some of the native screening planting undertaken in 2021 to facilitate works. Additional tree screening planting of ~1800 tubestock was completed in May 2024 to both replace trees that had been removed as well as improve visual amenity. An additional 375 tubestock were planted in October 2024 as a maintenance planting where replacements were required. A further replacement planting campaign is planned for FY26.

The AMVA site uses elevated lighting at night for safety purposes which has been oriented to minimise light spillage as much as possible without compromising safety or operations and reduce annoyance to neighbouring residents.

6.10 Aboriginal Heritage

Aboriginal and natural heritage at Appin North is managed in accordance with the approved CWEA Management Plan. The plan outlines the management/mitigation measures relating specifically to each heritage site located within or in close proximity to the CWEA. A copy of the plan is available on the GM³ website using this [link](#). The revised design of Stage 3 of the CWEA to avoid direct impacts to Aboriginal heritage sites was approved in FY25.

Aboriginal aspects associated with subsidence from the underground mining activities are detailed in Section 6.13.

6.11 Natural Heritage

Natural heritage aspects associated with subsidence from the underground mining activities are detailed in Section 6.13.

6.12 Bushfire

The risk of bushfire across Appin Mine is managed by a combination of preventative and ready response activities. Bushfire management includes the formation and maintenance of fire breaks and Asset Protection Zones (APZs), and the establishment of a firefighting water pipeline around most sites (with booster pump facilities). Appropriate site personnel are trained in emergency response and firefighting and a supply of firefighting equipment on the sites is available. Firefighting equipment was inspected and serviced/maintained during the reporting period, and APZs and firebreaks were inspected and maintained as required.

6.13 Mine Subsidence

6.13.1 Approvals

6.13.1.1 AA7 and AA9

The Appin Mine LW709 to LW711 and LW905 Extraction Plan (EP) was approved by the Secretary on 29 July 2022. This approval replaces the Subsidence Management Plan (SMP) Approval for LW709 and LW710.

LW710 is split into two (2) sections – A and B. LW710A commenced extraction on 1 November 2023 and finished on 16 June 2024. LW710B commenced extraction on 18 June 2024 and completed extraction on 9 June 2025 (refer to Plan 18).

The LW709 to LW711 and LW905 EP is the current approval for operations which have wholly transitioned to AA7.

6.13.1.2 Appin (West Cliff) Area 5 LW37 – LW38

The Area 5 EP for LW37 and LW38 was approved by the Department on 24 March 2014. Approval was granted by DTIRIS on 28 March 2014. The EP is supported by management plans addressing cultural, environmental and infrastructure aspects of the mining area.

LW38 was the final panel in Area 5 which was completed on 1 February 2016. The area has undergone post-mining monitoring in the reporting period as part of the approved

monitoring program. Rehabilitation to Georges River pools and rockbars affected by Area 5 subsidence continued in FY25. Refer to Section 8.1.4 for more information.

6.13.2 AA7 and AA9 Monitoring and Management Programs

Surface features in the vicinity of mining and reference locations during the reporting period include:

- Nepean River and associated tributaries;
- Harris Creek and associated tributaries;
- Navigation Creek;
- Foot Onslow Creek;
- Racecourse Creek;
- cliffs, rocky outcrops and steep slopes; and
- buildings and infrastructure.

Monitoring activities within the EP area includes:

- water flow, pool water levels and water quality monitoring;
- photographic and observational monitoring to identify mining-induced fractures, strata gas releases, iron staining and rock falls;
- aquatic ecology monitoring;
- built features.

The results of these monitoring programs are provided in this section.

6.13.2.1 Landscape Features

During the reporting period, monitoring of environmental features was carried out in accordance with the Appin Mine LW709 to LW711 and LW905 EP. Monitoring was conducted within the zone of influence during baseline, mining and post-mining periods (where applicable).

No new gas release zones were identified on the Nepean River during the reporting period. Ten (10) previously reported gas zones were observed to be active on the final inspection for the reporting period (June 2025).

Each gas zone had an estimated emission rate of less than 3000 L/min²¹ and remained at TARP Level 1 under the Water Management Plan.

Table 19 includes the Nepean River gas release zones observed during the reporting period.

The LW710 End of Panel (EoP) Report is currently being prepared. The full report, including specialist assessments, will be available via the GM³ website in late 2025.

6.13.2.2 Surface Water

Inspections of the Nepean River and tributaries around AA7 and AA9 are undertaken by the ICHPL Environmental Field Team (EFT) as required. Monitoring includes water quality and water levels as well as visual inspections for any iron staining and gas releases. Gas release zones on the Nepean River are reported in Section 6.13.2.1.

No areas of iron staining were identified during the reporting period.

No fracturing and associated flow diversion was observed from infield inspections during the reporting period, however specialist analysis of water levels and surface flows will be undertaken as part of the LW710 EoP Report.

Table 19 provides a summary of the predicted and observed impacts for surface waters during the reporting period.

²¹ This is the lowest TARP level. Emissions were considerably lower than 3000 L/min.

Table 19: Predicted vs Observed Impacts for Landscape Features for AA7

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Surface waters	Unlikely for any significant change in water level along the Nepean River.	No impacts observed. Specialist analysis of water levels will be included in the LW710 EoP Report.	N/A
	Potential for surface water flow diversion is very low.	No impacts observed. Specialist analysis of surface flows will be included in the LW710 EoP Report.	N/A
	Potential for surface water diversion directly above or adjacent to the mining area.	No impacts observed. Specialist analysis of surface flows will be included in the LW710 EoP Report.	N/A
	Low likelihood of ferruginous springs. Significant impacts on Nepean River pH, iron and dissolved oxygen not predicted.	No impacts observed. Specialist analysis of water quality will be included in the LW710 EoP Report.	N/A
Gas releases	Likely that strata gas emissions could occur in the Nepean River with some associated reduction in dissolved oxygen possible.	Existing gas release zones were observed for AA7 and AA9 during the reporting period. No new gas zones were identified in AA7 or AA9.	- Continued monitoring program. - Will be reported in the LW710 EoP Report. - Summary included in Annual Review.
Iron staining	Minor iron flocs are expected to occur in the Nepean River. No change in water quality is predicted.	No impacts observed.	N/A

Table 19: Predicted vs Observed Impacts for Landscape Features for AA7			
Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Fracturing	Minor fracturing may occur in the bed of the Nepean River.	No impacts observed.	N/A
Creeks	Possible for localised increase in ponding, flooding or scouring.	No impacts observed.	N/A
Cliffs	Possible minor isolated rock falls. Unlikely that any large cliff instabilities would occur.	No impacts observed.	N/A
Steep Slopes	Unlikely that there would be any significant impacts to steep slopes.	No impacts observed.	N/A

6.13.2.3 Groundwater

During the reporting period groundwater level triggers were identified and reported for boreholes S2315 and S2537. Borehole S2315 is located approximately 250 m north of the (eastern) starting end of LW710B, and borehole S2537 is located approximately 520 m south of LW710A (Plan 16 and Plan 17).

On 10 January 2025, Level 1 triggers were identified in both boreholes. A Level 1 trigger is defined as: >10 m reduction in water level/pressure in the Hawkesbury Sandstone (HBSS) from the average level in the period of 12 months prior to the start of a longwall, over a minimum of two (2) months.

Continuation of water level/pressure recession in borehole S2315 resulted in a Level 2 trigger, defined as >15 m reduction in water level/pressure in the HBSS from the average level in the period of 12 months prior to the start of a longwall, over a minimum of two (2) months. This was reported on 13 February 2025.

No further groundwater level triggers were identified in any of the designated boreholes.

A comprehensive groundwater assessment will be included in the LW710 EoP Report, with results included in the FY26 Annual Review.

DCCEEW provided feedback to the FY24 Appin Mine Annual Review. Table 20 below provides the ICHPL response to the recommendations.

Table 20: DCCEEW feedback to the FY24 Appin Mine Annual Review and ICHPL responses	
DCCEEW Recommendation	ICHPL Response
1.1 Integrate the Water Management Plan with, and update the Annual Report to provide a clear and complete overview of groundwater management for the whole of Appin Mine operation, including, but not limited to: - The most recently available groundwater data – preferably in hydrographs and contour maps (or similarly accessible format) - Groundwater performance criteria and trigger levels	The EoP Reports include hydrographs for all groundwater monitoring sites included in the EP. It also compares groundwater levels against TARPs. Contour maps are problematic due to the different levels at which the piezometers sit, and the changing number of bores, being added and decommissioned, over time. Table 5-2 of the LW707 EoP Report (link) includes a summary of the predicted and observed impacts to groundwater for the reporting period. A more comprehensive

Table 20: DCCEEW feedback to the FY24 Appin Mine Annual Review and ICHPL responses	
DCCEEW Recommendation	ICHPL Response
Contingency and Trigger Action Response Plan for any trigger level comparing performance targets to measured data (preferably in hydrographs and figures (or similarly accessible format).	analysis of groundwater results is presented in the specialist LW709 EoP Surface Water and Groundwater Monitoring Review (HGEO, 2024) (link). The latest monitoring results, hydrographs and analysis will be included in the LW710 EoP Report (in prep.), with a summary provided in the FY26 Appin Annual Review.
2.1 Investigate the need to include additional third-party bores in the water compensatory agreement.	Refer to Section 7.2.
2.2 The Annual Report should include a discussion on model validation demonstrating a comparison between the predicted and occurring impacts of connectivity and subsidence. This should include an analysis of groundwater levels in monitoring bores and dissolved methane concentrations. If found necessary, the groundwater model should be improved to ensure it remains 'fit for purpose'.	ICHPL will include plots of dissolved methane concentrations in bores in the LW711 EoP Report and look at including comparisons between modelled and observed groundwater levels. The groundwater model does not make predictions regarding methane concentrations and ICHPL does not believe the model could practically be improved to do so.

6.13.2.4 **Aquatic Ecology**

Specialist aquatic ecology monitoring is conducted every two (2) years as per the LW709 to 711 and LW905 EP. The last monitoring was undertaken in December 2023 with results included in the FY24 Annual Review and LW709 EoP Report, both available on the GM³ website. The next monitoring is scheduled for December 2025, with results to be included in the FY26 Annual Review.

Routine EFT monitoring of the Nepean River and associated tributaries throughout FY25 found no impacts with the potential to effect aquatic ecology values. An assessment of predicted and observed impacts for aquatic ecology is provided in Table 21.

Table 21: Predicted vs Observed Impacts for Aquatic Ecology

Location	Attribute	Predicted Impacts	Observed Impacts	Completed Actions
Nepean River	Ponding, flooding and scouring of stream banks.	There are unlikely to be any measurable impacts on the availability or connectivity of aquatic habitats in the downstream reach of the Nepean River due to its flooded nature and very low gradient.	No changes in ponding, flooding and scouring of stream banks observed by EFT.	N/A
	Fracturing of bedrock and diversion of surface flows.	It is considered unlikely that there would be any net loss of water from the catchment. No significant changes in the quantity or quality of permanent aquatic habitat.	No fracturing observed by EFT. Specialist assessment of water levels, surface flows and aquatic ecology will be undertaken as part of the LW710 EoP Report.	N/A
	Gas releases.	Minor gas releases, associated iron precipitate and reductions in concentrations of dissolved oxygen are likely to occur due to extraction.	No new gas release zones were identified during FY25. No changes to indicators of aquatic ecology at monitoring sites have been observed.	N/A
	Water Quality	No more than minor associated impacts to aquatic biota are expected.	No mining-induced changes to water quality have been observed throughout LW710A/B. Specialist assessment will be undertaken as part of the LW710A/B EoP Report.	N/A
Tributaries	Ponding, flooding and scouring of stream banks	Localised and minor changes in habitat availability and connectivity	No changes in ponding, flooding and scouring of stream banks observed by	N/A

Table 21: Predicted vs Observed Impacts for Aquatic Ecology

Location	Attribute	Predicted Impacts	Observed Impacts	Completed Actions
		may occur but these effects will be difficult to detect due the high variability in natural flows within these ephemeral watercourses. Consequently, impacts to aquatic habitat and biota due to tilt, if any, are expected to be minor and localised in drainage lines located directly above and within 400 m of the proposed longwalls.	EFT. No associated impacts to aquatic habitat or biota therefore expected.	
	Fracturing of bedrock and diversion of surface flows	Fracturing may result in the draining of pools in these watercourses, particularly during low flows, resulting in a reduction in the availability of aquatic habitat and the connectivity of remaining habitat. This may result in a reduction in population size of aquatic biota at the scale of individual watercourses. However, given the natural ephemeral / intermittent nature of these watercourses and the abundance of such habitat in the Nepean River	No fracturing in tributaries over the mining area was identified by EFT. No associated impacts to aquatic habitat or biota therefore expected. Specialist assessment will be undertaken as part of the LW710 EoP Report.	N/A

Table 21: Predicted vs Observed Impacts for Aquatic Ecology

Location	Attribute	Predicted Impacts	Observed Impacts	Completed Actions
		Catchment, impacts on aquatic habitat and biota are expected to be negligible at this catchment scale.		
	Gas releases	Minor gas releases, associated iron precipitate and reductions in concentrations of dissolved oxygen may occur due to extraction.	No changes to indicators of aquatic ecology in downstream sections of the Nepean River have been observed. Any effect on aquatic habitat or biota due to isolated gas releases in tributaries would be expected to be localised, minor in magnitude and negligible at the scale of the Nepean River catchment.	N/A
	Water Quality	No significant impacts to aquatic habitat or biota expected in the absence of impacts to water quality.	No mining-induced changes to water quality have been observed during LW710A/B. No associated impacts to aquatic habitat or biota therefore expected.	N/A

6.13.2.5 Terrestrial Ecology

Assessments of significance have been completed for an endangered community and threatened flora and fauna species in the mining area. The assessments focused on flora and fauna that could potentially be impacted by subsidence. The following aspects were assessed:

- native vegetation communities;
- threatened flora; and
- threatened fauna and fauna habitat.

Plant communities, fauna habitats, threatened species, populations and ecological communities have not been significantly impacted by subsidence during the reporting period as outlined in Table 22.

Table 22: Predicted vs Observed Impacts for Terrestrial Ecology for AA7 and AA9			
Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Vegetation communities and fauna habitat	Minor impacts to riparian habitats on the Nepean River through changes in water levels, desiccation, gas release and minor fracturing.	No impacts observed.	N/A
	Minor impacts to vegetation due to rock falls, an increase in ponding, flooding or cracking to drainage lines and creeks.	No impacts observed.	N/A
Threatened flora	Unlikely that any threatened flora would be significantly impacted.	No impacts observed.	N/A
Threatened fauna	Unlikely that threatened fauna or habitats will be significantly impacted.	No impacts observed.	N/A

6.13.2.6 Cultural Heritage

No impacts to historical sites or Aboriginal heritage sites were recorded during the reporting period.

6.13.2.7 Surface Infrastructure

Surface infrastructure located within or near the mining areas includes the following:

- Optical fibre cables (Telstra, Optus, NextGen and Powertel).
- Main Southern Railway and associated infrastructure.
- Local roads and drainage culverts.
- Power infrastructure.
- Copper telecommunications cables.
- Potable water and sewerage networks.
- Building structures, pools, water tanks and farm dams.
- Groundwater bores.
- Survey Control Marks.

A summary of the observed surface infrastructure impacts during the reporting period is provided in Table 23.

6.13.2.8 Seismic Monitoring

The Seismology Research Centre (SRC) prepares a seismic monitoring network report for ICHPL on an annual basis. A report was provided for 11 February 2024 – 10 February 2025, as well as an additional report for 11 February to 30 June 2025, to align with the Annual Review reporting period.²²

The seismic monitoring network installed for ICHPL by SRC is comprised of eight (8) seismic monitoring stations. For the most part, the network continued to work effectively over the reporting period with the full network operating, providing consistent and precise data that contributed to reducing location uncertainty. SRC staff made a site visit in March 2024 during which the modems were replaced with 4G capable units in anticipation of the Telstra 3G network shutdown.

A total of 1391 events were recorded in the period 11 February 2024 to 10 February 2025, up from 1057 events in the previous reporting period, with an additional 761 events recorded in the period 11 February to 30 June 2025, with the peak number of events in April and May 2025. The increase in recorded events from the previous reporting period is partially due to the upgrade to the monitoring network and additional analysis of data, resulting in an increase in the sensitivity and accuracy of the monitoring network. Data showed a distinct tight grouping of events correlating to the extraction of LW710B and highlighted

²² Future reports will be provided for a 1 July to 30 June reporting period.

the easterly progression of mining over the second half of 2024 and 2025. Events to the west of LW710B were mostly attributed to LW710A.

The majority of the recorded events ranged in magnitude from MLv -0.3 to MLv 1.3 which falls within the range similarly observed for microseismic events at longwall coal mines. Some events in the magnitude 1.0 to 1.3 range were tectonic events. Mining activity may result in stress changes in the local area that may contribute to the release of pre-existing tectonic stress.

An event above this range, at MLv 1.6, was tectonic in origin. This larger event on 23 November 2024 (local time) was recorded in the Douglas Park area, in the vicinity of LW710B at an approximate depth of 1.5 km. This event was reported by some residents in the area. All Appin Mine seismic network stations were operating at the time of the event and seven (7) out of the eight (8) stations recorded the event on both the weak motion seismometers as well as the strong motion accelerometers.

On 28 May 2025, a magnitude MLv 3.6 earthquake, tectonic in origin, was recorded in the Menangle area, in the vicinity of LW710B at an approximate depth of 1.5 km. This event was reported to have been felt by a number of local residents in the area, including residents as far away as Campbelltown. All Appin Mine seismic network stations were operating at the time of the event and recorded it on both the weak motion seismometers as well as the strong motion accelerometers on the stations that have them. A magnitude MLv 2.3 aftershock was recorded in a similar location approximately 33 seconds after this event.

Table 23: Predicted vs Observed Impacts for Surface Infrastructure for Appin

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Local Road	Minor cracking and localised heaving of the road surface in some locations above the longwall.	Roads remained safe and serviceable. Localised heaving and cracking occurred in the road pavements on Menangle Road and Carrolls Road.	The road pavement along Carrolls and Menangle Roads was impacted by LW710B and was remediated in April 2025.
Hume Highway	No impacts on the safety or serviceability of the highway after the implementation of the management strategies.	Road remained safe and serviceable. No adverse impacts to safety or serviceability.	N/A
Main Southern Railway	No impacts on the safety or serviceability of the railway after the implementation of the management strategies.	Track remained safe and serviceable. No adverse impacts to safety or serviceability.	N/A
Douglas Park Twin Bridges	Impacts unlikely after the implementation of the TARP.	No reported impacts.	N/A

Table 23: Predicted vs Observed Impacts for Surface Infrastructure for Appin

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Moreton Park Road Bridges (North and South)	Impacts unlikely after the detailed investigation, analysis and implementation of the TARP.	No reported impacts.	N/A
Power Infrastructure	Impacts unlikely, but minor mitigation measures may be required.	No reported impacts.	N/A
Copper telecommunications cables	Impacts unlikely.	No reported impacts.	N/A
Optical fibre cables	Impacts unlikely with the implementation of the management strategies including Optical Time-Domain Reflectometry (OTDR) monitoring and mitigation	No reported impacts.	N/A
Building structures	Assess that approximately 17 % to 23 % of houses will experience Category R1 or R2 impacts,	Building structures remained in safe and serviceable conditions. Impacts observed to houses during	Claims that have been lodged are being managed by Subsidence Advisory (SA)

Table 23: Predicted vs Observed Impacts for Surface Infrastructure for Appin

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
	approximately 7 % to 11 % will experience Category R3 or R4 impacts and approximately 2 % to 3 % will experience Category R5 impacts	the mining of LW710B comprise very slight to slight impacts (Category R1 or R2) at seven (7) houses and moderate or greater impacts (Category R3) at three (3) houses.	NSW through the relevant legislation.
Pools	Inground pools could be more susceptible to ground strains causing cracking and/or loss of water	Impacts observed to pools during the mining of LW709 comprise cracking of the shells or surrounds or loss of water. Pool gates not closing or latching correctly at several properties.	Claims that have been lodged are being managed by SA NSW through the relevant legislation. Remediated by ICHPL or the property owner.
Water tanks	Impacts unlikely.	No reported impacts.	N/A
Farm dams	Potential for minor cracking or leakage.	Some damage on one property attributed to mining.	Remediation under SANSW claim.
Heritage structures	No heritage structures located near LW710A/B.	No reported impacts.	N/A

Table 23: Predicted vs Observed Impacts for Surface Infrastructure for Appin

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Groundwater bores	Potential for blockage or reduction in the capacity of the groundwater bores.	Three (3) bores grout filled to manage gas expression.	Water deliveries ongoing until remediation is possible following the conclusion of active subsidence.
Survey control marks	Small fair-field horizontal movements which could require re-establishment.	Small far-field horizontal movements.	N/A

6.13.3 Area 5 Monitoring and Management Programs

LW38 ceased extraction on 1 February 2016. Monitoring of the Georges River continues, providing pre and post remediation data for the GRRP. Monitoring activities currently include:

- photographic and observational monitoring including the Georges River and its tributaries, cliff lines and landscape features;
- water flow, pool water levels and water quality monitoring; and
- shallow groundwater level monitoring.

Monthly monitoring is undertaken by the EFT with fortnightly targeted inspections of Georges River pools that are observed to be below baseline level. No below baseline water levels were recorded during the FY25 reporting period. Pools observed to be below baseline in previous reporting periods have had rehabilitation activities undertaken in FY25, as per the GRRP.

Rehabilitation as per the GRRP continued in FY25. Pre- and post-rehabilitation data continued to be collected through the reporting period. This included pool water levels and quality, and surface flows. Post-rehabilitation data collection was undertaken at sites where rehabilitation works were completed. This data will continue to be collected through FY26 and will inform the assessment of rehabilitation success.

Rehabilitation activities in the Georges River are discussed in Section 8.1.4.

6.13.3.1 Landscape Features

Post-mining monitoring includes inspections of the Georges River as well as riparian and landscape features, to support the GRRP. There have been no new impacts identified since subsidence in Area 5 has ceased (refer to Table 24).

6.13.3.2 Surface Water

The monitoring program provides a basis for the comparison of flow, pool level and water quality in the area before, during and after mining as outlined in the Area 5 LW37 to LW38 EP.

During the reporting period field water quality in the Georges River sites generally remained within the baseline range, with no significant change in trend or adverse changes being observed. No TARP trigger levels were recorded. The levels of dissolved metals in the Georges River maintained similar pre-LW38 variability, with no significant change to the observed ranges as a result of the extraction of LW38.

A summary of the observed surface water impacts for LW38 is provided in Table 25.

Table 24: Predicted vs Observed Impacts for Landscape Features for Area 5

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Georges River and tributaries	Negligible environmental consequences including: - negligible diversion of flows or changes in the natural drainage behaviour of pools; - negligible gas releases and iron staining; and - negligible increase in water cloudiness over at least 80% of the stream length subject to vertical subsidence >20 mm. No subsidence impact or environmental consequence greater than minor.	No new impacts observed.	- Monitoring program continued. - Rehabilitation of impacted Georges River pools continued through FY25. See Section 8.1.4 for details.
Cliffs	Cliffs of "special significance": Negligible impact (that is occasional rock falls displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 0.5% of the total face area of such cliffs) within any longwall mining domain. Other cliffs: Minor impacts (that is occasional rock falls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 3% of the total face area of such cliffs within any longwall mining domain).	No impacts observed.	N/A
Access Track	Minor impacts.	No impacts observed.	N/A

Table 25: Predicted vs Observed Impacts for Surface Water for Area 5

Aspect	Predicted Impacts	Observed Impacts	Completed Actions
Georges River	Negligible environmental consequences including: - negligible diversion of flows or changes in the natural drainage behaviour of pools; - negligible gas releases and iron staining; and - negligible increase in water cloudiness over at least 80% of the stream length subject to vertical subsidence >20 mm. No subsidence impact or environmental consequence greater than minor.	Based on analysis of the long-term water quality records for designated upstream and downstream sites of LW38, no significant water quality impacts were observed or measured within the Georges River. Fracturing and diversion of flow with lower pool levels. Pool water levels respond to releases from BCD.	- Monitoring program continued. - Rehabilitation works as per the GRRP continued in through FY25.

6.13.3.3 Groundwater

Post mining monitoring of groundwater in the HBSS in Area 5 has continued as outlined in the LW37-38 EP, with the exception of borehole S2217 (WC95) where monitoring stopped due to property access restrictions.

No adverse interconnection of aquifers and aquitards has been observed within 20 m of the plateau surface and no increased rate of groundwater recharge into the plateau has been observed in the post-mining period.

No TARP trigger levels related to aquifer or aquitard interconnection or changes in recharge have been observed in the post-mining period.

6.13.3.4 Aquatic Ecology

No specialist aquatic ecology monitoring was undertaken during the reporting period as the post-mining period of this program is complete. Results from specialist aquatic ecology monitoring have been included in previous Annual Reviews.

Observations of aquatic ecology habitat is captured as part of monthly inspections undertaken by the EFT. No specific impacts to aquatic ecology were evident in the reporting period.

Water quality and aquatic health monitoring related to EPL 2504 will be undertaken as required (refer to Section 6.3.3.3).

6.13.3.5 Terrestrial Ecology

Visual inspections of vegetation communities within the LW37 and LW38 Study Area are undertaken as a part of routine landscape and water monitoring programs. Post-mining monitoring focuses on detecting changes to vegetation communities and fauna habitat.

No subsidence-related impacts to vegetation have been observed in the post-mining period. No mining related changes are anticipated given it has been nine (9) years since mining ceased in Area 5.

Some track clearing was undertaken during the reporting period associated with the approved GRRP and associated REF.

6.13.3.6 Cultural Heritage

No historical sites were located above LW38.

There were no post mining impacts identified as a result of longwall extraction in the reporting period. Impacts have previously been noted to Aboriginal shelter sites Georges River No. 2 (AHIMS # 52-2-2243) and Georges River No. 3 (AHIMS # 52-2-2243). These impacts were a result of subsidence movements from LW35 and LW36. Refer to the relevant EoP Reports for further information.

Cultural heritage sites were identified in the REF for Georges River rehabilitation with rehabilitation works and access track design avoiding these sites.

6.13.3.7 Surface Infrastructure

Active mining concluded in Area 5 with the completion of LW38 on 1 February 2016. The area has undergone post mining monitoring as part of the approved monitoring program and no survey monitoring has been undertaken in FY25. There were no reported impacts to any built features or subsidence claims in FY25 in Area 5.

6.14 Hazardous Material Management

6.14.1 Storage

Hydrocarbons are stored in purpose-built facilities with appropriate bunding and firefighting provisions available. A licenced waste contractor is engaged to remove and recycle and/or dispose of used oil and grease products through appropriately licenced facilities.

Diesel fuel is brought to the Appin Mine Pit Tops by road tanker and stored in above ground bunded tanks, from where it is transferred to diesel pods for underground use or direct to machinery. The Principal Contractor operates similarly at the AMVA Site.

Appin Mine has two (2) chlorine dioxide dosing plants in use – one (1) at the Appin West Pit Top, and the other at BCD.

A secondary bund audit was undertaken during the reporting period to determine the compliance of chemical and hydrocarbon storage facilities across the Appin Mine operations.

6.14.2 Explosives

6.14.2.1 Operations

Explosives/detonators for the Appin Mine operations are currently stored at both the Appin East and Appin West explosives storage facilities. The storage licenses for both Appin East and Appin West magazines are current.

6.14.2.2 Construction

Explosives and detonators for the AMVA Project are being stored at the Appin West explosives magazine. Explosives and detonators will be accessed and transported from Appin West to the AMVA Project site as required (potentially as often as daily) during the shaft sinking process utilising approved personnel and explosives vehicle. Once at the site, the explosives vehicle will park up within the designated explosives bunker until the shaft is required to be charged.

Any excess explosives or detonators will be appropriately transported back to the Appin West magazine for storage.

During 2025 the AMVA Project is transitioning to using emulsion-based explosives. An emulsion bunker has been constructed on the eastern side in FY25 of the site in compliance with regulatory requirements and site staff have been trained in the storage and use of emulsion-based explosives for controlled blasting in the shafts. Emulsion is brought on site from the supplier (Orica) and stored appropriately.

6.14.3 Radiation Gauges

There is one (1) monitoring gauge (moisture scanner) at the Appin East Surface Elevator Belt that contains low emission radioactive isotopes. There are several monitoring gauges (moisture scanners) in the WCCPP that contain low emission radioactive isotopes.

These gauges are licenced, housed in appropriate containers, and are inspected and tested in accordance with legislative requirements. There were no issues with these gauges during the reporting period.

6.15 Methane Management

The gas content of the ventilation air from Appin Mine underground workings was approximately 0.32% methane (CH₄) in FY25. A comprehensive underground methane drainage program is maintained, which includes a network of drill holes and pipes to recover a large proportion of this gas by in-seam and cross-measure drainage. Methane drainage is necessary to provide a safe, compliant and productive underground mining environment.

Methane gas extraction, utilisation and venting rates are summarised and reported monthly for greenhouse gas (GHG) accounting. During this period the Appin Mine monitoring systems, procedures and data were reviewed by a consultant for 2nd line assurance.

Results of the GHG accounting for FY25 are summarised in Table 26 and Figure 10.²³

²³ Figures are for NGER (National Greenhouse and Energy Reporting) Facility WCF01 and APN01.

Table 26: Summary of Greenhouse Emissions – Appin Mine

Emission Type	Unit	FY24 Total	FY25 Total ²⁴
Scope 1	kt CO _{2-e}	1834	2400
Scope 2	kt CO _{2-e}	165	168

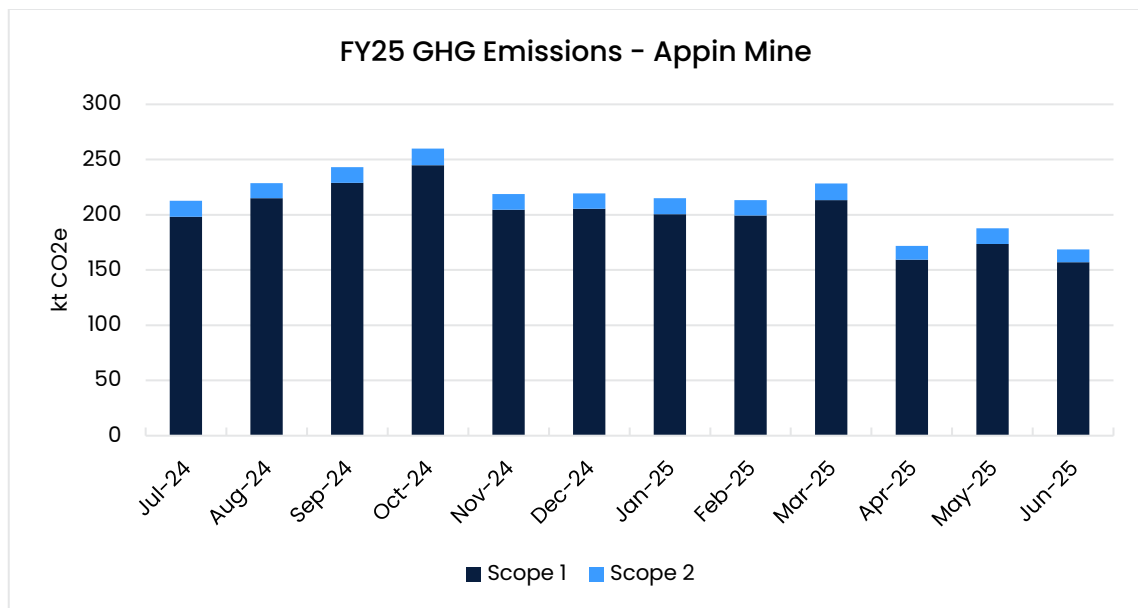


Figure 10: FY25 GHG Emissions – Appin Mine

Long-term results for GHG emissions for FY15 to FY25 are shown in Figure 11. It is noted that there has been an increase in Scope 1 GHG emissions in FY25. This has been due to a lower post drainage capture efficiency (PDCE), mainly due to the geological characteristics of the area between Douglas Mains and a dyke. The stress direction influences the efficiency of downholes and there's increased gas in the roof sandstone which is more difficult to capture. It is unable to be preferentially captured and can only be extracted out of the goaf once the gas is released. FY24 had a high PDCE (extraction from LW710A) and FY25 had a low PDCE (extraction from LW710B).

²⁴ These figures are subject to third party assurance for NGERs reporting.

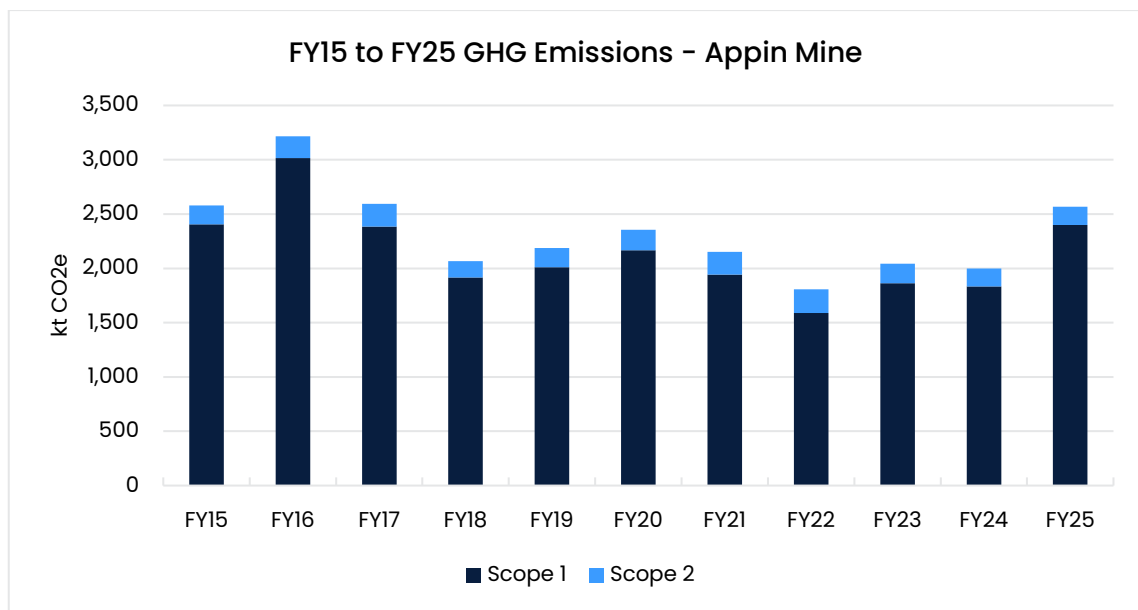


Figure 11: FY15 to FY25 GHG Emissions – Appin Mine

6.15.1 Mine Safety Gas Drainage

Gas drainage is now entirely undertaken by the underground gas drainage network before being piped to the surface and utilised by the EDL Plants (West and East). When there is more gas available from the mine than can be utilised by EDL or there are minor interruptions to the system (e.g. during plant changeovers etc), the flaring systems are initiated to abate the methane content of the gas. Drained methane has been utilised at EDL for power generation, with some minor venting during plant changes and transitions.

6.15.2 Mine Methane Extraction

The methane gas extracted from the coal seam by the underground gas extraction network is directed to the surface, via the gas drainage plants (GDPs), from where it is piped to the EDL Plants and used to generate electricity. Total methane recovery that was transferred to the EDL Plants in FY25 was 3,053 kt CO₂-e of abatement.

6.15.3 Mine Ventilation Fans

During the reporting period, approximately 2,315 kt CO₂-e was emitted to the atmosphere from the Appin Mine ventilation system, an increase of 32% when compared to FY24 (1,757 kt CO₂-e). The average CH₄ concentration was 0.32% (increased from 0.25% in FY24) and the average CO₂ concentration was 0.20% (increased from 0.19% in FY24).

6.15.4 Decarbonisation Program

ICHPL was actively working through the reporting period to progressively reduce emissions.

In FY25 the focus continued on increasing the proportion of emissions generated by longwall production at Appin Mine that are captured by the gas drainage system and reticulated to abatement facilities (either power generation or flaring). This is measured by the PDCE metric. Increases in longwall gas capture have been achieved with additional underground drilling programmes that began in FY20 and were continued into FY25. This includes directionally drilled holes targeting gas bearing strata below the longwall and into zones where it is thought gas can be extracted from the longwall goaf (the void formed by longwall extraction). In the period FY20 – FY24, PDCE has been steadily increasing, and it is now reliably at approximately 65%. This represents an improvement relative to ICHPL's base year (FY15), where PDCE was approximately 51%.

In FY25 ICHPL continued studies for the development of a regenerative thermal oxidiser (RTO) at Appin Mine's Ventilation Shaft No. 6 site. MOD 4 for the Ventilation Air Methane Abatement Project was submitted (after addressing comments from the Department) on 6 June 2025. The average achievable methane emissions reduction from the RTO is estimated at approximately 36 kt CO₂-e per year, based on Appin Mine's current exhaust average methane concentration. The MOD application is available on the Major Projects website [here](#).

A Decarbonisation Strategy has also been progressed with a consultant in FY25. This project includes an analysis of GHG data and emissions modelling, identification and assessment of abatement opportunities, and provision of recommendations. The project is planned to be completed in FY26.

6.15.5 Australian Sustainability Reporting Standards

In preparation for reporting under the Australian Sustainability Reporting Standards (ASRS), ICHPL engaged a consultant In FY25 to undertake a package of work to prepare for climate-related financial disclosures, with the first mandatory report required by 31 March 2026. This package of work included:

- A Diagnostic Session to review current data on climate related processes and disclosures, including internal engagement to identify current integration of climate change considerations into long term operations and decision making.
- A Climate Resilience Assessment that involved selecting inputs for the climate scenario analysis, including two (2) publicly referenced scenarios and three (3) time horizons aligned with reporting requirements and business context. The screening process identified and consolidated eight (8) relevant climate-related risks and opportunities – three (3) physical risks, three (3) transition risks and two (2) opportunities, for qualitative assessment.
- The development of a Transition Plan, in which progress against emerging expectations for climate-related disclosures were evaluated. The review looked

to identify areas of alignment and opportunities for further development. A gap analysis was then conducted against the Transition Plan Taskforce Metal & Mining Sector Guidance to assess readiness across foundations, implementation and engagement strategy, metrics and targets, and governance. This analysis highlighted key areas requiring further development, particularly the need to set emissions reduction targets, embed climate risks into financial and capital planning, and operationalise transition measures. These findings informed a set of recommendations to guide the next phase of transition planning, ensuring ICHPL's approach is credible, actionable, and aligned with ASRS requirements.

In addition, an assessment of ICHPL's Scope 3 emissions was undertaken across all 15 categories. The assessment identified that the categories that contributed most significantly to Scope 3 emissions were use of sold products (93.5%), waste generated in operations (4.9%) and purchased goods and services (0.7%). Recommendations were provided for improving data capture in preparation for mandatory disclosure for CY26.

6.16 Waste Management

6.16.1 General Waste

General waste is segregated on all sites to maximise reuse and recycling opportunities in accordance with the Appin Mine Waste Management Plan. Waste volumes generated at Appin Mine (including Appin West, Appin East, Appin North and WCCPP) and the exploration program for the reporting period are specified in Table 27.

Table 27: Main waste quantities for Appin Mine								
Waste Stream	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
General Waste (tonnes)	782	1023	335	347	299	323	472	290
General Waste (ResourceCo) (tonnes)	-	424	1255	808	1054	1244	957	1248
Industrial filters (tonnes)	243	352	754	836	815	832	814	534
Timber (tonnes)	62	75	5	5	22	21	171	272
Metal (tonnes)	936	967	1062	900	960	1221	746	1108
Cardboard (tonnes)	15	22	29	23	25	28	32	40
Commingle (tonnes)	7	17	388	14	12	7	7	5
Concrete, bricks (tonnes)					19	49	20	0
Oil (tonnes)					152	81	79	50
Oily water/sludge (tonnes)					107	192	80	139

Table 27: Main waste quantities for Appin Mine

Waste Stream	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Solcenic oil (tonnes)					88	12	17	0 ²⁵
Effluent (tonnes)					232	170	25	52
Various chemicals (tonnes)					1.5	0.5	0.5	0
Silent Seal (tonnes)					0.4	7	1.4	5
Weak Acid Cation (WAC) (ML)			4.5	5.9	5.5	4.9	4.6	4.5
Brine (ML)			123	139	117.1	183	206.1	205.4
Biosolids (ML)			0.5	0.7	0.7	1.98	0.9	0.9
Drilling muds (ML)			5	8.4	2.35	4.02	2.66	2.12
Electronic Waste (tonnes)			0.03 ²⁶	0.2 ²⁷	1.9 ²⁸	2.3 ²⁸	5.1 ²⁸	0.5 ²⁸

6.16.2 Waste Reduction and Recycling

Based on FY25 waste figures from Appin Mine as provided in Table 27, an increase in recycling is evident. This is as a result of a housekeeping improvement project across the laydown areas during FY25, to recycle old steel structures and components.

A comparison of volumes from FY19 – FY25 diverted from and disposed of in landfill is provided in Figure 12.

²⁵ Dilute solcenic oil is captured under the oily water waste stream. No solcenic oil concentrate was removed during the reporting period

²⁶ Recorded e-waste disposed at the Regional Operations Centre (ROC) via the University of Wollongong (UoW) e-waste bin. E-waste is recycled by an external recycling vendor.

²⁷ 68 kg was disposed at the ROC via the UoW e-waste bin. 136 kg was disposed via Certified Environmental Disposal services provided by DXC.

²⁸ Volume across ICHPL. All electronic waste is processed (recycled or disposed of) by ACT Logistics. Excluded from waste volume calculations.

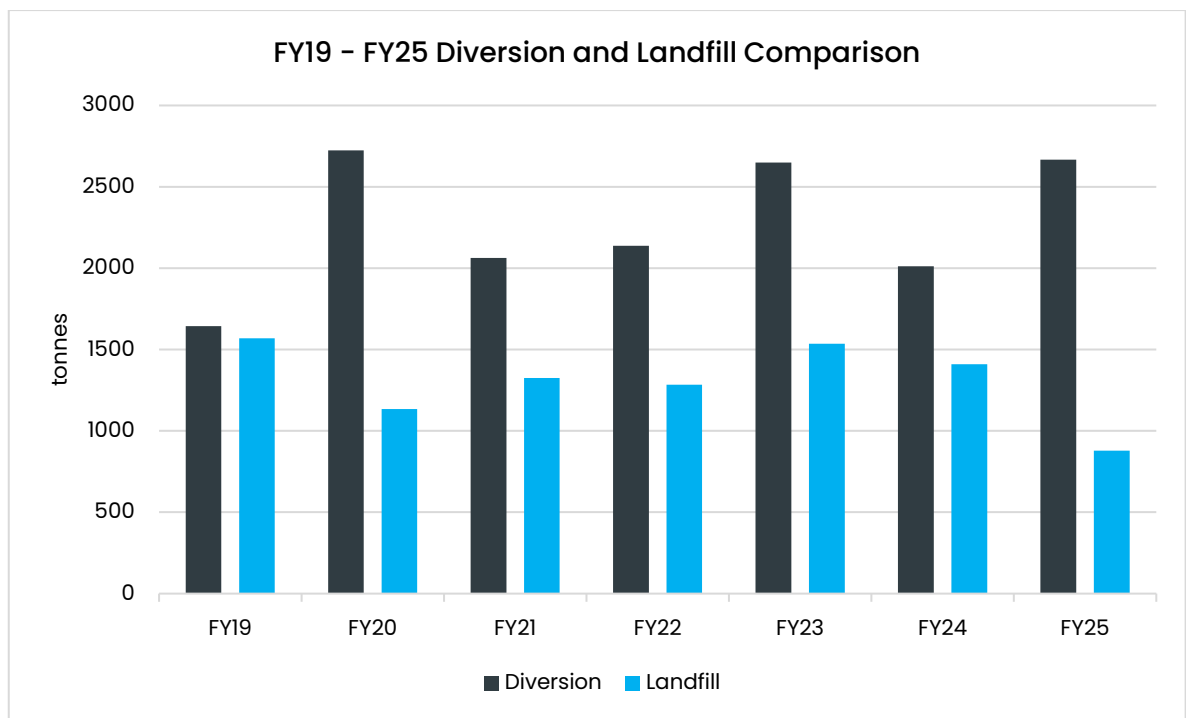


Figure 12: FY19 – FY25 Diversion and Landfill Comparison ²⁹

Ongoing monitoring by the authorised waste contractor in FY25 identified that the classification of the diesel particulate filters fell under general waste rather than hazardous waste.

6.16.3 Coal Wash

Coal wash is a by-product of processing RoM coal. During FY25, a total of 1.70 Mt of coal wash was emplaced at the CWEA. This was comprised of 0.97 Mt of coal wash from the WCCPP and 0.63 Mt from the DCCP, and 0.10 Mt of other materials.

The redesign of Stage 3 of the CWEA to avoid direct impacts to the Aboriginal heritage sites located within the approved footprint has limited coal wash emplacement availability to 4 Mt. It is expected that Stage 3 will reach capacity in FY29. This timeframe will be dependent on production volumes, ash content and volumes directed to beneficial reuse.

The design of Stage 4 of the CWEA is currently being reviewed. As part of this review, the opportunities to maximise coal wash emplacement capacity are being evaluated, including the option of increasing the height. An application to modify the Project

²⁹ FY19 – FY25 Diversion and Landfill Comparison graph (Figure 12) only includes the top eight (8) main waste streams from the main waste quantities for Appin Mine table (Table 27).

Approval may be required pending the outcomes of the review. Construction of infrastructure associated with Stage 4 is expected to commence in FY26.

Table 28 outlines the capacity and status of each stage of the CWEA.

Table 28: CWEA – Capacity and Status		
Emplacement Stage	Estimated Capacity (Mt)	Emplacement Status
1	4.6	Complete
2	20.8	Complete
3	29.3	Current
4	26.0	Not Yet Commenced

During the reporting period, ICHPL diverted approximately 0.20 Mt of coal wash from the DCPD for beneficial uses (i.e. as an engineered fill in housing developments and for the development of arterial and agricultural roads). Approximately 0.12 Mt has been stockpiled at Appin North for use under OPDs for engineering works, with approximately 8.1 Mt diverted from the CWEA since 2009. ICHPL has agreements with property developers that should continue to see large volumes of coal wash diverted for beneficial uses. Coal wash was utilised at Whytes Gully Waste and Resource Recovery Centre at Kembala Grange and Jervis Bay Road Intersection Upgrade in FY25, as well as the next stage of the Calderwood Development. ICHPL continues to develop a pipeline of major projects that will require engineered fill for the next five (5) years.

Coal wash from the DCPD had been stored at Appin North in various stockpiles since 2019 pending approval for use in OPDs or for beneficial reuse. In FY23, an audit of coal wash management was completed by the EPA. Emplacement of the stockpiled material continued in FY25. Considerable work continues to be carried out on the alternative uses of coal wash, including ongoing monitoring of potential contaminants when coal wash is used for landfill or emplacement. This work has been reported in previous Annual Reviews. GM³ will continue to be involved in research, the development of, and implementation of alternative uses for coal wash in order to minimise the volume of coal wash emplaced at the CWEA in the future.

Approximately 30 kt of reprocessed coal wash was transported to PKCT for export during FY25 as thermal coal. The product is used for power generation and the production of cement after blending with high CV thermal coal. Anticipated sales in FY26 are estimated at 100 kt.

An OPD was approved by the EPA in FY25 for the use of 73 kt of coal wash in the construction of the Stockpile 3 Tipping Pad. This was an improvement that was undertaken to improve safety in the area following a truck roll over incident.

6.16.4 Sewage

During the reporting period, ongoing monitoring and inspections were conducted on the two (2) Appin Mine STPs. Both STPs are 'Smith and Loveless' units, located at the Appin West and Appin North sites, that discharge into maturation ponds. The treated effluent is irrigated on site via LDP 38 (Appin West) and LDP 4 (Appin North). A licensed wastewater maintenance contractor is engaged every quarter and as required to review operational performance and provide a report for each representative area. ICHPL submit the reports and any additional supporting evidence to WSC each quarter. The licensed wastewater maintenance contractor also assists with the operational aspects of the Appin West and Appin North STPs to minimise the likelihood of any issues occurring.

Overflow of treated effluent from the storage dam at Appin West is permitted via LDP 39. Treated effluent was discharged via the emergency overflow valve (LDP 39) in FY25. This was required due to significant rainfall and cold weather limiting the ability to irrigate in the days following these events.

Monitoring of the STP effluent at both sites is completed monthly in accordance with EPL 2504. Monitoring results are reported annually via the Annual Return and in the 14-day Report, available on the GM³ website.

6.16.5 WAC Disposal

WAC, a waste stream from the Appin West WTP, is transported off-site to a licenced waste management facility. The total volume of WAC transported off-site during the reporting period was 4.52 ML, a decrease of 0.05 ML compared to the previous reporting period. This was due to reduced throughput of the Appin West WTP for FY25.

6.16.6 WTP Biological Sludge and Backwash

A by-product of the backwash treatment process is an organic sludge. The total volume of sludge transferred to the CWEA in the reporting period was approximately 900 kL.

The Appin North WTP does not produce sludge as part of the water treatment process. However, it does produce a back wash product that is currently being sprayed onto the CWEA as dust suppression and is filtered through the CWEA. The Appin North WTP produced 95 ML of backwash during the reporting period.

6.16.7 Brine Disposal

Brine is a by-product of the WTP process. Approximately 114 ML was generated in FY25 from the Appin West WTP and 90 ML from the Appin North WTP. The brine is transported by truck to LDP 5, located at Marley Place, Unanderra and discharged under EPL 3241. The

brine is discharged into the same location as the dewatering discharge from Dendrobium Mine, which provides dilution for the brine as it is released into Allans Creek.

6.16.8 Construction Waste

Waste is sorted into six (6) categories at the AMVA Project site: general, concrete, timber, metal, cardboard and liquid. Waste is removed from the site by a specialised contractor and recycled or disposed of appropriately. In FY25, 23 tonnes of timber, 59 tonnes of metal, 61 tonnes of general waste and 3.5 tonnes of cardboard were removed from the site and either recycled or disposed. No liquid waste or concrete materials were removed.

6.17 North Cliff

The North Cliff Mine Site and access road are located between O'Hares Creek and Stokes Creek and are surrounded by the Dharawal National Park. The majority of the site is gently sloping in a northerly direction towards O'Hares Creek. The mine site covers an area of approximately 10.3 ha of which approximately 6.5 ha is undisturbed by mining activities. The North Cliff site is shown in Plan 12. Mining operations commenced at the site in 1983, and mining operations ceased in 1995, at which time all underground equipment was removed from the site, with the site placed into care and maintenance in 1996. The two (2) shafts on the site were capped in 2005 and all buildings on the site were demolished.

Access to the site is along Fire Trails 10B and 10C from an intersection on Appin Road, 6 km northwest of Bulli Pass.

6.17.1 Land Ownership and Approvals

The North Cliff Mine Site and access road are covered by CCL 724, which includes the surface and land below to an unlimited depth over the mine site and to a depth of 15 m over the access road. Consent to establish the mine was granted in 1981 by the Minister for Planning and Environment under Section 101 of the *EP&A Act* and subsequently amended under Section 102 of the Act.

6.17.2 Site Security

The North Cliff Site is enclosed with a 1.8-metre-high fence with two (2) locked entry gates. The site security fencing is inspected on a regular basis.

6.17.3 Water Management

Surface drainage mainly flows in open channels to the site pond located at the northwest corner of the site. The pond is a permeable structure that filters any water that passes through the wall. Water that overflows via the dam spillway in wet weather events or passes through the wall flows through open sedge-land before entering an unnamed

stream and into O'Hares Creek. There is no environmental impact associated with these discharge events on the receiving environment. No significant issues were identified with the site drainage system during the reporting period. No hydrocarbons or chemicals are stored at the site.

LDP 43 (discharge) and LDP 44 (overflow) are included in EPL 2504. The pond overflowed during the reporting period due to rainfall however no discharge was undertaken.

6.17.4 Air Quality

The generation of windblown dust from the North Cliff site is unlikely to cause any adverse impacts on air quality in the community or the surrounding vegetation due to the remote location and non-operational status of the site. A large proportion of the disturbed area is compacted, further reducing the likelihood of generating significant emissions of wind-blown dust.

6.17.5 Noxious Weeds

The management measures to monitor and control the growth of noxious weeds on the site include the use of a weed control specialist to inspect the site as required.

Spot spraying and hand pulling of weeds occurred at the North Cliff site over FY25. Spot spraying and manual removal of Pampas Grass occurred in July 2024 and hand pulling of Crofton weed occurred during quarterly visits.

6.17.6 Site Rehabilitation

6.17.6.1 Power Line Removal

Discussions have occurred with the National Parks and Wildlife Service (NPWS) regarding the removal of redundant powerlines between North Cliff and Appin North in the Dharawal National Park. A REF was submitted in FY24 that was approved by NPWS via a Consent that was issued in January 2025. Powerline removal will be undertaken in FY26.

6.17.6.2 Pit Top Area

As part of the North Cliff Rehabilitation Execution Plan (NCREP), a High-Risk Activity (HRA) application for sealing the shafts was prepared with associated studies, engineering and risk assessment in FY24. The submission was reviewed by Appin Mine statutory personnel. The application was submitted to the Resources Regulator in September 2024 and approved in November 2024.

Seed collection was undertaken in FY24. No seed collection was undertaken in FY25.

The infrastructure present at North Cliff to be decommissioned or demolished and removed includes:

- Two (2) mine shafts to be fully backfilled and sealed per MDG6001 Guidelines for the Permanent Filling and Capping of Surface Entries to Coal Seams.
- Disconnection of in-ground services.
- Steel winder frames above shafts, concrete footings, slabs, and water tanks.
- Minor miscellaneous debris.
- Filter dam.
- Powerlines.
- Perimeter fencing.

Following completion of decommissioning works, surface rehabilitation works proposed include:

- Re-grading of disturbed areas to achieve a stable final landform.
- Formalise and stabilise surface water drainage paths.
- Preparation of growth medium for revegetation.
- Revegetation of disturbed areas.
- Maintenance of revegetation until ecosystem function has been established.
- Rehabilitation completion (sign-off) and lease relinquishment.

The rehabilitation works at the site are scheduled to commence in FY26 once all relevant offsite preparatory tasks have been completed including ordering specialised monitoring equipment and contractor onboarding necessary to complete the onsite works. The order of rehabilitation works is envisaged to occur as follows:

1. Receipt of all approvals to commence work.
2. Decommissioning of remaining infrastructure including:
 - a. Access works and mobilization.
 - b. Shaft sealing.
 - c. Demolition and other decommissioning tasks.
3. Final landform establishment.
4. Revegetation establishment.
5. Revegetation maintenance and ecosystem development until ecosystem function has been restored.

It is envisaged that the decommissioning and final landform re-shaping will take less than two (2) years to complete. Vegetation establishment is expected to take up to five (5) years post planting. During this stage maintenance works will be undertaken

periodically until revegetation becomes established and then will cease once ecosystem function has been restored to satisfactory levels. ICHPL envisages that this process to establish ecosystem function could take a minimum of 5 – 7 years (and potentially more depending on weather conditions) to achieve.

6.17.6.3 Coal Wash Stockpiles

Approximately 15 piles of coal wash were identified in the Dharawal National Park in June 2024. It appeared that the piles of coal wash were placed in this location adjacent to Firetrail 10r in excess of 30 years ago, based on the revegetation that has occurred on the site evident in aerial photography from 2010 supplied by NPWS.

It was not able to be determined which organisation/company was responsible for placing the coal wash in this location, the source of the coal wash, or the purpose of the coal wash, although it is likely it was to have been used for road maintenance.

ICHPL agreed that there was an environmental benefit in removing the coal wash and worked with the NPWS to organise its removal. The NPWS organised approvals and access to the area and ICHPL removed the piles of coal wash in April 2025, transporting the material to the North Cliff site to be used as shaft backfill. NPWS organised the revegetation of the access track and the area from which the piles of coal wash were removed.

6.17.7 Environmental Inspections

Quarterly environmental inspections of the North Cliff site were completed during the reporting period. The inspections cover multiple aspects including, but not limited to, site security and safety, surface drainage, erosion, weed and dust management.

7. WATER MANAGEMENT

7.1 Water Licences

The water take for Appin Mine over the reporting period is provided in Table 29.

Note: 1 unit = 1 ML.

Table 29: Water Take – Appin Mine

WAL No.	Water Sharing Plan, Source and Management Zone	Entitlement (units)	Total Take (ML)
30145	Greater Metropolitan Region Unregulated River Water Sources Hawkesbury and Lower Nepean Rivers Water Source Menangle Weir Management Zone	53	0.5
35519	Greater Metropolitan Region Unregulated River Water Sources Southern Sydney Rivers Water Source Georges River Catchment Management Zone	2750	717
36481	Greater Metropolitan Region Groundwater Sources Sydney Basin Central Groundwater Source	274	227
44376	Greater Metropolitan Region Groundwater Sources Sydney Basin Central Groundwater Source	98	0
36477	Greater Metropolitan Region Groundwater Sources Sydney Basin Nepean Groundwater Source Nepean Management Zone 2	303	303
37464	Greater Metropolitan Region Groundwater Sources Sydney Basin Nepean Groundwater Source Nepean Management Zone 2	800 ³⁰	477
45593 ³¹	Greater Metropolitan Region Groundwater Sources Sydney Basin Central Groundwater Source	200	0

7.2 Compensatory Water

Under relevant provisions of the Project Approval (Condition 14 of Schedule 4), ICHPL shall provide a compensatory water supply to any owner of privately-owned land whose water supply is adversely impacted (other than an impact that is negligible) as a result of the project, in accordance with the approved WMP. ICHPL is currently supplying compensatory water as detailed in Table 30.³²

³⁰ In FY25, 500 units were transferred from Dendrobium 10AL123124 to Appin West 10AL119248 (WAL No. 37464).

³¹ Issued 11 August 2025.

³² It is noted that only impacted water supplies (typically water bores) are listed in Table 30. All bores within the BSO Project footprint are covered by the compensatory water provision should they be impacted in the future.

Table 30: Compensatory Water – Groundwater Bores

Bore	Impact	Current Status	Actions / Agreements	Water Supply Rate
Initially Unregistered Licence: 10WA121956	Reduced yield due to initial reduction in standing water level (SWL) in shallow 20 m groundwater bore.	New bore has been drilled to 150 m.	Power and pumping systems designed. Installation pending. Cartage of water to continue until finalised.	2 x 15 kL loads per week.
GW105388	Reduced yield.	Determination and various amendments issued by the Planning Secretary.	Bore investigations have determined that substantial remediation or redrilling will be required post mining. Cartage of water continues.	28 x 15 kL loads per week.
GW072847	Gas expression	Grouted	Bore to be redrilled or owners compensated post mining.	3 x 15 kL loads per week
GW105534	Gas expression	Grouted	Bore to be redrilled or owners compensated post mining.	1 x 15 kL load per week
Unregistered GANSW705351178	Gas expression	Grouted	Bore to be redrilled or owners compensated post mining.	As required
GW105376	Gas expression	Monitoring	Pumping to be reinstated following cessation of gas expression.	6 x 15 kL load per week

7.3 Groundwater

7.3.1 Appin West

During the reporting period, groundwater from the Appin Mine underground operations was pumped to the surface at Appin West for treatment via the Appin West WTP. The treated water is piped underground for reuse, and/or discharged to the environment via LDP 24. Discharge volumes at LDP 24 are available via the 14-day Report, published on the GM³ website. Refer to Table 17 for discharge volumes.

7.3.2 Appin East

During the reporting period, groundwater from the Appin Mine White Panel storage area was pumped to the surface and stored in a 1,200 kL tank at Appin East. The water is dosed with sodium hypochlorite (chlorine) to inhibit microbiological growth, before being re-used underground for fire suppression, and mine-services uses (hose-down of mobile and stationary assets, belt maintenance, etc.).

7.3.3 Appin North

Water for underground use is transferred from BCD to the underground operations via a gravity fed pipeline. Water make resulting from strata water inflow is collected in pits and low points in the underground workings where it is mixed with water delivered underground from surface storages. This strata water is brought to the surface either as moisture contained within the coal or as surplus underground water. Groundwater and surplus mine water is pumped to the surface from Area 5 when required to be treated at the Appin North WTP. During the reporting period approximately³³ 185 ML of water was transferred underground from BCD with 518 ML of surplus underground water pumped to the surface to be processed in the Appin North WTP. The remaining 532 ML³⁴ of BCD water was used in the WCCPP, for dust suppression (watercarts), washdown and the truck wash. Excess water in Pond 3 and Pond 4a was periodically used for dust suppression on the active CWEA with the water being filtered through the CWEA before entering the emplacement underdrainage system. Overflow water from Pond 4a entered the emplacement pond system via the overflow pipe to EP2.

³³ BCD underground usage is calculated using the BCD to Surface flow meter. There are two (2) flow meters that record flow leaving BCD, one (1) is the total flow from BCD to the Surface and Underground, and the other is BCD to the Surface only. Therefore, the flow of BCD water to UG needs to be calculated by subtracting the BCD to Surface flow from the BCD to Surface and UG flow.

³⁴ Figure is an approximation as it contains estimates (see footnote above).

The Appin North WTP treats water from Area 5, as well as underdrainage from the CWEA water management system. Treated water that meets required EPL limits is then discharged directly to Brennans Creek as permeate via LDP 40. Non-conforming water is discharged into a drainage line that feeds BCD. Discharge volumes and water quality at LDP 40 are included in the 14-day Report, available on the GM³ website. Refer to Table 17 for discharge volumes.

A draft Pollution Reduction Program (PRP) was issued by the EPA in June 2025 requiring ICHPL to further improve the quality of water being discharged from the Appin North site to the Georges River. Discussions to review the draft PRP have occurred with the EPA and it was not finalised in the reporting period.

There were no incidents of groundwater pollution within the reporting period.

7.4 Surface Water

7.4.1 Appin West

Mine water is processed at the WTP, which has two (2) trains (Integrated Membrane System (IMS) 1 and 2) to produce treated water (permeate). This treated water is supplied to the Appin Mine underground mining operations. Any shortfall in underground supply is supplemented by potable water provided by Sydney Water. Excess permeate is blended with backwash water and discharged to the environment via LDP 24. Potable water is used for site administration buildings, workshops, the bathhouse, fire emergency services, Appin West GDP, and as a back-up for underground operations.

Table 31 provides an overview of the potable water usage associated with the Appin West site for the reporting period.

Table 31: Potable Water Usage for Appin West				
Area	Usage FY24 (ML)	Usage FY25 (ML)	Variance (ML)	Comments
Appin West	122	74	-48	Lower underground demand for water.

7.4.2 Appin East

Potable water is supplied by Sydney Water to the Appin East site via a 600 kL surface tank. This tank provides potable water for the bathhouse, workshops, administration buildings, fire emergency services, Ventilation Shaft 2 site, EDL Appin East Power Plant, and nearby mine-owned cottages.

Surface water runoff from rainfall is captured in the main surface dam and is reused as a water supply for the dust suppression on haulage roads and stockpiles, along with the dirty equipment hose down.

Table 32 provides an overview of the potable water usage associated with the Appin East site for the reporting period.

Table 32: Potable Water Usage for Appin East				
Area	Usage FY24 (ML)	Usage FY25 (ML)	Variance (ML)	Comments
Appin East	269	186	-83	Improved underground water reuse during the reporting period and upgrades to underground pumps.

7.4.3 Appin North

The Appin North site is primarily reliant on water from BCD. Some potable water is trucked to the site and stored in a surface tank for use in the bathhouse and office facilities. Most water is sourced from BCD from where it is pumped, following chlorine dioxide treatment, for use in the following areas:

- underground areas for dust suppression;
- WCCPP and associated infrastructure; and
- Appin North Pit Top.

A summary of the water usage for the reporting period, compared to the previous reporting period, is provided in Table 33.

Table 33: Water Usage Comparison – Appin North				
Type	Usage FY24 (ML)	Usage FY25 (ML)	Variance (ML)	Comment
Potable Water	4.62	4.55	-0.07	Potable water consumption remained at a similar level.
Recycled Water (BCD)	616	717	101	Higher recycled water usage due to higher production.

7.5 Rainfall

Figure 13 displays rainfall data for FY25 from the Bureau of Meteorology (BoM) station located at Menangle Bridge.

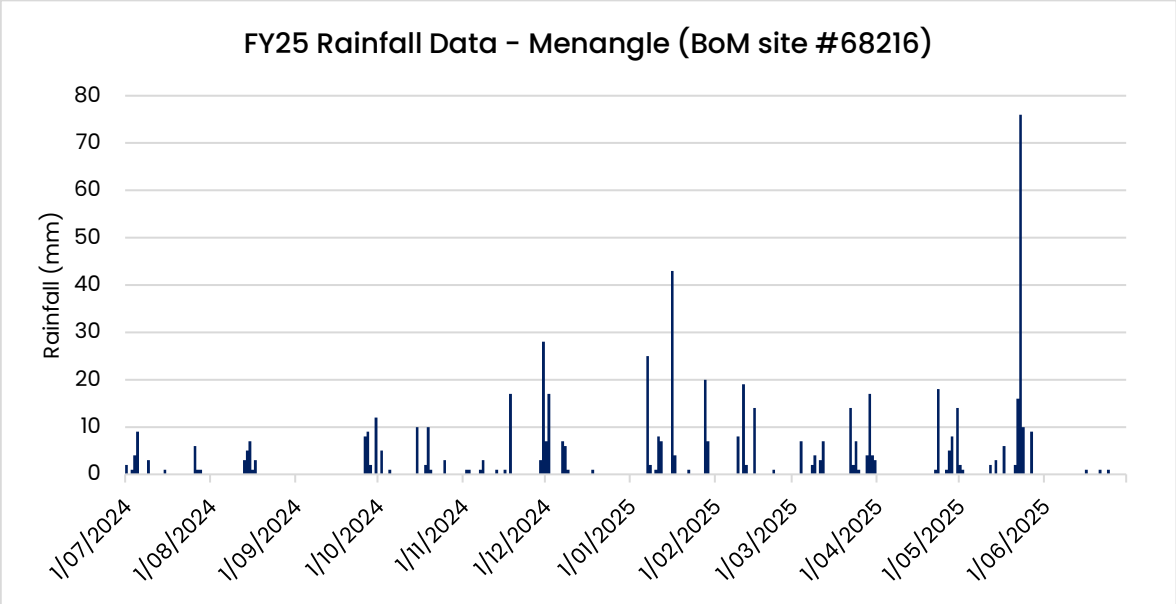


Figure 13: FY25 rainfall data – Menangle (BoM site #68216)

Figure 14 shows the annual rainfall for the region since FY15 from the Appin East DustTrak unit.

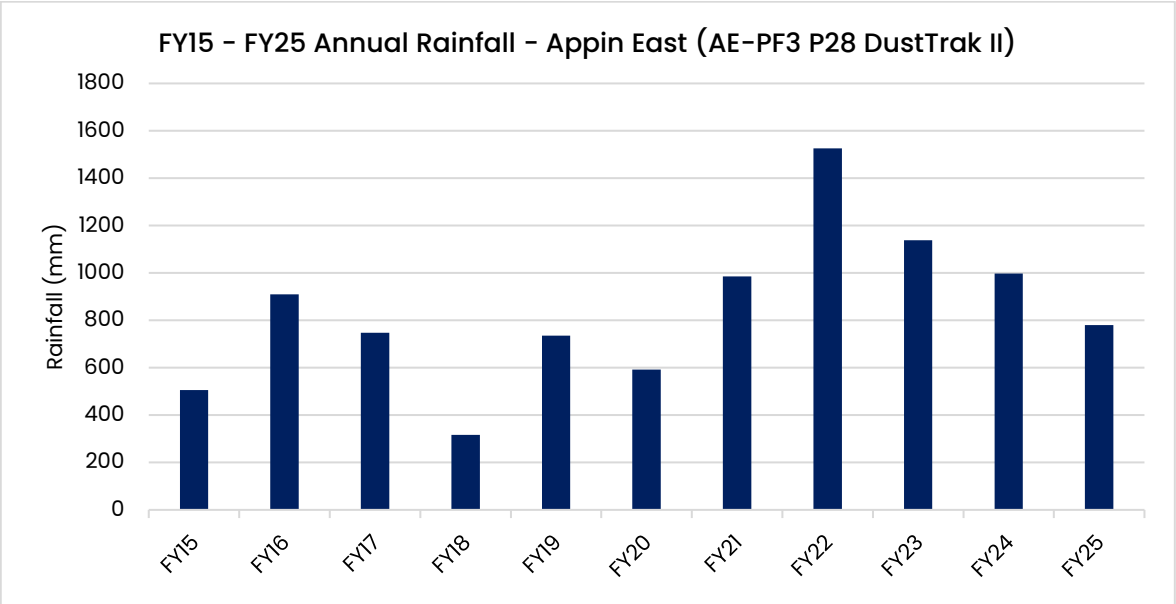


Figure 14: FY19 – FY25 Annual Rainfall – Appin East (AE-PF3 P28 DustTrak)

Figure 15 displays the annual rainfall for the region since FY12 from the BoM station located at Menangle Bridge.

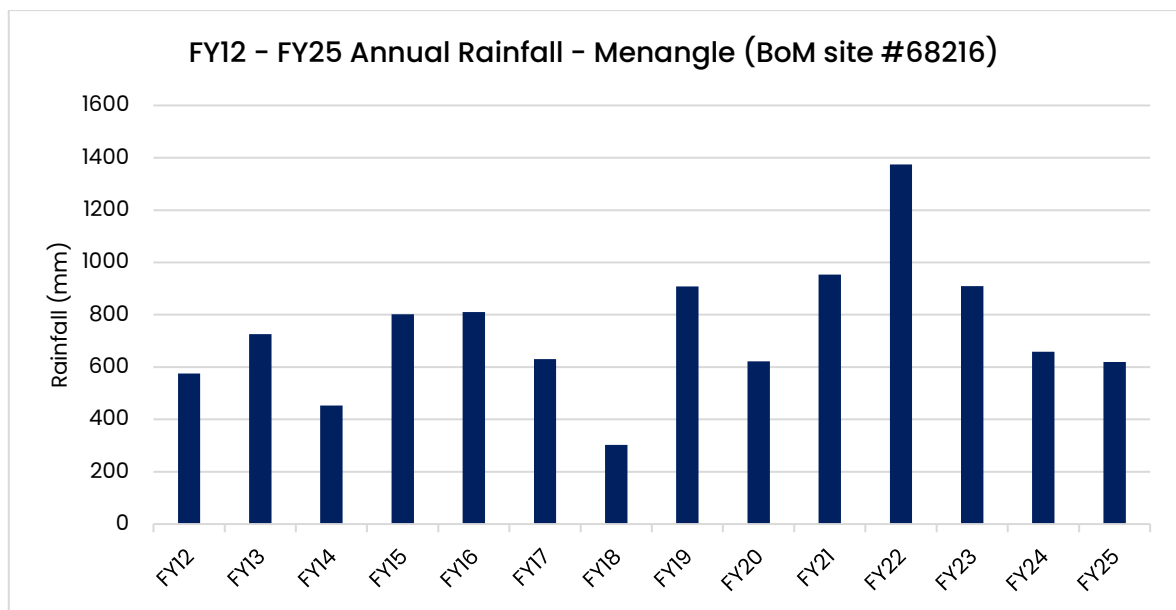


Figure 15: FY12 – FY25 Annual Rainfall – Menangle (BoM site #68216)

8. REHABILITATION

8.1 Rehabilitation for the Reporting Period

8.1.1 *Buildings*

No rehabilitation of buildings associated with the sites was undertaken during the reporting period.

8.1.2 *Rehabilitation of Disturbed Land*

8.1.2.1 CWEA

Progressive rehabilitation of the CWEA has been undertaken during the reporting period in accordance with the approved CWEA Management Plan.

During the reporting period there was additional landform establishment of ~1.7 ha. Seeding of ~1.5 ha was completed during Spring in FY25. Additional seeding of 1.1 ha is planned for Spring in FY26.

The success of the rehabilitation in Stage 2 is shown in Plate 5. Progress of rehabilitation in the CWEA is detailed in the Annual CWEA Monitoring Report (refer to Appendix 5).



Plate 5: Stage 2 emplacement rehabilitation as of June 2025 (Seeded in 2007)

An Annual Rehabilitation Report is required to be submitted to the Resources Regulator in accordance with Clauses 9 and 13 of Schedule 8A of the *Mining Regulation 2016*. A copy of this report is provided as Appendix 14.

An ESF2 Form was submitted to the Resources Regulator for assessment in FY24 for Stages 1 and 2 of the CWEA. The Resources Regulator refused the application on 14 November 2024, advising that they were unable to determine the application as Appin Colliery is yet to have a Rehabilitation Completion Criteria Statement (RCC) approved. A Rehabilitation Completion Form will be submitted once the RCC has been approved.

ICHPL will continue to explore uses of remote sensing to supplement the CWEA rehabilitation monitoring program.

8.1.2.2 Nest Boxes

Eight (8) timber nest box habitats were installed in the CWEA rehabilitation during the FY23 reporting period. Monitoring of these next boxes occurred again in FY25, with results available in the 2024 rehabilitation report (Appendix 5). The nest boxes were placed at various heights (5 – 10 m) depending on type and were attached to existing mature trees. Individual habitats will provide shelter for Small Parrots, Large Owls/Cockatoos, Barn Owls, Brushtail/Ringtail Possums and Micro Bats. The nest box shown in Plate 6 shows usage by two (2) ringtail possums.

In FY25 the Appin Men's shed was approached to construct additional nest boxes for the rehabilitation emplacement areas. These additional boxes are planned to be placed in the field in FY26.



Plate 6: Nest box No. 4 in the Stage 1 Rehabilitation Area, 2024 monitoring period.

8.1.2.3 Biobanking Sites

Monitoring of revegetation at the BioBanking and offset sites was undertaken during the reporting period. For more details, refer to Section 6.5.2 and the following annual reports included as appendices in the Annual Review:

- Appendix 6: Annual *Persoonia hirsuta* Condition Monitoring Report.
- Appendix 7: Appin West BioBank Site Annual Report – 2024/2025.
- Appendix 8: Nepean River BioBank Site Annual Report – 2024/2025.
- Appendix 9: Cataract River BioBank Site Passive Management Annual Report – 2024/2025.
- Appendix 10: Ventilation Shaft 6 Offset Annual Monitoring Report – 2024.
- Appendix 11: Ventilation Shaft 6 Bush Regeneration Report – 2024/2025.

8.1.3 Legacy Sites and Rehabilitation Program

A Rehabilitation Options and Feasibility Analysis was submitted to WaterNSW and the Resources Regulator in June 2024 for the Bulli No. 1, 2 and 3 shafts. The shafts have been previously sealed to the standard of the day. The report provided a risk-based evaluation of a range of rehabilitation scenarios for the removal of infrastructure and sealing of the shafts. Discussions were held with WaterNSW and the Resources Regulator in FY25. Both agencies indicated their general support for a campaign of comprehensive rehabilitation for all these sites including fully backfilling each shaft to the current guidelines for coal mines entry sealing.

Rehabilitation planning activities progressed for North Cliff during the reporting period are discussed in Section 6.17.6.

8.1.4 GRRP

The Georges River Rehabilitation Program continued at the Georges River during FY25.

The rehabilitation involves drilling a series of boreholes across the river's rockbar, then injecting the holes with polyurethane resin (PUR). Once injected, the resin expands to fill subsidence fractures in the rock. Filling these fractures creates a grout 'curtain' which essentially acts as a dam beneath the surface, where diverted flow backs up and ultimately returns water to the surface, filling pools and returning flow across rockbars.

Rehabilitation works were undertaken at the following sites during the FY25 reporting period:

- Rockbar 40.
- Rockbar 39.
- Rockbar 36.
- Rockbar 45 (rehabilitation is shown in Plate 7).
- Rockbar 49 (finished early FY26).

Rehabilitation activities are scheduled to be completed in early FY26. Rehabilitation success is still to be determined. All sites are undergoing post-rehabilitation monitoring with promising early results. Plan 14 shows those features where rehabilitation was undertaken in FY25.



Plate 7: Rehabilitation site at GR_Rockbar 45, Georges River

8.1.5 Exploration

The return of drill sites to useable land following drilling is a highly visible part of GM³'s commitment to sound environmental exploration practices and sustainable development of coal resources. It is essential that rehabilitation is undertaken so that areas disturbed by exploration activities are returned to a condition that is safe and stable. The final condition should be as good or better than as it existed prior to exploration activities.

To achieve this outcome, rehabilitation planning and practices are integrated throughout all phases of an exploration program. It is a mandatory requirement for rehabilitation of the site to occur as soon as reasonably practicable following the completion of exploration activities. At the cessation of drilling, exploration site rehabilitation takes place progressively. Sites across Appin Mine tenements are typically located on cleared agricultural or residential land, and rehabilitation methodologies are reflective of this. Across Appin mining and exploration leases, standard rehabilitation of exploration drilling sites typically involves activities such as:

- confirming the borehole has been sealed;

- removing all equipment, rubbish and fencing off-site;
- cutting the casing collar to below the surface where monitoring equipment is not installed;
- the removal of any added crushed sandstone used to build up the drilling pad and access tracks;
- site and access track profiling where required;
- returning stockpiled topsoil over the drilling pad;
- finalising the site with seeding and/or grass spray as required; and
- documenting evidence of rehabilitation activities.

Disturbed areas requiring rehabilitation on a standard exploration borehole are typically approved as 40 x 40 m drilling pads. This may have slight variations to account for drill pad constructions (typically less than 40 x 40 m) and to account for access tracks if required. STIS sites require larger equipment and are typically approved for a slightly larger footprint of 50 x 50 m.

Rehabilitation activities are guided by the REF documentation prepared for each exploration approval, mandatory requirements in the Exploration Codes of Practice, conditions stipulated in exploration/activity approvals, conditions agreed to in landholder agreements and rehabilitation objectives and completion criteria that are developed for each exploration activity approval.

Sites are watered and monitored for success until fully re-established. At the completion of rehabilitation, GM³ seeks landholder sign-off on Appin exploration sites by utilising the Landholder Rehabilitation Form as part of the REF Rehabilitation Completion Application process.

Some sites have groundwater monitoring instrumentation installed, with infrastructure (usually a standpipe) remaining at the surface. These sites are largely rehabilitated and will be fully remediated at the completion of the monitoring program when instrumentation is no longer required.

In the previous Annual Review, two (2) of the sixteen (16) reported boreholes had not been rehabilitated due to being active exploration sites, or the recent completion of exploration activities. Both sites (S2675 and S2677) have now been fully rehabilitated. S2677 is an instrumented site that will require final remediation of surface equipment at the completion of the monitoring program.

Of the FY25 sites:

- S2678, S2679, S2679A, S2683 and S2680 are fully remediated.
- S2684 was recently completed, with rehabilitation currently in-progress.

- S2686 is currently an active exploration site. Rehabilitation and monitoring of its success will occur in the next reporting period at the completion of drilling and geological testing activities.

In addition to rehabilitating sites drilled throughout late FY24 and across FY25, there were some instrumentation terminations and final surface remediations of sites no longer requiring monitoring. Terminated sites include:

- S1757 (drilled 2005).
- S1901 (drilled 2007).
- S2308 (drilled 2015).

An example of typical rehabilitation of an exploration drilling site is shown in Plate 8.

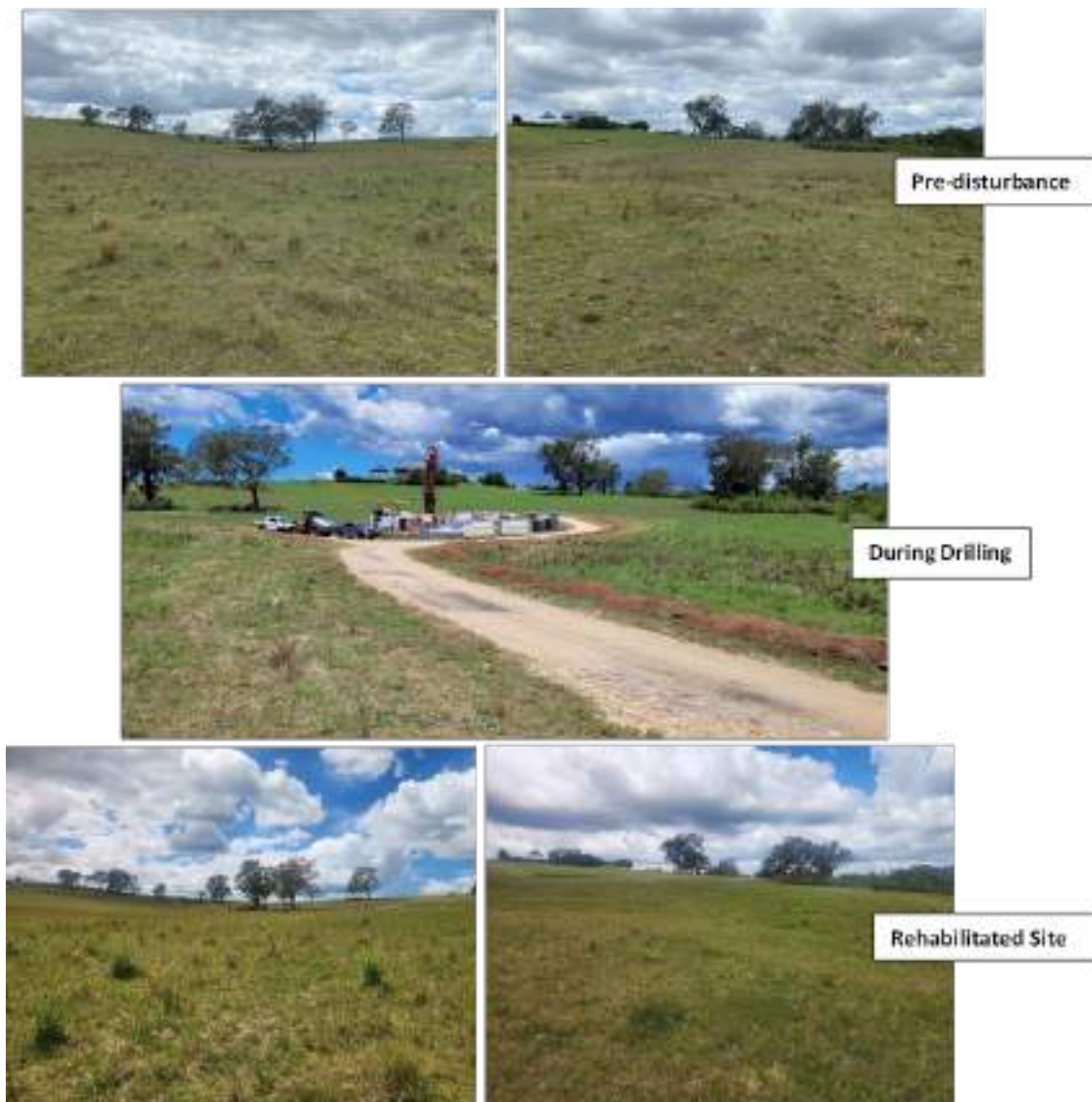


Plate 8: Example of the rehabilitation life cycle on an Appin Mine exploration site

8.2 Research

8.2.1 *Persoonia hirsuta*

Details of the ongoing *P. hirsuta* translocation trial are provided in Section 6.5.2.2. The research report required under Condition 3 of the EPBC Approval was submitted to DAWE³⁵ on 29 June 2021. A copy of the research report is available on the GM³ website using this [link](#).

ICHPL continued to monitor the success of *P. hirsuta* translocations with ongoing advice from Mount Annan Botanic Gardens during the reporting period.

In FY25 ICHPL undertook a seed collection program with the Saving Our Species Project. Seed collected during this program was delivered to Mount Annan for germination and maintenance in the nursery. Once the plants have grown to an acceptable maturity for translocation (likely four (4) years) they will be used to supplement and maintain *P. hirsuta* stocks on site at Appin North and surrounds.

8.3 Rehabilitation Management Plan

The Rehabilitation Management Plan (RMP) was updated in FY25. The rehabilitation completion criteria were refused by the Resources Regulator in March 2025 as the rehabilitation objectives and final landform and rehabilitation plans had not yet been reapproved following amendment. The rehabilitation objectives and final landform and rehabilitation plans were resubmitted and were approved in June 2025. The rehabilitation completion criteria were submitted in FY26 for assessment by the Resources Regulator.

The Rehabilitation Cost Estimate (RCE) for Appin Mine was reviewed in FY25.

A TAP for revegetation was conducted by the Resources Regulator against the RMP in FY24. Most recommendations were actioned in FY25 through the review of the RMP, with the submission and approval of the rehabilitation completion criteria outstanding.

9. COMMUNITY

ICHPL is committed to meaningful engagement with the communities surrounding Appin Mine, recognising that strong relationships are essential to maintaining trust and supporting our operations. Engagement activities during the reporting period were guided by the Community and Stakeholder Engagement Management Plan (CSEMP), which establishes a structured, transparent and proactive approach to ICHPL's

³⁵ Now DCCEEW (Commonwealth).

engagement. The CSEMP supports our operational objectives by helping to maintain our social licence to operate and outlines how we will:

- Proactively engage with relevant community and stakeholders.
- Provide clear, timely and relevant information.
- Provide community and stakeholders with a clear line of sight to ICHPL should they wish to discuss or raise any concerns.
- Record and manage community and stakeholder feedback, including enquiries, complaints, and grievances.
- Facilitate consultation with community and stakeholders.

Communities located closest to surface infrastructure at Appin and Douglas Park, as well as those within the broader operational footprint including Menangle and Razorback (current location of longwall mining) and exploration areas are prioritised. These areas experience the most direct interaction with our activities, and as such, are the focus of ongoing communication and engagement efforts during the reporting period. The importance of engaging with the broader community across the region, who may have an interest in our operations or be indirectly affected by our activities, is recognised.

At the completion of this reporting period, Appin Mine directly employed approximately 1,200 people (ICHPL employs approximately 2,000 people across both Appin and Dendrobium Mines).

This section outlines engagement activities, management of community complaints, and contributions through partnerships and the Community Partnership Program.

9.1 Complaints

ICHPL operates a 24-hour Community Call Line (free call 1800 102 210) and a dedicated community email address (community@gm3.au) to enable community members to provide feedback or lodge complaints regarding any aspect of Appin Mine's operations. These contact details are promoted through all community correspondence, the GM³ website, and the online Community Portal (www.community.gm3.au).

All complaints received, regardless of the format, are acknowledged within 24 hours and are investigated by the Community Team in collaboration with relevant operational personnel. Complainants are kept informed throughout the process, including notification of investigation outcomes and any actions taken. Some complaints may require extended investigation and implementation of remedial measures, depending on their nature. All complaints are handled in accordance with ICHPL's Community Complaints Procedure.

A monthly complaint summary is published on the GM³ website and provided to the Appin Mine Community Consultative Committee (CCC), Menangle Advisory Panel (MAP), ICHPL management, and relevant government agencies as required.

During the FY25 reporting period, Appin Mine received two (2) complaints (Figure 16):

- One (1) related to dust generated by a truck travelling along Appin Road; and
- One (1) regarding the notification process for blasting activities.

The number of complaints remained consistent with the previous reporting period. Further details on each complaint and the corresponding corrective actions are available in the Monthly Complaints Report on the GM³ website and in Appendix 3.

During FY25, three (3) complaints were received directly by the EPA (two (2) relating to dust emission events at Ventilation Shaft 6 and one (1) relating to coal residue on Appin Road). As these were not lodged through our internal channels, they were not managed under the ICHPL Community Complaints Procedure.

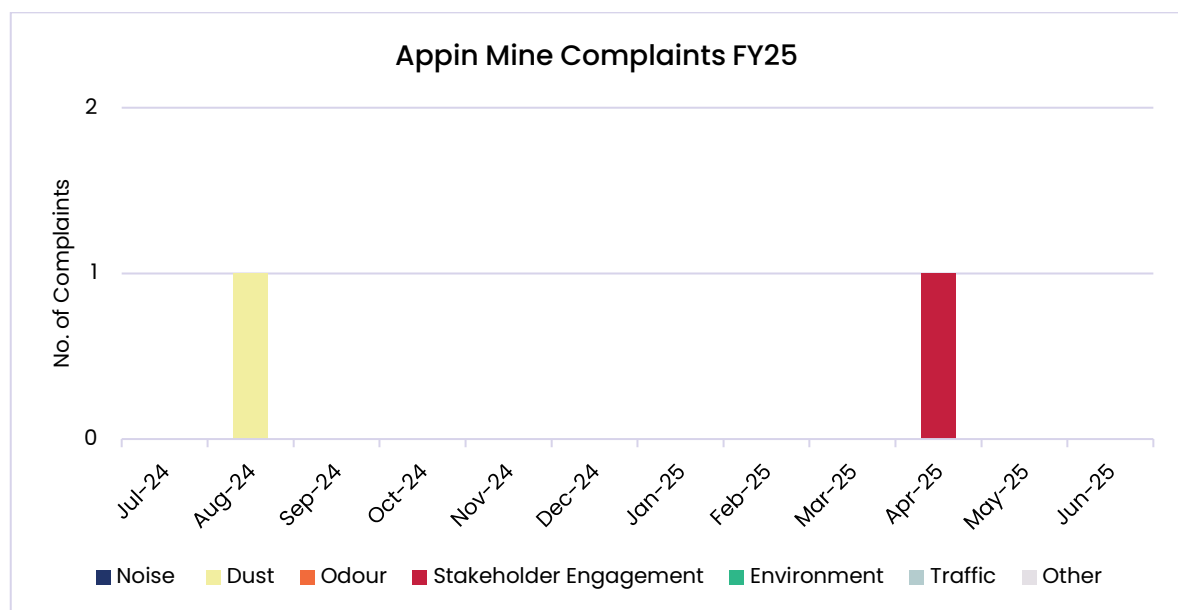


Figure 16: FY25 Community Complaints for Appin Mine

ICHPL activities that have been undertaken in the community during this reporting period include (but are not limited to):

- Exploration activities for borehole drilling on private property.
- Exploration seismic surveys (private property and public roads).
- Subsidence monitoring surveying (private property and public roads).
- Construction activities related to the AMVA Project.
- Environmental monitoring.
- Logistics/transportation.

The number of community complaints received between FY18 and FY25 is shown in Figure 17.

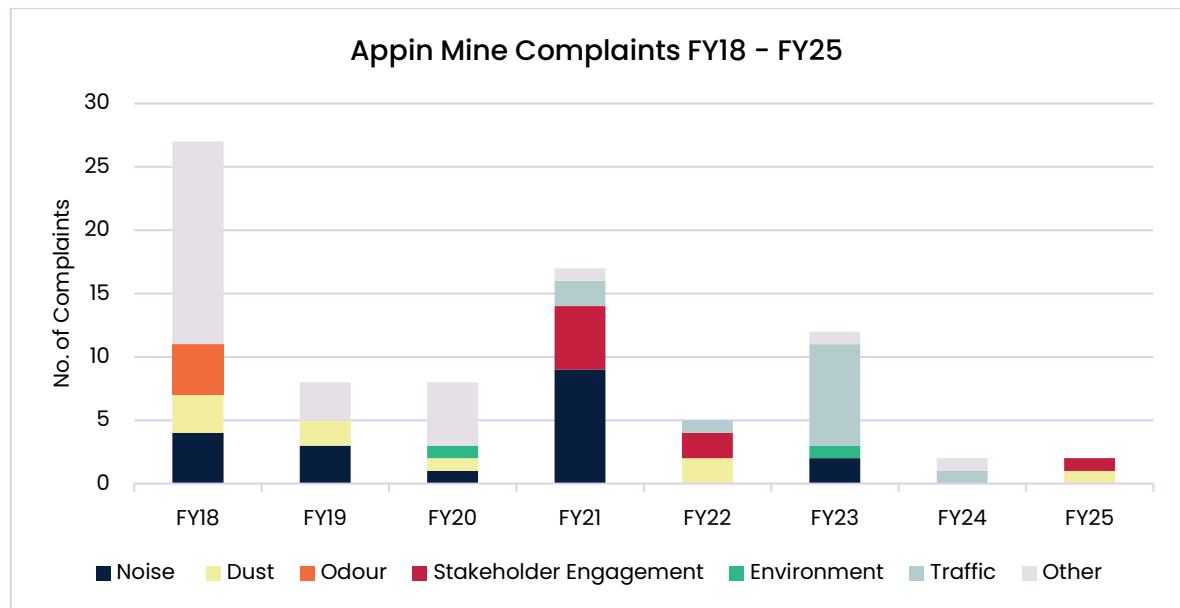


Figure 17: Community complaints from FY18 – FY25 for Appin Mine

9.2 Community Engagement

The Community Team leads regular community engagement activities in accordance with the CSEMP, with the support of operational and functional teams as appropriate. The CSEMP identifies key stakeholders and defines appropriate engagement and communication methods.

Key regional stakeholders include:

- local communities surrounding Appin Mine activities and associated infrastructure;
- local government;
- state government agencies and authorities;
- employees and contractors;
- Local Aboriginal Land Councils, Registered Aboriginal Parties, and the wider Aboriginal community;
- local businesses and industry;
- community partners and organisations; and
- broader regional community.

Community engagement is provided in accordance with the CSEMP. Communication and engagement methods may include:

- direct landholder engagement (e.g. door knocks, one-on-one meetings, phone calls, email);
- community newsletters (via letter box drop and online);
- community notice boards;
- community perception surveys;
- in-person and virtual meetings;
- social and human rights impact assessments;
- media releases and other media engagement;
- GM³ website (www.gm3.au) and social media platforms (including Facebook);
- CCC;
- community information sessions;
- online GM³ Community Portal (www.community.gm3.au) – including individual private landholder portals; and
- surveys and feedback forms.

ICHPL directly manages the following Appin Mine stakeholder committees and working groups:

- Appin Mine CCC;
- MAP; and
- Community Partnerships Program (CPP).

A Socio-economic Baseline Assessment and Social and Human Rights Impact and Opportunities Assessment was conducted for Appin Mine in May 2024 (GHD, 2024). This included stakeholder and community engagement activities, including online surveys and targeted stakeholder consultation. Several relevant key themes were raised, including:

- potential impacts to water catchments, local waterways, rivers, and the environment;
- impact of subsidence;
- conservation and rehabilitation; and
- supporting regional growth through investment in strategic propriety areas of economy, education, health and wellbeing and environment.

9.2.1 CCC

In accordance with Condition 6 of Schedule 6 of the Project Approval, ICHPL has established the CCC. It operates in accordance with the *Community Consultative Committee Guideline for State Significant Projects* and has been operating since September 2012. The guideline was updated in the reporting period and shared by the Chair with the CCC.

The CCC provides a forum that enables regular two-way communication between ICHPL and the community and promotes open discussion on the Appin Mine operations. The basis of discussion includes information on mining operations, environmental performance, exploration activities, complaints, major projects, and community investment. Topics discussed in the meeting generally reflect community concerns and interests at the time.

The CCC is nominally comprised of 11 members, including local community representatives, ICHPL personnel, one (1) representative from Wollondilly Shire Council, and one (1) representative from an environmental group. The CCC is chaired by an independent Chairperson appointed by the Planning Secretary of the Department. Formal meetings are held every two (2) months. A new Chairperson was appointed by the Department in June 2024 following the retirement of the previous Chairperson.

A summary of information presented to the CCC during the reporting period includes, but is not limited to:

- longwall and operational updates;
- BCD and coal wash management;
- updates on major projects, including the AMVA Project and the Ventilation Air Methane (VAM) abatement Project;
- EoP reports;
- management plan approvals;
- exploration updates;
- community complaints/enquiries;
- community investment updates; and
- general environmental and community issues.

Meetings are held locally and minutes of meetings are available on the GM³ webpage at this [link](#).

Tours of the North Cliff mine site, Nepean Biobanking site, Mountbatten House and the Georges River rehabilitation site were organised for the CCC during the reporting period.

9.2.2 MAP

The MAP is a community representative group that was established in March 2021 to support community engagement on the AVMA Project. It provides a forum for regular two-way communication between local community representatives and ICHPL regarding the project.

The MAP operates under an agreed Terms of Reference and is facilitated by an independent Chairperson. It is nominally comprised of eight (8) Menangle community representatives and two (2) ICHPL representatives. One (1) community representative resigned from the MAP during the reporting period. The community representatives include landholders nearby to the project site or located in Menangle.

A summary of information discussed with the MAP during the reporting period Includes:

- construction schedule and progress updates;
- conventional shaft sinking activities and blasting updates;
- environmental performance;
- community engagement and consultation; and
- amenity impacts and mitigation.

With the Project now in a steady state of blasting, meetings are held on an as-needed basis, as determined by the MAP, with a nominal frequency of once per quarter. During the reporting period, three (3) in-person meetings were held, along with one (1) additional progress update delivered via presentation in lieu of a meeting.

The minutes of community meetings are available on the GM³ website at this [link](#).

9.3 CPP

ICHPL has an overriding commitment to supporting the communities in which we operate. As part of this commitment, the CPP was established to provide support for community projects and initiatives in the regions surrounding Appin Mine.

Since being established in 2004, the program has provided support to a range of community groups and not-for-profit organisations. The CPP is funded by \$0.03 per saleable tonne of coal from Appin Mine. The program is administered by a board of community and ICHPL representatives, which enables community-based decision making on the allocation of funds.

During the past 12 months the Board has committed over \$122,044 for community projects in the local Wollondilly area. Groups that benefitted from CPP funding in the reporting period include:

- Lifeline Macarthur;

- Wilton Warriors;
- The Salvation Army;
- Wilton Public School;
- Carols on the Hill – Menangle Church;
- Menangle Hall; and
- Wilton Anglican Church.

The CPP continued its support for Life Education with funding to Appin, Douglas Park and Wilton Public Schools to enable children to visit the Life Education mobile learning centre. ICHPL has supported Life Education in the Wollondilly area since 2008.

Local community organisations are encouraged to apply for funding through the CPP. Applications are assessed against defined funding criteria, which are available along with the application form via the GM³ Community Portal at <https://community.gm3.au/grants>, or by emailing community@gm3.au.

9.4 Other Partnerships

ICHPL has supported community initiatives and undertaken community engagement in FY25. This includes, but is not limited to, partnerships with:

- Clontarf Academy – improve the education, discipline, self-esteem, life skills and employment prospects of young Aboriginal and Torres Strait Islander men.
- Ride Wollongong – community cycling event for all-abilities.
- Illawarra Women’s Trauma Recovery Centre – victim developed advocacy program for domestic violence victims.
- Symbio Wildlife Park – koala conservation and education.
- Deadly Science – in school STEM program.
- PCYC – Nations of Origin.

10. INDEPENDENT AUDIT

10.1 Environmental Audits

During this reporting period the performance of Appin Mine’s Environmental Management System was assessed in a comprehensive series of audits (refer to Table 34). If non-conformances or non-compliances are identified during audits, they are recorded and tracked via the action tracking system utilised by ICHPL.

Table 34: Environmental Audits undertaken during reporting period

Date	Type	Internal	External	Comments
Apr/May 2025	Annual ISO 14001		X	Surveillance audit. Undertaken by Bureau Veritas.
Oct 24 – Jun 25	2 nd Line Assurance / Quarterly Review		X	Review of internally reported GHG data.
Jul – Sep 24 ³⁶	Reasonable Assurance Audit		X	GHG data audit prior to NGER submission.
Ongoing	Management Plan Governance Reviews	X		Conducted internally as a part of ISO 14001 requirements.

10.1.1 Independent Environmental Audit (IEA)

An IEA is undertaken every three (3) years for Appin Mine in accordance with Condition 9 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval. The last IEA was undertaken in 2022. An action plan to address the non-compliances was developed and submitted to the Department and Commonwealth DCCEEW. All actions were closed out in the FY23 Annual Review.

The next triennial IEA is scheduled to be undertaken in FY26, with the site inspection in October 2025 and the submission of the IEA report by 31 December 2025.

10.1.2 ISO 14001

The ICHPL Environmental Management System has been certified to ISO 14001 since May 2003. ISO 14001:2015 Certification for Appin Mine operations (including Appin East, Appin West, Appin North and the WCCPP) was maintained following a surveillance audit during April/May 2025 by Bureau Veritas. The auditing process requires a demonstration of the adequacy of systems to manage environmental aspects and impacts related to site activities. The systems audited include legal compliance, document control, records, corrective action, monitoring and control, communication and management of risks. No non-conformances were identified, with three (3) opportunities for improvement suggested. The one (1) non-conformance identified in FY24 was closed.

³⁶ Assurance of FY25 data commenced in July 2025.

10.1.3 2nd line Assurance - GHG

Anthesis undertakes 2nd line assurance for internally reported GHG data. The review covers the GHG master workbook, ventilation shaft fugitive emissions, and emissions factors check.

10.1.4 Limited/Reasonable Assurance Audit - GHG

KPMG undertook a reasonable assurance audit for National Greenhouse and Energy Reporting (NGER) in FY25. ³⁷ The audit of the FY25 data commenced in July 2025 and is expected to be completed in October 2025.

10.1.5 Governance Reviews

A Governance Review process is in place as a part of the ISO 14001 certification. This process involves reviewing relevant environmental management plans in accordance with the schedule and incorporates both a desktop review and in-field verification. The following Governance Reviews were conducted for Appin Mine during the reporting period:

- Adaptive Management Plan – Water Sensitive EPBC Act Listed Species.
- Air Quality and Greenhouse Gas Management Plan.
- AMVA Project Construction Environmental Management Plan.
- Coal Wash Emplacement Area Management Plan.
- Environment Management Manual.
- Gas Drainage Management Plan.
- Noise Management Plan.
- *Persoonia hirsuta* Offset Management Plan.
- Pollution Incident Response Management Plan EPL 2504.
- Shale Sandstone Transition Forest Offset Management Plan.
- Surface Activities Management Plan.
- Waste Management Plan.
- Water Management Plan.

³⁷ EY will be conducting limited/reasonable assurance in FY26.

From these, the majority of corrective actions raised were administrative. All corrective actions and opportunities for improvement were raised in the action tracking system utilised by ICHPL and closed out as required. Changes required to the respective management plan as a result of the Governance Review are recorded in the Management Plan Review Log for incorporation into the relevant management plan during the next scheduled review.

10.2 Environmental Risk Register

Environmental risks associated with the site operations are recorded in the Environmental Aspects and Impacts Register. The Environmental Aspects and Impacts Register is reviewed regularly and is the basis of the Environmental Improvement Plan.

11. INCIDENTS, NON-COMPLIANCES AND EXCEEDANCES DURING THE REPORTING PERIOD

Non-compliances recorded during the reporting period are detailed in Table 35, details of exceedances with criteria are provided in Table 36, incidents are provided in Table 37 and regulatory actions in the reporting period are provided in Table 38.

Table 35: Non-compliances during the reporting period	
NC1	
Non-compliance	The BOD water quality concentration limit was exceeded at LDP 38.
Date	19 July 2024.
Details of non-compliance	The BOD 100-percentile limit for LDP 38 in EPL 2504 of 50 mg/L was exceeded on 10 July 2024. The measured water quality concentration for BOD was 74 mg/L. This was a non-compliance with Condition L2.4 of EPL 2504 and Condition 15 of Schedule 4 of the Project Approval.
Location	LDP 38, located at the Appin West effluent irrigation area.
Cause of non-compliance	The external lab advised that due to the sample matrix containing green algae, which could absorb DO from the sample, this may bias the BOD result higher than expected (as the method measures DO on the initial day then its depletion five (5) days later to determine the BOD result).

	An external sewage maintenance expert was consulted who indicated that the higher BOD may be because of lower aeration within the digester and lower bio-solids in the digester. It is not considered that there was any actual or potential for environmental harm associated with this exceedance.
Actions taken to mitigate adverse effects of non-compliance	The aeration rate was increased and biosolids were harvested from the Appin North STP to be transferred to the Appin West STP.
Actions taken to prevent reoccurrence	The STP will continue to be monitored to identify any further issues.
NC2	
Non-compliance	The BOD water quality concentration limit was exceeded at LDP 23.
Date	19 December 2024.
Details of non-compliance	The BOD 100-percentile limit for LDP 23 in EPL 2504 of 50 mg/L was exceeded on 19 December 2024. The measured water quality concentration for BOD was 53 mg/L. This was a non-compliance with Condition L2.4 of EPL 2504 and Condition 15 of Schedule 4 of the Project Approval.
Location	LDP 23, discharge from the Appin West stormwater basins.
Cause of non-compliance	It is likely that the high BOD was due to the die-off of aquatic plants in the basins as a result of high temperatures and low water levels. It is not considered that there was any actual or potential for environmental harm associated with this exceedance.
Actions taken to mitigate adverse effects of non-compliance	Further sampling indicated compliance with the water quality criteria.
Actions taken to prevent reoccurrence	No actions have been identified as the exceedance was likely as a result of natural causes.

NC3	
Non-compliance	Invoices not paid within allocated timeframe for CL 388 and MPL 201.
Date	25 March 2025.
Details of non-compliance	Annual Rent and Levy Notices for CL 388 and MPL 201 were not paid within the allocated timeframe. This was a non-compliance with Section 292C(3) of the <i>Mining Act 1992</i>.
Location	Leases associated with Appin Mine.
Cause of non-compliance	Internal processes had been followed to provide payment by the required date including approvals, however the actual payment was not made on the designated date.
Actions taken to mitigate adverse effects of non-compliance	Payment was expedited.
Actions taken to prevent reoccurrence	A new system for processing payments has been implemented.
NC4	
Non-compliance	Gas was extracted from ML 1698 when petroleum was not listed as a Mineral of Interest.
Date	30 September 2024.
Details of non-compliance	Four (4) in-seam gas drainage holes within the Bulli Seam were drilled into ML 1698 during May and June 2017. A further six (6) in-seam gas drainage holes were drilled into ML 1698 from the Appin Mine underground workings between February and May 2024. Gas was extracted via the in-seam gas drainage holes and directed to the EDL Power Plant at Appin West. While there was no restriction within ML 1698 to prevent coal mining, and in particular the development of Razorback roadways, gas extraction and utilisation was not an approved activity within ML 1698.

Location	ML 1698, located near Menangle.
Cause of non-compliance	As part of the tenement transition from South32 to GM³, tenement data provided by the South32 Tenements Team was audited against data obtained from the Titles Management System Portal (Department of Primary Industries and Regional Development) prior to inclusion into the GM³ tenement management system. The audit included grant dates, expiry dates, reporting due dates and any relevant inclusions/exclusion from the tenements e.g. Minerals of Interest. It was noted that some tenements did not have Petroleum listed as a Mineral of Interest, including ML 1698. AGL held a Petroleum Production Lease (PPL6) over part of ML 1698. A mining lease can overlap a PPL, however the Minister cannot grant petroleum as a Mineral of Interest associated with a Mining Lease where there is an overlapping PPL. As part of AGL's decommissioning of the Camden Gas Project, AGL applied for the cancellation of PPL6 in April 2024. In-seam drilling at Appin Mine related to Razorback Mains extended into ML 1698, including into the PPL held by AGL.
Actions taken to mitigate adverse effects of non-compliance	Petroleum was added to the relevant mining leases where it had not been included.
Actions taken to prevent reoccurrence	Where applications are submitted for future mining leases, petroleum will be added as a Mineral of Interest.

The recording of a non-compliance against Condition 15 of Schedule 4 of the Consent has also resulted in non-compliance with Condition 2b of Schedule 2 of the Project Approval. It is not considered that the non-compliance resulted in environmental harm.

Table 36: Exceedances of criteria during reporting period

EX1	
Exceedance	The total nitrogen 80-percentile limit was exceeded at LDP 24.
Date	26 March 2025.
Details of exceedance	LDP 24 is the point the water quality discharge from the Appin West WTP is measured.

	The 80-percentile limit for LDP 24 in EPL 2504 of 350 µg/L was exceeded on 26 March 2025, with a result of 380 µg/L recorded. The 80-percentile concentration was calculated for the reporting period and the result was below the respective limits.
Location	LDP 24, located at Appin West.
Cause of exceedance	During the sampling period there was an issue identified with the chlorine dioxide plant running at approximately 80% of capacity. There had also been an increase in algae from underground water adding to the biological load of the source water.
Actions taken to mitigate adverse effects of exceedance	This issue with the chlorine dioxide plant was promptly rectified after identification. Further sampling indicated that the issue was resolved. It is not considered that there was any actual or potential for environmental harm.
Actions taken to prevent reoccurrence	There were no further actions identified.
EX2	
Exceedance	The BOD 50-percentile limit was exceeded at LDP 38.
Date	19 June 2025.
Details of exceedance	LDP 38 is the point the water quality discharge from the Appin West treated effluent pond is measured. The 50-percentile limit for LDP 38 in EPL 2504 of 30 mg/L was exceeded on 19 June 2025, with a result of 42 mg/L recorded. The 50-percentile concentration was calculated for the reporting period and the result was below the respective limits.
Location	LDP 38, located at Appin West.
Cause of exceedance	The exceedance is likely due to increased flows through the STP following a significant rain event reducing the biomass present.
Actions taken to mitigate adverse effects of exceedance	Biomass increased after the sampling occurred. It is not considered that there was any actual or potential for environmental harm.

Actions taken to prevent reoccurrence	There were no further actions identified.
EX3	
Exceedance	The BOD 50-percentile limit was exceeded at LDP 4.
Date	23 June 2025.
Details of exceedance	LDP 4 is the point the water quality discharge from the Appin North treated effluent pond is measured. The 50-percentile limit for LDP 4 in EPL 2504 of 30 mg/L was exceeded on 23 June 2025, with a result of 33 mg/L recorded. The 50-percentile concentration was calculated for the reporting period and the result was below the respective limits.
Location	LDP 4, located at Appin North.
Cause of exceedance	The exceedance is likely due to an accumulation of biomass and algae in the sample chamber.
Actions taken to mitigate adverse effects of exceedance	The sample chamber was cleaned out. It is not considered that there was any actual or potential for environmental harm.
Actions taken to prevent reoccurrence	There were no further actions identified.

Table 37: Incidents during the reporting period

INC1	
Incident	Compressor fire at Ventilation Shaft 6.
Date	7 October 2024.
Details of incident	A fire occurred in the compressor shed at Appin Mine Ventilation Shaft No. 6, located on Menangle Road, Douglas Park. Emergency services responded quickly and promptly extinguished the fire.

	The incident was contained to the surface compressor shed, with no impact on underground operations and no injuries to personnel.
Location	Ventilation Shaft 6, Douglas Park.
Cause of incident	Testing of the compressor is still underway to determine the exact cause. It is not considered that there was any actual or potential for environmental harm associated with this incident.
Actions taken to mitigate adverse effects of the incident	Emergency services attended site to extinguish the fire. Sampling was conducted in the downstream ponds following the incident with no potential contaminants identified. Spill kits were available at the time of the incident, however were not required to be deployed.
Actions taken to prevent reoccurrence	Actions to prevent reoccurrence have not yet been identified as testing of the compressor is still underway.
INC2	
Incident	Dust emission from Ventilation Shaft 6.
Date	5 November 2024.
Details of incident	A dust emission was observed from the Ventilation Shaft 6 site. GM³ personnel were on site at the time of the ventilation change. It was noted that the dust emission commenced at approximately 7.37 am when there was a ramp up from two (2) to three (3) fans at Ventilation Shaft 6. The dust emission dissipated over the next hour, with no visible dust by 8.30 am.
Location	Ventilation Shaft 6 – Douglas Park.
Cause of incident	Maintenance works were being undertaken on Ventilation Shaft 2 (located to the south of Appin township) that required the fans to be turned off and for ventilation to be directed towards Ventilation Shaft 6, located at Douglas Park. This change in ventilation (change in direction and increased flow) is likely the cause of the dust emission at Ventilation Shaft 6. It is not considered that there was any actual or potential for environmental harm associated with this incident.

Actions taken to mitigate adverse effects of the incident	Due to the nature of the underground ventilation system and the requirement to maintain flows for personnel safety and explosion risk, there was no mitigation available at the time.
Actions taken to prevent reoccurrence	This maintenance is an infrequent occurrence. The potential for dust emissions should this maintenance be required in the future will be assessed and controls implemented where practical.
INC3	
Incident	Dust emission from Ventilation Shaft 6.
Date	20 November 2024.
Details of incident	A dust emission was observed from the Ventilation Shaft 6 site.
Location	Ventilation Shaft 6 – Douglas Park.
Cause of incident	Wet stone dusting was being undertaken underground in the vicinity of the base of the Ventilation Shaft. In the process, loose stone dust was dislodged from the walls that was captured in the ventilation air. It is not considered that there was any actual or potential for environmental harm associated with this incident.
Actions taken to mitigate adverse effects of the incident	Stone dusting is a critical process to avoid the propagation of an explosion in the underground environment. Ventilation must be maintained to maintain a safe working environment underground. There was no mitigation available at the time.
Actions taken to prevent reoccurrence	The potential for dust emissions when this activity is undertaken in the future will be assessed and controls implemented where practical.

Table 38: Regulatory actions during reporting period	
Regulatory Action	Detail
Official Caution	None issued.
Warning Letters	None issued.
Penalty Notices	None issued.



Prosecution Proceedings	None commenced.

Refer to the following reports for specific compliance information:

- Appendix 1: EPL 2504 Annual Return – FY25;
- Appendix 2: Appin Mine Project Approval Condition Compliance Report; and
- Appendix 12: EPBC Approval 2010/5350 Compliance Report – FY25.

12. ACTIVITIES PROPOSED IN THE NEXT REPORTING PERIOD

12.1 Mine Operations

Longwall mining operations will continue in AA7 in FY26.

The emergence of sandstone and gas outbursts as a risk at Appin has necessitated a redesign of the mine, with some longwall panels shortened and/or split into shorter blocks. During FY26, development in Simpson Mains, Douglas Mains and Razorback Mains to prepare LW712A, LW712B, and LW713 will continue, with longwall extraction in LW711A and LW711B ongoing.

Future mining areas are shown in Plan 18.

An EP application for LW712 to LW716 is planned to be submitted in FY26.

An application to modify the Project Approval was submitted to DPHI on 6 June 2025 for the VAM Abatement Project. Further applications to modify the Project Approval may be submitted in FY26.

Construction activities in the next reporting period are detailed in Section 12.3.

12.2 Exploration

Planned drilling activities for FY26 include:

- the completion of one (1) in-progress coal quality exploration borehole (S2686), including a full suite of packer testing and piezometer monitoring equipment installation (approved under Survey V/AUTH 248);and
- one (1) additional standard coal quality borehole (S2687), approved under Survey V/AUTH 248.

All proposed FY26 drilling is subject to change based on mine planning and business priorities.

Additionally, there is 2D seismic proposed for Appin Mine which may be acquired in late FY26. Planning for this seismic campaign commenced in FY25, with numerous landholder consultation engagement sessions held. The planned seismic includes 2D vibroseis

"Survey Y – Phase 2" – 16 lines with a total acquisition length of approximately 63 km across AUTH 248, EL 4470 and EL 8972.

This seismic exploration remains subject to planning review and the success of landholder negotiations to access planned seismic lines.

The proposed location of exploration boreholes and seismic planned for FY26 are shown in Plan 21.

12.3 Projects

12.3.1 Appin North

The following projects are scheduled to be progressed in the next reporting period at Appin North:

- Crack repairs associated with the structural review of the 8000 tonne WCCCP product bins to reinstate the designed capacity.
- Upgrade of the haul road system between the CWEA and the WCCPP.
- Upgrades to the PLC unit, SCADA system, mechanical components, and automation of the irrigation pump for the Appin North STP.
- Removal/emplacement of remaining coal wash that had been stored at Appin North for beneficial reuse.

Studies required under PRP 25 will be progressed in FY26.

The review of the design of Stage 4 of the CWEA will be completed in FY26, with construction of infrastructure associated with Stage 4 expected to commence.

12.3.2 Appin East

It is planned to progress investigations into the transfer of water from the Appin East stormwater ponds underground in FY26.

12.3.3 Appin West

The upgrade of the sewage system level sensors for the holding and treated effluent dams at Appin West is planned to be completed in FY26.

12.3.4 Ventilation Shaft 6

The replacement of the air compressors and shed at Ventilation Shaft 6 is planned to be progressed in FY26.

The upgrade of the diesel fan is planned to be progressed in FY26.

12.3.5 AMVA Project

Construction of the AVMA major works will continue in FY26. The construction phases include the installation of infrastructure and equipment required for the operation of ventilation shafts and mine access facilities. Shaft sinking will continue over FY26 and into FY27, involving drilling and blasting methods and also the concreting of the shaft wall formed and poured in situ. Main sink shaft sinking activities will occur 24/7 in compliance with the relevant noise related Project Approval conditions.

Construction of the visual bund will continue using shaft spoil as engineered fill.

The ventilation fan infrastructure which commenced construction in mid FY25 will continue into FY26. This includes separate switchrooms and transformer skids.

Replacement tree screen plantings are planned for FY26 in areas where establishment has not been as successful as other areas.

12.4 Environmental Management

The following activities are scheduled to be progressed in the next reporting period:

- Installation of additional Broad-headed Snake habitat, bee habitat and nest boxes at Appin North.
- Installation of water level and flow monitoring sites over the Appin mining area.

12.5 Community

ICHPL will continue engaging with the community in line with the CSEMP and will support local initiatives through the Community Investment Plan throughout FY26.

12.6 Rehabilitation

Remediation of subsidence impacts in the Georges River in accordance with the GRRP is expected to be completed in FY26. Rehabilitation success monitoring will continue in FY26.

The removal of the redundant powerline between North Cliff and WCCPP will be progressed in FY26.

Rehabilitation activity at the North Cliff site will commence in FY26 with mobilisation to site, installation of the gas monitoring system and commencement of shaft sealing activities.

Studies, investigations and design to inform the rehabilitation scope of works for Bulli Shafts 1, 2 and 3 will be undertaken in FY26. The scope of work will be presented to external stakeholders for consultation.

13. REFERENCES AND ASSOCIATED DOCUMENTS

13.1 References

Bulli Seam Operations Project Approval 08_0150 (as modified)
Bulli Seam Operations EPBC Approval 2010/5350 (as modified)
DPIE (2023). Community Consultative Committee Guideline for State Significant Projects.
ICHPL, Appin Mine Air Quality and Greenhouse Gas Management Plan.
ICHPL, Appin Mine Coal Wash Emplacement Area Management Plan.
ICHPL, Appin Mine Environmental Management Strategy.
ICHPL, Appin Mine Noise Management Plan.
ICHPL, Appin Mine Rehabilitation Management Plan.
ICHPL, Appin Mine Water Management Plan.
ICHPL, Appin Mine Waste Management Plan.
ICHPL, Georges River Rehabilitation Plan.
ICHPL, Longwall 709 End of Panel Report (2024) – available on the GM3 website at [link](#).
ICHPL, Appin Mine Ventilation and Access Project Construction Environmental Management Plan.
Niche (2025). Mine Water Discharge – Aquatic Health Monitoring memo (Niche ref: #8721).
NSW Department of Planning and Environment (2015). Annual Review Guideline, Post approval requirements for State Significant Developments, October 2015.
NSW EPA, Environment Protection Licence No. 2504.
Seismology Research Centre (2024). Illawarra Metallurgical Coal Earthquake Monitoring Network Report. 11 February 2024 – 10 February 2025
Seismology Research Centre (2025). Illawarra Metallurgical Coal Earthquake Monitoring Network Report. 11 February to 30 June 2025.

13.2 Acronyms used in Annual Review

The acronyms used in the Annual Review are provided in Table 39.

Table 39: Acronyms used in Annual Review			
Acronym	Definition	Acronym	Definition
AA7	Appin Area 7 Mining Domain	L	litre
AA9	Appin Area 9 Mining Domain	LDP	Licence Discharge Point
AHIMS	Aboriginal Heritage Information Management System	LW	Longwall
AMVA	Appin Mine Ventilation and Access Project	m	metre
APZ	Asset Protection Zone	mg	milligram
AQMP	Air Quality and Greenhouse Gas Management Plan	µg	microgram
ASRS	Australian Sustainability Reporting Standards	µS	micro Siemen
AUTH	Authority	MAP	Menangle Advisory Panel
BA	Biobanking Agreement	ML	Mining Lease/megalitre
BAM	Biodiversity Assessment Methodology	MLv	Magnitude, local using vertical displacement
BC Act	<i>Biodiversity Conservation Act</i>	MOD	Modification
BCD	Brennans Creek Dam	MPL	Mining Purposes Lease

BCS	Biodiversity and Conservation Science Group (previously OEH)	Mtpa	Million tonnes per annum
BCW	Bulk Coal Winder	MZ	Management Zone
BOD	Biochemical oxygen demand	NCREP	North Cliff Rehabilitation Execution Plan
BoM	Bureau of Meteorology	NGER	National Greenhouse and Energy Reporting
BSO	Bulli Seam Operations	NMP	Noise Management Plan
CCC	Appin Mine Community Consultative Committee	NPSR	Native Plant Species Richness
CCL	Consolidated Coal Lease	NPWS	National Parks and Wildlife Service
CEMP	Construction Environmental Management Plan	NSW	New South Wales
CH ₄	Methane	NTU	Nephelometric Turbidity Unit
CO ₂ -e	Carbon dioxide equivalent	OEH	Office of Environment and Heritage
CPP	Community Partnerships Program	OPD	Operational Purpose Deduction
CSEMP	Community and Stakeholder Engagement Management Plan	PDCE	Post drainage capture efficiency
CWEA	Coal Wash Emplacement Area	PKCT	Port Kembla Coal Terminal
CY	Calendar Year	PLC	Programmable logic controller

DAWE	Department of Agriculture, Water and the Environment	POEO Act	<i>Protection of the Environment Operations Act</i>
DCCEEW (Commonwealth)	Department of Climate Change, Energy, the Environment and Water (previously DAWE)	PM _{2.5}	Particulate matter 2.5 microns
DCPP	Dendrobium Coal Preparation Plant	PM ₁₀	Particulate matter 10 microns
Department	Department of Planning, Housing and Infrastructure (DPHI) – previously: • Department of Planning and Environment (DPE) • Department of Planning, Industry and Environment (DPIE)	PPL	Petroleum Production Lease
DO	Dissolved Oxygen	PRP	Pollution Reduction Program
DTIRIS	Department of Trade, Investment, Regional Infrastructure and Services	PUR	Polyurethane resin
EA	Environmental Assessment	RAMP	Revised Action Management Plan.
EC	Electrical conductivity	RAP	Registered Aboriginal Party
EDL	Energy Developments Limited	RCC	Rehabilitation Completion Criteria
EFT	ICHPL Environmental Field Team	RCE	Rehabilitation Cost Estimate
EL	Exploration Licence	REF	Review of Environmental Factors

EoP	End of Panel	RMP	Rehabilitation Management Plan
EP	Extraction Plan or Emplacement Pond	ROC	Regional Operations Centre
EPA	Environment Protection Authority	RoM	Run of Mine
<i>EP&A Act</i>	<i>Environmental Planning and Assessment Act</i>	RTO	Regenerative Thermal Oxidiser
EPBC	Environment Protection and Biodiversity Conservation	SA NSW	Subsidence Advisory NSW
EPL	Environment Protection Licence	SMP	Subsidence Management Plan
EPT	Ephemeroptera, Plecoptera, and Trichoptera	SRC	Seismology Research Centre
EQUIS	Environmental Quality and Information System	SSTF	Shale Sandstone Transition Forest
FY	Financial Year	STEM	Science, Technology, Engineering, and Mathematics
GDP	Gas Drainage Plant	STIS	Surface to In-Seam
GEAR	Golden Energy and Resources	STP	Sewage Treatment Plant
GHG	Greenhouse Gas	SWL	Standing Water Level
GM ³	Entity owned by GEAR and M Resources	t	tonne
GRAHMP	Georges River Aquatic Health Monitoring Program	TARP	Trigger Action Response Plan
GRRP	Georges River Rehabilitation Plan	TAP	Targeted Assessment Program
HBSS	Hawkesbury Sandstone	TDS	Total Dissolved Solids

HRA	High risk activity	TfNSW	Transport for NSW
ICHPL	Illawarra Coal Holdings Pty Ltd	TSP	Total Suspended Particulate
ICNG	Interim Construction Noise Guidelines	TSS	Total Suspended Solids
IEA	Independent Environmental Audit	UoW	University of Wollongong
IMS	Integrated membrane system	VAM	Ventilation Air Methane
ISO	International Standards Organisation	WAC	Weak acid cation
KL	kilolitre	WCCPP	West Cliff Coal Preparation Plant
km	kilometre	WMP	Water Management Plan
kt	kilotonne	WSC	Wollondilly Shire Council
kV	kilovolt	WTP	Water Treatment Plant

13.3 Management Plans

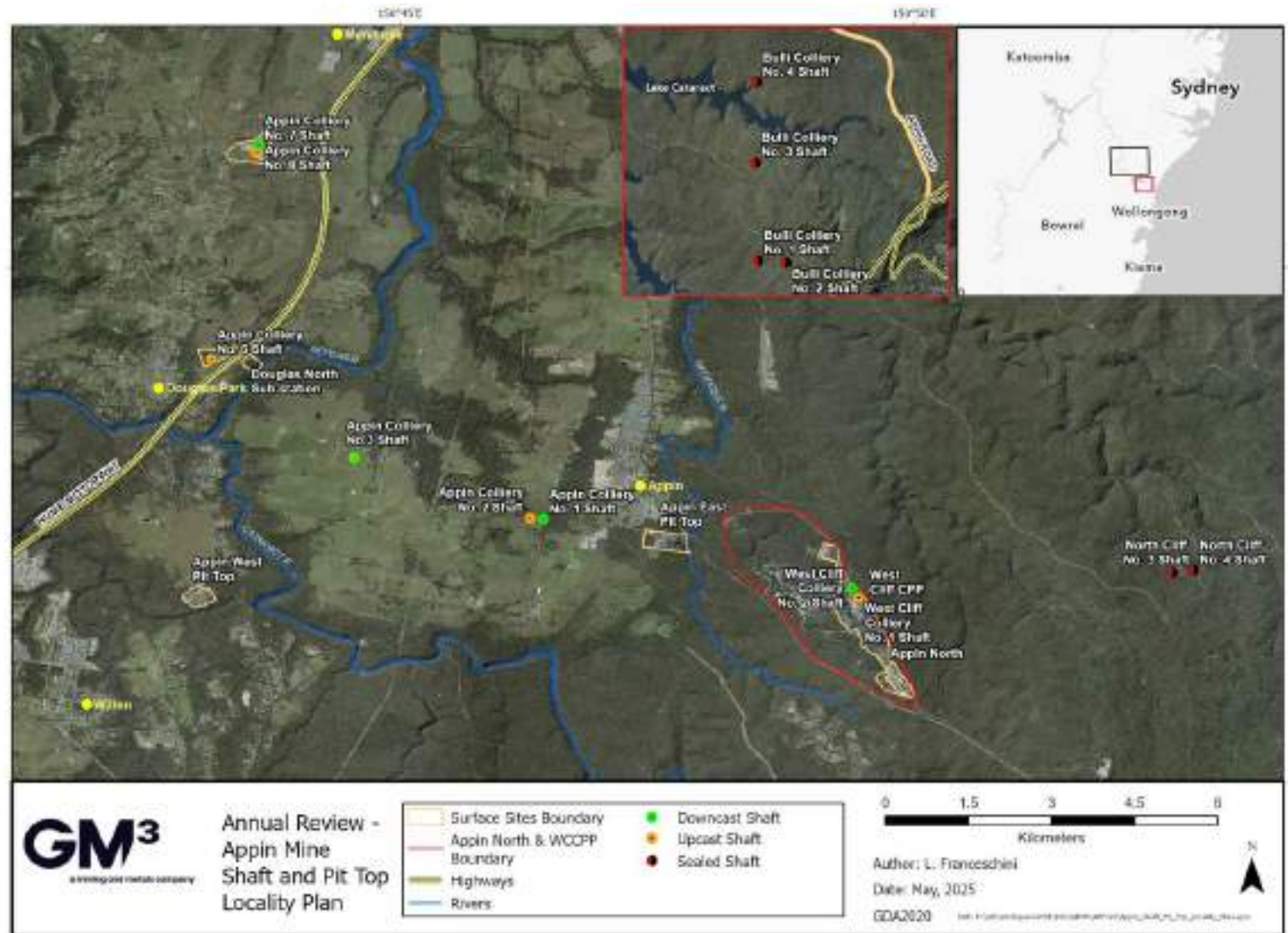
Management Plans required by the Project Approval, EPBC Approvals or EPL 2504 are listed in Table 40, including the date approved and date of next review.

Table 40: Management Plans		
Management Plan	Approved Date	Next Review
Adaptive Management Plan for Water Sensitive EPBC Act Listed Species	10/09/2024	19/07/2029
Air Quality & Greenhouse Gas Management Plan	15/01/2025	22/11/2027
AMVA Project Construction Environmental Management Plan	7/04/2025	16/01/2027

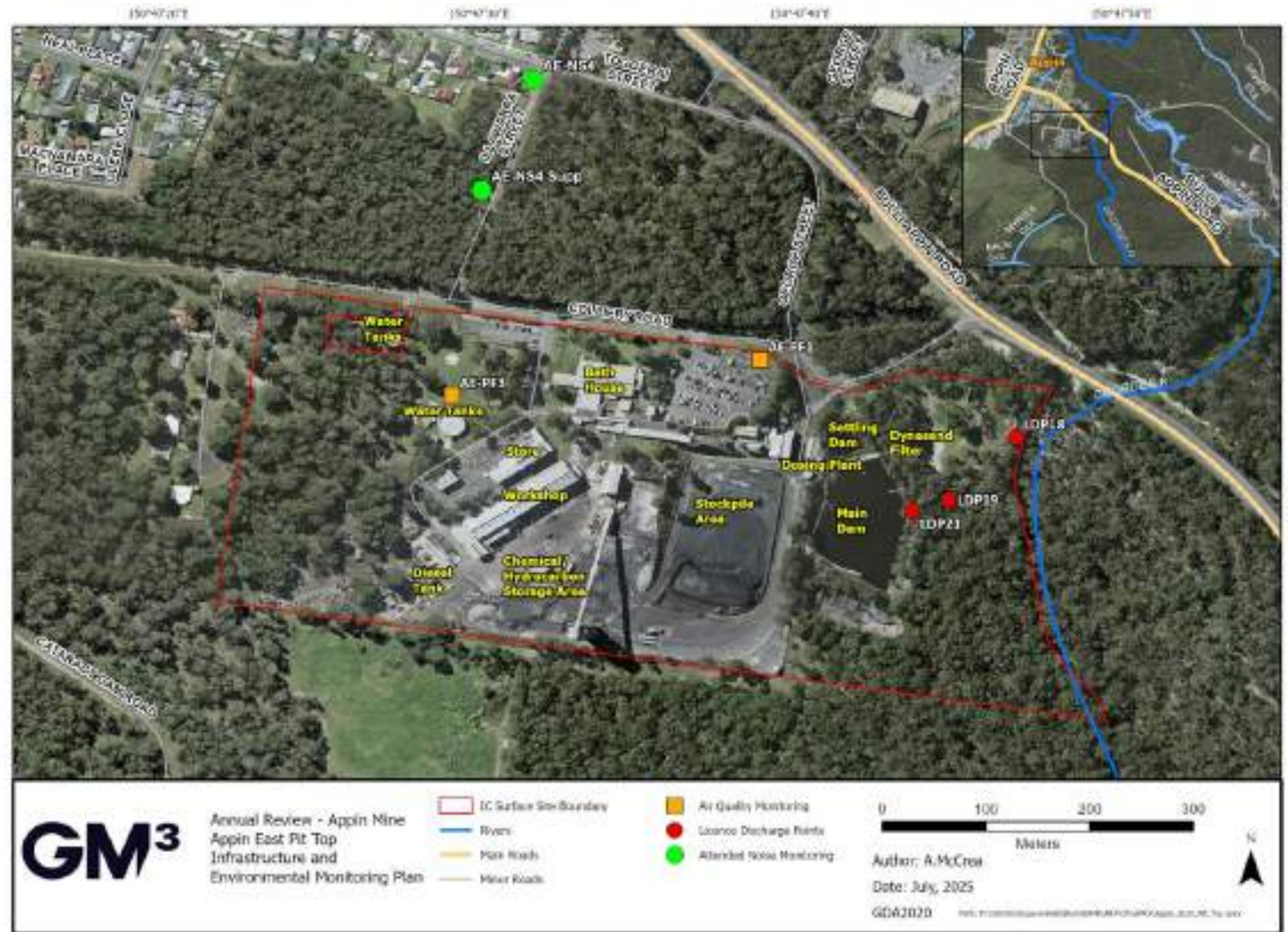
Table 40: Management Plans		
Management Plan	Approved Date	Next Review
Biodiversity Management Plan	23/05/2025	2/05/2028
Broad Headed Snake and Southern Brown Bandicoot Management Plan	10/06/2025	28/01/2028
Coal Wash Emplacement Area Management Plan	10/06/2025	31/01/2028
Environmental Management Strategy	15/01/2025	20/12/2027
Gas Drainage Management Plan	4/02/2025	1/12/2027
Heritage Management Plan	28/05/2025	20/05/2028
Noise Management Plan	15/02/2025	20/12/2027
<i>Persoonia hirsuta</i> Offset Management Plan	18/05/2022	Under Review
Pollution Incident Response Management Plan EPL 2504	N/A	24/11/2025
Rehabilitation Management Plan	N/A	27/06/2028
Shale Sandstone Transition Forest Offset Management Plan	25/11/2024	30/11/2029
Surface Activities Management Plan	7/02/2025	21/11/2027
Traffic Management Plan	5/06/2025	14/05/2028
Ventilation Shaft 6 Biodiversity Offset Strategy	20/11/2020	23/10/2041
Waste Management Plan	24/11/2022	24/11/2025
Water Management Plan	31/01/2025	28/01/2028

14. PLANS

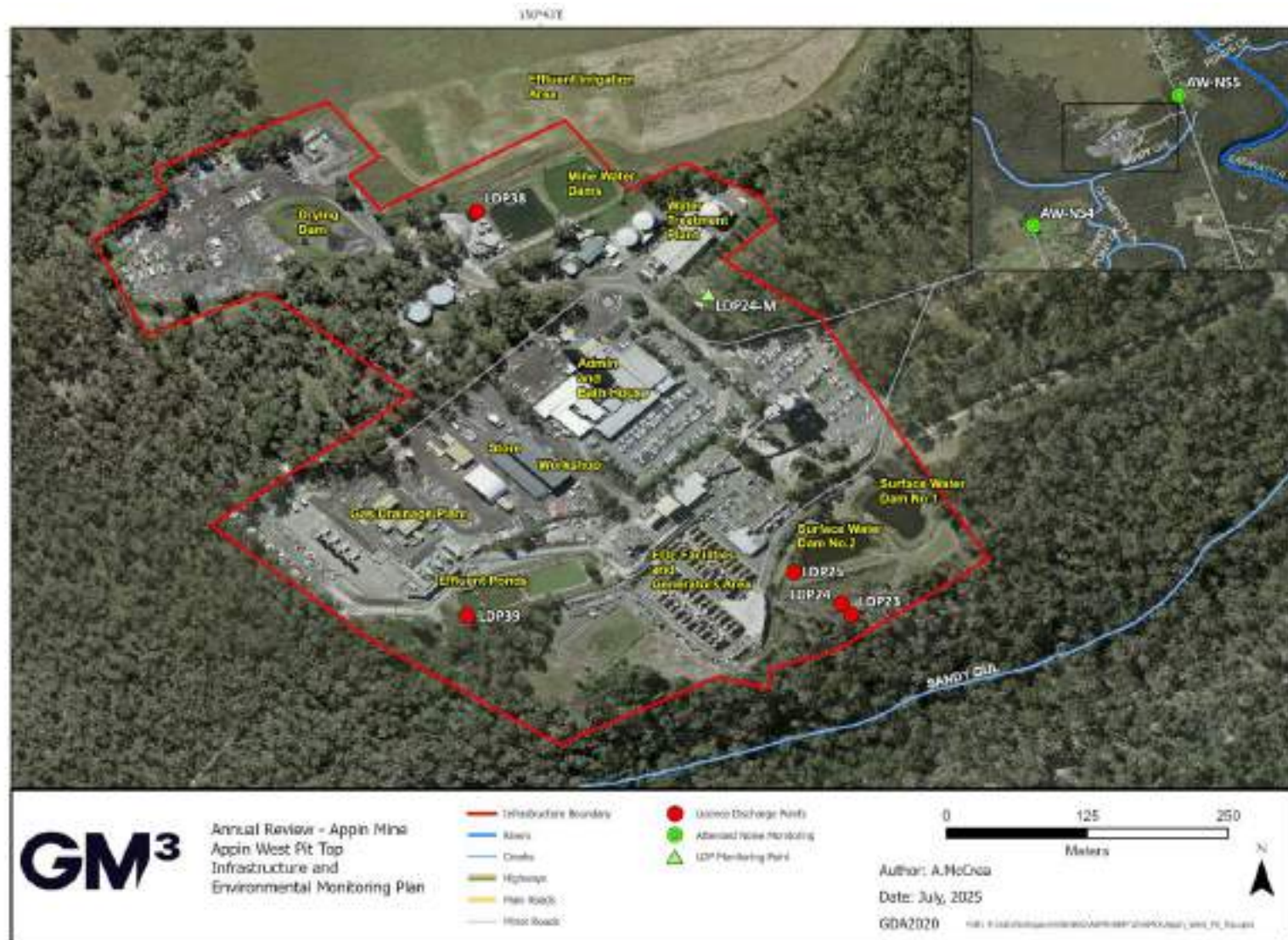
Plan 2: Appin Shaft and Pit Top Locality Plan



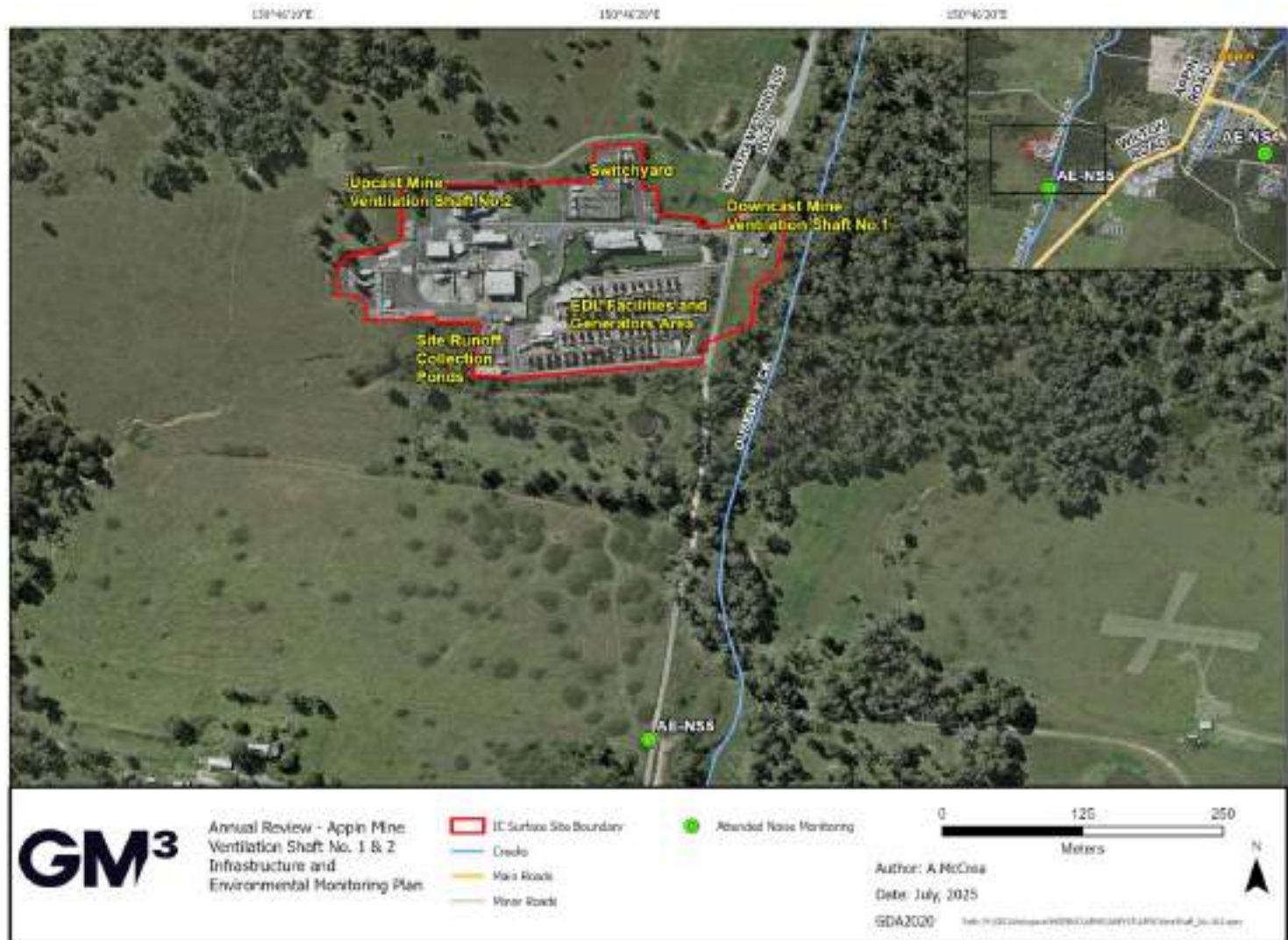
Plan 3: Site Layout and Monitoring Locations – Appin East Pit Top



Plan 4: Site Layout and Monitoring Locations – Appin West Pit Top



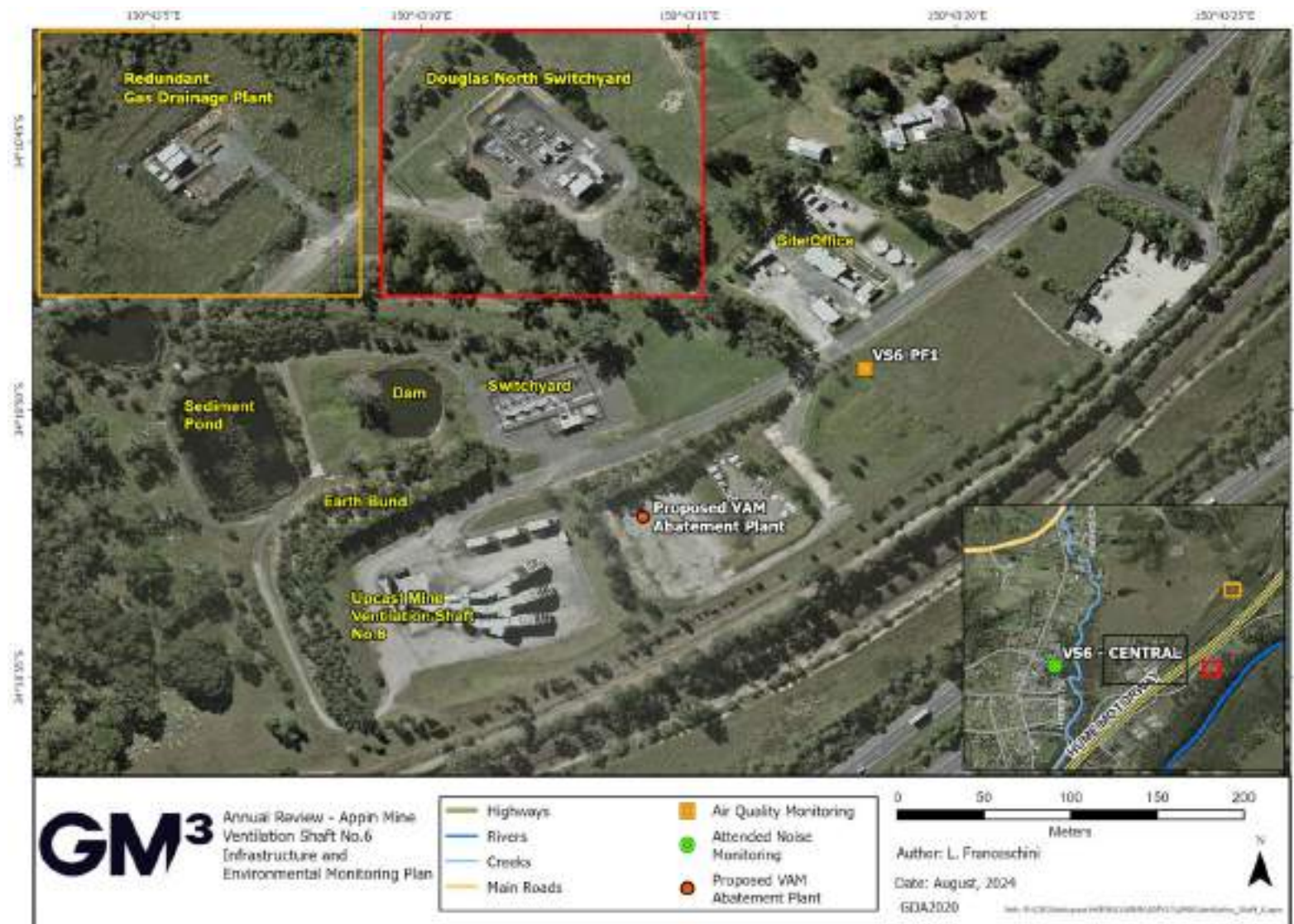
Plan 5: Site Layout – Ventilation Shafts 1 and 2



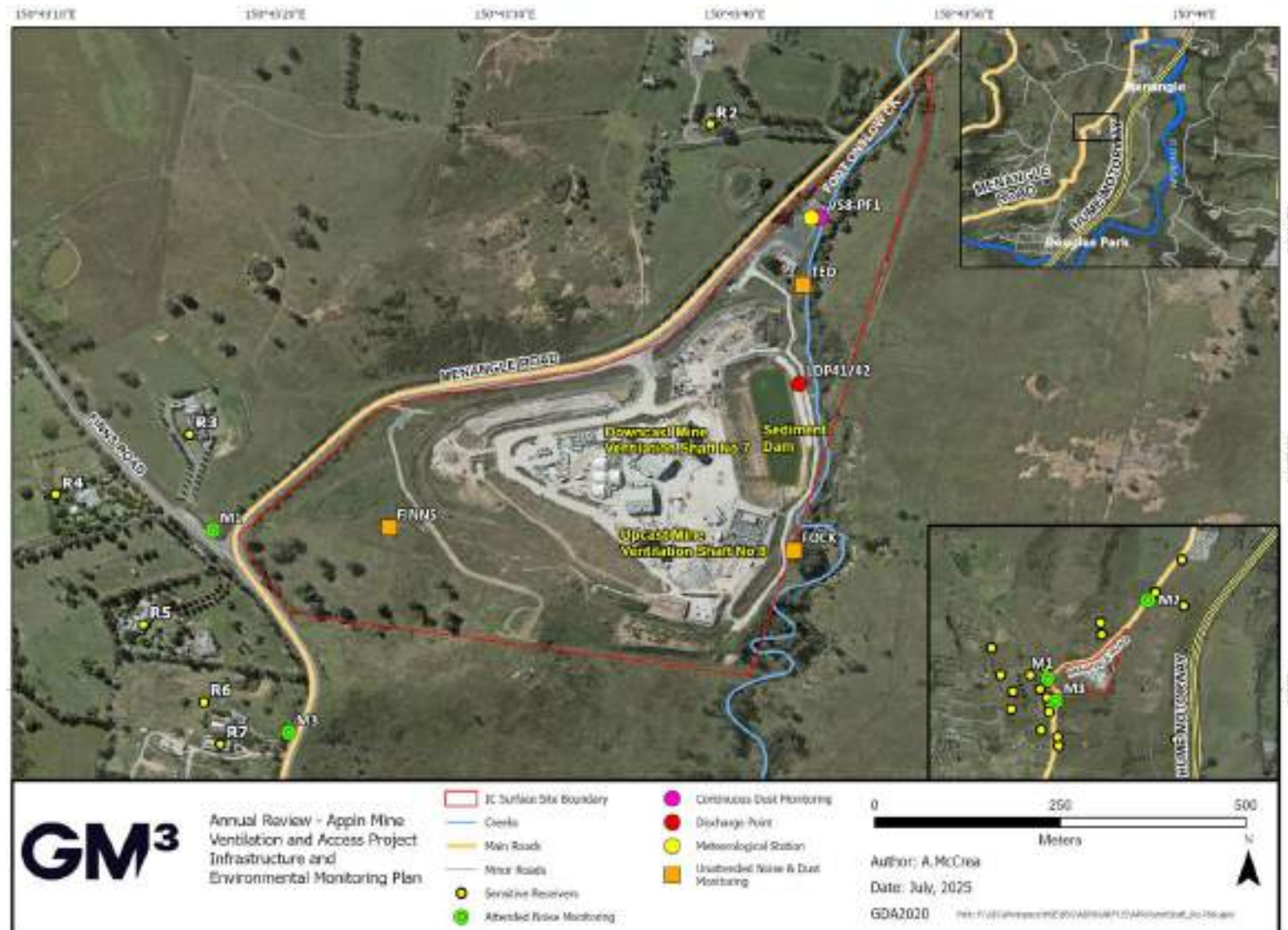
Plan 6: Site Layout – Ventilation Shaft 3



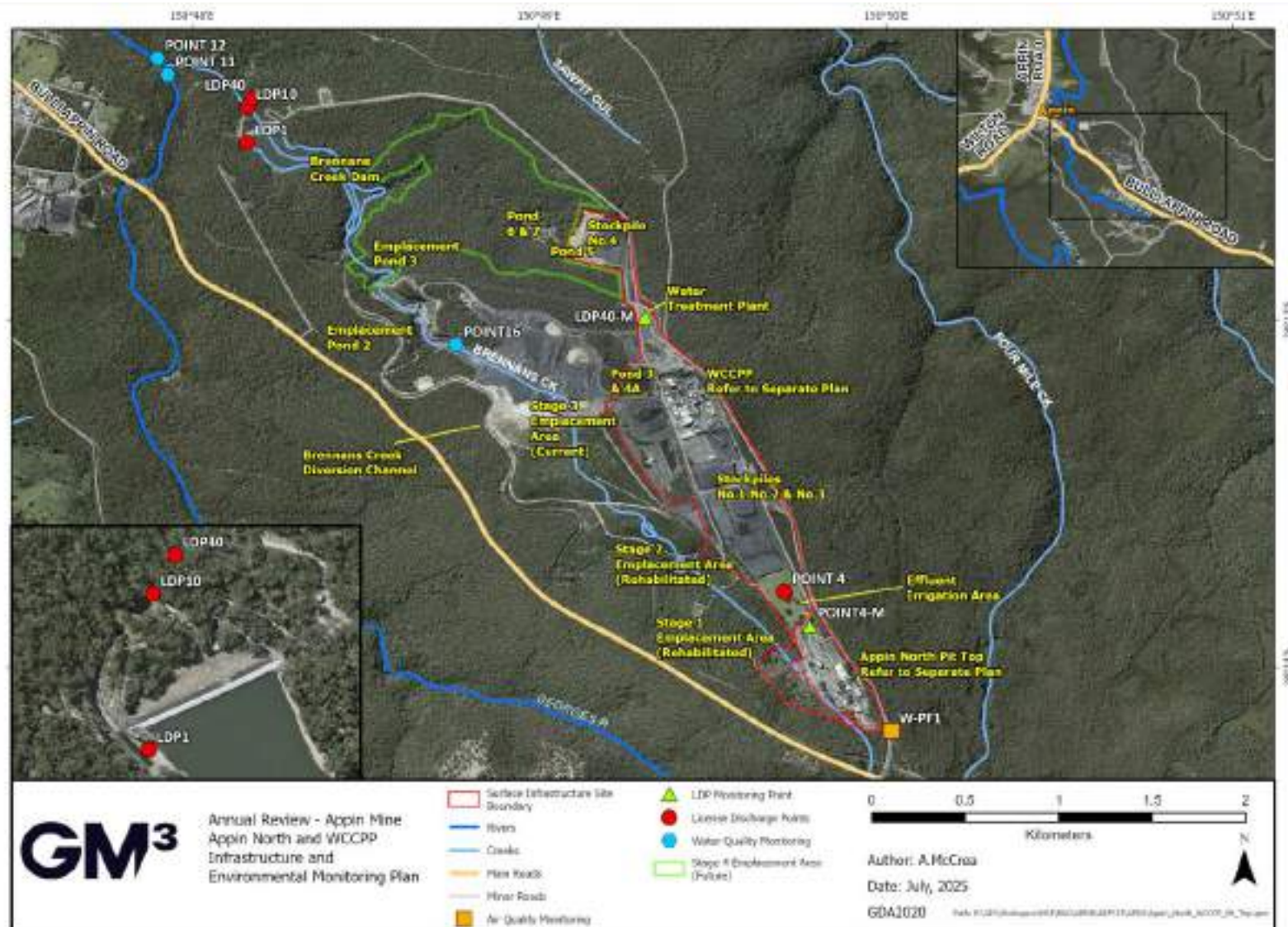
Plan 7: Site Layout and Monitoring Locations – Ventilation Shaft 6



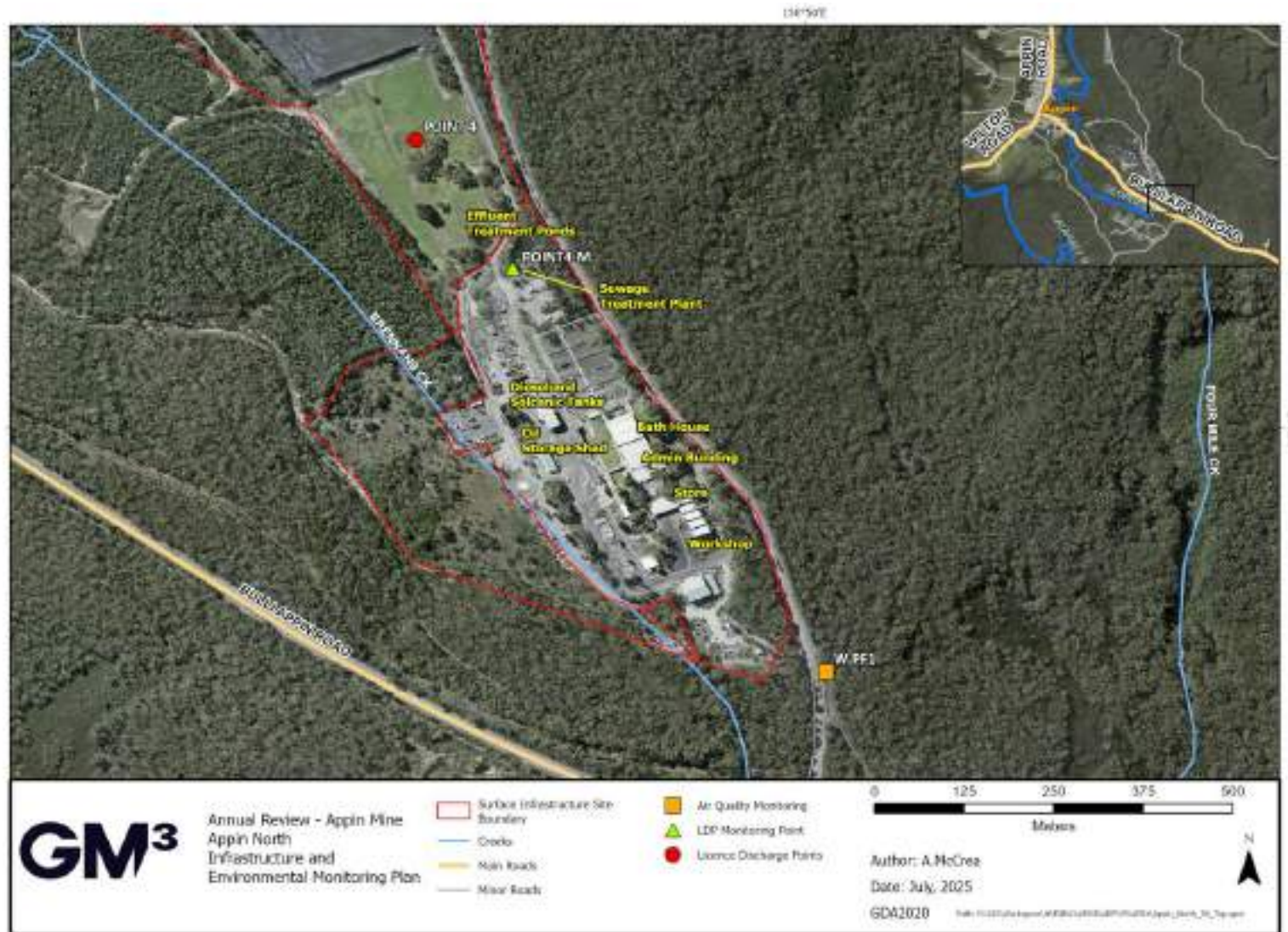
Plan 8: Site Layout and Monitoring Locations – Ventilation Shafts 7 and 8 (AMVA Project)



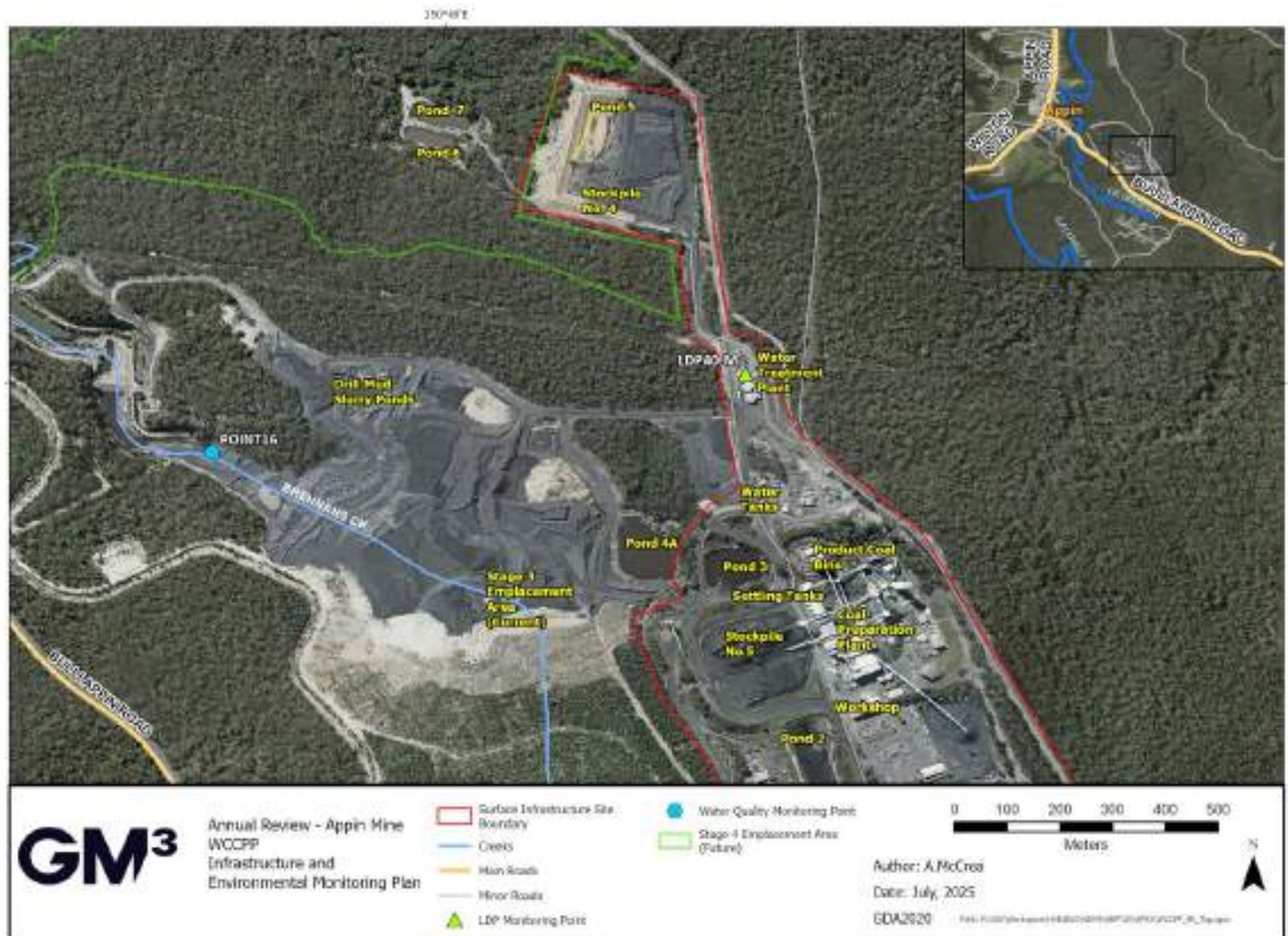
Plan 9: Site Layout and Monitoring Locations – Appin North Pit Top and WCCPP



Plan 10: Site Layout and Monitoring Locations – Appin North Pit Top



Plan 11: Site Layout and Monitoring Locations – WCCPP



Annual Review: Appin Mine, North Cliff - Infrastructure Layout Plan

GM³

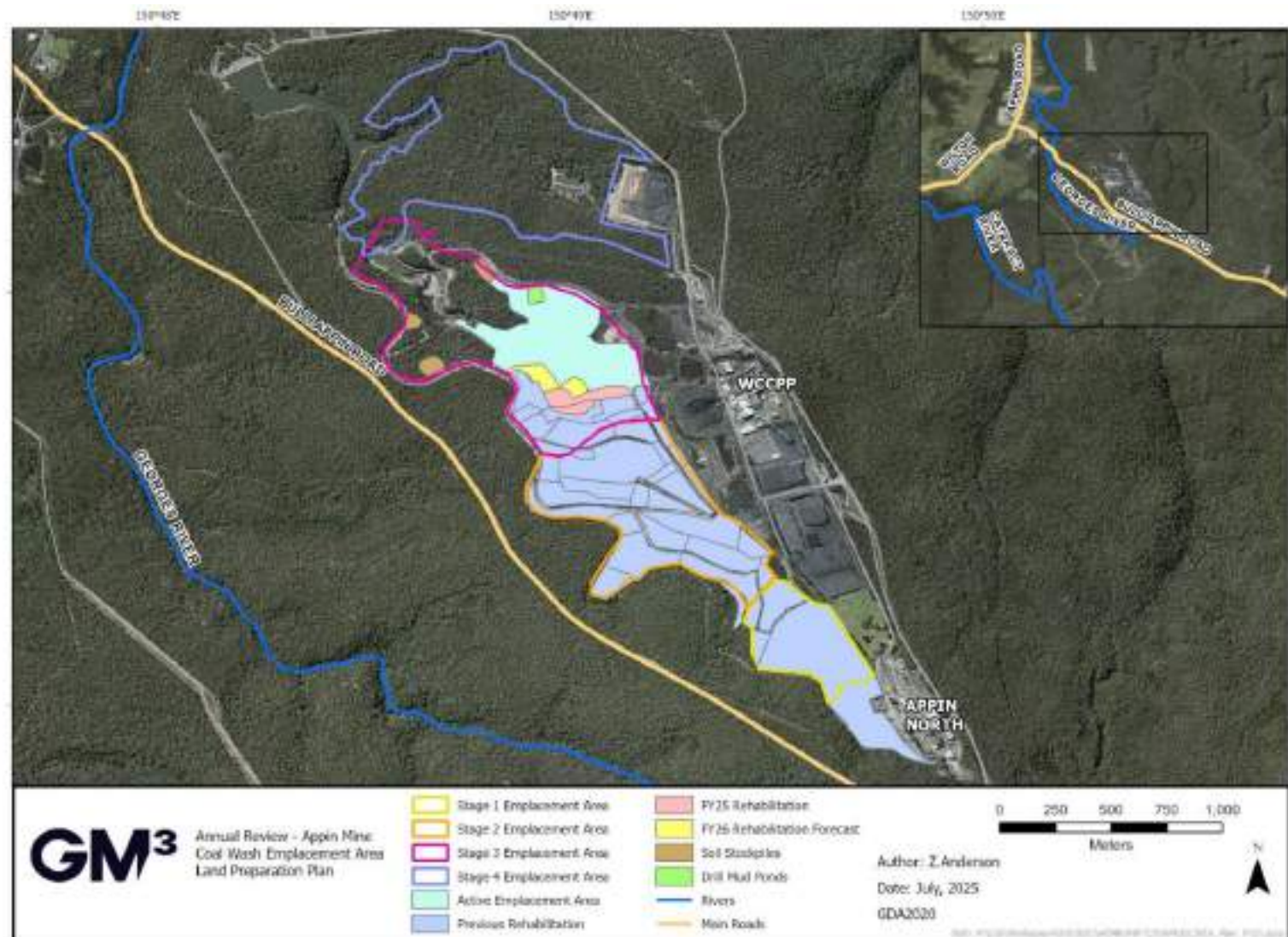
Main Roads	Licence Discharge Point
Minor Roads	Rivers
Fire Roads	Creeks
Surface Lease Boundary	

0 200 400
Meters

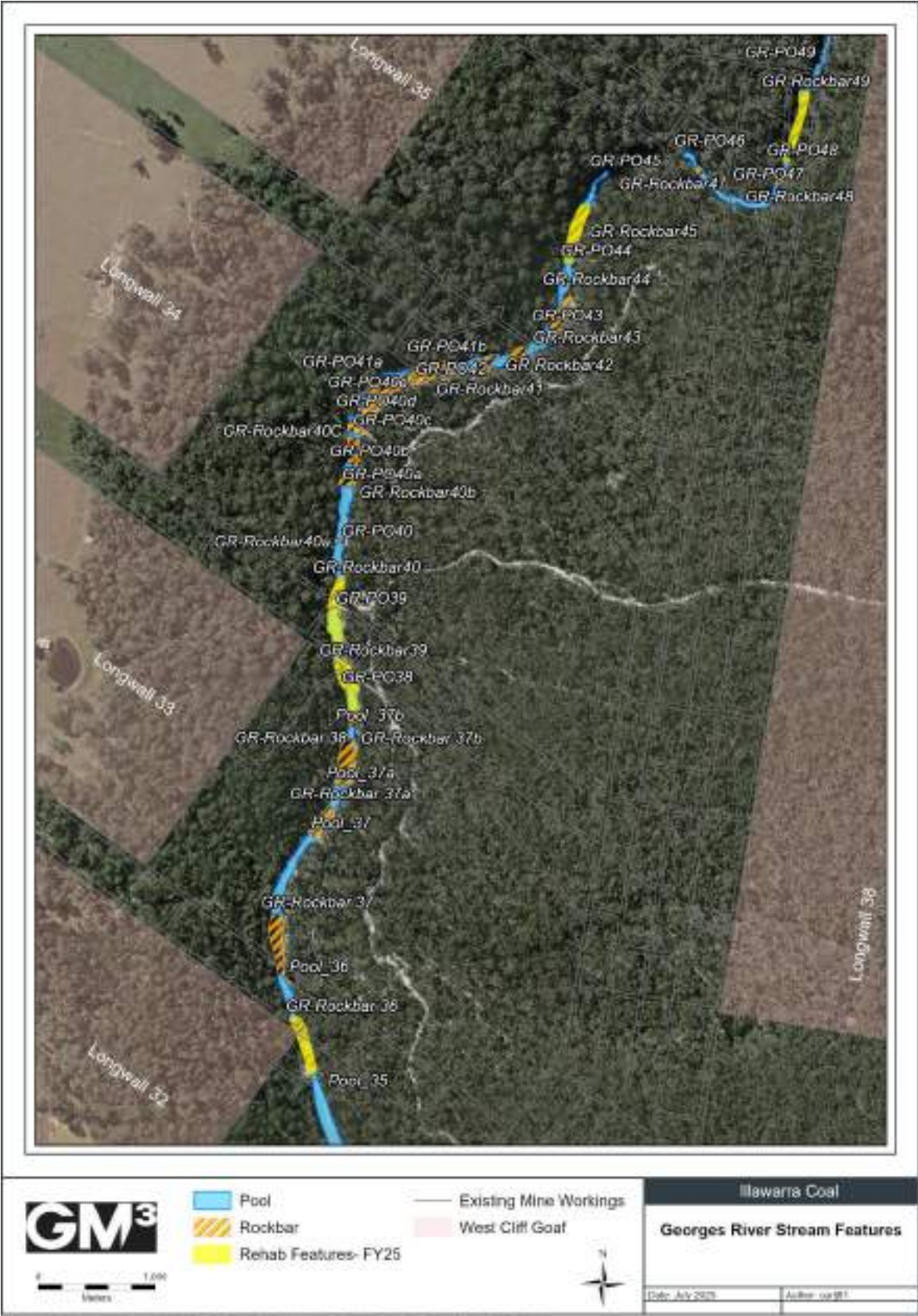
Author: J.P. Goodwin Date: August, 2025
GDA2020

File: Y:\GIS\Infrastructure\02\03\04\05\06\07\08\09\10\11\12\13\14\15\16\17\18\19\20\21\22\23\24\25\26\27\28\29\30\31\32\33\34\35\36\37\38\39\40\41\42\43\44\45\46\47\48\49\50\51\52\53\54\55\56\57\58\59\60\61\62\63\64\65\66\67\68\69\70\71\72\73\74\75\76\77\78\79\80\81\82\83\84\85\86\87\88\89\90\91\92\93\94\95\96\97\98\99\100\101\102\103\104\105\106\107\108\109\110\111\112\113\114\115\116\117\118\119\120\121\122\123\124\125\126\127\128\129\130\131\132\133\134\135\136\137\138\139\140\141\142\143\144\145\146\147\148\149\150\151\152\153\154\155\156\157\158\159\160\161\162\163\164\165\166\167\168\169\170\171\172\173\174\175\176\177\178\179\180\181\182\183\184\185\186\187\188\189\190\191\192\193\194\195\196\197\198\199\200\201\202\203\204\205\206\207\208\209\210\211\212\213\214\215\216\217\218\219\220\221\222\223\224\225\226\227\228\229\230\231\232\233\234\235\236\237\238\239\240\241\242\243\244\245\246\247\248\249\250\251\252\253\254\255\256\257\258\259\260\261\262\263\264\265\266\267\268\269\270\271\272\273\274\275\276\277\278\279\280\281\282\283\284\285\286\287\288\289\290\291\292\293\294\295\296\297\298\299\300\301\302\303\304\305\306\307\308\309\310\311\312\313\314\315\316\317\318\319\320\321\322\323\324\325\326\327\328\329\330\331\332\333\334\335\336\337\338\339\340\341\342\343\344\345\346\347\348\349\350\351\352\353\354\355\356\357\358\359\360\361\362\363\364\365\366\367\368\369\370\371\372\373\374\375\376\377\378\379\380\381\382\383\384\385\386\387\388\389\390\391\392\393\394\395\396\397\398\399\400\401\402\403\404\405\406\407\408\409\410\411\412\413\414\415\416\417\418\419\420\421\422\423\424\425\426\427\428\429\430\431\432\433\434\435\436\437\438\439\440\441\442\443\444\445\446\447\448\449\450\451\452\453\454\455\456\457\458\459\460\461\462\463\464\465\466\467\468\469\470\471\472\473\474\475\476\477\478\479\480\481\482\483\484\485\486\487\488\489\490\491\492\493\494\495\496\497\498\499\500\501\502\503\504\505\506\507\508\509\510\511\512\513\514\515\516\517\518\519\520\521\522\523\524\525\526\527\528\529\530\531\532\533\534\535\536\537\538\539\540\541\542\543\544\545\546\547\548\549\550\551\552\553\554\555\556\557\558\559\560\561\562\563\564\565\566\567\568\569\570\571\572\573\574\575\576\577\578\579\580\581\582\583\584\585\586\587\588\589\590\591\592\593\594\595\596\597\598\599\600\601\602\603\604\605\606\607\608\609\610\611\612\613\614\615\616\617\618\619\620\621\622\623\624\625\626\627\628\629\630\631\632\633\634\635\636\637\638\639\640\641\642\643\644\645\646\647\648\649\650\651\652\653\654\655\656\657\658\659\660\661\662\663\664\665\666\667\668\669\670\671\672\673\674\675\676\677\678\679\680\681\682\683\684\685\686\687\688\689\690\691\692\693\694\695\696\697\698\699\700\701\702\703\704\705\706\707\708\709\710\711\712\713\714\715\716\717\718\719\720\721\722\723\724\725\726\727\728\729\730\731\732\733\734\735\736\737\738\739\740\741\742\743\744\745\746\747\748\749\750\751\752\753\754\755\756\757\758\759\760\761\762\763\764\765\766\767\768\769\770\771\772\773\774\775\776\777\778\779\780\781\782\783\784\785\786\787\788\789\790\791\792\793\794\795\796\797\798\799\800\801\802\803\804\805\806\807\808\809\810\811\812\813\814\815\816\817\818\819\820\821\822\823\824\825\826\827\828\829\830\831\832\833\834\835\836\837\838\839\840\841\842\843\844\845\846\847\848\849\850\851\852\853\854\855\856\857\858\859\860\861\862\863\864\865\866\867\868\869\870\871\872\873\874\875\876\877\878\879\880\881\882\883\884\885\886\887\888\889\890\891\892\893\894\895\896\897\898\899\900\901\902\903\904\905\906\907\908\909\910\911\912\913\914\915\916\917\918\919\920\921\922\923\924\925\926\927\928\929\930\931\932\933\934\935\936\937\938\939\940\941\942\943\944\945\946\947\948\949\950\951\952\953\954\955\956\957\958\959\960\961\962\963\964\965\966\967\96

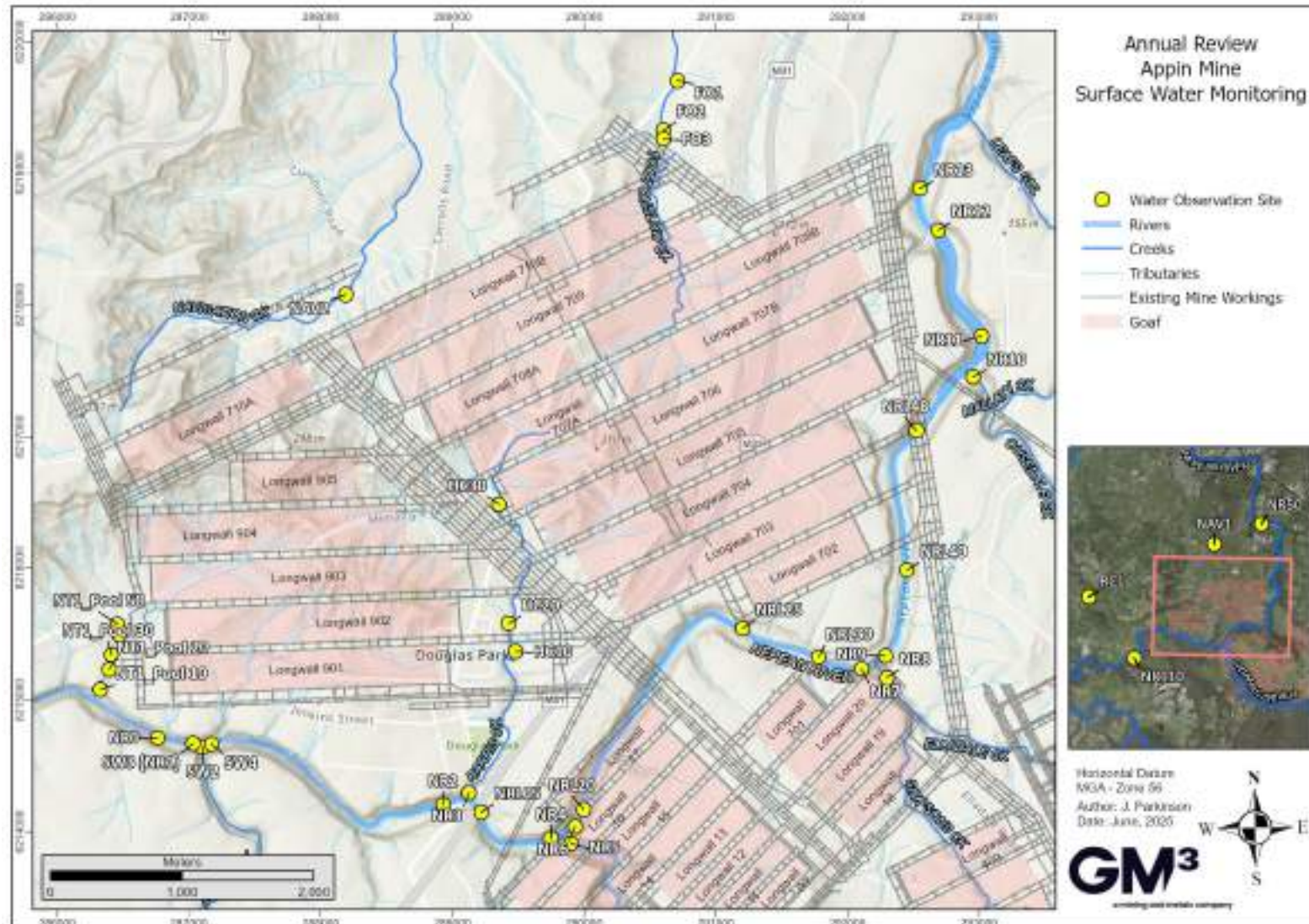
Plan 13: Land Preparation Plan – CWEA



Plan 14: Georges River Stream Features



Plan 15: Appin Area 7 and 9 Surface Water Monitoring Locations – FY25



GM³
mining and metals company

**Annual Review - Appin Mine
Nepean River
Impacts and Triggers**

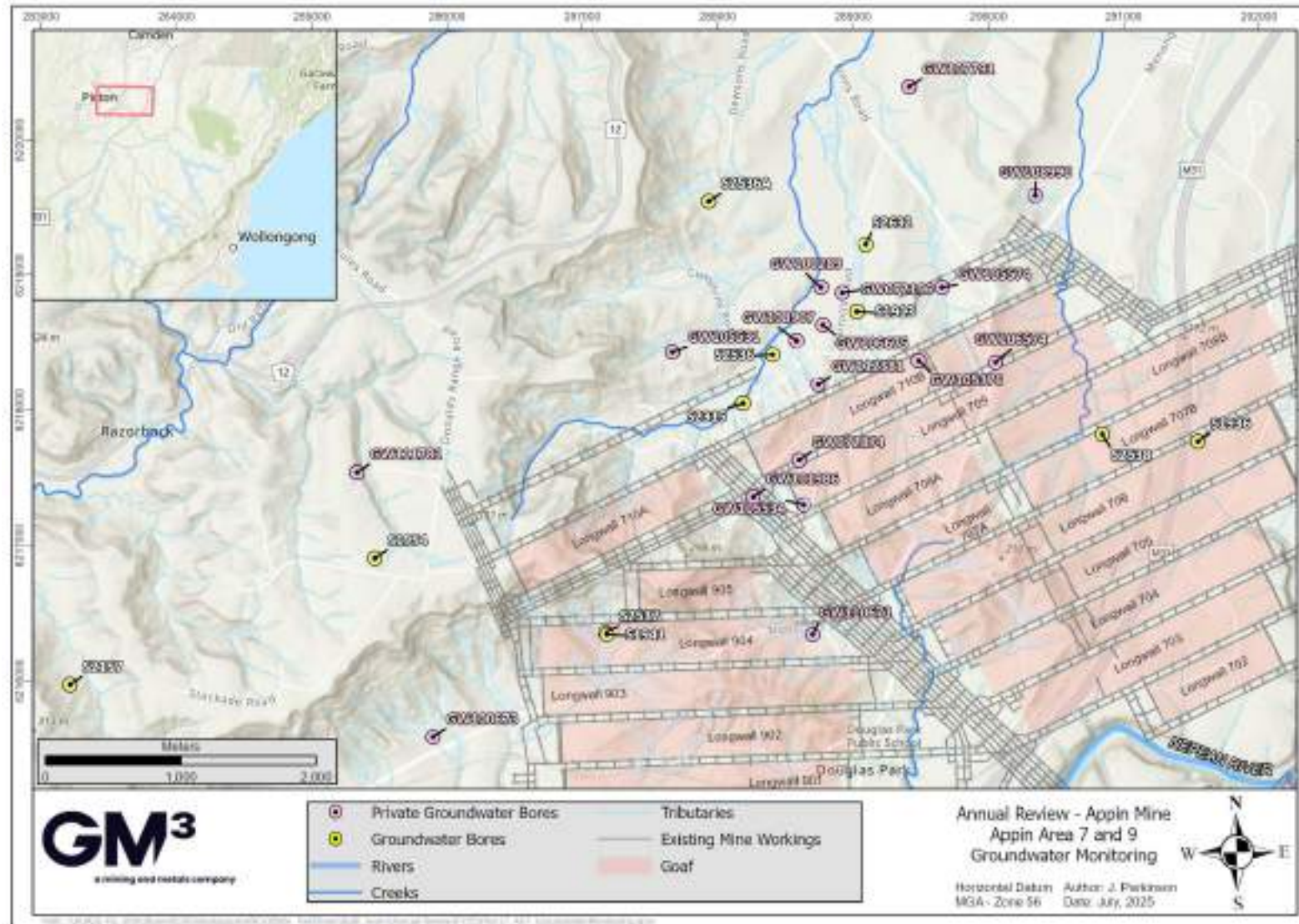
Legend:

- Gas Zones Observed
 - Active During the Reportin Period (Red triangle)
 - Historic Gas Zones (Yellow triangle)
- Creeks (Blue line)
- Existing Mine Workings (Grey line)
- Appin Goaf (Pink area)
- Gas Releases in Groundwater Bore (Purple square)
- Groundwater Level/Pressure Reduction (Yellow circle)
- Rivers (Blue line)

Scale: 0 to 2,000 Meters

Author: E. Berry
Date: July 2025
Horizontal Datum: MGA - Zone 56

Plan 17: Appin Area 7 and 9 Groundwater Monitoring – FY25



The map displays the Appin Longwall Extraction and Forecast. It shows various longwall panels, including Longwall 711, Longwall 713B, Longwall 709, Longwall 708A, Longwall 707A, Longwall 705, Longwall 704, Longwall 703, Longwall 702, Longwall 905, Longwall 903, and Longwall 902. The map also shows infrastructure such as Highway 101, Highway 102, Highway 103, Highway 104, Highway 105, Highway 106, Highway 107, Highway 108, Highway 109, and Highway 110. The map includes a legend, a north arrow, and a scale bar.

Legend:

- Extracted Panels - FY25
- Extraction Forecast - FY26
- Previously Extracted Panel
- Existing Mine Layout
- Approved Mine Layout
- Highways
- Main Roads
- Creeks
- Tributaries

Scale: 0 to 1,000 Meters

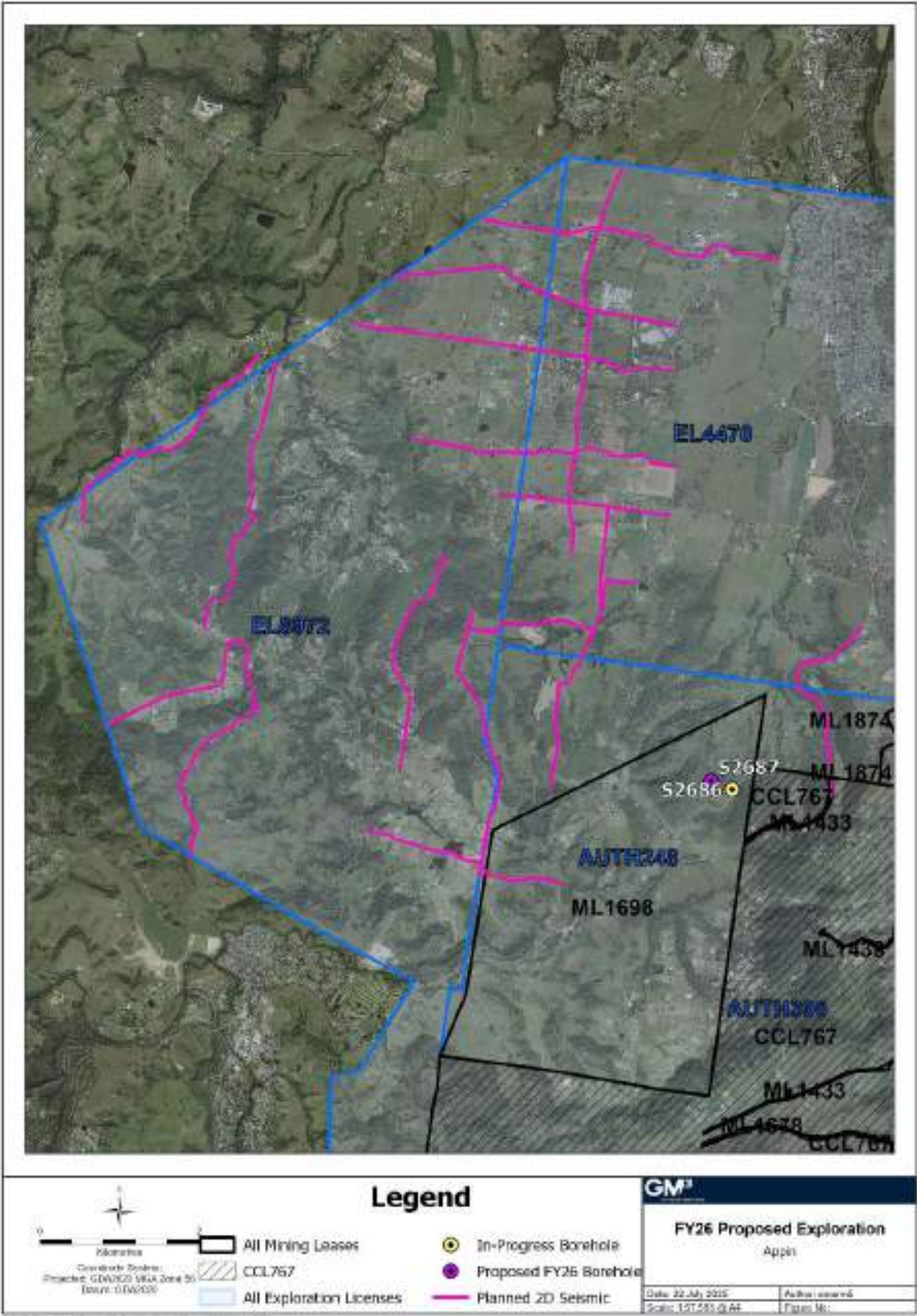
Annual Review - Appin Mine
Appin Longwall Extraction and Forecast

Date: July 2025 | Author: J. Price

Plan 19: Biodiversity Offset Areas



Plan 21: Planned Appin Exploration Activity – FY26



15. APPENDICES

Appendix 1: EPL 2504 Annual Return – FY25



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

A. Statement of Compliance - Licence Details

ALL Licence holders must check that the Licence details in Section A are correct.

If there are changes to any of these details, **you must advise Environment Protection Authority (EPA) and apply as soon as possible for a variation to your Licence or for a Licence transfer.**

Licence variation and transfer application forms are available on the EPA website at:
<http://www.epa.nsw.gov.au/licensing-and-regulation/licensing> or from regional offices of the EPA, or by contacting by telephone 02 9995 5700.

If you are applying to vary or transfer your Licence, you must still complete and submit this Annual Return.

A1. Licence holder

Licence number : 2504
Licence holder : ENDEAVOUR COAL PTY LIMITED
Trading name (if applicable) :
ABN : 38 099 830 476
ACN : 099 830 476
Reporting period : From: 1-7-2024 To: 30-6-2025

A2. Premises to which Licence Applies (if applicable)

Common name (if any) : 3. APPIN COLLIERY - NORTH (AND WESTCLIFF COAL PREP PLANT)
Premises : WEDDERBURN ROAD APPIN 2560 NSW

A3. Activities to which Licence Applies

Mining for coal
Waste disposal (application to land)
Coal works

A4. Other Activities (if applicable)

Electricity generation
Resource Recovery

A5. Fee-Based Activity Classifications

Note that the fee based activity classification is used to calculate the administrative fee.



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Fee-based activity	Activity scale	Unit of measure
Mining for coal	> 3,500,000.00 - 5,000,000.00	T annual production capacity
Waste disposal by application to land	> 0.00	capacity
Coal works	> 2,000,000.00 - 5,000,000.00	T annual handing capacity

A6. Assessable Pollutants (if applicable)

Note that the identification of assessable pollutants is used to calculate the **load-based fee**.

The following assessable pollutants are identified for the fee-based activity classifications in the licence:

B. Monitoring and Complaints Summary

B1. Number of Pollution Complaints

Pollution Complaint Category	Complaints
Air	1
Water	0
Noise	0
Waste	0
Other	1
Total complaints recorded by the licensee during the reporting period	2

B2. Concentration Monitoring Summary

For each concentration monitoring point identified in your licence, details are displayed below. If concentration monitoring is not required by your licence, **no data** will appear below.

If data was provided from an uploaded file, the file name will be displayed below instead of any data.

Note that this does not exclude the need to conduct appropriate concentration monitoring of assessable pollutants as required by load-based licensing (if applicable).

Discharge & Monitoring Point 4

Discharge to utilisation area

Discharge quality monitoring

Volume Monitoring, Spray irrigation of sewage treated effluent on grassed utilisation area.

lat. long. -34.229709 150.828461

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Biochemical oxygen demand	milligrams per litre	12	12	3	10	33



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

pH	pH	12	12	7.11	7.67	8.17

Discharge & Monitoring Point 10

Discharge to waters

Discharge quality monitoring

Volume monitoring, Pipe discharge outlet from Brennans Creek dam to the creek.

lat. long. -34.206432 150.802706

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Aluminium (dissolved)	milligrams per litre	12	12	0.05	0.36	0.62
Arsenic (dissolved)	micrograms per litre	12	12	2	5	7
Bicarbonate alkalinity	milligrams per litre	12	12	501	608	685
Cadmium (dissolved)	micrograms per litre	12	12	< 0.1	0.1	0.2
Cobalt (dissolved)	micrograms per litre	12	12	< 1	2	3
Conductivity	microsiemens per centimetre	12	12	1220	1439	1640
Copper (dissolved)	micrograms per litre	12	12	1	4	9
Lead (dissolved)	micrograms per litre	12	12	< 1	1	3
Manganese (dissolved)	micrograms per litre	12	12	< 1	9	19
Nickel (dissolved)	micrograms per litre	12	12	15	24	31
Nitrogen (ammonia)	micrograms per litre	12	12	< 10	35	150
Nitrogen (total)	micrograms per litre	12	12	200	417	1300
Oxidised nitrogen	micrograms per litre	12	12	< 10	53	160
pH	pH	12	12	8.51	8.75	8.97
Total alkalinity	milligrams per litre	12	12	541	676	759
Total dissolved solids	milligrams per litre	12	12	398	835	1060
Total suspended solids	milligrams per litre	12	12	< 5	6	10
Turbidity	nephelometric turbidity units	Continuous	Continuous	0.9	36.2	200.0



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Zinc (dissolved)	micrograms per litre	12	12	< 5	9	18

Monitoring Point 11

Ambient water quality monitoring, Georges River approximately 50 metres upstream of the confluence with Brennans Creek.
lat. long. -34.204883 150.798824

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Conductivity	microsiemens per centimetre	12	12	142	232	477
pH	pH	12	12	6.13	6.74	7.43
Total suspended solids	milligrams per litre	12	12	< 5	5	5

Monitoring Point 12

Ambient water quality monitoring, Georges River approximately 50 metres downstream of the confluence with Brennans Creek.
lat. long. -34.204099 150.798345

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Conductivity	microsiemens per centimetre	12	12	55	436	928
pH	pH	12	12	6.39	7.02	8.79
Total suspended solids	milligrams per litre	12	12	< 5	6	8

Discharge & Monitoring Point 18

Discharge to waters.

Discharge quality and volume monitoring, Underflow from the stormwater filter lagoon discharging through a v-notch weir.

lat. long. -34.210467 150.796312

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
pH	pH	0	0	-	-	-



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Total suspended solids	milligrams per litre	0	0	-	-	-

Discharge & Monitoring Point 19

Discharge to waters. Discharge quality and volume monitoring., Dyna Sand Filter outlet for treated stormwater.

lat. long. -34.211010 150.795734

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
pH	pH	12	12	6.63	7.38	8.09
Total suspended solids	milligrams per litre	12	12	< 5	< 5	< 5

Discharge & Monitoring Point 23

Discharge to waters

Water quality monitoring

Discharge volume monitoring, Piped discharge outlet for stormwater.

lat. long. -34.220956 150.719136

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
BOD	milligrams per litre	12	12	2	9	53
pH	pH	12	12	7.05	7.71	8.15
Total suspended solids	milligrams per litre	12	12	< 5	11	39

Discharge & Monitoring Point 24

Discharge to waters

Water quality monitoring Discharge volume monitoring, Piped discharge of treated mine water at Appin (West).

lat. long. -34.220870 150.719059

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Aluminium (dissolved)	milligrams per litre	12	12	< 0.0002	0.0009	0.0031
Arsenic (dissolved)	micrograms per litre	12	12	< 0.1	0.42	1.30



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Bicarbonate alkalinity	milligrams per litre	12	12	45	59	72
Cadmium (dissolved)	micrograms per litre	12	12	< 0.02	< 0.02	< 0.02
Cobalt (dissolved)	micrograms per litre	12	12	< 0.02	0.02	0.04
Conductivity	microsiemens per centimetre	12	12	101	134	184
Copper (dissolved)	micrograms per litre	12	12	< 0.05	0.21	1.16
Lead (dissolved)	micrograms per litre	12	12	< 0.05	< 0.05	< 0.05
Manganese (dissolved)	micrograms per litre	12	12	< 0.05	0.14	0.30
Nickel (dissolved)	micrograms per litre	12	12	< 0.2	0.35	1.00
Nitrogen (ammonia)	micrograms per litre	12	12	108	184	353
Nitrogen (total)	micrograms per litre	12	12	190	250	380
Oxidised nitrogen	micrograms per litre	12	12	6	49	93
pH	pH	12	12	7.33	7.64	7.93
Total alkalinity	milligrams per litre	12	12	45	59	59
Zinc (dissolved)	micrograms per litre	12	12	< 0.5	2.70	7.50

Monitoring Point 27

PM10 Monitoring, Photometer "AE-PF1" is located at the NE corner of the property boundary near the truck entry/exit point at Appin East.
lat. long. -34.209797 150.794101

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
PM10	micrograms per cubic metre	Continuous	Continuous	0.26	7.47	37.95

Monitoring Point 28

PM10 Monitoring, Photometer "AE-PF3" is located at the NW corner of the property boundary Appin East.
lat. long. -34.210104 150.791432



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
PM10	micrograms per cubic metre	Continuous	Continuous	0.04	4.68	23.15

Monitoring Point 35

PM10 Monitoring, Photometer "W-PF1" is located at the junction of Appin Road and Wedderburn Road at Appin North.

lat. long. -34.236380 150.833600

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
PM10	micrograms per cubic metre	Continuous	Continuous	1.03	14.57	47.29

Discharge & Monitoring Point 38

Discharge to utilisation area

Water quality monitoring

Volume Monitoring, Pipe discharge to the utilisation area from the stabilisation lagoon of the sewage treatment plant at Appin West.

lat. Long. -34.217742 150.716151

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
BOD	milligrams per litre	12	12	2	23	74
pH	pH	12	12	6.24	7.02	7.69

Discharge & Monitoring Point 40

Discharge to water

Water quality monitoring

Volume monitoring, Piped discharge of treated mine water at Appin (North).

lat. long. -34.206601 150.802954



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Aluminium (dissolved)	milligrams per litre	12	12	< 0.0002	0.0028	0.0213
Arsenic (dissolved)	micrograms per litre	12	12	< 0.1	< 0.1	< 0.1
Bicarbonate alkalinity	milligrams per litre	12	12	4	7	10
Cadmium (dissolved)	micrograms per litre	12	12	< 0.02	< 0.02	< 0.02
Cobalt (dissolved)	micrograms per litre	12	12	< 0.02	< 0.02	< 0.02
Conductivity	microsiemens per centimetre	12	12	8	12	18
Copper (dissolved)	micrograms per litre	12	12	< 0.05	0.26	0.87
Lead (dissolved)	micrograms per litre	12	12	< 0.05	< 0.05	< 0.05
Manganese (dissolved)	micrograms per litre	12	12	< 0.05	0.16	0.41
Nickel (dissolved)	micrograms per litre	12	12	< 0.2	< 0.2	< 0.2
Nitrogen (ammonia)	micrograms per litre	12	12	6	31	67
Nitrogen (total)	micrograms per litre	12	12	10	44	80
Oxidised nitrogen	micrograms per litre	12	12	8	20	68
pH	pH	12	12	6.50	6.90	8.30
Total alkalinity	milligrams per litre	12	12	4	7	10
Turbidity	nephelometric turbidity units	12	12	< 0.1	0.3	1.1
Zinc (dissolved)	micrograms per litre	12	12	< 0.5	1.1	2.5

Discharge & Monitoring Point 41

Discharge to water

Water quality monitoring, Piped discharge outlet from stormwater dam.

Menangle Vent Shaft 7 & 8.

lat. long. -34.1463011 150.7286913

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
pH	pH	10	10	7.42	7.90	8.46
Total suspended solids	milligrams per litre	10	10	<5	10	22

Discharge & Monitoring Point 43

Discharge to waters, Piped discharge outlet from stormwater dam. North Cliff rehabilitation site. lat. long. -34.2151353 150.8754047

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
pH	pH	0	0	-	-	-
Total suspended solids	milligrams per litre	0	0	-	-	-

B3. Volume or Mass Monitoring Summary

For each volume or mass monitoring point identified in your licence, details are displayed below. If volume or mass monitoring is not required by your licence, **no data** will appear below.

If data was provided from an uploaded file, the file name will be displayed below instead of any data.

Note that this does not exclude the need to conduct appropriate volume or mass monitoring of assessable pollutants are required by load-based licensing (if applicable).

Discharge & Monitoring Point 4

Discharge to utilisation area

Discharge quality monitoring

Volume Monitoring, Spray irrigation of sewage treated effluent on grassed utilisation area.

lat. long. -34.229709 150.828461

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous	Continuous	0	12	516

Discharge & Monitoring Point 10

Discharge to waters

Discharge quality monitoring

Volume monitoring, Pipe discharge outlet from Brennans Creek dam to the creek.

lat. long. -34.206432 150.802706



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous	Continuous	0	1527	3576

Discharge & Monitoring Point 18

Discharge to waters.

Discharge quality and volume monitoring, Underflow from the stormwater filter lagoon discharging through a v-notch weir.

lat. long. -34.210467 150.796312

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous during discharge	0	-	-	-

Discharge & Monitoring Point 19

Discharge to waters. Discharge quality and volume monitoring., Dyna Sand Filter outlet for treated stormwater.

lat. long. -34.211010 150.795734

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous during discharge	Continuous	0	500	1903

Discharge & Monitoring Point 23

Discharge to waters

Water quality monitoring

Discharge volume monitoring, Piped discharge outlet for stormwater.

lat. long. -34.220956 150.719136

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous during discharge	Continuous	0	136	762

Discharge & Monitoring Point 24

Discharge to waters

Water quality monitoring Discharge volume monitoring, Piped discharge of treated mine water at Appin (West).

lat. long. -34.220870 150.719059

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous during discharge	Continuous	0	551	2358
KL/month	Continuous during discharge	Continuous	4223	16772	40374

Discharge & Monitoring Point 38

Discharge to utilisation area

Water quality monitoring

Volume Monitoring, Pipe discharge to the utilisation area from the stabilisation lagoon of the sewage treatment plant at Appin West.

lat. Long. -34.217742 150.716151

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous	Continuous	0	27	70

Discharge & Monitoring Point 40

Discharge to water

Water quality monitoring

Volume monitoring, Piped discharge of treated mine water at Appin (North).

lat. long. -34.206601 150.802954

Unit of measure	Frequency	No. of measurements made	Lowest result	Mean result	Highest result
kilolitres per day	Continuous	Continuous	0	1297	2160

C. Statement of Compliance - Licence Conditions

C1. Compliance with Licence Conditions

Were all conditions of the licence complied with (including monitoring and reporting requirements)?	No

C2. Details of Non-Compliance with Licence

Licence condition number not complied with ▼
L2.4
Summary of particulars of the non-compliance ▼
The BOD water quality concentration limit was exceeded at LDP 23



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Further details on particulars of non-compliance, if required ▼

The BOD 100-percentile limit for LDP 23 in EPL 2504 of 50 mg/L was exceeded on 19 December 2024. The measured water quality concentration for BOD was 53 mg/L.

This was a non-compliance with Condition L2.4 of EPL 2504 and Condition 15 of Schedule 4 of the Project Approval.

Number of times occurred ▼

1

Date(s) when the non-compliance occurred, if applicable ▼

19 December 2024

Cause of non-compliance ▼

It is likely that the high BOD was due to the die-off of aquatic plants in the basins as a result of high temperatures and low water levels.

It is not considered that there was any actual or potential for environmental harm associated with this exceedance.

Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼

Further sampling indicated compliance with the water quality criteria.

Action taken or that will be taken to prevent a recurrence of the non-compliance ▼

No actions have been identified as the exceedance was likely as a result of natural causes.

Uploaded Document Name ▼

Uploaded Document Description ▼

Licence condition number not complied with ▼

L2.4

Summary of particulars of the non-compliance ▼

The BOD water quality concentration limit was exceeded at LDP 38

Further details on particulars of non-compliance, if required ▼

The BOD 100-percentile limit for LDP 38 in EPL 2504 of 50 mg/L was exceeded on 10 July 2024. The measured water quality concentration for BOD was 74 mg/L.

This was a non-compliance with Condition L2.4 of EPL 2504 and Condition 15 of Schedule 4 of the Project Approval.

Number of times occurred ▼

1

Date(s) when the non-compliance occurred, if applicable ▼

19 July 2024

Cause of non-compliance ▼

The external lab advised that due to the sample matrix containing green algae, which could absorb DO from the sample, this may bias the BOD result higher than expected (as the method measures DO on the initial day then its depletion five (5) days later to determine the BOD result).

An external sewage maintenance expert was consulted who indicated that the higher BOD may be because of lower aeration within the digester and lower bio-solids in the digester.

Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼

The aeration rate was increased and biosolids were harvested from the Appin North STP to be transferred to the Appin West STP.

Action taken or that will be taken to prevent a recurrence of the non-compliance ▼

The STP will continue to be monitored to identify any further issues.

Uploaded Document Name ▼

Uploaded Document Description ▼

D. Statement of Compliance - Load Based Fee Calculation

If you are not required to monitor assessable pollutants by your licence, **no data** will appear below.

If assessable pollutants have been identified on your licence, the following worksheets for each assessable pollutant will determine your load based fee for the licence fee period to which this Annual Return relates.

Loads of assessable pollutants must be calculated using any of the methods provided in EPA's Load Calculation Protocol for the relevant activity. A Load Calculation Protocol would have been already sent to you with your licence. If you require additional copies, you can download the Protocol from the EPA's website or you can contact us on telephone 02 9995 5700.

You are required to keep all records used to calculate licence fees for four years after the licence fee was paid or became payable, whichever is the later date.

E. Statement of Compliance - Requirement to Prepare PIRMP

Have you prepared a Pollution Incident Response Management Plan (PIRMP) as required under section 153A of the Protection of the Environment Operations (POEO) Act 1997?	Yes
Is the PIRMP available at the premises?	Yes
Is the PIRMP available in a prominent position on a publicly accessible website?	Yes
Address of the web page where the PIRMP can be accessed ▼	
https://gm3.au/appin-mine/	



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

Has the PIRMP been tested?	Yes
The PIRMP was last tested on	20-5-2025
Has the PIRMP been updated?	Yes
The PIRMP was last updated on	24-11-2024
Number of times the PIRMP was activated in this reporting period?	0
The PIRMP was activated on	

F. Statement of Compliance - Requirement to Publish Pollution Monitoring Data

Are there any conditions attached to your licence that require pollution monitoring to be undertaken as required under section 66(6) of the Protection of the Environment Operations (POEO) Act 1997?	Yes
Do you operate a website?	Yes
Is the pollution monitoring data published on your website in accordance with the EPA's written requirements for publishing pollution monitoring data?	Yes
Address of the web page where the pollution monitoring data can be accessed ▼	
https://gm3.au/appin-mine/	

G. Statement of Compliance - Environment Management System and Practices

Do you have an ISO 14001 certified Environmental Management System (EMS) OR any other system that EPA considers is equivalent to the accountability, procedures, documentation and record keeping requirements of an ISO 14001 certified EMS?	Yes
When was the last check (As per ISO 14001) of the EMS completed?	28-4-2025
Were there any non-conformances related to environmental issues identified in the last check of the EMS?	No
If there were non-conformances identified, were these non-conformances rectified?	

H. Signature and Certification



Annual Return

ENDEAVOUR COAL PTY LIMITED

Licence 2504

This Annual Return may only be signed by person(s) with legal authority to sign it as set out in following categories: an Individual, a Company, a Public authority or a Local council.

It is an offence under section 66 of the Protection of the Environment Operations Act 1997 to supply any information in this form that is false or misleading in a material respect, or to certify a statement that is false or misleading in a material respect. There is a maximum penalty of \$250,000 for a corporation and \$120,000 for an individual.

I/We

- declare that the information in the Monitoring and Complaints Summary in Section B of this Annual Return application is correct and not false or misleading in a material respect, and
- certify that the information in the Statement and Compliance in sections A, C, D, E, F, G and H and any other pages attached to Section C is correct and not false or misleading in a material respect.

Appendix 2: Appin Mine Project Approval Condition Compliance Report

CONDITION OF APPROVAL	STATUS	COMMENTS
SCHEDULE 2: ADMINISTRATIVE CONDITIONS		
OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT		
1. In addition to meeting the specific performance criteria established under this approval, the Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.	Compliant	Management Plans developed and implemented to minimise harm to the environment.
TERMS OF APPROVAL		
The Proponent must carry out the project generally in accordance with the: (a) generally in accordance with the EA, Statement of Commitments and PPR; (b) in accordance with the conditions of this approval; and (c) in accordance with any written directions of the Planning Secretary. Note: The general layout of the project is shown in Appendices 2 to 4	Non-compliant	Non-compliance was recorded of Condition 15 of Schedule 4. This is discussed in more detail in Section 11.
3. If there is any inconsistency between the above documents, the more recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.	Noted	
4. Consistent with the requirements of this approval, the Planning Secretary may make written directions to the Proponent in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this approval, including those that are required to be, and have been, approved by the Planning Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in condition 4(a).	Compliant	Requirements of the Secretary have been addressed as required.
LIMITS ON APPROVAL		
Mining Operations		
5. The Proponent may carry out mining operations on the site until 31 December 2041.	Compliant	Mining operations were undertaken during the reporting period. The

Notes: • Under this approval, the Proponent is required to decommission and rehabilitate the site and perform additional undertakings in relation to mining operations. Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily. • Mining operations and rehabilitation are also regulated under the <i>Mining Act 1992</i> .		cessation date has not been triggered.
Coal Extraction and Production		
6. The Proponent shall not: (a) extract more than 10.5 million tonnes of ROM coal from the site in a financial year, or (b) transport more than 9.3 million tonnes of product coal from the site in a financial year.	Compliant	Coal extraction and transportation was below the limits as specified in the approval during the reporting period.
Appin Ventilation Shaft No. 6		
6A. The Proponent may operate Appin Ventilation Shaft No. 6 until 31 December 2041, unless otherwise agreed by the Planning Secretary. Note: Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings, to the satisfaction of the Planning Secretary and DRE. Consequently, this approval will continue to apply in all other respects other than the right to bore and operate the ventilation shaft until the site has been properly rehabilitated.	Compliant	Ventilation occurred during the reporting period. The cessation date has not been triggered.
Hours of Operation		
7. The Proponent may undertake mining operations and mine ventilation activities 24 hours a day, 7 days a week	Compliant	Mining operations and construction are in accordance with hours of operation.
7A The Proponent shall comply with the construction and operating hours listed in Table 1A for the Appin Ventilation Shaft No.6:	Compliant	Activities at the ventilation shaft have been undertaken in accordance with the listed hours.

Table 1B: Construction and operating hours <table><thead><tr><th>Activity</th><th>Hours (other than the emergency purposes)</th></tr></thead><tbody><tr><td>Construction activities Road and site access, site preparation, other construction work, management, siting of premises, placement of services related activities and construction mitigation.</td><td>7:00am to 5:00pm, Monday to Saturday No works on Public or Public Holidays</td></tr><tr><td>Drill & blast and dump and bulk movement of soils: Any work that are feasible at residential premises.</td><td>24 hours per day, 7 days per week</td></tr><tr><td>Operation of construction site Working construction of site</td><td>24 hours per day, 7 days per week</td></tr><tr><td>Operation of vehicle movements Delivery of materials to site and associated surface operations</td><td>24hrs per day, 7 days per week</td></tr><tr><td>Delivery of materials to site and associated surface operations</td><td>7:00am to 5:00pm, Monday to Saturday</td></tr><tr><td>Provision of services, if provided or related to emergency</td><td>24hrs per day, 7 days per week</td></tr></tbody></table> Notes: • "Other than" means activities requiring traffic management measures, such as entry to the access road to Minegate Road, and clearing the roadways and installation of support structures, stop, etc. activities outside these hours, subject to Council's approval to avoid disruption or road safety issues. • Construction activities, which are necessary to the installation of road works or emergency activities, shall not be restricted to general hours of the day or night or any other safety issues. These activities shall be conducted outside of the hours specified, a permit must be provided to the Department within 7 days of the event commencing activity of the road works to ensure the specific emergency purposes and requirements of the day.	Activity	Hours (other than the emergency purposes)	Construction activities Road and site access, site preparation, other construction work, management, siting of premises, placement of services related activities and construction mitigation.	7:00am to 5:00pm, Monday to Saturday No works on Public or Public Holidays	Drill & blast and dump and bulk movement of soils: Any work that are feasible at residential premises.	24 hours per day, 7 days per week	Operation of construction site Working construction of site	24 hours per day, 7 days per week	Operation of vehicle movements Delivery of materials to site and associated surface operations	24hrs per day, 7 days per week	Delivery of materials to site and associated surface operations	7:00am to 5:00pm, Monday to Saturday	Provision of services, if provided or related to emergency	24hrs per day, 7 days per week		
Activity	Hours (other than the emergency purposes)															
Construction activities Road and site access, site preparation, other construction work, management, siting of premises, placement of services related activities and construction mitigation.	7:00am to 5:00pm, Monday to Saturday No works on Public or Public Holidays															
Drill & blast and dump and bulk movement of soils: Any work that are feasible at residential premises.	24 hours per day, 7 days per week															
Operation of construction site Working construction of site	24 hours per day, 7 days per week															
Operation of vehicle movements Delivery of materials to site and associated surface operations	24hrs per day, 7 days per week															
Delivery of materials to site and associated surface operations	7:00am to 5:00pm, Monday to Saturday															
Provision of services, if provided or related to emergency	24hrs per day, 7 days per week															
7B. The Proponent must comply with the construction and operating hours listed in Table 1B for the Appin Mine Ventilation and Access Site: Table 1B: Construction and operating hours <table><thead><tr><th>Activity</th><th>Hours (Other than for emergency or safety purposes, as approved by the Planning Secretary in the Construction Traffic Management Plan required under Schedule 4A, Condition 12)</th></tr></thead><tbody><tr><td>The construction activities</td><td>7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays</td></tr><tr><td>Construction activities • Surface construction activities, civil and earthworks, utilities (including power supply infrastructure), shaft and sinking, late, existing, and new site infrastructure and mine access infrastructure, roads, easements, etc.</td><td>7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays</td></tr><tr><td>• Drill, sinking and related work for the construction of access infrastructure</td><td>7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays</td></tr><tr><td>• Shaft, sinking activities once the access infrastructure is in place • Any work that are feasible at residential premises</td><td>24 hours per day, 7 days per week</td></tr><tr><td>Operations and maintenance • Operation of the site and site access • Operation and maintenance of the ventilation shafts</td><td>24 hours per day, 7 days per week</td></tr><tr><td>• Heavy vehicle movements to and from the site</td><td>7:00am to 5:00pm, Monday to Saturday No works on Sunday or Public Holidays</td></tr></tbody></table>	Activity	Hours (Other than for emergency or safety purposes, as approved by the Planning Secretary in the Construction Traffic Management Plan required under Schedule 4A, Condition 12)	The construction activities	7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays	Construction activities • Surface construction activities, civil and earthworks, utilities (including power supply infrastructure), shaft and sinking, late, existing, and new site infrastructure and mine access infrastructure, roads, easements, etc.	7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays	• Drill, sinking and related work for the construction of access infrastructure	7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays	• Shaft, sinking activities once the access infrastructure is in place • Any work that are feasible at residential premises	24 hours per day, 7 days per week	Operations and maintenance • Operation of the site and site access • Operation and maintenance of the ventilation shafts	24 hours per day, 7 days per week	• Heavy vehicle movements to and from the site	7:00am to 5:00pm, Monday to Saturday No works on Sunday or Public Holidays	Compliant	Activities at the ventilation shaft have been undertaken in accordance with the listed hours.
Activity	Hours (Other than for emergency or safety purposes, as approved by the Planning Secretary in the Construction Traffic Management Plan required under Schedule 4A, Condition 12)															
The construction activities	7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays															
Construction activities • Surface construction activities, civil and earthworks, utilities (including power supply infrastructure), shaft and sinking, late, existing, and new site infrastructure and mine access infrastructure, roads, easements, etc.	7:00am to 5:00pm, Monday to Friday No works on Sunday or Public Holidays															
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• Shaft, sinking activities once the access infrastructure is in place • Any work that are feasible at residential premises	24 hours per day, 7 days per week															
Operations and maintenance • Operation of the site and site access • Operation and maintenance of the ventilation shafts	24 hours per day, 7 days per week															
• Heavy vehicle movements to and from the site	7:00am to 5:00pm, Monday to Saturday No works on Sunday or Public Holidays															
SURRENDER OF CONSENTS AND APPROVALS																
8. By 31 December 2012, or as otherwise agreed by the Planning Secretary, the Proponent shall surrender all existing development consents and project approvals for mining operations relied on by the Proponent for the site (other than this approval) in accordance with Sections 75YA and 104A of the EP&A Act. Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent or approval should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.	Compliant	ICHPL has complied with this requirement. Refer to FY24 Annual Review for details.														

9. Prior to the surrender of these consents and/or approvals, the conditions of this approval (including any notes) shall prevail to the extent of any inconsistency with the conditions of these consents and/or approvals.	Compliant	Conditions transferred to updated management plans.
STRUCTURAL ADEQUACY		
10. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structure, that are part of the project are constructed in accordance with: (a) the relevant requirements of the BCA ³⁸; and (b) any additional requirements of SA NSW where the building or structure is located on land within declared Mine Subsidence Districts. Notes: - Under Part 6 of the <i>EP&A Act</i>, the Proponent is required to obtain construction and occupation certificates for the proposed building works. - Parts 1-9 of the <i>Environment Planning and Assessment (Development Certification and Fire Safety) Regulation 2021</i> sets out the requirements for the certification of the project.	Compliant	New buildings and structures were project managed by the engineering team to the relevant building codes.
DEMOLITION		
11. The Proponent shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.	Compliant	Demolition is undertaken to the required standard.
OPERATION OF PLANT AND EQUIPMENT		
12. The Proponent shall ensure that all plant and equipment used at the site is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Compliant	Operations are conducted in accordance with approved management plans. Daily, weekly and monthly inspections of plant, equipment and site areas are conducted as required. This includes a number of system generated maintenance

³⁸ The BCA has been superseded by the National Construction Code (NCC)

		work orders. Regular site environmental inspections are undertaken to address inspections for leaking machinery and equipment. Mine machinery and equipment are maintained and serviced accordingly.
STAGED SUBMISSION OF STRATEGIES, PLANS OR PROGRAMS		
13. With the approval of the Planning Secretary, the Proponent may submit any strategies, plans or programs required by this approval on a progressive basis. Notes: - While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and - If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.	Compliant	Strategies, plans and programs are submitted as reviewed.
STRATEGIC BIODIVERSITY OFFSETS		
14. If the proponent is required to provide a biodiversity offset pursuant to this approval (including any biodiversity offset that is required under the conditions of a subordinate approval issued in accordance with this approval), the Planning Secretary may, in consultation with BCS, accept in satisfaction of the requirement for the biodiversity offset, the provision of land that has conservation values which exceed the conservation values required to meet the relevant offsetting requirement. If the Planning Secretary accepts such an offset under this condition, the Planning Secretary shall	Compliant	Approved biodiversity offset strategy is in place.

issue a written statement to the proponent advising: (a) the details of the proposed offset land; (b) the offset requirements that are being met; (c) the conservation values that have been relied upon to meet the offsetting requirements; (d) that in the opinion of the Planning Secretary: (i) the land has conservation values in addition to those that have been relied upon to meet the offsetting requirement in condition 14(b); or (ii) if the land has been subject to a previous statement from the Planning Secretary under this condition, confirmation that the land continues to have conservation values in addition to those that have been relied upon to meet the previous offsetting requirement or that there are no further conservation values available in respect of the land. If the Planning Secretary has issued a statement under this condition, the proponent can rely on that statement and the residual conservation values that the land subject to the statement may hold, to meet further offsetting requirement(s) that may be required under this approval or the development consent for the Dendrobium Coal Mine (60-3-2001). The Planning Secretary's statement under this condition can be relied on a number of times in respect of the same land until all of the conservation values of the land the subject of the Planning Secretary's statement have been relied upon to meet offsetting requirements under this approval or the development consent for the Dendrobium Coal Mine (60-3-2001). The proponent shall make suitable arrangements to provide appropriate long-term security for the biodiversity offset area(s) accepted under this condition, within 2 years of the date of the Planning Secretary's statement in respect of that land, unless otherwise agreed with the Planning Secretary.		
SCHEDULE 3 – SPECIFIC ENVIRONMENTAL CONDITIONS – UNDERGROUND MINING SUBSIDENCE		

Performance Measures – Natural and Heritage Features, etc

1. The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 1, to the satisfaction of the Planning Secretary.

Table 1: Subsidence Impact Performance Measures

Watercourses	
Nepean River	Negligible environmental consequences including: - negligible diversion of flows or changes in the natural drainage behaviour of pools; - negligible gas releases and iron staining; and - negligible increase in water cloudiness.
Georges River	Negligible environmental consequences including: - negligible diversion of flows or changes in the natural drainage behaviour of pools; - negligible gas releases and iron staining; and - negligible increase in water cloudiness. over at least 80% of the stream length subject to vertical subsidence >20 mm. No subsidence impact or environmental consequence greater than minor.
Other watercourses	No greater subsidence impact or environmental consequences than predicted in the EA and PPR.
Land	
Charnock State Conservation Area	Negligible environmental consequences.
Cliffs of 'special significance' (ie cliffs longer than 200 m and/or higher than 40 m, and cliff-like rock faces higher than 5 m that constitute waterfalls)	Negligible environmental consequences (that is occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 0.5% of the total face area of such cliffs within any longwall mining domain).
Other cliffs bordering the Nepean River	Negligible environmental consequences (that is occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 0.5% of the total face area of such cliffs within any longwall mining domain).
Other cliffs	Minor environmental consequences (that is occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 0.5% of the total face area of such cliffs within any longwall mining domain).
Biodiversity	
Threatened species, threatened populations, or endangered ecological communities	Negligible environmental consequences.
Aboriginal Heritage	
Sites determined to hold 'special significance' as a result of studies required for Extraction Plans	Negligible impact or environmental consequence.
Sites determined to hold high or moderate significance as a result of studies required for Extraction Plans	Less than 10% of such sites across the mining area are affected by subsidence impacts (other than negligible impacts or environmental consequences).
Other Aboriginal heritage sites	Less than 10% of such sites (or 1 such site, whichever is the greater) within any longwall mining domain are affected by subsidence impacts (other than minor impacts or environmental consequences).
Historic Heritage	
St James Church (Murrumbidgee)	Negligible loss of heritage value.
St Mary's Tower (Douglas Park)	Negligible impact on structural integrity or external fabric.
Broughtons Pass Weir	Negligible loss of heritage value.
Other buildings or structures of State or National heritage significance	Negligible loss of heritage value.
Other buildings or structures of identified heritage significance	Negligible impact on structural integrity or external fabric, unless the owner of the heritage object otherwise is willing. No loss of heritage value greater than predicted under a Heritage Management Plan prepared under condition 8 below.
Mine workings	
First workings under an approved Extraction Plan beneath any feature where performance measures in this table require negligible impact, negligible consequences or negligible loss (including main headings under the Georges River)	To remain long-term stable and non-subsiding.
Second workings	To be carried out only within longwall mining domains, in accordance with an approved Extraction Plan.

Notes:

- 1) The Proponent will be required to define these detailed performance measures (including impact assessment criteria) for each of these performance measures in the various management plans that are required under this approval (see condition 5 below).
- 2) Assessment and monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristics is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Planning Secretary will be the final arbiter.
- 3) The only cliffs of special significance known to occur within the site are defined A7_0060, A7_0062, A8_0001 and A8_0002 in the EA.
- 4) The requirements of this condition only apply to the impacts and consequences of mining operations undertaken following the date of this approval.
- 5) In the case of the Charnock State Conservation Area, the Planning Secretary's satisfaction can only be expressed following consultation with ICSS.
- 6) Broughtons Pass Weir is also subject to performance measures set out in Table 2.
- 7) Loss of State or National heritage significance may be made before or after the date of this approval.
- 8) An Aboriginal heritage site of special significance has cultural and/or archaeological values which are considered to hold exceptionally high value. Subject to assessment of characteristics including size, complexity and quality of the site, its setting within the landscape and associated cultural and spiritual contexts for Aboriginal people (see the Bush-Sense Guidelines PMG Report July 2013). The only Aboriginal heritage feature within the site accepted as holding 'special significance' as at the date of this approval is SP-05009. However, other sites may be identified as a result of studies required for Extraction Plans.

Compliant

For all observed impacts, the appropriate TARPs were applied, actions implemented, and key stakeholders notified as required by the approved Subsidence Management Plan and Extraction Plan. Refer to Section 6.13 of this Annual Review for a summary of the predicted vs observed impacts.

Offsets

2. If the Proponent exceeds the performance measures in Table 1 and the Planning Secretary determines that: (a) it is not reasonable or feasible to remediate the impact or environmental consequence; or (b) remediation measures implemented by the Proponent have failed to satisfactorily remediate the impact or environmental consequence; then the Proponent shall provide a suitable offset to compensate for the impact or environmental consequence, to the satisfaction of the Planning Secretary. Note: Any offset required under this condition must be proportionate with the significance of the impact or environmental consequence.	N/A	Condition not triggered during reporting period																
Performance Measures – Built Features																		
3. The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 2, to the satisfaction of the Planning Secretary. <table><tr><td colspan="2">Table 2: Subsidence Impact Performance Measures</td></tr><tr><td>Built features</td><td></td></tr><tr><td>Key public infrastructure: • Main Southern Railway; • Hume Highway; and • Key infrastructure (Napean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs) </td><td>Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.</td></tr><tr><td>Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures)</td><td>Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.</td></tr></table> <table><tr><td colspan="2">Table 2: Subsidence Impact Performance Measures</td></tr><tr><td>Built features</td><td></td></tr><tr><td>Key public infrastructure: • Main Southern Railway; • Hume Highway; and • Key infrastructure (Napean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs) </td><td>Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.</td></tr><tr><td>Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures)</td><td>Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.</td></tr></table>	Table 2: Subsidence Impact Performance Measures		Built features		Key public infrastructure: • Main Southern Railway; • Hume Highway; and • Key infrastructure (Napean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs)	Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.	Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures)	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.	Table 2: Subsidence Impact Performance Measures		Built features		Key public infrastructure: • Main Southern Railway; • Hume Highway; and • Key infrastructure (Napean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs)	Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.	Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures)	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.	Compliant	For all observed impacts, the appropriate TARPs were applied, actions implemented and key stakeholders notified as required by the approved Subsidence Management Plan and Extraction Plan. Refer to Section 6.13 of this Annual Review for a summary of the predicted vs observed impacts.
Table 2: Subsidence Impact Performance Measures																		
Built features																		
Key public infrastructure: • Main Southern Railway; • Hume Highway; and • Key infrastructure (Napean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs)	Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.																	
Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures)	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.																	
Table 2: Subsidence Impact Performance Measures																		
Built features																		
Key public infrastructure: • Main Southern Railway; • Hume Highway; and • Key infrastructure (Napean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs)	Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.																	
Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures)	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.																	
4. Any dispute between the Proponent and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 2 is to be settled by the Planning Secretary, following consultation with SA NSW and the Resources Regulator. Any decision by the Planning Secretary shall be final and not subject to further dispute resolution under this approval.	Compliant	For all observed impacts, the appropriate TARPs were applied, actions implemented and key stakeholders notified as required by the approved SMP and EP. See Section 6.13 of this Annual Review for summary of the predicted vs observed impacts.																

Extraction Plans		
5. The Proponent shall prepare and implement an Extraction Plan for first and second workings within each longwall mining domain to the satisfaction of the Planning Secretary. Each extraction plan must: (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Planning Secretary; (b) be approved by the Planning Secretary before the Proponent carries out any of the second workings covered by the plan; (c) include detailed plans of existing and proposed first and second workings and any associated surface development; (d) include detailed performance indicators for each of the performance measures in Tables 1 and 2; (e) provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this approval; (f) describe the measures that would be implemented to ensure compliance with the performance measures in Tables 1 and 2, and manage or remediate any impacts and/or environmental consequences; (g) include a Built Features Management Plan, which has been prepared in consultation with DRE and the owners of affected public infrastructure, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which: - addresses in appropriate detail all items of key public infrastructure and other public infrastructure and all classes of other built features; - has been prepared following appropriate consultation with the owner/s of potentially affected feature/s; - recommends appropriate pre-mining mitigatory measures to reduce subsidence impacts; - recommends appropriate remedial measures and includes commitments to	Compliant	SMPs and EPs have been prepared as required to include the required information. Approved plans are available on the GM³ website at link.

mitigate, repair, replace or compensate all predicted impacts on potentially affected built features in a timely manner; and • in the case of all key public infrastructure, and other public infrastructure except roads, trails and associated structures, reports external auditing for compliance with ISO 31000 (or alternative standard agreed with the infrastructure owner) and provides for annual auditing of compliance and effectiveness during extraction of longwalls which may impact the infrastructure; (h) include a Water Management Plan, which has been prepared in consultation with BCS, WaterNSW and NSW DCCEE – Water Group, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on watercourses and aquifers, including: • surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality; • a program to monitor and report stream flows and assess any changes resulting from subsidence impacts; • a program to monitor and report groundwater inflows to underground workings; and • a program to predict, manage and monitor impacts on groundwater bores on privately-owned land; (i) include a Biodiversity Management Plan, which has been prepared in consultation with BCS and DPI (Fisheries), which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on aquatic and terrestrial flora and fauna, with a specific focus on threatened species, populations and their habitats; endangered ecological communities; and water dependent ecosystems, including (for Appin Areas 7, 8 and 9): • additional targeted surveys for threatened species, sufficient to identify any actions		

required to protect significant populations from potential impacts; (j) include a Land Management Plan, which has been prepared in consultation with any affected public authorities, to manage the potential impacts and/or environmental consequences of the proposed second workings on land in general, with a specific focus on cliffs and steep slopes; (k) include a Heritage Management Plan, which has been prepared in consultation with Heritage NSW and relevant stakeholders for both Aboriginal and historic heritage, to manage the potential environmental consequences of the proposed second workings on both Aboriginal and non-Aboriginal heritage items, and which: - includes additional investigations (such as surveys and current register searches) for Aboriginal heritage items (including previously known sites) and historic heritage items, sufficient to identify the significance (including "special significance") of all sites which may be impacted by subsidence and to identify any actions required to ensure that the performance measures in Table 1 are met; and - is prepared in accordance with the relevant requirements for preparation of the Heritage Management Plan required under condition 23 of Schedule 4; (l) include a Public Safety Management Plan, which has been prepared in consultation with DRE, to ensure public safety in the mining area; (m) include a subsidence monitoring program, which has been prepared in consultation with DRE, BCS and WaterNSW, to: - provide data to assist with the management of the risks associated with subsidence; - validate the subsidence predictions; - analyse the relationship between the predicted and resulting subsidence effects and predicted and resulting impacts under the plan and any ensuing environmental consequences; and - inform the contingency plan and adaptive management process;		

(n) include a regional seismic event monitoring program, which has been prepared in consultation with DRE, and which includes analysis of outcomes and proposed triggers for review of potential correlations with mining operations; (o) include a contingency plan that expressly provides for adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 1 and 2, or where any such exceedance appears likely; (p) proposes appropriate revisions to the Rehabilitation Management Plan required under condition 33 of Schedule 4; and (q) include a program to collect sufficient baseline data for future Extraction Plans. Notes: To identify the longwall mining domains referred to in this condition, see Appendix 3. An SMP that is substantially consistent with this condition and which is approved by DRE prior to 30 September 2012 is taken to satisfy the requirements of this condition.		
6. The Proponent shall ensure that the management plans required under condition 5(g)-(l) above include: (a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval; and (b) a detailed description of the measures that would be implemented to remediate predicted impacts.	Compliant	The SMPs and EPs include the required information and are available on the website at link .
First Workings		
7. The Proponent may carry out first workings within the project area, other than in accordance with an approved extraction plan, provided that DRE is satisfied that the first workings are designed to remain stable and non-subsiding, except insofar as they may be impacted by approved second workings. Note: The intent of this condition is not to require an additional approval for first workings, but to	Compliant	First workings have been carried out as required. SMPs and EPs can be accessed at link.

ensure that first workings are built to geotechnical and engineering standards sufficient to ensure long term stability, with zero resulting subsidence impacts.		
Payment of Reasonable Costs		
8. The Proponent shall pay all reasonable costs incurred by the Department to engage suitably qualified, experienced and independent experts to review the adequacy of any aspect of an Extraction Plan.	N/A	Condition not triggered during the reporting period.
Improved Understanding and Prediction of Subsidence Impacts		
9. The Proponent shall prepare and implement a program to improve its prediction and understanding of subsidence impacts (in particular sub-surface impacts and impacts on groundwater resources), to the satisfaction of the Planning Secretary. This program must be prepared in consultation with DRE and be submitted to the Planning Secretary for approval by 30 September 2012 and must include proposals for: (a) testing (including core testing and in situ testing) to further define the mechanical, hydrogeological and geochemical properties of rock strata within each longwall domain, including: • testing and validation of assumptions regarding regional continuity of modelled hydraulic properties (including mass porosity and permeability); • identifying hydraulic properties of rock strata close to water-dependent ecosystems; and • identifying the presence and distribution of iron-bearing minerals that might contribute to surface water quality impairment; (b) installation of a regional network of deep pore pressure monitoring bores with vertical arrays of pore pressure transducers to assess and quantify the height and impacts of subsurface fracturing; (c) a census of boreholes which may be impacted by subsidence, the gathering of relevant borehole and groundwater quality data and a regular monitoring program; (d) regular enhancement, calibration and verification of the project's regional groundwater	Compliant	The environmental research program was approved by the Department on 13 May 2021.

model, and the further development of this model on a mining-domain scale; and (e) regular recalibration of methodologies and models used for subsidence effect and impact prediction, as they are applied within the project area. Note: Results of this program are to be incorporated within subsequent Extraction Plans, including the subplans required under condition 5(g)-(l) above.		
Improved Understanding and Prediction of Environmental Consequences on Significant Natural Features		
10. The Proponent shall prepare and implement a Research Program to the satisfaction of the Planning Secretary and allocate \$1,000,000 in total to this program for expenditure over a period of seven years from the date of the program's approval. This program must be prepared in consultation with BCS, WaterNSW and DRE, be submitted to the Planning Secretary for approval by 30 September 2012, and be: (a) directed at research into improving the prediction, assessment, remediation and/or avoidance of subsidence impacts and environmental consequences on significant natural features in the Project Area; and (b) targeted at genuine research, as opposed to implementing the matters required by this approval.	Compliant	The environmental research program was approved by the Department on 13 May 2021.
SCHEDULE 4 SPECIFIC ENVIRONMENTAL CONDITIONS – GENERAL		
NOISE		
Noise impact Assessment Criteria		
1. From the end of June 2013, the Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 1 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.	N/A	This condition has been superseded by Condition 2 of Schedule 4.

Table 1: Interim Noise Criteria dBA)							
Location		Day	Evening	Night			
Area	Receiver Number	L _{day} (dBA)	L _{even} (dBA)	L _{night} (dBA)	L _{nt} (dBA)		
Appin Township	136, 137, 139, 142, 143	44	44	44	52		
	135	43	43	43			
	100-134, 141, 145-160, 194-197, 200-209, 211, 236-279, 283-284	42	42	42			
Notes to Tables 1, 2 and 3: • To identify the locations referred to in Table 1, 2 and 3, refer to Appendix B; and • Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.							
However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.							
2. From the end of December 2014, the Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.							
Table 2: Noise Criteria dBA)							
Location		Day	Evening	Night			
Area	Receiver Number	L _{day} (dBA)	L _{even} (dBA)	L _{night} (dBA)	L _{nt} (dBA)		
Appin West Receivers south-west of Appin West	1-7, 9-11, 13, 184, 188-189	39	39	35	46		
Appin West receivers near Hume Highway	185-187, 190	35	35	35	53		
All other Appin West Receivers	14, 26	45	45	35	53		
	15-25, 27-48, 50-58	43	43	35			
	56, 67, 71, 72	41	41	41			
Appin No. 3 Receivers	66, 74, 75	40	40	40	49		
	69, 70, 76	39	39	39			
	217, 218, 233, 279-282	35	35	35			
	82, 91, 216	42	42	42			
Appin No. 1 and No. 3 Receivers	83, 85	41	41	41	50		
	78, 84, 89-93, 196, 213-215, 220, 228-230, 232, 234, 235	40	40	40			
	136, 137, 139, 142, 143	44	44	44			
Appin Township	135	43	43	43	52		
	Any other privately owned property	42	42	42			
Residential Zone	All privately-owned	40	40	35	45		
Table 3: Noise Criteria dBA)							
Location		Day	Evening	Night			
Area	Receiver Number	L _{day} (dBA)	L _{even} (dBA)	L _{night} (dBA)	L _{nt} (dBA)		
All other privately-owned land (excluding receivers in Table 3)		35	35	35	45		
However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.							
Construction Noise – Appin East Mine Safety Gas Management Project							
2A. The Applicant shall ensure that the noise generated by construction activities relating to the Appin East Mine Safety Gas Management						N/A	No activities relating to this project were conducted

Project is managed in accordance with the requirements of the Interim Construction Noise Guideline (DECC, 2009), as may be updated from time to time.		during this reporting period.																			
2B. The Proponent shall ensure that the construction noise generated by the Appin Ventilation Shaft No. 6 project, does not exceed the noise impact assessment criteria set out in Table 2A at any residence on privately-owned land, or on more than 25 percent of any privately-owned land. Table 2A: Construction noise criteria dBA <table><tr><th rowspan="2">Location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr><tr><th>LAeq(1h) dBA</th><th>LAeq(1h) dBA</th><th>LAeq(1h) dBA</th><th>LAeq(1h) dBA</th></tr><tr><td>All privately owned residences > 70m from 8:00am, Monday to Saturday and 8:00am to 1:00pm Sunday</td><td>55</td><td>45</td><td>55</td><td>45</td></tr><tr><td>All privately owned residences < 70m from 8:00am to 1:00pm Sunday</td><td>45</td><td>45</td><td>55</td><td>45</td></tr></table>	Location	Day	Evening	Night		LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA	All privately owned residences > 70m from 8:00am, Monday to Saturday and 8:00am to 1:00pm Sunday	55	45	55	45	All privately owned residences < 70m from 8:00am to 1:00pm Sunday	45	45	55	45	N/A	No construction activities relating to this project were conducted during this reporting period.
Location		Day	Evening	Night																	
	LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA																	
All privately owned residences > 70m from 8:00am, Monday to Saturday and 8:00am to 1:00pm Sunday	55	45	55	45																	
All privately owned residences < 70m from 8:00am to 1:00pm Sunday	45	45	55	45																	
Operational Noise – Appin Mine Ventilation and Access Site																					
2C. The Proponent must ensure that the noise generated by operational activities at the Appin Mine Ventilation and Access Site does not exceed the noise impact assessment criteria set out in Table 2B at any residence on privately-owned land, or on more than 25 percent of any privately-owned land. Table 2B: Operational noise criteria dBA <table><tr><th rowspan="2">Location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr><tr><th>LAeq(1h) dBA</th><th>LAeq(1h) dBA</th><th>LAeq(1h) dBA</th><th>LAeq(1h) dBA</th></tr><tr><td>All privately owned residences</td><td>55</td><td>45</td><td>55</td><td>45</td></tr></table> However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement. Notes: • To identify the privately owned residences referred to in Table 2B, refer to titled “Appin Mine Ventilation and Access Project – Sensitive Receivers” in Appendix 5; and • Noise generated by the Appin Ventilation and Access Site is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the Noise Policy for Industry (EPA, 2017).	Location	Day	Evening	Night		LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA	All privately owned residences	55	45	55	45	Compliant	Quarterly noise monitoring has been undertaken. No exceedances or non-compliances with noise criteria were recorded.					
Location		Day	Evening	Night																	
	LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA	LAeq(1h) dBA																	
All privately owned residences	55	45	55	45																	
Noise Mitigation																					
3. Upon receiving a written request from the owner of any residence listed in Table 3, the Proponent shall implement noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures	N/A	No requests for noise mitigation measures were received from the receivers listed in Table 3 during the reporting period.																			

must be reasonable and feasible. If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.				
Table 3: Land where noise mitigation measures are available on request <table><thead><tr><th>Receiver Number</th></tr></thead><tbody><tr><td>57, 60, 63, 64, 66, 79, 80, 138, 140, 144, 165</td></tr></tbody></table>			Receiver Number	57, 60, 63, 64, 66, 79, 80, 138, 140, 144, 165
Receiver Number				
57, 60, 63, 64, 66, 79, 80, 138, 140, 144, 165				
Operating Conditions				
4. The Proponent shall: (a) implement best management practice, including all reasonable and feasible noise mitigation measures, to minimise the construction, operational and road traffic noise generated by the project; (b) operate a comprehensive noise management system on site that uses real-time noise monitoring data for mining operations and the implementation of noise mitigation measures to ensure compliance with the relevant conditions of this approval; and (c) regularly assess the real-time noise monitoring to ensure compliance with the relevant conditions of this approval, to the satisfaction of the Planning Secretary.	Compliant	Best practice measures and the monitoring program are detailed in the NMP. Real-time noise monitoring was undertaken. The plan is available on the website at link .		
Noise Management Plan				
5. The Proponent shall prepare a Noise Management Plan for the project to the satisfaction of the Planning Secretary. This plan must: (a) be prepared in consultation with EPA and WSC, and submitted to the Planning Secretary for approval by 30 September 2012; (b) include provisions to ensure that the road haulage fleet attains and maintains best practices in both equipment and operations; (c) seek to minimise road traffic noise generated by employee commuter vehicles on public roads, particularly Douglas Park Drive and Macarthur Road; (d) describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval;	Compliant	The plan is available on the website at link . The latest version of the NMP was approved on 15 February 2025. The outcome of investigations into the use and implementation of audible warning alarms for the operation of the winder cage was addressed in the latest version of the NMP.		

(e) prior to commencement of construction of the operational winder/cage, describe the outcome of investigations into alternatives to the use and implementation of audible warning alarms for the operation of the winder/cage at the Appin Mine Ventilation and Access Site; (f) outline procedures to manage responses to any complaints or issues raised by the owners of affected residences; and (g) include a noise monitoring program that: • uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the project, including at the Appin Mine Ventilation and Access Site; and • includes a protocol for determining exceedances of the relevant conditions of this approval.		
5A. The Proponent must implement the Noise Management Plan approved by the Planning Secretary.	Compliant	The requirements of the plan are being implemented.
Road Traffic Noise Mitigation		
6. If after the end of June 2013, road traffic noise generated by the project (including employee vehicles) results in an exceedance by more than 2 dB(A) of the NSW criteria for road traffic noise on Douglas Park Drive or Macarthur Road at any residence on privately-owned land, then the Proponent shall, upon receiving a written request from the landowner, implement reasonable and feasible noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.	N/A	There have been no complaints regarding traffic noise on Douglas Park Drive or Macarthur Road during the reporting period and no written requests for noise mitigation received.
AIR QUALITY & GREENHOUSE GAS		
Odour		
7. The Proponent shall ensure that no offensive odours are emitted from the site, as defined under the <i>POEO Act</i>.	Compliant	Odour has not been raised as a wider community concern during the reporting period.

Greenhouse Gas Emissions																																					
8. The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Planning Secretary.	Compliant	The AQMP was reviewed in FY25. The latest version of the AQMP was approved on 15 January 2025. The plan is available on the GM³ website at link. See Section 6.15.4 for information on the decarbonisation program.																																			
Air Quality Criteria																																					
9. The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the particulate emissions generated by the project do not exceed the criteria listed in Tables 4, 5 and 6 at any residence on privately-owned land or on more than 25 percent of any privately-owned land,, and that the particulate emissions from the Appin Mine Ventilation and Access Site do not exceed the criteria listed in Tables 4 – 6A at any residence on privately-owned land or on more than 25 percent of any privately-owned land.. Table 4: Long term criteria for particulate matter <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criteria</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>~90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>~30 µg/m³</td></tr></table> Table 5: Short term criteria for particulate matter <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criteria</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>~50 µg/m³</td></tr></table> Table 6: Long term criteria for deposited dust <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>Deposited dust</td><td>Annual</td><td>~2 g/m²/month</td><td>~4 g/m²/month</td></tr></table> Table 6A: Criteria for Appin Mine Ventilation and Access Site <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criteria</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>~25 µg/m³</td></tr><tr><td>Particulate matter < 2.5 µm (PM_{2.5})</td><td>Annual</td><td>~5 µg/m³</td></tr><tr><td>Particulate matter < 2.5 µm (PM_{2.5})</td><td>24 hour</td><td>~25 µg/m³</td></tr></table> Notes for Tables 4-6A: * Total impact is incremental increase in concentrations due to the project plus background concentrations due to other sources. ** Incremental impact (ie incremental increase in concentrations due to the project on its own). ** Deposited dust is to be assessed and measured solely as defined by Standards Australia AS/NZS 3588 (2018) Method 1 for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method, and ** Excludes extraordinary events such as bushfires, prescribed burning, dust storms, see fig. 6 for incidents, illegal activities or any other activity agreed to by the Planning Secretary in consultation with EPA.	Pollutant	Averaging period	Criteria	Total suspended particulate (TSP) matter	Annual	~90 µg/m ³	Particulate matter < 10 µm (PM ₁₀)	Annual	~30 µg/m ³	Pollutant	Averaging period	Criteria	Particulate matter < 10 µm (PM ₁₀)	24 hour	~50 µg/m ³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	~2 g/m ² /month	~4 g/m ² /month	Pollutant	Averaging period	Criteria	Particulate matter < 10 µm (PM ₁₀)	Annual	~25 µg/m ³	Particulate matter < 2.5 µm (PM _{2.5})	Annual	~5 µg/m ³	Particulate matter < 2.5 µm (PM _{2.5})	24 hour	~25 µg/m ³	Compliant	Air quality criteria were achieved during the reporting period. Exceedances of criteria were recorded during the reporting period in April 2025 (at VS6 and VS8) as a result of regional air quality issues (excluded from Section 11 as classified as extraordinary events). Air quality data is reported on the GM³ website at link.
Pollutant	Averaging period	Criteria																																			
Total suspended particulate (TSP) matter	Annual	~90 µg/m ³																																			
Particulate matter < 10 µm (PM ₁₀)	Annual	~30 µg/m ³																																			
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However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.																																					

Air Quality Acquisition Criteria																												
10. If the particulate matter emissions generated by the project exceed the criteria in Tables 7, 8 and 9 at any residence on privately-owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner the Proponent shall, subject to the independent review procedure in Conditions 2 – 3 of Schedule 5, acquire the land in accordance with the procedures in Conditions –4-5 of Schedule 5. Table 7: Long term acquisition criteria for particulate matter <table><tr><th>Pollutant</th><th>Averaging period</th><th>^a Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>^a90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>^a30 µg/m³</td></tr></table> Table 8: Short term acquisition criteria for particulate matter <table><tr><th>Pollutant</th><th>Averaging period</th><th>^a Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>^a150 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>^a50 µg/m³</td></tr></table> Table 9: Long term acquisition criteria for deposited dust <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>^aDeposited dust</td><td>Annual</td><td>^a2 g/m²/month</td><td>^a4 g/m²/month</td></tr></table> Notes for Tables 7 - 9: ^a These values are incremental increase in concentrations due to the project plus background concentrations due to other sources; ^b Environmental impact is incremental increase in concentrations due to the project on its own; ^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580 AS 1:1980: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited matter - Gravimetric Method; and ^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, see eg. the moderns, legal activities or any other activity agreed to by the Planning Secretary in consultation with EPA.	Pollutant	Averaging period	^a Criterion	Total suspended particulate (TSP) matter	Annual	^a 90 µg/m ³	Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³	Pollutant	Averaging period	^a Criterion	Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 150 µg/m ³	Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 50 µg/m ³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	^a Deposited dust	Annual	^a 2 g/m ² /month	^a 4 g/m ² /month	N/A	Particulate emissions generated by the project did not exceed these criteria on privately owned land.
Pollutant	Averaging period	^a Criterion																										
Total suspended particulate (TSP) matter	Annual	^a 90 µg/m ³																										
Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³																										
Pollutant	Averaging period	^a Criterion																										
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 150 µg/m ³																										
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 50 µg/m ³																										
Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level																									
^a Deposited dust	Annual	^a 2 g/m ² /month	^a 4 g/m ² /month																									
Operating Conditions																												
11. The Proponent shall: (a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the project, including from any spontaneous combustion on site, (b) minimise any visible air pollution generated by the project; and (c) regularly assess the air quality monitoring and meteorological forecasting data, and relocate, modify and/or stop operations on site to ensure compliance with the relevant conditions of this approval; to the satisfaction of the Planning Secretary.	Compliant	Best practice measures are detailed in the AQMP. The plan is available on the website using this link. The requirements of the plan are being implemented. It is noted that two (2) events occurred that resulted in visible dust emissions (refer to Section 11).																										
Air Quality & Greenhouse Gas Management Plan																												
12. The Proponent shall prepare a detailed Air Quality & Greenhouse Gas Management Plan for the project to the satisfaction of the Planning Secretary. This plan must:	Compliant	The AQMP was reviewed in FY25. The latest version of the AQMP was approved on 15 January 2025.																										

(a) be prepared in consultation with EPA, and submitted to the Secretary for approval by 30 September 2012; (b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval, including consideration of applying a real-time air quality management system that employs both reactive and proactive mitigation measures; (c) describe the measures that would be implemented to minimise the release of greenhouse gas emissions from the site; (d) include a site specific air quality monitoring and management plan for the Appin Mine Ventilation and Access Site which includes: - an odour management plan and gaseous emissions monitoring program for the operation of the ventilation shafts; - a comprehensive air quality management system that uses real-time monitoring and implements both proactive and reactive air quality mitigation measures; and (e) include an air quality monitoring that evaluates the performance of the project, and includes a protocol for determining exceedances with the relevant conditions of this approval.		The plan is available on the website at link. The DustTraks in use provide real time air quality monitoring data. The AMVA Project site remains under construction in FY25.
12A The Proponent must implement the Air Quality and Greenhouse Gas Management Plan approved by the Planning Secretary.	Compliant	The requirements of the plan are being implemented.
METEOROLOGICAL MONITORING		
13. During the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that: (a) complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline; and (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy.	Compliant	Weather stations operate in the vicinity of the operation that generally meet these requirements.
SOIL & WATER		
Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Proponent is required	Compliant	Water licences have been obtained as required.

to obtain the necessary water licences for the project.		These are discussed in Section 7.1.
Compensatory Water Supply		
14. The Proponent shall provide a compensatory water supply to any owner of privately-owned land whose water supply is adversely impacted (other than an impact that is negligible) as a result of the project, in accordance with the approved Surface Water Management Plan. The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply must be provided (at least on an interim basis) within 24 hours of the loss being identified. If the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution. If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Planning Secretary.	Compliant	Compensatory water supplies have been provided as required.
Surface Water Discharges		
15. The Proponent shall ensure that all surface water discharges from the site (including from the Brennans Creek Dam) comply with the discharge limits (both volume and quality) set for the project in any EPL.	Non-compliant	Surface water discharges have generally complied with the relevant water quality criteria for discharge limits. Non-compliance with EPL criteria was recorded at LDP 23 and 38. Refer to Section 11 for more details.
Surface Water Management Plan		
16. The Proponent must update the Surface Water Management Plan for the project to the satisfaction of the Planning Secretary. This plan must be prepared in consultation with NSW DCCEE – Water Group and EPA by suitably qualified and experienced persons whose appointment has been endorsed by the Planning	Compliant	The WMP was reviewed in FY25 and was approved on 31 January 2025. The plan is available on the website at link.

Secretary, and submitted to the Planning Secretary for approval by 31 January 2017. This plan must include: (a) a comprehensive water balance for the project, that includes details of: • sources and security of water supply and water make; • water use; and • water discharges; and (b) management plans for the surface facilities sites, that include: • a detailed description of water management systems for each site, including: - clean water diversion systems; - erosion and sediment controls; - on-site sewage management systems; and - any water storages; • measures to minimise potable water use and to reuse and recycle water; • trigger levels for investigating any potentially adverse impacts on water resources or water quality; • a Water Response Plan, which describes the measures and/or procedures that would be implemented to: - investigate, notify and mitigate any ground or surface water exceedances; - minimise, prevent or offset any adverse impacts to ground or surface water resources; - provide compensatory water supply to any owner of privately-owned land whose water supply is adversely impacted (other than an impact that is negligible) as a result of the project; and • measures to comply with surface water discharge limits; • implementation of any pollution reduction program relating to mine water discharges from Brennans Creek Dam and identification of 5, 7 and 10 year commitments to substantially reduce the impacts on biota of salinity and other pollutants in such discharges; and		

- monitoring and reporting procedures including: - collection of baseline data on surface water quality in creeks and other waterbodies that could potentially be affected by the project; and - surface water and stream health impact assessment criteria.		
16A. The Proponent must implement the Surface Water Management Plan approved by the Planning Secretary. Note: This plan must be suitably integrated with the Water Management Plans that form part of Extraction Plans.	Compliant	The requirements of the plan are being implemented, however non-compliance with EPL water quality criteria was recorded at LDP 38. Refer to Section 11 for more details.
WEST CLIFF COAL WASH EMPLACEMENT AREA		
17. The Proponent shall prepare a West Cliff Coal Wash Emplacement Area Management Plan for the project to the satisfaction of the Planning Secretary. This plan must be prepared in consultation with BCS and be submitted to the Planning Secretary for approval by the end of June 2013. This plan must include: (a) detailed design plans which include options for reducing, avoiding and/or managing impacts on Aboriginal heritage sites in and adjacent to the southwestern fringe of the proposed Stage 4 footprint (including sites 52-2-2228/3617, 52-2-1373, 52-2-3533/3613 and 52-2-3506); (b) management strategies to ensure no impacts to Aboriginal heritage site 52-2-3505 other than negligible impacts, including consideration of potential staged development of the emplacement and/or buffer areas; (c) management strategies for the protection and conservation of <i>Persoonia hirsuta</i>; (d) management strategies for the protection and conservation of the Broad-headed Snake and the Southern Brown Bandicoot; (e) a comprehensive water monitoring program for the emplacement; (f) provide for progressive rehabilitation of the emplacement area, including through: maximising opportunities for natural regeneration;	Compliant	The CWEAMP was revised in FY24 to include a modified design for Stage 3 of the CWEA and to remove some of the operational requirements in the plan. The CWEAMP was approved by the Department on 9/04/2025 and by the Commonwealth DCCEEW on 10/06/2025. The Broad-headed Snake and Southern Brown Bandicoot Management Plan (required under Condition 17d) was also reviewed during FY24. The management plan was approved by the Department on 9/04/2025 and by the Commonwealth DCCEEW on 10/06/2025.

• maximising retention of suitable habitat species; • appropriate weed and pest control strategies; and • planting only endemic species in habitat mixes appropriate for soil, slope and aspect; and		The approved plans are available on the GM ³ website at link .
17A. The Proponent must implement the West Cliff Coal Wash Emplacement Area Management Plan approved by the Planning Secretary.	Compliant	The requirements of the plan are being implemented.
West Cliff Coal Wash Emplacement Area Biodiversity Offset Strategy		
18. The Proponent shall provide a suitable biodiversity offset strategy to compensate for the impacts of Stage 4 of the West Cliff Coal Wash Emplacement Area, to the satisfaction of the Planning Secretary. This offset strategy must: (a) be prepared in consultation with BCS; (b) be submitted to the Planning Secretary for approval by the end of December 2012, or as otherwise agreed by the Planning Secretary; and (c) fulfil “maintain or improve” and seek to fulfil “like for like or better” conservation outcomes for the vegetation associations and the <i>Persoonia hirsuta</i> impacted by clearing.	Compliant	Throughout the period from 2013–2016, ICHPL undertook numerous meetings and held discussions with senior officers of the Department, Office of Environment and Heritage, relevant Ministerial Offices and Water NSW in relation to the suitability of the proposed offsets.
19. The Proponent shall make suitable arrangements to provide appropriate long-term security for the offset areas by 31 December 2012, or other date agreed by the Planning Secretary, to the satisfaction of the Planning Secretary.	Compliant	In March 2016, the final Strategic Biodiversity Offset was submitted to the Department for approval. The final Strategy was endorsed by OEH.
Underground Coal Wash Emplacement Trial		
20. The Proponent shall prepare and undertake an Underground Coal Wash Emplacement Trial for the project to the satisfaction of the Planning Secretary. The design of the trial must: (a) be undertaken in consultation with BCS; (b) be submitted to the Planning Secretary for approval by the end of December 2012; (c) contain a two year program to undertake both pilot scale and demonstration scale trials of underground coal wash disposal; (d) include commitments for ongoing development and/or implementation of	Compliant	ICHPL received advice from the Department on 3 September 2020 that the Department considers that the intent of Condition 20 of Schedule 4 has been met.

underground emplacement options following this two-year trial; and (e) include 6 monthly progress reporting to the Department and BCS.		
PROJECT SURFACE INFRASTRUCTURE MANAGEMENT		
Gas Drainage Management Plan		
21. The Proponent shall prepare a Gas Drainage Management Plan in respect of construction and use of future gas drainage infrastructure (ie for any gas drainage not subject to approval at the date of this instrument) to the satisfaction of the Planning Secretary. This plan must be submitted to the Planning Secretary for approval prior to the construction of any future gas drainage infrastructure and must include details of the proponent's commitments regarding: (a) community consultation; (b) landholder agreements; (c) assessment of noise, air quality, traffic, biodiversity, heritage, public safety and other impacts in accordance with approved methods; (d) avoidance of significant impacts and minimisation of impacts generally; (e) flaring or use of drained hydrocarbon gases, wherever practicable; (f) achievement of applicable standards and goals; (g) mitigation and/or compensation for significant noise, air quality and visual impacts; and (h) rehabilitation of disturbed sites.	Compliant	The Gas Drainage Management Plan was reviewed in FY25 and was approved by the Department on 14 February 2025. The approved plan is available on the website at link .
21A. The Proponent must implement the Gas Drainage Management Plan approved by the Planning Secretary.	N/A	There was no surface gas drainage infrastructure installed during the reporting period.
Surface Activities Management Plan		
22. The Proponent shall prepare and implement a Surface Activities Management Plan in respect of construction and use of service boreholes, pipelines, electrical infrastructure, works to public infrastructure, communications equipment and monitoring equipment, to the satisfaction of the Secretary. This plan must:	Compliant	The Surface Activities Management Plan was reviewed in FY25 and approved on 7 February 2025. The approved plan is available on the GM ³ website at link .

(a) be submitted to the Secretary for approval by 30 April 2017, unless the Secretary agrees otherwise; and (b) include the following: • a community consultation strategy; • a protocol for landholder agreements; • commensurate assessment of noise, air quality, traffic, biodiversity, heritage, public safety and other impacts in accordance with approved methods; • measures to avoid and/or minimise impacts; • measures to achieve performance with applicable standards and goals; • mitigation measures and/or compensation for significant noise, air quality and visual impacts at privately-owned residences; and • measures for the rehabilitation of disturbance.		
22A. The Proponent must implement the Surface Activities Management Plan approved by the Planning Secretary	N/A	There were no surface activities covered by the plan undertaken during the reporting period.
Upper Canal		
23. The Proponent shall not cause any damage to the Upper Canal during the construction and operation of the Appin East Mine Gas Safety Management Project.	Compliant	No impacts have been identified to date. This project has been completed.
23A. Prior to construction of the Appin East Mine Gas Safety Management Project, the Proponent shall: (a) undertake a dilapidation survey of the Upper Canal, in consultation with WaterNSW and Heritage NSW; (b) prepare final detailed design plans in consultation with WaterNSW; and (c) undertake vibration monitoring for all earthworks undertaken within 25 metres of the Upper Canal, to the satisfaction of the Planning Secretary.	Compliant	A dilapidation survey of the canal was completed.
23B. Following the completion of construction of the Appin East Mine Gas Safety Management Project, the Proponent shall: (a) undertake a dilapidation survey of the Upper Canal in consultation with WaterNSW and Heritage NSW; and	Compliant	A dilapidation survey of the canal was completed. No repairs were required.

(b) repair, or pay the full costs associated with repairing, any damage to the Upper Canal caused by the project in consultation with WaterNSW and Heritage NSW, to the satisfaction of the Planning Secretary.		
HERITAGE		
Heritage Management Plan		
24. The Proponent prepare a Heritage Management Plan for the project to the satisfaction of the Planning Secretary. This plan must: (a) be prepared in consultation with Heritage NSW, the Aboriginal community, Council, any local historical organisations and relevant landowners; (b) be submitted to the Planning Secretary for approval by 31 January 2017; (c) include the following program/procedures for managing Aboriginal heritage management within the project area: • recording, salvaging, excavating and/or managing the Aboriginal sites and potential archaeological deposits within the site; • conserving, managing, and monitoring the Aboriginal sites outside the site; • managing the discovery of any new Aboriginal objects or skeletal remains during the project; • maintaining and managing access to archaeological sites by the Aboriginal community; and • ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage within the project area. (d) include the following program/procedures for managing other heritage on site: • preparing conservation management plans and/or photographic and archival recording of potentially affected heritage items; • making the conservation management plans and photographic and archival recording publicly available for buildings or structures of State or National heritage significance once they are completed;	Compliant	The Heritage Management Plan was reviewed in FY25 and was approved on 15 November 2021. The review included an update to the Conservation Management Plan for the Mountbatten Group. The approved plan is available on the GM³ website at link.

• protection and monitoring of heritage items outside the site; • baseline dilapidation surveys of all heritage items potentially affected by subsidence and/or blasting; • monitoring, notifying and managing the effects of subsidence and/or blasting on potentially affected heritage items (including the Mountbatten Group); and • additional archaeological excavation and/or recording of any significant heritage items requiring demolition.		
24A The Proponent must implement the Heritage Management Plan approved by the Planning Secretary. Note: This plan must be suitably integrated with Heritage Management Plans that form part of Extraction Plans, and the West Cliff Coal Wash Emplacement Area Management Plan.	Compliant	The requirements of the plan are being implemented.
TRANSPORT		
Monitoring of Coal Transport		
25. The Proponent shall: (a) keep accurate records of the amount of coal transported from the site (on a daily basis); and (b) make these records publicly available on its website at the end of each financial year.	Compliant	Records of coal transport are maintained. These records are on the GM³ website at link.
Traffic Management Plan		
26. The Proponent shall update the approved Traffic Management Plan for the project to the satisfaction of the Planning Secretary. This plan must be: (a) prepared in consultation with the TfNSW, WCC, WSC and the CaCC; (b) submitted to the Planning Secretary for approval by 31 January 2017; (c) propose an appropriate program and schedule of works for any intersection upgrades to be undertaken or contributed to by the Proponent over the life of the project, including an upgrade of the intersection of West Cliff Mine Access Road and Appin Road that is generally in accordance with the requirements of the TfNSW and that is to be completed before the Level of	Compliant	The Traffic Management Plan was reviewed in FY25 and was approved on 5 June 2025. Consultation was undertaken as required. The plan is available on the GM³ website at link.

Service at this intersection drops below LOS C; and (d) include strategies to manage construction traffic, including road closure protocols, community consultation and measures to avoid potential road safety conflicts with other road users.		
26A. The Proponent shall ensure that safe access to Ventilation Shaft No.6 is provided from public roads.	Compliant	The intersection was constructed to ensure safe access to the site.
26B. If it is determined that the corridor of the proposed Outer Sydney Orbital Stage 1 would intersect with the Appin Ventilation and Access Site, the Proponent must develop a specific Infrastructure Management Plan in consultation with, and to the satisfaction of, TfNSW. The plan must include: (a) detailed design and engineering parameters required for co-existence; (b) measures to ensure the ongoing safety and serviceability of the site and Outer Sydney Orbital Stage 1 during construction and operation; (c) any upgrades or augmentations required to the site associated with the construction and operation of the Outer Sydney Orbital Stage 1; (d) assessment of risks generated by co-location of surface infrastructure; and (e) costings of proposed measures and cost sharing arrangements.	N/A	The route of the Outer Sydney Orbital has not yet been confirmed. ICHPL continues to liaise with TfNSW.
26C The Proponent must implement the Traffic Management Plan approved by the Planning Secretary.	Compliant	The requirements of the plan are being implemented.
VISUAL		
Visual Amenity and Lighting		
27. The Proponent shall: a) minimise the visual impacts, and particularly the off-site lighting impacts, of the main infrastructure area and associated ancillary surface works; b) take all practicable measures to further mitigate off-site lighting impacts from the project; and c) ensure that all external lighting associated with the project complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of	Compliant	Lighting has been installed to minimise off-site impacts.

Outdoor Lighting, to the satisfaction of the Planning Secretary.		
Visual Screening of Appin Mine Ventilation and Access Site		
27A. The Proponent must: (a) ensure that the visual appearance of all new buildings, structures, facilities or works (including paint colours and specifications) at the Appin Mine Ventilation and Access Site are aimed at blending as far as possible with the surrounding landscape; and (b) implement site-specific landscaping strategies at the Appin Mine Ventilation and Access Site and at the privately owned residences at 310 Menangle Road and 30 Finns Road, Menangle to minimise the visual impacts of the Appin Mine Ventilation and Access Site, including; i. notification and consultation with affected residents and WSC; ii. carrying out screen tree planting at the residences prior to the commencement of construction of the Appin Mine Ventilation and Access Site; iii. maintenance and/or replacement of the planted trees established over the life of the Appin Ventilation and Access Site to maintain an effective visual screen to the satisfaction of the Planning Secretary. Note: b(ii) and b(iii) do not apply if the Proponent has a written agreement with the landowners at 310 Menangle Road and 30 Finns Road, Menangle in relation to visual impact mitigation, and the Proponent has advised the Department in writing of the terms of this agreement.	Compliant	Tree screening planting was undertaken to minimise visual impacts at 310 Menangle Road and 30 Finns Road. Due to the redesign of the road and electrical infrastructure, screen trees were required to be removed at the AMVA site. Additional tree screen plantings around the AMVA Project site were undertaken in FY25.
WASTE		
28. The Proponent shall: (a) minimise the waste (including coal reject) generated by the project; and (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of, and (c) manage on-site sewage treatment and disposal in accordance with the requirements of EPA and WSC; to the satisfaction of the Planning Secretary.	Compliant	Waste management has been undertaken in accordance with the Waste Management Plan. See Section 6.16.

29. The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Planning Secretary. This plan must be submitted to the Planning Secretary by 30 September 2012.	Compliant	The Waste Management Plan was last approved on 24 November 2022. It is currently under review. The plan is available on the GM³ website at link. The requirements of the plan are being implemented.
BUSHFIRE MANAGEMENT		
30. The Proponent shall: (a) ensure that the project is suitably equipped to respond to any fires on site; and (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the surrounding area.	Compliant	Sites are equipped to manage bushfires. Asset protection zones are maintained as required. A Bushfire Management Plan is in place.
REHABILITATION		
Rehabilitation Objectives		
31. The Proponent shall rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the project under the Mining Act 1992. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA and the PPR, and comply with the objectives in Table 10.	Compliant	Rehabilitation is planned and conducted in accordance with the Rehabilitation Management Plan. Refer to Section 8 for details of rehabilitation undertaken in FY25. Rehabilitation objectives were reapproved by the Resources Regulator on 19 June 2025.

Table 10 Rehabilitation Objectives

Feature	Objective
Mine site (as a whole)	Safe, stable & non-polluting
Project Surface Infrastructure	To be decommissioned and removed, unless the Resources Regulator agrees otherwise
Portals and vent shafts	To be decommissioned and made safe and stable. Retain habitat for threatened species (eg bats) where practicable
Watercourses of 3 rd order or above subject to subsidence impacts	Restore pre-mining surface flow and pool holding capacity as soon as reasonably practicable Hydrologically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining
Other watercourses subject to subsidence impacts	Hydrologically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining

Cills Other land affected by the project Soil features damaged by mining operations Community Notes: 1) These rehabilitation objectives apply to all subsidence impacts and environmental consequences caused by mining taking place after the date of this approval, and to all project surface infrastructure part of the project, whether constructed prior to or following the date of this approval. 2) Rehabilitation of subsidence impacts and environmental consequences caused by mining which took place prior to the date of this approval may be subject to the requirements of other approvals (eg under a mining lease or an Subsurface Management Plan approval) or the Proponent's commitments. 3) In the case of the West COT Environment Area, final landform may be significantly different from that existing prior to mining, but must still be safe, stable and non-polluting and generally consistent with the surrounding landforms.	No additional risk to public safety compared to prior to mining. Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: - local native plant species (unless the Resource Regulator agrees otherwise); and - a landform consistent with the surrounding environment. Repair to pre-mining condition or equivalent unless: - the owner agrees otherwise; or - the damage is fully restored, repaired or compensated for under the Mine Substance Compensation Act 1981. Ensure public safety. Minimise the adverse socio-economic effects associated with mine closure.		
Progressive Rehabilitation			
32. The Proponent shall carry out the rehabilitation of the site progressively, that is, as soon as reasonably practicable following disturbance.	Compliant	Rehabilitation is planned and conducted in accordance with the Rehabilitation Management Plan.	Rehabilitation activities are detailed in Section 8.
Rehabilitation Management Plan			
33. The Proponent shall prepare and implement a Rehabilitation Management Plan for the project in accordance with the conditions imposed on the mining lease(s) associated with the project under the <i>Mining Act 1992</i> , with specific reference to all surface facilities sites. This plan must be prepared in consultation with BCS, NSW DCCEEW – Water Group, WCC, WSC and the CCC.	Compliant	A Rehabilitation Management Plan compliant with this condition was prepared in June 2022. The RMP was reviewed in FY25. The approved rehabilitation objectives have been included in the RMP.	
BIODIVERSITY			
Appin East Mine Gas Safety Management Project			
34. By 31 January 2017, the Proponent shall enter into a suitable arrangement to offset the clearing of Cumberland Plain Woodland to develop the Appin East Mine Gas Drainage Project, to the satisfaction of the Planning Secretary.	Compliant	The Appin East Mine Safety Gas Project biodiversity requirements have been incorporated into the Biodiversity Management Plan.	The Biodiversity Management Plan was

		reviewed in FY25 and was approved on 23 May 2025 by the Department and 16 February 2021 by DAWE. ³⁹
Ventilation Shaft No. 6		
35. The Proponent shall prepare and implement a biodiversity offset strategy to compensate for the impact of Ventilation Shaft No. 6 on Cumberland Plain Woodland. The offset strategy must: (a) be prepared in consultation with BCS and to the satisfaction of the Planning Secretary; (b) incorporate at least 8.7 hectares of existing Cumberland Plain Woodland vegetation; and (c) make suitable arrangements to protect and manage this offset area in perpetuity. <i>Note: The 8.7 hectare size for the Biodiversity Offset Area identified above is based on Cumberland Plain Woodland vegetation on shale (HN529) in good condition. An equivalent minimum offset for Cumberland Plain Woodland on flats vegetation (HN528) in good condition is 9.4 hectares.</i>	Compliant	The Ventilation Shaft 6 Biodiversity Offset Strategy was last approved on 20/11/2020. The BOS was reviewed in FY25 however was not resubmitted for approval as the changes were administrative in nature and the next proposed review date is 23 October 2041.
Appin Mine Ventilation and Access Site		
35A. Within 6 months of the commencement of Appin Mine Ventilation and Access Site early works, unless otherwise agreed by the Planning Secretary, the Proponent must retire two (2) ecosystem credits for the clearing of Plant Community Type (PCT) 849 Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion associated with the construction of the Appin Mine Ventilation and Access Site. The credits must be retired in accordance with the Biodiversity Offsets Scheme of the BC Act.	Compliant	Payment into the Biodiversity Conservation Fund for an offset obligation was completed on 27 October 2022 and approved on 3 November 2022 (BCT Reference BCF450).
Biodiversity Management Plan		
36. The Proponent shall prepare and implement a Biodiversity Management Plan for the Appin East	Compliant	The Biodiversity Management Plan was

³⁹ Email received 21 May 2025: The department (DCCEEW – Commonwealth) has considered the changes to the Biodiversity Management Plan, as provided under the RAMP notification, and does not consider it likely there will be a new or increased impact as a result of the changes.

Mine Gas Safety Management Project and Ventilation Shaft No. 6 and Appin Mine Ventilation and Access Site, to the satisfaction of the Planning Secretary. The plan must: (a) be prepared in consultation with BCS, and submitted to the Planning Secretary for approval by 31 January 2017; (b) describe how the implementation of offsets would be integrated with the overall rehabilitation of the site; (c) include: (i) a description of the short, medium and long term measures that would be implemented to: • implement offset strategy; and • manage the remnant vegetation and habitat on the site and in the offset areas; (ii) detailed performance and completion criteria for the implementation of the offset strategy; (iii) details of vegetation clearing protocols, including procedures to: • minimise the amount of the clearing required; • compensate the loss of hollow-bearing trees for the Appin East Mine Gas Safety Management Project; and • translocate the Cumberland Plain Snail (<i>Meridolum corneovirens</i>) affected by the clearing of Cumberland Plain Woodland for the Appin East Mine Gas Safety Management Project; (iv) details of location and timing of tree screenings to minimise visual impacts of the project; (v) a description of the measures that would be implemented in ongoing 5 year periods, including the procedures to be implemented to: • implement revegetation and regeneration within disturbed areas; • minimise the clearing of native vegetation; • control weeds and feral pests; • manage grazing and agriculture on site; and ☒ control unauthorised access;		reviewed in FY25 and was approved on 23 May 2025 by the Department and 16 February 2021 by DAWE.³⁹ The plan is available on the GM³ website at link.

(vi) a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria; (vii) a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and (viii) details of who would be responsible for monitoring, reviewing, and implementing the plan.		
36A The Proponent must implement the Biodiversity Management Plan approved by the Planning Secretary.	Compliant	The requirements of the plan are being implemented.
SCHEDULE 4A		
CONSTRUCTION SPECIFIC ENVIRONMENTAL CONDITIONS – APPIN MINE VENTILATION AND ACCESS SITE		
CONSTRUCTION NOISE		
1. The Proponent must ensure that the noise generated by the pre-construction and surface construction activities identified in Condition 7B of Schedule 2 relating to the Appin Mine Ventilation and Access Site is managed in accordance with the requirements of the Interim Construction Noise Guideline (DECC, 2009), as may be updated from time to time.	Compliant	Noise generated by the AMVA Project during surface construction works were managed in accordance with the ICNG.
2. The Proponent must ensure that the noise generated by shaft sinking activities at the Appin Mine Ventilation and Access Site does not exceed the noise impact assessment criteria set out in Table 2B of condition 2C, Schedule 4 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.	Compliant	Quarterly noise monitoring has been undertaken that demonstrates compliance with the noise impact assessment criteria.
CONSTRUCTION BLASTING		
Blasting Criteria		
3. The Proponent must ensure that the construction blasting at the Appin Mine Ventilation and Access Site does not cause exceedances of the criteria in Table 11.  However, these criteria do not apply if the Proponent has a written agreement with the relevant owner and the Proponent has advised	Compliant	Blasts conducted in FY25 were compliant with these requirements.

the Department in writing of the terms of this agreement, or if other criteria is agreed by the Planning Secretary		
Blasting Hours		
4. Unless the Planning Secretary agrees otherwise, the Proponent must only carry out blasting on the Appin Mine Ventilation and Access Site Monday to Saturday 7 am to 10 pm and Sunday 8 am to 10 pm. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Planning Secretary unless an additional blast is required following a blast misfire or to ensure the safety of the mine or its workers.	Compliant	An application to modify blasting hours (to this revised condition) was submitted on 29 May 2024. MOD 6 was approved on 11 October 2024. Blasts conducted in FY25 were compliant with these requirements. Approval for 24/7 blasting was granted – refer to Condition 5 of Schedule 4A.
5. If the Proponent decides to seek the Planning Secretary's approval to carry out blasting outside of the hours specified in condition 5 above, then it must demonstrate that the airblast overpressure levels from the blasting complies with the night-time L_{Amax} sleep disturbance maximum noise trigger level criteria specified in Table 2B of condition 2C, Schedule 4.	Compliant	An application pursuant to Condition 5 for 24/7 blasting was submitted 23 January 2025. Approval for 24/7 blasting was received on 5 February 2025.
Blasting Frequency		
6. The Proponent may carry out a maximum of 2 blasts per 24 hour period at each of the Appin Mine Ventilation and Access Site ventilation shafts, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the mine or its workers. Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a ventilation shaft of the site.	Compliant	An application to modify blasting frequency was submitted on 29 May 2024. MOD 6 (permitting up to two (2) blasts per day per shaft) was approved on 11 October 2024. Blasts conducted in FY25 were compliant with these requirements.
Property Inspections		
7. If the Proponent receives a written request from the owner of any privately-owned land within 1 kilometre of vent shaft no 7 or vent shaft no 8, for a property inspection to establish the baseline	N/A	No written requests were received in FY25.

condition of any buildings and/or structures on his/her land, then within 2 months of receiving this request the Proponent must: (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to: i. establish the baseline condition of any buildings and/or structures on the land, or update the previous property inspection report; and ii. identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and (b) give the landowner a copy of the new or updated property inspection report. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.		Baseline condition surveys were offered to all residents (41) within a 1 km radius of the site. Fourteen baseline condition surveys were conducted by a suitably qualified, experienced and independent person.
Property Investigations		

8. If the owner of any privately-owned land within 1 kilometre of vent shaft no 7 or vent shaft no 8 claims in writing that buildings or structures on their land have been damaged as a result of blasting on the Appin Mine Ventilation and Access Site, and the Planning Secretary is satisfied that an investigation is warranted, then within 2 months of receiving this claim in writing from the landowner the Proponent must: (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and (b) give the landowner a copy of the property investigation report. If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent must repair the damages to the satisfaction of the Planning Secretary. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.	N/A	One (1) claim of suspected building damage was investigated. The investigation determined that the building defects were not associated with the Project. This claim was not made through the Planning Secretary.
Operating Conditions		
9. During blasting operations on the Appin Mine Ventilation and Access Site, the Proponent must: (a) engage suitably qualified and experienced person/s to oversee the process of blasting, including blast planning, design, supervision and monitoring; (b) implement best management practice to: i. protect the safety of people (including road users) and livestock in the surrounding area; ii. protect public or private infrastructure/property in the surrounding area from any damage; and iii. minimise the dust and fume emissions of any blasting; to the satisfaction of the Planning Secretary.	Compliant	These requirements were met for blasting operations in FY25.
Site Entrance		

10. Prior to the commencement of construction on the Appin Mine Ventilation and Access Site, the Proponent must construct the Appin Mine Ventilation and Access Site entrance and its intersection with Menangle Road to the satisfaction of WSC and TfNSW.	Compliant	Construction of the site entrance and its intersection with Menangle Road was completed prior to the commencement of construction on the AMVA Project site.
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN		
11. Prior to the commencement of Appin Mine Ventilation and Access Site early works, the Proponent must prepare a Construction Environmental Management Plan for the construction phase of the Appin Mine Ventilation and Access Site to the satisfaction of the Planning Secretary. This plan must: (a) be prepared in consultation with the EPA; (b) provide specific environmental management and monitoring measures for construction works, including for: i. minimising construction-related noise, dust, visual impacts, and surface disturbance; ii. stormwater management including erosion and sediment controls and clean water diversion; iii. monitoring and managing groundwater inflows and impacts to groundwater resources as a result of shaft construction activities at the Appin Mine Ventilation and Access Site; (c) include details of vegetation clearing protocols, including procedures to minimise the amount of clearing required on the Appin Mine Ventilation and Access Site; (d) include a Construction Blast Management Plan prepared by a suitably qualified and experienced person/s in consultation with the EPA that: i. describes the measures that would be implemented to ensure compliance with the relevant conditions of this approval and that best management practice is being employed; ii. includes a real-time automated monitoring program prepared in accordance with the guidelines provided in Australian Standard 2187.2-2006: Explosives-Storage and use, Part 2: Use of explosives to:	Compliant	The CEMP – Early Works AMVA Project was prepared and approved on 17 June 2022 prior to the commencement of Early Works on the site. The AMVA Project CEMP was reviewed in FY25 and approved by the Department on 7 April 2025. The CEMP has been implemented.

• evaluate the performance of the project and compliance with the applicable criteria; • control flyrock; and • minimise fume emissions from the site; iii. includes public notification procedures to enable members of the public, particularly surrounding residents, to get up-to-date information on the proposed blast schedule; iv. includes a protocol for investigating and responding to blast-related complaints; and v. includes a protocol for investigating and responding to noise complaints. (e) include a Construction Traffic Management Plan prepared in consultation with the TfNSW and WSC, that: i. includes strategies to manage construction traffic, including road closure protocols, community consultation and measures to avoid potential road safety conflicts with other road users; ii. includes a program for conducting road safety audits, including both pre and post construction, of the intersection of the Appin Mine Ventilation and Access Site entrance with Menangle Road; iii. includes a vehicle movement plan for: • managing light, heavy and over-dimensional vehicles during construction works; • transporting construction waste materials; and • restricting construction or transportation hours to avoid road user conflicts; and (f) include a Construction Noise Management Plan that: i. describes the measures that would be implemented to ensure compliance with the noise conditions of this approval; ii. includes a noise monitoring program that: • uses a combination of real-time and supplementary attended monitoring to evaluate noise generated by the project during construction; and • includes a protocol for determining exceedances of the relevant conditions of this approval. (g) include a Construction Air Quality Management Plan that: i. describes the proactive and reactive air quality mitigation measures that would be implemented		

to ensure compliance with Condition 9 of Schedule 4 of this approval; ii. includes an air quality monitoring program that: • includes real time monitoring to evaluate air quality impacts during construction; and • includes a protocol for determining exceedances of the relevant conditions of this approval.		
SCHEDULE 5: ADDITIONAL PROCEDURES		
NOTIFICATION OF LANDOWNERS		
1. As soon as practicable and no longer than 7 days after obtaining monitoring results showing: (a) an exceedance of any relevant criteria in schedule 4, the Proponent shall notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the project is again complying with the relevant criteria; and (b) an exceedance of any relevant air quality criteria in schedule 4, the Proponent shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).	N/A	No exceedances of criteria were reported in the reporting period that affected adjacent landholders.
INDEPENDENT REVIEW		
2. If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 4, then he/she may ask the Planning Secretary in writing for an independent review of the impacts of the project on his/her land. If the Planning Secretary is satisfied that an independent review is warranted, then within 2 months of the Planning Secretary's decision the Proponent shall: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to: • consult with the landowner to determine his/her concerns; • conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 4; and • if the project is not complying with these criteria then identify the measures that could	N/A	Condition not triggered during reporting period.

be implemented to ensure compliance with the relevant criteria; and (b) give the Planning Secretary and landowner a copy of the independent review.		
3. If the independent review determines that the project is complying with the relevant criteria in Schedule 4, then the Proponent may discontinue the independent review with the approval of the Planning Secretary. If the independent review determines that the project is not complying with the relevant impact assessment criteria in Schedule 4, and that the project is primarily responsible for this non-compliance, then the Proponent shall: (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until the project complies with the relevant criteria; or (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Planning Secretary. If the independent review determines that any relevant acquisition criteria in schedule 4 are being exceeded and that the project is primarily responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in Conditions 4-5 below.	N/A	Condition not triggered during reporting period.
LAND ACQUISITION		
4. Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on: (a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the project, having regard to the: existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and	N/A	Condition not triggered during reporting period.

• presence of improvements on the land and/or any approved building or structure which has been physically commenced on the land at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional noise mitigation measures under Condition 6 of Schedule 4; (b) the reasonable costs associated with: • relocating within the Wollondilly local government area, or to any other local government area determined by the Planning Secretary; and • obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and (c) reasonable compensation for any disturbance caused by the land acquisition process. If the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired within 28 days after the Proponent makes its written offer, then either party may refer the matter to the Planning Secretary for resolution. Upon receiving such a request, the Planning Secretary will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to: • consider submissions from both parties; • determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above; • prepare a detailed report setting out the reasons for any determination; and • provide a copy of the report to both parties. Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to		

purchase the land at a price not less than the independent valuer's determination. However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Planning Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Planning Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report disputing the independent valuer's determination, and any other relevant submissions. Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Planning Secretary's determination. If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Planning Secretary determines otherwise.		
5. The Proponent shall pay all reasonable costs associated with the land acquisition process described in Condition 4 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.	N/A	Condition not triggered during reporting period.
SCHEDULE 6: ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING		
ENVIRONMENTAL MANAGEMENT		
Environmental Management Strategy		
1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Planning Secretary. This strategy must:	Compliant	The Environmental Management Strategy was reviewed in FY25 and approved on 15 January 2025.

(a) be prepared in consultation with WSC and be submitted to the Planning Secretary for approval; (b) provide the strategic framework for environmental management of the project; (c) identify the statutory approvals that apply to the project; (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project; (e) describe the procedures that would be implemented to: • keep the local community and relevant agencies informed about the operation and environmental performance of the project, including a specific community and stakeholder notification and engagement strategy during the construction and operation of the Appin Mine Ventilation and Access Site; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the project; • respond to any non-compliance; • respond to emergencies; and (f) include: • references to all relevant strategies, plans and programs approved under the conditions of this approval; and • a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.		The plan is available on the GM³ website at link. The requirements of the strategy are being implemented.
Management Plan Requirements		
2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include: (a) detailed baseline data; (b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; • the specific performance indicators that are proposed to be used to judge the	Compliant	Management Plans have been prepared in accordance with relevant guidelines. Additional information will be included where identified during the review/approval process.

performance of, or guide the implementation of, the project or any management measures; (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria; (d) a program to monitor and report on the: • impacts and environmental performance of the project; • effectiveness of any management measures (see c above); (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; (f) a program to investigate and implement ways to improve the environmental performance of the project over time; (g) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and (h) a protocol for periodic review of the plan. Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.		
Adaptive Management		

3. The Proponent must assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedules 3 and 4. Any exceedance of these criteria and/or performance measures constitutes a breach of this approval and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity: (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and (c) implement remediation measures as directed by the Planning Secretary, to the satisfaction of the Planning Secretary.	Compliant	Actions have been implemented to address exceedances of criteria as required.
Annual Review		
4. By 30 September 2012, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Planning Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the past financial year, and the development that is proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the project over the past financial year, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this approval; • monitoring results of previous years; and • relevant predictions in the EA; (c) identify any non-compliance over the past financial year, and describe what actions were (or are being) taken to ensure compliance;	Compliant	The FY24 Annual Review was submitted by 30 September 2024. This condition has been addressed in this and previous Annual Reviews.

(d) identify any trends in the monitoring data over the life of the project; (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the current financial year to improve the environmental performance of the project.		
Revision of Strategies, Plans and Programs		
5. Within 3 months of: (a) the submission of an annual review under Condition 4 above; (b) the submission of an incident report under Condition 7 below; (c) the submission of an audit report under Condition 9 below; and (d) any modification to the conditions of this approval, (unless the conditions require otherwise), or (e) a direction of the Planning Secretary under Condition 4 of Schedule 2; the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Planning Secretary. Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.	Compliant	Management Plans are reviewed as required by this condition. Improvements identified during the reviews are recorded in the Management Plan Review Log. The approved versions of management plans required under the Project Approval are listed in Section 13.3.
Community Consultative Committee		
6. The Proponent shall establish and operate a new Community Consultative Committee (CCC) for the project to the satisfaction of the Planning Secretary. This CCC must be operated in general accordance with the Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects (Department of Planning, 2007, or its latest version), and be operating by 30 September 2012. Notes: The CCC is an advisory committee. The Department and other relevant agencies are	Compliant	The Appin Mine CCC is in place and operating in accordance with the Department's <i>Community Consultative Committee Guideline: State Significant Projects</i>.

<i>responsible for ensuring that the Proponent complies with this approval.</i> <i>In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.</i>		
REPORTING		
Incident Notification, Reporting and Response		
7. The Applicant must notify the Department within 24 hours of becoming aware of an incident. The notification must be made via the NSW planning portal (Major Projects) and address details of the incident including: (a) date, time and location; (b) a brief description of what occurred and why it has been classified as an incident; (c) a description of what immediate steps were taken in relation to the incident; and (d) identifying a contact person for further communication regarding the incident.	Compliant	No incidents that caused or threatened to cause material harm to the environment or to the health and safety of human beings are considered to have occurred in the FY25 reporting period. Non-compliances with and exceedances of limits were notified to the Department as required.
7AA. The Applicant must provide the Department with a subsequent incident report in accordance with Appendix 7.	N/A	
Non-Compliance Notification		
7A. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing and must be submitted via the NSW planning portal (Major Projects). The notification must identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply, the reasons for the non-compliance (if known), and what actions have been undertaken, or will be undertaken, and when, to address the non-compliance. <i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.</i>	Compliant	No non-compliances (that were not otherwise notified to the Department) were recorded in FY25.
Regular Reporting		

8. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	Compliant	Monitoring data is reported in the 14-day EPL Report, Annual Review and End of Panel Reports. This data is available on the GM³ website at link.
INDEPENDENT ENVIRONMENTAL AUDIT		
9. By the end of December 2013, and every 3 years thereafter, unless the Planning Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must: (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary; (b) include consultation with the relevant agencies; (c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and (e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals. <i>Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Planning Secretary.</i>	Compliant	Environmental Resources Management Australia Pty Ltd (ERM) was engaged by ICHPL to carry out an Independent Environmental Audit of Appin Mine in FY23. A copy of the Audit findings and Response to Recommendations can be found on the GM³ webpage at link. The next IEA will be undertaken by the end of December 2025.
10. Within 6 weeks of the completion of this audit, or as otherwise agreed by the Planning Secretary, the Proponent shall submit a copy of the audit report to the Planning Secretary, together with its response to any recommendations contained in the audit report.	Compliant	The audit report, dated 21 December 2022, was provided to the Department within the required timeframe.
10A. Independent Environmental Audits of the development must be conducted and carried out in accordance with the Independent Audit Post Approval Requirements (2020) or as updated	Compliant	The 2022 IEA was conducted in accordance with the Independent Audit

from time to time and published on the Department's website.		Post Approval Requirements (2020).
ACCESS TO INFORMATION		
11. From 30 June 2012, the Proponent shall: (a) make copies of the following publicly available on its website: - the documents referred to in Condition 2 of Schedule 2; - all current statutory approvals for the project; - all approved strategies, plans and programs required under the conditions of this approval; - a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs; - a complaints register, updated on a monthly basis; - minutes of CCC meetings; - the annual reviews of the project; - any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit; - any other matter required by the Planning Secretary; and (b) keep this information up-to-date, to the satisfaction of the Planning Secretary.	Compliant	All approved plans, strategies and monitoring results are on the GM ³ webpage at link .
APPENDIX 7: INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS		
WRITTEN INCIDENT NOTIFICATION REQUIREMENTS		
1. All incident notifications and reports must be submitted via the NSW planning portal (Major Projects).	Compliant	Notifications and reports were submitted via the Major Projects Portal as required. ⁴⁰

⁴⁰ No incidents that caused or threatened to cause material harm to the environment or to the health and safety of human beings are considered to have occurred in the FY25 reporting period.

2. The Applicant must provide notification as required under these requirements, even if the Applicant fails to give the notification required under Condition 7 of Schedule 6 or, having given such notification, subsequently forms the view that an incident has not occurred.	Compliant	Notifications were submitted via the Major Projects Portal as required.
3. Within 7 days (or as otherwise agreed by the Planning Secretary) of the Applicant making the immediate incident notification (in accordance with Condition 7 of Schedule 6), the Applicant is required to submit a subsequent incident report that: (a) identifies how the incident was detected; (b) identifies when the Applicant became aware of the incident; (c) identifies any actual or potential non-compliance with conditions of consent; (d) identifies further action(s) that will be taken in relation to the incident; (e) a summary of the incident; (f) outcomes of an incident investigation, including identification of the cause of the incident; (g) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence, including the period for implementing any corrective and/or preventative actions; and (h) details of any communication with other stakeholders regarding the incident.	Compliant	Subsequent reports are submitted as required.
4. The Applicant must submit any further reports as directed by the Planning Secretary.	Compliant	Reports are submitted as required.

Appendix 3: Community Complaints Report – FY25

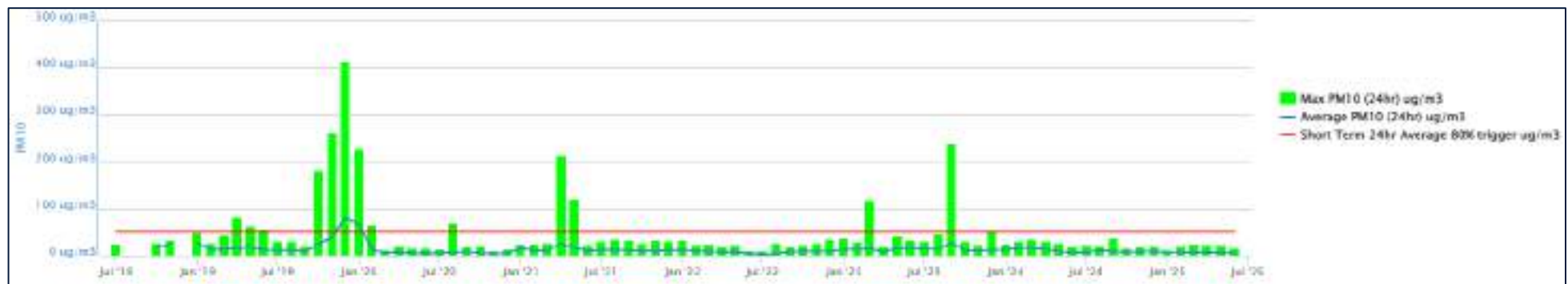
Date	Nature of Complaint	Actions / Follow Up
July 2024	No complaints were received for the	
13/08/2024	A community member sent an email to the corporate Head Office, informing them that while traveling behind a coal truck along Appin Road, black dust covered their vehicle.	The Community Team commenced an investigation with the Logistics Team. The Contractor verified that all drivers confirmed having their covers on when leaving the site. They provided assurance that trucks are equipped with covers for coal transport except when empty. The Contractor committed to enhance training and procedures to secure covers when loading cargo. The community member was advised of the outcome and the suggested further improvements.
September 2024	No complaints were received for the month.	
October 2024	No complaints were received for the month.	
November 2024	No complaints were received for the month.	
December 2024	No complaints were received for the month.	
January 2025	No complaints were received for the month.	
February 2025	No complaints were received for the month.	
March 2025	No complaints were received for the month.	

Date	Nature of Complaint	Actions / Follow Up
1/04/2025	A community member emailed the Community mailbox regarding blast notifications being sent out after hours or just prior to a blast occurring. The complainant has requested reasonable notification to allow adequate time to manage their animals and mitigate perceived potential impacts.	Feedback was provided to the Principal Contractor responsible for blast notifications. While notifications will be sent as early as possible, operational constraints may sometimes lead to shorter notice periods. The investigation also identified inconsistencies in the notification process, prompting the development of a blast notification procedure to ensure more consistent and timely distribution from the Principal Contractor. The complainant was informed of the outcome and was satisfied.
May 2025	No complaints were received for the month.	
June 2025	No complaints were received for the month.	

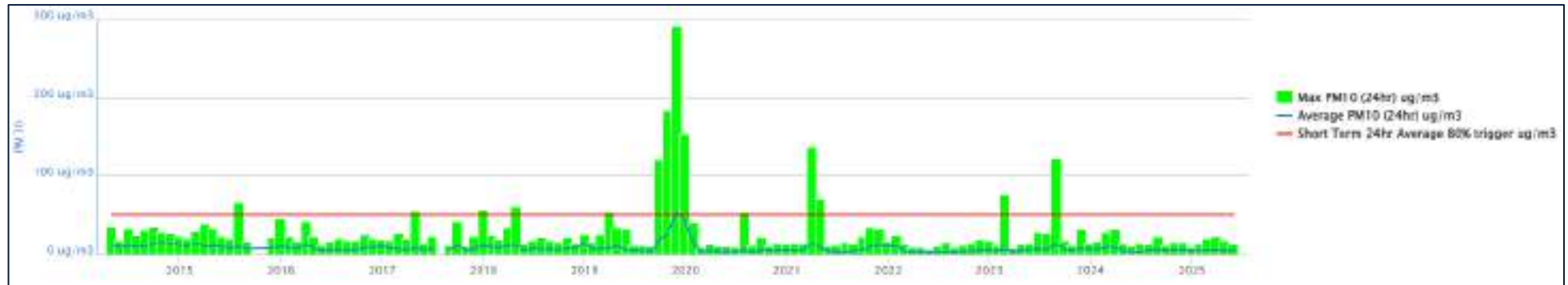
Appendix 4: Appin Mine Long-Term Environmental Monitoring Data

Dust Monitoring

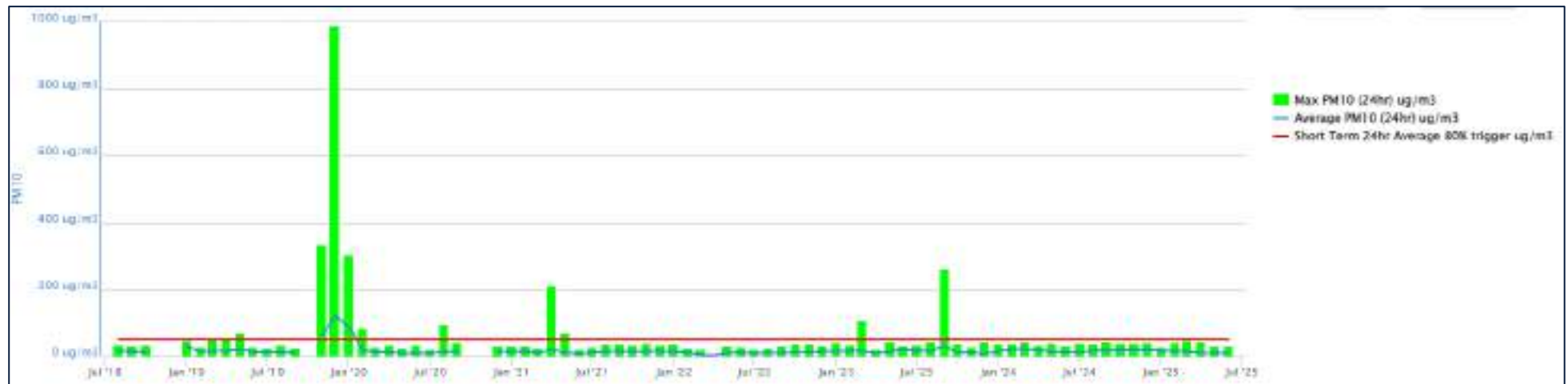
Laser Photometer (DustTrak) – AE-PF1 – 24-hour average (PM₁₀)



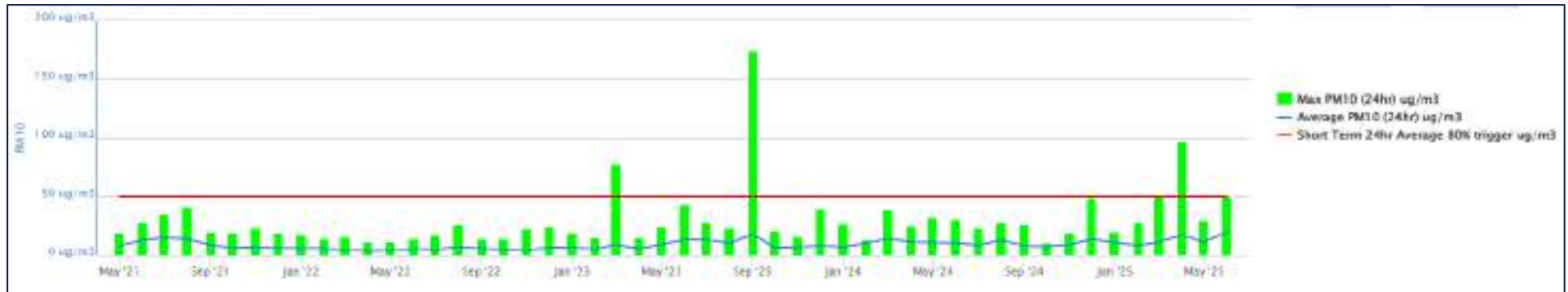
Laser Photometer (DustTrak) – AE-PF3 – 24-hour average (PM₁₀)



Laser Photometer (DustTrak) – W-PF1 – 24-hour average (PM₁₀)



Laser Photometer (DustTrak) – VS6-PF1 – 24-hour average (PM₁₀)



Laser Photometer (DustTrak) – VS8-PF1 – 24-hour average (PM₁₀)

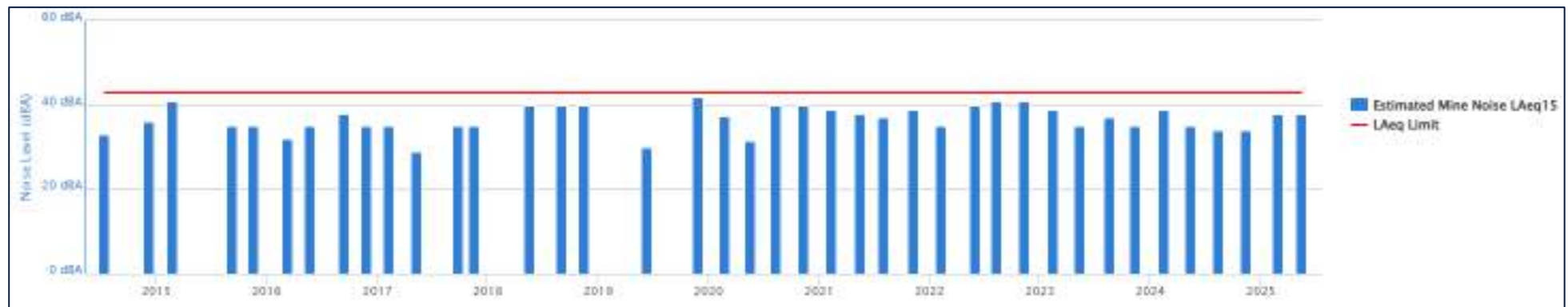


Noise Monitoring

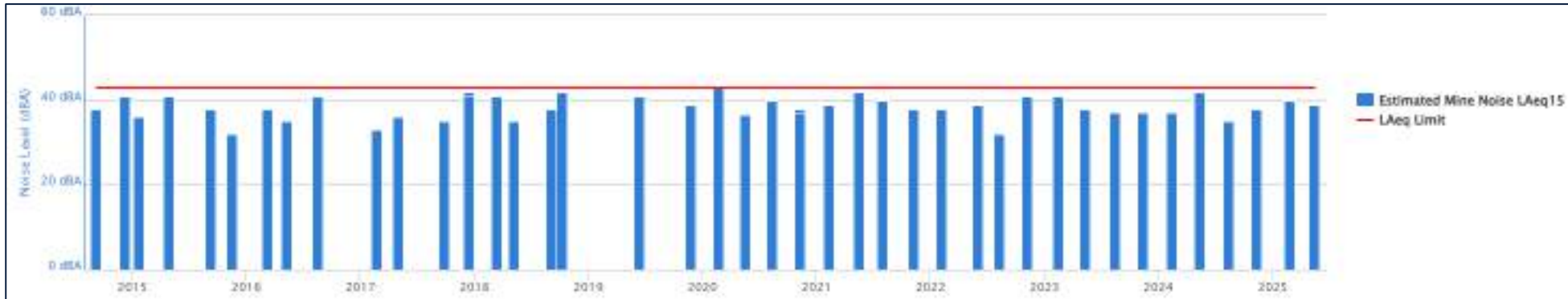
Appin East

Noise Monitoring Results – AE-NS4

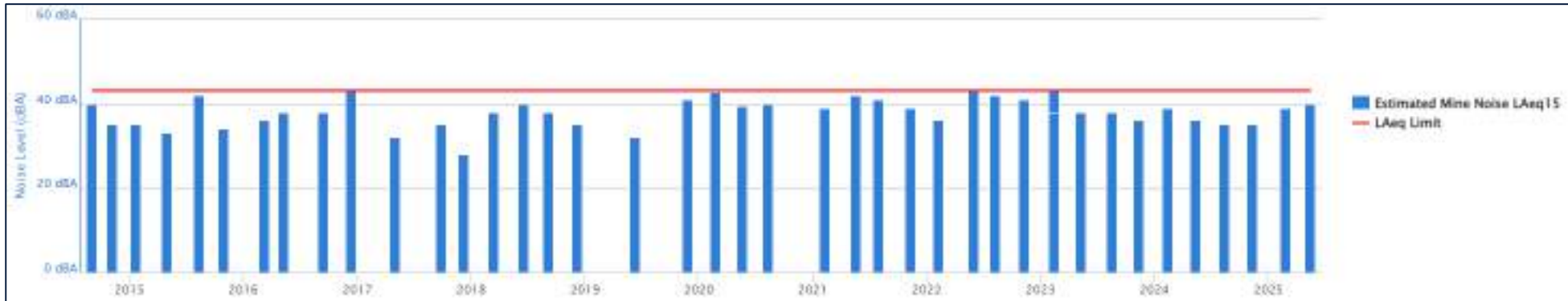
Day



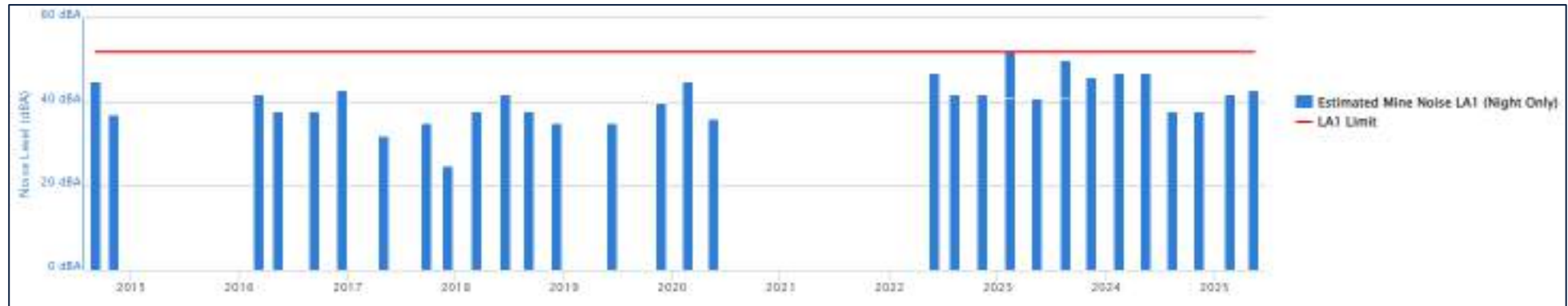
Evening



Night

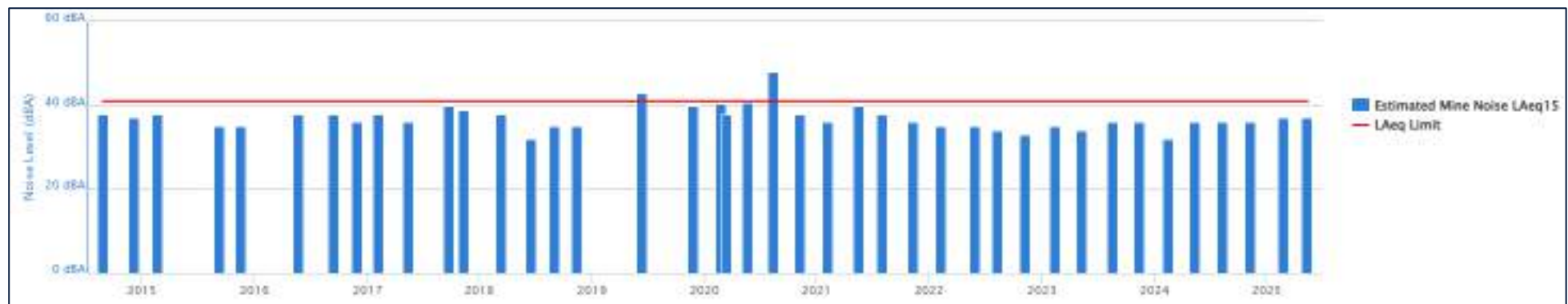


Night – LA1

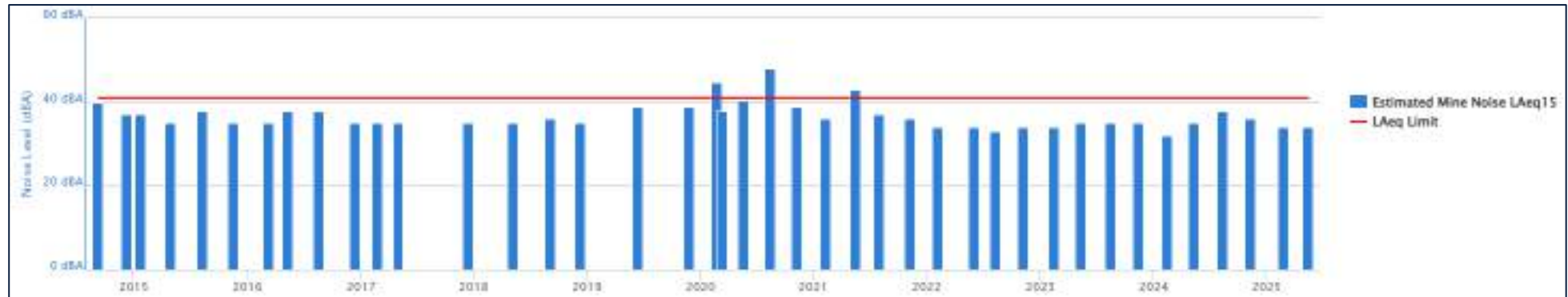


Noise Monitoring Results – AE-NS5

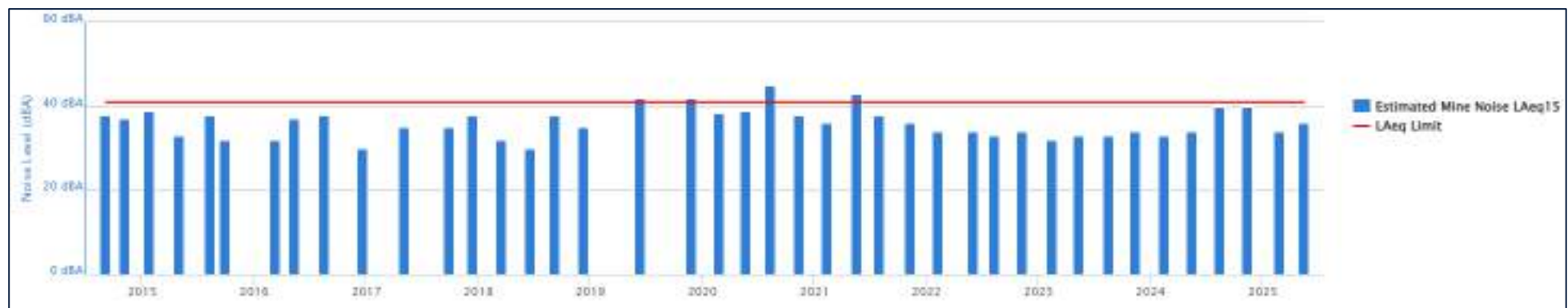
Day



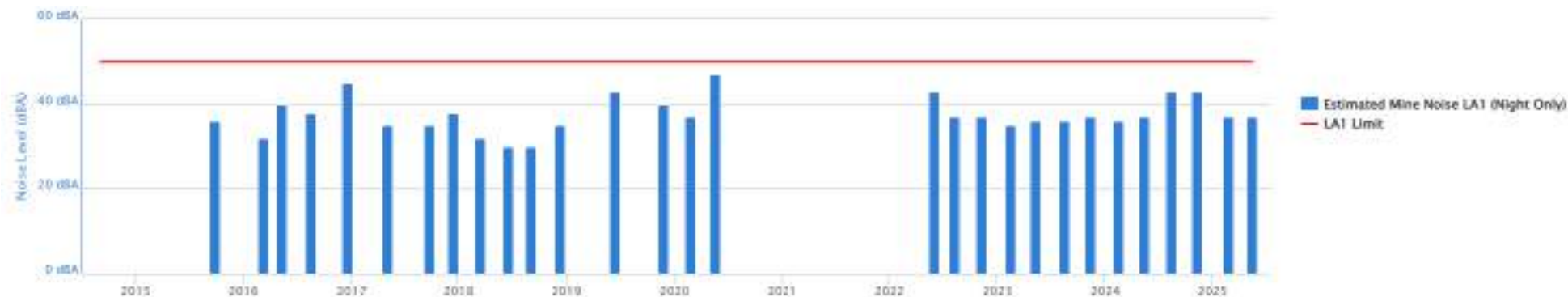
Evening



Night



Night – LA1



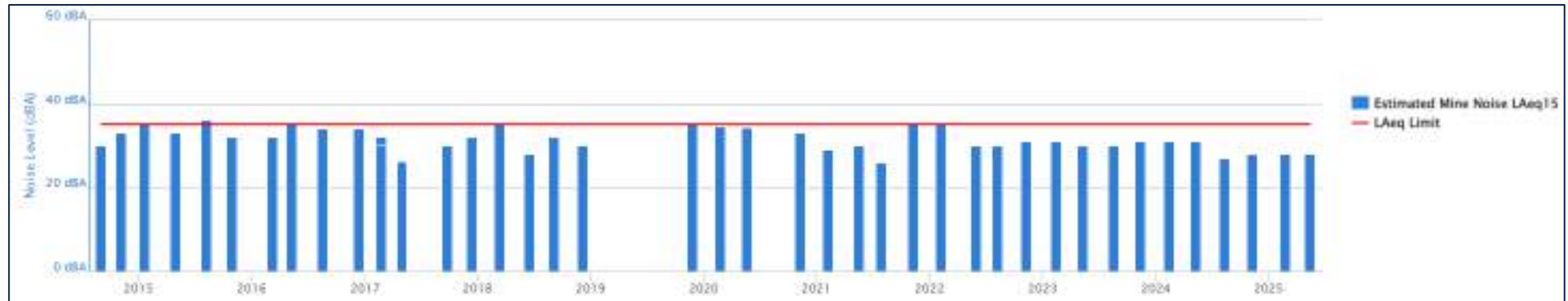
Noise Monitoring Results – AW-NS4

[illegible]

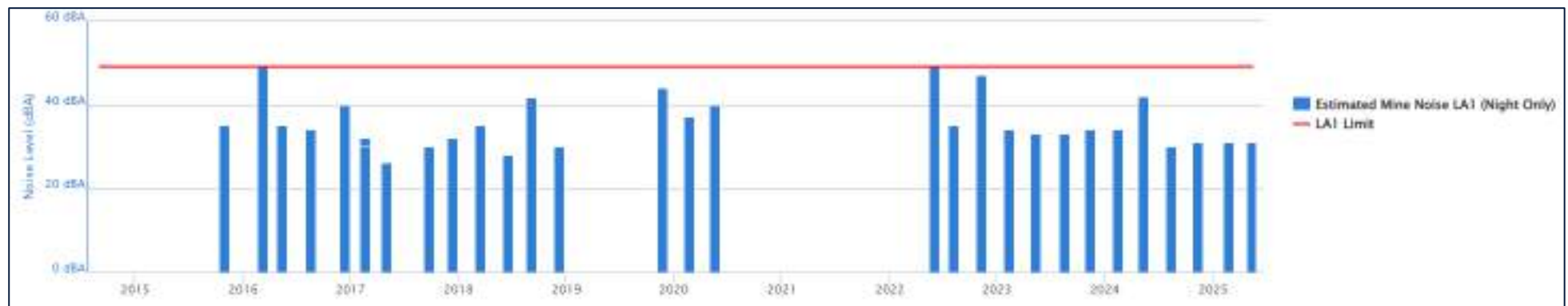
The chart displays the estimated mine noise levels (LAeq15) in dBA for each year from 2015 to 2025. A red horizontal line indicates the LAeq Limit at 38 dBA. The noise levels are generally below the limit, with some years (2017, 2022) reaching or slightly exceeding it.

Year	Estimated Mine Noise LAeq15 (dBA)	LAeq Limit (dBA)
2015	28	38
2015	32	38
2015	35	38
2015	31	38
2015	30	38
2016	30	38
2016	30	38
2016	33	38
2016	33	38
2016	33	38
2017	37	38
2017	34	38
2017	30	38
2018	28	38
2018	35	38
2018	35	38
2018	33	38
2018	36	38
2019	28	38
2020	34	38
2020	33	38
2020	31	38
2020	36	38
2021	29	38
2021	28	38
2022	30	38
2022	37	38
2022	37	38
2023	29	38
2023	34	38
2023	29	38
2023	29	38
2023	28	38
2024	28	38
2024	28	38
2024	28	38
2024	28	38
2024	25	38
2025	28	38
2025	28	38
2025	28	38

Night

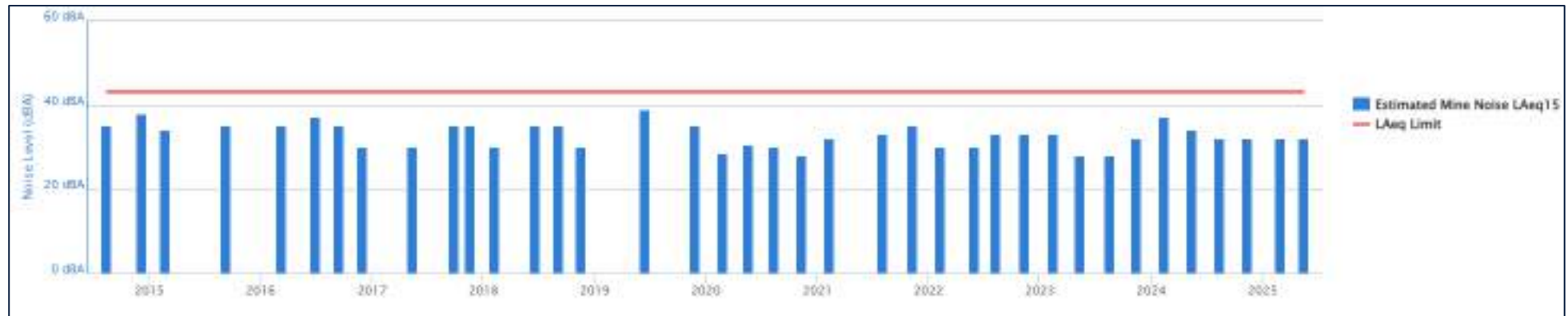


Night – LA1

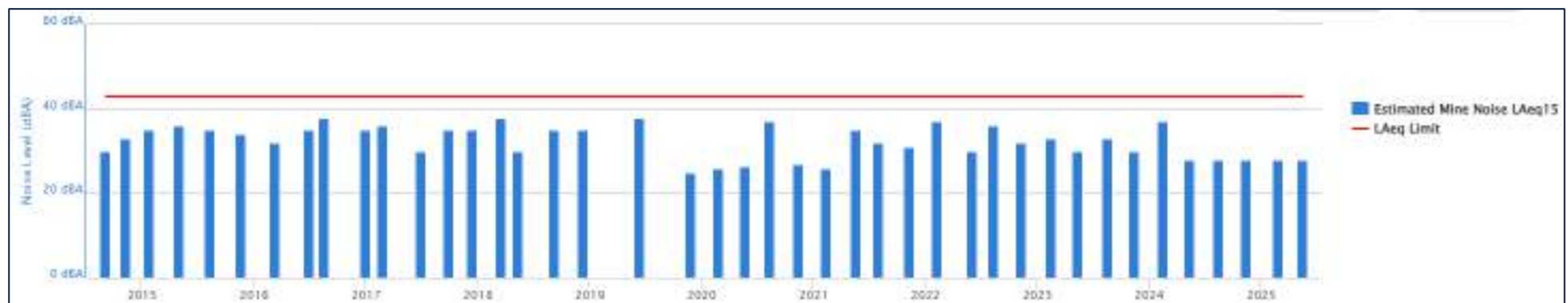


Noise Monitoring Results – AW-NS5

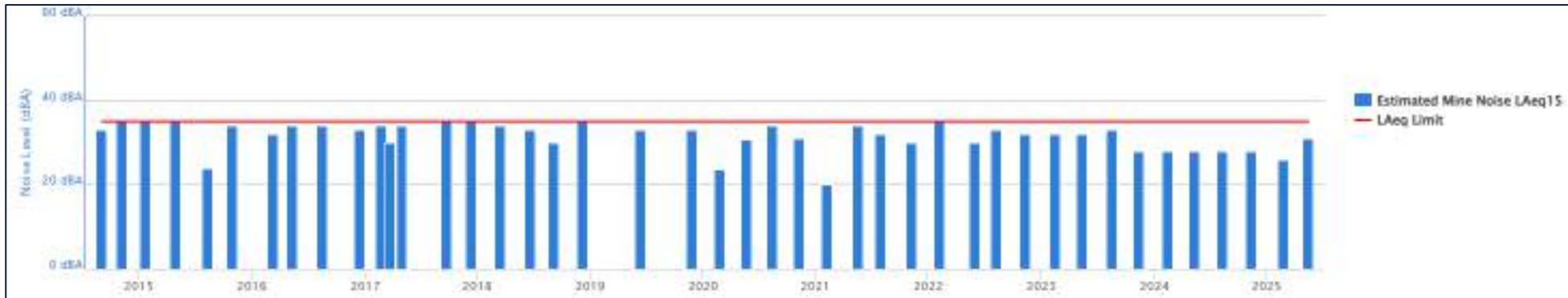
Day



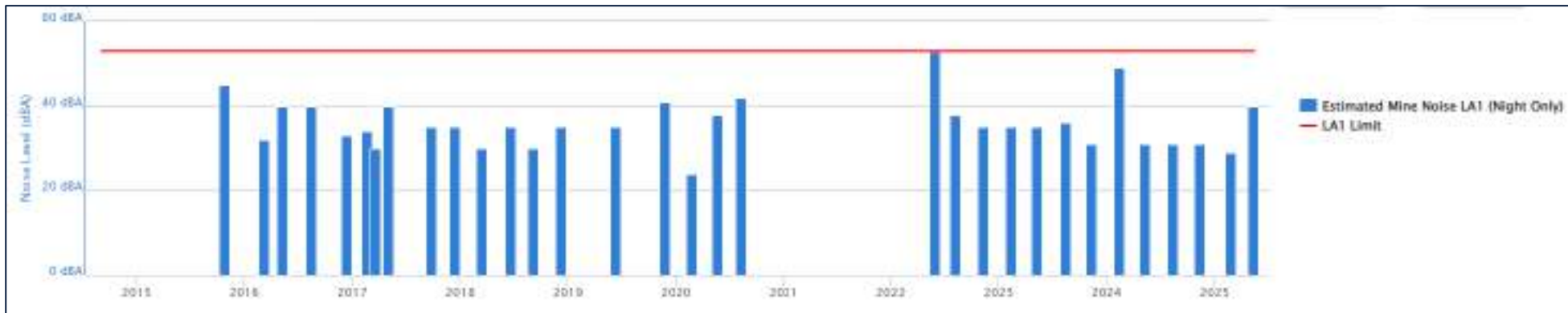
Evening



Night

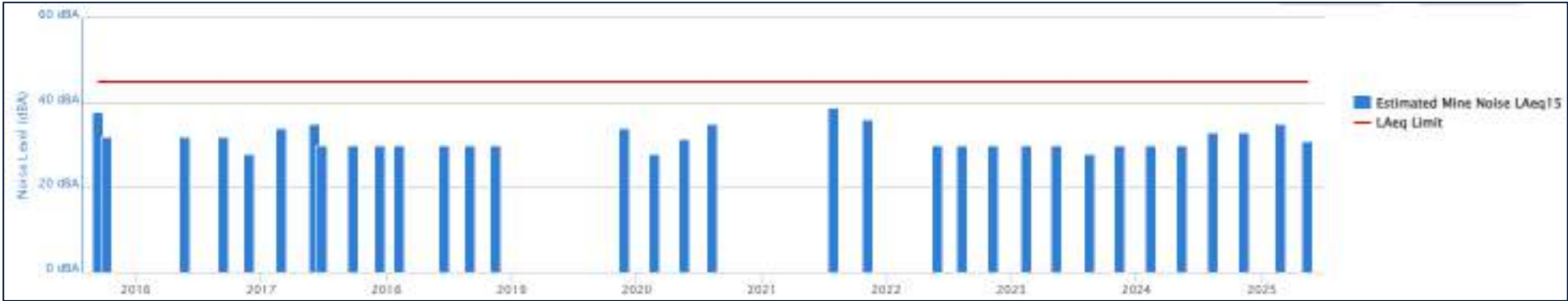


Night – LA1

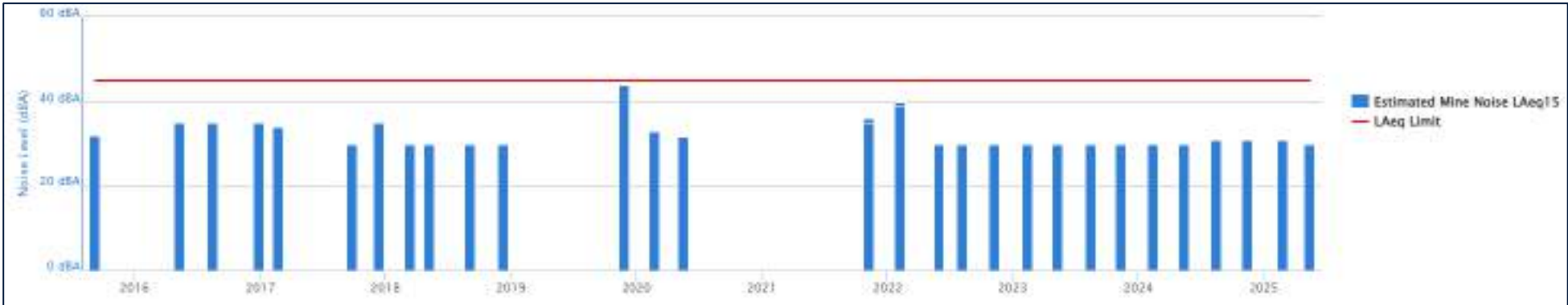


Noise Monitoring Results – VS6 Central

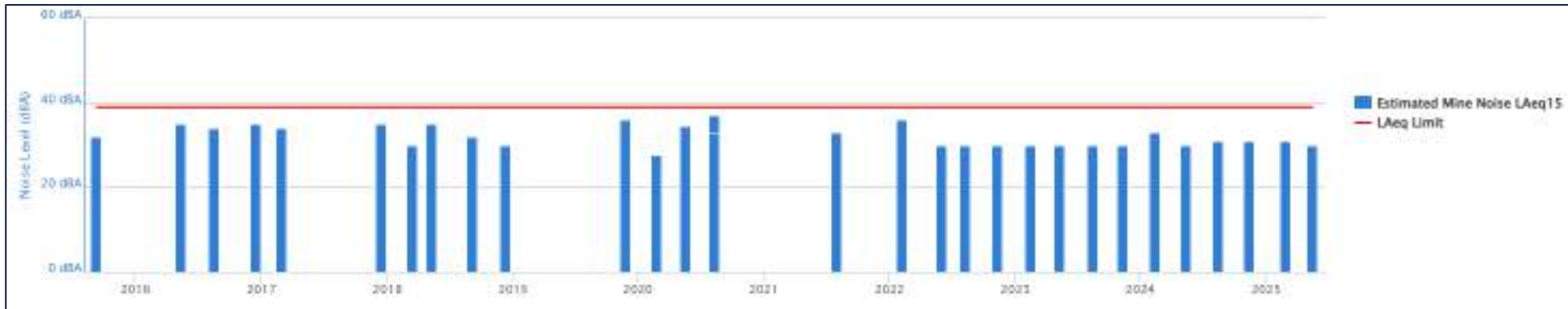
Day



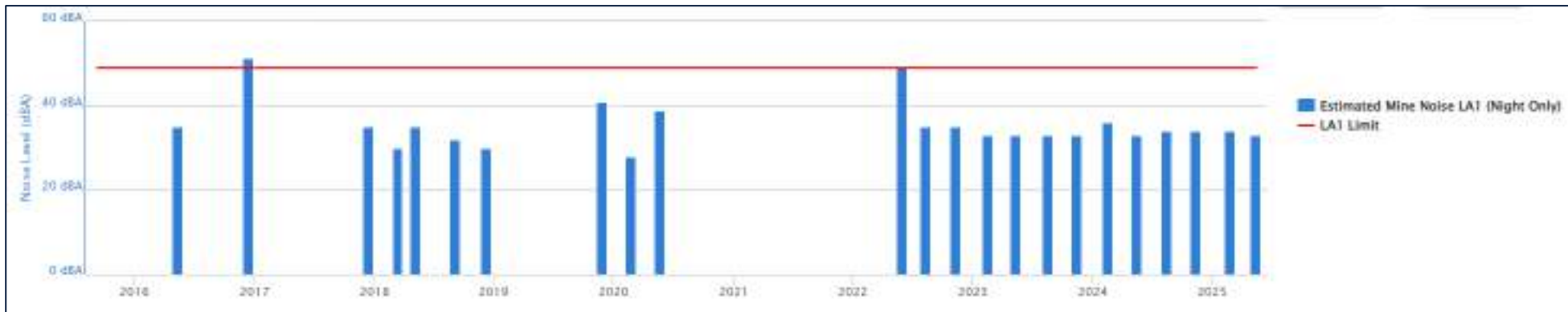
Evening



Night



Night – LA1



Water Quality Monitoring

Water Quality Monitoring Results – Point 3/4

BOD

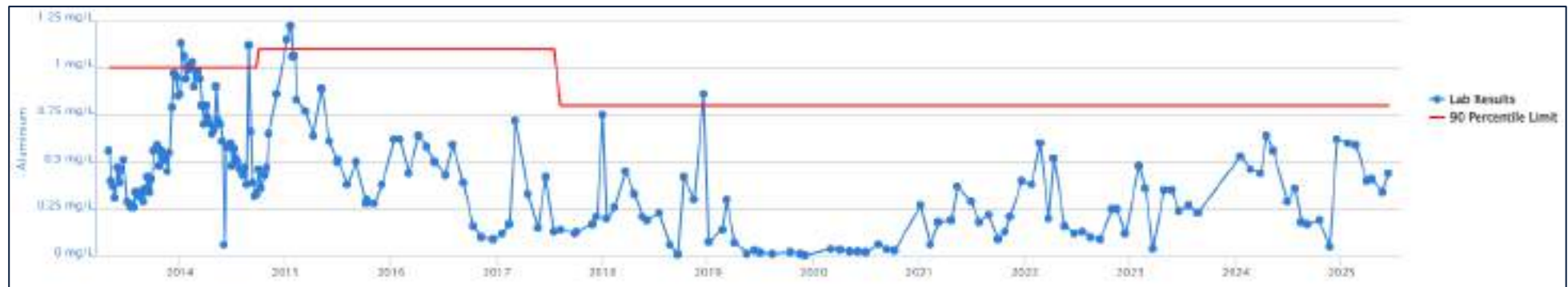


pH

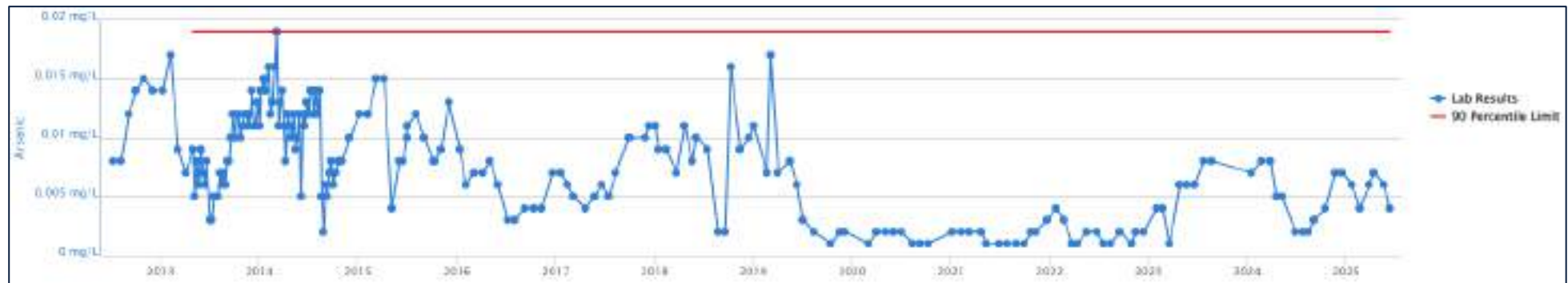


Water Quality Monitoring Results – Point 10 – Grab Sample

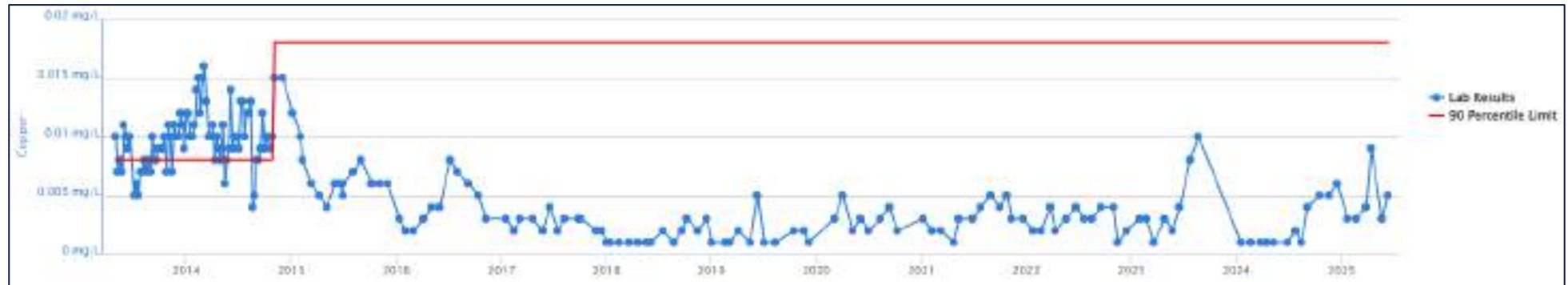
Aluminium



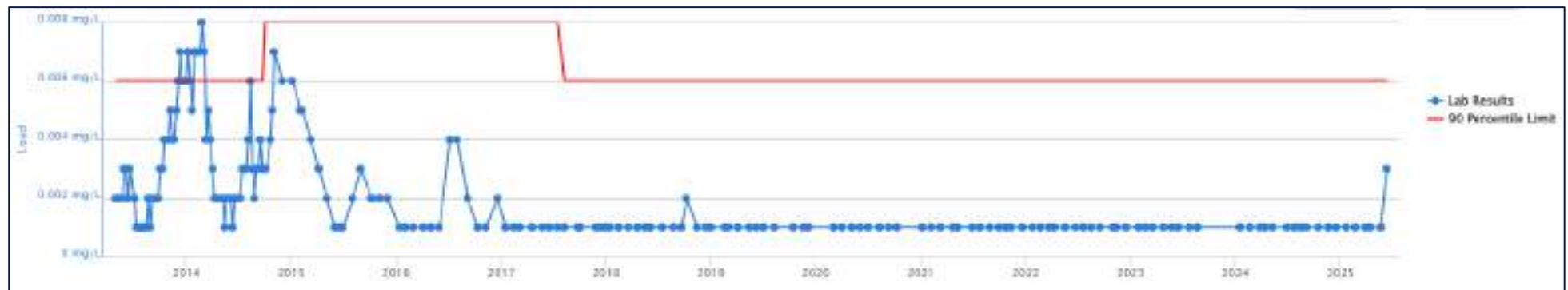
Arsenic



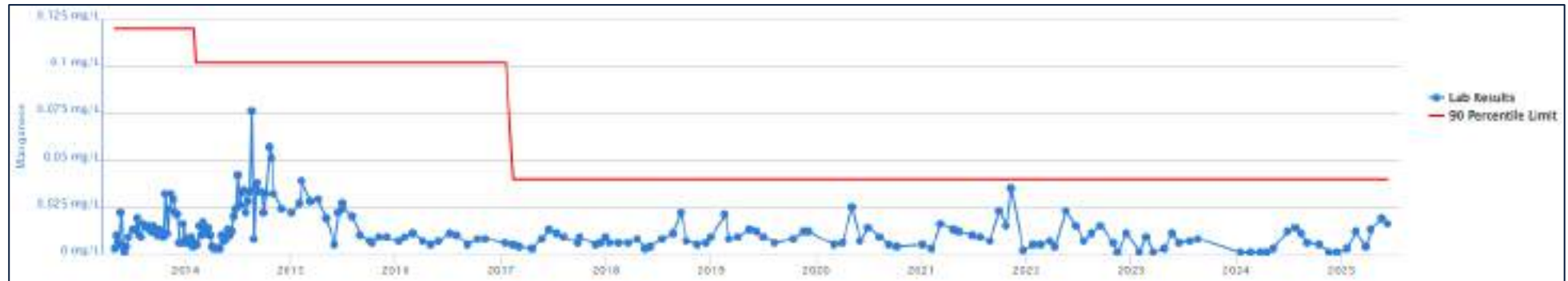
Copper



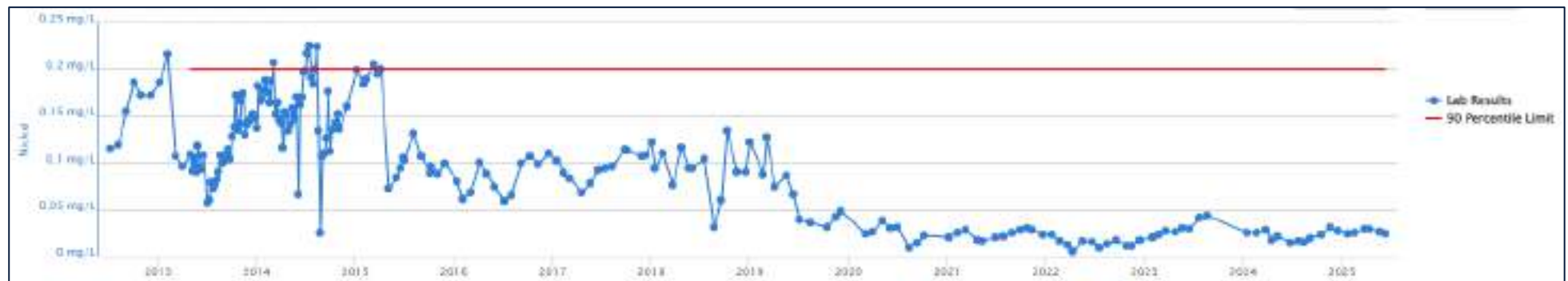
Lead



Manganese



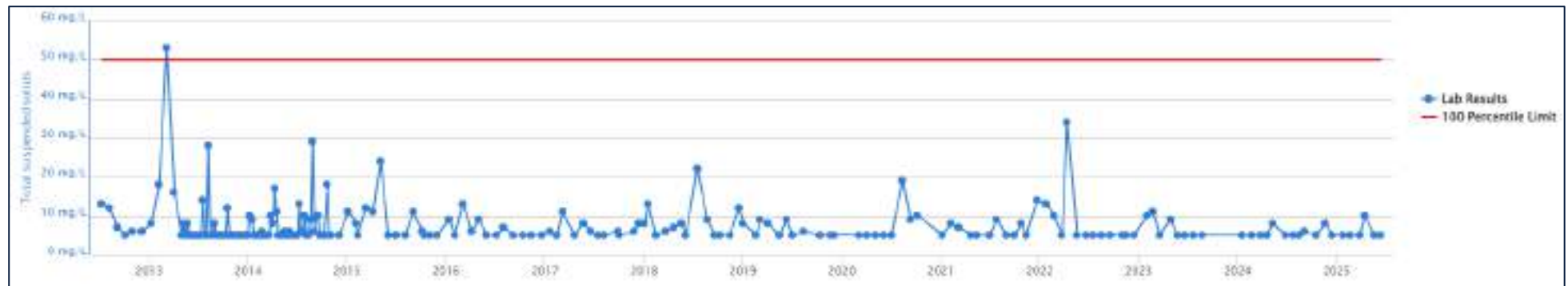
Nickel



pH



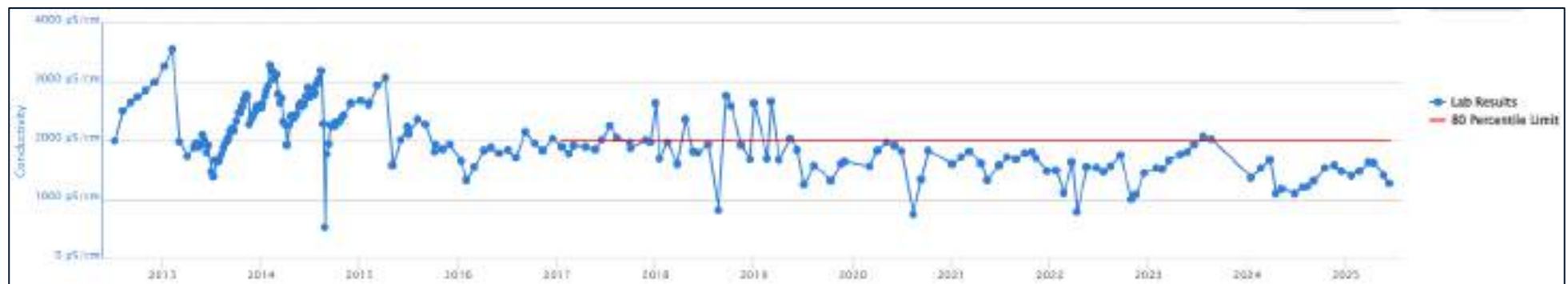
TSS



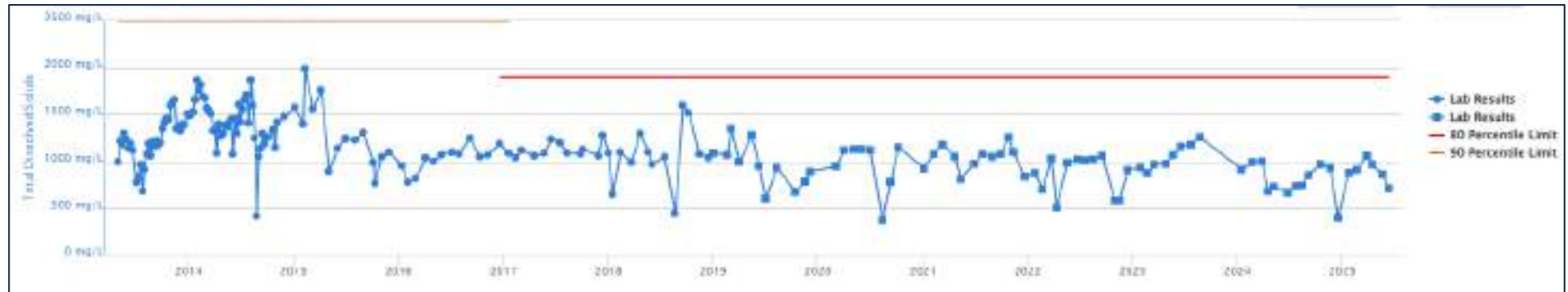
Zinc



EC



TDS

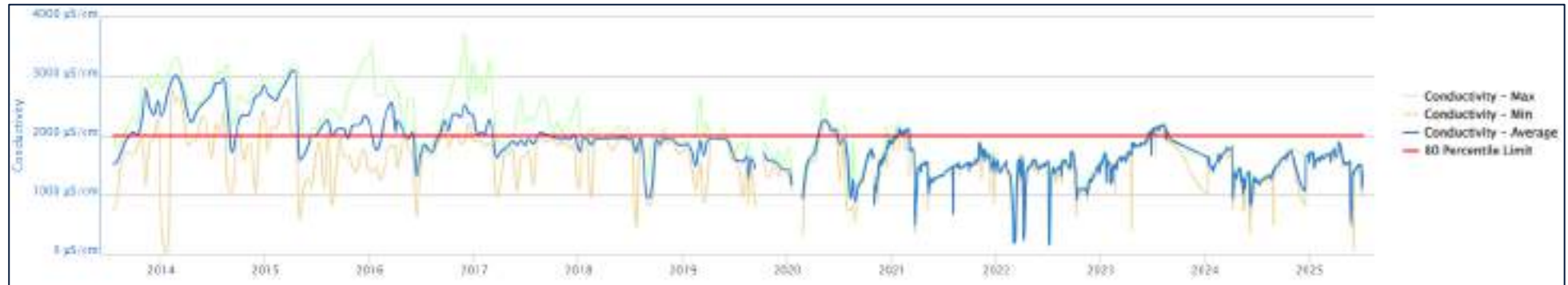


Water Quality Monitoring Results – Point 10 – Continuous Monitoring

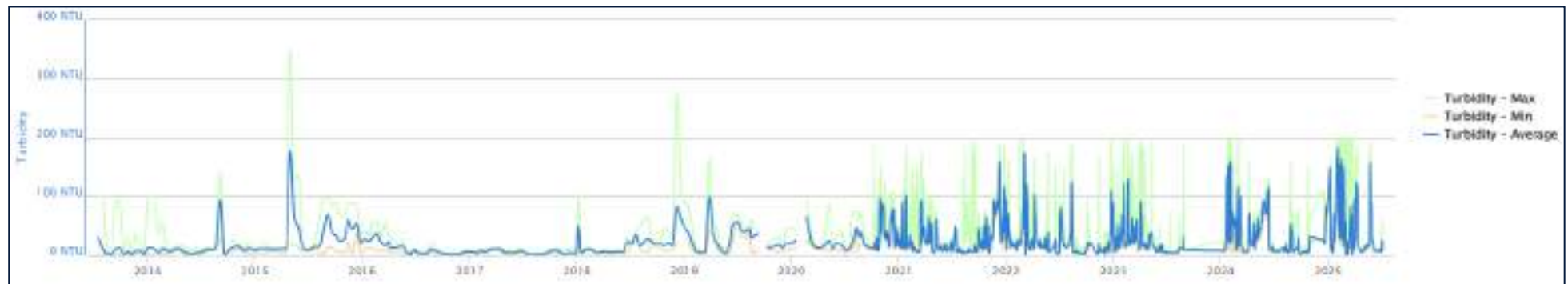
pH



EC

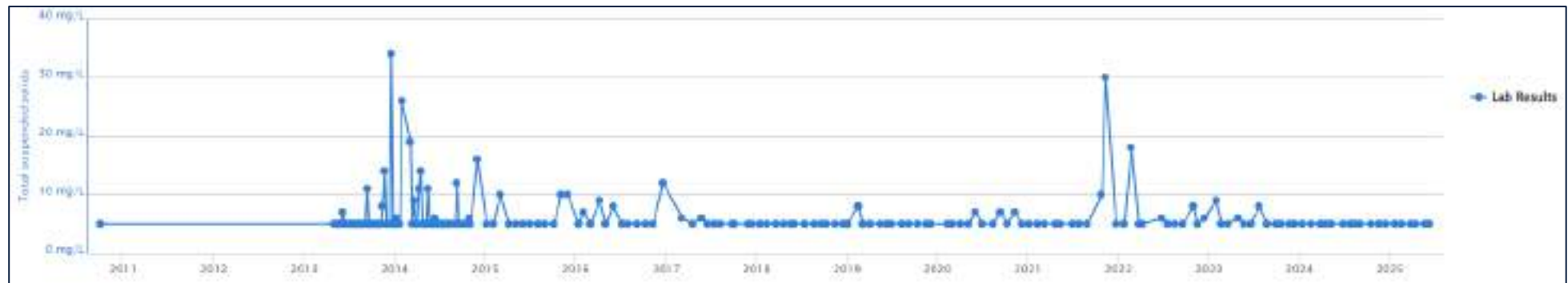


Turbidity

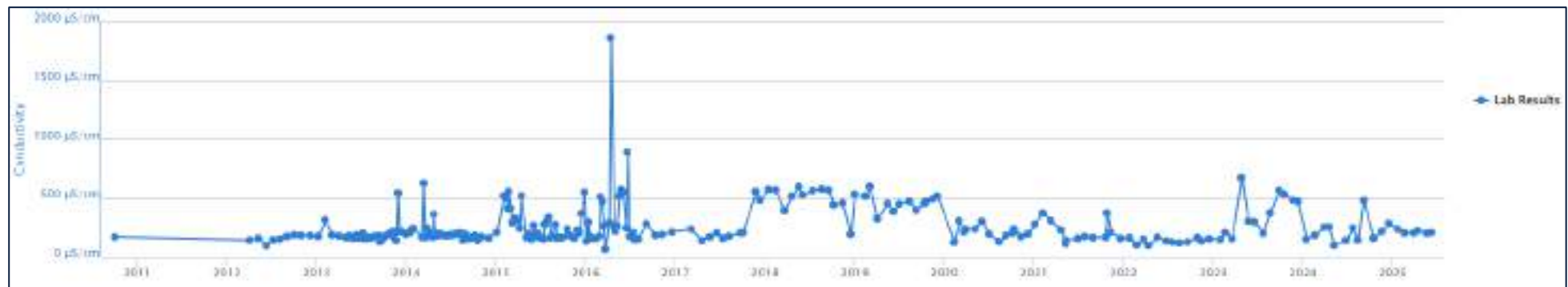


Water Quality Monitoring Results – Point 11 (Grab)

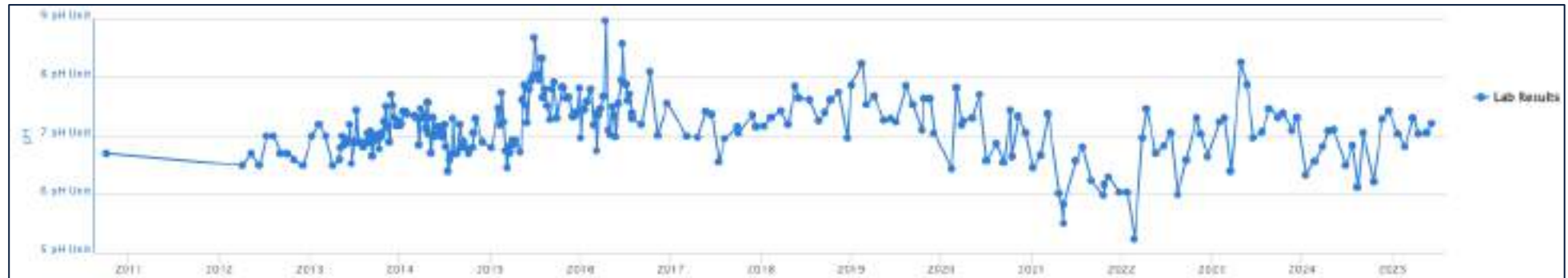
TSS



EC

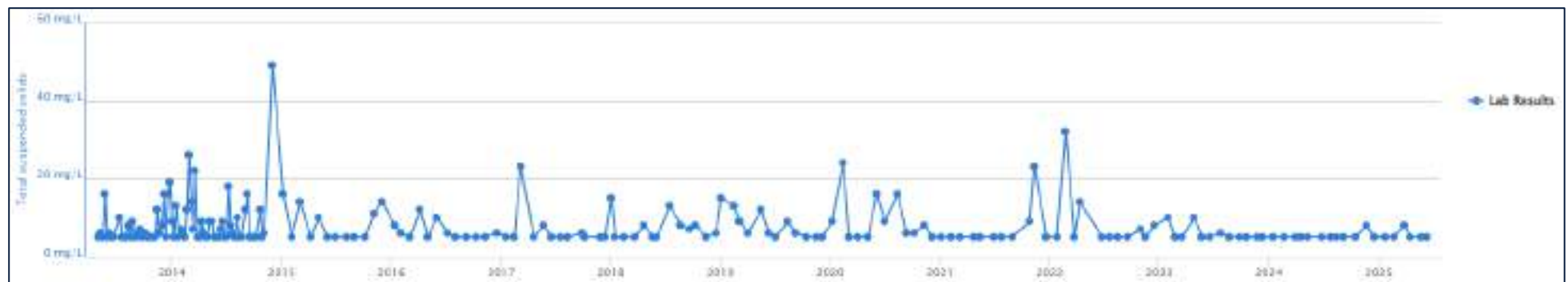


pH

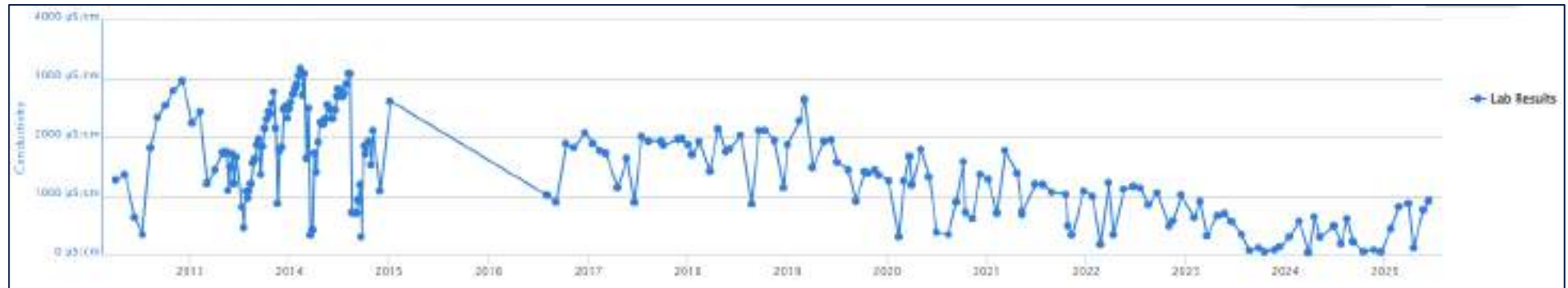


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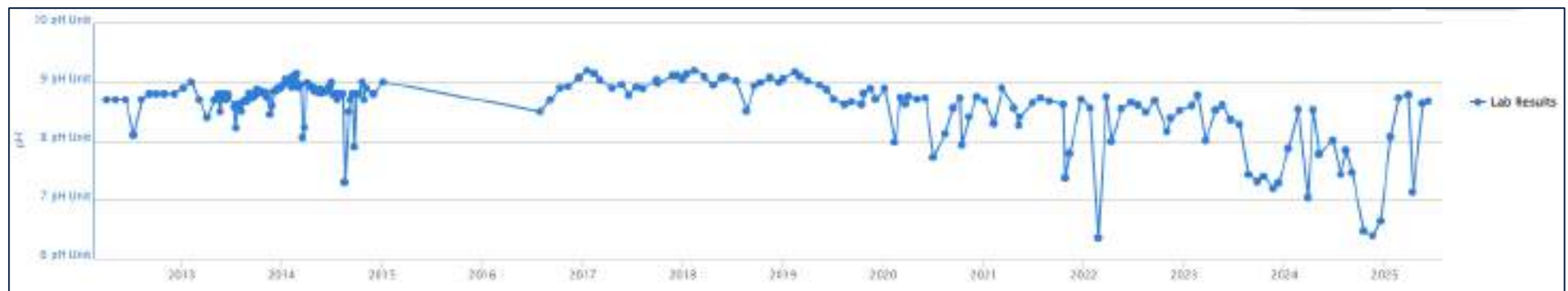
TSS



EC

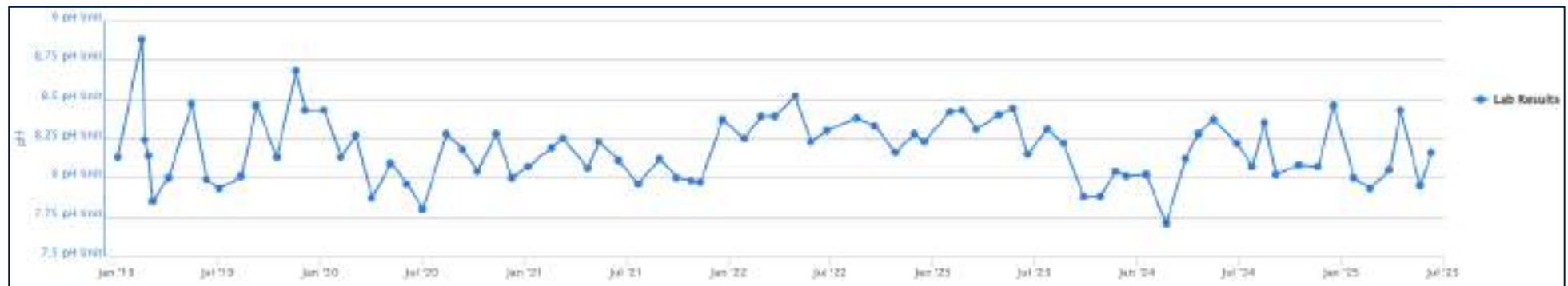


pH

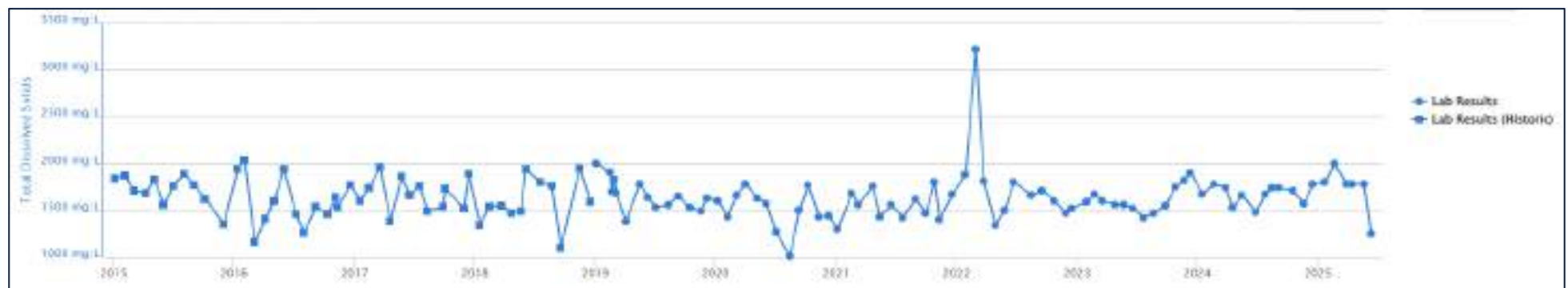


Water Quality Monitoring Results – Point 16

pH



TDS

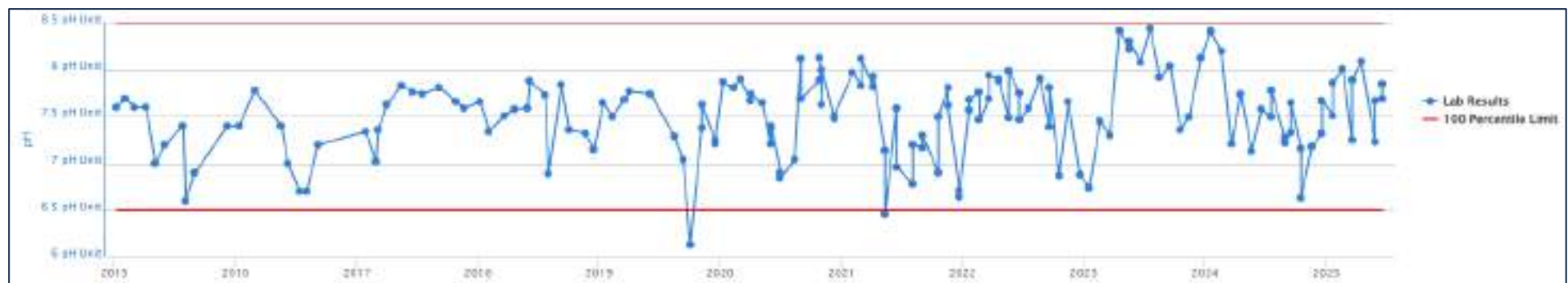


EC

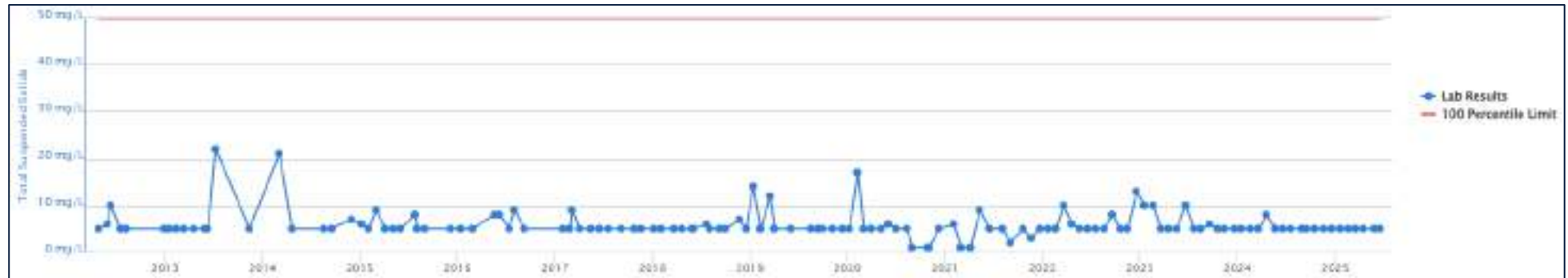


Water Quality Monitoring Results – Point 19

pH

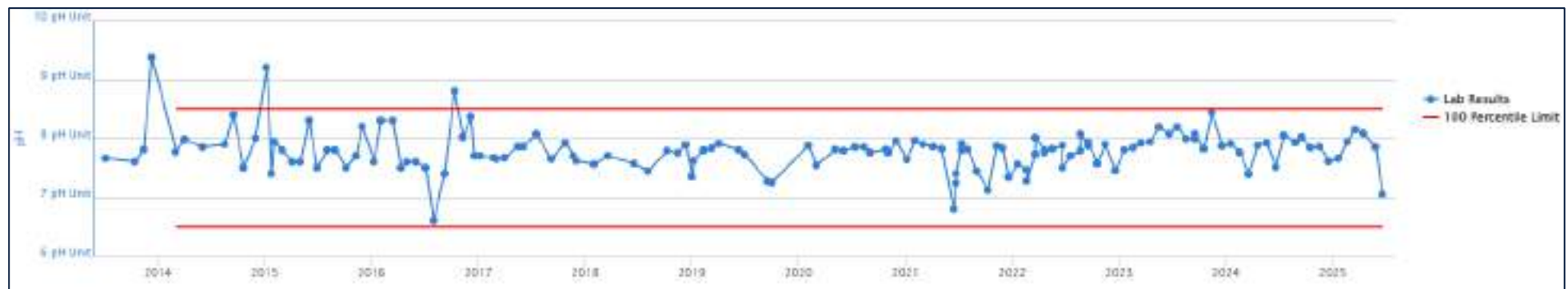


TSS

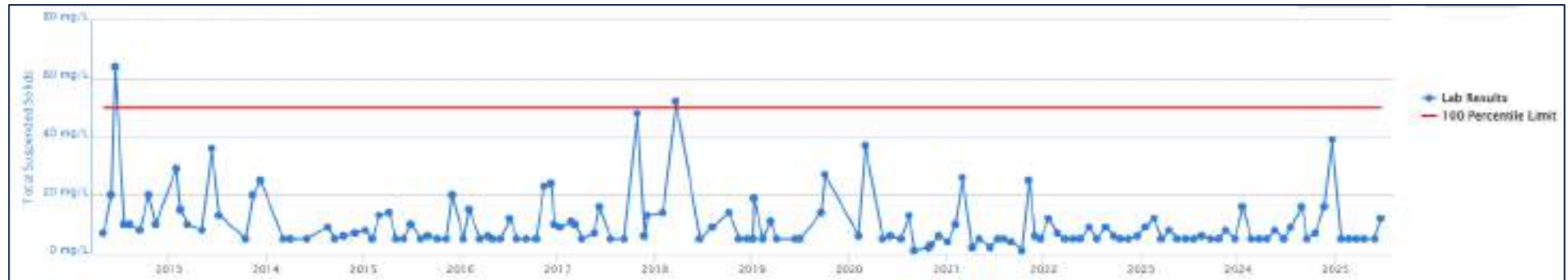


Water Quality Monitoring Results – Point 23 (Grab)

pH



TSS

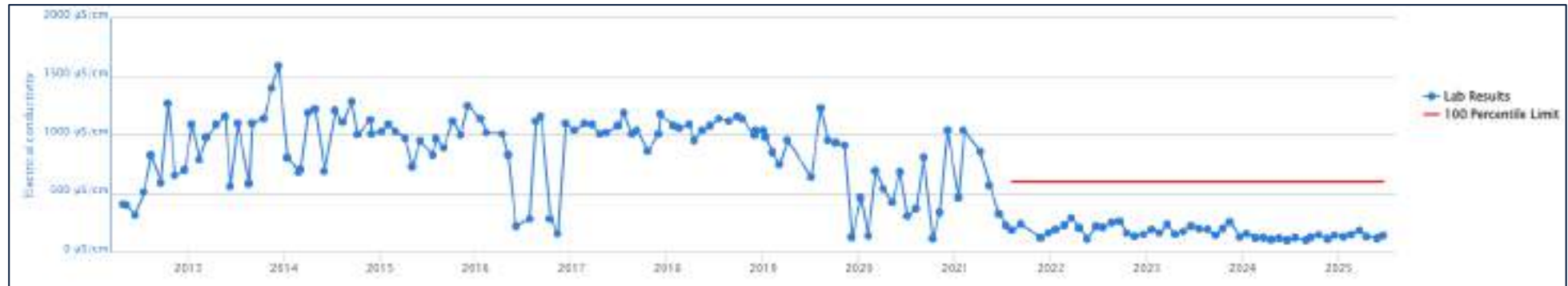


Water Quality Monitoring Results – Point 24 (Grab)

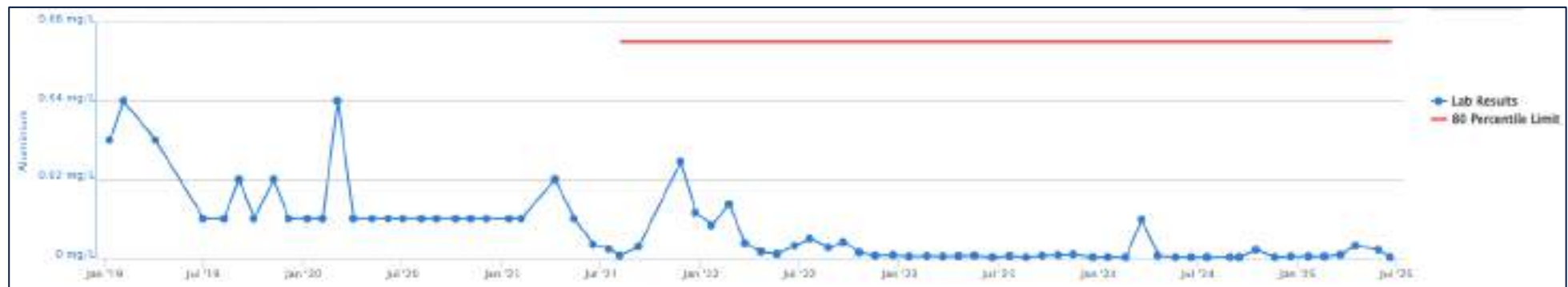
pH



EC



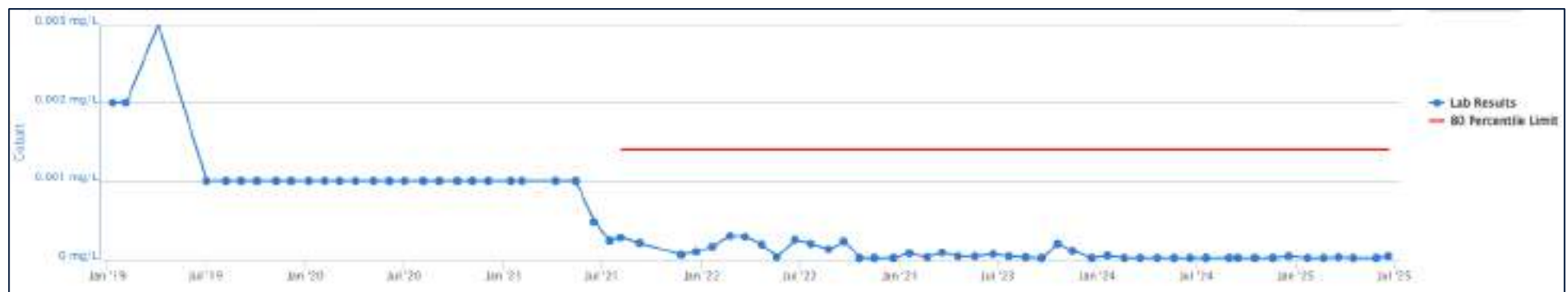
Aluminium



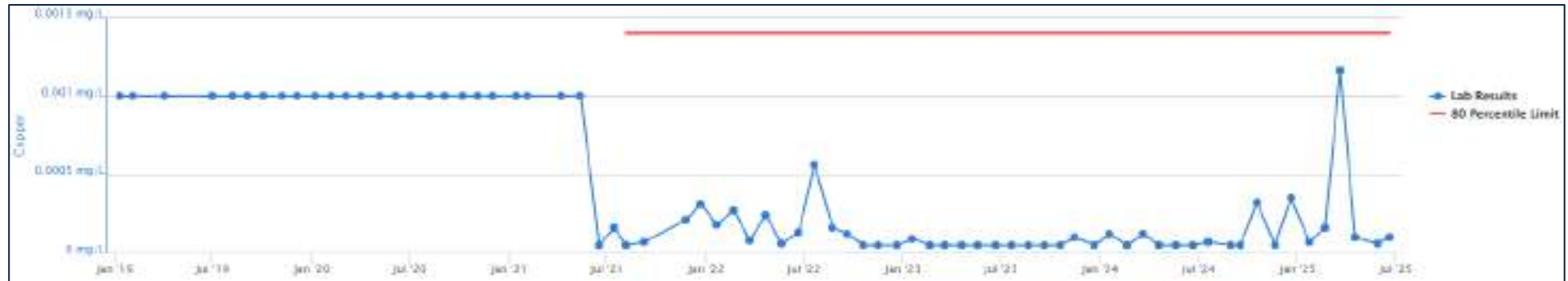
Bicarbonate Alkalinity



Cobalt



Copper



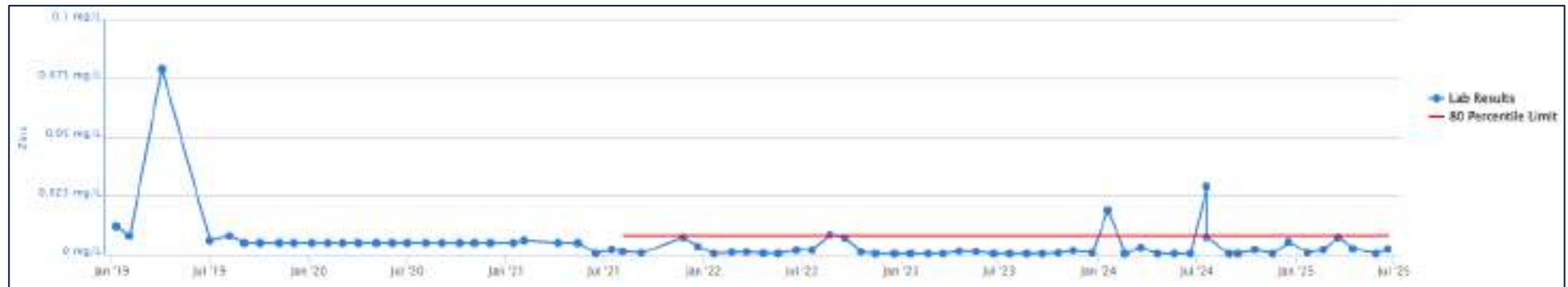
Nickel



Total Nitrogen



Zinc



Water Quality Monitoring Results – Point 24 (Continuous)

pH

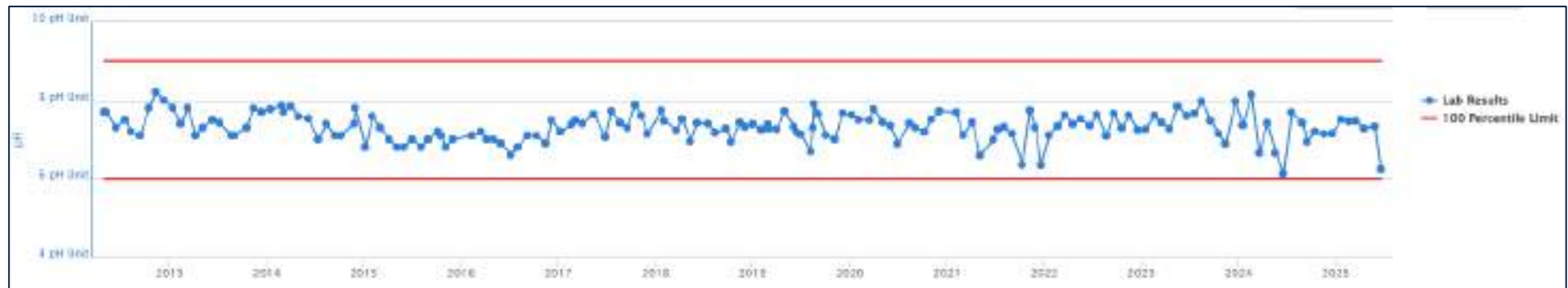


EC

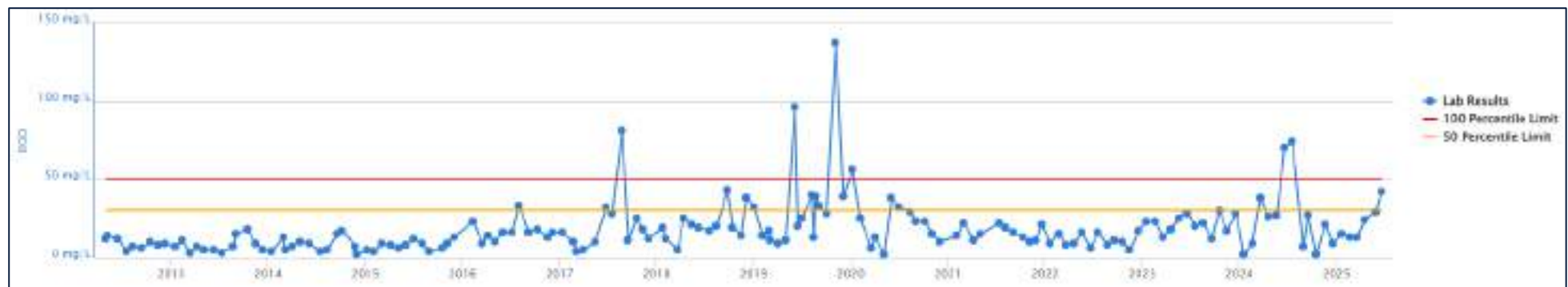


Water Quality Monitoring Results – Point 38 (Grab)

pH



BOD

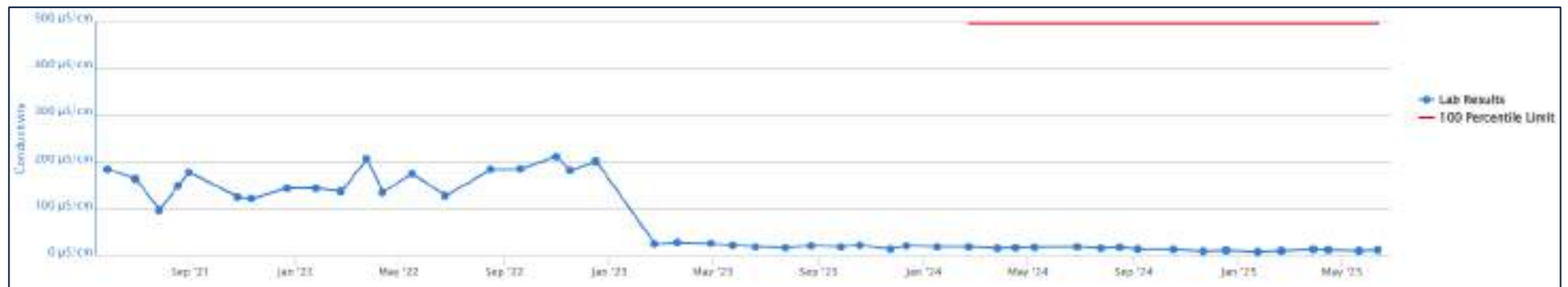


Water Quality Monitoring Results – Point 40 (Grab)

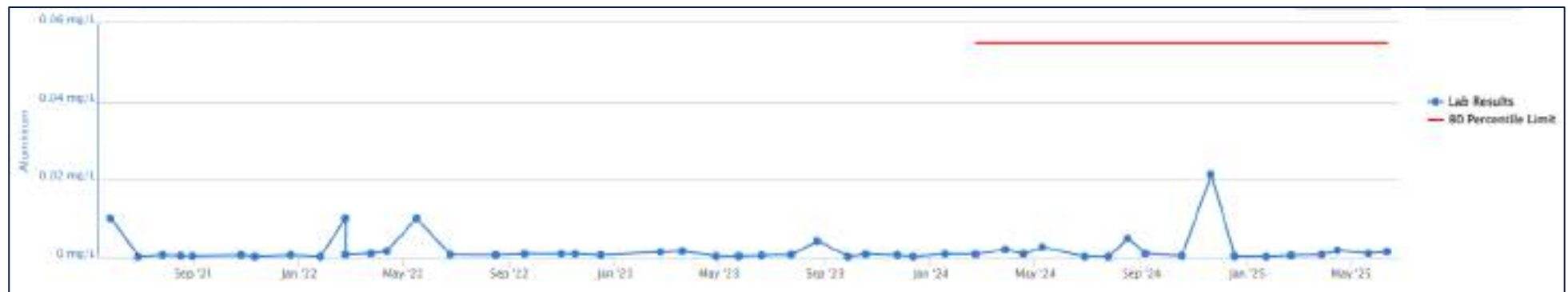
pH



EC



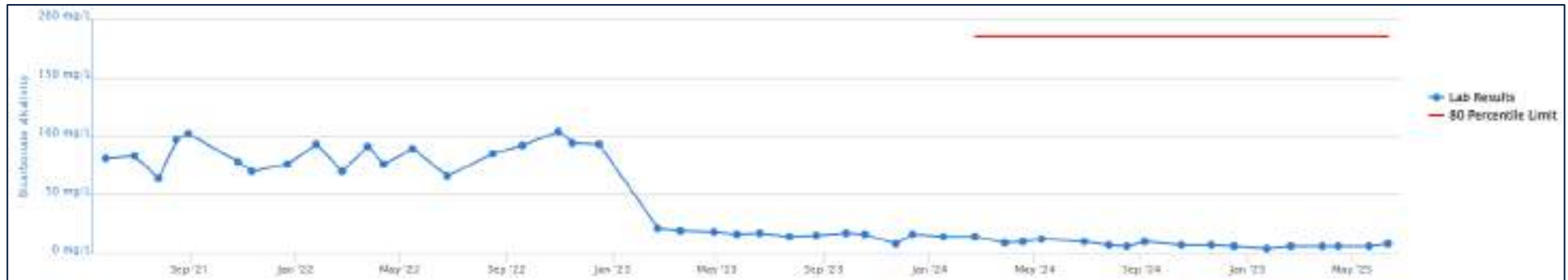
Aluminium



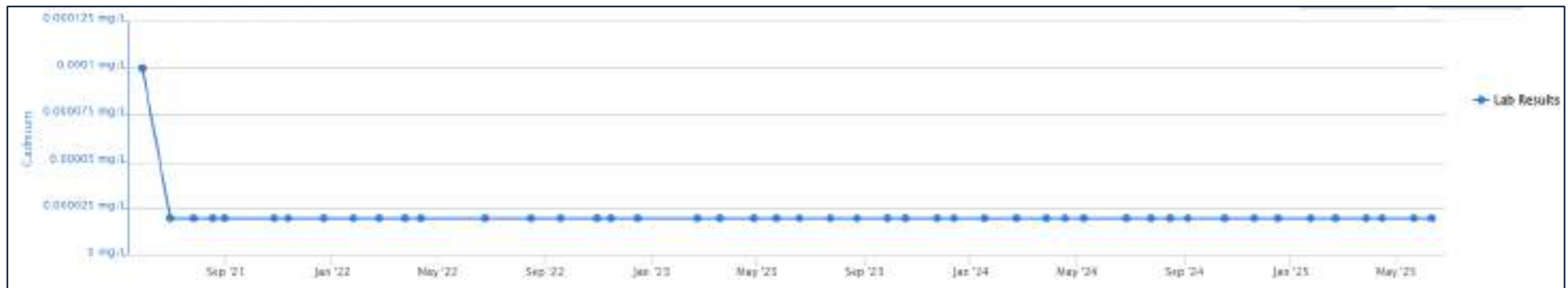
Arsenic



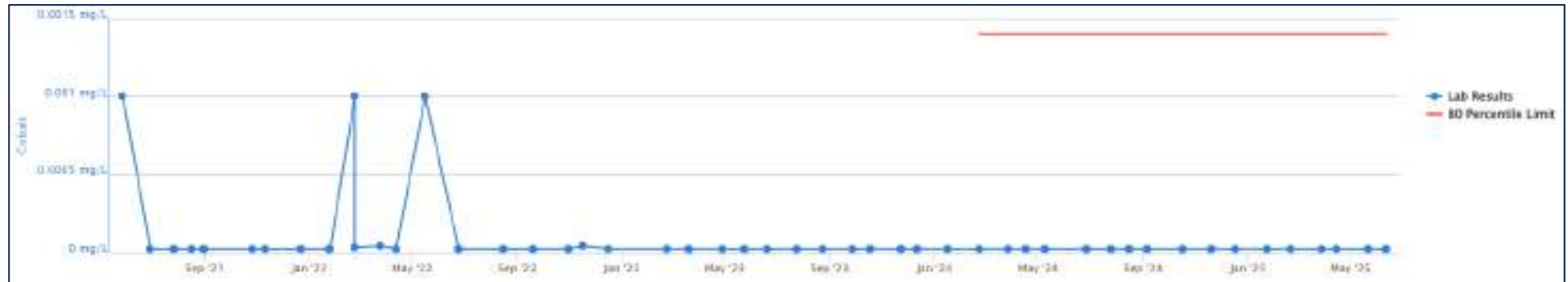
Bicarbonate alkalinity



Cadmium



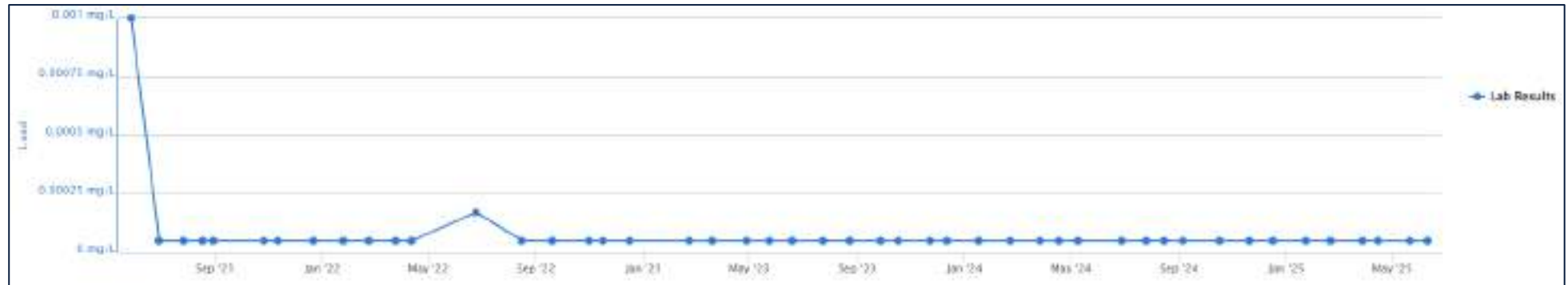
Cobalt



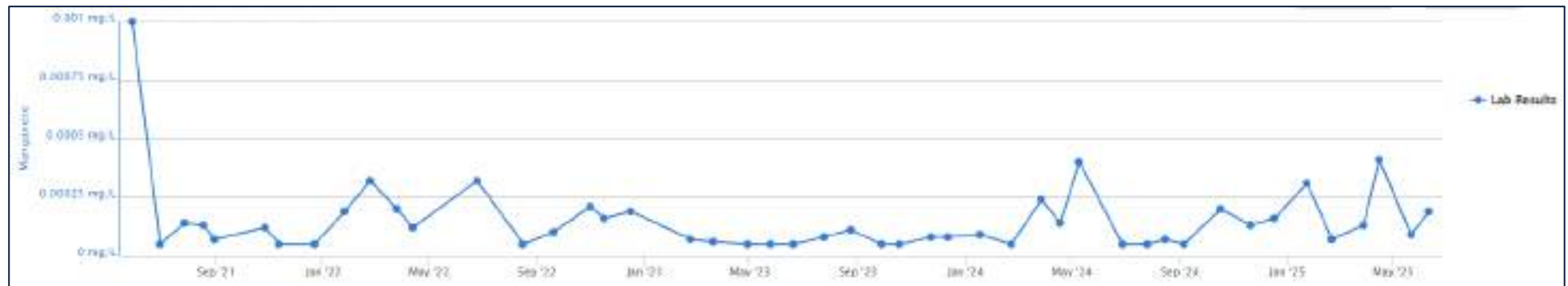
Copper



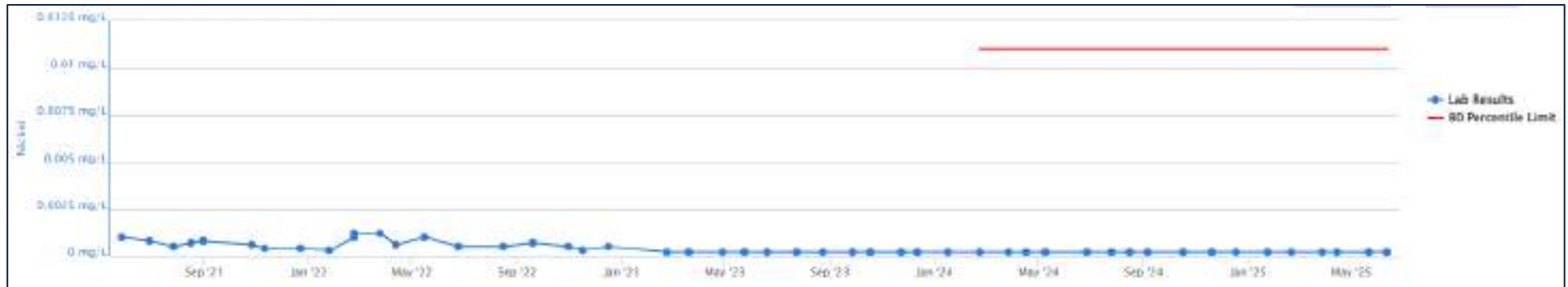
Lead



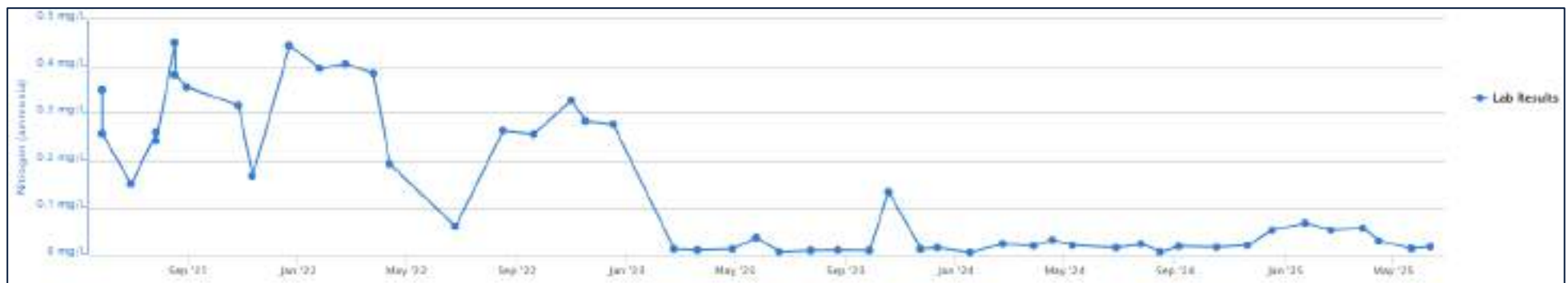
Manganese



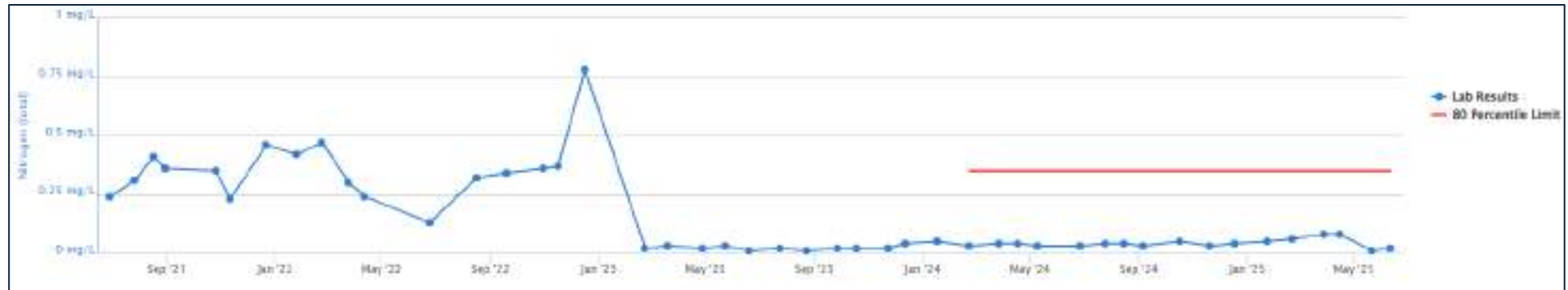
Nickel



Nitrogen (ammonia)



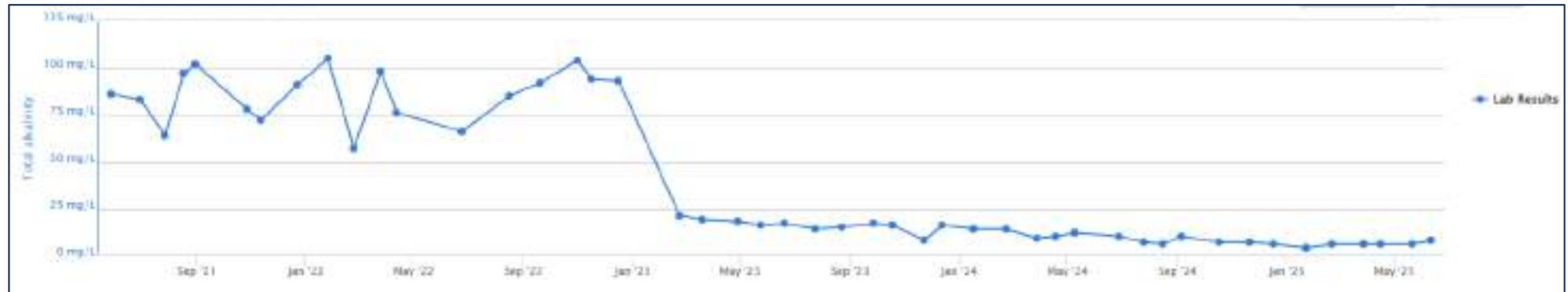
Total Nitrogen



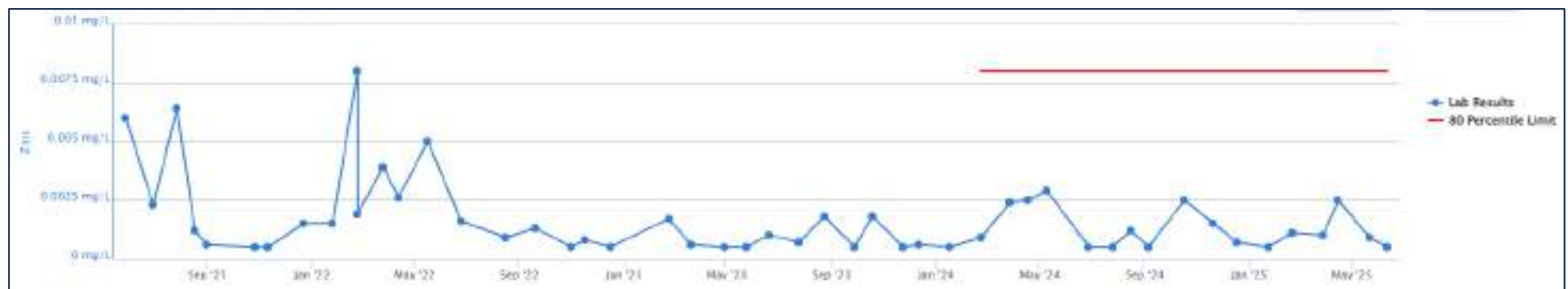
Oxidised nitrogen



Total Alkalinity



Zinc



Water Quality Monitoring Results – Point 41 (Grab)

pH

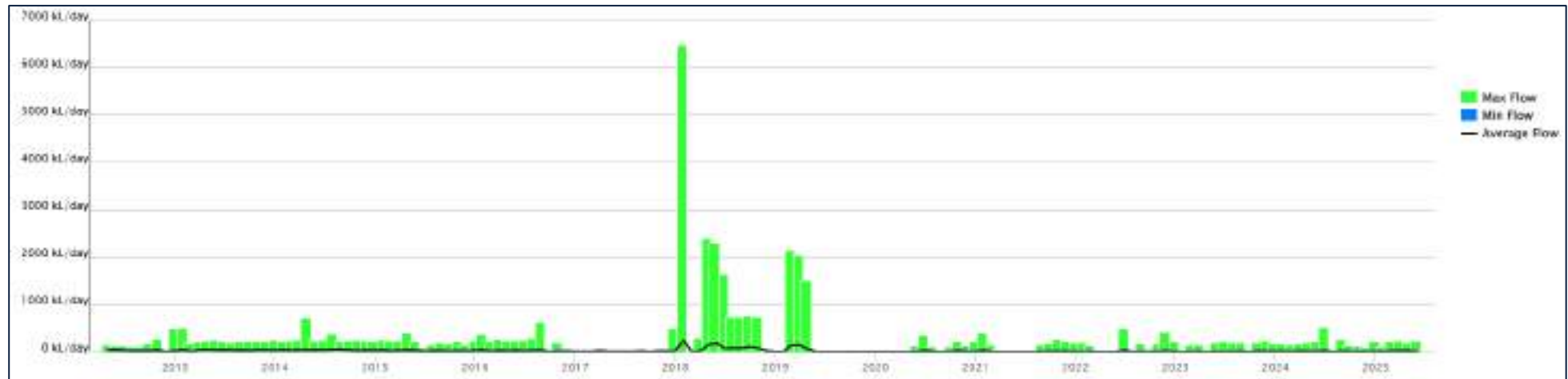


TSS

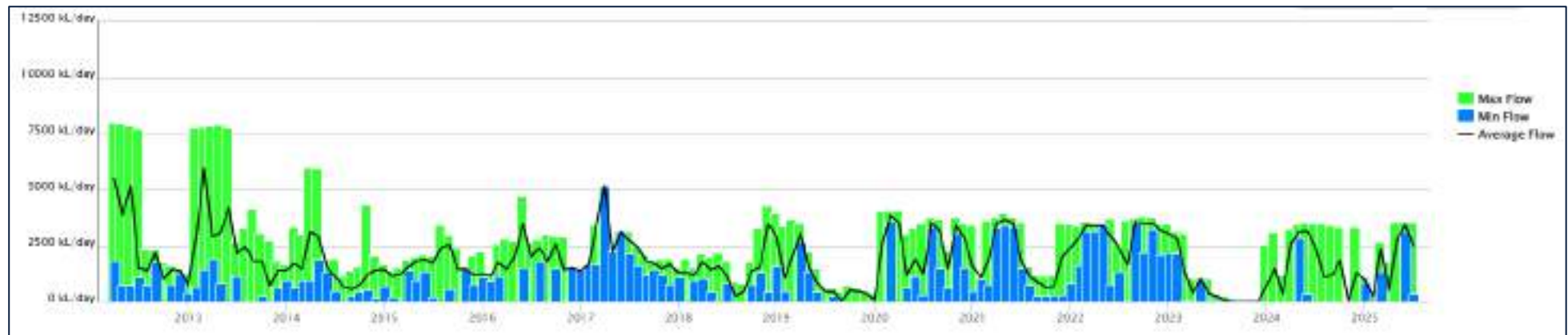


Discharge Monitoring

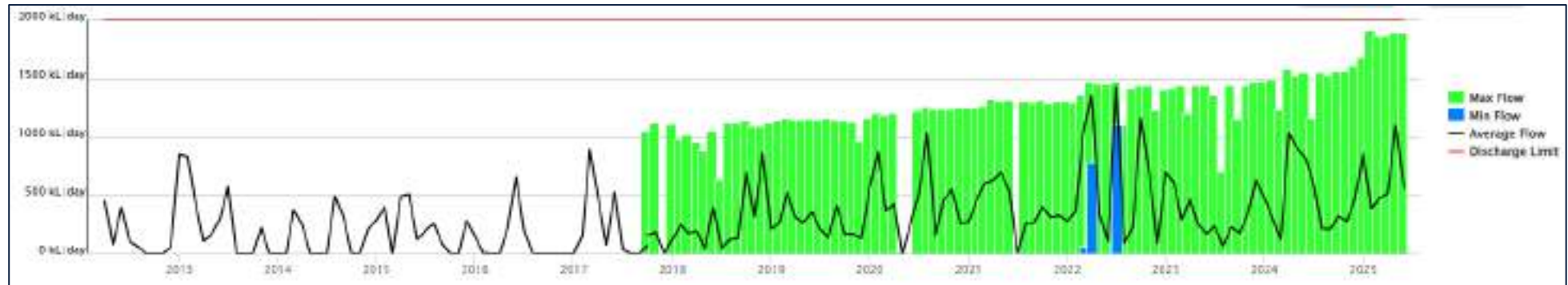
Volume Monitoring Results – Point 4



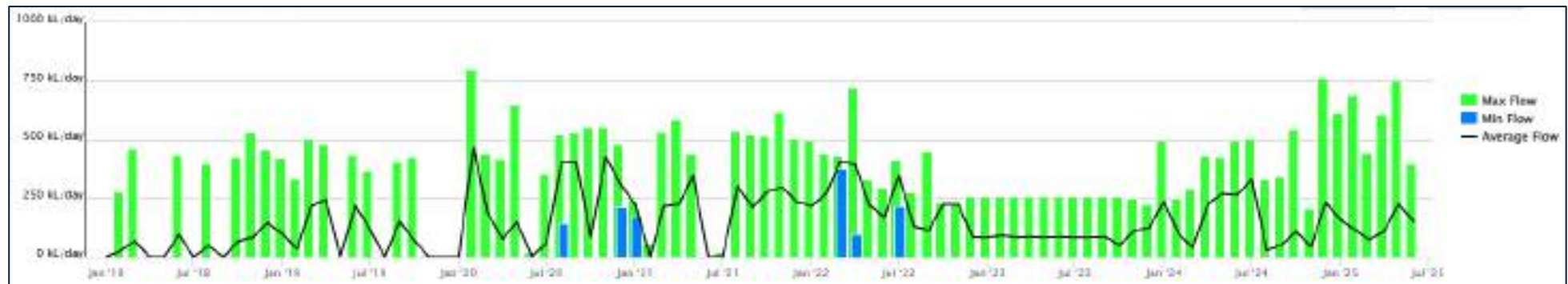
Volume Monitoring Results – Point 10



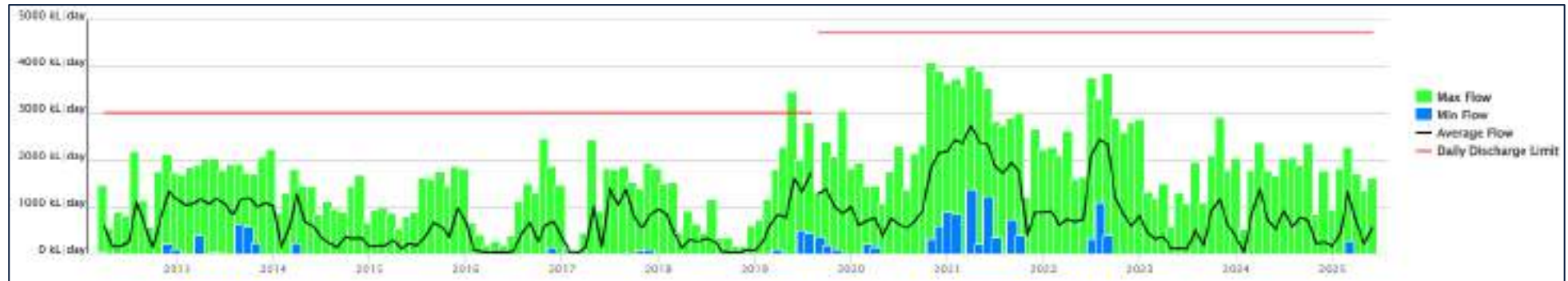
Volume Monitoring Results – Point 19



Volume Monitoring Results – Point 23



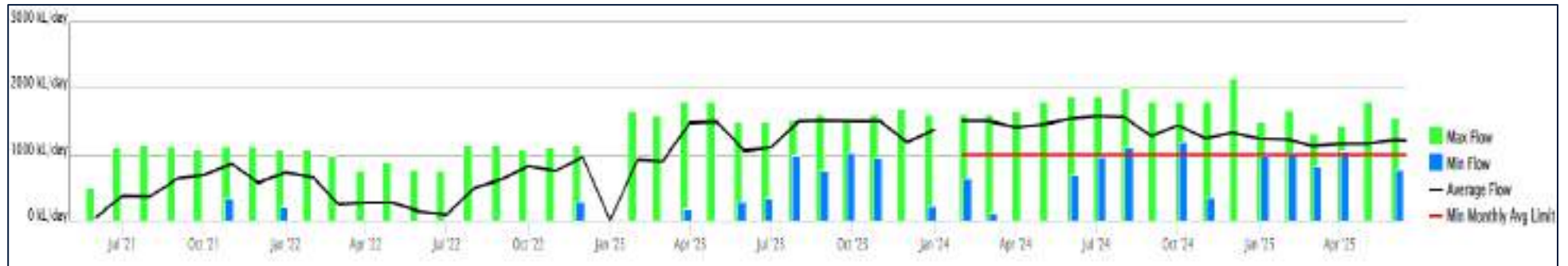
Volume Monitoring Results – Point 24



Volume Monitoring Results – Point 38



Volume Monitoring Results – Point 40



Appendix 5: Annual CWEA Rehabilitation Report

Monitoring Report - Emplacement Rehabilitation Year 14

Illawarra Coal Holdings Pty Ltd 23 June 2025

Table of Contents

1	Introduction	4
1.1	Requirement for Monitoring.....	4
1.2	Purpose of this Report	6
2	Survey Design	7
2.1	Aim.....	7
2.2	Key Performance Criteria	7
2.3	Methods.....	7
3	Results	14
3.1	Native Plant Species Richness	14
3.2	Native Tree Cover	17
3.3	Native Shrub Cover.....	19
3.4	Native Grass/Grass-like Cover	21
3.5	Native Forb Cover	23
3.6	Native Fern Cover	24
3.7	Native Other Cover	24
3.8	HTW Cover.....	25
3.9	Threatened flora	25
3.10	BAM habitat features	25
3.11	Vegetation Integrity.....	28
3.12	Photo-Point Monitoring	28
3.13	Camera traps	29
3.14	Bee hotel occupancy	31
3.15	Broad-headed Snake Habitat	33
3.16	Nest boxes occupancy.....	34
4	Discussion.....	39
4.1	Stage 1.....	39
4.2	Stage 2.....	40
4.3	Stage 3.....	41
4.4	HTW Cover (All Stages)	42
4.5	Fauna monitoring	42
5	Conclusions and recommendations.....	43
5.1	Vegetation monitoring.....	43
5.2	Weed management	43
5.3	Threatened fauna habitat	43
5.4	Bee hotel occupancy	43
5.5	Remote camera trapping.....	44
5.6	Broad-headed Snake	44

5.7	Nest boxes	44
6	Completion Criteria	46
7	References	54
	Annex 1: Figures.....	56
	Annex 2: BAM Monitoring Plot Score Cards	62
	Stage 1.....	62
	Stage 2.....	65
	Stage 3.....	76
	Annex 3: Photo Point Monitoring	79
	Annex 4: Camera traps (fauna found)	90
	Annex 5: Bee hotels.....	93
	Annex 6: BAM Data Export 2024	94
	Annex 7: 2024 Floristics.....	96

1 Introduction

1.1 Requirement for Monitoring

1.1.1 Stage 3 Consent

The development consent for the Stage 3 Emplacement at Appin North Colliery (formerly West Cliff) within the Coal Wash Emplacement Area (CWEA) (the site) required Illawarra Coal Holdings Pty Ltd (ICHPL; formerly Illawarra Metallurgical Coal) trading as GM3 to implement a formal monitoring program for all past, current, and future emplacement rehabilitation activities on the site. The Stage 3 consent was replaced by the Bulli Seam Operations (BSO) Part 3A and EPBC Act approvals in 2011.

1.1.2 BSO Part 3A and EPBC Act Approvals

GM3 received Project Approval for current and proposed operations within the BSO for 30 years from the:

- NSW Department of Planning and Environment (DPE) under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in December 2011; and
- Department of the Environment (DoE) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in May 2012.

Both contain conditions relating to the CWEA operations, as summarised in Table 1.

Table 1: Condition requirements of the EPBC Act and EP&A Act Part 3A approvals relating to CWEA rehabilitation

BSO Project Approval Condition 17	EPBC Act Project Approval Clause 6:
The Proponent shall prepare a West Cliff Emplacement Area Management Plan for the project to the satisfaction of the Planning Secretary. This plan must be prepared in consultation with BCS and be submitted to the Planning Secretary for approval by the end of June 2013. This plan must include: a) detailed design plans which include options for reducing, avoiding and/or managing impacts on Aboriginal heritage sites in and adjacent to the south-western fringe of the proposed Stage 4 footprint, including sites: • 52-2-2228/3617, • 52-2-1373, • 52-2-3533/3613 and • 52-2-3506. (b) management strategies to ensure no impacts to Aboriginal heritage site 52-2-3505 other than negligible impacts, including consideration of potential staged development of the emplacement and/or buffer areas; (c) management strategies for the protection and conservation of <i>Persoonia hirsuta</i>; (d) management strategies for the protection and conservation of the Broad-headed Snake (<i>Hoplocephalus bungaroides</i>) and the Southern Brown Bandicoot (<i>Isodon obesulus</i>); (e) a comprehensive water monitoring program for the emplacement;	The person taking the action must provide a Coal Wash Emplacement Staging and Rehabilitation Plan (the Staging Plan) for the stage 4 coal wash emplacement area to the Minister for approval. Clearing of vegetation for stage 4 coal wash area must not occur until the Staging Plan has been approved by the Minister. The Staging Plan must include, but not be limited to: • Measures to limit the clearing of native vegetation to no more than 60 hectares; • Provision for the progressive staging of coal wash emplacement to always ensure a minimum 100 m wide habitat corridor is maintained linking the <i>Persoonia hirsuta</i> core population with habitat adjacent to the Stage 4 coal wash emplacement area; • Measures to ensure that, if the corridor is to include land previously used as emplacement areas (either in whole or part), native re-vegetation is established to the extent that it facilitates the movement of pollination vectors for <i>Persoonia hirsuta</i>; • Staging of emplacement from east to west; • Provision for progressive rehabilitation of the emplacement area, including through:

BSO Project Approval Condition 17	EPBC Act Project Approval Clause 6:
(f) provide for progressive rehabilitation of the emplacement area, including through: • Maximising opportunities for natural regeneration; • Maximising retention of suitable habitat species; • Appropriate weed and pest control strategies; and • Planting only endemic species in habitat mixes appropriate for soil, slope, and aspect.	• Staged clearing of native vegetation within the stage 4 coal wash emplacement area; • Maximising opportunities for natural regeneration, including through salvage, storage and re-use of site topsoil and maximising the retention time of suitable habitat species within the stage 4 coal wash emplacement area adjacent to active emplacement areas to assist re-colonisation of native species to rehabilitated areas; • Key performance objectives for site rehabilitation, including indicative timelines, performance measures, management actions and responsibilities and accountabilities; • Planting only endemic species in habitat mixes appropriate for the local surrounding environment, soil, slope, and aspect, in accordance with relevant published guidelines; and • Appropriate weed and pest control strategies. • Monitoring and rehabilitation actions including but not limited to, measures to assess the success of management actions, natural regeneration, and revegetation. The reporting of monitoring results must be submitted to the department within 30 days of every 12-month anniversary of the implementation date of the Staging Plan; and • Unless otherwise agreed to in writing by the Minister, the Staging Plan must be implemented and remain implemented for a minimum period of 10 years at which point a revised plan taking into account the monitoring referred to above must be submitted to and approved by the Minister.

1.1.3 CWEA Management Plan

The BSO CWEA Area Management Plan was originally approved by DPE. The latest version was approved on 9 April 2025 by DPHI and 10 June 2025 by DCCEEW

The rehabilitation monitoring commitments outlined in this plan are detailed in Table 2.

Table 2: Monitoring requirements from the Coal Wash Emplacement Area (CWEA) Management Plan

Type	Who	Aspects monitoring	Output
Quarterly Inspection	Specialist Environment	Identification of issues with weeds or sediment and erosion control. Output Inspection report (internal). Fixed photo points throughout the CWEA.	Inspection report (internal).
Annual Inspection	Qualified ecologists or suitably trained Specialist Environment	Quadrat monitoring in rehabilitation and surrounding areas ¹ Fixed photo points throughout the CWEA at each biometric vegetation plot ² Random meander transects (every three years) in rehabilitated areas ³ Fauna Monitoring ⁴	Report (internal). Outcomes from monitoring summarised in the Appin Annual Review. Monitoring Report appended to the Appin Mine Annual Review.

1.2 Purpose of this Report

The aim of the monitoring program is to collect annual data that will assess the overall improvement and efficacy of the CWEA rehabilitation works, annually. The specific objectives of this report include:

1. Compare results from baseline monitoring, and the current monitoring events
2. Detail the methodology utilised
3. Discuss the limitations of the monitoring program
4. Provide recommendations to improve the monitoring program.

¹ Biometric assessments are required annually, starting at 1 year after soil translocation. Surveys at control sites only required once every three years and the benchmarks as calculated remain so for the ensuing three-year period.

² Photo point monitoring is required annually and done in conjunction with the above.

³ Meanders for threatened plants are undertaken every three years.

⁴ Fauna monitoring using camera traps is required annually, starting 5 years after translocation, or as deemed appropriate depending on the maturity of the revegetation.

2 Survey Design

2.1 Aim

To measure the improvement in vegetation condition over time and review the effectiveness of the CWEA rehabilitation. In particular, the regeneration of native species richness and vegetation cover, and improvement in the structural integrity of the community, with the placement of specific habitat features such as rocks and logs.

This will be achieved through monitoring of biometric attributes, fixed photo points, and threatened plant meander surveys, as well as measuring the presence/absence of fauna within the various rehabilitation sites of varying ages (Stage 1, 2 and 3).

2.2 Key Performance Criteria

The monitoring program is designed to monitor the success of the following Key Performance Indicators (KPI):

1. Adequate regeneration of translocated communities: PCT 3598 *Woronora Plateau Scribbly Gum Woodland* (previously Exposed Sandstone Scribbly Gum Woodland) and PCT 3595 *Sydney Coastal Sandstone Gully Forest* (previously Sandstone Gully Peppermint Forest). Regeneration to reflect the composition and structure of the two communities.
2. Biodiversity Assessment Methodology (BAM) attributes within local benchmarks
3. No more than 20 percent weed cover in translocated compartments.
4. The degree to which fauna (native) use the rehabilitated CWEA including constructed habitats and nest boxes.

This report will also provide recommendations to assist implementing actions for the objectives outlined in the Completion Criteria, as detailed in Table 10.

2.3 Methods

Both control and monitoring sites were assessed during the 2024 monitoring program. Fixed vegetation plot monitoring for 2024, was conducted on the 18th, 19th, 20th, 21st, 22nd, 25th and 27th of November 2024 by Lily Cains (Niche Ecologist), assisted by GM3 representatives Pollyanna Barlow and Zarah Anderson.

Fauna surveys, including checking Broad-headed Snake habitat, nestboxes and bee hotels, was completed by Justin Meredith (Niche Ecologist) and Pollyanna Barlow (GM3) on 28th August, 10th September and 3rd October. Surveys for Broad-headed Snakes were done within the recommended survey period outlined in the TBDC (NSW DCCEEW2025).

Deployment of remote camera traps was done by GM3 representatives Pollyanna Barlow and Zarah Anderson on 25th November. Cameras were deployed across nine sites in the CWEA, for a total of 28 trap nights.

Further detail on methodologies used is provided below.

2.3.1 Biodiversity Assessment Method 2020 (BAM Plots)

The BioBanking Assessment Methodology (BBAM) has historically been the adopted method for the program. However, in 2017 a new industry standard was developed in association with the NSW *Biodiversity Conservation Act 2016* (BC Act), known as the NSW Biodiversity Assessment Methodology (BAM) (DPIE 2020). BAM floristic plots are considered more robust and have replaced the BBAM plots as the standard method of collecting attribute data. During the 2023 monitoring program, both BBAM and BAM plots were used for monitoring locations in Stage 1 and most of Stage 2 (excluding, sites A2e-001 and A2e-002). During the 2024 monitoring program, only BAM plot data was collected across all sites (including new plots a3a-003 and a3b-001), and this methodology will continue across all future years of monitoring.

The floristic plots consisted of the following:

- One 50 x 20 m functional plot

- One 20 x 20 m floristics plot.

The following attributes were collected within the BAM plots:

- Composition:
 - Native species richness (20 x 20 m plot)
- Structure:
 - native flora cover (% of the 20 x 20 m plot) divided into the growth forms:
 - Tree
 - Shrub
 - Grass and grass like
 - Forb
 - Fern
 - Other
 - exotic species cover
 - high threat weed vegetation cover.
- Function:
 - tree regeneration (size classes present)
 - number of trees with hollows (within 50 x 20 m plot)
 - total length of fallen logs (within 50 x 20 m plot)
 - number of large trees (> 50 cm Diameter at Breast Height (DBH) within 50 x 20 m plot)
 - tree stem size class (within 50 x 20 m plot)
 - litter cover (sampled in 5 x 1 m quadrats within the 50 x 20 m plot).

The BAM plot locations were re-marked for repeated survey using a GPS, flagging tape, compass orientation, and photo points.

2.3.2 Control Sites

Six locations were originally chosen as control sites, however, to increase the range of variation, an additional four sites were included in 2024 (Table 3, Figure 1). Monitoring of controls sites, includes:

- Assess the overall success of soil translocation efforts within the CWEA through the comparison of a range of BAM site attributes with local benchmark conditions.
- Provide long-term data regarding the condition of local vegetation types and the targets for rehabilitation; and
- Account for any stochastic variability within the local ecosystems (e.g., bushfire and climate) and allow for the consideration of such variability in relation to the outcomes on the site.

Table 3: Control site locations

Site	Easting	Northing
C253	297696	6212022
C255	297825	6211821
C256	297518	6212778
C257	297518	6212934
C258	297152	6213052
C259	297283	6212899
C24-LC01	299108	6212926
C24-LC02	299470	6212569
C24-LC03	300146	6210445
C24-LC04	300282	6209813

2.3.3 Monitoring Sites

Stratification of the monitoring sites (areas subject to rehabilitation works), within the CWEA occurred according to their treatment histories, age, and the respective areas they occupied in hectares:

- 11 monitoring sites across three different treatment types (Area A1, A2a and A2b) in 2011
- 15 monitoring locations across five separate treatments (Area A1, A2a, A2b, A2c and A2d) in 2014
- 17 plots across six treatments (Area A1, A2a, A2b, A2c, A2d and A2e) in 2017
- 19 plots across seven treatments (Area A1, A2a, A2b, A2c, A2d, A2e and A3a) in 2019
- 21 plots across eight treatments (Area A1, A2a, A2b, A2c, A2d, A2e, A3a and A3b) in 2024

Monitoring sites are listed in Table 4 and shown in Figure 1.

Table 4: Monitoring site locations

Site	Easting	Northing	CWEA Stage	Area
a1a-228	299842	6210193	1	A1
a1a-230	299758	6210171		
a1a-232	299857	6210092		
a2a-237	299578	6210253	2	A2a
a2a-239	299649	6210350		
a2a-240	299509	6210386		
a2b-241	299515	6210493		A2b
a2b-242	299322	6210565		
a2b-243	299136	6210510		
a2b-244	299093	6210408		
a2b-245	299388	6210627		
a2c-042	299259	6210803		A2c
a2c-043	299223	6210746		
a2d-001	298798	6210768		A2d
a2d-002	298848	6210678		
a2e-001	299093	6210797		A2e
a2e-002	299018	6210885		
a3a-001	298755	6211092	3	A3a
a3a-002	298932	6211007		
a3a-003	299142	6211087		
a3b-001	299103	6211124		A3b

2.3.4 Local Benchmarks BBAM

Up until 2023, sites were monitored using the BioBanking methodology (BBAM) (OEH 2014), and thus benchmarks were calculated using this methodology. In 2023, BAM data was collected in conjunction with BioBanking data so that the transition could be made to BAM in 2024. The local Benchmark values for each of the biometric attributes derived from data collected in the control sites in 2015, 2020 and 2023 can be found in the 2023 monitoring report (Niche 2023).

2.3.5 Local Benchmarks BAM (2024)

The control sites were nominated based on Plant Community Types (PCT) (PCTs as defined by OEH BioNet vegetation Classification) as either PCT 3598 - *Woronora Plateau Scribbly Gum Woodland* or PCT 3595 - *Sydney Coastal Sandstone Gully Forest*. It was considered that the CWEA was likely to regenerate to a state that was an artificial combination of both PCTs and therefore no attempt has been made to stratify the survey based on these types.

Data was collected at six control sites in 2023, and an additional four control sites in 2024 (see Table 3 for locations). The data was pooled to calculate 2024 benchmark data, and when the control sites are resampled in 2026, the 10 sites will all need to be resampled. Upper and lower benchmarks for each BAM attribute were calculated to account for variations between sites, and to establish a benchmark range for comparison against rehabilitation sites. For each BAM attribute (e.g. Tree Richness), the upper benchmark is the mean of the upper five values from the 10 control sites, and the lower benchmark is the mean of the lower five values from the 10 control sites.

2.3.6 Photo Point Vegetation Monitoring

Permanent photographic points have been established at each of the BAM floristic plot locations.

2.3.7 Threatened Plant Random Meander

A random meander for threatened plants (Cropper 1993) is conducted throughout the CWEA every three years. This method is the most appropriate for the purposes of the monitoring survey. The meander method was undertaken in 2023 and is not required again until 2026.

2.3.8 Remote camera traps

Remote camera traps are becoming the preferred passive survey method over traditional cage traps or hair tubes as they are more efficient, less labour intensive and non-invasive. The method is well documented for monitoring small to large-sized mammals. Some useful resources are Eyre et al. (2018) and Bondi et al. (2010).

Camera traps are deployed to the rehabilitating areas, using a passive survey approach (i.e. non-baited). The camera trap deployment locations target specific habitat features i.e., logs, log hollows and rock crevasses/overhangs to determine occupation. As a rule, a minimum of one trap is placed per rehabilitation compartment (refer to Figure 2). Although the vegetation in sections of Stage 3 is still immature, cameras were placed on the border of the CWEA Stage 3 area this year.

Cameras were deployed terrestrially, approximately 20 to 30 cm above the ground (Meek et al. 2012). The recommended minimum deployment time is 2 weeks to a month (Kays et al. 2020). For the 2024 monitoring the cameras were deployed on the 25th of November for a total of 28 trap nights.

2.3.9 Bee habitat

Eight bee hotels were placed in the Rehabilitation area (Figure 4), *Persoonia hirsuta* offset area and along the dam road to promote native bee inhabitancy of species that are known to pollinate *Persoonia hirsuta*. The bee hotels are made of a mix of substrates including hard wood, drilled crevices, mixed material, bamboo and soft wood and bamboo habitat. They were installed to promote specifically solitary native bees (*Tetragonula* spp., *Exoneura* spp. and *Amegilla* spp.) (Dollin, 2006 and Emery and Offord, 2022). Surveys are undertaken by a suitably qualified expert, taking notes on the nest caps present and the possible occupant. For the 2024 monitoring, surveys were undertaken by Justin Meredith (Niche) accompanied by Pollyanna Barlow (GM3), on 10th September and 3rd October. Kayla LeGros (Niche), who has extensive experience with Australian stingless bees, assisted in identifying species from nest cap images.

2.3.10 Broad-headed snake habitat

Pavers were installed in four locations with suitable rock outcropping, within the rehabilitation area, targeting Broad-headed Snake (Figure 5). The pavers were installed at least 300 m apart and adjacent to suitable woodland habitat for Broad-headed snakes in summer. The pavers placement reflects the species habitat specific requirements including exfoliated rocks, and rock crevices exposed to direct sunlight (north-west facing) and have relatively specific crevice structures and rock thickness that provide specific microclimates suitable for the species (Cth DCCEEW, 2023). Surveys are undertaken by suitably qualified experts, involving the lifting of pavers to inspect the cavity underneath. For the 2024 monitoring, surveys were undertaken by Justin Meredith (Niche) accompanied by Pollyanna Barlow (GM3), on 28th August.

2.3.11 Nest Boxes

Eight nest boxes were originally placed in the rehabilitation area to encourage fauna inhabitancy within the rehabilitation area (Figure 3). The nest boxes installed were of varying sizes to target several different species. The different types of nest boxes included microbat (clutter, edge-space and open-space foraging species that roost in tree hollows), small owl (Southern Boobook [*Ninox boobook*] and Barn Owl [*Tyto alba*]), large forest owls (Masked Owl [*Tyto novaehollandiae*], Sooty Owl [*Tyto tenebricosa*], Powerful Owl [*Ninox strenua*]), and parrots and woodland bird species (medium sized parrots and lorikeets). For

the 2024 monitoring, surveys were undertaken by Justin Meredith (Niche) accompanied by Pollyanna Barlow (GM3), on 28th August. Seven nest boxes were visually inspected using a wireless inspection camera attached to the end of an extendable pole; nest box 8 was not inspected. Details recorded for each box included:

- Direct or indirect signs of faunal occupation
- Nest box condition
- Any maintenance required
- Changes to surrounding landscape and daily weather conditions.

2.3.12 Timing

Floristics

Biometric assessments are required annually, starting at one year after translocation. Surveys at control sites are only required once every three years (undertaken in 2023), and the benchmarks are used for the ensuing three-year period. An additional four plots were set up in 2024 to bolster the sample size and increase variability, and thus benchmarks were recalculated (see Annex 2: BAM Monitoring Plot Score Cards for 2024 benchmarks). Recalculation of benchmark values was also required, as methodology switched from BBAM to BAM in 2024. BAM attributes can be measured most easily in spring by noting flowering, seed production, seedling growth and establishment.

Photo point monitoring is required annually and undertaken in conjunction with the above. Meanders for threatened plants are undertaken every three years (last undertaken in 2023).

Fauna monitoring using camera traps is required annually, starting five years after translocation, or as deemed appropriate, depending on the maturity of the revegetation.

Broad-headed Snake habitat and Bee hotels

Broad-headed snake and bee hotel surveys are required annually and are to be undertaken during their survey window.

The most optimal time to survey the artificially placed Broad-headed snake habitat is during the cooler months between August-September (DPE 2022).

Bee hotels should be inspected between September-Early October to ensure the likelihood of the nest caps being intact and the brood yet to emerge.

2.3.13 Limitations

General limitations

Some plant species are cryptic and may remain undetected during the survey. This is the case with orchid species, annuals (completing their life cycle within a single season) and some perennials being inconspicuous unless flowering or in fruit. Some individual plant samples were in a juvenile state or were annual species that had already died. Therefore, not all plants found could be accurately identified. These species were identified to genus level where possible and may need to be identified to species level in subsequent monitoring seasons.

BBAM Plots

The BBAM was applied at the start of the monitoring program (13 years ago), as the most relevant and robust method at the time, however, this method has now been repealed by the NSW Biodiversity Assessment Method 2020 (BAM). For consistent data collection, BBAM plots were still collected in 2023, in conjunction with BAM floristic plots, however during the 2024 monitoring, only BAM floristic plots were collected.

Slight shifts in transect bearing and/or observer bias have occurred over the years, as it was difficult to maintain a consistent bearing and observer between the years. Although utmost care was taken, a small

change in bearing can dramatically influence the results and estimations of foliage cover are subject to observer bias.

Broad-headed Snake and Bee Habitat

Broad-headed Snakes and native bees have a small window in which it is best to survey. Broad-headed Snakes are rare and have highly specific habitat requirements.

Broad-headed Snakes are less likely to be seen during warmer months as the males and non-breeding females move into the adjacent woodland and are primarily arboreal. In the cooler months, you are more likely to detect Broad-headed Snake under exfoliated rocks and occupying suitable rocky outcrops.

Native bee habitat needs to be surveyed while the nest cap is still intact and the brood is yet to emerge, this only leaves a small window that the species can be surveyed, September to early October.

Nest boxes and Camera traps

The size and shape of the nestboxes determined whether they were able to be surveyed. For smaller nestboxes, aimed at small animals such as microbats and parrots, using the standard survey method of an extendable pole and camera was unsuccessful. For future monitoring different survey methodology will need to be implemented. This is addressed further in Section 5.8.

Using camera traps without bait can reduce the number of animals detected. The use of baits can also help target threatened species that are likely to occur in the area (e.g. Eastern Pygmy Possum, which was recorded in 2023).

During the 2024 monitoring, one camera was knocked from position by an animal interaction and another was compromised due to the flagging tape being stuck to the lens.

Climatic conditions

Varying climatic conditions can impact the outcome of the floristic surveys. Years with increased rainfall can change the composition of the ground and understorey and the encroachment of weeds.

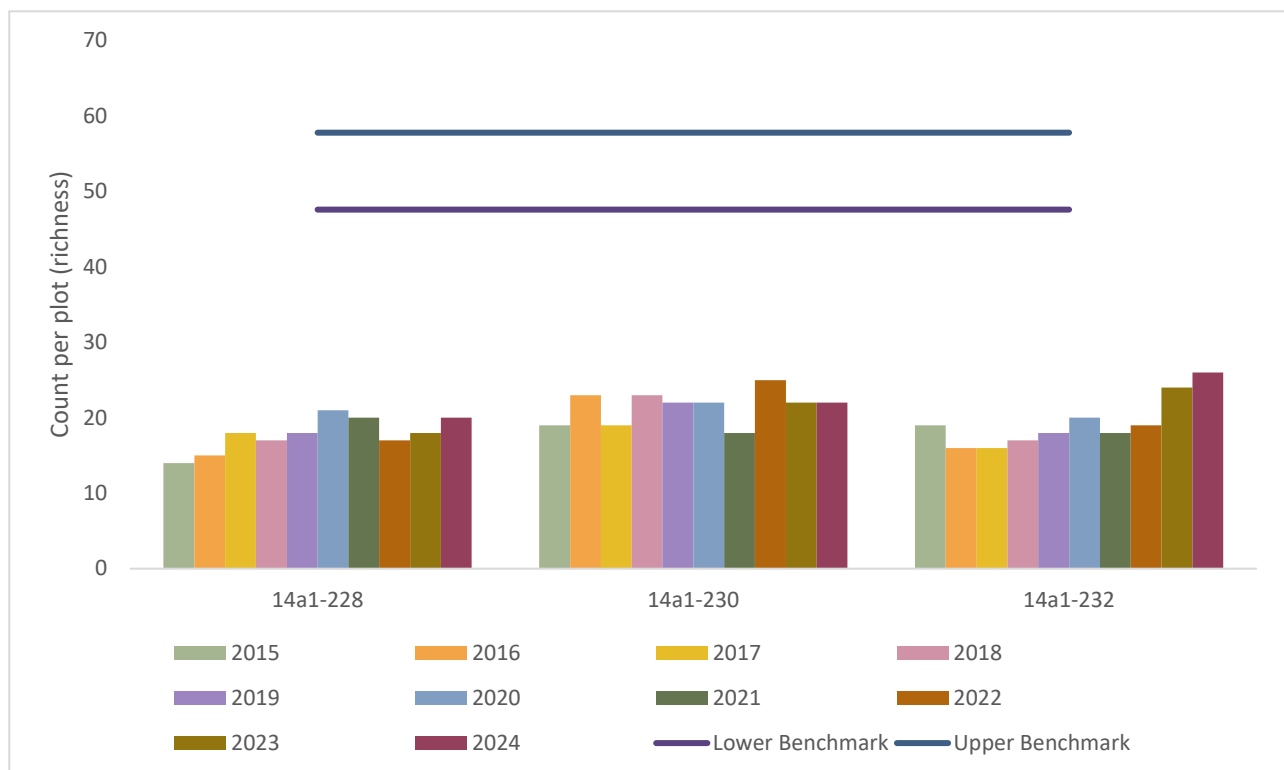
3 Results

The treatments in Stages 1, 2 and 3 differ in their longevity. In Stage 1 all treatments were established in 2014 whereas in Stage 2 treatment Areas 2a – 2d were established in 2014 while treatment Area 2e was established in 2017. In Stage 3 treatment 3a was established in 2019, with an additional plot set up in 2024. A plot in treatment 3b was also established in 2024.

Please refer to Annex 2 for BAM score cards per plot. Please refer to Annex 6 for 2024 BAM data and Annex 7 for a full 2024 floristics list.

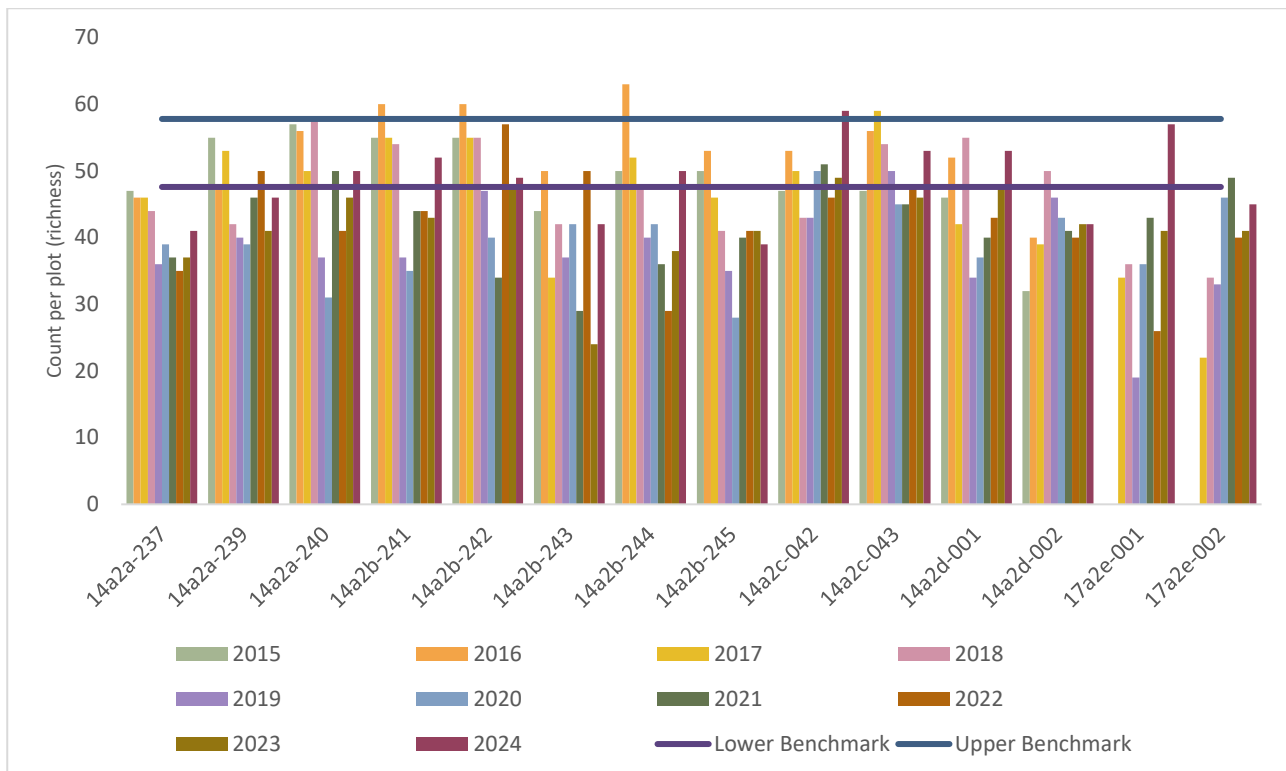
3.1 Native Plant Species Richness

Native plant species (NPS) richness is the only site attribute that is consistent across both the Biobanking and BAM methodology. Thus, data comparisons since 2015 can be undertaken.



Graph 1: Stage 1 NPS richness per plot from 2015 to 2024 (Lower Benchmark = 47.6 and Upper Benchmark = 57.8)

The plots in Stage 1 had an overall mean NPS richness of 22.67 in 2024. This was slightly higher than the mean of 21.33 in 2023, and 20.33 in 2022. There was an increase in NPS for both plots 14a1a-228 and 14a1a-232 from the previous year and no change in NPS richness for plot 14a1a-230. All plots were below benchmark values in 2024.



Graph 2: Stage 2 NPS richness in Area 2a, 2b, 2c and 2d per plot from 2015 to 2024 and Area 2e per plot from 2017 to 2024 (Lower Benchmark = 47.6 and Upper Benchmark = 57.8)

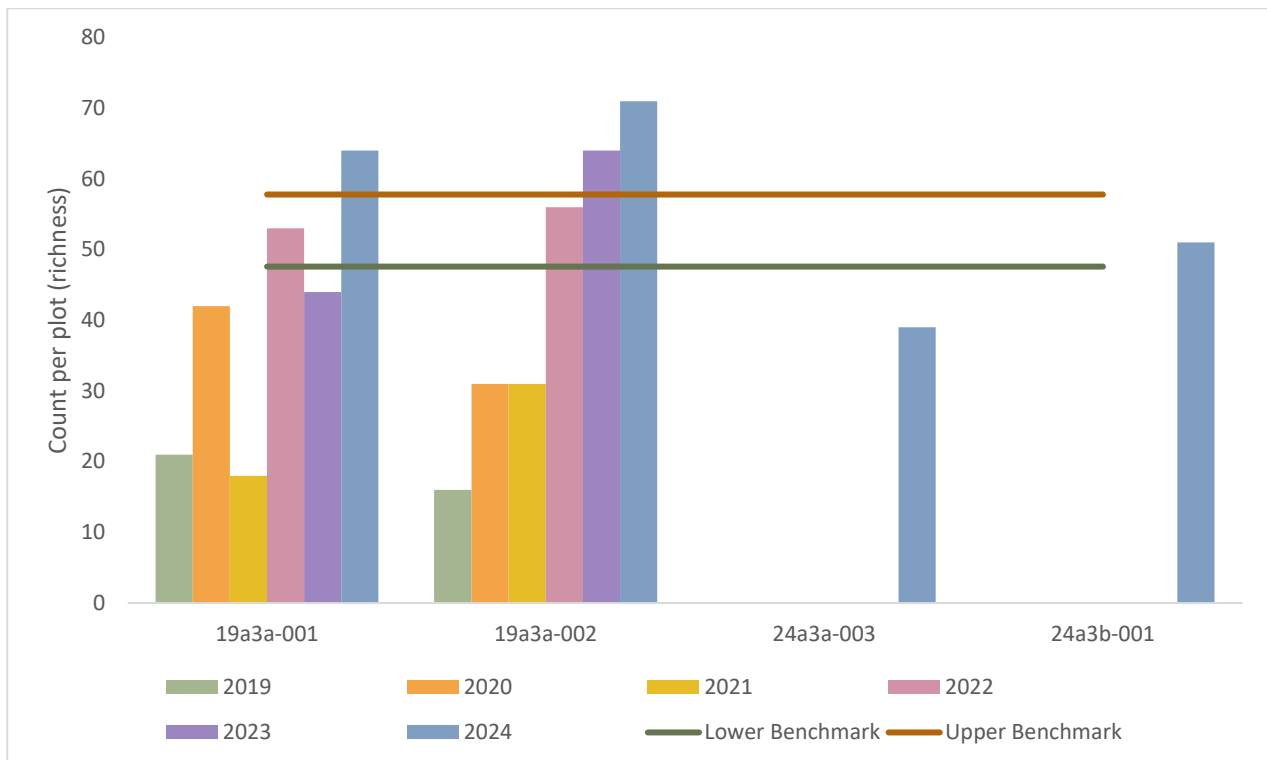
The plots in Area 2a had a mean NPS richness of 45.67 in 2024, which was below benchmark value (within 25% of the lower benchmark). This was higher than the mean of 41.33 in 2023 and 42 in 2022. Plot 14a2a-237 and 14a2a-239 were below benchmark, however plot 14a2a-240 was within benchmark with a NPS richness of 50. All plots in Area 2a were within 25% of the lower benchmark.

The plots in Area 2b had a mean NPS richness of 46.4, which was below benchmark value (within 25% of the lower benchmark). This was higher than the mean of 38.8 in 2023 and 44.2 in 2022. Plots 14a2b-243 and 14a2b-245 were below benchmark, however plots 14a2b-241, 14a2b-242 and 14a2b-244 were within benchmark with NPS richness of 52, 49 and 50 respectively. All plots in Area 2b were within 25% of the lower benchmark.

The plots in Area 2c had a mean NPS richness of 56, which was within benchmark value. This was significantly higher than the mean of 47.5 in 2023, and 47 in 2022. Both plots in Area 2c (14a2c-042 and 14a2c-043) were within/above benchmark, with NPS richness of 59 and 53 respectively.

The plots in Area 2d had a mean NPS richness of 47.5, which was below benchmark value (within 25% of the lower benchmark). This was higher than the mean of 45 in 2023 and 41.5 in 2022. Plot 14a2d-002 was below benchmark, however plot 14a2d-001 was within benchmark with a NPS richness of 53. Both plots in Area 2d were within 25% of the lower benchmark.

The plots in Area 2e had a mean NPS richness of 51. This was markedly higher than the mean of 41 in 2023, and 33 in 2022. Plot 17a2e-002 was below benchmark, however plot 17a2e-001 was within benchmark with a NPS richness of 57. Both plots in Area 2e were within 25% of the lower benchmark.



Graph 3: Stage 3 NPS richness in Area 3a and 3b per plot; plots 19a3a-001 and 19a3a-002 from 2019-2024 and plots 24a3a-003 and 24a3b-001 established in 2024 (Lower Benchmark = 47.6 and Upper Benchmark = 57.8)

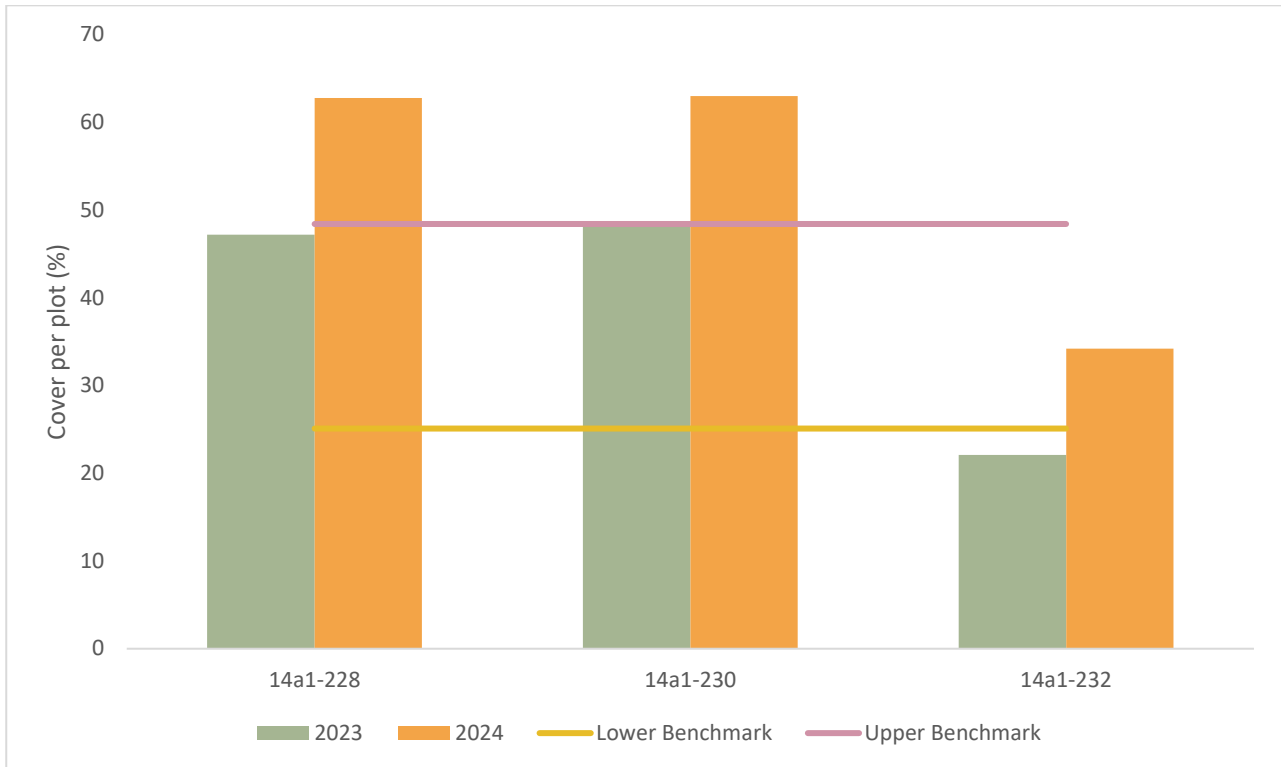
The plots in Area 3a had a mean NPS richness of 58, which is above the upper benchmark value. This was slightly higher than the mean of 54 in 2023 and 54.5 in 2022. Note that an additional plot was added to Stage 3a in 2024 taking the number of plots from two to three. Both plot 19a3a-001 and 19a3a-002 were above the upper benchmark, with NPS richness of 64 and 71 respectively. Plot 24a3a-003 was established in 2024 and was below benchmark, with NPS richness of 39.

Area 3b was established in 2024, with plot 24a3b-001 having NPS richness of 51, which is within benchmark.

Statistical analysis

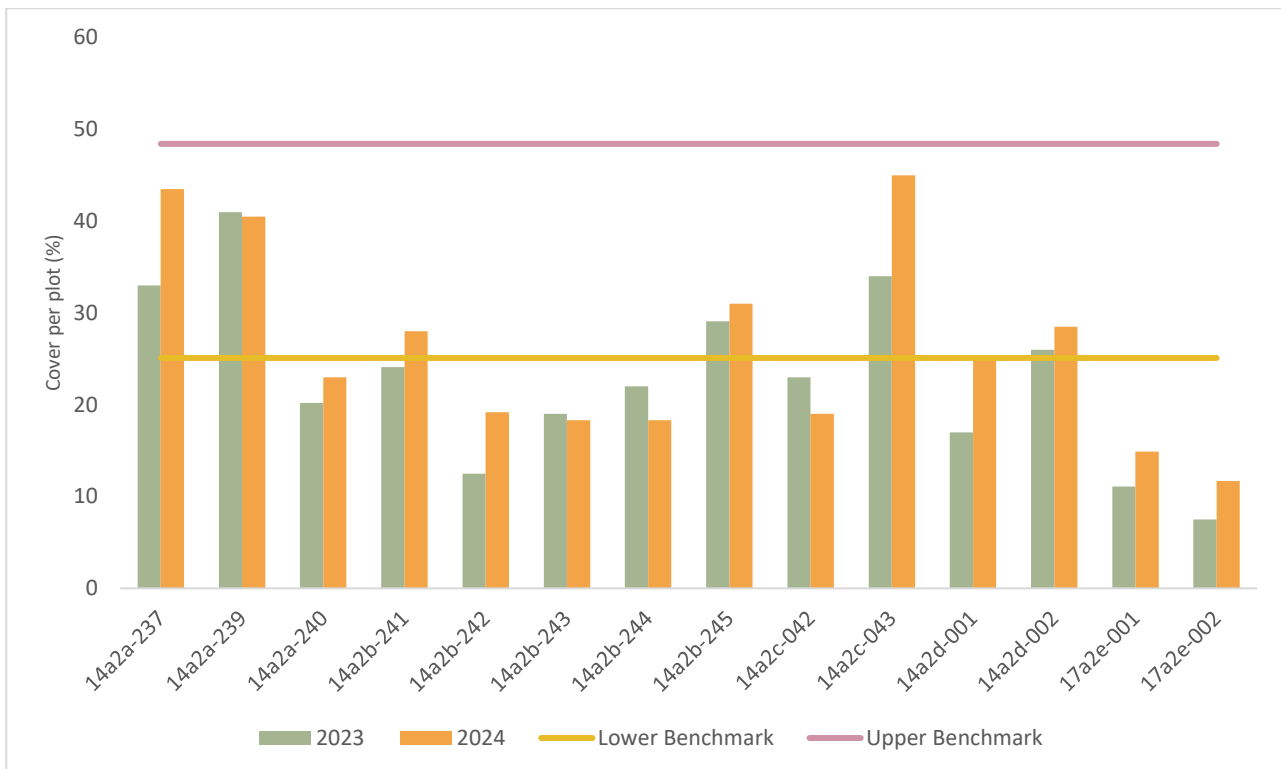
Statistical analysis was undertaken, however only the 2 years of BAM data was used in the analysis. Mean native plant species richness showed slight variation between 2023 and 2024 and across control and stage sites. Notably, Stage 1 monitoring sites consistently had a lower mean species richness of around 18-20 species, compared to Control and Stage 2 and 3 sites, where species richness generally ranged from 28 to 58 (Austral 2025). Due to the small sample size ($n=2$), no major inferences could be made about relationships in the data. Despite some overlap in 2024 with the lower benchmark, the statistical findings suggest that there are consistent differences between the Control and some of Stages 1-3 for both years. Indicating that the rehabilitation does not yet reflect a natural state for plant species richness.

3.2 Native Tree Cover



Graph 4: Stage 1 Native Tree Cover per plot from 2023-2024 (Lower Benchmark = 25.1 and Upper Benchmark = 48.42)

The plots in Stage 1 had a mean native tree cover of 53.33% in 2024, which is above benchmark. This is significantly higher than 39.23% in 2023. All three plots, 14a1a-228, 14a1a-230 and 14a1a-232 were within or above benchmark, with native tree cover of 62.8%, 63% and 34.2% respectively.



Graph 5: Stage 2 Native Tree Cover per plot from 2023-2024 (Lower Benchmark = 25.1 and Upper Benchmark = 48.42)

The plots in Area 2a had a mean native tree cover of 35.67%, which is within benchmark, and higher than 31.4% in 2023. Both plot 14a2a-237 and 14a2a-239 were within benchmark, with 43.5% and 40.5%

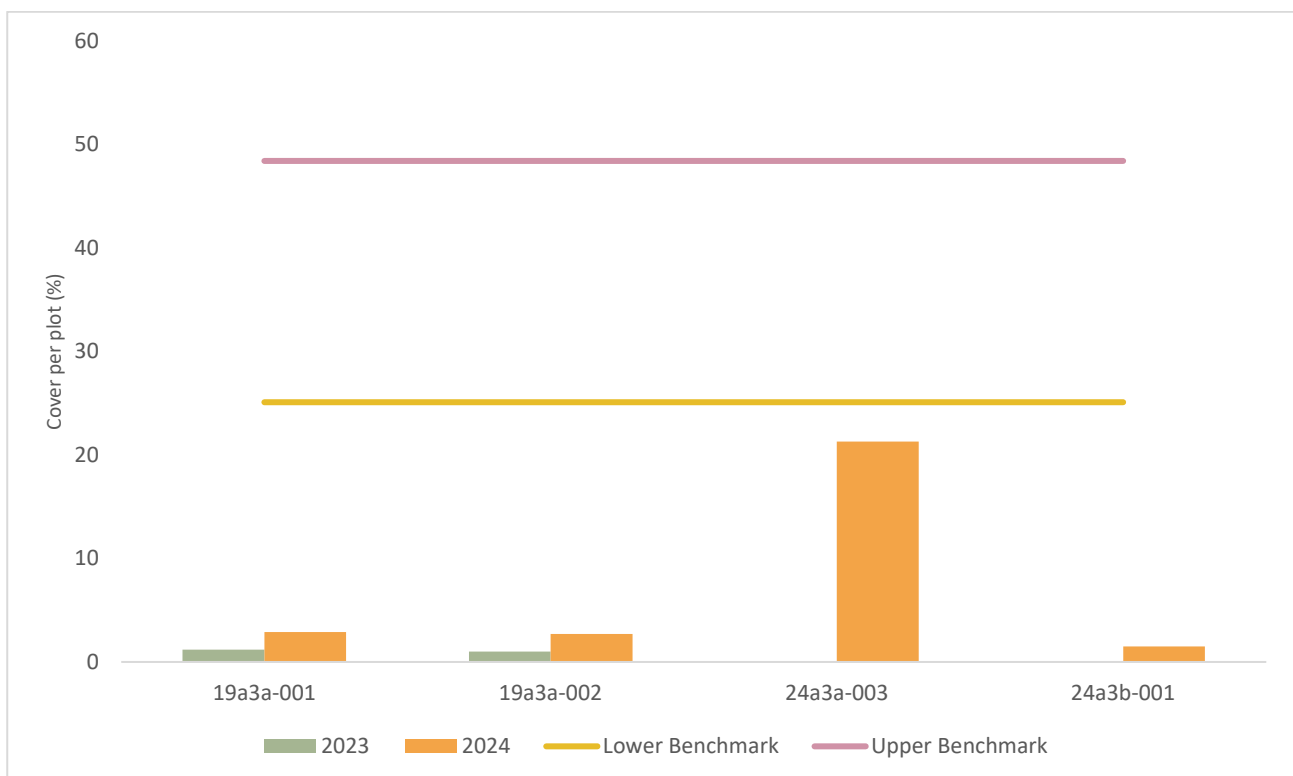
respectively. Plot 14a2a-240 was below benchmark with native tree cover of 23%, however within 25% of the lower benchmark.

The plots in Area 2b had a mean native tree cover of 22.96%, which is below benchmark, however within 25% of the lower benchmark. This is slightly higher than 21.34% in 2023. Plots 14a2b-241 and 14a2b-245 were within benchmark, with native tree cover of 28% and 31% respectively. Plots 14a2b-242, 14a2b-243 and 14a2b-244 were below benchmark, however only plot 14a2b-242 was within 25% of the lower benchmark.

The plots in Area 2c had a mean native tree cover of 32%, which is within benchmark and an increase from 28.5% in 2023. Plot 14a2c-043 was within benchmark with a native tree cover of 45%. Plot 14a2c-042 was below benchmark, however within 25% of the lower benchmark.

The plots in Area 2d had a mean native tree cover of 26.95% which is within benchmark and an increase from 21.5% in 2023. Both plot 14a2d-001 and 14a2d-002 were within benchmark, with a native tree cover of 25.4% and 28.5% respectively.

The plots in Area 2e had a mean native tree cover of 13.3% which is below benchmark. Both plots 17a2e-001 and 17a2e-002 were below benchmark, and didn't fall within 25% of the lower benchmark.



Graph 6: Stage 3 Native Tree Cover per plot from 2023-2024 (Lower Benchmark = 25.1 and Upper Benchmark = 48.42)

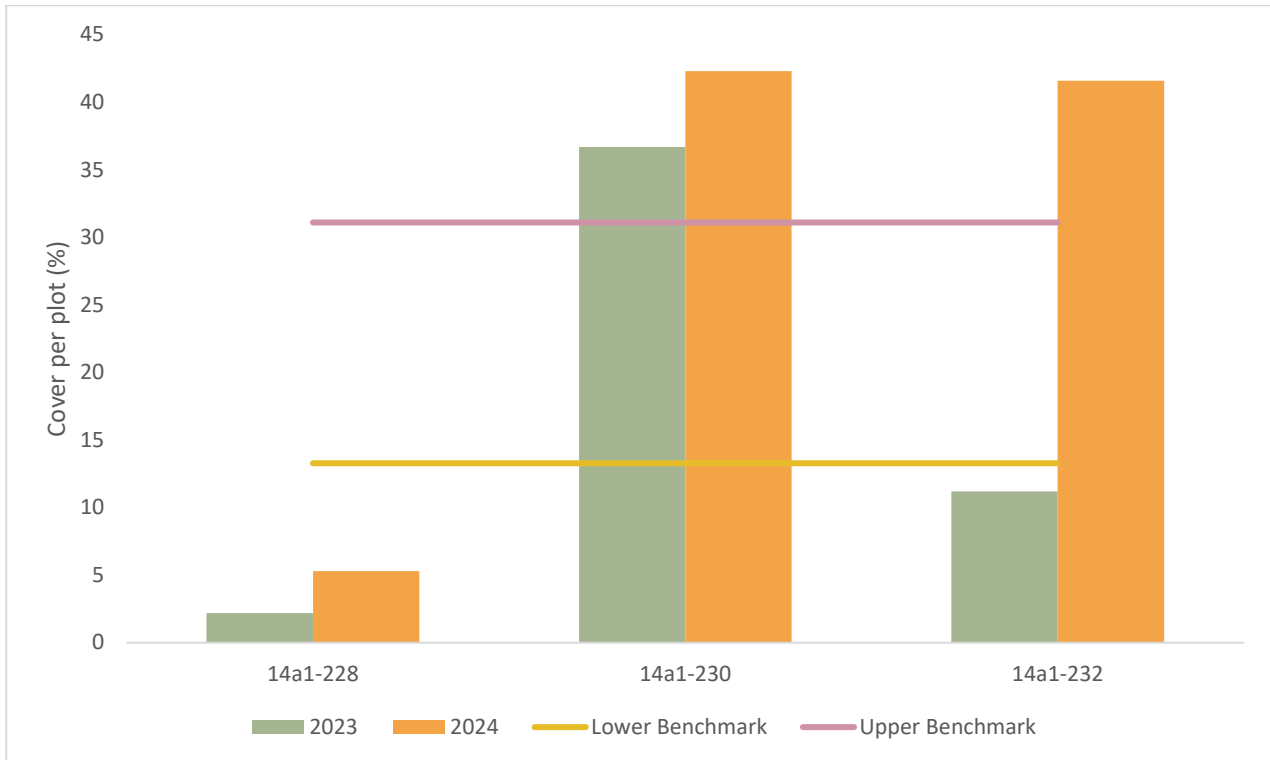
The plots in Area 3a had a mean native tree cover of 8.97% which is below benchmark and not within 25% of the lower benchmark. This is however a significant increase from a mean of 1.1% in 2023. There was an additional plot added in to Area 3a 2024 (24a3a-003), taking total plots from two to three. Plots 19a3a-001 and 19a3a-002 were significantly below benchmark and not within 25% of the lower benchmark, with native tree cover of 2.9% and 2.7% respectively. Plot 24a3a-003 which was newly established, was below benchmark however within 25% of the lower benchmark, with a native tree cover of 21.3%.

The first plot in Area 3b was established during this monitoring period (24a3b-001), which had a native tree cover of 1.5%. This is well below benchmark and not within 25% of the lower benchmark.

Statistical analysis

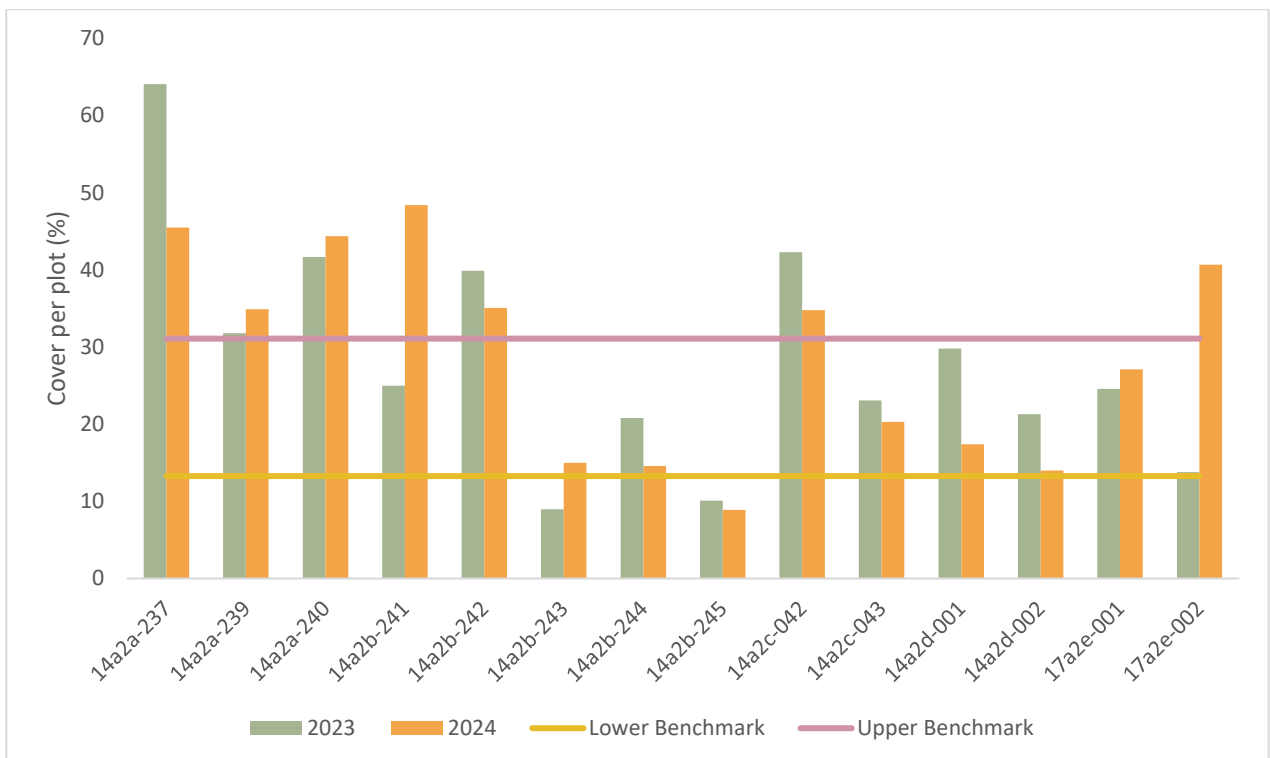
Mean native tree cover ranged from approximately 3-55% and varied slightly across years and between/within Control and Stage sites. Due to the small sample size (n=2), no major inferences could be made about relationships in the data. While most sites reached the lower benchmarks, significant differences between the Control and some Stages indicate that rehabilitation has not yet achieved a natural state for native tree cover across all Stages (Austral 2025).

3.3 Native Shrub Cover



Graph 7: Stage 1 Native Shrub Cover per plot from 2023-2024 (Lower Benchmark = 13.28 and Upper Benchmark = 31.1)

The plots in Stage 1 had a mean native shrub cover of 29.73% in 2024, which is within benchmark. This is significantly higher than 16.7% in 2023. Plots 14a1a-230 and 14a1a-232 were above benchmark, with native shrub cover of 42.3% and 41.6% respectively. Plot 14a1a-228 was well below benchmark and not within 25% of the lower benchmark, however had increased from 2.2% in 2023 to 5.3% in 2024.



Graph 8: Stage 2 Native Shrub Cover per plot from 2023-2024 (Lower Benchmark = 13.28 and Upper Benchmark = 31.1)

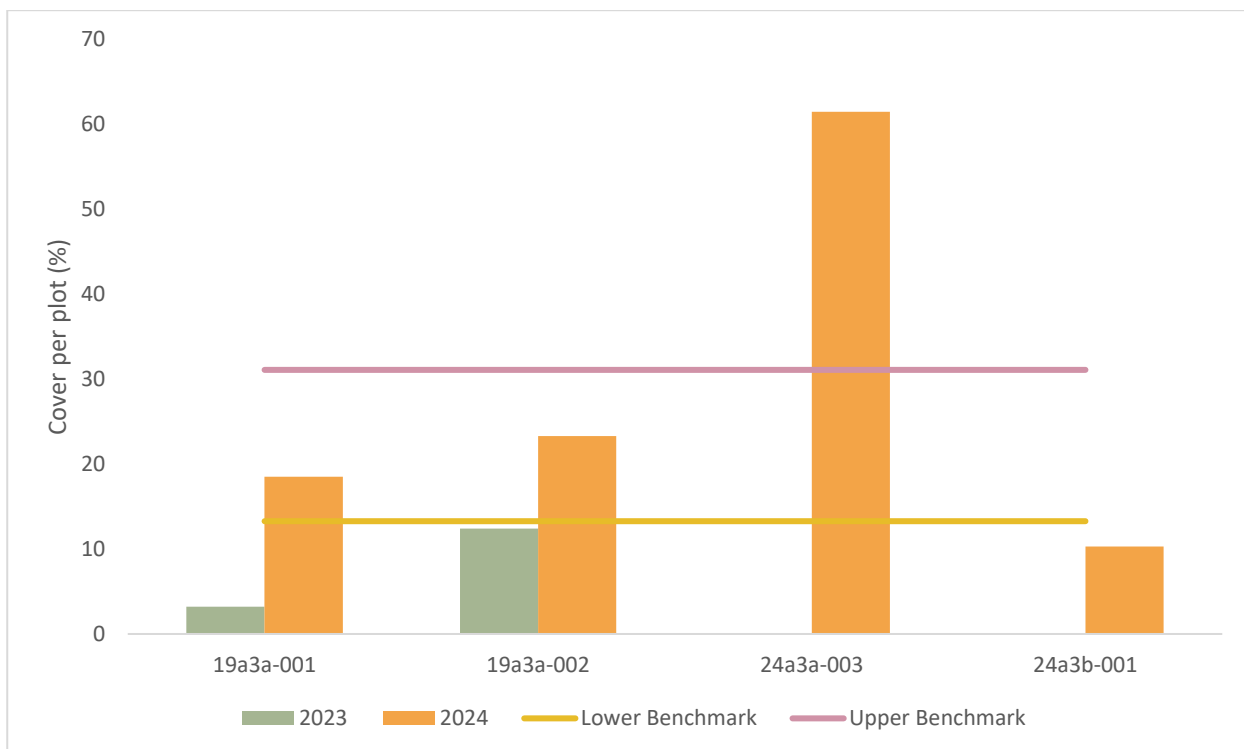
The plots in Area 2a had a mean native shrub cover of 41.6%, which is above benchmark, but a decrease from 45.87% in 2023. Plots 14a2a-237, 14a2a-239 and 14a2a-240 were all above benchmark, with native shrub cover of 45.5%, 34.9% and 44.4% respectively.

The plots in Area 2b had a mean native shrub cover of 24.4%, which is above benchmark, and an increase from 20.96% in 2023. Plots 14a2b-241, 14a2b-242, 14a2b-243 and 14a2b-244 were all above or within benchmark, with native shrub cover of 48.4%, 35.1%, 15% and 14.6% respectively. Plots 14a2b-245 was below benchmark, and didn't fall within 25% of the lower benchmark.

The plots in Area 2c had a mean shrub tree cover of 27.55%, which is within benchmark, however, is a decrease from 32.7% in 2023. Both plot 14a2c-042 and 14a2c-043 were within benchmark with native shrub cover of 20.3% and 17.4% respectively.

The plots in Area 2d had a mean native shrub cover of 15.7% which is within benchmark but a decrease from 25.55% in 2023. Both plot 14a2d-001 and 14a2d-002 were within benchmark, with a native shrub cover of 17.4% and 14% respectively.

The plots in Area 2e had a mean shrub tree cover of 33.9% which is above benchmark, and a significant increase from 19.2% in 2023. Both plots 17a2e-001 and 17a2e-002 were above or within benchmark, with native shrub cover of 27.1% and 40.7% respectively.



Graph 9: Stage 3 Native Shrub Cover per plot from 2023-2024 (Lower Benchmark = 13.28 and Upper Benchmark = 31.1)

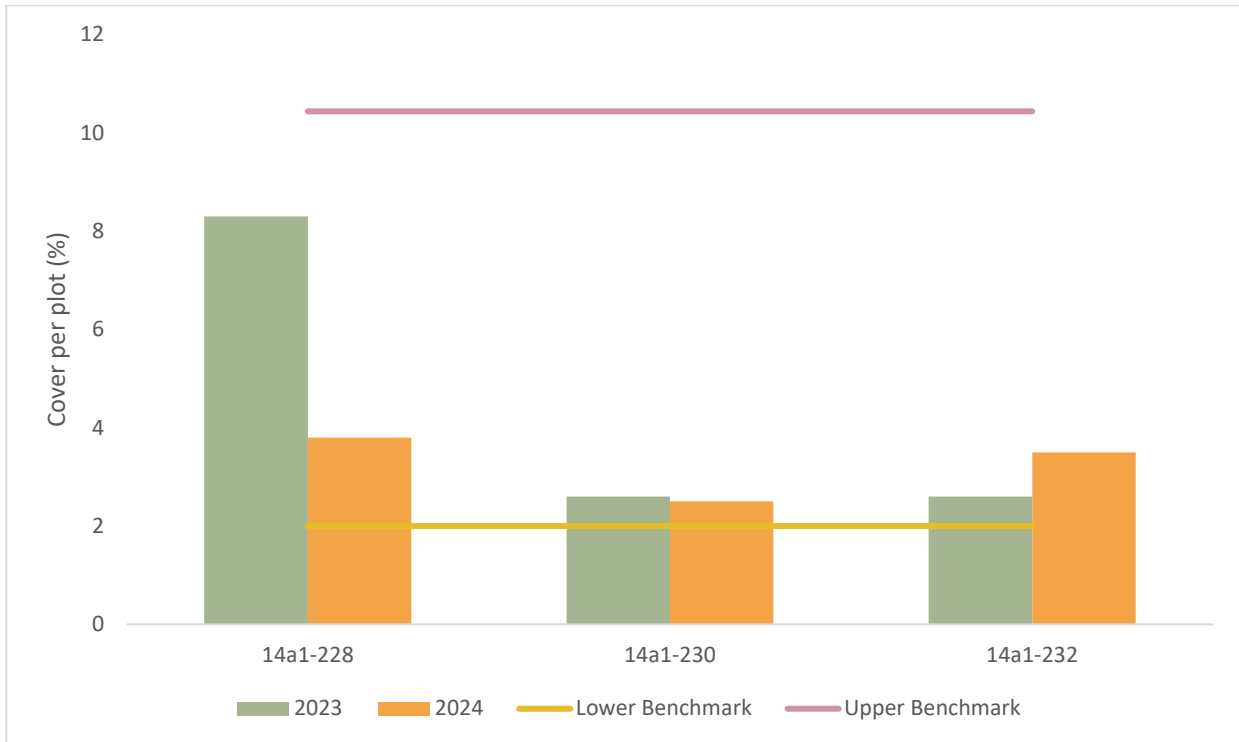
The plots in Area 3a had a mean native shrub cover of 34.43% which is above the higher benchmark and a significant increase from 7.8% in 2023. There was an additional plot added in Area 3a in 2024 (24a3a-003), taking total plots from two to three. Plots 19a3a-001, 19a3a-002 and 24a3a-003 were all above or within benchmark, with native shrub cover of 18.5%, 23.3% and 61.5% respectively.

The first plot in Area 3b was established during this monitoring period (24a3b-001), which had a native shrub cover of 10.3%. This is below benchmark, but within 25% of the lower benchmark.

Statistical analysis

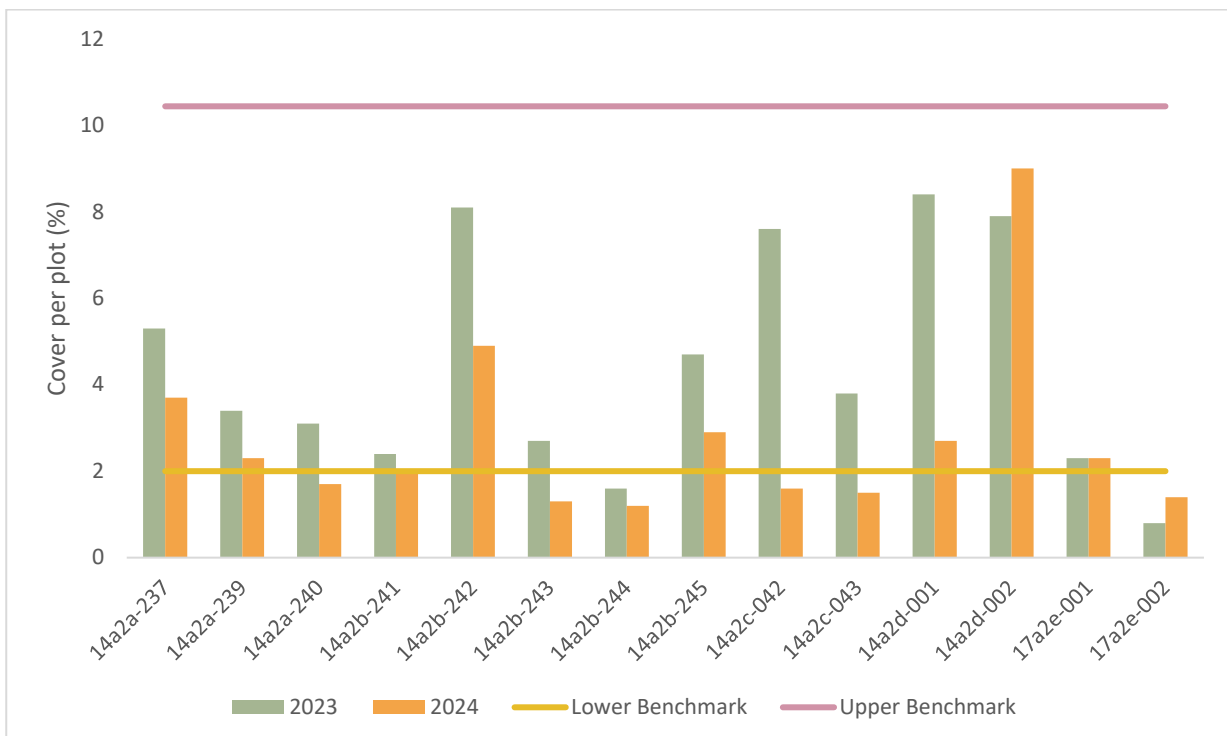
Mean native shrub cover ranged from approximately 7-45% and varied between stages. Due to the small sample size ($n=2$), no major inferences could be made about relationships in the data. While most sites reached the benchmarks, significant differences between the Control and some Stages indicate that rehabilitation has not yet achieved a natural state for native shrub cover across all Stages (Austral 2025).

3.4 Native Grass/Grass-like Cover



Graph 10: Stage 1 Native Grass/Grass-like Cover per plot from 2023-2024 (Lower Benchmark = 2 and Upper Benchmark = 10.44)

The plots in Stage 1 had a mean native grass cover of 3.27% in 2024, which is within benchmark but a decrease from 4.5% in 2023. Plots 14a1a-228, 14a1a-230 and 14a1a-232 were all within benchmark, with native grass cover of 3.8%, 2.5% and 3.5% respectively.



Graph 11: Stage 2 Native Grass/Grass-like Cover per plot from 2023-2024 (Lower Benchmark = 2 and Upper Benchmark = 10.44)

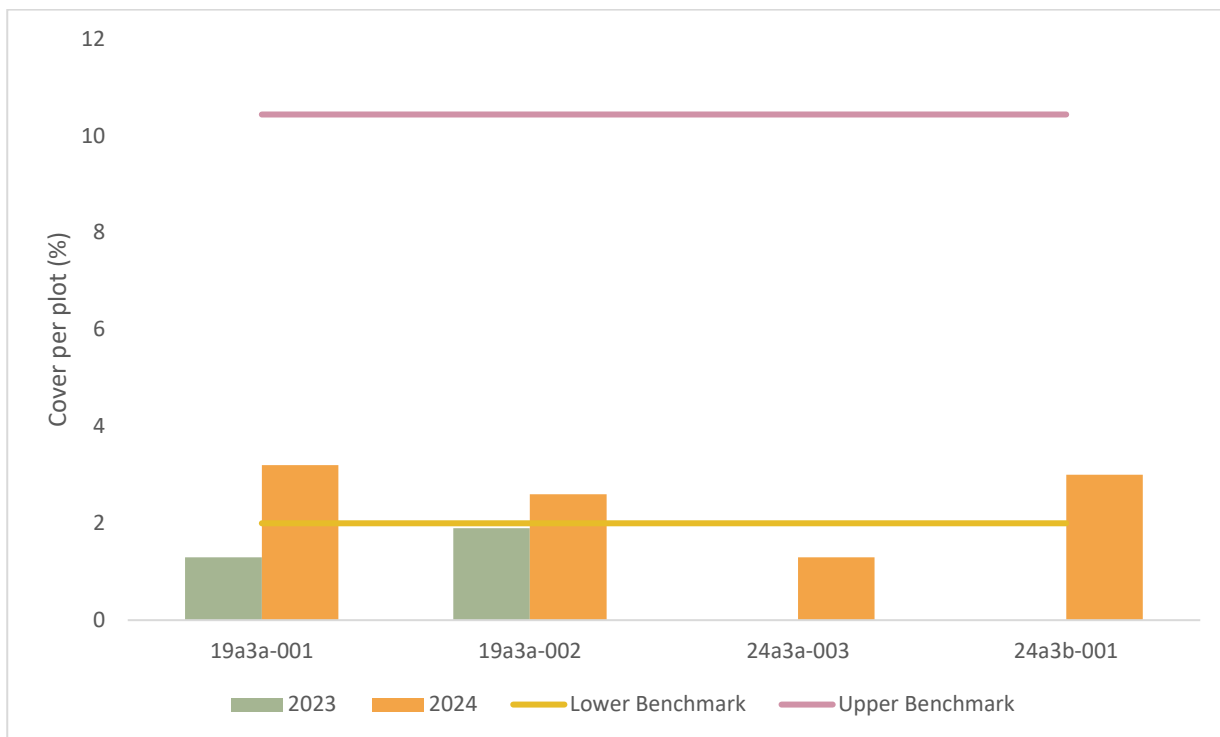
The plots in Area 2a had a mean native grass cover of 2.57%, which is within benchmark, but a decrease from 3.93% in 2023. Both plot 14a2a-237 and 14a2a-239 were within benchmark, with 3.7% and 2.35% respectively. Plot 14a2a-240 was below benchmark with native grass cover of 1.7%, however within 25% of the lower benchmark.

The plots in Area 2b had a mean native grass cover of 2.46%, which is within benchmark, but a decrease from 3.9% in 2023. Plots 14a2b-241, 14a2b-242 and 14a2b-245 were within benchmark, with native grass cover of 2%, 4.9% and 2.9% respectively. Plots 14a2b-243 and 14a2b-244 were below benchmark, and neither were within 25% of the lower benchmark.

The plots in Area 2c had a mean native grass cover of 1.55%, which is below benchmark, but within 25% of the lower benchmark. This is a significant decrease from a mean native grass cover of 5.7% in 2023. Both plots 14a2c-042 and 14a2c-043 were below benchmark, but within 25% of the lower benchmark, with native grass cover of 1.6% and 1.5% respectively.

The plots in Area 2d had a mean native grass cover of 5.85% which is within benchmark, but a decrease from 8.15% in 2023. Both plot 14a2d-001 and 14a2d-002 were within benchmark, with a native grass cover of 2.7% and 9% respectively.

The plots in Area 2e had a mean native grass cover of 1.85%, which is below benchmark but within 25% of the lower benchmark. This is a slight increase from 1.55% in 2023. Plot 17a2e-001 was within benchmark, with native grass cover of 2.3%. Plot 17a2e-002 was below benchmark, and not within 25% of the lower benchmark.



Graph 12: Stage 3 Native Grass/Grass-like Cover per plot from 2023-2024 (Lower Benchmark = 2 and Upper Benchmark = 10.44)

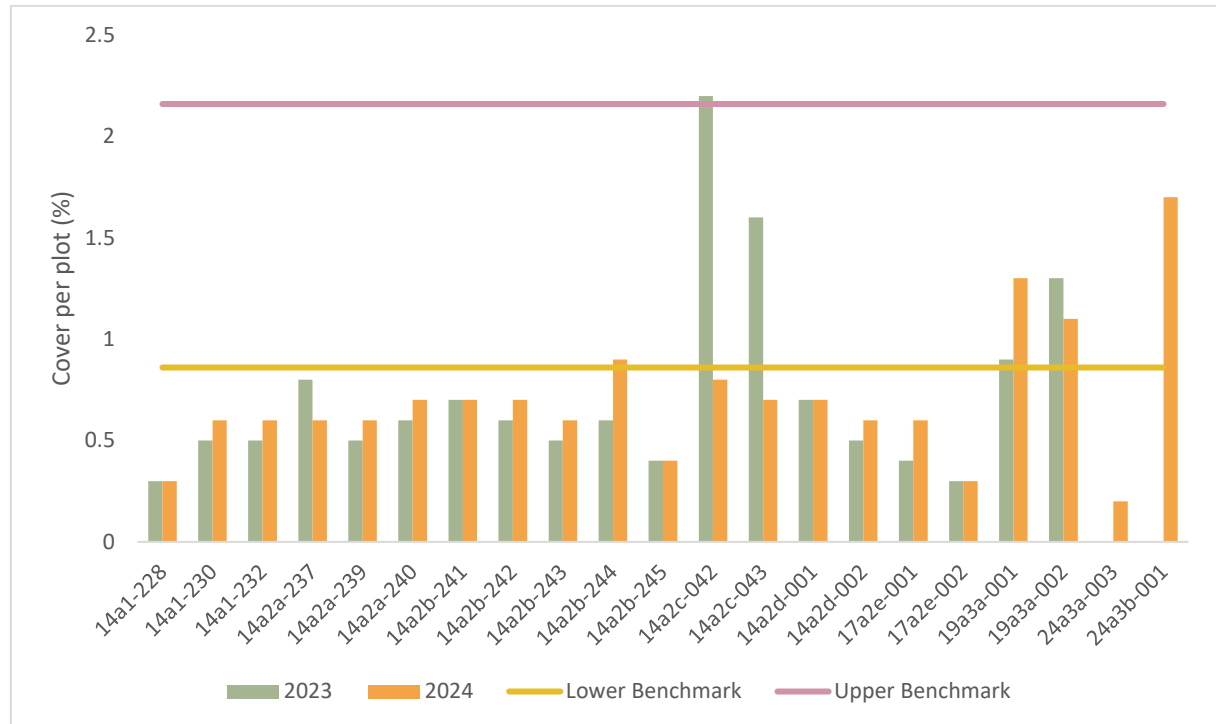
The plots in Area 3a had a mean native grass cover of 2.37% which is within benchmark and an increase from 1.6% in 2023. There was an additional plot added in Area 3a in 2024 (24a3a-003), taking total plots from two to three. Plots 19a3a-001 and 19a3a-002 were within benchmark, with native grass cover of 3.2% and 2.6% respectively. Plot 24a3a-003 which was newly established, was below benchmark and not within 25% of the lower benchmark, with a native grass cover of 1.3%.

The first plot in Area 3b was established during this monitoring period (24a3b-001), which had a native grass cover of 3%, within benchmark.

Statistical analysis

Mean native grass cover was less than 8% and varied between/within Control and Stage sites. Due to the small sample size ($n=2$), no major inferences could be made about relationships in the data. Most sites have reached the lower benchmark, however significant difference between the control and some stages indicate that rehabilitation has not yet achieved a natural state for native grass cover across all stages (Austral 2025).

3.5 Native Forb Cover



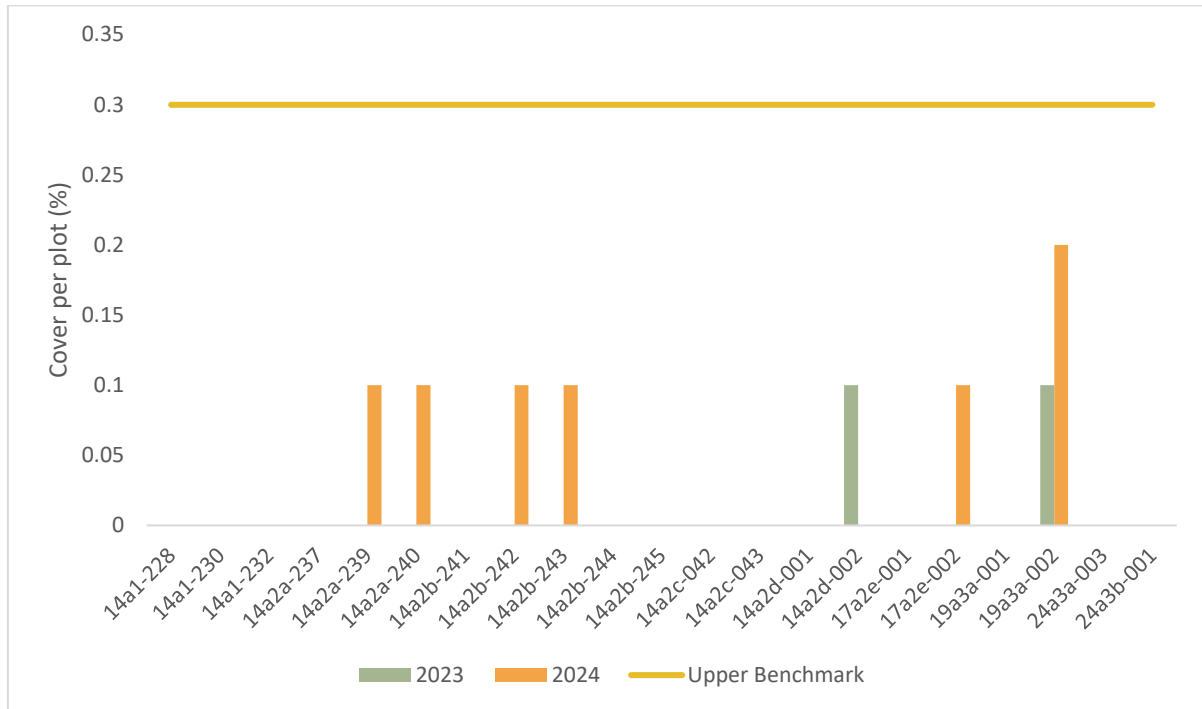
Graph 13: Native Forb Cover per plot for Stage 1, 2 and 3 from 2023-2024 (Lower Benchmark = 0.86 and Upper Benchmark = 2.16)

Native forb cover was generally quite low for the Control plots, as can be seen from the upper and lower benchmark. As such it is not as crucial an attribute for measuring regeneration success as perhaps tree and shrub cover. In 2024, native forb cover was highest in Area 3a and Area 3b. In 2023 it was highest in Area 2c but has decreased in 2024.

Statistical analysis

Mean native forb cover was $<2\%$ and varied slightly between/within Control and Stage sites. Due to the small sample size ($n=2$), no major inferences could be made about relationships in the data. While most sites reached the lower benchmark, significant difference between the Control and some Stages indicate that rehabilitation has not yet achieved a natural state for native forb cover across all Stages (Austral 2025).

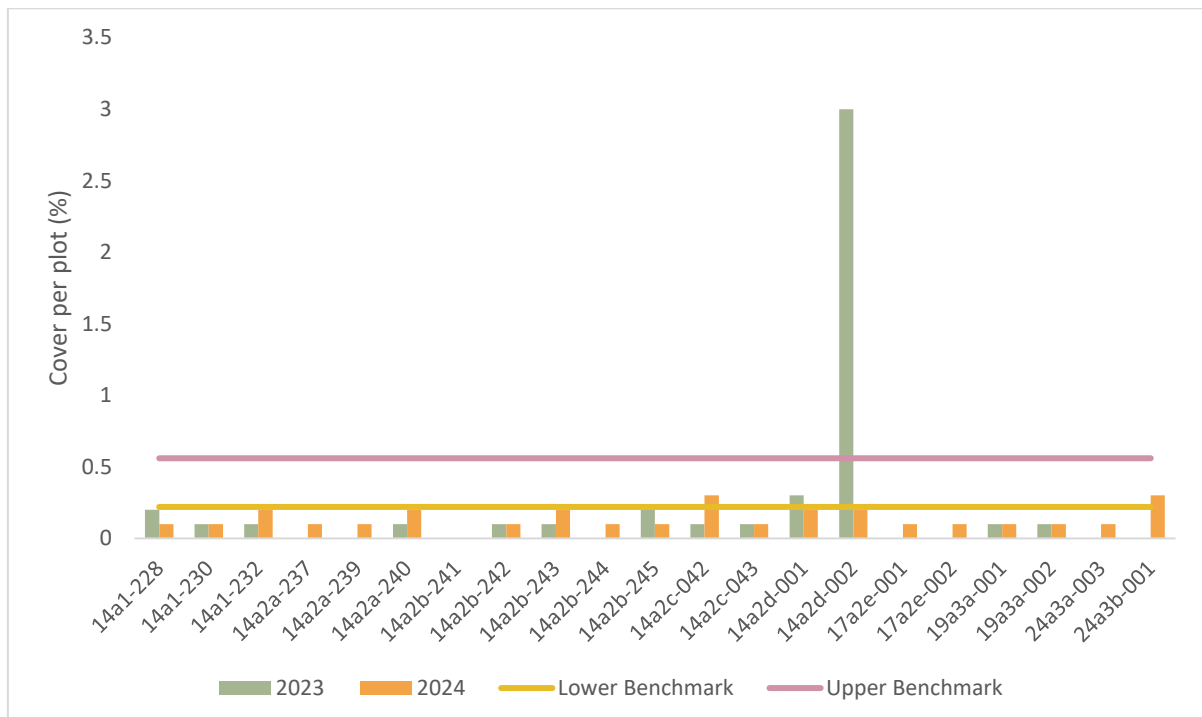
3.6 Native Fern Cover



Graph 14: Native Fern Cover per plot for Stage 1, 2 and 3 from 2023-2024 (Lower Benchmark = 0 and Upper Benchmark = 0.3)

Native fern cover was inconsistent and generally very low for the Control plots, as can be seen from the upper and lower benchmark. As such it is not as important at measuring regeneration success as perhaps tree and shrub cover. Native fern cover and presence of fern species was sporadic across rehabilitation monitoring plots, with only six of the 21 plots having native fern species present.

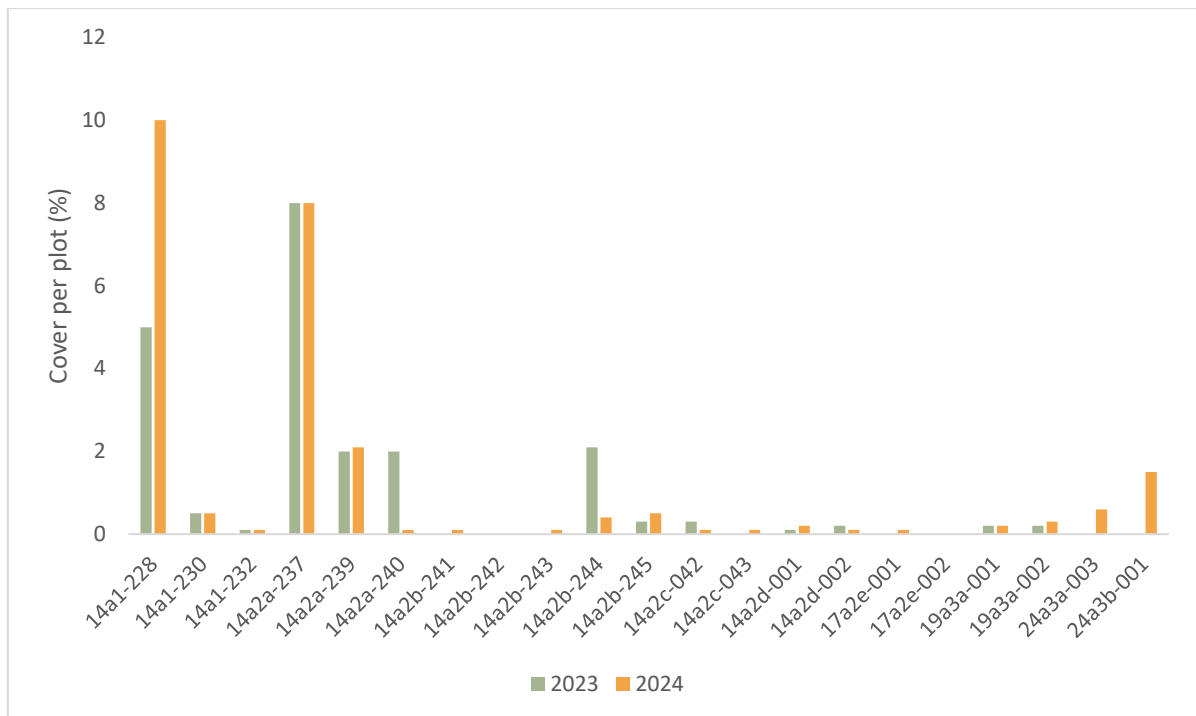
3.7 Native Other Cover



Graph 15: Native Other Cover per plot for Stage 1, 2 and 3 from 2023-2024 (Lower Benchmark = 0.22 and Upper Benchmark = 0.56)

Native other cover was generally quite low for the Control plots, as can be seen from the upper and lower benchmark in Graph 15. As such it is not as important at measuring regeneration success as perhaps tree and shrub cover. Native other cover ranged from 0 to 0.3% across rehabilitation plots in 2024.

3.8 HTW Cover



Graph 16: High Threat Weed (HTW) Cover per plot for Stage 1, 2 and 3 from 2023-2024 (Benchmark for HTW is 0)

HTW cover was zero in all the Control plots and thus this is the benchmark. The main areas of concern for HTW cover are plots 14a1a-228, 14a2a-237 and 14a2a-239, with HTW cover of 10%, 8% and 2.1% respectively. The main HTW throughout these areas is *Eragrostis curvula* (African lovegrass) Plot 24a3b-001 also had a relatively high HTW cover, however this is to be expected of newly established emplacement areas.

3.9 Threatened flora

One threatened plant species, *Persoonia hirsuta*, was detected during the 2024 monitoring. It was recorded in plot a2a-239. The threatened species *Pultenaea aristata* has also previously been recorded within the CWEA, but not since 2018.

In previous years, eight additional *P. hirsuta* and four *A. bynoeana* were found just outside the CWEA of Stage Four. Additionally, nine *A. bynoeana* were identified along the dam road in 2024. The *Persoonia hirsuta* individuals are considered a significant observation, contributing to the understanding of the species' capacity for regeneration within the rehabilitation areas and will continue to be considered during future monitoring.

3.10 BAM habitat features

Hollow Bearing Trees

As of 2024, there are no hollow bearing trees (HBTs) within any of the stages of the rehabilitation. This is to be expected, especially for large hollows, which usually only occur in very large, old trees (100 – 150 years plus in age) (DECC 2007). Throughout the Control plots, the average number of HBTs was 0.76 (ranging between 0-5 HBTs per plot).

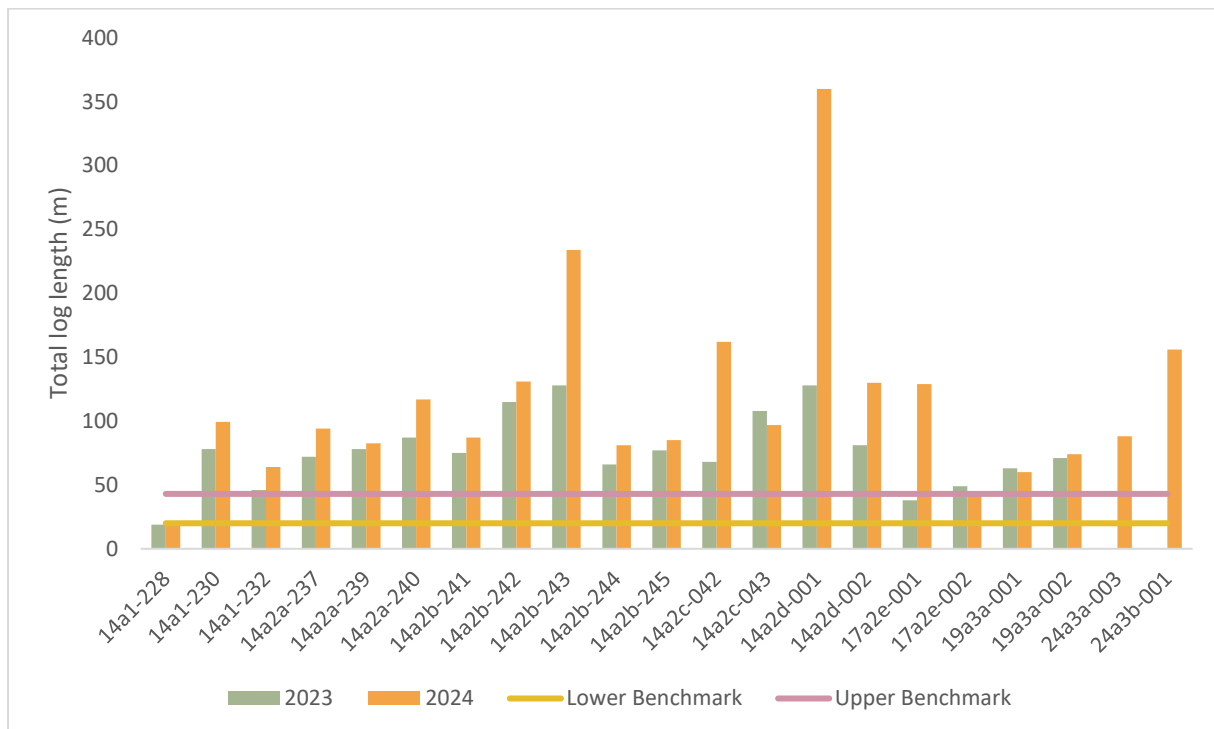
Litter Cover



Graph 17: Leaf Litter Cover (%) per plot for Stage 1, 2 and 3 from 2023-2024 (Lower Benchmark = 80 and Upper Benchmark = 92.16)

Percentage of leaf litter is often directly correlated with canopy cover. As the canopy cover increases and the trees mature, leaf litter increases. This can be seen in Graph 17. Most of the plots within Stage 1 are meeting benchmark for leaf litter cover, as this the most mature stage. Whereas Stage 3 which is newly planted is well below benchmark for most plots.

Length of Fallen Logs



Graph 18: Total length of fallen logs (m) per plot for Stage 1, 2 and 3 from 2023-2024 (Lower Benchmark = 20 and Upper Benchmark = 43)

Length of fallen logs remains quite consistent across years for all stages, as logs are translocated during rehabilitation and then remain within the area. All plots, except plot a1a-228, were above benchmark for length of fallen logs in 2024. Plot a1a-228 was however within 25% of the lower benchmark, with a total length of 18m.

Number of Large Trees

Large trees for a dry sclerophyll woodland are anything above 50cm diameter at breast height (DBH). There are no large trees within any of the rehabilitation stages, which is to be expected. All areas are progressing well and show good recruitment of canopy trees including numerous species of *Eucalyptus*, *Angophora costata*, *Corymbia gummifera* and *Allocasuarina littoralis*. All plots within Stage 1 had trees within the size range 20-30cm DBH. Two plots in Stage 2 also have plots with trees in this size range (plot a2a-240 and a2c-042).

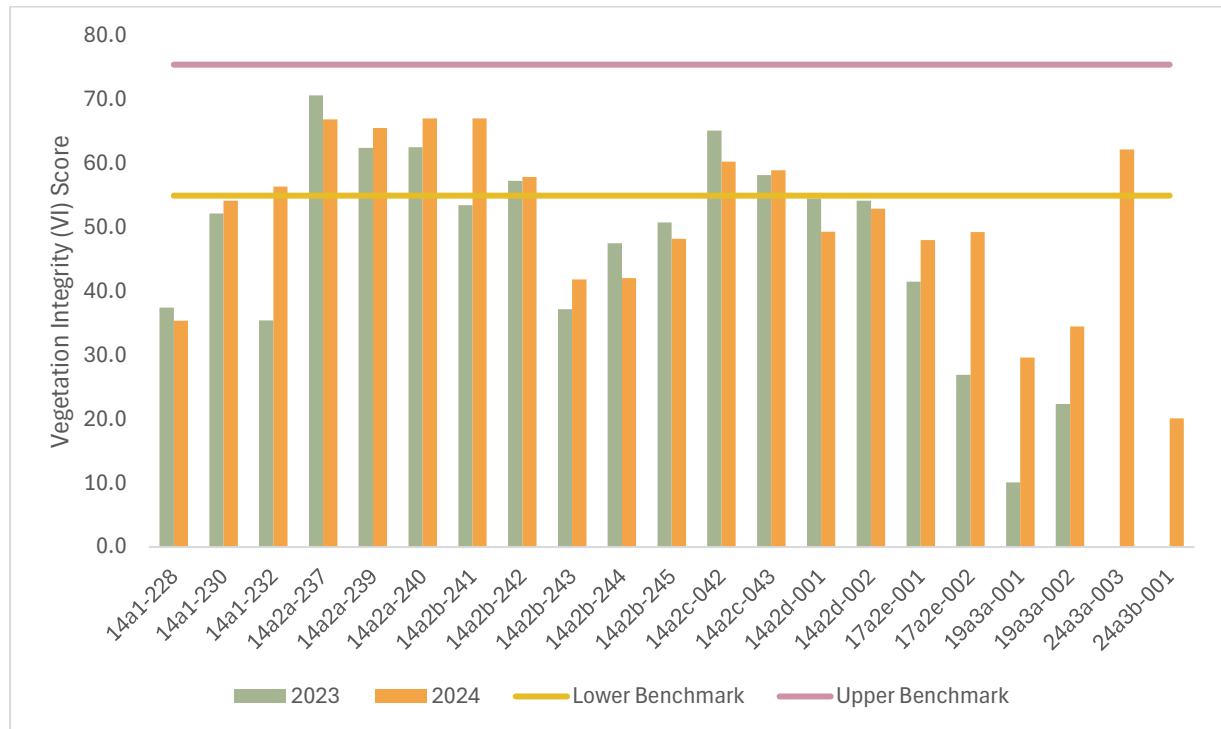
Regeneration

Regeneration is the presence of living trees from the tree growth form group with a maximum stem diameter of <5cm (DPIE 2020). Presence of regeneration within new plots (e.g. Stage 3), is a good indication that canopy species are recruiting from seed. Presence of regeneration within older plots, such as Stage 1 and 2, indicates the ability of the vegetation to naturally regenerate. The benchmark for regeneration is 'present', as this stem size class was present in all 10 Control plots. In both 2023 and 2024, regeneration was present in all plots throughout the rehabilitation area (Stage 1, 2 and 3).

3.11 Vegetation Integrity

Within the BAM, a vegetation integrity (VI) score represents the degree to which the composition, structure and function of the vegetation type at a site differs from the best-on-offer condition. Best-on-offer sites are those sites within the contemporary landscape with higher numbers of native plant species, greater structural complexity and replete with functional components, relative to other sites within the same vegetation type and bioregion (DCCEEW 2023).

The VI scores for the rehabilitation plots have been calculated under the pretense that the plots are PCT 3595 Sydney Coastal Sandstone Gully Forest or PCT 3598 Woronora Plateau Scribbly Gum Woodland. As both are listed in the same vegetation class, Sydney Coastal Dry Sclerophyll Forests, the benchmarks, and thus the VI score, are the same for both.



Graph 19: Vegetation Integrity (VI) Score per plot for Stage 1, 2 and 3 from 2023-2024 (Lower Benchmark = 55 and Upper Benchmark = 75.5)

The average VI score for Stage 1 in 2024 was 48.7, an increase from 41.7 in 2023. This is below benchmark for VI, but within 25% of the lower benchmark.

The average VI score for Stage 2a in 2024 was 66.5, an increase from 65.3 in 2023, and within benchmark. The average VI score for Stage 2b in 2024 was 51.4, an increase from 49.3 in 2023. This is below benchmark, but within 25% of the lower benchmark. The average VI score for Stage 2c in 2024 was 59.6, a decrease from 61.7 in 2023, but within benchmark. The average VI score for Stage 2d in 2024 was 51.1, a decrease from 54.4 in 2023. This is below benchmark, but within 25% of the lower benchmark. The average VI score for Stage 2e in 2024 was 48.7, an increase from 34.2 in 2023. This is below benchmark, but within 25% of the lower benchmark.

The average VI score for Stage 3a in 2024 was 42.1, an increase from 16.3 in 2023. This is below benchmark, but within 25% of the lower benchmark. The sample size increased from two to three in Area 3a in 2024 as a new plot was added (24a3a-003). Stage 3b was newly established in 2024, and the VI for plot 24a3b-001 was 20.2 for the first year. This is below benchmark and not within 25% of the lower benchmark, as is to be expected given the young age of this revegetation area.

3.12 Photo-Point Monitoring

Photo-point monitoring, illustrating the changes in vegetation cover at each of the monitoring sites is provided in Annex 3: Photo Point Monitoring. Overall, the native plant cover in all rehabilitation areas is continuing to improve over time.

3.13 Camera traps

Camera traps were deployed across nine sites in 2024 across all the rehabilitation areas from 25 November 2024 – 23 December 2024 (total of 28 nights). Cameras were attached low to the ground on to a tree and were placed within general habitat in the rehabilitation areas (Table 5). See Figure 2 for camera trap locations.

Table 5: Camera Trap Locations

Site Name	Latitude	Longitude
Site 1	-34.2278781	150.8197073
Site 2	-34.22408223	150.8191973
Site 3	-34.22813345	150.8229138
Site 4	-34.22206527	150.819347
Site 5	-34.22491109	150.818655
Site 6	-34.23032512	150.8254951
Site 7	-34.22244088	150.8191745
Site 8	-34.22979295	150.8244667
Site 9	-34.22691913	150.8210455

The survey detected 14 different native species; five of which were mammals, six birds, three reptiles and one invertebrate. Only one exotic species was detected on the cameras, Rusa Deer (*Rusa timorensis*). These results are summarised in Table 6. Rosenberg's Goanna (*Varanus rosenbergi*) listed as Vulnerable under the BC Act was recorded three times at Sites 4 and 9. Refer to Annex 4: for images of fauna species detected on camera traps.

Table 6: Fauna records from the camera trap survey

Scientific Name	Common Name	Exotic	BC Status	EPBC status	Sites									Total
					1	2	3	4	5	6	7	8	9	
Birds														
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	-	-	-									1	1
<i>Colluricincla harmonica</i>	Grey Shrikethrush	-	-	-					2					2
<i>Eopsaltria australis</i>	Eastern Yellow Robin	-	-	-			3	2						5
<i>Meliphaga lewinii</i>	Lewin’s Honeyeater	-	-	-				3		1				4
<i>Psophodes olivaceus</i>	Eastern Whipbird	-	-	-		3	1		1			5		10
<i>Sericornis frontalis</i>	White-browed Scrubwren	-	-	-			4	1			2		5	12
Invertebrates														
<i>Heteronympha merope</i>	Common Brown Butterfly	-	-	-									2	2
Mammals														
<i>Antechinus stuartii</i>	Brown Antichinus	-	-	-								1		1
<i>Macropus giganteus</i>	Eastern Grey Kangaroo	-	-	-						19				19
<i>Rattus fuscipes</i>	Bush Rat	-	-	-				2	2				1	5
<i>Rusa timorensis</i>	Rusa Deer	Y	-	-	3					4				7
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	-	-	-				3						3
<i>Wallabia Bicolor</i>	Swamp Wallaby	-	-	-	3			2	9	9				23
Reptiles														
<i>Psuedonaja textilis</i>	Eastern Brown Snake	-	-	-			1							1
<i>Varanus rosenbergi</i>	Rosenberg’s Goanna	-	V	-				1					2	3
<i>Varanus varius</i>	Lace Monitor	-	-	-	1			2			1			4
Total					7	3	9	16	14	33	3	6	11	102

3.14 Bee hotel occupancy

A total of eight bee hotels were inspected for pollinator occupancy on the 10 September and 3 October 2024 by Justin Meredith (Niche Ecologist) and Polly Barlow (GM3 ICHPL) (Figure 4). Some occupants had emerged from the hotel and only remnants of the nest caps remained. Some appeared to have not yet emerged. Nest cap descriptions and the occupant's family and ecological niche are detailed in Table 7. Images from the bee hotels can be found in Annex 5.

Table 7: The bee hotel occupancy results, including nest cap description and the occupant's family and ecological niche

Hotel number	Occupied	Remnant nest cap description	Possible occupant		Ecological niche	Photo
			Family	Common name		
1	Yes	Cellophane	<i>Colletidae</i>	Masked bees	Pollinator; known to visit <i>P. hirsuta</i>	
		Fine Sand/clay cap	<i>Crabronidae</i>	Crabronid wasp	beneficial predator	
2	Yes	Fine sand/clay cap	<i>Crabronidae</i>	Crabronid wasp	Beneficial predator	
3	Yes	Corymbia sap caps	<i>Megachilidae</i>	Resin bees	Pollinator	
4	Yes	Cellophane	<i>Colletidae</i>	Masked bees	Pollinator; known to visit <i>P. hirsuta</i>	
		Sand/clay	<i>Crabronidae</i>	Crabronid wasp	Beneficial predator	
		Corymbia sap caps	<i>Megachilidae</i>	Resin bees	Pollinator	

Hotel number	Occupied	Remnant nest cap description	Possible occupant		Ecological niche	Photo
			Family	Common name		
5	Yes	Sand/clay	<i>Crabronidae</i>	Crabronid wasp	Beneficial predator	
		Cellophane	<i>Collitidae</i>	Masked bees	Pollinator; known to visit <i>P. hirsuta</i>	
		Corymbia sap caps	<i>Megachilidae</i>	Resin bees	Pollinator	
		Sticks (jammed)	<i>Megachilidae</i>	Resin bees	Pollinator	
6	Yes	Course sand/clay	<i>Crabronidae</i>	Crabronid wasp	Beneficial predator	
		Fine wooden spiral structure	<i>Formicidae</i>	Carpenter ant	Beneficial for seed dispersal and decomposition	
7	Yes	Course sand/clay	<i>Crabronidae</i>	Crabronid wasp	Beneficial predator	
8	No	-	-	-	-	

3.15 Broad-headed Snake Habitat

A total of four artificial broad-headed habitats were inspected on the 28 August by Justin Merdith (Niche Ecologist) and Polly Barlow (GM3 ICHPL) (Figure 5). The observations and any species found under the pavers are recorded in Table 8.

Table 8: Broad-headed snake habitat and observations

Broad-headed snake habitat	CWEA Stage	Description	Surface temperature / Time	Observations	Photo
1	Stage 2	Placed on a western facing slope, made up of 2 large concrete pavers stacked on each other, separated by thin rocks found around the site. Crevice sizes was no more than 5 mm. Following the initial inspection, the paver was moved to a nearby location, elevate on a large piece of sandstone, to avoid issues with sheetwash.	Paver surface temperature of 13.9 degrees Celsius was recorded, there was morning sun exposure when recorded, surrounding sandstone had surface 20.8 degrees Celsius. 9:20 AM	Nothing present. Sheet wash flowing between the pavers.	  
2	Stage 1	Located on a west slope. This site was made up of 1 large concrete paver, 1 natural flat rock found and 1 smaller concrete paver. Crevice sizes range from 0mm - 4mm - 11mm.	Paver surface temperature of 18.5 degrees Celsius was recorded, there was morning sun exposure when recorded, surrounding sandstone had surface 20.1 degrees Celsius. 9:48 AM	Flat Rock Spider (<i>Hemicloea</i>) present. No sign of Broad-headed snakes.	

Broad-headed snake habitat	CWEA Stage	Description	Surface temperature / Time	Observations	Photo
3	Stage 2	Located on a north-west facing slope, made up of 2 concrete pavers stacked on each other, separated by thin rocks found around the site. Crevice sizes was no more than 5 mm.	11.4 degrees Celsius 9:03 AM	Nothing present.	
4	Stage 3	Site includes 2 BHS habitat. These sites were located on a south-west facing slope. The first habitat was made up of one single layer of paver, with a flat surfaced, natural rock found nearby laid on top. The second habitat at this site, had two layers of paver stacked. No stones or props used to create any further gap. Both habitats were placed on larger sandstone boulders that might mimic a normal BHS environment in a sandstone rocky outcrop.	Paver surface temperature of 24.0-28.0 degrees Celsius, sandstone (shade) surface temperature of 21.8 degrees Celsius and sandstone (sun) surface temperature of 24.2 degrees Celsius. 10:21 AM	Nothing present.	 

3.16 Nest boxes occupancy

Seven nest boxes were monitored on the 10 September 2024 by Justin Merdith (Niche Ecologist) and Polly Barlow (GM3 ICHPL) (Figure 3). Nest box 8 was not inspected in 2024. The nestboxes were inspected on a clear day with a max temperature of 23.5 °C. The observations and any species found are recorded in Table 9.

Table 9: Nestboxes surveys

Nestbox number	CWEA Stage	Nest box type	Observations	Photo	Condition of nestbox
1	Stage 2	Microbat	No access for camera available using the camera pole. Observed outside and around the box, spiderweb across entry and no apparent activity within proximity to box, didn't indicate usage.		Good- no damage. No maintenance required.
2	On the edge of Stage 1	Owl	No indication of usage both inside the box or in the perching areas of outside the box.		Good- no damage. No maintenance required.
3	On the edge of Stage 1	Parrot	No access for camera available using the camera pole. One Ringtail Possum (<i>Pseudocheirus peregrinus</i>) occupying at the time of inspection (visually observed on approach)		Good- no damage. No maintenance required.

Nestbox number	CWEA Stage	Nest box type	Observations	Photo	Condition of nestbox
4	Stage 1	Owl	Two Ringtail Possums (1 adult & 1 juvenile) occupying at the time of inspection (visually observed on approach and during camera inspection)	 	Good- no damage. No maintenance required.
5	Stage 1 of the rehabilitation area	Owl	Signs of established usage. Possible fur amongst litter indication of possum rather than bird. Possibly a Ringtail Possum based on photos of NB04.		Good- no damage. No maintenance required.

Nestbox number	CWEA Stage	Nest box type	Observations	Photo	Condition of nestbox
					
6	On the edge of Stage 1	Parrot	No access for camera available using the camera pole. One Ringtail Possum occupying at the time of inspection (visually observed on approach)	 	Good- no damage. maintenance required.
7	Stage 2	Small owl	Beehive present. European Honeybee's (<i>Apis mellifera</i>).		Potential damage caused by the European bees, hole created by bees on the side of box. Nestbox needs to be replaced.

Nestbox number	CWEA Stage	Nest box type	Observations	Photo	Condition of nestbox
					
8	Stage 2	Possum	N/A	N/A	Not inspected in 2024

4 Discussion

4.1 Stage 1

The NPS richness in all plots for Stage 1 was below benchmark in 2024. However, the mean NPS richness in 2024 was slightly higher compared to 2023, with an increase from 21.33 to 22.67 (Graph 1). The mean NPS richness for all areas in Stage 2 (2a-2e) was significantly higher than Stage 1 (Graph 2). This is likely due to the use of different topsoil translocation methods between the Stages. The native plant species richness for Stage 1 has consistently remained around 18-26 species which is significantly lower than Stage 2 and 3, and below the benchmark range for 2024.

NPS richness is the only site attribute that can be accurately compared across BBAM and BAM. As can be seen in Graph 1, although there has been a slight increase in NPS in 2024 across most sites, there has been minor fluctuations in NPS each year since 2015. Stage 1 has reached a mature state and is unlikely to see any significant naturally occurring changes in NPS over future years.

The translocation methods used in Stage 1 resulted in shallower topsoil than Stage 2, which may have decreased the comparative native seed load and available nutrients. Stage 1 was also selectively planted with endemic tube stock. The tube stock was predominantly *Acacia* and *Eucalyptus* spp., which may have outcompeted species established from seed resulting in an artificially lowered NPS richness for the community. A monoculture of the native shrub *Kunzea ambigua* has also developed in much of Stage 1, with a cover of 40% in plots a1a-230 and a1a-232 (Annex 7). It is possible the *Kunzea ambigua* has out competed other native shrubs and forbs and has led to the lower species richness within Stage 1.

The mean native tree cover was 53.33% in Stage 1 in 2024. This is significantly higher than 39.23% observed in 2023 (Graph 4). All three plots, 14a1a-228, 14a1a-230 and 14a1a-232, were within benchmark, with native tree cover of 62.8%, 63% and 34.2% respectively. As the mean native tree cover was within the benchmark range for 2024, and there was a significant increase since 2023, it is expected that mean native tree cover will continue to increase across Stage 1 over time as canopy trees naturally mature.

The mean native shrub cover was 29.73% in Stage 1 in 2024. This is significantly higher than 16.7% in 2023 (Graph 7). Plots 14a1a-230 and 14a1a-232 were within benchmark, with native shrub cover of 42.3% and 41.6% respectively. Plot 14a1a-228 was well below benchmark and not within 25% of the lower benchmark, however, has increased from 2.2% in 2023 to 5.3% in 2024. Overall, the mean native shrub cover for Stage 1 is within the benchmark range for 2024. The ongoing low native shrub cover observed in plot 14a1a-228 may have been caused by the comparatively high tree cover observed in this plot (Graph 4), resulting in competition with native shrub species. However, the tree cover is also high in plot 14a1a-230, and the shrub cover hasn't been negatively affected.

The mean native grass cover was 3.27% in Stage 1 in 2024. This is a reduction from 4.5% in 2023, however still sits within the benchmark range for 2024. Plots 14a1a-228, 14a1a-230 and 14a1a-232 were all within benchmark, with native grass cover of 3.8%, 2.5% and 3.5% respectively (Graph 10). The overall reduction in mean native grass cover for 2024 was driven by a significant decrease in plot 14a1a-228, which fell from 8.3% to 3.8%. The low native grass cover in plot a1a-228 could be linked to the increase in both native tree and native shrub cover in 2024 (Graph 4, Graph 7).

The mean native forb cover increased slightly or remained unchanged across all plots in Stage 1 in 2024 (Graph 13). The mean native forb cover however remains below benchmark for Stage 1. Similarly, Stage 2 remains below benchmark in 2024. As can be seen from more recent plots in Stage 3, native forbs cover is high upon establishment and then decreases once the vegetation structure develops.

The lower benchmark for mean native fern cover is 0%, and all plots within Stage 1 remained 0% again in 2024 (Graph 14). Mean native other cover was 0.13% in 2024, not changing since 2023 (Graph 15). This isn't within the benchmark range, or within 25% of the lower benchmark.

The mean total fallen log length in Stage 1 has increased slightly in 2024, rising from 78 to 99.5 m (Graph 18). This was within the benchmark range for total fallen log length. Plot 14a1a-228 was the only plot that wasn't within the benchmark range, however it was within 25% of the lower benchmark. It is unlikely that a vegetation community as juvenile as Stage 1 will produce significant amounts of fallen timber naturally. Fauna habitat and soil stabilisation in plot 14a1a-228 may be improved by artificially increasing the amount of fallen logs.

Presence of both canopy regeneration, and canopy trees within the 20-30 cm DBH range, indicates that Stage 1 is both maturing and naturally regenerating.

The mean VI score for Stage 1 was below benchmark, however, was within 25% of the lower benchmark. Plot a1a-228 was the main driving factor in bring the mean down, with a VI score of 35.4, which is significantly below benchmark (Graph 19). Plots a1a-230 and a1a-232 had VI scores of 54.2 and 56.4 respectively, which are both within benchmark.

Overall, plot a1a-228 appears to be the driving force in bringing down the overall score for Stage 1 (Table 11), particularly with low NPS, low shrub cover and high HTW cover.

Scorecards for Stage 1 assessed cumulative revegetation success per plot (Table 11 to Table 13), and the success of Stage 1 as a whole (Table 14). Plot 14a1a-228 has less than 75% of attributes within benchmark, or within 25% of lower benchmark. Shrub cover, NPS richness, HTW cover, and VI score values were all not within benchmark. Plots 14a1a-230 and 14a1a-232 both had at least 75% of attributes within benchmark, or within 25% of lower benchmark, however key attributes such as NPS richness and shrub richness were still below benchmark for both. Overall, Stage 1 has at least 75% of attributes within benchmark, or within 25% of lower benchmark (Table 14). Although rehabilitation with Stage 1 has been successful, the low NPS richness, low shrub richness and high HTW cover should be addressed to ensure ongoing success of Stage 1.

4.2 Stage 2

The mean NPS richness in Stage 2 increased between 2023 and 2024, across all five areas (2a-2e) (Graph 2). The overall mean NPS for Stage 2 is Only area 2c and 2e were above the lower benchmark in 2024, with mean NPS of 56 and 51 respectively. Area 2a, 2b and 2d were benchmark for NPS, but were all within 25% of the lower benchmark. Areas 2a-2d appear to be approaching stabilisation as the vegetation matures. The rate at which NPS is increasing each year should begin to slow down. The more recently established Area 2e is still consistently increasing, changing from 33 to 41 in 2023, and 41 to 51 in 2024. Although this is above benchmark, the area is likely still settling and will continue to change over coming years as it matures

The mean native tree cover was within benchmark for Area 2a, 2c and 2d, and all plots within these areas individually were within the benchmark range or within 25% of the lower benchmark (Graph 5). The mean native tree cover for Area 2b was below benchmark, but within 25% of the lower benchmark, however plots 14a2b-243 and 14a2b-244 individually weren't within 25% of the lower benchmark (both had native tree cover of 18.3%). Area 2e was not within the benchmark range for mean native tree cover, nor within 25% of the lower benchmark, however this area is the most recently established within Stage 2 and will likely continue to trend towards benchmark with time.

The mean native shrub cover was above or within benchmark for all areas within Stage 2 in 2024 (Areas 2a-2e). Individually, plot 14a2b-245 was the only plot that fell below the benchmark range for 2024. The plot has decreased from 10.1 to 8.9% since 2023 and is no longer within 25% of the lower benchmark. Although all areas remain within or above benchmark, Area 2a, 2c and 2d have all decreased in mean native shrub cover since 2023 (Graph 8).

For Stage 2, the mean native grass cover was within benchmark for Area 2a, 2b and 2d in 2024. All saw a reduction in mean native grass cover since 2023. Area 2c and 2e were within 25% of the lower benchmark for mean native grass cover. Individually, plots 14a2b-243, 14a2b-244 and 14a2e-002 were not within 25% of the lower benchmark value for 2024 (Graph 11). As can be seen from the native grass cover benchmark range (2-10.44), there is a lot of variation within Control sites also, with grass species not always contributing greatly to overall cover within the vegetation communities at Control sites.

Native forb, native fern and native other cover have all remained quite consistent across areas within Stage 2 (Graph 13, Graph 14, Graph 15). These attributes are not a significant contribution in cover or diversity within Control sites, as can be seen from the low benchmark scores.

Habitat features within Stage 2, including leaf litter and total length of fallen logs, mostly remain within or above benchmark range for 2024 (Graph 17, Graph 18). Leaf litter is below benchmark, and not within 25% of the lower benchmark, for Areas 2d and 2e, however this will continue to increase in line with increases in canopy and shrub cover.

Presence of both canopy regeneration, and canopy trees within the 10-20 cm DBH range, indicates that Stage 2 is both maturing and naturally regenerating.

The mean VI score for Area 2a and Area 2c is within benchmark for 2024. Area 2b, 2d and 2e are within 25% of the lower benchmark. Individually, all plots are either within benchmark or within 25% of the lower benchmark for VI score in 2024 (Graph 19). VI score has improved significantly within plots in Area 2e in 2024, which is an indication that this area is trending towards benchmark. Plot 17a2e-001 increased from 41.5 to 48 in 2024, and plot 17a2e-002 increased from 27 to 49.3. Both plots are not within the benchmark range but are within 25% of the lower benchmark.

Overall, Stage 2 is continuing to trend towards benchmark and has relatively good diversity for this stage in its rehabilitation.

Scorecards for Stage 2 assessed cumulative revegetation success per plot in Area 2a, (Table 15 to Table 17), Area 2b (Table 19 to Table 23), Area 2c (Table 25 and Table 26), Area 2d (Table 28 and Table 29) and Area 2e (Table 31 and Table 32). Scorecards also measured the overall success of Area 2a (Table 18), 2b (Table 24), 2c (Table 27), 2d (Table 30) and 2e (Table 33). Overall, Area 2a had at least 75% of attributes within benchmark, or within 25% of lower benchmark. All plots were individually within this limit. Overall, Area 2b had at least 75% of attributes within benchmark, or within 25% of lower benchmark, however plot a2b-243 was individually not within 25% of benchmark. Overall, Area 2c, 2d and 2e all had at least 75% of attributes within benchmark, or within 25% of lower benchmark. All plots were individually within this limit. Factors such as NPS richness and VI score are still increasing within Area 2e and will likely continue to trend towards benchmark over the coming years. HTW cover continues to be above benchmark across areas of Stage 2, particularly in Area 2a, and continued weed management is advised to ensure HTW cover drops within benchmark range.

4.3 Stage 3

Two new plots were established in Stage 3 in 2024. One in Area 3a (24a3a-003), and one in Area 3b (24a3b-001).

The mean NPS richness for Area 3a increased from 54 to 58 in 2024 and is above benchmark (Graph 3). It is noted that the sample size increased from two to three with the addition of plot 24a3a-003. This plot had the lowest NPS (39), and if mean NPS was calculated only with plot 19a3a-001 and 19a3a-002 it would be 67.5. The NPS for Area 3b (which only includes plot 24a3b-001) was 51 for 2024, which is the first year of monitoring.

The mean native tree cover for Area 3a increased from 1.1% to 8.9% in 2024 (Graph 6). Newly established plot 24a3a-003 had the highest native tree cover (21.3%). The native tree cover for Area 3b was 1.5% for the first year of monitoring.

The mean native shrub cover for Area 3a increased from 7.8% to 64.4% in 2024 (Graph 9). Newly established plot 24a3a-003 had the highest native shrub cover (61.5%). The native shrub cover for Area 3b was 10.3% for the first year of monitoring.

The mean native grass cover for Area 3a increased from 1.6% to 2.4% in 2024 (Graph 12). Plot 19a3a-002 had the highest native grass cover (2.6%). The native grass cover for Area 3b was 3% for the first year of monitoring.

Length of fallen logs is above benchmark for all plots in Stage 3 (Graph 18). Leaf litter was below benchmark for all plots in Stage 3 (Graph 17). As this is a newly established area, leaf litter cover will trend towards benchmark as the vegetation matures.

Area 3a has been established for five years, and Area 3b was established in 2024. Substantial temporal fluctuations in site attributes are expected to moderate as the community matures in terms of composition, structure and function.

Scorecards for Stage 3 assessed cumulative revegetation success per plot in Area 3a (Table 34 to Table 36) and newly established Area 3b (Table 38). Scorecards also measured the overall success of Area 3a (Table 37). Overall, Area 3a had at least 75% of attributes within benchmark, or within 25% of lower benchmark, however individually both plot 19a3a-001 and 19a3a-002 are not within this limit. Even though Area 3a has 75% of attributes within benchmark, or within 25% of lower benchmark, key attributes such as VI score, litter cover. HTW cover and tree cover still need time to develop. Area 3b does not have 75% of attributes within benchmark, or within 25% of lower benchmark, which is to be expected for a newly established area.

4.4 HTW Cover (All Stages)

In Stage 1, HTW cover remained high in plot a1a-228 in 2024, with a 10% cover of African Lovegrass (*Eragrostis curvula*). African Lovegrass was also present in plots a1a-230 and a1a-232 (0.5% and 0.1% cover respectively). The benchmark for HTW cover is 0%.

In Stage 2, HTW was still high in plot 14a2a-237 in 2024, with an 8% cover of African Lovegrass. There was also a 2% cover of African Love Grass in plot 14a2a-239. African Lovegrass was present in low abundance throughout numerous plots in Stage 2 (Annex 7). Additionally, HTWs St John's Wort (*Hypericum perforatum*), Whisky Grass (*Andropogon virginicus*) and Fireweed (*Senecio madagascariensis*) were present in low abundance in Stage 2 (Annex 7).

In Stage 3, overall HTW was highest in the newly established plot 24a3b-001. This plot had Crofton Weed (*Ageratina adenophora*), Briza subaristata, Umbrella Sedge (*Cyperus eragrostis*), Paspalum (*Paspalum dilatatum*), Whisky Grass (*Andropogon virginicus*) and Fireweed (*Senecio madagascariensis*) recorded (Annex 7). Area 3a had four species of HTW recorded in total across the three plots, with the highest cover in the newly established 24a3a-003 (0.6% cover).

Stage 3 had the highest diversity of HTW, which is to be expected in newly established areas. If bush regenerators continue to target weeds early, they are unlikely to persist once the vegetation matures.

4.5 Fauna monitoring

The camera trap data had 14 different native fauna species; five of which were mammals, six birds, three reptiles and one invertebrate. This is a decrease of eight native species from the 2023 surveys.

Rosenberg's Goanna (*Varanus rosenbergi*) listed as Vulnerable under the BC Act was recorded three times at Sites 4 and 9. Only one exotic species was detected on the cameras, Rusa Deer (*Rusa timorensis*). One of the cameras was knocked over by a bird on the second day of deployment and didn't record any data. The decrease in number of native species doesn't necessarily indicate that less species are utilising the rehabilitation area.

The bee habitat monitoring showed evidence of three bee hotel with a known Pollinator that visit *Persoonia hirsuta* and six hotels showed evidence of beneficial predators. This is an increase in activity since 2023. Only Bee Hotel 8 showed no sign of activity in 2024.

The Broad-headed Snake habitat monitoring didn't result in finding any native species. but showed promising observations. The nest box monitoring identified Ringtail Possums (*Pseudocheirus peregrinus*) occupying three of the seven nest boxes (nestbox 3, 4 and 6). There were also signs of occupation in nest box 5 (Table 9). There was a European Honeybee (*Apis mellifera*) colony in nest box 7, which will deter any native species from utilising it.

The Bee hotels, Broad-headed snake habitat and Nest boxes all provide valuable habitat and showed some signs of habitation. It is expected that given time and the refining of each of the habitats as per recommendations, we will see increased use in each habitat in subsequent years.

5 Conclusions and recommendations

This report provides a description of the methodologies used and outcomes achieved from the fourteenth season of monitoring the rehabilitation success in Stages 1, 2 and 3 of the Appin North CWEA. Overall, the rehabilitation areas were within or above the local benchmarks for majority of the Stage 2 and 3 biometric attributes. Stage 2 and 3 are continuing to trend towards benchmark values whereas, Stage 1 continues to stay below benchmark in native plant species richness.

As per the score cards for Stage 1, overall, at least 75% of attributes are within benchmark, or within 25% of lower benchmark (Annex 2). Native plant species richness remains below benchmark for Stage 1.

Score cards for Stage 2 show that overall, at least 75% of attributes are within benchmark, or within 25% of lower benchmark (Annex 2). Area 2d and 2e are below benchmark for NPS and VI score, and Area 2e is below benchmark for native tree cover (%), however these attributes are trending towards benchmark.

Score cards for Stage 3 show that overall, Area 3a has at least 75% of attributes within benchmark, or within 25% of lower benchmark (Annex 2). However, key attributes such as native tree cover, litter cover and VI score still need time to develop. Area 3a is trending towards benchmark for most attributes, and with time should achieve rehabilitation success. Area 3b does not have 75% of attributes within benchmark, or within 25% of lower benchmark, as is to be expected. However, it is showing promising results for the first year of monitoring.

Weed management should continue to be a priority within both Stage 1, Stage 2 and Stage 3 to ensure that the HTW cover within these area reaches benchmark.

5.1 Vegetation monitoring

Future monitoring should continue to utilise the BAM methodology for data collection. Statistical analysis was completed this year, however as this is only the second year employing BAM methodology, the sample size is very small ($n=2$). Thus, no strong correlations have been identified in the data yet. As the program continues, and the sample size becomes more robust, the statistical analysis will be more relevant for drawing conclusions about changes in the vegetation and variations between control and rehabilitation sites.

5.2 Weed management

Weed incursion remains the key threat to the rehabilitation of the CWEA. African Love (*Eragrostis curvula*) grass was high in some plots in the monitoring program and is highly likely to spread and out-compete native plants if not controlled.

Continuation of weed management is recommended throughout all Stages, with a focus on Stage 1 and 2, especially within Areas 1a and 2a. Suitably qualified bush regenerators with chemical application tickets would be most appropriate to chemically or manually remove African Love grass.

Continue to engage bush regenerators during establishment of new areas (such as Area 3b) to limit weed incursion early.

5.3 Threatened fauna habitat

The habitat features within the rehabilitation are being occupied by native mammals, reptiles and birds, including Eastern Pygmy-Possum (*Cercartetus nanus*) and Rosenberg's Goanna (*Varanus rosenbergi*) (both listed as vulnerable under the BC Act). A koala (*Phascolarctos cinereus*) was also identified by GM3 staff traversing the newly planted Stage 3. There are secondary food tree species for Koala present within the rehabilitation areas, including *Eucalyptus punctata* and *Eucalyptus moluccana* (DCCEEW 2024), so presence of this threatened species within the rehabilitation is a positive sign.

As the rehabilitation matures, it is expected that native fauna abundance will increase further.

5.4 Bee hotel occupancy

For improvements to the monitoring program and native bee occupancy, it is recommended that Bee Hotel occupancy is inspected from September to early October in the Illawarra, when the nest cap is

intact and the brood has not yet emerged. The following may be put into practice to further encourage pollinators into the emplacement rehabilitation areas, provided adequate pollen and nectar resources are available:

- *Persoonia hirsuta* is known to be pollinated by *Leioproctus* and *Exoneura* species. *Leioproctus* species can be encouraged to nest nearby by leaving areas of sunny, sandy earth free from leaf litter and *Exoneura* species can be encouraged to nest in bee hotels containing intact (not drilled) pithy stems (e.g. dried *Lantana camara*)
- *Amegilla* species can be encouraged by providing clay and sand nesting blocks (Dollin, 2006).

In addition to the above recommendations, *Tetragonula carbonaria* is a native social bee that is endemic to the Illawarra and can be purchased and maintained in manmade hives. This species is known to visit *P. hirsuta* flowers (Emery et al. 2021). Provided adequate pollen and nectar resources are available, this species could be placed in a hive near *Persoonia hirsuta* populations to aid in pollination. It is recommended that a local or Sydney based supplier is used to ensure the colony is suited to the climate in the locality.

5.5 Remote camera trapping

For improvements to the monitoring program and to increase the detectability of threatened terrestrial mammals, the following is recommended:

- To increase detectability, remote camera traps should be baited with universal baits (oats, peanut butter and honey) and deployed for a minimum of 30 trap nights, targeting suitable myrtaceous, flowering shrubs between the months of October and March.
- Honey water should be sprayed on the trunks of trees, and near bait cannisters as an attractant for small mammals.
- An increase in camera densities is recommended in Stage 1 and 2 to increase detectability.
- Cameras could be placed facing small nest boxes to capture fauna movements.

5.6 Broad-headed Snake

For improvements to the monitoring program and potential Broad-headed Snake occupancy, the following is recommended:

- Additional flat rocks are placed around the rehabilitation area. This is to increase the likelihood of creating crevices with a suitable temperature for Broad-headed snakes. The more flat rocks available, the greater the range of crevice types/sizes with varying degrees of sunlight. This increases the likelihood of hitting the right thermodynamic range across a greater number of days. It is also important to ensure that there is an adequate level of connectedness between the regeneration area and adjacent undisturbed land. Hence sites closest to undisturbed bush may be more favourable.
- The likelihood of occupancy can also be increased by placing flat rocks in a mix of shaded and highly exposed areas within the outcrop to allow for a wider range of crevice thermodynamics. West and north facing outcrop are the best locations to use.
- Surveys in the future should be undertaken in the cooler months as this is when the habitat is most readily used. During the warmer months, adult males and non-breeding females move into adjacent woodland within 1 km of sandstone areas.
- Ensure the sandstone outcrop isn't covered with dense leaf litter (Cth DCCEEW, 2023).

5.7 Nest boxes

For improvements to the monitoring program and nestbox occupancy, the following is recommended:

- For nestboxes where the GoPro is unable to access the nestboxes other monitoring methods are recommended:
 - A camera trap can be set up facing the nestbox to try and capture any species that are using these nestboxes,
 - A smaller camera could be used that will fit within these nestboxes (e.g. Insta360 GO range), or
 - A tree climber could physically inspect these nestboxes.
- Ensure nest boxes are located to suit the targeted species;

- Microbats prefer a north to north-westerly aspect. This preference is driven by the bats' need to increase their body temperature, before emerging on nights they are actively foraging.
- Birds and mammals prefer the nestbox to face an easterly direction but can vary from north-east to south. This orientation helps avoid the direct sun (north/west) and the south-westerly rain. Ideally, the nestbox will be sheltered by the tree canopy and trunk during the day. Hollow nesting birds tend to prefer an open aspect, whereas mammals such as possums and gliders prefer a more closed and sheltered opening (e.g. Dense overhanging foliage) (Green Adelaide, 2021; BCT, 2023).
- Once a year nestboxes need to be checked for potential maintenance needs including;
 - Checking for any damage that may make the habitat unsuitable for the target species. Damage includes lid slightly loose, sides warping due to moisture, no longer secured properly to the tree or missing the lid.
 - Management of pest species that may utilise the nest boxes, such as European bees, common myna or starlings. There is evidence that some native wildlife will not occupy a nest box that has been previously inhabited by bees, and it is best practice to replace this nestbox (BCT, 2023).
- Recommend replacing NB07 due to European honeybee infestation.

6 Completion Criteria

Table 10 details the completion criteria for the for all three stages of the Coal Wash Emplacement Area (CWEA) at Appin North Colliery, provided by GM3 personnel (GM3 2025). The completion criteria relate to land stability and establishing plant growth mediums, by having no exposed coal wash and fauna habitat replaced over the site (logs and rocks).

Table 10: Coal Wash Emplacement Area (CWEA) completion criteria as per the Coal Wash Emplacement Area Management Plan (GM3 2025)

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
Domain 11: CWEA	Landform Establishment	Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	Final landform design.	Site reprofiled as per final landform design (where applicable). Note Stages 1 & 2 emplacements were reprofiled to the standard of the day.	Section 5.1 – Landform construction - Mine Rehabilitation Leading Practice Sustainable Development Program for the Mining Industry (2016).	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.	Landform established and stabilising with no active, gully or tunnel erosion across all Stages.
Domain 11: CWEA (Stage 2 and 3 emplacements only)			Compaction testing (for CWEA Stages 2 & 3 only).	>95% compaction achieved as evidenced by compaction test reports. Note Stages 1 & 2 emplacements were constructed to the standard of the day.	CWEAMP – Section 5.2.9.6. Emplacement Compaction.		
Domain 11: CWEA (all emplacement stages)			Combustion testing	Coal wash ignition testing results within acceptable range (using the Coal Washery Rejects Order 2014 as a guide unless otherwise determined by the regulatory authority).	Coal Washery Rejects Order 2014.		

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
Domain 11: CWEA	Growth Medium Development.	Establish plant growth medium.	CWEA Capping.	No coal wash is left exposed (Stage 1 emplacement).	Wollondilly Shire Council Development Consent (1975).	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.	Plant growth in Stage 3 displayed increases in native species richness.
Domain 11: CWEA			Topsoil/capping depth.	Bare or stripped areas topsoiled/capped – Depth will be governed by factors such as desired vegetation, quantity and quality of the surface and subsoil available and the nature of underlying material. Generally, >50 mm depth required for seed germination. Combined topsoil and capping depth min requirement for the CWEA is 0.5 m (Stages 2 and 3).	For CWEA, CWEAMP – Section 6 - Vegetation and Fauna Management.	Emplacement Stage 1 and 2 are completed. Stage 3 is being rehabilitated progressively.	Overstorey and midstorey have begun to increase as the site continues to become more established as predicted. Overall, Stage 1 and 2 have an increase in NPS richness. Native tree cover is within the benchmark range for Stage 1, and most of Stage 2. Native shrub cover is within the benchmark range for all of Stage 1 and 2. The resulting leaf litter will

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
							return nutrients to the soil. In all Stages, logs and rocks are creating habitat for native fauna.
Domain 11: CWEA (Stage 2 and 3)	Ecosystem Establishment	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk to the public/stock/native fauna	Translocated habitat (rocks and logs).	Rocks and logs spread across the surface of the rehabilitating emplacement in accordance with the CWEAMP. Broad-headed Snake habitat incorporated into Stage 3 and 4 rehabilitation areas.	CWEAMP – Section 7 - Vegetation and Fauna Management.	Landform established, and site preparation works are largely completed within Stages 1 & 2; however, some minor areas require further habitat placement, planting and weeding (for example, Stage 1 lookout point).	Stage 1, 2 and 3 have had habitat features installed, such as logs and rocks, during the establishment phase. Nest boxes, bee hotels and broad-headed snake habitats have also been installed throughout the CWEA.
Domain 11: CWEA			Site preparation and seeding/planting with appropriate species.	Area ripped (if required) and seeded/planted using the appropriate method.	Section 5.3 (Establishment of a Plant Growth Medium) - Mine Rehabilitation Leading Practice Sustainable Development		All 3 Stages had seeded/planted species consistent with the surrounding vegetation.

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
					Program for the Mining Industry (2016).		
			Plant establishment and growth.	50% combined vegetative cover achieved and sustained for a period of two years.	Target was determined based on past experience and taking into consideration: Observational evidence from the CWEA rehabilitation program. Vegetation types and climate of the area. Local Benchmarks as determined in the CWEA rehabilitation monitoring program.		Stage 1 had a healthy vegetation cover; however, species diversity is low although consistent species with surrounding vegetation. Stage 2 had good vegetation cover and high species diversity. Stage 3 NPS had markedly increased from 2023 to 2024. The overstorey cover remains below benchmark, however the community structure will

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
							develop further overtime. The midstorey cover is within benchmark in 2024 (not including newly established plots).
			Weed cover.	Regular weed control undertaken.	Project Approval Condition 17 (f). <i>NSW Biosecurity Act 2015.</i>		All Stages have had a variety of challenges with exotic species. More time is required for the community to establish and develop resilience against weed incursion, particularly in Stages 1 and 3. It is recommended that weed management is conducted across all Stages to control exotic species , particularly

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
							African Lovegrass in Stage 1 and 2.
Domain 11: CWEA	Ecosystem and land use development.	The vegetation composition of the rehabilitation contains species that are commensurate with PCT 3598 found in the local area. The vegetation structure of the rehabilitation is similar to that of PCT 3598 found in the local area. Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable.	Succession.	Rehabilitation report indicates plants in rehabilitated areas show evidence of seed setting and seed germination.	CWEAMP Section 9.1.1.1 – Key Performance Criteria. Also applies to other domains due to similar vegetation community.	Rehabilitation works in some sections of Emplacement Stage 1 and 2 are complete. Stage 1 was rehabilitated to the standard of the day.	Many of the species from all strata are setting seed with natural species recruitment occurring in all Stages.
			Weed cover.	Weed cover is no greater than 20% (at the time of relinquishment) as determined by relevant survey method.	Target is defined in Table 5 of the CWEAMP and Section 9.1.1.1 – Key Performance Criteria. Also applies to other domains due to similar vegetation community.		In all Stages weed cover averaged less than 20% across the plots, although there are patches dominated by weeds, which are being targeted through a weed control program.
			Bushfire resilience.	Rehabilitation can withstand a bushfire. Germination is	Following a site inspection with the		N/A

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
				observed and evidence of recovery after a test burn (subject to approval under the <i>Rural Fires Act 1997</i>).	Resources Regulator, this area was determined as being an area prone to wildfire.		
Domain 11: CWEA (Stages 1 and 2)			Floristic structure, species composition.	Trajectory analysis indicates selected biometric indicators (species richness and vegetation cover) are on track to achieve like that of pre-determined reference benchmarks. For example, a statistical test indicates biometric indicators show a year-on-year improvement and on-track to achieve (or exceed) the reference benchmarks.	CWEAMP – Section 7.3 - Emplacement Rehabilitation which outlines the monitoring program and benchmarks. Also applies to other domains due to similar vegetation community.		Comparisons between plot data and benchmarks have been applied for several key BAM biometric attributes and presented in this report (Annex 2). This report looks at newly calculated 2024 benchmarks for the BAM to show changes over time with regards to control sites and how this compares to plot data from the three Stages within the CWEA.

Domains	Rehabilitation Phase	Domain Objective	Indicator	Completion Criteria	Justification/Sources	Complete (GM3 comments)	Complete (Niche comments)
All domains	Relinquished lands.	Stakeholders satisfied.	Regulator and/or landholder satisfied.	Formal Regulator and/or landholder sign-off.		Nil.	N/A

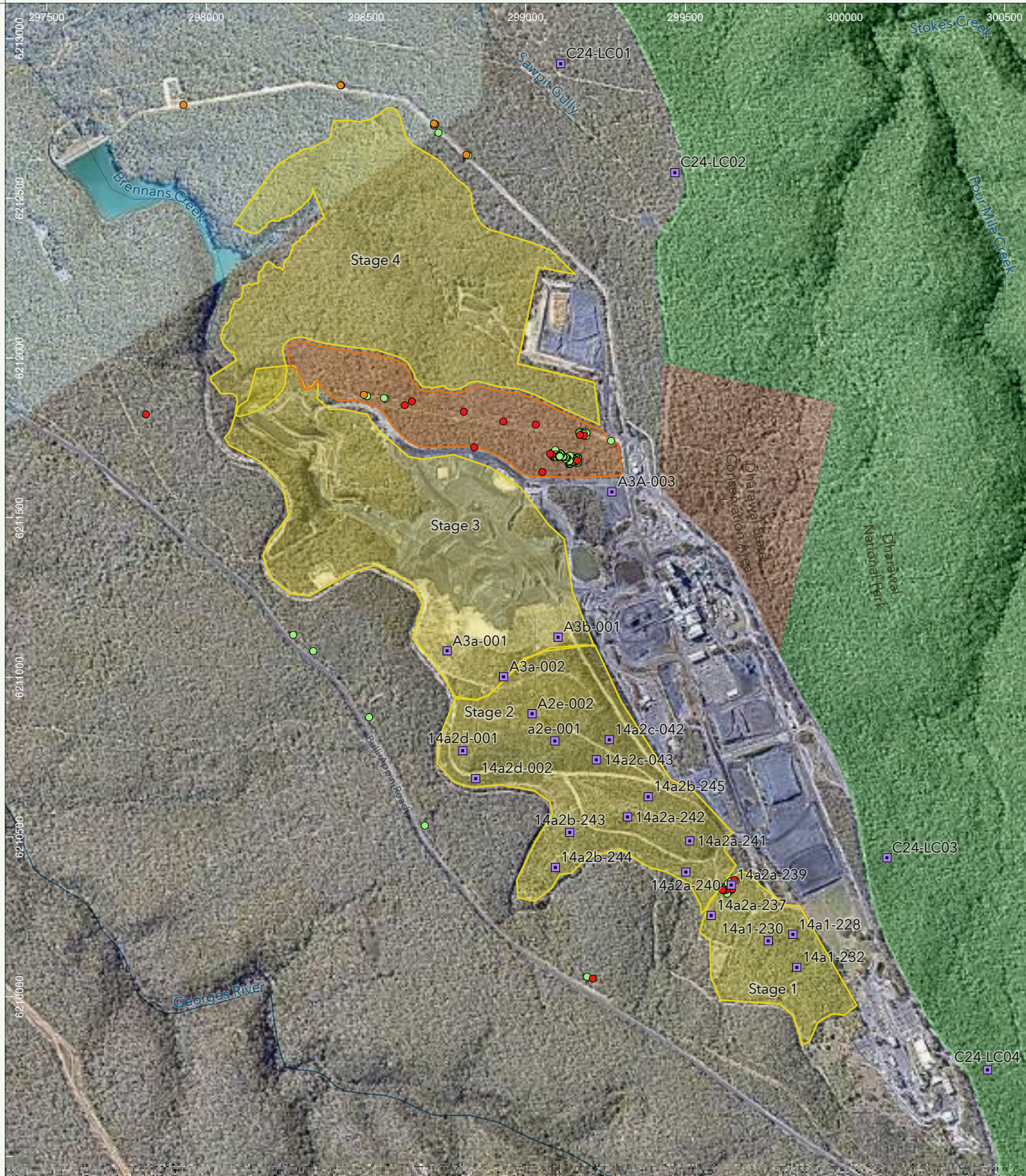
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Annex 1: Figures



- Environmental Offset Land
- CWEA Land
- Plot locations

- Persoonia hirsuta* records
- Dead
 - Mature
 - Juvenile

- Transport
- Major road
- Hydrography
- Perennial Stream

- Non Perennial Stream
- Protected Areas of NSW
- National Park
 - State Conservation Area

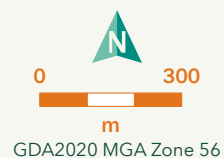
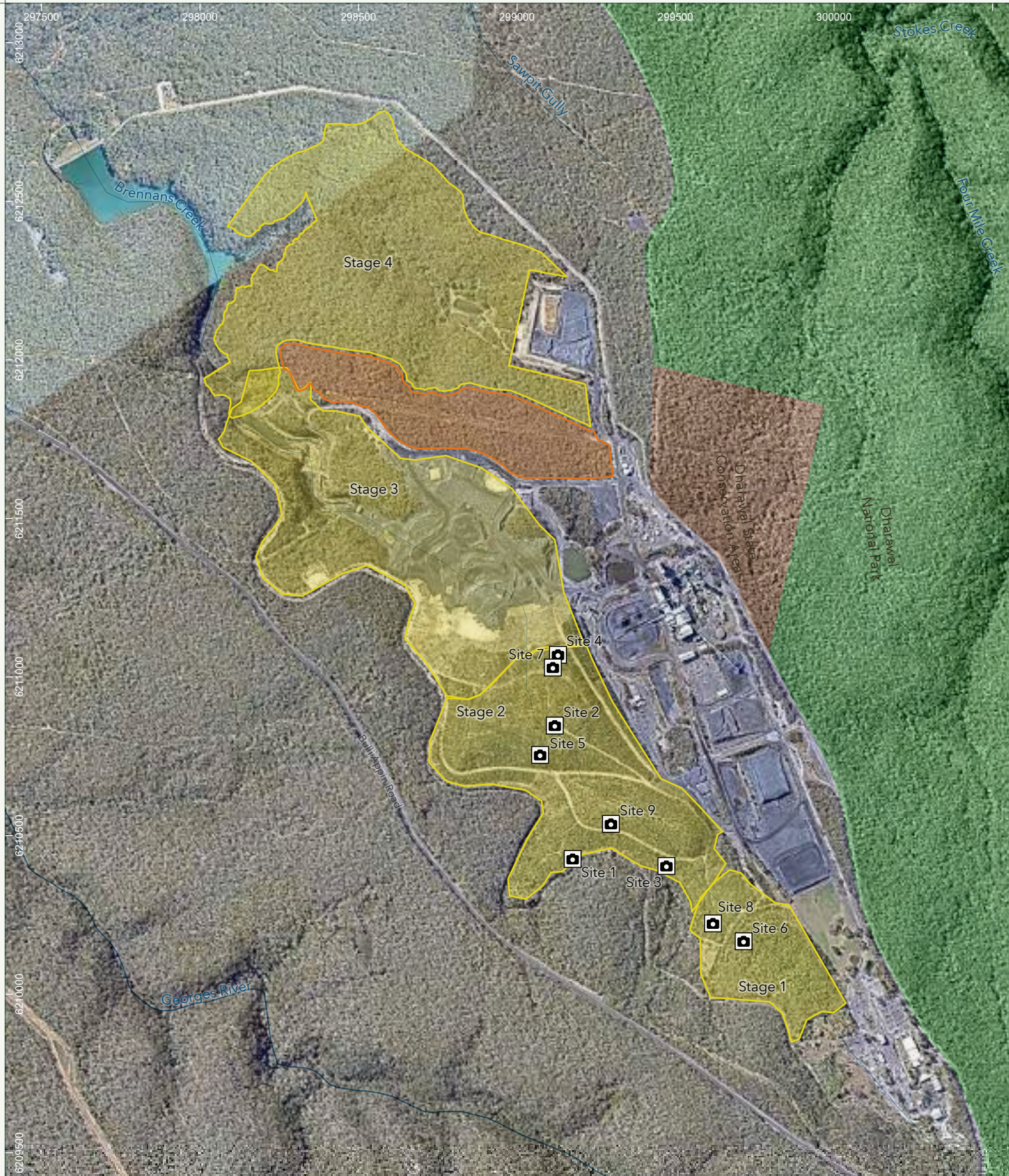


Figure 1
Emplacement Rehabilitation Year 14 Plot Locations
 GM3 Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3



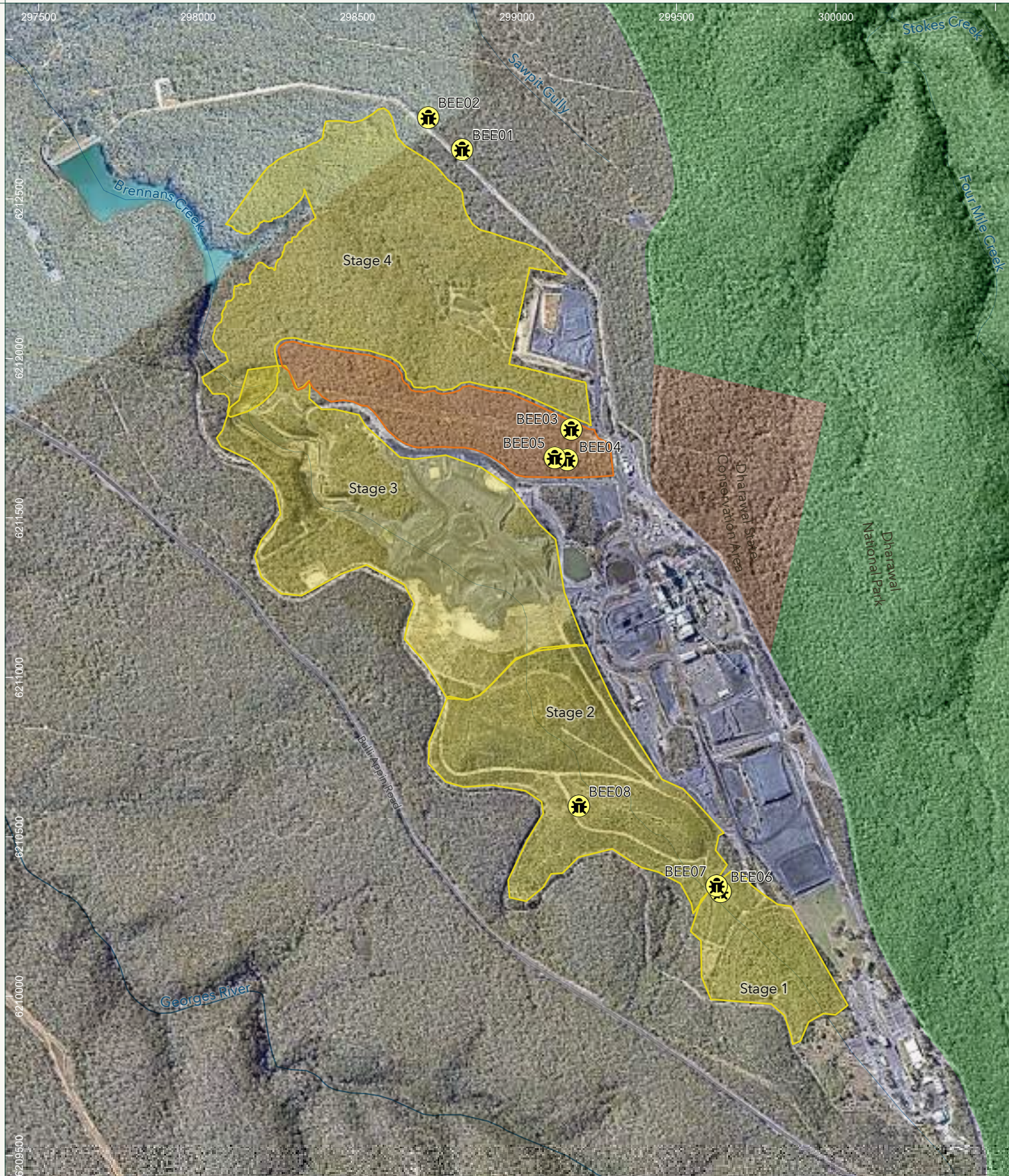
Environmental Offset Land	Transport	Non Perennial Stream
CWEA Land	Major road	Protected Areas of NSW
Camera traps	Hydrography	National Park
	Perennial Stream	State Conservation Area



Figure 2
Emplacement Rehabilitation Year 14 Camera Trap Locations (CWEA)
 GM3 Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3





Environmental Offset Land	Transport	Non Perennial Stream
CWEA Land	Major road	Protected Areas of NSW
Bee boxes/hotels	Hydrography	National Park
	Perennial Stream	State Conservation Area

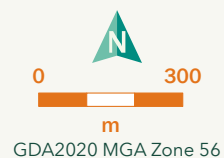
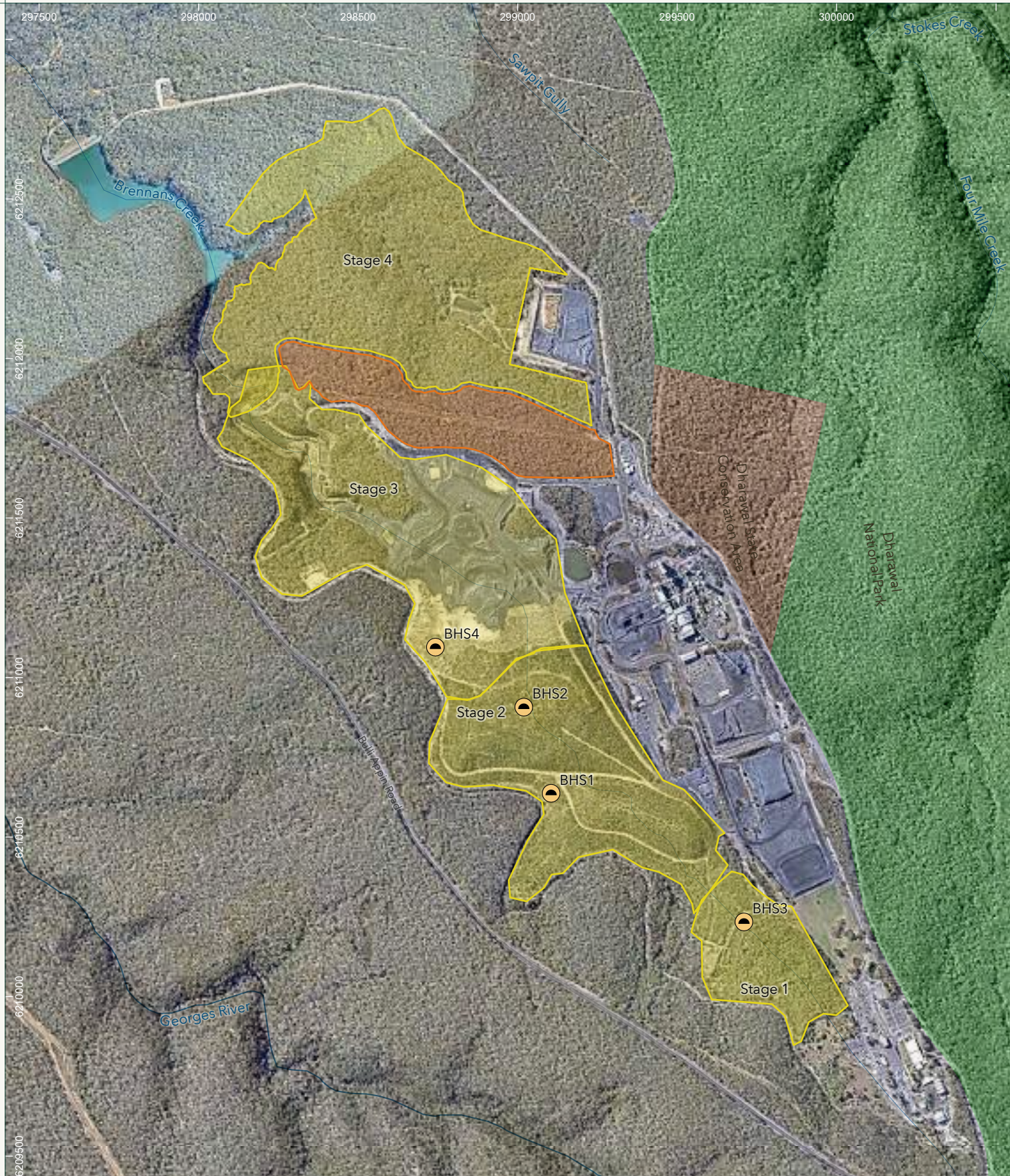


Figure 4
Emplacement Rehabilitation Year 14 Bee Hotel Locations
 GM3 Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3



Environmental Offset Land	Transport	Non Perennial Stream
CWEA Land	Major road	Protected Areas of NSW
Broad-headed snake habitat locations	Hydrography	National Park
	Perennial Stream	State Conservation Area

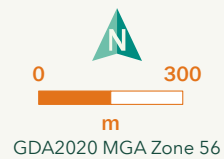


Figure 5
Emplacement Rehabilitation Year 14 Broad-headed Snake Habitat Locations
 GM3 Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3

Annex 2: BAM Monitoring Plot Score Cards

Richness and PFC scores have not been included in score cards for ferns, forbs and other. These aren't key diagnostic features of PCT 3595 or 3598 and thus haven't been used to measure rehabilitation success. Number of large trees has also not been included on score cards. Large trees (>50cm DBH) can take upwards of 50 years to grow, so this isn't a good measure of successful rehabilitation.

Rules:

Green = within benchmark range or higher
 Orange = within 25% of lower benchmark
 White = less than 25% of lower benchmark
 Lower Benchmark = Average or lower half of control values for a site attribute
 Upper Benchmark = Average of upper half of control values for a site attribute
 Richness = number of species
 PFC = total cover (%)

Stage 1

Table 11: Scorecard for Plot 14a1a-228

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	8	2	4	47.2	2.2	8.3	5	Present	19	92.6	18	37.5
2024	9	3	4	62.8	5.3	3.8	10	Present	18	95.2	20	35.4
Factors within benchmark range or higher									5			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									No			

Table 12: Scorecard for Plot 14a1a-230

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5	5	7	48.4	36.7	2.6	0.5	Present	78	86	22	52.2
2024	4	5	7	63	42.3	2.5	0.5	Present	99.5	93.6	22	54.2
Factors within benchmark range or higher									6			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 13: Scorecard for Plot 14a1a-232

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	4	6	8	22.1	11.2	2.6	0.1	Present	46	67	24	35.5
2024	5	6	7	34.2	41.6	3.5	0.1	Present	64	90	26	56.4
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 14: Mean Scorecard for Area 1a

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5.7	4.3	6.3	47.8	16.7	4.5	1.9	Present	47.7	81.9	21.3	41.7
2024	6.0	4.7	6.0	53.3	29.7	3.3	3.5	Present	60.5	92.9	22.7	48.7
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Stage 2

Area 2a

Table 15: Scorecard for Plot 14a2a-237

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	6	19	6	33	64.1	5.3	8	Present	72	67	37	70.7
2024	8	16	10	43.5	45.5	3.7	8	Present	94	83.6	41	66.9
Factors within benchmark range or higher									9			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 16: Scorecard for Plot 14a2a-239

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	7	19	10	41	31.8	3.4	2	Present	78	59	41	62.5
2024	6	23	10	40.5	34.9	2.3	2.1	Present	82.5	72	46	65.6
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 17: Scorecard for Plot 14a2a-240

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	7	21	11	20.2	41.7	3.1	2	Present	87	58	46	62.6
2024	7	24	9	23	44.4	1.7	0.1	Present	117	82	50	67.1
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 18: Mean Scorecard for Area 2a

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	6.7	19.7	9.0	31.4	45.9	3.9	4.0	Present	79.0	61.3	41.3	65.3
2024	7.0	21.0	9.7	35.7	41.6	2.6	3.4	Present	97.8	79.2	45.7	66.5
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Area 2b

Table 19: Scorecard for Plot 14a2b-241

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	6	24	6	24.1	25	2.4	0	Present	75	74	43	53.5
2024	5	28	12	28	48.4	2	0.1	Present	87	78	52	67.1
Factors within benchmark range or higher									10			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 20: Scorecard for Plot 14a2b-242

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	4	25	12	12.5	39.9	8.1	0	Present	115	57	48	57.3
2024	5	23	13	19.2	35.1	4.9	0	Present	131	64	49	57.9
Factors within benchmark range or higher									9			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 21: Scorecard for Plot 14a2b-243

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	6	17	6	19	9	2.7	0	Present	128	48	34	37.2
2024	7	18	8	18.3	15	1.3	0.1	Present	234	81	42	41.9
Factors within benchmark range or higher									6			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									No			

Table 22: Scorecard for Plot 14a2b-244

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	4	23	7	22	20.8	1.6	2.1	Present	66	63	38	47.6
2024	5	26	10	18.3	14.6	1.2	0.4	Present	81	79	50	42.1
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 23: Scorecard for Plot 14a2b-245

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	7	20	8	29.1	10.1	4.7	0.3	Present	77	84.6	41	50.8
2024	7	17	10	31	8.9	2.9	0.5	Present	85	78	39	48.2
Factors within benchmark range or higher									6			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 24: Mean Scorecard for Area 2b

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5.4	21.8	7.8	21.3	21.0	3.9	0.5	Present	92.2	65.3	40.8	49.3
2024	5.8	22.4	10.6	23.0	24.4	2.5	0.2	Present	123.6	76.0	46.4	51.4
Factors within benchmark range or higher									6			
Factors within 25% of lower benchmark									5			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Area 2c

Table 25: Scorecard for Plot 14a2c-042

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	3	28	10	23	42.3	7.6	0.3	Present	68	80	49	65.2
2024	7	29	12	19	34.8	1.6	0.1	Present	162	63	59	60.3
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 26: Scorecard for Plot 14a2c-043

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	6	24	11	34	23.1	3.8	0	Present	108	63	46	58.2
2024	5	29	11	45	20.3	1.5	0.1	Present	97	66	53	59
Factors within benchmark range or higher									9			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 27: Mean Scorecard for Area 2c

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	4.5	26.0	10.5	28.5	32.7	5.7	0.2	Present	88.0	71.5	47.5	61.7
2024	6.0	29.0	11.5	32.0	27.6	1.6	0.1	Present	129.5	64.5	56.0	59.7
Factors within benchmark range or higher									9			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Area 2d

Table 28: Scorecard for Plot 14a2d-001

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5	24	11	17	29.8	8.4	0.1	Present	128	51	48	54.5
2024	6	25	13	25.4	17.4	2.7	0.2	Present	360	31	53	49.3
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 29: Scorecard for Plot 14a2d-002

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5	23	9	26	21.3	7.9	0.2	Present	81	74	42	54.2
2024	5	22	8	28.5	14	9	0.1	Present	130	73	42	52.9
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									4			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 30: Mean Scorecard for Area 2d

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5.0	23.5	10.0	21.5	25.6	8.2	0.2	Present	104.5	62.5	45.0	54.4
2024	5.5	23.5	10.5	27.0	15.7	5.9	0.2	Present	245.0	52.0	47.5	51.1
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									3			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Area 2e

Table 31: Scorecard for Plot 17a2e-001

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	5	27	5	11.1	24.6	2.3	0	Present	38	43	41	41.5
2024	6	32	12	14.9	27.1	2.3	0.1	Present	129	38	57	48
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 32: Scorecard for Plot 17a2e-002

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	3	28	7	7.5	13.8	0.8	0	Present	49	41	41	27
2024	5	27	8	11.7	40.7	1.4	0	Present	44	22.4	45	49.3
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 33: Mean Scorecard for Area 2e

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	4.0	27.5	6.0	9.3	19.2	1.6	0.0	Present	43.5	42.0	41.0	34.3
2024	5.5	29.5	10.0	13.3	33.9	1.9	0.1	Present	86.5	30.2	51.0	48.7
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Stage 3

Area 3a

Table 34: Scorecard for Plot 19a3a-001

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	2	25	11	1.2	3.2	1.3	0.2	Present	63	10	44	10.1
2024	5	33	16	2.9	18.5	3.2	0.2	Present	60	2.4	64	29.7
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									0			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									No			

Table 35: Scorecard for Plot 19a3a-002

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	3	37	15	1	12.4	1.9	0.2	Present	71	17	64	22.4
2024	4	41	16	2.7	23.3	2.6	0.3	Present	74	1.4	71	34.5
Factors within benchmark range or higher									7			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									No			

Table 36: Scorecard for Plot 24a3a-003

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2024	4	25	7	21.3	61.5	1.3	0.6	Present	88	59	39	62.2
Factors within benchmark range or higher									5			
Factors within 25% of lower benchmark									4			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Table 37: Mean Scorecard for Area 3a

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2023	2.5	31.0	13.0	1.1	7.8	1.6	0.2	Present	67.0	13.5	54.0	16.3
2024	4.3	33.0	13.0	2.8	34.4	2.4	0.4	Present	74.0	20.9	58.0	42.1
Factors within benchmark range or higher									8			
Factors within 25% of lower benchmark									1			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									Yes			

Area 3b
Table 38: Scorecard for Plot 24a3b-001

Site attributes												
	Tree Richness	Shrub Richness	Grass/Grass-like Richness	Tree PFC (%)	Shrub PFC (%)	Grass/Grass-like PFC (%)	HTW Cover (%)	Regeneration	Total log length (m)	Litter Cover (%)	NPS	VI Score
Lower Benchmark	4.2	25	7.2	25.1	13.28	2	0	Present	20	80	47.6	55.0
Upper Benchmark	5.6	30.2	10.4	48.42	31.1	10.44	0	Present	43	92.16	57.8	75.5
2024	3	21	15	1.5	10.3	3	1.5	Present	156	1.4	51	20.2
Factors within benchmark range or higher									5			
Factors within 25% of lower benchmark									2			
Site has at least 75% of attributes within benchmark, or within 25% of lower benchmark									No			

Annex 3: Photo Point Monitoring



Plate 1: Site A1_228 (left 2010, middle 2020, right 2024)



Plate 2: Site A1_230 (left 2010, middle 2020, right 2024)



Plate 3: Site A1-232 (left 2010, middle 2020, right 2024)



Plate 4: A2a_237 (left 2010, middle 2020, right 2024)



Plate 5: Site A2a_239 (left 2010, middle 2020, right 2024)



Plate 6: Site A2a_240 (left 2010, middle 2020, right 2024)



Plate 7: Site A2b_244 (left 2010, middle 2020, right 2024)



Plate 8: Site A2b_241 (left 2010, middle 2020, right 2024)



Plate 9: Site A2b_242 (left 2010, middle 2020, right 2024)



Plate 10: Site A2b_243 (left 2010, middle 2020, right 2024)



Plate 11: Site A2b_245 (left 2010, middle 2020, right 2024)



Plate 12: Site A2c-042 (left 2012, middle 2020, right 2024)



Plate 13: A2c-043 (left 2012, middle 2020, right 2024)



Plate 14: A2d-001 (left 2015, middle 2020, right 2024)



Plate 15: A2d-002 (left 2015, middle 2020, right 2024)



Plate 16: 17a2e-001 (left 2017, middle 2020, right 2024)



Plate 17: 17a2e-002 (left 2017, middle 2020, right 2024)



Plate 18: 19a3a-001 (left 2019, middle 2020, right 2024)



Plate 19: 19a3a-002 (left 2019, middle 2020, right 2024)



Plate 20: 24a3a-003 (2024)



Plate 21: 24a3b-001 (2024)

Annex 4: Camera traps (fauna found)

 Buff-rumped Thornbill	 Grey Shrikethrush	 Eastern Yellow Robin
 Eastern Whipbird	 White-browed Scrubwren	 Lewin's Honeyeater



Brown Antichinus



Eastern Grey Kangaroo



Bush Rat



Rusa Deer



Short-beaked Echidna



Swamp Wallaby



Eastern Brown Snake



Rosenberg's Goanna (juvenile)



Lace Monitor



Common Brown Butterfly

Annex 5: Bee hotels



Bee hotel 1



Bee hotel 2



Bee hotel 3



Bee hotel 4



Bee hotel 5



Bee hotel 6



Bee hotel 7



Bee hotel 8

Annex 6: BAM Data Export 2024

Plot	Zone	Easting	Northing	Bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to10	funTreeStem10to20	funTreeStem20to30	funTreeStem30to50	funTreeStem50to80	funTreeRegen	funHighThreatExotic
14a1-228	56	299837.3836	6210194.315	290	9	3	4	3	0	1	62.8	5.3	3.8	0.3	0	0.1	0	0	95.2	18	1	1	1	0	0	1	10
14a1-230	56	299759.1548	6210174.244	175	4	5	7	5	0	1	63	42.3	2.5	0.6	0	0.1	0	0	93.6	99.5	1	1	1	0	0	1	0.5
14a1-232	56	299849.9072	6210092.562	220	5	6	7	6	0	2	34.2	41.6	3.5	0.6	0	0.2	0	0	90	64	1	1	1	0	0	1	0.1
14a2a-237	56	299581.0079	6210253.637	347	8	16	10	6	0	1	43.5	45.5	3.7	0.6	0	0.1	0	0	83.6	94	1	1	0	0	0	1	8
14a2a-239	56	299644.6095	6210349.301	342	6	23	10	5	1	1	40.5	34.9	2.3	0.6	0.1	0.1	0	0	72	82.5	1	1	0	0	0	1	2.1
14a2a-240	56	299501.1073	6210389.79	300	7	24	9	7	1	2	23	44.4	1.7	0.7	0.1	0.2	0	0	82	117	1	1	1	0	0	1	0.1
14a2b-241	56	299513.0134	6210487.965	260	5	28	12	7	0	0	28	48.4	2	0.7	0	0	0	0	78	87	1	1	0	0	0	1	0.1
14a2b-242	56	299318.2073	6210562.436	210	5	23	13	6	1	1	19.2	35.1	4.9	0.7	0.1	0.1	0	0	64	131	1	1	0	0	0	1	0
14a2b-243	56	299138.4326	6210513.641	330	7	18	8	6	1	2	18.3	15	1.3	0.6	0.1	0.2	0	0	81	234	1	1	0	0	0	1	0.1
14a2b-244	56	299092.4613	6210404.547	225	5	26	10	8	0	1	18.3	14.6	1.2	0.9	0	0.1	0	0	79	81	1	1	0	0	0	1	0.4
14a2b-245	56	299383.978	6210626.231	100	7	17	10	4	0	1	31	8.9	2.9	0.4	0	0.1	0	0	78	85	1	1	0	0	0	1	0.5
14a2c-042	56	299261.9827	6210804.533	320	7	29	12	8	0	3	19	34.8	1.6	0.8	0	0.3	0	0	63	162	1	1	1	0	0	1	0.1
14a2c-043	56	299221.1885	6210741.927	255	5	29	11	7	0	1	45	20.3	1.5	0.7	0	0.1	0	0	66	97	1	1	0	0	0	1	0.1
14a2d-001	56	298803.5472	6210770.739	325	6	25	13	7	0	2	25.4	17.4	2.7	0.7	0	0.2	0	0	31	360	1	1	0	0	0	1	0.2
14a2d-002	56	298842.9494	6210683.156	85	5	22	8	5	0	2	28.5	14	9	0.6	0	0.2	0	0	73	130	1	1	0	0	0	1	0.1
17a2e-001	56	299091.0154	6210799.804	200	6	32	12	6	0	1	14.9	27.1	2.3	0.6	0	0.1	0	0	38	129	1	1	0	0	0	1	0.1

Plot	Zone	Easting	Northing	Bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to10	funTreeStem10to20	funTreeStem20to30	funTreeStem30to50	funTreeStem50to80	funTreeRegen	funHighThreatExotic
17a2e-002	56	299020.173	6210885.505	210	5	27	8	3	1	1	11.7	40.7	1.4	0.3	0.1	0.1	0	0	22.4	44	1	0	0	0	0	1	0
19a3a-001	56	298753.5236	6211082.186	120	5	33	16	9	0	1	2.9	18.5	3.2	1.3	0	0.1	0	0	2.4	60	1	0	0	0	0	1	0.2
19a3a-002	56	298931.8149	6211001.475	95	4	41	16	7	2	1	2.7	23.3	2.6	1.1	0.2	0.1	0	0	1.4	74	1	0	0	0	0	1	0.3
24a3a-003	56	299270.8499	6211580.671	135	4	25	7	2	0	1	21.3	61.5	1.3	0.2	0	0.1	0	0	59	88	1	1	0	0	0	1	0.6
24a3b-001	56	299101.9594	6211125.668	335	3	21	15	11	0	1	1.5	10.3	3	1.7	0	0.3	0	0	1.4	156	0	0	0	0	0	1	1.5

Annex 7: 2024 Floristics

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Acacia binervia</i>				2	10	0.5				0.3											
<i>Acacia decurrens</i>	0.3			1				0.2	0.3			1	5	0.2	0.5	0.2	0.5				
<i>Acacia linifolia</i>							0.1					0.1	0.1			0.2		0.3			1
<i>Acacia longifolia</i>			0.3	0.2	0.5			0.1	2	5	0.2	0.1			0.5	10	2	1	1	3	
<i>Acacia parramattensis</i>	0.5	5	1	5	5	1				1	1										
<i>Acacia suaveolens</i>					0.1	0.1	0.1		0.1			0.1				0.1		0.1			
<i>Acacia terminalis</i>												0.2		0.1	0.2	3	2	0.5	10	25	0.1
<i>Acacia ulicifolia</i>							0.2	0.1	0.1		0.1	0.2	0.1	0.1		0.1	0.2	0.2	0.2	0.1	0.5
<i>Actinotus helianthi</i>																		0.1			
<i>Actinotus minor</i>				0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1		0.1		0.1	0.1		0.1
<i>Ageratina adenophora</i> **																					0.5
<i>Ajuga australis</i>													0.1								
<i>Allocasuarina littoralis</i>	8	3	8	5	5	1	10	3	5	3	10	2	8	5	5		2	0.3	2	0.2	
<i>Amperea xiphoclada</i>																			0.1	0.1	
<i>Anagallis arvensis</i> *																0.1					0.1
<i>Andropogon virginicus</i> **										0.2								0.1	0.1	0.3	0.1
<i>Angophora costata</i>	2			0.5							1	6	10	10	8		8		0.1		
<i>Anisopogon avenaceus</i>		0.3		0.1					0.1			0.1	0.1						0.1		0.1
<i>Aotus ericoides</i>																3	0.3	0.3	1	1	0.1
<i>Austrostipa</i> spp.																0.5					
<i>Baeckea linifolia</i>						0.1	0.1			0.1			0.1	0.1		0.1				0.1	
<i>Banksia ericifolia</i>				0.1	0.2	0.2										0.3	0.1	0.1	0.2		
<i>Banksia serrata</i>																0.2				0.1	
<i>Banksia spinulosa</i>					0.1					0.2			0.2							0.3	

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Bauera rubioides</i>														0.1	0.1	0.1			0.2		
<i>Billardiera scandens</i>	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1					0.1	
<i>Bossiaea heterophylla</i>																0.1	0.1	0.1	0.1		0.2
<i>Bossiaea obcordata</i>										0.1	0.1	0.1	0.1	0.2				0.1			0.1
<i>Bossiaea scolopendria</i>																					0.1
<i>Bossiaea</i> spp.																				0.1	
<i>Briza subaristata</i> **																					0.5
<i>Bursaria spinosa</i>																0.1					
<i>Callistemon citrinus</i>				5	0.2	0.3		3		0.2							1	0.1			
<i>Callistemon linearis</i>								0.2					0.3								
<i>Calotis</i> spp.																0.1					
<i>Calytrix tetragona</i>					0.1					0.2			0.1								
<i>Carex</i> spp.				0.1								0.1							0.1		
<i>Cassinia quinquefaria</i>									0.1												
<i>Cassinia</i> spp.																					0.1
<i>Cassytha glabella</i>						0.1						0.1		0.1	0.1		0.1		0.1		
<i>Caustis flexuosa</i>									0.1				0.3			0.1	0.5	0.1	0.2	0.5	0.5
<i>Centaurium tenuiflorum</i> *																					0.5
<i>Centella asiatica</i>																					0.5
<i>Chordifex fastigiatus</i>																	0.1		0.1		
<i>Conyza bonariensis</i> *																		0.1	0.1	0.1	0.2
<i>Corymbia gummifera</i>	15	10	10			5	1														0.5
<i>Cyathochaeta diandra</i>				0.2	0.5	0.2	0.5	0.5	0.1	0.3	0.2	0.1	0.3	0.1			0.3		0.2	0.1	0.1
<i>Cynodon dactylon</i>																		0.5			
<i>Cyperus compressus</i> *										0.1											
<i>Cyperus eragrostis</i> **																					0.1
<i>Cyperus gracilis</i>																0.1					

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Cyperus</i> spp.																		0.1			
<i>Dampiera purpurea</i>	0.1	0.2	0.1	0.1						0.1		0.1			0.1	0.1		0.1	0.2		
<i>Dampiera stricta</i>													0.1								
<i>Darwinia fascicularis</i> subsp. <i>oligantha</i>							0.2			0.1											
<i>Daucus glochidiatus</i>																					0.1
<i>Dianella</i> spp.												0.1		0.1							
<i>Dillwynia floribunda</i>												0.1		0.1	0.1	0.1	0.3	0.2	0.1	0.3	
<i>Dodonaea triquetra</i>		0.1	1	3	0.2	1	0.1	3	1	0.5	1	0.5	0.2	2	5	0.2	0.2		0.8	0.5	0.1
<i>Entolasia marginata</i>	0.1	0.5	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1		
<i>Entolasia stricta</i>	0.5	0.5	0.5	2	0.3	0.2	0.2	1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.5
<i>Epacris microphylla</i>					0.1	0.1	0.1					0.1	0.1	0.1				0.1	0.1	0.1	
<i>Epacris pulchella</i>						0.1	0.1			0.1	0.1	0.3		0.1	0.1		0.1	0.1	0.1		
<i>Eragrostis brownii</i>																0.2		0.1			0.2
<i>Eragrostis curvula</i> **	10	0.5	0.1	8	2	0.1	0.1		0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.1			0.1	0.2	
<i>Eriostemon australasius</i>									0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.5	
<i>Eucalyptus botryoides</i> <--> <i>saligna</i>	2			15	15	10	10	5	8	8	10	2	20	5	10	8					
<i>Eucalyptus globoidea</i>	5				0.5			1	2		3	1		0.2						1	
<i>Eucalyptus haemastoma</i>				10																	
<i>Eucalyptus moluccana</i>									1												
<i>Eucalyptus paniculata</i>	25																				
<i>Eucalyptus piperita</i>			0.2	5							5	1	2		5			0.2	0.1		
<i>Eucalyptus punctata</i>						5	2	10			1					1				20	0.5
<i>Eucalyptus racemosa</i>									1												
<i>Eucalyptus sieberi</i>	5	45	15				5		1	6		6		5		5	1				
<i>Eucalyptus</i> spp.					5	0.5										0.5	0.2	2.4	0.5		0.5
<i>Euchiton japonicus</i> *																					0.2

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Euchiton sphaericus</i>																		0.1			
<i>Facelis retusa</i> *																		0.1	0.1		0.2
<i>Gahnia sieberiana</i>					0.2			0.1				0.2	0.1	0.5	5	0.1	0.1	0.5	0.1		0.1
<i>Gamochaeta americana</i> *																					0.5
<i>Gleichenia dicarpa</i>																			0.1		
<i>Glycine clandestina</i>																0.1					
<i>Gompholobium grandiflorum</i>												0.1				0.1	0.2				
<i>Gonocarpus teucroides</i>	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1		0.5	0.1	0.1	0.2
<i>Goodenia hederacea</i>																					0.1
<i>Grevillea diffusa</i>					0.1	0.1	0.2	0.1	0.1	0.1		0.1	0.1	0.2	0.1		0.5		0.2	0.1	0.5
<i>Grevillea mucronulata</i>							0.1		0.1			0.2		0.3	0.2	0.2		0.3			
<i>Grevillea sericea</i>																	0.2		0.2		
<i>Grevillea sphacelata</i>																0.1					
<i>Hakea dactyloides</i>					0.1		5		0.2			0.2	0.3		0.3	0.3	0.3		0.2		
<i>Hakea gibbosa</i>																			1		
<i>Hakea sericea</i>		2		0.2		0.5	0.3	0.5		0.2	0.2		0.3		0.2				0.3	0.2	0.1
<i>Hakea teretifolia</i>				0.3	0.1			0.2				1	0.2		0.5						
<i>Hardenbergia violacea</i>			0.1						0.1			0.1						0.1			0.3
<i>Hibbertia circumdans</i>					0.1		0.1			0.1							0.1		0.1	0.5	
<i>Hibbertia nitida</i>															0.1	0.3	0.1	0.1	0.1	5	
<i>Hibbertia riparia</i>									0.1				0.1						0.1		
<i>Hovea lanceolata</i>															0.1						
<i>Hovea linearis</i>										0.1											
<i>Hovea purpurea</i>												0.1									
<i>Hypericum perforatum</i> **					0.1																
<i>Hypochaeris radicata</i> *														0.1				0.1	0.1		
<i>Isopogon anemonifolius</i>				0.5		0.1	0.1	0.1		0.1	0.1		0.3				0.1				0.1

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Juncus continuus</i>										0.1											
<i>Juncus usitatus</i>											0.1							0.3			0.2
<i>Kunzea ambigua</i>	5	40	40	30	30	25	10	1	10	5	5	25	15	10	5	5	30	3	0.5	20	3
<i>Lachnagrostis filiformis</i>																		0.2			0.5
<i>Lasiopetalum ferrugineum</i>																			0.2		
<i>Lepidosperma forsythii</i>																	0.1		0.1	0.3	
<i>Lepidosperma laterale</i>			0.2					0.1			1			0.5	0.3	0.3		0.1	0.3		0.1
<i>Lepidosperma limicola</i>																			0.2		
<i>Lepidosperma urophorum</i>						0.1	0.1								0.2						
<i>Leptocarpus tenax</i>							0.3									0.1					
<i>Leptomeria acida</i>							0.1	0.1	0.1	0.1			0.1	0.5	0.2	1	1	0.1	0.2	2	
<i>Leptospermum arachnoides</i>											0.5										
<i>Leptospermum polygalifolium</i>		0.1		5	2	15	30	25	0.5	1	0.8	2			0.5	1	0.5	8	0.1		2
<i>Leptospermum rotundifolium</i>					0.1																0.1
<i>Leptospermum squarrosus</i>					0.2														0.1		
<i>Leptospermum trinervium</i>							0.3	0.2		0.2	0.2	3	0.5	0.2			0.1	0.2	0.2		
<i>Lepyrodia scariosa</i>					0.3	0.2	0.2	0.3				0.1	0.1	0.1		0.1					
<i>Leucopogon amplexicaulis</i>																			0.2		
<i>Leucopogon ericoides</i>										0.1		0.1			0.1	0.2	0.3		0.2	0.5	
<i>Leucopogon esquamatus</i>							0.2	0.1						0.1	0.1			0.1			
<i>Leucopogon juniperinus</i>						0.5					0.1	0.1						0.2		0.1	
<i>Leucopogon microphyllus</i>						0.1						0.1			0.1						
<i>Leucopogon spp.</i>														0.1							
<i>Lindsaea linearis</i>						0.1		0.1													
<i>Lissanthe strigosa</i>	0.2	0.1	0.1	0.1	0.1						0.1	0.1	0.1	0.1							
<i>Lobelia anceps</i>																		0.1			0.1
<i>Lobelia purpurascens</i>													0.1								

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Lomandra brevis</i>										0.1											
<i>Lomandra confertifolia</i>									0.1	0.1				0.1	0.1						
<i>Lomandra cylindrica</i>		0.1			0.1		0.1	0.1													
<i>Lomandra filiformis</i>		0.1			0.1			0.1		0.1	0.1	0.1									
<i>Lomandra gracilis</i>						0.1	0.1					0.1						0.1	0.1	0.1	
<i>Lomandra longifolia</i>	0.2	0.5	0.5	0.5	0.1	0.2	0.1	0.3	0.3	0.1	0.5	0.3		0.5	0.2		0.1	0.2	0.3	0.1	0.1
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>			0.1	0.1						0.1	0.2		0.1						0.1		
<i>Lomandra obliqua</i>				0.1			0.1	0.1					0.1	0.1			0.1			0.1	
<i>Lomatia silaifolia</i>													0.1					0.1			
<i>Luzula densiflora</i>																					0.1
<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>																0.1					
<i>Melaleuca thymifolia</i>								0.5													
<i>Melichrus procumbens</i>										0.1											
<i>Micrantheum ericoides</i>					0.1	0.1	0.1	0.1		0.1	0.1				0.1						
<i>Microlaena stipoides</i>			0.1					0.1										0.3			0.1
<i>Mirbelia speciosa</i>						0.1							0.1								
<i>Mitrasacme pilosa</i>																					0.1
<i>Mitrasacme polymorpha</i>						0.1	0.1														
<i>Monotoca scoparia</i>														0.2							
<i>Olax stricta</i>							0.2														0.1
<i>Opercularia diphylla</i>									0.1							0.1					
<i>Opercularia hispida</i>	0.1	0.1	0.1						0.1					0.1							
<i>Oxylobium pulteneae</i>									0.1												
<i>Ozothamnus ferrugineus</i>													0.1								
<i>Paspalum dilatatum</i> **																		0.1			0.2
<i>Patersonia glabrata</i>					0.1	0.1	0.1	0.2	0.1	0.2		0.1	0.1	0.1	0.1		0.1	0.1	0.1		

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Patersonia sericea</i>				0.1																	0.1
<i>Persoonia hirsuta</i>					0.1																
<i>Persoonia lanceolata</i>																			0.1	0.3	
<i>Persoonia levis</i>				0.2		0.1	0.1	0.1					0.1			0.1		0.1	0.1		
<i>Persoonia pinifolia</i>				0.5	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.3	1	2	0.2	0.5	0.5	0.2	1	1	0.3
<i>Petrophile pulchella</i>				0.1		0.1	0.1														
<i>Petrophile sessilis</i>					0.1		0.1	0.1	0.1	0.1		0.2	0.1	0.3		0.2	0.1		0.1	0.5	
<i>Phyllanthus hirtellus</i>					0.1	0.1		0.1				0.1	0.2			0.1		0.1	0.1		
<i>Pimelea linifolia</i>						0.1	0.1	0.1						0.1				0.1	0.1		0.1
<i>Platysace ericoides</i>			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			0.1	0.1		0.1		0.1	0.1	0.1	0.2
<i>Platysace linearifolia</i>	0.1			0.1													0.1	0.2	0.2		0.5
<i>Pomaderris elliptica</i> subsp. <i>elliptica</i>			0.1	0.1							0.1			0.1	0.2	0.1		0.1	0.3		
<i>Pomax umbellata</i>		0.1	0.1			0.1	0.1	0.1		0.1		0.1									
<i>Pteridium esculentum</i>																			0.1		
<i>Ptilothrix deusta</i>							0.1														
<i>Pultenaea daphnoides</i>									0.1			0.1		0.1				0.1			
<i>Pultenaea hispidula</i>													0.1								
<i>Pultenaea</i> spp.						0.1															
<i>Ricinocarpos pinifolius</i>																		0.1			
<i>Rytidosperma longifolium</i>											0.1	0.1	0.1	0.1				0.2			0.2
<i>Schizaea bifida</i>					0.1				0.1								0.1				
<i>Schoenus apogon</i>													0.1	0.1		0.1		0.1	0.1		
<i>Schoenus brevifolius</i>				0.1		0.1		2						0.1							
<i>Schoenus ericetorum</i>																					0.1
<i>Schoenus melanostachys</i>	3	0.5	2	0.2	0.5	0.5	0.1	0.1	0.3	0.1	0.5	0.2		0.3	3			0.2	0.3		
<i>Senecio madagascariensis</i> **														0.1					0.1	0.1	0.1
<i>Solanum</i> spp.			0.1																		

Scientific Name	Rehabilitation Plots																				
	14a1a-228	14a1a-230	14a1a-232	14a2a-237	14a2a-239	14a2a-240	14a2b-241	14a2b-242	14a2b-243	14a2b-244	14a2b-245	14a2c-042	14a2c-043	14a2d-001	14a2d-002	17a2e-001	17a2e-002	19a3a-001	19a3a-002	24a3a-003	24a3b-001
<i>Sporobolus indicus</i> *																					0.1
<i>Sprengelia incarnata</i>																			0.1		
<i>Stylidium graminifolium</i>																			0.1		
<i>Styphelia</i> spp.												0.1									
<i>Styphelia triflora</i>										0.2											
<i>Taraxacum officinale</i> *																					1
<i>Themeda triandra</i>																0.5					0.1
<i>Viminaria juncea</i>																		2	3		1
<i>Wahlenbergia</i> spp.																					0.1
<i>Woollisia pungens</i>						0.1	0.1	0.1		0.3						0.1	0.2	0.1	0.2	0.1	
<i>Xanthosia pilosa</i>		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2
<i>Xanthosia tridentata</i>				0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.2		0.1
<i>Xyris</i> spp.					0.1																
<i>Zieria pilosa</i>																0.1					

*Exotic species, **HTW

Appendix 6: Annual *Persoonia hirsuta* Condition Monitoring Report

Annual *Persoonia hirsuta* Condition Monitoring Report

Illawarra Coal Holdings Pty Ltd 31 January 2025

Table of Contents

1	Overview.....	3
2	Review of Previous Surveys	3
2.1	Flora Search 2009.....	3
2.2	Niche 2012 (Baseline Study).....	3
2.3	Spring 2013	4
2.4	Spring 2014	4
2.5	Spring 2015	4
2.6	Spring 2016	4
2.7	Spring 2017	4
2.8	Spring 2018	5
2.9	Spring 2019	5
2.10	Spring 2020	5
2.11	Spring 2021	5
2.12	Spring 2022	5
2.13	Spring 2023	6
3	Current Survey (Spring 2024)	7
3.1	Aim.....	7
3.2	Methods.....	7
3.3	Results	8
3.4	Discussion	9
3.5	Ongoing Research and Conservation Management.....	10
4	References	12
5	Appendices.....	13
	Appendix A: Rating system used to determine the condition of <i>Persoonia hirsuta</i> individuals	14
	Appendix B: <i>Persoonia hirsuta</i> records from 2024	15
	Appendix C: <i>Persoonia hirsuta</i> research strategy and status.....	33

1 Overview

Illawarra Coal Holdings Pty Ltd (ICHPL) (formerly Illawarra Metallurgical Coal), trading as GM3, conducted its eleventh round of annual condition monitoring of the *Persoonia hirsuta* population at Appin North (formerly West Cliff), located approximately 37 kilometres (km) north-west of Wollongong, NSW (the 'Study Area') (Figure 1). The Study Area consists of the Coal Wash Emplacement Area (CWEA) (Stages 1, 2, 3 and 4) and the Offset Area where the core *Persoonia hirsuta* population is located (Figure 1).

The development consent for the Stage 3 Emplacement at Appin North Colliery within the CWEA (the site) required GM3 to implement a formal monitoring program for all past, current, and future emplacement rehabilitation activities on the site. The Stage 3 consent was replaced by the Bulli Seam Operations (BSO) Part 3A and EPBC Act approvals in 2011.

The monitoring was undertaken in accordance with the approved *P. hirsuta* Offset Management Plan (South32 2019), which complies with Commonwealth Environmental Protection and Biodiversity Conservation Act (EPBC Act) Approval 2010/5350 Condition 2.

The monitoring was completed by Niche ecologist Lily Cains (accompanied by GM3 representative Pollyanna Barlow) on the 18 and 19 December 2024, during the peak flowering period for the species.

2 Review of Previous Surveys

2.1 Flora Search 2009

A study by FloraSearch (2009) was conducted to quantify the distribution of *P. hirsuta* prior to construction of the Stage 3 Coal Wash Emplacement. The assessment indicated a high density of the species on the broad ridgetop to the north-east of Brennans Creek. *P. hirsuta* was recorded at a lower density to the north and south of this core population.

At least 88 plants of *P. hirsuta*, or approximately 66% of the total population, were identified by FloraSearch (2009). Of the core patch, approximately 20 plants have been lost to the Stage 3 emplacement development, and at least seven are within the footprint of the Stage 4 emplacement area.

2.2 Niche 2012 (Baseline Study)

Niche completed an assessment of the core *P. hirsuta* population in November 2012 to establish baseline data on the abundance and distribution of *P. hirsuta* for the Offset Management Plan. Two representatives from GM3 were also present and assisted with the surveys.

A total of 44 individuals were recorded within the core population area. A single individual was recorded approximately 14 metres to the north of the core population area, and it was assumed that it would be impacted by the Stage 4 emplacement development. The height and approximate age class of individuals within the core population were also recorded.

A further nine individuals were recorded within the Appin North lease area in areas where the species had been previously recorded, another seven individuals were recorded along Brennans Creek Road to the north, and three individuals along the south-west boundary with the Appin Road easement.

The *P. hirsuta* individuals within the core population were observed to be in good health. The area in which the core population is located had a good level of inherent resilience (capacity to regenerate), a high level of native plant species richness, a low level of exotic plant cover and all structural layers were intact (canopy, mid-storey, shrubs and groundcover).

The southern portion of the core population had been previously impacted by the construction of an approved haul road, which resulted in indirect impacts to individuals via increased sedimentation and encroaching exotic species. However, whilst the increased light levels and altered drainage had locally altered the native remnant along this edge, this vegetation remained in good condition with a low level of exotic cover. Some exotic perennial grasses, such as *Eragrostis curvula* (African lovegrass) and *Chloris*

gayana (Rhodes grass) occurred occasionally along the road and track edges within the mine site and exclusion of these exotics from the core *P. hirsuta* population was considered a high priority.

It was estimated that the core population area had not experienced a fire event for up to 24 years. This was evident in the senescing (dead or dying) *Banksia ericifolia*, the low cover of annual herbs, grasses, and obligate seeding short-lived shrubs. The fire history map for the Study Area (Wollondilly Bush Fire Risk Management Plan 2007) supported this observation, with the last reported fire event mapped around 1989.

2.3 Spring 2013

The 2013 survey was undertaken by IMC (now ICHPL). The total count of living *P. hirsuta* plants in the Offset Area in Spring 2013 was 38:

- Despite the five new individuals that were identified during the 2013 Spring survey, the Offset area had experienced an overall population decline of 11 individuals since baseline (2012). It was concluded that the majority of the *P. hirsuta* plants in the Offset were reaching the end of their natural life cycle.

2.4 Spring 2014

The 2014 survey was undertaken by IMC (now ICHPL). The total count of living *P. hirsuta* plants in the Offset Area in Spring 2014 was 36:

- When compared to the Spring 2013 results, there was slight reduction (overall decline of 16 plants) in the number of *P. hirsuta* individuals, however, overall, the population was persisting and there were signs of recruitment with three immature individuals identified (estimated age between 1 and 2.5 years). All situated on a cleared easement. Recruitment within the population was limited to previously disturbed areas.
- One mature plant was discovered within the Stage Two Emplacement rehabilitation.

2.5 Spring 2015

The total count of living *P. hirsuta* plants in the Offset Area in Spring 2015 was 29.

When compared to the Spring 2014 results, there was a reduction in the number of *P. hirsuta* individuals. The Offset area had experienced an overall population decline of 24 plants. Although the vegetation remained in good condition, the *P. hirsuta* population in the Offset continued to decline because of the plants reaching senescence and the absence of a germination cue.

Any recent recruitment of *P. hirsuta* (three immature plants in 2014) had been limited to previously disturbed areas (in this case a powerline easement). Other known (healthier) populations at Couridjah and Yanderra, NSW, had a more recent fire history than Appin North (D. Gregory pers.obs.).

2.6 Spring 2016

The total count of living *P. hirsuta* plants within the Offset Area in Spring 2016 was 11:

- When compared to the Spring 2015 results, there was a further reduction in the number of *P. hirsuta* individuals. The Offset Area had experienced an overall population decline of 42 plants:
 - 16 of these were burned as part of the approved conservation burn trial in April 2016; and
 - 26 have died, likely due to age related causes.
- No new plants were identified in the Offset Area during the Spring 2016 survey.
- There appeared to be no recruitment occurring during 2016.

2.7 Spring 2017

The total count of living *P. hirsuta* plants within the Offset Area in Spring 2017 was 10:

- All 10 plants were identified post-baseline.
- One new plant was identified in the Offset Area during 2017.

- The Offset Area had experienced an overall population decline of 43 plants:
 - 16 of these were burned as part of the approved conservation burn trial in April 2016; and
 - 28 of these have died likely due to age related causes.
- A seedling was identified within the powerline corridor on Dam Road, indicating recruitment is occurring but limited to previously disturbed areas.

2.8 Spring 2018

The total count of living *P. hirsuta* plants within the Offset Area in Spring 2018 was 10:

- The Offset Area had experienced an overall population decline of 43 plants:
 - 16 of these were burned as part of the approved conservation burn trial in April 2016; and
 - 28 of these have died likely due to age related causes.
- No new plants were identified in the Offset Area during the Spring 2018 monitoring.

2.9 Spring 2019

The total count of living *P. hirsuta* plants within the Offset Area in Spring 2019 was 138 (10 from previous years and 128 planted in 2019):

- One plant had died likely due to age related causes or lack of rainfall.
- One new plant (SH004) was identified in the Offset Area during 2019, within the demarcated fencing near CF001.
- 128 plants were translocated from the Mount Annan Botanic Gardens and placed adjacent to the Offset Area.
- Two plants had died in the translocated Offset Area in 2019, likely due to stress when initially planted, leaving 126 living translocated plants.

2.10 Spring 2020

The total count of living *P. hirsuta* plants within the Offset Area in Spring 2020 was 38 (nine from previous years and 28 translocated plants):

- Two plants of the original core population had died likely due to age related causes or lack of rainfall.
- One new plant (SH006) was identified in the Offset Area during the 2020 burn survey.
- 98 of the translocated plants had died, many of which were juvenile plants that were more susceptible to harsh conditions such as the extreme hot and dry weather experienced in early 2020.

2.11 Spring 2021

The total number of living *P. hirsuta* plants within the Offset Area (including translocated individuals) in Spring 2021 was 45:

- The total count of live plants within the Offset Area in 2021 was 10.
- The remaining 28 translocated plants recorded in 2020 were recorded again in the 2021 survey.
- Seven new plants were recorded during the 2021 surveys (PB0001, PB0002, PB0003, PB0004, PB0005, PB0006, PB0007). PB0007 was found in the Offset area.
- A total of 90 plants were translocated in 2021 (PB128-PB217) (Figure 1) in Stage 2 of the CWEA. One individual has since died, likely due to stress when initially planted, leaving 89 living plants. This population is not included in the Offset total.

2.12 Spring 2022

The total count of living *P. hirsuta* plants within the Offset Area (including translocated individuals) in Spring 2022 was 140:

- 10 plants were recorded within the Offset Area. An additional five plants had an unknown condition as they were not surveyed in 2022.
- 26 of the 28 remaining translocated plants from 2019 were recorded again in 2022.
- Two new plants were recorded within the Offset Area in 2022 (IL001 and IL002). An additional three individuals were recorded within the non-impact area (IL004, IL005 and IL006). These are not included in the Offset total.
- Of the 89 translocated plants from 2021, 50 were recorded during the 2022 survey. This population is not included in the Offset total.
- A total of 102 plants were translocated in 2022 (OT0001-OT0102) (Figure 1). All except one individual were flowering. The total number of living *P. hirsuta* plants within the Offset Area (including 2019 translocated plants only) is 38.

2.13 Spring 2023

The total count of living *P. hirsuta* plants within the Offset Area (including translocated individuals) in Spring 2023 was 130:

- Six plants were recorded within the Offset Area in 2023. Three new plants (AL001, AL002, AL003) and three plants from previous years (IL001, IL002 and PB007).
- 24 of the 26 remaining translocated plants from 2019 were recorded once again in 2023.
- Of the 102 plants that were translocated in 2022, 100 were alive in 2023. OT0017 and OT0081 were dead.
- Of the 89 translocated plants from 2021, 34 were recorded during the 2022 survey. This population is not included in the Offset total.
- One previously recorded (in 2020) juvenile plant (SH006) was identified to have died.
- No plants were translocated in 2023.

3 Current Survey (Spring 2024)

3.1 Aim

To inspect all *P. hirsuta* plants to determine survivorship and recruitment through:

- a. Condition;
- b. Reproductive activity and age to maturity; and
- c. Any imminent threat or risk to the plants health (e.g. apparent disease, excessive dust deposition).

3.2 Methods

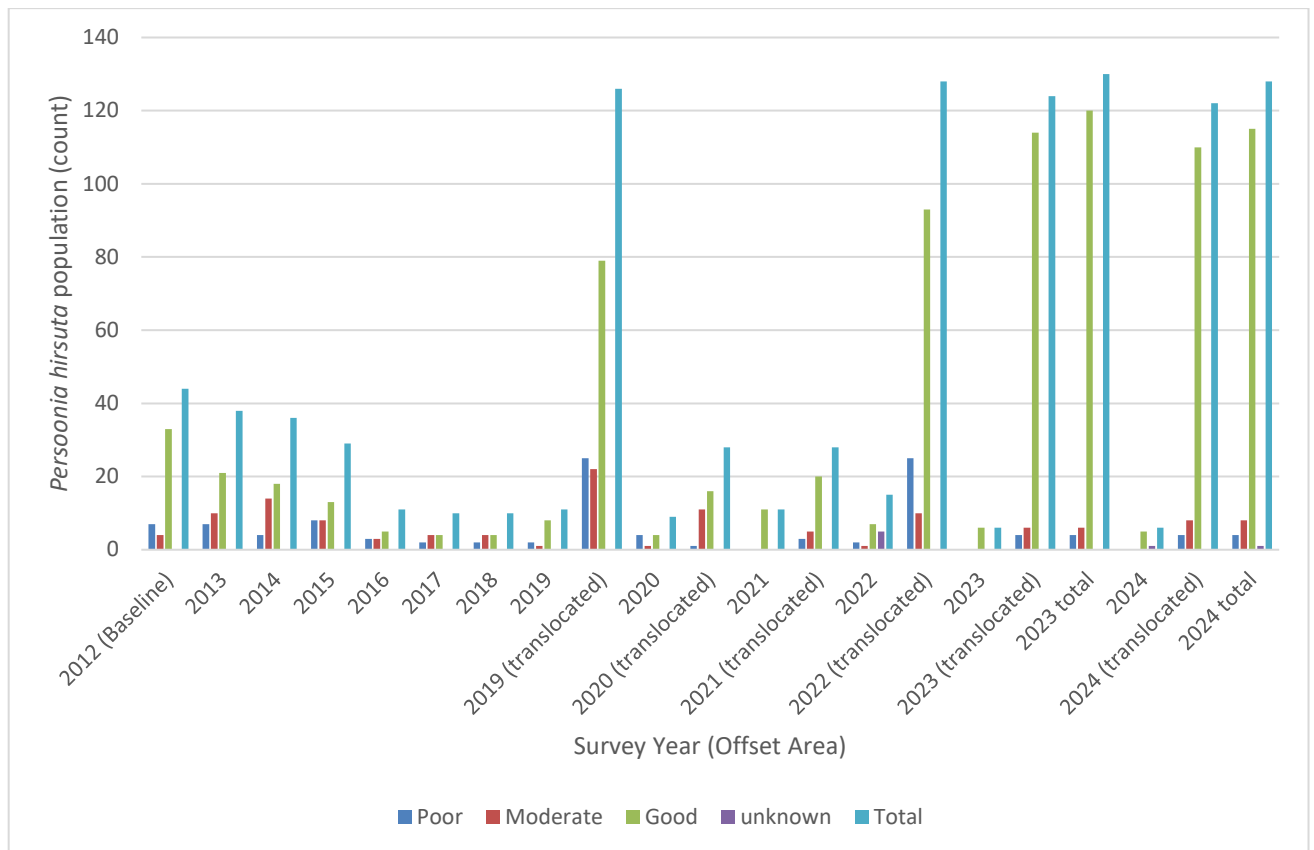
All *P. hirsuta* plants were inspected to record the following attributes:

- Height (mm)
- Age class;
- Condition; and
- Comments on any imminent threat or risk to the plants health (e.g. apparent disease, excessive dust deposition).

Height was measured using a tape measure, measuring from the ground surface to the highest point on the plant, without physically moving any part of the plant. Age class is categorised by mature, juvenile or dead. An individual is classed as mature once it begins reproducing (presence of fruit and/or flowers). Condition was defined using a combination of factors, including the percent cover of leaves, colour of leaves and the presence or absence of fruit or flowers, rating condition from 0 to 6, or from very poor condition to excellent condition (Appendix A).

Any new individuals were recorded with a Garmin GPS. The plants were also flagged with fluorescent, biodegradable flagging tape.

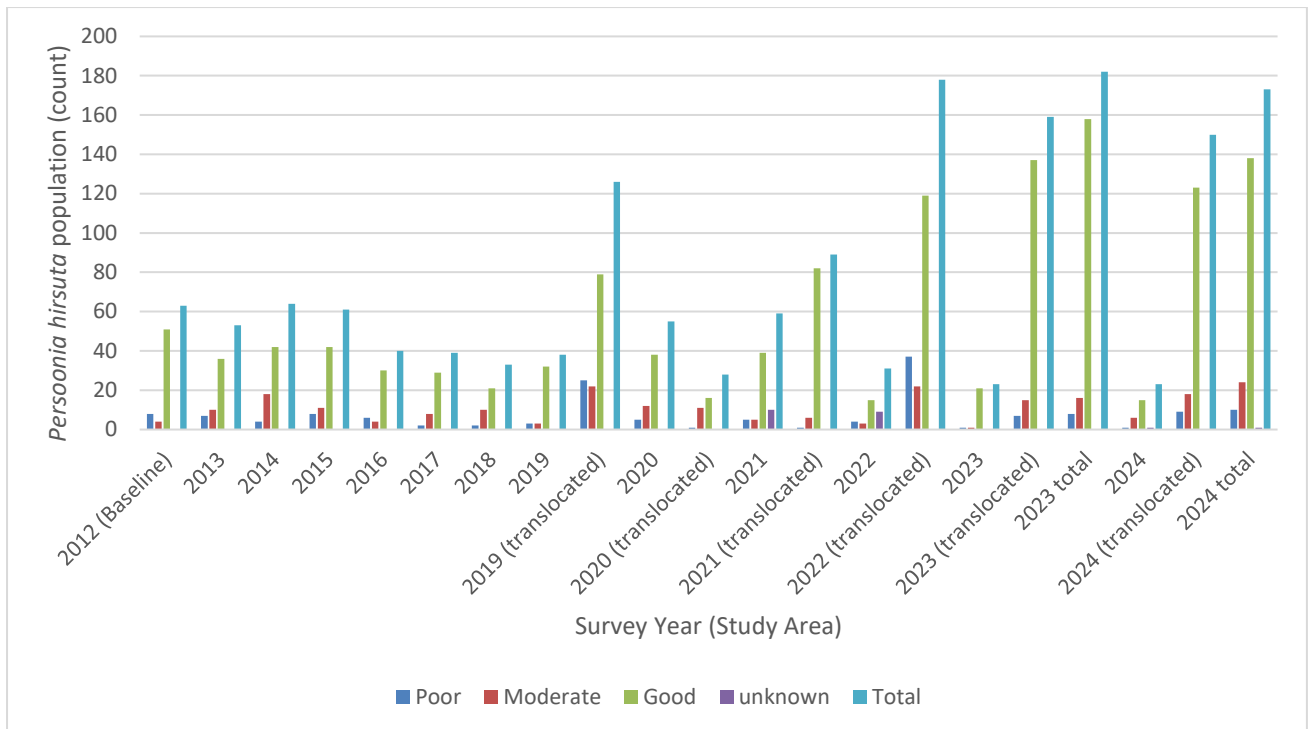
3.3 Results



Graph 1: Comparison of *Persoonia hirsuta* condition and population within the Offset Area (2012-2024)

- The total count of living *P. hirsuta* individuals within the Offset Area in 2024 (not including translocated) was five (AL001, AL002, IL001, IL002, LC001). The health of AL003 is unknown as it couldn't be located in 2024. It should be checked again during the 2025 survey to see if it can be located.
- 23 of the 24 remaining translocated plants from 2019 that were alive in 2023, were recorded again in the 2024 survey (refer to Appendix B).
- 99 of the 100 remaining translocated plants from 2022 that were alive in 2023, were recorded again in the 2024 survey (refer to Appendix B).
- One new individual was identified within the Offset Area during the 2024 survey (LC001).
- No plants were translocated in 2024.

The total number of living *P. hirsuta* individuals within the Offset Area, including translocated populations (undertaken in 2019 and 2022), is 127 (see Graph 1).



Graph 2: Comparison of condition and population of all *Persoonia hirsuta* plants within Study Area (2012-2024)

- A total of 17 individuals were recorded within the surrounding Appin North lease area in 2024, comprising the non-impact population. Sixteen of these were recorded during the previous survey in 2023, and one was a new individual that was recorded in 2024 (LC002). One individual has died since the 2023 survey (IL006).
- 27 of the 34 remaining translocated plants from 2021 within Stage 2 of the rehabilitation area were recorded again in the 2024 survey (see Appendix B). However, a total of 28 individuals were recorded during 2024, as data for PB142 was not recorded during 2023. Seven individuals have died since the 2023 survey (PB131, PB139, PB152, PB178, PB189, PB192, PB215).
- The total count for confirmed live *P. hirsuta* plants at Appin North in summer 2024 was 173, including plants that have been identified post-baseline (2012) and the additional translocated plants (2019, 2021 and 2022) that are still alive (Graph 2).
- A potential juvenile *P. hirsuta* (IL003) was recorded during the 2022 surveys at the western end of the dam road near NS031. The potential *P. hirsuta* was located again this year and the species confirmed.

The results are tabulated in Appendix B.

3.4 Discussion

The overall health of the core population of *P. hirsuta* is good, as the plants are producing flowers and fruits in most cases. Flowering and fruiting are more prevalent in plants that are located within dense bush rather than those beneath powerlines or on the roadside.

The vegetation in the Offset Area and surrounding Appin North site remains in good condition. The area that was subject to an ecological burn is regenerating well. GM3 are monitoring the site for emergent seedlings. Seven new *P. hirsuta* within the burn trial area have been observed to date (IL001, SH006, PB007, AL001, AL002, AL003 and LC001), with six found to be alive during the 2024 survey. One individual was observed to have died since the 2023 survey (PB007), and one new individual was recorded for the first time this year (LC001).

Within the three translocated populations, nine individuals were observed to have died since the 2023 survey. One individual died from the 2019 translocated population (PB0025), seven individuals died from the 2021 translocated population (PB131, PB139, PB152, PB178, PB189, PB192, PB215) and one individual died from the 2022 translocated population (OT0079). Overall, both the translocated populations within

the Offset Area (2019 and 2022) have consistently been observed to have good survivorship, with plants observed fruiting and flowering most years. The 2021 population with the Stage 2 rehabilitation area experienced significant rain the year they were planted, so many did not make it to maturity. The 2021 population has experienced decline every year since planting, however the rate of decline has decreased each year.

As per previous years, the recruitment of new individuals is limited to previously disturbed areas (beneath powerlines) or within proximity of to a senescent individual that has obligate seeded. Two new individuals were recorded this year, one within the offset area (LC001) and one within the non-impact area (LC002), both within close proximity to a mature adult *P. hirsuta*.

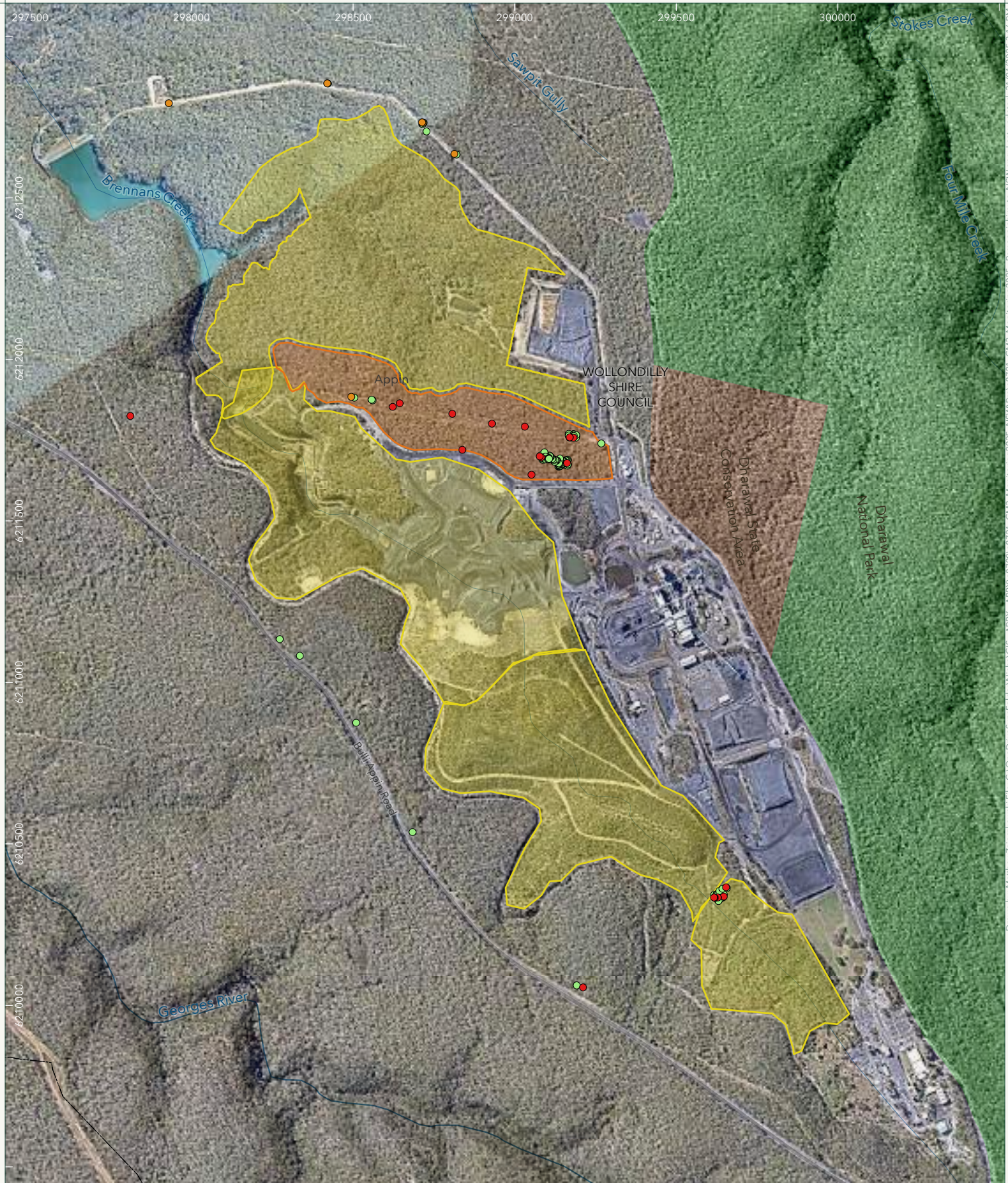
It is recommended to continue to water the translocated plants within the Offset Area as they mature to enable growth and have a greater chance of survival.

3.5 Ongoing Research and Conservation Management

In accordance with EPBC 2010/5350 Condition 3, GM3 is undertaking targeted research on *P. hirsuta* including:

- Habitat and demography;
- Population genetics;
- Seed biology, germination and recruitment and propagation, and
- Pollination.

Refer to Appendix C for more detail.



Appin North Offset Area

CWEA Land

Persoonia hirsuta records

Dead

Mature

Juvenile

Transport

Major road

Hydrography

Perennial Stream

Non Perennial Stream

Protected Areas of NSW

National Park

State Conservation Area

Administrative and Property
Boundaries

Local Government Area

0 400
m

GDA2020 MGA Zone 56



Figure 1

Persoonia hirsuta health survey 2024

GM3 Biodiversity Monitoring FY2025

Niche PM: Lily Cains
Niche Proj. #: 8721
Client: ICHPL - GM3

4 References

Alison Haynes Honours Thesis (2015). Conservation Genetics of the Rare and Endangered Plant, *Persoonia Hirsuta* (Proteaceae). University of Wollongong, NSW.

FloraSearch (2009). Illawarra Coal - Bulli Seam Operations Project - Terrestrial Flora Assessment. Illawarra Coal and BHP Billiton, eds. Bulli Seam Operations - Appendix E - Terrestrial Flora Assessment. EPBC Act Referral 2010/5350. Orange, NSW: FloraSearch.

South 32 (2019) *Persoonia hirsuta* Offset Management Plan.

Stephanie Wilmott Honours Thesis (2013). The Demography and Habitat Characteristics of *Persoonia Hirsuta*. University of Wollongong, NSW.

5 Appendices

Appendix A: Rating system used to determine the condition of *Persoonia hirsuta* individuals

Rating	Condition	Determinants
0	Very Poor	0-15% cover of leaves 100% of leaves dull or browning No fruits or flowers
1	Poor	15-30% cover of leaves >75% of leaves dull or browning No fruits or flowers
2	Fairly Poor	30-45% cover of leaves >50% of leaves dull or browning No fruit or flowers
3	Moderate	45-60% cover of leaves 50% of leaves dull or browning Some fruits or flowers
4	Good	60-75% cover of leaves <50% leaves dull or browning Presence of fruits or flowers
5	Very good	75-90% cover of leaves <25% of leaves dull or browning Presences of fruits or flowers
6	Excellent	90-100% cover of leaves 0% leaves dull or browning Presence of fruits or flowers

Appendix B: *Persoonia hirsuta* records from 2024

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Emplacement Rehab	N/A	DG023	0	0	Dead	Dead	299655	6210366	
Emplacement Rehab	N/A	DG033	0	0	Dead	Dead	299277	6210523	
Non-core/Non-impacted	N/A	cm021	0	0	Dead	Dead	298740	6212688	
Non-core/Non-impacted	N/A	DG005	680	1160	Very good	Mature	298332	6211083	
Non-core/Non-impacted	N/A	DG006	440	990	Good	Mature	298511	6210876	
Non-core/Non-impacted	N/A	DG007	0	0	Dead	Dead	298568	6210760	
Non-core/Non-impacted	N/A	DG008	0	0	Dead	Dead	298644	6212804	
Non-core/Non-impacted	N/A	DG014	0	0	Dead	Dead	297943	6211952	
Non-core/Non-impacted	N/A	DG017	0	0	Dead	Dead	297944	6211953	
Non-core/Non-impacted	N/A	DG019	0	0	Dead	Dead	298379	6213004	
Non-core/Non-impacted	N/A	DG020	0	0	Dead	Dead	298377	6213006	
Non-core/Non-impacted	N/A	DG021	0	0	Dead	Dead	298382	6213005	
Non-core/Non-impacted	N/A	DG022	0	0	Dead	Dead	297842	6211654	
Non-core/Non-impacted	N/A	DG024	0	0	Dead	Dead	298422	6212851	
Non-core/Non-impacted	N/A	DG027	0	0	Dead	Dead	299223	6210048	
Non-core/Non-impacted	N/A	DG028	0	0	Dead	Dead	298718	6212731	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Non-core/Non-impacted	N/A	DG029	0	0	Dead	Dead	298721	6212729	
Non-core/Non-impacted	N/A	DG031	0	0	Dead	Dead	298719	6212730	
Non-core/Non-impacted	N/A	DG032	0	0	Dead	Dead	298738	6210444	
Non-core/Non-impacted	N/A	DH012	310	1470	Moderate	Mature	298711	6212734	
Non-core/Non-impacted	N/A	IL005	550	540	Excellent	Mature	298730	6212701	
Non-core/Non-impacted	N/A	IL006	0	0	Dead	Dead	297809	6211827	
Non-core/Non-impacted	N/A	JC001	0	0	Dead	Dead	297951	6211989	
Non-core/Non-impacted	N/A	JC002	0	0	Dead	Dead	297637	6212132	
Non-core/Non-impacted	N/A	LC002	110	10	Moderate	Juvenile	298711	6212734	
Non-core/Non-impacted	N/A	NS003	560	1060	Very good	Mature	298684	6210536	
Non-core/Non-impacted	N/A	ns027	0	0	Dead	Dead	298819	6212634	
Non-core/Non-impacted	N/A	ns028	0	0	Dead	Dead	298718	6212726	
Non-core/Non-impacted	N/A	ns029	0	0	Dead	Dead	298619	6212825	
Non-core/Non-impacted	N/A	ns030	0	0	Dead	Dead	298290	6212866	
Non-core/Non-impacted	N/A	ns031	0	0	Dead	Dead	297935	6212786	
Non-core/Non-impacted	N/A	NS034	0	0	Dead	Dead	299211	6210059	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Non-core/Non-impacted	N/A	ns035	0	0	Dead	Dead	298619	6210678	
Non-core/Non-impacted	N/A	PB0001	510	510	Good	Mature	298423	6212850	
Non-core/Non-impacted	N/A	PB0002	540	335	Excellent	Mature	298720	6212734	
Non-core/Non-impacted	N/A	PB003	460	890	Very good	Mature	298711	6212723	
Non-core/Non-impacted	N/A	PB003	90	45	Moderate	Juvenile	297926	6212795	
Non-core/Non-impacted	N/A	PB004	320	410	Moderate	Juvenile	298720	6212734	
Non-core/Non-impacted	N/A	PB005	520	250	Good	Mature	298824	6212636	
Non-core/Non-impacted	N/A	PB005	280	20	Fairly poor	Juvenile	298815	6212636	
Non-core/Non-impacted	N/A	PB006	330	210	Moderate	Juvenile	298423	6212850	
Non-core/Non-impacted	N/A	PM001	340	900	Very good	Mature	299192	6210059	
Non-core/Non-impacted	N/A	SG001	510	860	Very good	Mature	298275	6211138	
Non-core/Non-impacted	N/A	SH001	0	0	Dead	Dead	298819	6212634	
Non-core/Non-impacted	N/A	SH002	280	400	Moderate	Mature	298711	6212734	
Non-core/Non-impacted	N/A	SH003	0	0	Dead	Dead	298427	6212845	
Non-core/Non-impacted	N/A	YN001	0	0	Dead	Dead	298427	6212845	
Non-core/Non-impacted	N/A	YN002	0	0	Dead	Dead	298427	6212845	
Offset	N/A	AH001	0	0	Dead	Dead	299074	6211709	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Offset	N/A	AL001	610	930	Excellent	Mature	298564	6211876	
Offset	N/A	AL002	725	850	Excellent	Mature	298499	6211886	
Offset	N/A	AL003	N/A	N/A	Unknown	N/A	298922	6211823	
Offset	N/A	AW001	0	0	Dead	Dead	299204	6211662	
Offset	N/A	AW002	0	0	Dead	Dead	299159	6211671	
Offset	N/A	CB004	0	0	Dead	Dead	299074	6211676	
Offset	N/A	cm001	0	0	Dead	Dead	299119	6211704	
Offset	N/A	CM002	0	0	Dead	Dead	299037	6211788	
Offset	N/A	cm003	0	0	Dead	Dead	298933	6211799	
Offset	N/A	cm004	0	0	Dead	Dead	298889	6211807	
Offset	N/A	cm005	0	0	Dead	Dead	298833	6211781	
Offset	N/A	cm006	0	0	Dead	Dead	298669	6211727	
Offset	N/A	cm007	0	0	Dead	Dead	298638	6211825	
Offset	N/A	cm008	0	0	Dead	Dead	298405	6211903	
Offset	N/A	cm009	0	0	Dead	Dead	298485	6211930	
Offset	N/A	cm010	0	0	Dead	Dead	298933	6211865	
Offset	N/A	cm011	0	0	Dead	Dead	298963	6211868	
Offset	N/A	cm012	0	0	Dead	Dead	299003	6211871	
Offset	N/A	cm013	0	0	Dead	Dead	299025	6211820	
Offset	N/A	cm014	0	0	Dead	Dead	299098	6211818	
Offset	N/A	cm015	0	0	Dead	Dead	298781	6211844	
Offset	N/A	cm016	0	0	Dead	Dead	298728	6211863	
Offset	N/A	cm017	0	0	Dead	Dead	299138	6211748	
Offset	N/A	cm018	0	0	Dead	Dead	298719	6211724	
Offset	N/A	cm019	0	0	Dead	Dead	298792	6211812	
Offset	N/A	cm020	0	0	Dead	Dead	298918	6211790	
Offset	N/A	DG001	0	0	Dead	Dead	299089	6211685	
Offset	N/A	DG002	0	0	Dead	Dead	298802	6211746	
Offset	N/A	DG009	0	0	Dead	Dead	298646	6211861	
Offset	N/A	DG010	0	0	Dead	Dead	298498	6211889	
Offset	N/A	DG025	0	0	Dead	Dead	298475	6211914	
Offset	N/A	IL001	370	100	Good	Mature	299267	6211736	
Offset	N/A	IL002	530	625	Excellent	Mature	298554	6211876	
Offset	N/A	LC001	360	100	Good	Juvenile	298490	6211886	
Offset	N/A	ns001	0	0	Dead	Dead	299291	6211655	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Offset	N/A	ns002	0	0	Dead	Dead	299134	6211714	
Offset	N/A	ns004	0	0	Dead	Dead	299095	6211692	
Offset	N/A	ns005	0	0	Dead	Dead	299083	6211666	
Offset	N/A	ns006	0	0	Dead	Dead	298950	6211791	
Offset	N/A	ns007	0	0	Dead	Dead	298960	6211747	
Offset	N/A	ns008	0	0	Dead	Dead	298946	6211718	
Offset	N/A	ns009	0	0	Dead	Dead	298888	6211752	
Offset	N/A	ns010	0	0	Dead	Dead	298772	6211754	
Offset	N/A	ns011	0	0	Dead	Dead	298663	6211731	
Offset	N/A	ns012	0	0	Dead	Dead	298651	6211741	
Offset	N/A	ns013	0	0	Dead	Dead	298664	6211744	
Offset	N/A	NS014	0	0	Dead	Dead	298619	6211853	
Offset	N/A	ns015	0	0	Dead	Dead	298579	6211877	
Offset	N/A	ns017	0	0	Dead	Dead	299074	6211798	
Offset	N/A	ns018	0	0	Dead	Dead	298820	6211843	
Offset	N/A	ns019	0	0	Dead	Dead	298798	6211844	
Offset	N/A	ns020	0	0	Dead	Dead	298673	6211861	
Offset	N/A	ns021	0	0	Dead	Dead	298806	6211827	
Offset	N/A	NS022	0	0	Dead	Dead	298807	6211825	
Offset	N/A	ns024	0	0	Dead	Dead	298815	6211801	
Offset	N/A	NS025	0	0	Dead	Dead	298695	6211834	
Offset	N/A	NS026	0	0	Dead	Dead	298931	6211797	
Offset	N/A	PB007	0	0	Dead	Dead	298834	6211716	
Offset	N/A	SH006	0	0	Dead	Dead	299057	6211640	
Stage 4	N/A	ns016	0	0	Dead	Dead	298873	6211924	
Translocated	N/A	NOTAGE-78	0	0	Dead	Dead	299162	6211770	
Translocated	N/A	P2017-1049/1-23	0	0	Dead	Dead	299162	6211770	
Translocated	3	PB001	0	0	Dead	Dead	299162	6211770	
Translocated	63	PB009	0	0	Dead	Dead	299162	6211770	
Translocated	35	PB010	0	0	Dead	Dead	299162	6211770	
Translocated	28	PB011	0	0	Dead	Dead	299162	6211770	
Translocated	36	PB012	0	0	Dead	Dead	299162	6211770	
Translocated	33	PB013	0	0	Dead	Dead	299162	6211770	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated	27	PB014	0	0	Dead	Dead	299162	6211770	
Translocated	75	PB015	0	0	Dead	Dead	299162	6211770	
Translocated	2	PB016	0	0	Dead	Dead	299162	6211770	
Translocated	10	PB017	0	0	Dead	Dead	299162	6211770	
Translocated	1	PB018	0	0	Dead	Dead	299162	6211770	
Translocated	102	PB019	0	0	Dead	Dead	299162	6211770	
Translocated	23	PB020	0	0	Dead	Dead	299162	6211770	
Translocated	50	PB021	0	0	Dead	Dead	299162	6211770	
Translocated	64	PB023	0	0	Dead	Dead	299162	6211770	
Translocated	62	PB024	0	0	Dead	Dead	299162	6211770	
Translocated	61	PB026	0	0	Dead	Dead	299162	6211770	
Translocated	14	PB027	0	0	Dead	Dead	299162	6211770	
Translocated	45	PB028	0	0	Dead	Dead	299162	6211770	
Translocated	32	PB029	0	0	Dead	Dead	299162	6211770	
Translocated	63	PB031	0	0	Dead	Dead	299162	6211770	
Translocated	74	PB032	0	0	Dead	Dead	299162	6211770	
Translocated	4	PB033	0	0	Dead	Dead	299162	6211770	
Translocated	76	PB034	0	0	Dead	Dead	299162	6211770	
Translocated	30	PB035	0	0	Dead	Dead	299162	6211770	
Translocated	29	PB036	0	0	Dead	Dead	299162	6211770	
Translocated	35	PB037	0	0	Dead	Dead	299162	6211770	
Translocated	26	PB040	0	0	Dead	Dead	299162	6211770	
Translocated	58	PB041	0	0	Dead	Dead	299162	6211770	
Translocated	30	PB042	0	0	Dead	Dead	299162	6211770	
Translocated	40	PB043	0	0	Dead	Dead	299162	6211770	
Translocated	44	PB044	0	0	Dead	Dead	299162	6211770	
Translocated	5	PB048	0	0	Dead	Dead	299162	6211770	
Translocated	65	PB049	0	0	Dead	Dead	299162	6211770	
Translocated	7	PB050	0	0	Dead	Dead	299162	6211770	
Translocated	24	PB051	0	0	Dead	Dead	299162	6211770	
Translocated	56	PB055	0	0	Dead	Dead	299162	6211770	
Translocated	57	PB056	0	0	Dead	Dead	299162	6211770	
Translocated	3	PB057	0	0	Dead	Dead	299162	6211770	
Translocated	60	PB058	0	0	Dead	Dead	299162	6211770	
Translocated	39	PB059	0	0	Dead	Dead	299162	6211770	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated	22	PB061	0	0	Dead	Dead	299162	6211770	
Translocated	6	PB063	0	0	Dead	Dead	299162	6211770	
Translocated	9	PB065	0	0	Dead	Dead	299162	6211770	
Translocated	11	PB066	0	0	Dead	Dead	299162	6211770	
Translocated	115	PB067	0	0	Dead	Dead	299162	6211770	
Translocated	121	PB068	0	0	Dead	Dead	299162	6211770	
Translocated	48	PB069	0	0	Dead	Dead	299162	6211770	
Translocated	51	PB071	0	0	Dead	Dead	299162	6211770	
Translocated	59	PB072	0	0	Dead	Dead	299162	6211770	
Translocated	24	PB073	0	0	Dead	Dead	299162	6211770	
Translocated	38	PB074	0	0	Dead	Dead	299162	6211770	
Translocated	71	PB079	0	0	Dead	Dead	299162	6211770	
Translocated	20	PB080	0	0	Dead	Dead	299162	6211770	
Translocated	14	PB081	0	0	Dead	Dead	299162	6211770	
Translocated	85	PB082	0	0	Dead	Dead	299162	6211770	
Translocated	25	PB083	0	0	Dead	Dead	299162	6211770	
Translocated	118	PB084	0	0	Dead	Dead	299162	6211770	
Translocated	38	PB085	0	0	Dead	Dead	299162	6211770	
Translocated	43	PB086	0	0	Dead	Dead	299162	6211770	
Translocated	102	PB087	0	0	Dead	Dead	299162	6211770	
Translocated	52	PB089	0	0	Dead	Dead	299162	6211770	
Translocated	29	PB091	0	0	Dead	Dead	299162	6211770	
Translocated	49	PB092	0	0	Dead	Dead	299162	6211770	
Translocated	26	PB094	0	0	Dead	Dead	299162	6211770	
Translocated	111	PB095	0	0	Dead	Dead	299162	6211770	
Translocated	103	PB096	0	0	Dead	Dead	299162	6211770	
Translocated	15	PB097	0	0	Dead	Dead	299162	6211770	
Translocated	114	PB098	0	0	Dead	Dead	299162	6211770	
Translocated	112	PB099	0	0	Dead	Dead	299162	6211770	
Translocated	18	PB100	0	0	Dead	Dead	299162	6211770	
Translocated	41	PB101	0	0	Dead	Dead	299162	6211770	
Translocated	31	PB102	0	0	Dead	Dead	299162	6211770	
Translocated	33	PB104	0	0	Dead	Dead	299162	6211770	
Translocated	7	PB105	0	0	Dead	Dead	299162	6211770	
Translocated	54	PB106	0	0	Dead	Dead	299162	6211770	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated	36	PB107	0	0	Dead	Dead	299162	6211770	
Translocated	27	PB108	0	0	Dead	Dead	299162	6211770	
Translocated	119	PB109	0	0	Dead	Dead	299162	6211770	
Translocated	117	PB110	0	0	Dead	Dead	299162	6211770	
Translocated	64	PB111	0	0	Dead	Dead	299162	6211770	
Translocated	16	PB112	0	0	Dead	Dead	299162	6211770	
Translocated	13	PB114	0	0	Dead	Dead	299162	6211770	
Translocated	21	PB115	0	0	Dead	Dead	299162	6211770	
Translocated	8	PB116	0	0	Dead	Dead	299162	6211770	
Translocated	37	PB117	0	0	Dead	Dead	299162	6211770	
Translocated	46	PB118	0	0	Dead	Dead	299162	6211770	
Translocated	53	PB119	0	0	Dead	Dead	299162	6211770	
Translocated	42	PB120	0	0	Dead	Dead	299162	6211770	
Translocated	47	PB121	0	0	Dead	Dead	299162	6211770	
Translocated	9	PB122	0	0	Dead	Dead	299162	6211770	
Translocated	6	PB123	0	0	Dead	Dead	299162	6211770	
Translocated	19	PB125	0	0	Dead	Dead	299162	6211770	
Translocated	107	PB126	0	0	Dead	Dead	299162	6211770	
Translocated	12	PB127	0	0	Dead	Dead	299162	6211770	
Translocated	N/A	PB141	0	0	Dead	Dead	299649	6210361	
Translocated (2019)	91	N/A	550	110	Good	Mature	299193	6211768	
Translocated (2019)	92	N/A	320	265	Good	Mature	299193	6211768	
Translocated (2019)	94	N/A	695	325	Very good	Mature	299193	6211756	
Translocated (2019)	8	N/A	540	340	Excellent	Mature	299174	6211767	
Translocated (2019)	10	N/A	365	270	Good	Mature	299174	6211767	
Translocated (2019)	22	N/A	400	223	Good	Mature	299193	6211768	
Translocated (2019)	38	N/A	360	380	Good	Mature	299183	6211767	
Translocated (2019)	N/A	PB0008	0	0	Dead	Dead	299162	6211770	
Translocated (2019)	95	PB0025	0	0	Dead	Dead	299184	6211756	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2019)	96	PB0030	405	410	Good	Mature	299183	6211767	
Translocated (2019)	99	PB0045	340	140	Good	Mature	299183	6211767	
Translocated (2019)	98	PB0046	470	155	Moderate	Mature	299183	6211767	
Translocated (2019)	97	PB0047	330	130	Good	Mature	299183	6211767	
Translocated (2019)	100	PB0052	270	115	Good	Mature	299175	6211756	
Translocated (2019)	1	PB0053	550	470	Excellent	Mature	299174	6211767	
Translocated (2019)	2	PB0054	598	270	Excellent	Mature	299174	6211767	
Translocated (2019)	7	PB0060	540	400	Excellent	Mature	299175	6211756	
Translocated (2019)	12	PB0064	660	440	Excellent	Mature	299175	6211756	
Translocated (2019)	6	PB007	430	220	Good	Mature	299175	6211756	
Translocated (2019)	5	PB0075	345	180	Good	Mature	299175	6211756	
Translocated (2019)	9	PB0077	235	95	Moderate	Mature	299174	6211767	
Translocated (2019)	13	PB0088	0	0	Dead	Dead	299162	6211770	
Translocated (2019)	11	PB0090	135	295	Very good	Mature	299174	6211767	
Translocated (2019)	14	PB0093	605	160	Excellent	Mature	299165	6211756	
Translocated (2019)	16	PB0103	753	275	Good	Mature	299165	6211767	
Translocated (2019)	15	PB0124	425	340	Good	Mature	299165	6211767	
Translocated (2021)	N/A	PB128	0	0	Dead	Dead	299649	6210361	1
Translocated (2021)	N/A	PB129	0	0	Dead	Dead	299649	6210361	2
Translocated (2021)	N/A	PB130	0	0	Dead	Dead	299649	6210361	3
Translocated (2021)	N/A	PB131	0	0	Dead	Dead	299649	6210361	4
Translocated (2021)	N/A	PB132	0	0	Dead	Dead	299649	6210361	5
Translocated (2021)	N/A	PB133	0	0	Dead	Dead	299649	6210361	6

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2021)	N/A	PB134	0	0	Dead	Dead	299649	6210361	7
Translocated (2021)	N/A	PB135	0	0	Dead	Dead	299649	6210361	8
Translocated (2021)	N/A	PB136	0	0	Dead	Dead	299649	6210361	9
Translocated (2021)	N/A	PB137	0	0	Dead	Dead	299649	6210361	10
Translocated (2021)	N/A	PB138	900	530	Excellent	Mature	299656	6210368	11
Translocated (2021)	N/A	PB139	0	0	Dead	Dead	299649	6210361	12
Translocated (2021)	N/A	PB140	0	0	Dead	Dead	299649	6210361	13
Translocated (2021)	N/A	PB141	0	0	Dead	Dead	N/A	N/A	14
Translocated (2021)	N/A	PB142	670	490	Good	Mature	299647	6210346	15
Translocated (2021)	N/A	PB143	0	0	Dead	Dead	299649	6210361	16
Translocated (2021)	N/A	PB144	0	0	Dead	Dead	299649	6210361	17
Translocated (2021)	N/A	PB145	0	0	Dead	Dead	299649	6210361	18
Translocated (2021)	N/A	PB146	0	0	Dead	Dead	299649	6210361	19
Translocated (2021)	N/A	PB147	0	0	Dead	Dead	299649	6210361	20
Translocated (2021)	N/A	PB148	715	430	Moderate	Mature	299647	6210335	21
Translocated (2021)	N/A	PB149	0	0	Dead	Dead	299649	6210361	22
Translocated (2021)	N/A	PB150	0	0	Dead	Dead	299649	6210361	23
Translocated (2021)	N/A	PB151	0	0	Dead	Dead	299649	6210361	24
Translocated (2021)	N/A	PB152	0	0	Dead	Dead	299649	6210361	25
Translocated (2021)	N/A	PB153	745	710	Very good	Mature	299647	6210335	26
Translocated (2021)	N/A	PB154	0	0	Dead	Dead	N/A	N/A	27
Translocated (2021)	N/A	PB155	0	0	Dead	Dead	N/A	N/A	28
Translocated (2021)	N/A	PB156	830	445	Very good	Mature	299638	6210335	29

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2021)	N/A	PB157	290	300	Fairly poor	Mature	299629	6210334	30
Translocated (2021)	N/A	PB158	840	550	Good	Mature	299629	6210334	31
Translocated (2021)	N/A	PB159	0	0	Dead	Dead	N/A	N/A	32
Translocated (2021)	N/A	PB160	0	0	Dead	Dead	299649	6210361	33
Translocated (2021)	N/A	PB161	0	0	Dead	Dead	299649	6210361	34
Translocated (2021)	N/A	PB162	520	410	Moderate	Mature	299629	6210334	35
Translocated (2021)	N/A	PB163	480	350	Very poor	Mature	299629	6210334	36
Translocated (2021)	N/A	PB164	0	0	Dead	Dead	299649	6210361	37
Translocated (2021)	N/A	PB165	0	0	Dead	Dead	299649	6210361	38
Translocated (2021)	N/A	PB166	770	560	Moderate	Mature	299629	6210334	39
Translocated (2021)	N/A	PB167	0	0	Dead	Dead	299649	6210361	40
Translocated (2021)	N/A	PB168	0	0	Dead	Dead	299649	6210361	41
Translocated (2021)	N/A	PB169	0	0	Dead	Dead	N/A	N/A	42
Translocated (2021)	N/A	PB170	820	450	Very good	Mature	299638	6210335	43
Translocated (2021)	N/A	PB171	0	0	Dead	Dead	299649	6210361	44
Translocated (2021)	N/A	PB172	905	560	Very good	Mature	299638	6210335	45
Translocated (2021)	N/A	PB173	560	300	Fairly poor	Mature	299629	6210334	46
Translocated (2021)	N/A	PB174	0	0	Dead	Dead	N/A	N/A	47
Translocated (2021)	N/A	PB175	0	0	Dead	Dead	N/A	N/A	48
Translocated (2021)	N/A	PB176	510	520	Very good	Mature	299629	6210334	49
Translocated (2021)	N/A	PB177	0	0	Dead	Dead	N/A	N/A	50
Translocated (2021)	N/A	PB178	0	0	Dead	Dead	299629	6210334	51
Translocated (2021)	N/A	PB179	0	0	Dead	Dead	299649	6210361	52

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2021)	N/A	PB180	0	0	Dead	Dead	N/A	N/A	53
Translocated (2021)	N/A	PB181	430	450	Fairly poor	Mature	299629	6210334	54
Translocated (2021)	N/A	PB182	730	390	Very good	Mature	299629	6210334	55
Translocated (2021)	N/A	PB183	900	380	Moderate	Mature	299629	6210323	56
Translocated (2021)	N/A	PB184	810	415	Moderate	Mature	299629	6210323	57
Translocated (2021)	N/A	PB185	580	500	Very good	Mature	299629	6210323	58
Translocated (2021)	N/A	PB186	0	0	Dead	Dead	299649	6210361	59
Translocated (2021)	N/A	PB187	0	0	Dead	Dead	N/A	N/A	60
Translocated (2021)	N/A	PB188	1220	490	Very good	Mature	299620	6210334	61
Translocated (2021)	N/A	PB189	0	0	Dead	Dead	299620	6210334	62
Translocated (2021)	N/A	PB190	1140	530	Good	Mature	299620	6210334	63
Translocated (2021)	N/A	PB191	0	0	Dead	Dead	N/A	N/A	64
Translocated (2021)	N/A	PB192	0	0	Dead	Dead	299620	6210334	65
Translocated (2021)	N/A	PB193	0	0	Dead	Dead	299649	6210361	66
Translocated (2021)	N/A	PB194	220	440	Poor	Mature	299619	6210345	67
Translocated (2021)	N/A	PB195	0	0	Dead	Dead	299649	6210361	68
Translocated (2021)	N/A	PB196	0	0	Dead	Dead	299649	6210361	69
Translocated (2021)	N/A	PB197	0	0	Dead	Dead	299649	6210361	70
Translocated (2021)	N/A	PB198	220	240	Moderate	Mature	299629	6210345	71
Translocated (2021)	N/A	PB199	320	350	Good	Mature	299629	6210345	72
Translocated (2021)	N/A	PB200	0	0	Dead	Dead	N/A	N/A	73
Translocated (2021)	N/A	PB201	810	490	Moderate	Mature	299629	6210345	74
Translocated (2021)	N/A	PB202	480	450	Moderate	Mature	299629	6210345	75

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2021)	N/A	PB203	0	0	Dead	Dead	299649	6210361	76
Translocated (2021)	N/A	PB204	0	0	Dead	Dead	299649	6210361	77
Translocated (2021)	N/A	PB205	0	0	Dead	Dead	N/A	N/A	78
Translocated (2021)	N/A	PB206	0	0	Dead	Dead	299649	6210361	79
Translocated (2021)	N/A	PB207	610	390	Moderate	Mature	299638	6210357	80
Translocated (2021)	N/A	PB208	0	0	Dead	Dead	N/A	N/A	81
Translocated (2021)	N/A	PB209	150	460	Moderate	Mature	299647	6210357	82
Translocated (2021)	N/A	PB210	0	0	Dead	Dead	299649	6210361	83
Translocated (2021)	N/A	PB211	0	0	Dead	Dead	N/A	N/A	84
Translocated (2021)	N/A	PB212	0	0	Dead	Dead	299649	6210361	85
Translocated (2021)	N/A	PB213	0	0	Dead	Dead	N/A	N/A	86
Translocated (2021)	N/A	PB214	0	0	Dead	Dead	299649	6210361	87
Translocated (2021)	N/A	PB215	0	0	Dead	Dead	299656	6210368	88
Translocated (2021)	N/A	PB216	0	0	Dead	Dead	299649	6210361	89
Translocated (2021)	N/A	PB217	0	0	Dead	Dead	299649	6210361	90
Translocated (2022)	1	OT0001	510	570	Excellent	Mature	299140	6211667	
Translocated (2022)	2	OT0002	650	350	Very good	Mature	299140	6211667	
Translocated (2022)	3	OT0003	370	520	Very good	Mature	299140	6211667	
Translocated (2022)	4	OT0004	510	535	Very good	Mature	299140	6211667	
Translocated (2022)	5	OT0005	945	453	Excellent	Mature	299140	6211667	
Translocated (2022)	6	OT0006	760	500	Very good	Mature	299140	6211667	
Translocated (2022)	7	OT0007	910	470	Excellent	Mature	299139	6211678	
Translocated (2022)	8	OT0008	920	560	Excellent	Mature	299139	6211678	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2022)	9	OT0009	1180	500	Excellent	Mature	299139	6211678	
Translocated (2022)	10	OT0010	1140	520	Excellent	Mature	299149	6211678	
Translocated (2022)	11	OT0011	770	430	Good	Mature	299149	6211678	
Translocated (2022)	12	OT0012	810	470	Moderate	Mature	299149	6211678	
Translocated (2022)	13	OT0013	950	390	Excellent	Mature	299149	6211678	
Translocated (2022)	14	OT0014	570	530	Very good	Mature	299158	6211667	
Translocated (2022)	15	OT0015	370	310	Moderate	Mature	299167	6211667	
Translocated (2022)	16	OT0016	822	550	Excellent	Mature	299167	6211678	
Translocated (2022)	17	OT0017	0	0	Dead	Dead	299158	6211678	
Translocated (2022)	18	OT0018	1120	460	Good	Mature	299158	6211678	
Translocated (2022)	19	OT0019	660	440	Very good	Mature	299158	6211678	
Translocated (2022)	20	OT0020	670	520	Excellent	Mature	299158	6211678	
Translocated (2022)	21	OT0021	1080	550	Excellent	Mature	299158	6211678	
Translocated (2022)	22	OT0022	530	430	Excellent	Mature	299167	6211689	
Translocated (2022)	23	OT0023	885	530	Excellent	Mature	299167	6211689	
Translocated (2022)	24	OT0024	750	540	Good	Mature	299167	6211689	
Translocated (2022)	25	OT0025	600	520	Very good	Mature	299158	6211689	
Translocated (2022)	26	OT0026	450	530	Moderate	Mature	299158	6211689	
Translocated (2022)	27	OT0027	935	350	Good	Mature	299158	6211689	
Translocated (2022)	28	OT0028	690	560	Very good	Mature	299148	6211689	
Translocated (2022)	29	OT0029	640	480	Good	Mature	299158	6211689	
Translocated (2022)	30	OT0030	1190	600	Excellent	Mature	299158	6211678	
Translocated (2022)	31	OT0031	650	380	Very good	Mature	299149	6211678	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2022)	32	OT0032	1010	420	Excellent	Mature	299158	6211678	
Translocated (2022)	33	OT0033	1450	480	Excellent	Mature	299139	6211689	
Translocated (2022)	34	OT0034	930	480	Very good	Mature	299148	6211689	
Translocated (2022)	35	OT0035	600	480	Very good	Mature	299148	6211689	
Translocated (2022)	36	OT0036	640	470	Good	Mature	299149	6211678	
Translocated (2022)	37	OT0037	710	480	Very good	Mature	299149	6211678	
Translocated (2022)	38	OT0038	980	430	Very good	Mature	299139	6211678	
Translocated (2022)	39	OT0039	790	550	Very good	Mature	299149	6211678	
Translocated (2022)	40	OT0040	880	470	Excellent	Mature	299139	6211678	
Translocated (2022)	41	OT0041	710	430	Very good	Mature	299139	6211678	
Translocated (2022)	42	OT0042	640	340	Moderate	Mature	299139	6211689	
Translocated (2022)	43	OT0043	640	370	Poor	Mature	299139	6211689	
Translocated (2022)	44	OT0044	540	450	Very good	Mature	299139	6211689	
Translocated (2022)	45	OT0045	1195	510	Very good	Mature	299139	6211689	
Translocated (2022)	46	OT0046	500	310	Very good	Mature	299139	6211689	
Translocated (2022)	47	OT0047	690	490	Excellent	Mature	299139	6211689	
Translocated (2022)	48	OT0048	820	500	Very good	Mature	299130	6211689	
Translocated (2022)	49	OT0049	785	485	Good	Mature	299130	6211677	
Translocated (2022)	50	OT0050	850	440	Very good	Mature	299139	6211678	
Translocated (2022)	51	OT0051	660	470	Very good	Mature	299130	6211689	
Translocated (2022)	52	OT0052	480	440	Good	Mature	299130	6211689	
Translocated (2022)	53	OT0053	850	520	Excellent	Mature	299121	6211688	
Translocated (2022)	54	OT0054	840	420	Excellent	Mature	299121	6211688	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2022)	55	OT0055	1250	540	Very good	Mature	299121	6211688	
Translocated (2022)	56	OT0056	790	480	Excellent	Mature	299121	6211688	
Translocated (2022)	57	OT0057	940	460	Good	Mature	299121	6211688	
Translocated (2022)	58	OT0058	920	510	Very good	Mature	299121	6211688	
Translocated (2022)	59	OT0059	720	450	Very good	Mature	299121	6211688	
Translocated (2022)	60	OT0060	785	460	Good	Mature	299111	6211699	
Translocated (2022)	61	OT0061	600	450	Very good	Mature	299111	6211699	
Translocated (2022)	62	OT0062	460	530	Very good	Mature	299111	6211699	
Translocated (2022)	63	OT0063	620	470	Very good	Mature	299111	6211699	
Translocated (2022)	64	OT0064	1280	510	Good	Mature	299111	6211699	
Translocated (2022)	65	OT0065	440	650	Very good	Mature	299111	6211699	
Translocated (2022)	66	OT0066	500	530	Very good	Mature	299102	6211699	
Translocated (2022)	67	OT0067	910	600	Excellent	Mature	299102	6211699	
Translocated (2022)	68	OT0068	1310	500	Very good	Mature	299102	6211699	
Translocated (2022)	69	OT0069	550	530	Very good	Mature	299102	6211699	
Translocated (2022)	70	OT0070	900	480	Very good	Mature	299102	6211699	
Translocated (2022)	71	OT0071	550	480	Very good	Mature	299093	6211699	
Translocated (2022)	72	OT0072	1290	500	Very good	Mature	299093	6211699	
Translocated (2022)	73	OT0073	1090	500	Very good	Mature	299093	6211699	
Translocated (2022)	74	OT0074	900	490	Very good	Mature	299093	6211699	
Translocated (2022)	75	OT0075	820	480	Good	Mature	299084	6211699	
Translocated (2022)	76	OT0076	850	500	Good	Mature	299084	6211699	
Translocated (2022)	77	OT0077	960	470	Very good	Mature	299093	6211699	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2022)	78	OT0078	1180	450	Good	Mature	299084	6211699	
Translocated (2022)	79	OT0079	0	0	Dead	Dead	299084	6211699	
Translocated (2022)	80	OT0080	790	440	Very good	Mature	299084	6211699	
Translocated (2022)	81	OT0081	0	0	Dead	Dead	299074	6211698	
Translocated (2022)	82	OT0082	650	460	Fairly poor	Mature	299084	6211699	
Translocated (2022)	83	OT0083	590	460	Fairly poor	Mature	299084	6211699	
Translocated (2022)	84	OT0084	880	520	Good	Mature	299093	6211699	
Translocated (2022)	85	OT0085	480	490	Moderate	Mature	299084	6211699	
Translocated (2022)	86	OT0086	810	510	Very good	Mature	299084	6211688	
Translocated (2022)	87	OT0087	1090	400	Good	Mature	299093	6211710	
Translocated (2022)	88	OT0088	500	400	Good	Mature	299093	6211699	
Translocated (2022)	89	OT0089	930	420	Excellent	Mature	299084	6211699	
Translocated (2022)	90	OT0090	670	480	Fairly poor	Mature	299093	6211688	
Translocated (2022)	91	OT0091	880	500	Excellent	Mature	299093	6211688	
Translocated (2022)	92	OT0092	620	410	Very good	Mature	299084	6211699	
Translocated (2022)	93	OT0093	810	340	Moderate	Mature	299093	6211688	
Translocated (2022)	94	OT0094	640	530	Very good	Mature	299093	6211699	
Translocated (2022)	95	OT0095	940	420	Very good	Mature	299093	6211699	
Translocated (2022)	96	OT0096	590	410	Excellent	Mature	299093	6211699	
Translocated (2022)	97	OT0097	600	470	Very good	Mature	299093	6211688	
Translocated (2022)	98	OT0098	440	620	Excellent	Mature	299102	6211688	
Translocated (2022)	99	OT0099	720	510	Excellent	Mature	299102	6211688	
Translocated (2022)	100	OT0100	700	510	Very good	Mature	299102	6211688	

Area	Mt Annan TAG	Label Tag	Height (mm)	Width (mm)	Condition	Age Class	Easting	Northing	New ID
Translocated (2022)	101	OT0101	1020	530	Very good	Mature	299102	6211688	
Translocated (2022)	102	OT0102	1080	470	Very good	Mature	299102	6211688	

Appendix C: *Personia hirsuta* research strategy and status

EPBC Act Approval (2010/5350) Condition 3 – South32 Illawarra Metallurgical Coal *Persoonia* Research Status Update and Strategy

Prepared by: David Gregory – IC Land and Biodiversity Specialist

Review Date: 22nd June 2018

Condition Requirement	Status
3. The person taking action must engage a suitably qualified expert to undertake and make publicly available targeted research to inform conservation knowledge of <i>Persoonia hirsuta</i> . The research must:	The ‘targeted research’ is being undertaken by both the University of Wollongong (UOW) and Royal Botanic Gardens and Domain Trust. The following research has been completed by UOW to date: 1. Honours project #1 titled The Demography and Habitat Characteristics of the Endangered <i>Persoonia hirsuta</i> (submitted 2013) 2. Honours project #2 titled Conservation genetics of the rare and endangered plant, <i>Persoonia hirsuta</i> (Proteaceae) (submitted 2015) 3. Honours Project #3 (Continuation of #2) titled Can the seed bank act as a reservoir of genetic diversity? A Conservation genetic study of <i>Persoonia hirsuta</i> UOW will publish the outcomes from this work. We expect the final paper/s to be available mid-late 2018. The following research is underway with the Royal Botanic Gardens and Domain Trust: 1. Trial propagation using cuttings collected from the West Cliff and other populations. The aim is to develop a population of stock plants at the nursery which will be used to collect seed for germination trials and translocation. This project is ongoing, progress has been slow due to the overall success rate for this species being very low. 2. ACARP 24013 (2017). <i>Managing and conserving native plant species in the mining environment - seed germination biology and alternative ex situ storage of Persoonia germplasm for restoration</i>. This work is a collaborative project between GM3, Centennial Coal and Royal Botanic Gardens and Domain Trust and is funded by the Australian Coal Association Research Program (ACARP). The research had two main aims: a. To optimise propagation of <i>Persoonia</i>, through seed and vegetative material, with a focus on several species relevant to current mining leases in South-Eastern Australia. The objectives within this aim include: i. Optimising the collection of seed and vegetative material ii. Understanding dormancy preventing high rates of seed germination for multiple species and optimising germination conditions to establish cultivation protocols iii. Trialling various approaches to vegetative propagation. b. To determine the most appropriate ex situ conservation options for successful reintroduction of these species as part of restoration programs. The following objectives were addressed:

Condition Requirement	Status
	i. Determination of the long-term suitability of seedbanking for <i>Persoonia</i> ii. Identification of optimal conditions for the successful propagation and healthy growth and survival of <i>Persoonias</i> in the nursery iii. Establishment of a protocol for storage of germplasm as seed (seedbanking) and plantlets (tissue culture) to maximise survivorship. The above project (Phase 1) commenced February 2015 and completed in March 2017. This project was granted further funding in 2016 and extended for two years (Phase 2) (to conclude late 2019) to include high interest native plants in mine site restoration programs and Propagation, translocation and re-introduction of plants for the establishment of offset populations. Mt Annan RBG are currently undergoing seed collections, germination and pollinator observations. To date, the project has resulted in successful germination of <i>P. hirsuta</i> seed in the nursery plants grown from seed in the nursery have been translocated back to the mine site. Phase 1 has resulted in several published research articles. 3. PhD (Collaboration with Royal Botanic Gardens and Western Sydney University) titled Addressing Drivers of Dieback in an Endangered Tree Species, <i>Persoonia hirsuta</i> (Hairy Geebung). The aim of this project is to assess environmental factors that may be linked to dieback, particularly those related to beneficial and detrimental microbes and to plant nutrition. These factors will be assessed in field and glasshouse experiments and using state-of-the-art laboratory techniques. This project will commence mid-2018 and run for the next 3 years.
a. Document current understanding of <i>Persoonia hirsuta</i> ecology and genetics;	UOW honours project #1 - Thesis titled <i>The demography and Habitat Characteristics of the Endangered Persoonia hirsuta</i> by Stephanie Wilmott. Project was completed in October 2013. The study investigated the following: • Current distribution and abundance • Soil stored seed bank – to determine if seed is dispersed or retained directly under the plant; and • Habitat requirements – Indicator species, soil particle size/composition and elevation Current understanding of genetics was summarised in the Conservation Genetics Projects (UOW project #2 & #3) which is summarised in Condition (5) below. UOW will publish the outcomes of these works in a paper late 2018.
b. Outline previously documented management and conservation actions;	This will be outlined in the final report when published.
c. Investigate:	Royal Botanic Gardens have commenced pollinator observations on <i>P. hirsuta</i> . This work will form part of the ACARP research mentioned above.
i. Pollination biology	
ii. Requirements of its pollinators	As above.
iii. Soil seed bank dynamics and the role of various	Soil seed bank was investigated as part of project #1 as mentioned above. This study found that all of the sites where <i>P. hirsuta</i>

Condition Requirement	Status
disturbances (including fire) in germination and recruitment;	populations were present were found to have high levels of disturbance. The type of disturbance and the level of disturbance <i>P. hirsuta</i> can tolerate, and perhaps benefit from, was not tested experimentally. The RBG ACARP project will attempt to develop a robust and informative experimental framework for examining germination cues for <i>Persoonia</i> species seed, including temperature, chemical, physical and temporal treatments. Soil stored seed was also a topic of investigation in the UOW project #3. UOW was engaged by GM3 to investigate post-fire seedling emergence patterns at a site consisting of approximately 8000 m² of dry sclerophyll forest at Yanderra, on the edge of the Southern Highlands, NSW. The site was burned in a wildfire in late October 2013. This study was the first to record the spatial and temporal pattern of post-fire seedling emergence in <i>P. hirsuta</i> and found that of 16 burned skeletons, the seed banks immediately below 10 of them produced a flush of seedlings mostly seven months after the fire (Alison Haynes Thesis 2015). The results were published in the UOW project #2 (Conservation Genetics). GM3 conducted an ecological burn within the West Cliff <i>Persoonia</i> Offset in April 2016. The aim of the burn was to promote germination of <i>P. hirsuta</i> and increase the density of the species within the area. GM3 prepared a Burn Plan and designed a post-fire monitoring program and is currently monitoring for seedlings.
iv. Phenology and seasonal growth of <i>Persoonia hirsuta</i>	GM3 is conducting annual population and condition surveys at West Cliff. These surveys examine the growth, health and survival of the plants growing within the Offset area at West Cliff. An annual report is provided to Department of Agriculture, Water and the Environment each year in accordance with EPBC 2010/5350 Condition (h).
v. Population genetic structure, levels of genetic diversity, minimum viable population size and management actions	UOW honours project #2 - titled <i>Conservation Genetics of the Rare and Endangered Persoonia hirsuta (Proteaceae)</i>. Project was completed July 2015 and investigated the following: • Developing and optimising a set of species-specific microsatellite primers suitable for fine scale population genetic analysis in this study, and in later studies of paternity analyses. • Using microsatellite data from adult plants to estimate patterns of allelic and genotypic diversity, fine and coarse scale genetic differentiation and mating systems; and • Investigating the species' demographic response to fire by taking advantage of a wildfire in October 2013 that burned one of the adult stands, providing the opportunity to document spatial and temporal patterns of seedling emergence and growth. Further research in this area continued under Honours project # 3 – Completed Nov 2016. There were five major aims of this project: • Extract and amplify DNA of a reliable and workable quality from <i>Persoonia hirsuta</i> seed material using PCR. • Select and optimise markers based on quality, repeatability and variability. • Use material from each of two populations to genotype seed from canopy and soil stored seed bank to:

Condition Requirement	Status
	- Verify that seed genotypes were reflective of the embryo, whilst not containing maternal DNA - Compile a representative sample of the seed bank - Infer patterns of mating using paternity analyses, estimation of pollen dispersal distances and variation in male reproductive success across time. Calculate single and multilocus outcrossing rates. - Compare levels and partitioning of genetic diversity within the adult and seed bank populations.
vi. Impact of dieback disease and control techniques on <i>Persoonia hirsuta</i> and its habitat; and	PhD (Collaboration with Royal Botanic Gardens and Western Sydney University) titled <i>Addressing Drivers of Dieback in an Endangered Tree Species, Persoonia hirsuta (Hairy Geebung)</i>. The aim of this project is to assess environmental factors that may be linked to dieback, particularly those related to beneficial and detrimental microbes and to plant nutrition. These factors will be assessed in field and glasshouse experiments and using state-of-the-art laboratory techniques. This project will commence mid-2018 and run for the next 3 years.
vii. Impact of fire on <i>Persoonia hirsuta</i> and its habitat	As mentioned above, <i>UOW Conservation Genetics...</i> (Project #2) thesis Investigated the species' demographic response to fire by taking advantage of a wildfire in October 2013 that burned one of the adult stands, providing the opportunity to document spatial and temporal patterns of seedling emergence and growth. GM3 has conducted an ecological burn within the Offset in 2016 and is monitoring to measure the plants' response to fire at West Cliff.

Key Milestones	Target Completion Date	Status
1. Demography and Habitat Project Completed	Nov 2013	Completed Nov 2013
2. Conservation Genetics Project Completed	June 2015	Honours Thesis completed June 15, UOW currently publishing this work.
3. Mating Systems Project Complete	Oct 2016	Completed Oct 2016
4. Annual population monitoring Completed	Dec 13, 14, 15, 16 & 17	Dec 13, 14, 15, 16 & 17 completed
5. Mt Annan Propagation Trials using cuttings completed	Trial 1 WC cuttings collected by – June 2014 Trial 2 (Couridjah) cuttings collected by – Dec 2014 Trial 3 WC cuttings collected by – March 2015 Trial 4 – WC cuttings collected by end of 2016 Trial 5 – WC and Yanderra April 2018	Trial 1 completed with no success Trial 2 ongoing, no long-term success Trial 3 underway, 16 cuttings successful to begin with, but mortality high – No plants have since survived. Trial 4 Mortality high, few plants remaining in nursery and progress very slow.

Key Milestones	Target Completion Date	Status
		Trial 5 – Cuttings have been potted but no root establishment yet.
6. Conduct Ecological burn – West Cliff Offset	Autumn 2016 (depending on findings from ACARP and 2015 population census).	Burn completed in Apr 2016. Commenced post-fire monitoring program. One <i>P. hirsuta</i> seedling recorded in 2020 (confirmed to be still present and healthy in 2021) and one mature plant recorded in the burn area in 2021.
7. Royal Botanic Gardens ACARP Project Report Completed	May 2017 (Part 1). Oct 2019 (Part 2)	Project commenced February 2015 – Ongoing. Has been extended into a second project –further funding for another two years.
8. PhD Project (RBG & UWS)	March 2021	Not yet commenced
9. Submit Final Project Report	June 2021	Original deadline was May 2017 – Request submitted to extend by another two years - Granted. Additional request submitted to extend till 2021 to allow for PhD project and additional work being undertaken by RBG.

END OF REPORT

Appendix 7: Appin West BioBank Site Annual Report – 2024/2025

BioBank / Biodiversity Stewardship Agreement Site - Landholder Annual Report & BCT Annual Progress Report

Reporting year of BSA site:	Year 7 - Active Management	Agreement ID:	BA00215 Appin West
Annual Management Payment:	AMP ##	Name of landowner/site contact:	Pollyanna Barlow, GM3 and James Alchin, GM3
Site visit (if required):	30/06/2025	Phone:	Polly, 0401 808 711: James, 0414 731 756
BCT Contact and phone:	Kathryn Collins 0419 610 653	Property address:	140 Douglas Park Drive, Douglas Park, 2569

Confirmation of bank details for Annual Management Payment **X**

Failure to complete this section may delay your payment – please select the appropriate boxes below.

Current bank details on file:

BSB: 012878

Account Number:
Xxxx 5734

☒ I confirm the bank details above are correct

☒ I confirm that my ABN/GST status has not changed

☐ My bank details have changed, please send me a new bank nomination form

Management actions

Management action	Requirements of Biobanking Agreement		Annual reporting of Landowner or contractor	Review of annual report by BCT	
	Action	Completion time & frequency	Description of actions undertaken (including where undertaken, any variations and the reasons for variation) Visual observations & other comments (including reasons for non-completion)	Action completed satisfactorily	Comments and recommendations by BCT
1 Management of grazing for conservation	1.1 Stock must not be permitted to graze in any area of the site.	Ongoing from commencement date	No stock observed in all management zones during site visits.		
	1.2 This item is not applicable	N/A	NA		
	1.3 This item is not applicable	N/A	NA		
	1.4 If stock is observed, the landowner must take measures to remove the stock immediately.	Ongoing from commencement date	No stock observed in all management zones during site visit including other evidence such as scats and grazing.		
2 Weed control	2.1 The landowner must implement and comply with the weed management plan.	Ongoing from first payment date	Targeted weed sweeps are conducted in order to control weeds at the site that are in low abundance including Lantana, Privet, Crofton Weed, Bridal Creeper, Narrow-Leaved Cotton Bush and a range of annual weeds. Manual removal of African Lovegrass in MZ1 and MZ2, adjoining the transmission line was completed at recent site visits to reduce the spread of the weed further into the site. Manual removal includes removing the entire tussock and roots. On the eastern side of the main road within MZ1, manual removal of Aloe Vera was undertaken, with the plant rafted on pallets. Follow up visits have confirmed that rafting is an effective method to kill the succulents. Targeted control of thistles and Pattersons curse have occurred in MZ3 by manually removing the plants.		

Management actions

			Please refer to detail in the Weed Management Plan below for further information.		
	2.2 The landowner must review the weed management plan.	Every 4 to 6 years from first payment date	The Weed Management Plan was reviewed in 2023 by our ecologist. This plan was updated to include new target weeds and management issues that have emerged at the site since the initial review.		
3 Management of fire for conservation	3.1 The landowner must implement and comply with the fire management plan.	Ongoing from first payment date	Refer to detail in the Fire Conservation Management Plan below. There is no evidence of fire occurring (intentionally or unintentionally) at the site during the reporting period.		
	3.2 The landholder must review the fire management plan	Every 4 to 6 from first payment date	The Fire Conservation Management Plan was reviewed in 2023, with hazard reduction burning suggested in 2026 to the landholder.		
	3.3 Fires must not be lit on lit on the site unless it is in accordance with the fire management plan.	Ongoing from commencement date	There is no evidence of fire occurring (intentionally or unintentionally) at the site during the reporting period.		
4 Management of human disturbance	4.1/4.2 Human activities that adversely affect biodiversity values, other than prescribed management actions or permissible development or human activities under clause 3, must not be carried out.	Ongoing from commencement date	No evidence of human activities that would adversely impact the values of the site during this reporting period.		
	4.3 The landowner must remove rubbish as identified on the Property Management Action Map in the agreement and below.	To be completed by the end of Year 1 from first payment date.	No new rubbish was identified during the reporting period. Pallets that were previously found onsite, have been utilised to raft aloe vera.		
	4.4 The landholder must not store, dispose of, or cause or permit to be disposed of, any waste on the biobank site.	Ongoing from first payment date	No waste was found onsite during the reporting period.		
	4.5 The landholder must take all reasonable steps to remove waste deposited by others or already present.	Ongoing from first payment date	No waste was found onsite during the reporting period.		

Management actions

	4.6 The landholder must install and maintain fencing, and signage as identified on the Property Management Action Map and the specific requirements in the agreement and below.	Ongoing from first payment date	All fences are in good condition and exclude stock from the site. All biobanking and security signs remain attached to the access gates.		
5 Retention of native vegetation	5.1 Native vegetation must not be cut down or removed, except in accordance with prescribed management actions/plans.	Ongoing from commencement date	No evidence of illegal removal of trees was found during the most recent site inspection. In previous reporting years, illegal logging of native Turpentine trees had occurred, on multiple instances, in MZ1 in the eastern block of the site		
	5.2 Native vegetation on the biobank site must not be burnt except in accordance with the fire management plan	Ongoing from commencement date	No evidence of any recent wildfire or burnt vegetation during the reporting period		
6 Planting or seeding	6.1 The landowner must undertake supplementary planting in accordance with the planting schedule and the specific requirements in the agreement and detailed below.	See planting schedule plan below	Supplementary tree planting occurred in MZ3 prior to the 2018. No further supplementary tree planting is required under the agreement.		
	6.2 This item is not applicable	N/A	NA		
	6.3 The landowner must monitor each area of planting or seeding to measure survival	24 months after completion of planting in each area, thereafter every 12 months.	The seedlings do not appear to be impacted by grazing and have been maintained within the constraints of the site budget with survivability approximately 40% with additional recruitment observed from neighbouring native vegetation.		
	6.4 Areas planted or seeded must be managed to assist establishment & survival.	As required from the date that planting or seedings areas are established	Weeds in the planted area are subject to control methods including manual removal, to decrease competition to the tubestock.		
	6.5 Plants and seeds used for Supplementary Planting must be obtained from locally collected provenances, unless there are reasons to do otherwise	As required from commencement	Seedlings were sourced from seed collectors who verified the provenance as SW Sydney.		

Management actions

7 Retention of dead timber	7.1 Dead timber (standing, fallen, incl. branches) & leaf litter must not be removed from the site.	Ongoing from commencement	No dead timber or leaf litter has been removed from site.		
	7.2 Timber from outside the biobank site may be introduced to and placed on the biobank site to improve biodiversity values.	When required after the first payment date.	No timber has been introduced to the site.		
8 Erosion control	8.1 The landowner must undertake reasonable steps to prevent, control & remedy erosion, using best practice.	Ongoing from commencement	No evidence of erosion has been found during site visits.		
9 Retention of rocks	9.1 Rocks must not be removed from or moved within the biobank site.	Ongoing from commencement	No rocks have been removed from site.		
	9.2 Rocks from outside the site may be placed on the biobank site to improve biodiversity.	When required after the first payment date	No rocks have been introduced to the site.		
10 Control of feral & overabundant native herbivores	10.1 The landowner must implement the feral & overabundant herbivores management plan.	Ongoing from first payment date	Negligible feral or overabundant native herbivores observed onsite in all zones. No evidence of goats (scats) observed to date. Refer to detail in the Feral Pest Management Plan below		
	10.2 The landowner must review feral herbivore management plan	Every 4 to 6 from first payment date	The feral and overabundant native herbivores management plan was reviewed in 2023.		
11 Vertebrate pest management	11.1 The landowner must implement the vertebrate pest management plan.	Ongoing from first payment date	Fox baiting occurred between September and October 2024. A planned regional control program in autumn was cancelled due to a lack of staff availability from Local Land Services to manage the program. 1080 ejector traps were used, with one successful trigger being recorded. Refer to detail in the Feral Pest Management Plan below		

Management actions

	11.2 The landowner must review the vertebrate pest management plan	Every 4 to 6 from first payment date	This plan was reviewed in 2023.		
12 Nutrient control	Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions	Ongoing from commencement	Herbicides are used onsite to control weeds. This mainly consists of cut and paint treatment.		
13	This item is not applicable	N/A			
14 Maintenance of natural flow regimes	14.1 No artificial structures such as dams or levee banks that impede natural flow regimes may be constructed on site	Ongoing from commencement	No artificial structures have been installed.		
15 Installation of nest boxes	15.1 Artificial hollows and/or nest boxes must be installed at the site to improve biodiversity values.	When required from first payment date	Nest boxes have not been installed at the site as it is not a requirement in the agreement.		

Implementation of Management Plans

Weed Management Plan						
Methods of Weed Control				Landholder to complete	BCT annual progress report	
Management Zone/s	Weeds	Method of weed control & Performance Criteria	Frequency and timing	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
MZ1	African lovegrass Kikuyu grass Narrow-leaved carpet grass	Treatment of these exotic perennial grasses will involve regular slashing throughout the non-BioBank Site area and spray preparation and spraying along edges of MZ1	Team of 2, four times a year (ideally September to May) ongoing from first payment date \$5,000 per year (four visits at \$1,250)	African lovegrass is removed manually, by digging out the plants including the roots (completed 1 November 2024).		
	Purpletop Fireweed Paddy's lucerne Spear thistle Variegated thistle African daisy Tall bearded iris Paterson's curse	Treatment of these herbaceous perennials will consist of maintenance weed management sweeps through the non-BioBank Site area and the edges of MZ1. Due to the low levels of infestation, treatment will be a combination of cut-and-paint (e.g., purple top), hand-weeding and spraying.	Team of 2, four times a year (in conjunction with above).	Treatment of these weeds primarily consisted of manual control including hand weeding and chipping out these plants (completed 4 December 2024).		
MZ2	African lovegrass	Spray preparation and spraying along edges of MZ2	To be carried out in conjunction with management of edges of MZ1 (above).	These weeds were manually controlled at wet weather site visits due to the inability to spray (Completed 16 January 2025).		

MZ3	Paterson's curse Narrow-leaved carpet grass	Spray preparation and spraying in order to facilitate competition from native grass species (e.g., kangaroo grass) within this zone and also to aid establishment of canopy tree plantings (refer to Section 6.6 of this plan)	To be carried out in conjunction with management of edges of MZ1 (above).	Treatment of these weeds included manually chipping out these plants during Summer of 2024.		
Transmission line and associated cleared area	African lovegrass Kikuyu grass Narrow-leaved carpet grass Purpletop Fireweed Paddy's lucerne Spear thistle Variegated thistle African daisy Tall bearded iris Paterson's curse	Although no credits will be generated for the management of the retained transmission line area shown as 'Transmission Line (maintenance area)' on map entitled Map B Vegetation zones, management zones and photo points, dated 16/05/2016), Endeavour Coal will endeavour to manage this area such that key weed sources that are a threat to the site (primarily MZ1) are treated and minimised in the long term. Treatment of exotic perennial grasses and herbs will consist of maintenance weed management sweeps through this area. Due to the low levels of infestation, treatment will be a combination of cut-and-paint (e.g., purple top), hand-weeding and spraying. The transmission line is an easement identified under section 88 of the Conveyancing Act 1919 managed by Endeavour Energy Energy Corporation (ABN55 162 880 051) (Endeavour Energy). Endeavour Energy periodically slash the easement. .	To be carried out in conjunction with management of edges of MZ1 (above).	Annual weeds that were found to be encroaching on the edges of management zones were manually removed during site visits.		
MZ4	Negligible weed incursions	Maintenance sweeps through zone targeting key weed threats should they occur, especially along edges of	Team of 2 once per year (spring) - ongoing from first	Maintenance sweeps conducted (were accessible) identified negligible weed densities in this zone.		

		regenerating tracks. To be carried out in conjunction with MZ5.	payment date - \$2,000			
MZ5	Negligible weed incursions	Maintenance sweeps through zone targeting key weed threats should they occur, especially along edges of regenerating tracks. To be carried out in conjunction with MZ4.	Team of 2 once per year (spring) - ongoing from first payment date – in conjunction with MZ4 above	Maintenance sweeps conducted identified negligible weed densities in this zone.		
MZ6	Negligible weed incursions	Maintenance sweeps through zone targeting key weed threats should they occur (e.g., lantana), especially along southern edge of property and transmission line. To be carried out in conjunction with MZ4 and 5.	Team of 2 once per year (spring) - ongoing from first payment date – in conjunction with MZ4 and MZ5 above	Maintenance sweeps conducted identified negligible weed densities in this zone		

Monitoring and inspections of existing and new weeds				Landholder to complete	BCT annual progress report	
Management Zone/s	Weeds	Method of monitoring	Dates required	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All	All listed above and potential new incursions	Site inspection as weed treatments carried out as prescribed above. Annual inspection and monitoring report from suitably qualified person and to be reported in the Annual Report	Annually from first payment date	Annual inspection completed on 30 June 2025 including photo-point monitoring.		
All	All listed above and potential new incursions	Review of weed management plan	Every 4-6 years as prescribed in item 2.	Review completed in 2023.		

Fire for Conservation Management Plan					
Ecological Burning Actions			Landholder to complete	BCT annual progress report	
Management Zones	Actions – including supervision and extinguishing techniques	Required time of year and frequency	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All	It is recommended that fire is excluded from all management zones until at least 2026 and then this recommendation reviewed. This recommendation has been made in order to assist the natural restoration of vegetation from past land uses and also from the previous fire that occurred in 2004. It is recommended that the site is rested from any such further disturbance such that full vegetative recovery of SSTF and other threatened flora and fauna habitat can occur (as listed above). From the beginning of 2016 onwards, unplanned fires may be permitted to burn within these zones. Should the review of this recommendation in 2026 recommend an ecological burning regime, such a regime must not burn more than 25 per cent of the site at any one time. This will ensure refuge for koala and Cumberland Plain land snail and a diversity of floristic response. Any single planned fire is not to burn more than 25 per cent of the site at any one time. Extinguishing techniques as applicable which may include pre-slashing of containment lines and use of regenerating tracks.	Late winter to spring for vegetation types or autumn to winter for threatened species habitat Once every 12 to 30 years	No unplanned or planned fires have occurred at the site during the reporting period.		
MZ5	Other than wildfire, fire should absolutely be excluded from MZ5 which is a rainforest vegetation type, HN607: Water Gum - Coachwood riparian scrub.		No evidence of fire observed in MZ5.		

Methods for monitoring the outcomes of ecological burns			Landholder to complete	BCT annual progress report	
Management Zone/s	Method of monitoring	Dates required	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All	Visual monitoring of all zones is required to be undertaken by an appropriately qualified restoration ecologist. The monitoring is to provide: • A general description of the vegetation structure and species composition within each zone (or group of zones), • An interpretation of the ecological outcomes of previous fires (either planned or unplanned) within the zone, and • A recommendation on the timing and location for future planned fires within the zone. The results of the monitoring are to be recorded in the 'Template for reporting of monitoring activities'.	Review in 2026	To be undertaken in 2026.		

All	Where the application of ecological burning is warranted, monitoring will include: • Date of burning; • Area burnt (ha) • Map burnt area • Estimate of fire intensity (cool / moderate / hot / extreme) and scorch height • Notes on fire management such as but not necessarily limited to: - o Hazard reduction certificates / permits - o Who undertook the work - o Effectiveness of the fire prescription - o Fuel loads and moisture content • Weather on burn days	Immediately prior to and after the application of ecological burn. Information should also be captured where possible for unplanned burns.	No ecological burns have occurred.		
All	Review of fire management plan	Every 4-6 years as prescribed in item 2.	Review completed in 2023.		

Other fire management activities (where required)

Pre-slashing of containment lines and use of regenerating tracks.

Periodic trittering along external fence-lines to protect the fences as assets. This trittering would occur only once every five years, not affect the mid-storey or over-storey and only constitute a temporary, though negligible impact on native ground-cover. It is not anticipated that this treatment of the fence-lines would diminish biodiversity value of the site.

Feral Herbivore and Vertebrate Pest Management Plans						
Methods of Control				Landholder to complete	BCT annual progress report	
Management Zone	Pest species	Method of control	Frequency and timing	Action undertaken (include completion dates)	Action completed satisfactorily	Auditor comments and recommendations
MZ1, MZ3 and non-BioBank Site area	Rabbit	None required due to no or negligible impacts and no or low level of occurrence. Tubestock planted in MZ3 (refer to item 6.6), to be protected with tree guards.	Review annually	No evidence of rabbits found onsite in form of burrows, scats, or grazing.		
All zones	Fox Dogs, Rabbits	1080 fox baiting program	(Consult with OEH / LLS). An annual amount of \$2,500 has been allowed for vertebrate pest management	Vertebrate pest management was conducted between September to November 2024 to control foxes. One successful trigger was recorded.		
All zones	Fox Dogs, Rabbits, Goat, Deer	Annual monitoring and then action as required	As required. An annual amount of \$2,500 has been allowed for vertebrate pest management	Foxes appear to be present onsite due to 1080 ejector trap being triggered during fox baiting. No evidence of predation by foxes throughout the site. No evidence of vertebrate pest herbivores found onsite.		

Monitoring and inspections				Landholder to complete	BCT annual progress report	
Management Zone/s	Feral species	Method of monitoring	Dates required	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All zones	All	Annual qualitative observation for traces and scats of foxes, dogs, goats and deer by an appropriately qualified restoration ecologist or environmental scientist. Monitoring will record date, location and estimated number of pest species identified. Monitoring to coincide with weed management actions, as per the Weed Management Plan. Action upon reports from adjacent landowners. Record any incidental siting of any pest animal species	Annually	Some evidence of foxes found onsite through scats and successful deployment of 1080 ejector trap (completed November 2024). No sightings of foxes, goats, deer or rabbits during weed control or site inspection.		
All zones	Rabbit	Annual qualitative observation for burrows, scats or active rabbits by an appropriately qualified restoration ecologist or environmental scientist. Monitoring will record date, location and estimated number of pest species identified. Record any incidental siting of any pest animal species.		No evidence of rabbits found onsite.		
All zones	All	Review of the pest management plan	Every 4-6 years as prescribed in item 2.	Pest management plan reviewed in 2023.		
Other management activities (where required)						
\$2,500 per year has been allowed for vertebrate pest management, including a 1080 baiting program and actions for foxes, dogs, goat and deer if required. If baiting with 1080 is undertaken, this must be implemented using accredited persons, signage and notification of adjacent landowners. Baiting programs are best undertaken in accordance with Local Land Services regional pest management programs and/or in conjunction with other local landholders.						

Additional Site Inspection and Monitoring Requirements				
Management Actions		Landholder to complete	BCT annual progress report	
Description of additional site inspection or monitoring requirement	Required timing and frequency	Date/s completed	Action completed satisfactorily	BCT comments and recommendations
Sampling of photo-points in accordance with Annexure D, section 1.1 & 1.2 of the Management Plan. Submit the photos with this annual report.	Every 12 months	30 June 2025		
Inspections to record grazing by Stock	Every 3 months	Ongoing throughout site visits.		
Inspection to document the condition of fences and gates	Every 12 months	30 June 2025		
Inspections to document human disturbance, erosion or waste	Every 6 months	30 June 2025		

Any other comments or observations regarding the biobank site
Please include any additional photos from site visits, along with any comments / observations Along transmission line, large quantities of natural recruitment has been observed of <i>Eucalyptus</i> and <i>Acacia</i> species. Natural recruitment has also been observed in MZ1, MZ2, MZ3 and MZ7. The midstory and understory within MZ1, near photo-point 2, has become noticeably denser since last reporting period. There is good ground cover throughout the site, primarily consisting of native grasses. During the site inspection many small native birds were observed in MZ1 and MZ3, including Brown Scrub Wrens, Pardalotes, Superb Fairy Wren and Eastern Yellow Robins.

Landholder Annual Report Signature and Declaration
I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements specified in Section 7 of Attachment 4 of the Biodiversity Stewardship Agreement. All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf. Please submit a signed PDF version and a word version of your Annual Report submission to the BCT. Please note that written reports will not be accepted. If you need help, please discuss this with your BCT Regional Officer

Signed 	Signed
Date: 13/08/2025	Date:

BCT Approval of Recommendation			
Signature of BCT officer		Authorisation signature:	
Name:		Name of authorising officer:	
Position:		Position of authorising officer:	
Date:		Date:	

[illegible]

FIGURE 3
[continued]

Planting schedule and requirements

Specific requirements:

The landowner must undertake planting or seeding of the native groundcover/shrub/tree species indicated in the planting schedule for the biobank site as set out in item 6.6 below ('the planting schedule') in the areas of planting and within the timeframe indicated in the planting schedule.

If the landowner cannot complete the planting within the timeframe indicated in the planting schedule due to local weather conditions, the landowner must complete the planting as soon as possible after that date and must make a record of and retain the reasons why the planting was not completed by the required time.

Appropriate site treatment (e.g. weed control) of each area of planting or seeding identified in the planting schedule must be undertaken prior to such planting.

Specific requirements:

General strategy:

Planting will be required in the 0.5 hectares of low condition derived native grassland (Management Zone 3). Given the high cover of native grass and herbs in this zone, the planting undertaken will be a skeleton installation of dominant over-storey species representative of the Shale Sandstone Transition Forest (low sandstone influence) vegetation type, e.g., a mix of the various ironbarks (*Eucalyptus crebra*, *E. fibrosa* and *E. sideroxylon*), thin-leaved stringybark (*E. eugenioides*) and grey gum (*E. punctata*). These will be planted at the rate of 1 per 20 m² (4 x 5 m) in order to allow for natural attrition and rapid establishment of cover (250 plants in total). Due to the good cover of native grasses and herbs, the soil in this location is considered to be in reasonable condition and therefore no additional site preparation is required. Local provenance stock will be utilised and it is recommended that seed is collected and propagated from the site itself.

Planting:

Holes will be dug on the day of installation to a depth appropriate to the size of the tubestock being installed (i.e., forestry tube or ideally air-pruned hiko-cells).

Depending on timing of planting, prevailing weather conditions and soil moisture, holes will be watered-in prior to planting. Plants will be installed just below the soil surface such that a small dish is created that will act as a reservoir for watering and rainfall events and focus moisture where it is needed most around the root-ball.

Plants will be watered-in on the day of planting to the rim-level of the dish around each plant and then twice a week for the ensuing month if dry weather prevails (i.e., if weekly rainfall drops below 10 mm during that period).

Conditions:

Ideally planting will be programmed to coincide with cool, inclement weather and be carried out during the months of April/May to allow good bedding of the root system over the ensuing winter and spring and also to minimise watering needs. Plants can, alternatively be planted in September or October but may require regular watering over the first spring and summer after installation, particularly if drought conditions prevail. Planting in winter or summer may be appropriate when soil and climatic conditions are suitable.

Placing:

Plants should be removed from forestry tubes or hiko-cells with minimal disturbance to the root ball and it should be ensured that the root ball is moist and placed in the centre of the hole and plumb. Ideally, plants should be installed in a small dish-shaped depression (i.e., not flush with but just below the surface of the topsoil) such that any subsequent rains result in a temporary pooling of water around the root-ball. This method increases tubestock survival in dry environments. Planting using the dish-method is less important in the inverts, which presumably will be periodically flooded.

Mulching and organic material:

Due to the cover of native herbs and grasses, only a small amount of organic mulch (e.g., a sterile eucalypt forest blend) will be required around the stem of each planted tree to insulate and prevent weed competition in the vicinity of the plant itself.

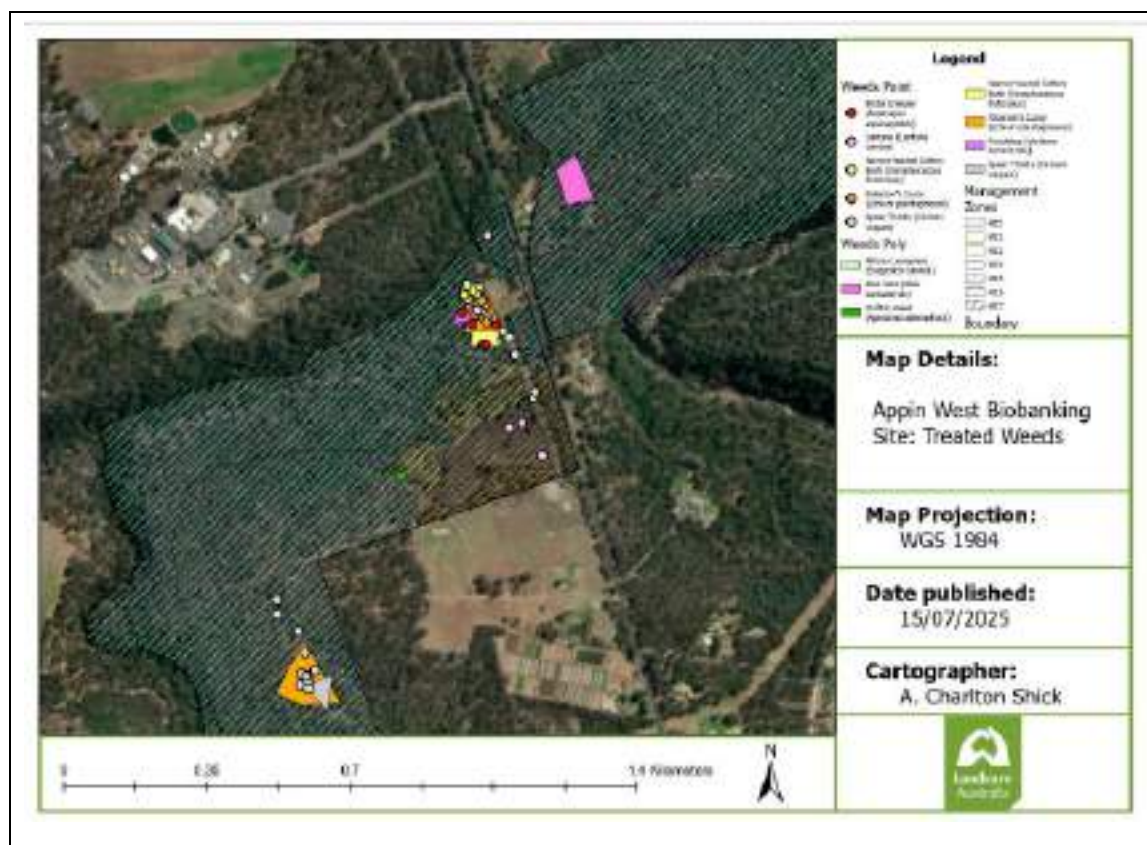
Tree protection:

Tree guards, which are typically used for tree and shrub species, will be installed due to the likely presence of native herbivores (e.g., wallabies and kangaroos have been observed on the site). Damaged tree guards should be replaced as required. After 18 months, the tree guards and stakes shall be removed or at any time earlier where the plant is deemed to be sufficiently well established.

Species' common name	Species' scientific name	Management zone/s of planting	Number of plants per area	Planting method	Timing (months or Year)
SUPPLEMENTARY PLANTING					
Grey gum	<i>Eucalyptus punctata</i>	MZ 3 (0.5 ha)	50 of 250	Hiko-cells or forestry tubes	Ideally April/May but as conditions suit
Mugga ironbark	<i>Eucalyptus sideroxylon</i>	MZ 3 (0.5 ha)	50 of 250	Hiko-cells or forestry tubes	Ideally April/May but as conditions suit
Narrow-leaved ironbark	<i>Eucalyptus crebra</i>	MZ 3 (0.5 ha)	50 of 250	Hiko-cells or forestry tubes	Ideally April/May but as conditions suit
Broad-leaved ironbark	<i>Eucalyptus fibrosa</i>	MZ 3 (0.5 ha)	50 of 250	Hiko-cells or forestry tubes	Ideally April/May but as conditions suit
Thin-leaved stringybark	<i>Eucalyptus eugenioides</i>	MZ 3 (0.5 ha)	50 of 250	Hiko-cells or forestry tubes	Ideally April/May but as conditions suit

Template monitoring activities – weed control and revegetation

Template for the reporting of monitoring activities – weed control and revegetation	
This template is to be completed annually for each management zone by a suitably qualified bush regenerator or ecologist. The completed template should be submitted with the BSA site annual report.	
Management Zone: MZ1, MZ2, MZ7, MZ6 and MZ3	Reporting period: July 2024 to July 2025
Completed by: Anna Charlton Shick	Date: 14/7/2025
Weed control summary	
Provide a summary and review of all weed control activities undertaken within the previous 12 months and their effectiveness through evaluation against the relevant performance measures for the management zone. As a minimum this should include number of person hours worked, methods used, type and quantity of chemical used, approximate area (ha) of primary weed treatment and follow-up weed treatment, and the main weeds that were treated. Attach a map of locations worked. Weed control within MZ1 consists of manual weed control including cut and paint of woody species and hand weeding of other annual species, grasses and succulents. Weed sweeps were conducted to target woody weeds and Bridal Creeper within depth hand weeding conducted to remove other more prevalent weeds. See attachment for weed map. Further details of activities below: • Person hours worked: approximately 128hrs • Methods: ■ Cut and paint ■ Hand weeding • Chemicals used ■ Glyphosate 360 ■ Less than 200ml through cut and paint application • Approximately area ■ 1ha of weed treatment • Main weeds treated ■ Lantana ■ Bridal Creeper ■ Pattersons Curse ■ Narrow Leaved Cotton Bush ■ Privet ■ Thistles – various types ■ African Lovegrass ■ Aloe Vera	



Description and recommendations for remaining weed infestations

Provide a summary of the type and density of the main weeds that remain in the Management Zone, their location (mark on a map if necessary) and describe the recommended techniques for controlling these.

African Lovegrass – approximately 30% within MZ1 and dense infestations located in transmission line. African Lovegrass will continue to be removed manually from within MZ1, specifically targeting mature tussocks prior to seeding occurs. Juvenile plants will be spot sprayed during follow up treatments.

Bridal Creeper (*Asparagus asparagoides*), remaining less than 1% in MZ1. Manual removal recommended including removal of bulb from site, seed collection if present during treatment.

Lantana – sporadic occurrence (>0.5%) in MZ1. Cut stump and treat with chemical if found.

Aloe Vera – 5% remaining in MZ1. Manual removal and rafting to continue to occur.

Pattersons Curse – 2.5% remaining within MZ1. Spot spraying recommended prior to flowering. 5% in MZ3. Spot spraying or hand weeding recommended.

Crofton weed – MZ7 approximately 10% remaining. Cut and paint recommended for mature plants. Hand weeding for juvenile plants.

Assessment of condition

Record each of the following condition measures as either absent, occasional, moderate or frequent when assessed across the part of the management zone where active management has commenced

	Absent	Occasional	Moderate	Frequent
Regeneration of native canopy species		x		
Regeneration of native shrubs			x	
Regeneration of native groundcovers				x

Dieback of native species		x		
Erosion	x			

Comments on condition

Provide any additional comments on the condition of the Management Zone, including reference to areas where supplementary planting or erosion control is required or has occurred (mark on a map where necessary).

Overall, MZ1 is in good condition with limited weed invasion and no erosion. Native understorey vegetation has been observed to have increased since the last reporting period, likely due to the high rainfall during 2024 to 2025.

Within MZ7 continued die back of Acacia species was found during site inspections and maintenance activities. Some recruitment of Acacias was observed in this area.

Native grasses remain prevalent throughout the site in particular in the southern end of the transmission line, with the northern end being dominated by African Love Grass.

Recruitment was observed within the transmission line (Southern end) and the borders of MZ1, MZ2, MZ7 and MZ6. Larger numbers of Eucalyptus and Acacia seedlings were found during a weed control visit.

Planting survival rates

Record the survival rate of plantings within the management zone (where applicable).

	<20%	20-50%	51-80%	>80%
Survival rate of planted trees		x		
Survival rate of planted shrubs		x		
Survival rate of planted groundcovers	NA			

Diary template for weed control and revegetation

Diary template for weed control and revegetation					
This template is to be completed <u>monthly</u> by the bush regeneration contractor to record details of the weed control and revegetation activity during each month. Submit the completed template to the landowner who will provide it to the BCT with the annual report.					
Completed by:		For month/year:			
Date/s	Management zone	Description and type of activity (e.g. primary/secondary/maintenance weeding, treatment method, weeds treated, ripping, planting, plant maintenance etc)	Area (m ²)	Planting details (include no. of trees, shrubs and g/covers planted)	Hours (of weed control activity)
	NB: Fill out for each MZ worked				
Comments/Issues: (include justification for any variations from contract specification or management plan) Please see above, pages 7-9 and pages 20-22, for detailed weed management actions completed across the site.					
Attach the following: - A map showing areas of activity during the month – clearly identifying areas of primary, secondary and maintenance weed treatment and areas that were ripped, planted etc - A list of the name and number of each species planted in each management zone during the month					

Diary template for fire management

Diary template for fire management	
Record of observations for fire monitoring and assessment (pre-burn) For each management zone provide any observations that may assist with future fire management planning in years other than the previous 12 months.	
Date of observation:	No fire was present at 30 June 2025.
Management zone:	NA
A1. Visual observation for fire monitoring and assessment Provide a brief summary of any fire monitoring observations that may assist with fire management planning and activities. Include any observations of ecological outcomes of previous fires (either planned or unplanned) and any recommendations of the timing and location for future planned ecological burns.	
There is no evidence of wildfire or intentional fire events occurring on the site during the reporting period.	
Record of fire management activities For each management zone provide a record of fire management activities and/or wildfire events in the previous 12 months.	
Management zone:	NA
B1. Vegetation structure and species composition Prior to undertaking the fire management activity, provide a general description of the vegetation structure and species composition of the area that will be burnt, eg stratum, dominant species, vegetation density, leaf litter, coarse woody debris, etc.	
NA	
Fire management activities For each management zone that is burned, either through planned fire management activity or wildfire event, record the details of the burning activity below.	
Date of fire activity:	NA
Cause of burn:	NA
Area (ha) burnt (provide map):	NA
Intensity of fire:	NA
% Canopy scorched:	NA
% Leaf litter remaining:	NA
Other observations:	NA

Variations from the fire for conservation management plan

Record any variations from the fire for conservation management plan in Appendix C of the biobanking agreement. This may include the timing or frequency of the planned burn, the area within the management zone that was burnt, or any other conditions.

NA

Photographic record

Provide photographic records for locations outlined on the 'Photo points' map that occur within the management zone, if applicable. Include additional photos undertaken during the fire management activity/wildfire event and provide any additional details below. Photos may be provided either in this document or as an attachment.

NA

Plant abundance and cover 12 months post fire (only required where a fire management activity/wildfire event occurred in the previous 12 months)

Provide details of the species that emerge 12 months after the last burn and their abundance and percentage cover estimates within the management zone.

Date of last ecological burn:

Species	%Cover	Abundance (no. of individuals)
NA		
NA		
NA		
NA		
NA		

Recommendations on the timing and location of future planned ecological burns.

Provide detail below of any recommendations on the timing and location of future planned ecological burns.

No ecological or fuel reduction burning is proposed until at least 2026.

Template for monitoring activities – feral pests

Template for the reporting of monitoring activities – feral pests		
This template is to be completed to record the outcomes of each six-monthly inspection of the BSA site for the purpose of monitoring feral pest (i.e. feral herbivore and vertebrate pest) activity. It is required to be completed by a suitably qualified bush regenerator or ecologist. The completed template should be submitted with the BSA site annual report.		
Completed by: Anna Charlton Shick		
Date and time of monitoring:		
Management zone	Rabbit density	Feral pest observations
	Record as: • High (abundant active warrens, rabbits visible any time), • Medium (active warrens present, a fair amount of sign i.e. scratches, dung heaps, feeding areas) • Low (some sign, few holes) • Zero (no sign) Mark warren locations on a map	Record all observations of feral pests (other than rabbits) made during the inspection. Include details of the number and type of pests sighted and any other evidence of feral pest activity observed.
MZ1	Rabbit: zero sign Foxes: Low Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Foxes: Scats 1 observed, 1 ejector trap triggered. Zero evidence observed of other pest animals.
MZ2	Rabbit: zero sign Foxes: zero sign Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals.
MZ3	Rabbit: zero sign Foxes: zero sign Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals.

MZ4	Rabbit: zero sign Foxes: zero sign Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals.
MZ5	Rabbit: zero sign Foxes: zero sign Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals.
MZ6	Rabbit: zero sign Foxes: zero sign Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals.
MZ7	Rabbit: zero sign Foxes: zero sign Deer: zero sign Goat: zero sign Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals.

Diary template for feral pest management

Diary template for feral pest management
This template is to be completed to record the details of any feral pest (i.e. feral herbivore and vertebrate pest) management control actions implemented on the BSA site. The completed template should be submitted with the BSA site annual report.
Completed by: Anna Charlton Shick
Date of activity:
Management zone/s: MZ1
Description and type of control undertaken Include details of the target species and the control technique used. European Red Fox – 1080 ejector traps.
Assessment of results of control technique Include details of the results of the control technique and how it could be improved in future Over the course of 3 months, the ejector trap was triggered once. This control could be improved by utilising camera traps throughout the site to observe for the presence of foxes and then conducting targeted control if they are observed.
Minor variations from management plan (if any) (Include details and reasons). Only one control program was conducted in the reporting period due to Local Land Services being unable to provide the program due to the avian flu outbreak and staff shortages.

Photo-point monitoring

Locations of photo points			
Projected coordinate system: GDA 94, MGA – Zone 56			
Photo point reference	Easting	Northing	Direction of photo (magnetic degrees)
1	289949	6210260	145, 210
2	289844	6210566	173, 350
3	290150	6210686	60, 131
4	290220	6210815	NSEW
5	290378	6210887	NSEW
6	290338	6211047	155
7	290402	6211163	North, East
8	290631	6211462	NSEW
9	290806	6211285	NSEW
10	291042	6211375	0, 204

Photo-point monitoring

Photo point: 1

Date taken: [30/6/2025]

N



E



S



W



Photo-point monitoring

Photo-point 2:

Date: [30/06/2025]

N



E



S



W



Photo-point monitoring

Photo point: 3

Date taken: [30/06/2025]

N



E



S



W



Photo-point monitoring

Photo-point 4:

Date: [30/6/2025]

N



E



S



W



Photo-point monitoring

Photo-point 5:

Date: [30/6/2025]

N



E



S



W



Photo-point monitoring

Photo-point 6:

Date: [30/6/2025]

N



E



S



W



Photo-point monitoring

Photo-point 7:

Date: [30/6/2025]

N



E



S



W



Photo-point monitoring

Photo-point 8:

Date: [30/6/2025]

N



E



S



W



Photo-Point monitoring

Photo-point 9:

Date: [30/06/2025]

N



E



S



W



Appendix 8: Nepean River BioBank Site Annual Report – 2024/2025

BioBank / Biodiversity Stewardship Agreement Site - Landholder Annual Report & BCT Annual Progress Report

Reporting year of BSA site:	Year 6 - Active Management	Agreement ID:	BA00382 Nepean Biobanking Site
Annual Management Payment:	AMP ##	Name of landowner/site contact:	Pollyanna Barlow, GM3 and James Alchin, GM3
Site visit (if required):	30/06/2025	Phone:	Polly, 0401 808 711: James, 0414 731 756
BCT Contact and phone:	Kathryn Collins 0419 610 653	Property address:	1025 Menangle Park Road, Douglas Park, NSW

Confirmation of bank details for Annual Management Payment **X**

Failure to complete this section may delay your payment – please select the appropriate boxes below.

Current bank details on file:

BSB: 012 878
Insert full BSB

Account Number:
Xxxx (5734)

☒ I confirm the bank details above are correct

☒ I confirm that my ABN/GST status has not changed

☐ My bank details have changed, please send me a new bank nomination form

Management actions

Management action	Requirements of Biobanking Agreement		Annual reporting of Landowner or contractor	Review of annual report by BCT	
	Action	Completion time & frequency	Description of actions undertaken (including where undertaken, any variations and the reasons for variation) Visual observations & other comments (including reasons for non-completion)	Action completed satisfactorily	Comments and recommendations by BCT
1 Management of grazing for conservation	1.1 Stock must not be permitted to graze in any area of the site.	Ongoing from commencement date	No stock observed in all management zones during site visits.		
	1.2 This item is not applicable	N/A	NA		
	1.3 This item is not applicable	N/A	NA		
	1.4 If stock is observed, the landowner must take measures to remove the stock immediately.	Ongoing from commencement date	No stock observed in all management zones during site visit including other evidence such as scats and grazing.		
2 Weed control	2.1 The landowner must implement and comply with the weed management plan.	Ongoing from first payment date	Targeted weed sweeps are conducted at the site in order to control weeds at the site that are in low abundance including African Boxthorn, Narrowed Leaf Cotton Bush, Privet, Thistles, Bidens, Parramatta Grass and larger patches of St Johns Wort (SJW). African Boxthorn is present in low numbers throughout MZ2 and MZ3. Treatment has included cut and paint of juvenile and mature plants. Hand weeding has been conducted in areas that are dominated by native grasses to reduce the occurrence of Bidens, Stinking Rodger and Thistles that occur underneath shady canopy species. Weed sweeps have been conducted throughout MZ2, MZ3 and MZ6 to control sporadic occurrences of annual weeds and herbaceous plants such as Narrow Leaf Cotton Bush.		

Management actions

			SJW has become a focus weed this year, as it appears to be propagating readily throughout the grassy plains. Where small areas of SJW has been found, hand weeding has occurred to remove the plant. Please refer to detail in the Weed Management Plan below for further information.		
	2.2 The landowner must review the weed management plan.	Every 4 to 6 years from first payment date	The Weed Management Plan was reviewed in 2023 by our ecologist. This plan was updated to include new target weeds and management issues that has appeared at the site.		
3 Management of fire for conservation	3.1 The landowner must implement and comply with the fire management plan.	Ongoing from first payment date	Refer to detail in the Fire Conservation Management Plan below. No new evidence of fire was found during the recent site inspection.		
	3.2 The landholder must review the fire management plan	Every 4 to 6 from first payment date	The Fire Conservation Management Plan was reviewed in 2023, with burning suggested in 2028 to the landholder.		
	3.3 Fires must not be lit on lit on the site unless it is in accordance with the fire management plan.	Ongoing from commencement date	No evidence of fire was found onsite during the site inspection. Controlled burns have been suggested in the fire management plan for 2028.		
4 Management of human disturbance	4.1/4.2 Human activities that adversely affect biodiversity values, other than prescribed management actions or permissible development or human activities under clause 3, must not be carried out.	Ongoing from commencement date	In December 2024, several trees and shrubs, were found to be cut down in the western end of MZ3 and MZ4. The gate to the site had been left opened and the padlock removed by the intruder. This event was reported to the landholder immediately, with the BCT being notified on the 8th January 2025. Landcare Australia placed a new padlock on the gate to prevent further access. During future site visits, this area was monitored for activity and no further non-permissible events have occurred, including the removal of previously felled trees.		

Management actions

	4.3 The landowner must remove rubbish as identified on the Property Management Action Map in the agreement and below.	To be completed by the end of Year 1 from first payment date.	No new rubbish was found during site inspection.		
	4.4 The landholder must not store, dispose of, or cause or permit to be disposed of, any waste on the biobank site.	Ongoing from first payment date	No waste was found onsite during site inspection.		
	4.5 The landholder must take all reasonable steps to remove waste deposited by others or already present.	Ongoing from first payment date	No waste was found onsite during site inspection.		
	4.6 The landholder must install and maintain fencing, and signage as identified on the Property Management Action Map and the specific requirements in the agreement and below.	Ongoing from first payment date	All fences appear to be in good condition, with no need for repair or maintenance. Signage is present on all gates, including biobanking sites and security signs.		
5 Retention of native vegetation	5.1 Native vegetation must not be cut down or removed, except in accordance with prescribed management actions/plans.	Ongoing from commencement date	In December, 2024, several native trees and shrubs were cut down in the western end of the site. Please see attached photos. This event was reported to the landholder immediately. This was reported to the BCT on 8 th January 2025.		
	5.2 Native vegetation on the biobank site must not be burnt except in accordance with the fire management plan	Ongoing from commencement date	No evidence of bush fire or burnt vegetation since previous reporting period.		
6 Planting or seeding	6.1 The landowner must undertake supplementary planting in accordance with the planting schedule and the specific requirements in the agreement and detailed below.	See planting schedule plan below	Initial tree planting occurred in MZ2 and MZ3 prior to the 2019 El Nino event. No further supplementary tree planting has occurred onsite since initial tree planting.		
	6.2 This item is not applicable	N/A	NA		

Management actions

	6.3 The landowner must monitor each area of planting or seeding to measure survival	24 months after completion of planting in each area, thereafter every 12 months.	The tubestock plants have been greatly impacted by herbivory from feral goats throughout the last reporting period. Current survivability is approximately 60% of the eastern section and 50% in the western section. These are considered acceptable survivability rates in terms of species density for Cumberland Plain Woodland based on the original planting densities.		
	6.4 Areas planted or seeded must be managed to assist establishment & survival.	As required from the date that planting or seedings areas are established	Throughout this reporting period, degraded guards have been removed and guards have been removed from non-surviving seedlings. During most recent site visits <i>Bursaria spinosa</i> was seen to be growing well and some have passed 2m in height. To protect the remaining tubestock from browsing by goats, large mesh guards were installed in December 2024, on healthy Eucalyptus and Acacias. From recent site visits the protected tubestock have been observed to be growing well, with most plants shooting new leaves and are now approximately 85cm high.		
	6.5 Plants and seeds used for Supplementary Planting must be obtained from locally collected provenances, unless there are reasons to do otherwise	As required from commencement	No further tree planting activities has occurred onsite.		
7 Retention of dead timber	7.1 Dead timber (standing, fallen, incl. branches) & leaf litter must not be removed from the site.	Ongoing from commencement	No dead timber or leaf litter has been removed from site.		
	7.2 Timber from outside the biobank site may be introduced to and placed on the biobank site to improve biodiversity values.	When required after the first payment date.	No timber has been introduced to the site.		

Management actions

8 Erosion control	8.1 The landowner must undertake reasonable steps to prevent, control & remedy erosion, using best practice.	Ongoing from commencement	No evidence of erosion has been found during site visits.		
9 Retention of rocks	9.1 Rocks must not be removed from or moved within the biobank site.	Ongoing from commencement	No rocks have been removed from site.		
	9.2 Rocks from outside the site may be placed on the biobank site to improve biodiversity.	When required after the first payment date	No rocks have been introduced to the site to improve biodiversity.		
10 Control of feral & overabundant native herbivores	10.1 The landowner must implement the feral & overabundant herbivores management plan.	Ongoing from first payment date	A large herd of approximately 30 feral goats are present throughout the site. Between December 2024 to June 2025 Landcare Australia and the landholder worked together to engage a qualified contractor to conduct a feral goat cull with the use of firearms. One feral goat cull has been conducted thus far, with 1 Billy goat being successfully culled. Further culls are planned for the next management year. Refer to detail in the Feral Pest Management Plan below		
	10.2 The landowner must review feral herbivore management plan	Every 4 to 6 from first payment date	The feral and overabundant native herbivores management plan was reviewed in 2023.		
11 Vertebrate pest management	11.1 The landowner must implement the vertebrate pest management plan.	Ongoing from first payment date	Fox baiting occurred during September to November 2024 due to Local Land Services limited availability from the Avian Flu outbreak. A further fox baiting program was scheduled for May 2025, however LLS was not available to conduct the Autumn program due to staff shortages. A 1080 ejector trap was used, with one successful trigger being recorded. Refer to detail in the Feral Pest Management Plan below		

Management actions

	11.2 The landowner must review the vertebrate pest management plan	Every 4 to 6 from first payment date	This plan was reviewed in 2023.		
12 Nutrient control	Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions	Ongoing from commencement	Herbicides are used onsite to control weeds. This mainly consists of cut and paint activities and spot spraying with knapsacks.		
13	This item is not applicable	N/A			
14 Maintenance of natural flow regimes	14.1 No artificial structures such as dams or levee banks that impede natural flow regimes may be constructed on site	Ongoing from commencement	No artificial structures were constructed in the reporting period.		
15 Installation of nest boxes	15.1 Artificial hollows and/or nest boxes must be installed at the site to improve biodiversity values.	When required from first payment date	No further nesting boxes have been installed onsite in the reporting period.		

Implementation of Management Plans

Weed Management Plan						
Methods of Weed Control				Landholder to complete	BCT annual progress report	
Management Zone/s	Weeds	Method of weed control & Performance Criteria	Frequency and timing	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
MZ1	African lovegrass St John's Wort Paddy's Lucerne Spear Thistle Giant Parramatta Grass	Regular slashing prior to flowering to reduce the seed load. Spot spraying of juvenile plants, in particular St John's Wort and thistles.	Team of 4, six times a year (ideally September to May) ongoing from first payment date.	Treatments of these weeds have predominantly consisted of spot spraying throughout the year. Small areas of SJW within dense Kangaroo grass have been hand weeded. Completed between December 2024 to June 2025.		
	African Boxthorn Blackberry Japanese Honeysuckle African Olive Purpletop Fireweed	Treatment of these sporadic weeds will consist of maintenance weed sweeps throughout MZ1. Due to the low levels of infestation treatment will include cut and paint, scrap and paint and hand weeding to reduce the presence of these weeds.	Team of 4, six times a year (ideally September to May) ongoing from first payment date.	Treatment of these weeds primarily consisted of cut and paint and hand weeding juvenile plants (completed December 2024)		
MZ2	African lovegrass Bidens Fireweed Fleabane Pigeon Grass Spear Thistle	Treatment of these annual weed species will consist of spot spraying during weed treatment visits. Treatment will include the use of herbicide to reduce the abundance of these annual weeds and grasses.	Team of 4, six times a year (ideally September to May) ongoing from first payment date.	Control of these weeds has occurred throughout the year via spot spraying and hand weeding (completed January 2025).		

MZ2	African Boxthorn Blackberry Corky Passionfruit Japanese Honeysuckle Paddy's Lucerne Prickly Pear Tropical Soda Apple	Treatment of these sporadic weeds will consist of maintenance weed sweeps throughout MZ1. Due to the low levels of infestation treatment will include cut and paint, scrap and paint and hand weeding to reduce the presence of these weeds.	Team of 4, six times a year (ideally September to May) ongoing from first payment date.	Treatment of these weeds primarily consisted of cut and paint and hand weeding juvenile plants. Stands of Prickly Pear have been removed from various areas and placed within a shed on site and covered to destroy it. This method has proven to be effective in managing Prickly Pear as the occurrence of this weed has vastly reduced (completed between October 2024 to December 2024).		
MZ3	African Olive Bidens Fleabane Mothvine Narrow-leaf Cotton Bush Noogoora Burr Pigeon Grass	The occurrence of these weeds throughout MZ3 are sporadic. Due to this management will include cut n paint, hand weeding and spot spraying where necessary.	Team of 4, six times a year (ideally September to May) ongoing from first payment date.	Weed sweeps throughout the year have revealed low abundance of the listed weeds. Weeds that have been found have been removed manually.		
MZ4	Negligible weed incursions	Maintenance sweeps through zone targeting key weed threats should they occur. Cut and paint or foliar spray if possible.	Team of 4, six times a year (ideally September to May) ongoing from first payment date.	Maintenance sweeps were conducted in February 2025 which revealed negligible weed occurrence. Due to the nature of this zone being located within steep gorges, this zone isn't frequented as it is difficult to access.		
MZ5	Cape Ivy Chinese Privet Crofton Weed Mist Weed	While weed infestations have been identified in MZ5, the potential for their control is limited due to difficult	Monitored during quarterly weed management.	During the maintenance sweep for MZ4, MZ5 was viewed from a safe area. MZ5 has a steep cliff into the Nepean River that is inaccessible on foot.		

		and unsafe access to this zone and a regular source of weed propagules for the dominant weed species via river flow.				

Monitoring and inspections of existing and new weeds				Landholder to complete	BCT annual progress report	
Management Zone/s	Weeds	Method of monitoring	Dates required	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All	All listed above and potential new incursions	Site inspection as weed treatments carried out as prescribed above. Annual inspection and monitoring report from suitably qualified person and to be reported in the Annual Report	Annually from first payment date	Annual inspection completed on 30 June 2025 including photo-point monitoring.		
All	All listed above and potential new incursions	Review of weed management plan	Every 4-6 years as prescribed in item 2.	Not applicable until 2027-28.		

Fire for Conservation Management Plan					
Ecological Burning Actions			Landholder to complete	BCT annual progress report	
Management Zones	Actions – including supervision and extinguishing techniques	Required time of year and frequency	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
MZ1 and MZ2	This BSA objectives for this site require consideration of ecological burning in these zones to promote biodiversity and to assist the natural restoration of the vegetation communities from past land uses, including grazing that occurred until relatively recently. Ecological burning should be considered for these zones, excluding the planting areas within MZ1. However, a strategic/operational burn plan should be prepared for the site by a suitably qualified burn practitioner which should include but not limited to the following: Ecological burns should be conducted in a mosaic pattern and not burn more than 25% of the site at any one time, this will ensure refuge for koala, preserve habitat for the Cumberland Plain Snail. Containment lines and fire tracks are to be established along boundaries and fences to provide access during burns. These works should be done prior to any ecological burns and annually before the bushfire seasons (as required). Containment lines should meet the requirements set by the RFS for width and height. Any single planned fire is not to burn more than 25 per cent of the site at any one time. Extinguishing techniques as applicable which may include preslashing of containment lines and use of regenerating tracks.	Late winter to spring for vegetation types or autumn to winter for threatened species habitat Once every 12 to 30 years	Fire has not been utilised as a management tool to date.		
MZ3	It is recommended that fire is excluded within	Late winter to spring for	Fire has not been utilised as a management tool to date.		

	MZ3 until at least 2028 and then this recommendation be reviewed. This recommendation has been made to assist the natural restoration of vegetation from past land uses, including grazing that occurred until relatively recently. Should the 2028 review recommend an ecological burning regime for this zone, such a regime must not burn more than 25 per cent of the site at any one time. This will ensure refuge for koala and Cumberland Plain land snail and a diversity of floristic response. Containment lines and fire tracks are to be established to provide access during burns. These works should be done prior to any ecological burns and annually before the bushfire seasons (as required). Containment lines should meet the requirements set by the RFS for width and height. Any single planned fire is not to burn more than 25 per cent of the site at any one time. Extinguishing techniques as applicable which may include preslashing of containment lines and use of regenerating tracks.	vegetation types or autumn to winter for threatened species habitat Once every 12 to 30 years			
MZ4 and MZ5	Other than wildfire, fire should be excluded from MZ4 and MZ5 which are rainforest and forested wetland vegetation types.	Never			

Methods for monitoring the outcomes of ecological burns			Landholder to complete	BCT annual progress report	
Management Zone/s	Method of monitoring	Dates required	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All	Visual monitoring of all zones is required to be undertaken by an appropriately qualified restoration ecologist. The monitoring is to provide: • A general description of the vegetation structure and species composition within each zone (or group of zones), • An interpretation of the ecological outcomes of previous fires (either planned or unplanned) within the zone, and • A recommendation on the timing and location for future planned fires within the zone. The results of the monitoring are to be recorded in the 'Template for reporting of monitoring activities'.	Review in 2028	No ecological burns have occurred since commencement of the stewardship agreement.		
All	Where the application of ecological burning is warranted, monitoring will include: • Date of burning; • Area burnt (ha) • Map burnt area • Estimate of fire intensity (cool / moderate / hot / extreme) and scorch height • Notes on fire management such as but not necessarily limited to: - o Hazard reduction certificates / permits - o Who undertook the work - o Effectiveness of the fire prescription - o Fuel loads and moisture content Weather on burn days	Immediately prior to and after the application of ecological burn. Information should also be captured where possible for unplanned burns.	No ecological burns have occurred since commencement of the stewardship agreement.		

All	Review of fire management plan	Every 4-6 years as prescribed in item 2.			

Other fire management activities (where required)

Pre-slashing of containment lines and use of regenerating tracks.

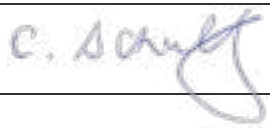
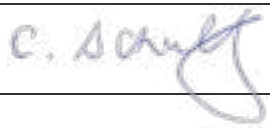
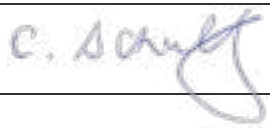
Periodic trittering along external fence-lines to protect the fences as assets. This trittering would occur only once every five years, not affect the mid-storey or over-storey and only constitute a temporary, though negligible impact on native ground-cover. It is not anticipated that this treatment of the fence-lines would diminish biodiversity value of the site.

Feral Herbivore and Vertebrate Pest Management Plans						
Methods of Control				Landholder to complete	BCT annual progress report	
Management Zone	Pest species	Method of control	Frequency and timing	Action undertaken (include completion dates)	Action completed satisfactorily	Auditor comments and recommendations
All zones	Rabbit	Ripping	Review annually and rip as required	No evidence of rabbits found onsite in the form of burrows, scats, or grazing.		
All zones	Fox, Dog	1080 fox baiting program in line with Local Land Services regional program.	(Consult with OEH / LLS).	Buried 1080 has not been used due to concerns regarding non-target species and risk to neighbouring dogs.		
All zones	Fox, Dogs	1080 Canid pest ejectors	Autumn and Spring each year.	Two 1080 canid pest ejectors were established onsite between September to November 2024. Camera traps were also placed to monitor the traps. These cameras revealed the presence of at least 3 foxes onsite, including one juvenile. One ejector was successfully deployed during this period. Foxes have recently been observed by staff (June 2025) at the far Eastern end of the site.		

Monitoring and inspections				Landholder to complete	BCT annual progress report	
Management Zone/s	Feral species	Method of monitoring	Dates required	Action undertaken (include completion dates)	Action completed satisfactorily	BCT comments and recommendations
All zones	Goats, Foxes and feral Cats	Shooting	As required and advised by a qualified contractor.	In December 2024, a suitable contractor, was found to conduct feral goat culls with the use of firearms. The shooting plan, methods and SWMS were approved by the landholder in May 2025. 1 Feral Goat Cull has been conducted so far, with 1 Billy Goat being removed. Further culls are planned for July 2025 using a revised methodology now including a head and/or chest shot.		
All zones	All	Annual inspections of species traces and potential impacts by suitably qualified restoration ecologist or environmental scientist.	Annually	Scats of foxes and goats found onsite during inspection.		
All zones	All	Review of the pest management plan	Every 4-6 years as prescribed in item 2.	Pest management plan reviewed in 2023.		
Other management activities (where required)						
\$2,500 per year has been allowed for vertebrate pest management, including a 1080 baiting program and actions for foxes, dogs, goat and deer if required. If baiting with 1080 is undertaken, this must be implemented using accredited persons, signage and notification of adjacent landowners. Baiting programs are best undertaken in accordance with Local Land Services regional pest management programs and/or in conjunction with other local landholders.						

Additional Site Inspection and Monitoring Requirements				
Management Actions		Landholder to complete	BCT annual progress report	
Description of additional site inspection or monitoring requirement	Required timing and frequency	Date/s completed	Action completed satisfactorily	BCT comments and recommendations
Sampling of photo-points in accordance with Annexure D, section 1.1 & 1.2 of the Management Plan. Submit the photos with this annual report.	Every 12 months	30 June 2025		
Inspections to record grazing by Stock	Every 3 months	Ongoing throughout site visits.		
Inspection to document the condition of fences and gates	Every 12 months	30 June 2025		
Inspections to document human disturbance, erosion or waste	Every 6 months	30 June 2025		

Any other comments or observations regarding the biobank site
Please include any additional photos from site visits, along with any comments / observations Large herds of goats seen on various visits throughout the site. Scats and tracks of goats found underneath overhangs in MZ4. Please see attached map of feral animal observations.

Landholder Annual Report Signature and Declaration		
I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements specified in Section 7 of Attachment 4 of the Biodiversity Stewardship Agreement. All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf. Please submit a signed PDF version and a word version of your Annual Report submission to the BCT. Please note that written reports will not be accepted. If you need help, please discuss this with your BCT Regional Officer		
<table border="1"> <tr> <td>Signed </td> <td>Signed</td> </tr> </table>	Signed 	Signed
Signed 	Signed	

Date: 13/08/2025	Date:

BCT Approval of Recommendation			
Signature of BCT officer		Authorisation signature:	
Name:		Name of authorising officer:	
Position:		Position of authorising officer:	
Date:		Date:	

Vegetation zones, management zones and photo points map dated 16/05/2016



Planting schedule and requirements

Specific requirements:

No requirement for replacement of weed cover – no native species adversely impacted due to limited size of weed infestations and no fauna of conservation significance reliant on weeds of site. Native plantings were completed in 2019 and 2020 throughout MZ1.

Specific requirements:

General strategy:

No further supplementary tubestock plantings required for all management zones, as identified in the review of the management plan. Recruitment from mature native vegetation is present throughout the site and will be aided through weed management activities.

The current tubestock will continue to be monitored and maintained to assist in its establishment. This includes weed management, installation of mesh guards where necessary and the culling of feral goats that are impacting the growth and establishment of the plants.

Template monitoring activities – weed control and revegetation

Template for the reporting of monitoring activities – weed control and revegetation	
This template is to be completed annually for each management zone by a suitably qualified bush regenerator or ecologist. The completed template should be submitted with the BSA site annual report.	
Management Zone: MZ1, MZ2, MZ3, MZ6 and MZ7	Reporting period: July 2024 to July 2025
Completed by: Anna Charlton Shick	Date: 14/7/2025
Weed control summary	
Provide a summary and review of all weed control activities undertaken within the previous 12 months and their effectiveness through evaluation against the relevant performance measures for the management zone. As a minimum this should include number of person hours worked, methods used, type and quantity of chemical used, approximate area (ha) of primary weed treatment and follow-up weed treatment, and the main weeds that were treated. Attach a map of locations worked. Weed control within MZ1, MZ2 and MZ3 consists of manual weed control including cut and paint of woody species and hand weeding of other annual weeds. Weed sweeps were conducted to target woody weeds such as African Boxthorn, with other target weeds including Prickly Pear and Narrow Leaf Cotton Bush. Spot spraying activities include the treatment of annual weeds with a broadleaf selective herbicide. Please see attached map for further details. Further details of activities below: • Person hours worked: approximately 192hrs • Methods: ■ Cut and paint ■ Hand weeding ■ Spot spraying • Chemicals used ■ Glyphosate 360 for cut and paint, less than 200ml ■ Metsulfuron, approximately 10g for spot spraying • Approximately area ■ 30ha of weed treatment • Main weeds treated ■ African Boxthorn ■ Bidens ■ Fire Weed ■ Narrow Leaved Cotton Bush ■ Privet ■ Prickly Pear ■ St John's Wort ■ Stinking Roger ■ Thistles – various sp.	
Description and recommendations for remaining weed infestations	

Provide a summary of the type and density of the main weeds that remain in the Management Zone, their location (mark on a map if necessary) and describe the recommended techniques for controlling these.

African Boxthorn, MZ2 and MZ3, remaining density <0.5%, cut and paint of mature and juvenile plants.

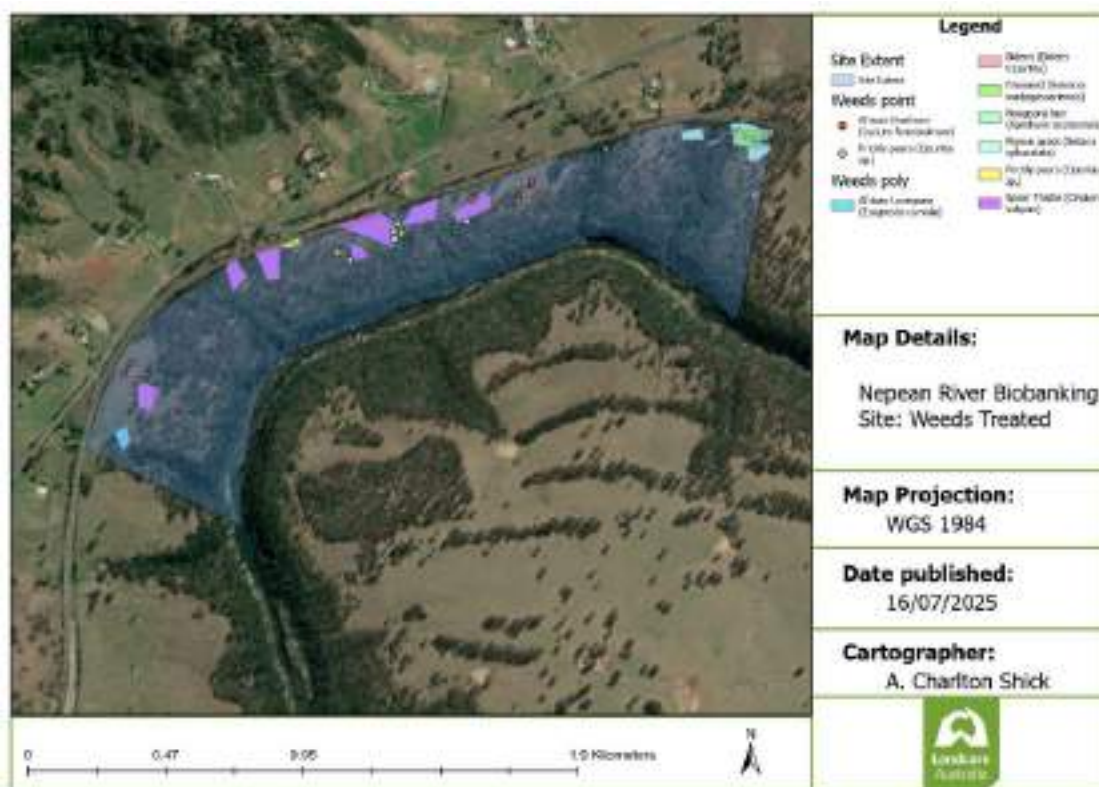
Prickly Pear, MZ2 and MZ3, remaining density approx. <2%, manual removal recommended for remaining plants and follow up treatment, place dug out plants within shed underneath tin.

Bidens, sporadic throughout MZ2 and MZ3, isolated to underneath shady trees. Hand weeding and spot spraying recommended. Stinking Roger, sporadic throughout MZ2 and MZ3, isolated to underneath shady trees. Hand weeding and spot spraying recommended.

Narrow Leaf Cotton Bush, MZ3, remaining density <1%, hand weeding recommended and seed collection if present.

St John's Wort, MZ2, remaining density <10%, spot spray with styrene.

Fireweed, MZ2, remaining density <2%, hand weed.



Assessment of condition

Record each of the following condition measures as either absent, occasional, moderate or frequent when assessed across the part of the management zone where active management has commenced

	Absent	Occasional	Moderate	Frequent
Regeneration of native canopy species			x	
Regeneration of native shrubs			x	
Regeneration of native groundcovers				x
Dieback of native species	x			
Erosion	x			

Comments on condition

Provide any additional comments on the condition of the Management Zone, including reference to areas where supplementary planting or erosion control is required or has occurred (mark on a map where necessary).

Overall, the site is resilient with limited weed incursion. The highest abundance of weeds occurs within MZ2 within the tubestock plants and consists mostly of St John's Wort.

Recruitment of native canopy and midstory species has been observed throughout the site. These plants don't appear to be affected by feral herbivores.

Management for erosion or additional tubestock planting is unnecessary.

Planting survival rates

Record the survival rate of plantings within the management zone (where applicable).

	<20%	20-50%	51-80%	>80%
Survival rate of planted trees			x	
Survival rate of planted shrubs			x	
Survival rate of planted groundcovers	NA			

Diary template for weed control and revegetation

Diary template for weed control and revegetation					
This template is to be completed <u>monthly</u> by the bush regeneration contractor to record details of the weed control and revegetation activity during each month. Submit the completed template to the landowner who will provide it to the BCT with the annual report.					
Completed by:		For month/year:			
Date/s	Management zone	Description and type of activity (e.g. primary/secondary/maintenance weeding, treatment method, weeds treated, ripping, planting, plant maintenance etc)	Area (m ²)	Planting details (include no. of trees, shrubs and g/covers planted)	Hours (of weed control activity)
	NB: Fill out for each MZ worked				
Comments/Issues: (include justification for any variations from contract specification or management plan) Please see above, pages 8-10 and pages 21-23, for detailed weed management actions completed across the site.					
Attach the following: - A map showing areas of activity during the month – clearly identifying areas of primary, secondary and maintenance weed treatment and areas that were ripped, planted etc - A list of the name and number of each species planted in each management zone during the month					

Diary template for fire management

Diary template for fire management	
Record of observations for fire monitoring and assessment (pre-burn) For each management zone provide any observations that may assist with future fire management planning in years other than the previous 12 months.	
Date of observation:	No evidence of fire was observed during the site inspection.
Management zone:	NA
A1. Visual observation for fire monitoring and assessment Provide a brief summary of any fire monitoring observations that may assist with fire management planning and activities. Include any observations of ecological outcomes of previous fires (either planned or unplanned) and any recommendations of the timing and location for future planned ecological burns.	
No fire occurred during the reporting period.	
Record of fire management activities For each management zone provide a record of fire management activities and/or wildfire events in the previous 12 months.	
Management zone:	All - NA
B1. Vegetation structure and species composition Prior to undertaking the fire management activity, provide a general description of the vegetation structure and species composition of the area that will be burnt, eg stratum, dominant species, vegetation density, leaf litter, coarse woody debris, etc.	
NA	
Fire management activities For each management zone that is burned, either through planned fire management activity or wildfire event, record the details of the burning activity below.	
Date of fire activity:	NA
Cause of burn:	NA
Area (ha) burnt (provide map):	NA
Intensity of fire:	NA
% Canopy scorched:	NA
% Leaf litter remaining:	NA
Other observations:	NA
Variations from the fire for conservation management plan	

Record any variations from the fire for conservation management plan in Appendix C of the biobanking agreement. This may include the timing or frequency of the planned burn, the area within the management zone that was burnt, or any other conditions.

NA

Photographic record

Provide photographic records for locations outlined on the 'Photo points' map that occur within the management zone, if applicable. Include additional photos undertaken during the fire management activity/wildfire event and provide any additional details below. Photos may be provided either in this document or as an attachment.

NA

Plant abundance and cover 12 months post fire (only required where a fire management activity/wildfire event occurred in the previous 12 months)

Provide details of the species that emerge 12 months after the last burn and their abundance and percentage cover estimates within the management zone.

Date of last ecological burn:

Species	%Cover	Abundance (no. of individuals)
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA

Recommendations on the timing and location of future planned ecological burns.

Provide detail below of any recommendations on the timing and location of future planned ecological burns.

Proposed for 2028, specific blocks yet to be determined.

Template for monitoring activities – feral pests

Template for the reporting of monitoring activities – feral pests

This template is to be completed to record the outcomes of each six-monthly inspection of the BSA site for the purpose of monitoring feral pest (i.e. feral herbivore and vertebrate pest) activity. It is required to be completed by a suitably qualified bush regenerator or ecologist. The completed template should be submitted with the BSA site annual report.

Completed by: Anna Charlton Shick

Date and time of monitoring:

Management zone	Rabbit density Record as: - High (abundant active warrens, rabbits visible any time), - Medium (active warrens present, a fair amount of sign i.e. scratches, dung heaps, feeding areas) - Low (some sign, few holes) - Zero (no sign) Mark warren locations on a map	Feral pest observations Record all observations of feral pests (other than rabbits) made during the inspection. Include details of the number and type of pests sighted and any other evidence of feral pest activity observed.
MZ1	Rabbit: zero sign Foxes: Low Deer: zero sign Goat: High Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Foxes: 1 fox observed far eastern boundary of site, 1 ejector trap triggered. Goat scat observed throughout site, many herds of goats seen throughout the year.
MZ2	Rabbit: zero sign Foxes: Low Deer: zero sign Goat: High Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Foxes: 1 fox observed far eastern boundary of site, 1 ejector trap triggered. Goat scat observed throughout site, many herds of goats seen throughout the year.
MZ3	Rabbit: zero sign Foxes: Low Deer: zero sign Goat: High Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Goat scat observed throughout site, many herds of goats seen throughout the year.
MZ4	Rabbit: zero sign Foxes: Low Deer: zero sign Goat: High Pigs: zero sign	Goat scat observed throughout MZ4 within overhangs and gullies.

	Feral dogs: zero sign Cats: zero sign	
MZ5	Rabbit: zero sign Foxes: Low Deer: zero sign Goat: High Pigs: zero sign Feral dogs: zero sign Cats: zero sign	Zero evidence observed of pest animals due to inaccessibility of zone. It is likely that goats are utilising this area.

Diary template for feral pest management

Diary template for feral pest management	
This template is to be completed to record the details of any feral pest (i.e. feral herbivore and vertebrate pest) management control actions implemented on the BSA site. The completed template should be submitted with the BSA site annual report.	
Completed by: Anna Charlton Shick	
Date of activity: 1080 ejector traps, September 2024 to November 2024. Goat cull, June 25 2025.	
Management zone/s: MZ3, all management zones	
Description and type of control undertaken Include details of the target species and the control technique used. European Red Fox, MZ3 – 1080 ejector traps. Feral goats, all management zones – firearms, head shot only	
Assessment of results of control technique Include details of the results of the control technique and how it could be improved in future Over the course of 3 months, the ejector trap was triggered once. This control could be improved by utilising camera traps throughout the site to observe for the presence of foxes and then conducting targeted control if they are found. Fish oil, has been suggested to create a scent trail to the ejector trap. Feral goat, 1 goat killed. Contractor has changed method to allow both head and lung shots to be taken to improve effectiveness.	

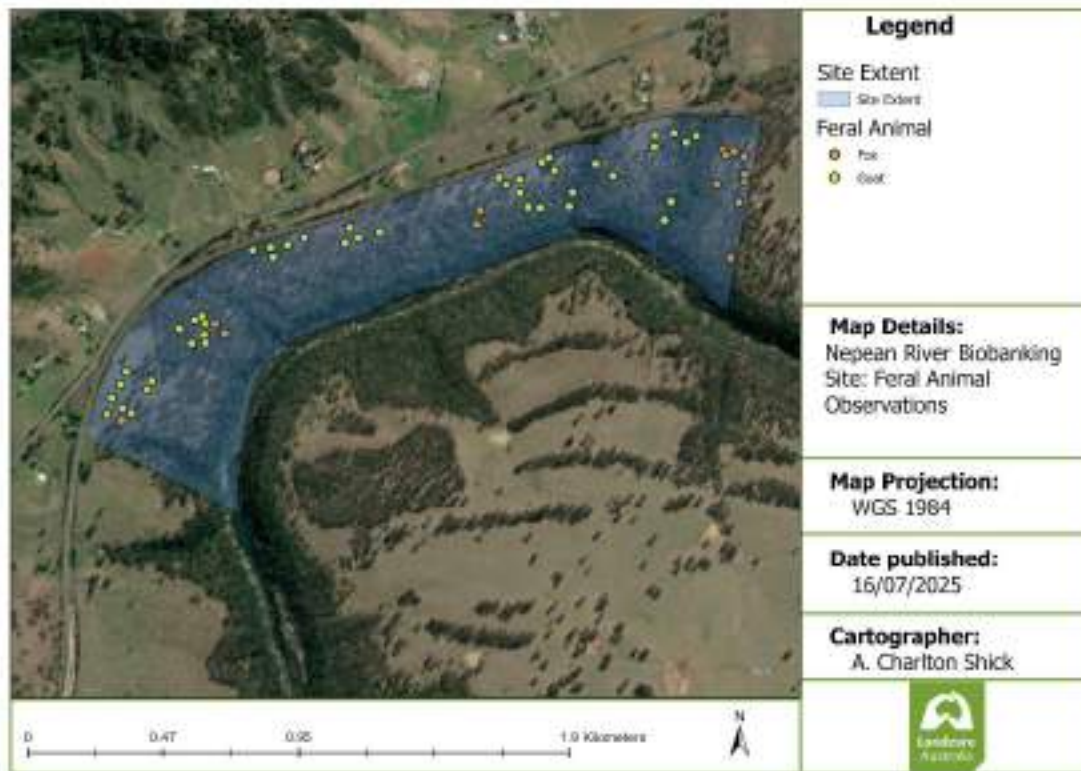


Figure 1 Observations of feral animals onsite for this reporting period, including scats, tracks and sightings

Minor variations from management plan (if any)

(Include details and reasons).

Only 1 control program conducted due to Local Land Services being unable to organise the program due to the avian flu outbreak and staff unavailability.

Photo-point monitoring

Locations of photo points			
Projected coordinate system: GDA 94, MGA – Zone 56			
Photo point reference	Easting	Northing	Direction of photo (magnetic degrees)
1	285862	6215244	045, 315
2	284670	6214464	135, 315
3	284753	6214555	000, 180
5	284930	6214751	000, 180
6	285161	6214854	135
7	285412	6215024	045, 315
9	286265	6215312	090, 270
10	285862	6215244	045, 315
11	284670	6214464	135, 315

Photo-point monitoring

Photo Point 1

Date taken: [20/06/2025]

NE



NW



Photo-point monitoring

Photo point: 2

Date taken: [30/06/2025]

SE



NW



Photo-point monitoring

Photo point: 3

Date taken: [30/06/2025]

N



S



Photo-point monitoring

Photo point: 5

Date taken: [30/6/2025]

E



W



Photo-point monitoring

Photo point: 6

Date taken: [30/06/2025]

N



S



Photo-point monitoring

Photo-point :7

Date taken: [30/06/2025]

S



Photo-point monitoring

Photo-point: 9

Date taken: [30/06/2025]

NE



NW



Photo-point monitoring

Photo-point: 10

Date taken: [30/06/2025]

SE



NW



Photo-point monitoring

Photo-point: 11

Date taken: [30/06/2025]

E



W



Appendix 9: Cataract River BioBank Site Passive Management Annual Report – 2024/2025

BioBank / Biodiversity Stewardship Agreement Site PASSIVE- Landholder Annual Report & BCT Annual Progress Report

Reporting year of BSA site:	Year 6 - PASSIVE Management	Agreement ID:	BA00345 Cataract River
Annual Management Payment:	N/A	Name of landowner/site contact:	Pollyanna Barlow
Site visit (if required):	02/12/2024	Phone:	0401 808 711
BCT Contact and phone:	Matt Consterdine T 02 4927 3213 M 0436 959 707	Property address:	160 Douglas Park Drive, Douglas Park

Management actions

Management action	Requirements of Biobanking Agreement		Annual reporting of Landowner or contractor	Review of annual report by BCT	
	Action	Completion time & frequency	Description of actions undertaken (including where undertaken, any variations and the reasons for variation) Visual observations & other comments (including reasons for non-completion)	Action completed satisfactorily	Comments and recommendations by BCT
1 Management of grazing for conservation	1.1 Stock must not be permitted to graze in any area of the site.	Ongoing from commencement date	No stock animals were seen during the Annual site visit on 2 December 24. No evidence of grazing was observed during the 3 monthly site visits. However, there were several piles of horse manure observed within the planting area which implies that stock incursion has occurred. Fences and gates were observed to be intact during site inspections, as well as Biobanking signage which was present during inspections.		
	1.2 This item is not applicable	N/A			
	1.3 This item is not applicable	N/A			

	1.4 If stock is observed, the landowner must take measures to remove the stock immediately.	Ongoing from commencement date	Further action required as per item 1.1 (above).		
2 Weed control	2.1 The landowner must implement and comply with the weed management plan.	N/A	Not until active management		
	2.2 The landowner must review the weed management plan.	N/A	Not until active management		
3 Management of fire for conservation	3.1 The landowner must implement and comply with the fire management plan.	N/A	Not until active management		
	3.2 The landholder must review the fire management plan	N/A	Not until active management		
	3.3 Fires must not be lit on the site unless it is in accordance with the fire management plan.	Ongoing from commencement date	No fires have been ignited on the site in the previous 12 months with no evidence of wildfire being found during the site inspection.		
4 Management of human disturbance	4.1/4.2 Human activities that adversely affect biodiversity values, other than prescribed management actions or permissible development or human activities under clause 3, must not be carried out.	Ongoing from commencement date	There is no evidence of human disturbance at the site over the previous 12 months. 6 monthly and 12 monthly inspections found no signs of human disturbance.		
	4.3 The landowner must remove rubbish as identified on the Property Management Action Map in the agreement and below.	N/A	Not until active management		
	4.4 The landholder must not store, dispose of, or cause or permit to be disposed of, any waste on the biobank site.	Ongoing from commencement date	No waste has been stored, or disposed of, on the site in the previous 12 months.		
	4.5 The landholder must take all reasonable steps to remove waste deposited by others or already present.	N/A	Not until active management		

	4.6 The landholder must install and maintain fencing, and signage as identified on the Property Management Action Map and the specific requirements in the agreement and below.	N/A	Not until active management		
5 Retention of native vegetation	5.1 Native vegetation must not be cut down or removed, except in accordance with prescribed management actions/plans.	Ongoing from commencement date	No native vegetation has been removed or poisoned onsite in the previous 12 months.		
	5.2 Native vegetation on the biobank site must not be burnt except in accordance with the fire management plan	Ongoing from commencement date	No wildfire or hazard reduction burning has occurred on the site in the previous 12 months.		
6 Planting or seeding	6.1 The landowner must undertake supplementary planting in accordance with the planting schedule and the specific requirements in the agreement and detailed below.	N/A	Not until active management		
	6.2 This item is not applicable	N/A	Not until active management		
	6.3 The landowner must monitor each area of planting or seeding to measure survival	N/A	Not until active management		
	6.4 Areas planted or seeded must be managed to assist establishment & survival.	N/A	Not until active management		
	6.5 Plants and seeds used for Supplementary Planting must be obtained from locally collected provenances, unless there are reasons to do otherwise	As required from commencement	No supplementary works were conducted in the previous 12 months.		
7 Retention of dead timber	7.1 Dead timber (standing, fallen, incl. branches) & leaf litter must not be removed from the site.	Ongoing from commencement	No dead timber (standing or fallen) has been removed and no additional timber has been introduced to the site in the previous 12 months.		
	7.2 Timber from outside the biobank site may be introduced to and placed on the	N/A	Not until active management		

	biobank site to improve biodiversity values.				
8 Erosion control	8.1 The landowner must undertake reasonable steps to prevent, control & remedy erosion, using best practice.	Ongoing from commencement	No areas identified across the site which currently require any supplementary erosion control or stabilisation. No erosion observed during 6 and 12 monthly site visit.		
9 Retention of rocks	9.1 Rocks must not be removed from or moved within the biobank site.	Ongoing from commencement	No rock removal has occurred on the site in the previous 12 months.		
	9.2 Rocks from outside the site may be placed on the biobank site to improve biodiversity.	N/A	Not until active management		
10 Control of feral & overabundant native herbivores	10.1 The landowner must implement the feral & overabundant herbivores management plan.	Ongoing from first payment date	Refer to detail in the Feral Pest Management Plan below		
	10.2 The landowner must review feral herbivore management plan	N/A	Not until active management		
11 Vertebrate pest management	11.1 The landowner must implement the vertebrate pest management plan.	N/A	Not until active management		
	11.2 The landowner must review the vertebrate pest management plan	N/A	Not until active management		
12 Nutrient control	Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions	Ongoing from commencement	No fertilizers will be used on the site when active management commences.		
13	This item is not applicable	N/A			
14 Maintenance of natural flow regimes	14.1 No artificial structures such as dams or levee banks that impede natural flow regimes may be constructed on site	Ongoing from commencement	Natural flow regimes are maintained on the site in accordance with the BSA.		
15 Installation of nest boxes	15.1 Artificial hollows and/or nest boxes must be installed at the site to improve biodiversity values.	N/A	Not until active management		

Additional Site Inspection and Monitoring Requirements				
Management Actions		Landholder to complete	BCT annual progress report	
Description of additional site inspection or monitoring requirement	Required timing and frequency	Date/s completed	Action completed satisfactorily	BCT comments and recommendations
Sampling of photo-points in accordance with Annexure D, section 1.1 & 1.2 of the Management Plan. Submit the photos with this annual report.	Every 12 months	02/12/2024		
Inspections to record grazing by Stock	Every 3 months	13/03/2024 04/06/2024 07/09/2024 02/12/2024		
Inspection to document the condition of fences and gates	Every 12 months	02/12/2024		
Inspections to document human disturbance, erosion or waste	Every 6 months	04/06/2024		

Any other comments or observations regarding the biobank site
Please include any additional photos from site visits, along with any comments / observations Landcare Australia identified and installed 6 photopoint locations during a site visit on 13/08/2019. The six photopoints were revisited by Landcare on 02/12/2024 as shown below. The images taken on 23/2/2023 (in previous annual report) show a noticeable increase in native vegetation understory and midstory, in particular at photopoints 3, 4, 5 and 6. During the most recent site visit (2/12/2024) it was noted that there has been a dramatic increase in groundcover across the site which is particularly evident at photopoint 1. Increased weed growth is located along the boundary (adjoining the exclusion fencing) and is most likely attributed to the favourable weather conditions experienced in the region. When active management commences, slashing along the exclusion fencing would be beneficial to control weedy grasses.

Landholder Annual Report Signature and Declaration
I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements specified in Section 7 of Attachment 4 of the Biodiversity Stewardship Agreement. All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf.

Please submit a signed PDF version and a word version of your Annual Report submission to the BCT.

Please note that written reports will not be accepted. If you need help, please discuss this with your BCT Regional Officer

Signed:



Anna Charlton-Schick (Landcare Australia)

Date: 18/12/2024

Signed:



Pollyanna Barlow (GM3)

Date: 6/03/2025

BCT Approval of Recommendation

**Signature of BCT
officer**

Authorisation signature:

Name:

Name of authorising officer:

Position:

Position of authorising officer:

Date:

Date:

Photopoint monitoring

Locations of photo points			
Projected coordinate system:			
Photo point reference	Easting	Northing	Direction of photo (magnetic degrees)
1	290417	6211673	134
2	290486	6211594	90
3	290504	6211642	90
4	290664	6211730	91
5	290380	6211460	329
6	290760	6211657	93

Photo-point monitoring

Photo point: 1

Time and date taken: [02/12/25] [11:43]



Photo point: 2

Time and date taken: [02/12/25] [11:32]



Photo-point monitoring

Photo point: 3

Time and date taken: [02/12/25] [11:40]



Photo point: 4

Time and date taken: [02/12/25] [11:58]



Photo-point monitoring

Photo point: 5

Time and date taken: [02/12/25] [12:32]



Photo point: 6

Time and date taken: [02/12/25] [12:05]



Appendix 10: Ventilation Shaft 6 Offset Annual Monitoring Report – 2024



Appin Ventilation Shaft Site No. 6 Offset Area

Offset Site Monitoring Report 2024

Prepared for GM3 Illawarra Coal Holding Pty Ltd | 12/02/2025



Document control

Document control

Project number	Client	Project manager	LGA
8721	GM3 Illawarra Coal Holdings Pty Ltd	Lily Cains	Wollondilly Shire Council

Version	Author	Review	Status	Comments	Date
D1	Lily Cains	Stephen Bloomfield	Draft		05 February 2025
R1	Lily Cains	Pollyanna Barlow (GM3)	Final		07 February 2025
R2	Lily Cains		Final		12 February 2025

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Executive summary

As part of the project approval (MP 10_0079) and Commonwealth *Environmental Protection Biodiversity Conservation Act 1999* approval (2010/5722) for the Appin Ventilation Shaft Site No.6, Illawarra Coal Holdings Pty Ltd (ICHPL) (formerly South32 Illawarra Metallurgical Coal), trading as GM3, is required to implement a formal monitoring program of the management actions that were approved for the associated offset area at the Mountbatten Stud property at Douglas Park, New South Wales (NSW). This report is the thirteenth annual report for the monitoring program, conducted by Niche in November/December 2024.

The aim of the monitoring program is to demonstrate the success of management actions through the collection of empirical data, mapping and photographic records for the offset site. The monitoring methodology employs fixed floristic plots to collect vegetation condition data, population estimates of the threatened plant species *Pimelea spicata* (Spiked rice-flower) (conducted every five years), strategic photo point monitoring and vegetation distribution mapping.

In 2024, similar to the previous monitoring in 2023, four of the 10 monitoring floristic plots were inaccessible due to the dense growth of Native Blackthorn (*Bursaria spinosa*) and exotic plant species. As such, the results for these are not included in this report. Overall, the 2024 monitoring results in relation to the floristic composition, structure and function, indicate that, on average, the bushland on the offset area is outside of benchmark attribute values for the Threatened Ecological Community (TEC) Cumberland Plain Woodland (CPW) (listed as Critically Endangered [CE] under both the *NSW Biodiversity Conservation Act 2016* [BC Act] and *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* [EPBC Act]) but is slowly showing trends towards benchmark values. The high percentage of exotic species may be due to the wetter conditions within 2021 and 2022 and through parts of 2023 and 2024.

An assessment of the change in size and distribution of the *Pimelea spicata* population was undertaken during the 2021/22 surveys, as it had been five years since the last monitoring census in 2016/17. The *Pimelea spicata* census is next required to be undertaken in 2026.

Recommendations in relation to the on-going management of the site include treatment of exotic species, such as African Olive (*Olea europaea subsp. cuspidata*), African Boxthorn (*Lycium ferocissimum*), Lantana (*Lantana camara*), seasonal spraying of Blackberry (*Rubus fruticosus agg.*), continued treatment of exotic vines and exotic perennial grasses and thinning of Native Blackthorn following consultation with NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW).



Glossary and list of abbreviations

Term or abbreviation	Definition
BAM	Biodiversity Assessment Methodology
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BMP	Biodiversity Management Plan
BVT	Biometric Vegetation Type
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Wind
CPW	Cumberland Plain Woodland
DPE	Planning and Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
Ha	Hectare/s
HTW	High Threat Weed
m	Metre(s)
NPSR	Native Plant Species Richness
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Wind
PCT	Plant Community Type
The site	Means the Work Zone and surrounding land where surveys were conducted.



Table of Contents

Executive summary	3
Glossary and list of abbreviations	4
1 Introduction	8
1.1 Background	8
1.2 Purpose and objectives	9
2 Management Actions	10
2.1 Management actions undertaken	10
2.2 Management actions compared to BMP	10
3 Methodology	13
3.1 Key performance criteria	13
3.2 Monitoring methodology	13
3.2.1 Fixed plot vegetation monitoring	13
3.2.2 <i>Pimelea spicata</i> population census	13
3.2.3 Photo point monitoring	14
3.2.4 Vegetation distribution monitoring	14
3.3 Survey stratification	14
3.4 Data analysis and interpretation	15
3.5 Limitations	16
4 Results	17
4.1 Flora recorded	17
4.2 Assessment of site attribute data	18
4.2.1 Woodland	18
4.2.2 Native Blackthorn thicket	23
4.2.3 Pasture	24
4.3 Bell Minors	25
4.4 <i>Pimelea spicata</i> annual count	26
4.5 Photo points	28
4.6 Vegetation distribution monitoring	29



5	Recommendations	30
5.1	Fencing and stock management	30
5.2	Bush regeneration	30
5.3	Monitoring of native vegetation and <i>Pimelea spicata</i>	31
6	Conclusion	32
	References	33
	Figures	34
	Annex 1: Management actions, performance criteria, corrective actions and timeframes	38
	Annex 2: Plant species list (2024)	42
	Annex 3: BAM and BBAM plots (raw data)	50
	Annex 4: Biodiversity Assessment Method: survey method (DPIE 2020)	63
	Annex 5: Photo point monitoring	65
	Annex 6: Increase in vegetation extent throughout monitoring program	79

List of Figures

Figure 1: Location Map	35
Figure 2: Monitoring locations	36
Figure 3: Increased vegetation extent 2023 to 2024	37
Figure 4.1: Total vegetation extent 2013	80
Figure 4.2: Increased vegetation extent 2013-2014	81
Figure 4.3: Increased vegetation extent 2014-2015 to 2017	82
Figure 4.4: Increased vegetation extent 2017-2018 to 2021	83
Figure 4.5: Increased vegetation extent 2021 to 2022	84
Figure 4.6: Increased vegetation extent 2022 to 2023	85

List of Plates

Plate 1: Plot MZ5_004 – Native Blackthorn thicket (2023)	16
Plate 2: Plot MZ6_007 – Woodland (2023)	16
Plate 3: Plot MZ6_008 – Woodland (2023)	16
Plate 4: Plot MZ6_010 – Native Blackthorn thicket (2023)	16
Plate 5: Woodland during 2024 at monitoring plot MZ6_006	18



Plate 6: Native Blackthorn thicket in inaccessible plot MZ5_004 (2023)	23
Plate 7: Plot (MZ5_005) within pastureland during 2024	24

List of Tables

Table 1: Conditions of approval requiring a monitoring program.....	8
Table 2: Proposed and current management actions in the BMP	10
Table 3: Location of monitoring sites	15
Table 4: Flora recorded over monitoring years	17
Table 5: The average NPSR for woodland plots recorded in MZ5 and MZ6 from 2012-2024	21
Table 6: Stem count of <i>Pimelea spicata</i> within fixed monitoring plots	27
Table 7: Woody native vegetation changes per monitoring year	29
Table 8: Comparison of woodland plots to PCT benchmarks in MZ5 and MZ6 (2017-2024)	50
Table 9: Comparison of woodland plots to BVT benchmarks (2012-2016).....	55
Table 10: Comparison of Native Blackthorn thicket plots to PCT benchmarks (2017-2024).....	58
Table 11: Comparison of Native Blackthorn thicket plots to BVT benchmarks (2012-2016)	60
Table 12: Comparison of pasture plots to PCT benchmarks (2017-2024).....	61
Table 13: Comparison of the pasture plots to BVT benchmarks (2012-2016)	62
Table 14: Derived grassland and area of woodland from MZ6_009 (photo point 5).....	65
Table 15: Derived grassland from photo point 4	67
Table 16: Area of erosion, photo point 7	69
Table 17: MZ6_006. Note the obvious cover difference between years. Woody weed control required in 2025. 71	
Table 18: MZ6_007. Note the ground cover since 2012. Woody weed control required in 2025.	73
Table 19: Regenerating woodland from MZ5_002. Note the increase in the regeneration of <i>Bursaria spinosa</i> within the woodland understorey.	75
Table 20: Derived grassland from MZ5_005.....	77



1 Introduction

1.1 Background

The Appin Ventilation Shaft Site No. 6 project approval requires Illawarra Coal Holdings Pty Ltd (ICHPL; formerly South32 Illawarra Metallurgical Coal), trading as GM3, to secure, manage and monitor an 8.7 hectare offset (offset area) of the Threatened Ecological Community (TEC) Cumberland Plain Woodland (CPW) (listed as Critically Endangered [CE] under both the *NSW Biodiversity Conservation Act 2016* [BC Act] and *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* [EPBC Act]) such that an improve or maintain outcome would be achieved for threatened biodiversity.

The offset area is known as MZ5 and is located to the north of the Appin Ventilation Shaft Site No. 6 on the property known as Mountbatten Stud at Douglas Park NSW (Figure 1). An initial assessment of the proposed offset area was conducted by Niche in December 2010 to assess the suitability of the site to be used as an offset for the unavoidable impacts associated with Appin Ventilation Shaft Site No. 6. Niche determined that the site was indeed CPW and, under management, would improve to benchmark condition over time. The initial inspection of MZ5 also resulted in the discovery of a population of the threatened plant, *Pimelea spicata*, adding significant conservation value to the offset area.

In accepting the offset proposal, the NSW Department of Climate Change, Energy, the Environment and Wind (NSW DCCEEW) and the Commonwealth Department of Climate Change, Energy, the Environment and Wind (Cth DCCEEW) provided a number of approval conditions relating to the management and monitoring of management actions within MZ5. One of the conditions required GM3 to implement a formal monitoring program for both the management of the native vegetation on the offset area and the extent and health of the *Pimelea spicata* population.

Conditions 2(c) (v – vii) of the NSW project approval (MP10_0079) and condition 3(d) of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (2010/5722) are the conditions that require a monitoring and performance evaluation program to be implemented (Table 1).

Table 1: Conditions of approval requiring a monitoring program

Approval	Condition of Approval
NSW approval	2(c) (v) – A program to monitor the effectiveness of these measures, and progress against the performance and completion criteria.
	2(c) (vi) – A description of the potential risks to re-vegetation, and a description of the contingency measures that would be implemented to mitigate these risks.
	2(c) (viii) – Details of who would be responsible for monitoring, reviewing and implementing the plan.
Commonwealth approval	3(d) - The plan must include key milestones, performance indicators, corrective actions and timeframes for the completion of all actions outlined in the plan for the life of the project.

Subsidiary to the establishment of MZ5 as an offset area under approval conditions, MZ6, which is SW of MZ5, was established as an additional voluntary offset area (Figure 1).



1.2 Purpose and objectives

The aim of the monitoring program is to demonstrate the success of the management actions through the collection of empirical data, mapping and establishment of a photographic record for the offset area. The specific objectives of this report are:

1. To describe and evaluate the re-vegetation and bush regeneration works undertaken to date against the key performance criteria as detailed in the Biodiversity Management Plan (BMP) for the offset area (South32 IMC 2022)
2. To outline any problems encountered during works and how these were managed
3. To recommend alterations or additions to management actions as required
4. To provide an analysis of vegetation monitoring results, including
 - Comparison of data from monitoring plots (plots undertaken in accordance with the NSW Biodiversity Assessment Method [BAM]) to benchmark condition levels for CPW
 - Visual comparative analysis of photo point monitoring locations
 - Vegetation and condition mapping at a scale deemed appropriate to inform management decisions.

Mapping will include:

1. Location of vegetation monitoring plots
2. Photo point monitoring locations
3. Baseline mapping of native vegetation and condition within MZ5.

The 2021 monitoring report includes the details regarding the latest results of the *Pimelea spicata* population census. Given the census is not required again until 2026, results detailed in this year's report are limited to presence within BAM monitoring plots.



2 Management Actions

2.1 Management actions undertaken

Since 2011, management actions have been conducted at both the offset area (MZ5) and the voluntary management area (MZ6) to enhance and maintain native biodiversity. Stock has been excluded from MZ5 and MZ6 by the installation of a fence around the site boundary, which was installed in 2011.

Toolijooa Bushland Restoration Pty Ltd (Toolijooa) conducted the bushland restoration works at both MZ5 and MZ6 between 2011 and 2018. Bush regeneration works have been undertaken by Landcare Australia since 2019. In 2024, 10 site visits were undertaken between January and December to undertake primary and maintenance weed control of both woody and herbaceous weeds (Landcare Australia 2024).

Weeds treated across the site in 2024 include (Landcare Australia 2024):

- Herbaceous species: *Asparagus virgatus* (Asparagus Fern), *Brassica spp.*, *Cirsium vulgare* (Spear Thistle), *Conyza spp.* (Fleabane), *Cytisus Purpureus* (Purple Broom), *Echium plantagineum* (Paterson's Curse), *Gomphocarpus fruticosus* (Cotton Bush), *Onopordum acanthium* (Scotch Thistle), *Setaria sphacelata* (Pidgeon Grass), *Sida rhombifolia* (Paddy's Lucerne), *Verbena bonariensis* (Purpletop)
- Woody weeds: *Lantana camara* (Lantana), *Lycium ferocissimum* (African Boxthorn), *Olea europaea subsp. cuspidata* (African Olive), *Rubus spp.* (Blackberry)
- Vines: *Araujia sericifera* (Moth Vine), *Delairea odorata* (Cape Ivy).

2.2 Management actions compared to BMP

The current management actions have addressed the recommended actions proposed in the BMP (South32 IMC 2022) for MZ5 and MZ6. These have been compared in Table 2. It should be noted that the management actions are on-going.

Table 2: Proposed and current management actions in the BMP

Action	Description	Performance Target (Milestones)	Completion Status
<i>Pimelea spicata</i> monitoring program	— Design a program to determine the success of management or the need for intervention. — Annual population counts within permanent plots. — 5 yearly population census. — Condition of individual plants from mixed cohorts. — Condition of habitat. — Annual inspections of fencing to ensure maintenance and up-keep. — Regular site visits the potential presence of stock and/or feral herbivores that have breached fencing to ensure that such impact is eliminated by fencing	Sustainable <i>Pimelea spicata</i> population with population numbers staying level with or exceeding current numbers.	Census proposed to occur every five years. Previous census undertaken in early 2021. Details regarding the <i>Pimelea spicata</i> population are provided in the 2021 monitoring report. This report provides general observations for the species and presence within plots undertaken during 2024.



Action	Description	Performance Target (Milestones)	Completion Status
	and that trapped stock or feral herbivores are freed. – Monitoring against stochastic events.		
MZ5 fencing	– The first action within the offset area will be to exclude stock. Existing four-strand post-and-wire fence will be utilised and additional fencing installed where required. No barbed wire will be used and the bottom strand will have a clearance of 400 millimetres (mm) above the ground to allow the movement of native fauna. Stock will be herded out of the area prior to fencing taking place.	Four-strand post-and-wire fence installed, no strands barbed and 400 mm separation from ground to lowest strand.	Fence installed, barbed wire as top wire. On-going monitoring.
Bush regeneration in MZ5	– Primary, secondary and maintenance weed management within MZ5 will target the treatment of Blackberry (<i>Rubus fruticosus</i> agg.), African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>), Lantana (<i>Lantana camara</i>), African boxthorn (<i>Lycium ferocissimum</i>), privet (<i>Ligustrum lucidum</i>), Cape ivy (<i>Delairea odorata</i>) and a variety of exotic perennial grasses such as African Lovegrass (<i>Eragrostis curvula</i>), Rhodes Grass (<i>Chloris truncata</i>), Kikuyu (<i>Cenchrus clandestinus</i>) and Couch (<i>Elymus repens</i>). – All weed management works will be supervised by a suitably qualified bush regenerator. A team of four bush regenerators will be engaged for five days for the primary weeding and then a team of two for one day every four months thereafter for secondary and maintenance weed management as required.	Engagement of suitably qualified bush regeneration contractor to implement primary, secondary and maintenance weed management program. Annual vegetation condition assessment. Improvement in condition of offset bushland to within, or as near as possible to, benchmark condition levels.	Currently being conducted. On-going. Section 4.2 of this report compares current vegetation condition to benchmarks.
MZ6 fencing	– The first action within the native vegetation area will be to exclude stock. Existing four-strand post-and-wire fence will be utilised and additional fencing installed where required.	Four-strand post-and-wire fence installed, no strands barbed and 400 mm separation from ground to lowest strand.	Fence erected. On-going monitoring.



Action	Description	Performance Target (Milestones)	Completion Status
	No barbed-wire will be used and the bottom strand will have a clearance of 400 mm above the ground to allow the movement of native fauna. Stock will be herded out of the area prior to fencing taking place.		
Bush regeneration in MZ6	– Weed management within MZ6 will target the treatment of Blackberry, African Olive, lantana, African Boxthorn, privet, Cape ivy and a variety of exotic perennial grasses such as African lovegrass, Rhodes grass, Kikuyu and Couch. – All weed management works will be supervised by a suitably qualified bush regenerator.	Engagement of suitably qualified bush regeneration contractor to implement weed management program. Improvement in condition of offset bushland to within, or as near as possible to, benchmark condition levels.	Currently being conducted. On-going. Section 4.2 of this report compares current vegetation condition to benchmarks.



3 Methodology

3.1 Key performance criteria

The priority management actions, performance criteria and timeframes for the works in MZ5 and MZ6, as described in the BMP, are provided in Annex 1. The key elements include:

- Engagement of a suitably qualified bush regeneration contractor to implement a primary, secondary and maintenance weed management program
- Annual vegetation condition assessment
- Improvement in condition of offset bushland to within, or as near as possible to, benchmark condition levels
- Sustainable *Pimelea spicata* population with population numbers staying level with or exceeding current numbers.

Utilising these elements, Niche developed the monitoring methodology described in Section 3.2.

3.2 Monitoring methodology

The monitoring methodology will follow that outlined in the BMP.

Fixed plot vegetation monitoring for 2024 was conducted on 26th of November and 3rd of December 2024 by Lily Cains (Niche Ecologist) and Zarah Anderson (GM3).

3.2.1 Fixed plot vegetation monitoring

From 2012 to 2022, 10 plots were monitored and compared annually, comprising five within MZ5 and five within MZ6. However, during the 2023 and 2024 monitoring periods, four of the 10 sites were inaccessible due to thick stands of Native Blackthorn. Therefore, the 2024 monitoring period incorporated the following (Figure 2):

1. Four fixed BAM (Biodiversity Assessment Method) plots within MZ5.
2. Two fixed BAM plots within MZ6.
3. Comparison of site collected attribute data with the benchmarks for PCT 850 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain (CPW TEC) from the PCTs Benchmarks Database. The BAM site attributes and their methods of measurement are provided in Annex 4.

Historically, the fixed plot vegetation monitoring has used the BioBanking plot methodology. However, in 2017 a new industry standard was developed in association with the NSW *Biodiversity Conservation Act 2016* (BC Act). BAM plots have replaced BioBanking plots as the standard method of collecting attribute data. As such, BAM plots have been utilised since 2017 instead of BioBanking plots in order to collect data consistent with updated methodologies, PCTs and benchmarks.

3.2.2 *Pimelea spicata* population census

Monitoring of the *Pimelea spicata* population takes place annually as part of the fixed plot vegetation monitoring, with counts of *Pimelea spicata* stems occurring within the BAM Plots. *Pimelea spicata* occurs within BAM plots MZ5_001, MZ5_003, MZ5_004. Due to the accessibility issues detailed in section 3.2.1, in 2023 and 2024, the *Pimelea spicata* BAM plots monitored included MZ5_001 and MZ5_003. These plots coincide to some extent with the monitoring plots used to count *Pimelea spicata* during the population census, as detailed below. Annual observations within the BAM plots can monitor the extent of the population throughout zone MZ5 within areas monitored by Niche. General observations of the population outside of the plots are also undertaken annually to observe any obvious declines in population health.



A population census of the *Pimelea spicata* population in the site occurs once every five years to estimate the population size and determine the health of the population. With monitoring of the presence of the species undertaken annually, it is determined that a full population census undertaken every five years is adequate. If the species was determined not to be present in plots where it is known to previously occur during the annual monitoring, this would trigger a full population census regardless of its scheduled timeframe.

The original census of the *Pimelea spicata* population was undertaken in October 2012 and a second census was undertaken in February 2017. The most recent *Pimelea spicata* census occurred in 2021/2022. The next round of monitoring is scheduled for 2026.

The monitoring of the *Pimelea spicata* population within MZ5 follows the methods used in the original surveys in 2012, involving counting every *Pimelea spicata* plant within five permanent 10 x 10 metre (m) plots (Figure 2) and then extrapolating an average across the known extent of the population. The plots were set up as permanent sites in 2012, the first year of monitoring.

3.2.3 Photo point monitoring

From 2012 to 2022, photo point monitoring included five fixed photo point sites within each zone (MZ5 and MZ6), coinciding with the BAM plot locations. An additional five photo points were located within 200 m of the external boundary of MZ5 to enable a visual assessment of the health of the vegetation in that area. Opportunistically favourable locations for photo points were also recorded.

In 2023 and 2024, photo point monitoring included the following (due to accessibility issues detailed in section 3.2.1):

1. Four fixed photo points were sited within MZ5, coinciding with the BAM plot locations
2. Two fixed photo points were sited within MZ6, coinciding with the BAM plot locations
3. Five photo points were located within 200 m of the external boundary of MZ5 to enable a visual assessment of the health of the vegetation in that area. Opportunistically favourable locations for photo points were also recorded.

The photo point locations are those shown in Figure 2.

3.2.4 Vegetation distribution monitoring

Vegetation distribution monitoring is undertaken using the following method:

1. The boundary of the native vegetation within MZ5 and MZ6 mapped annually using a hand held GPS and interpretation of the available aerial imagery
2. The mapped vegetation boundary compared each year, with the expectation that the extent of native vegetation within the offset area will increase with management.

3.3 Survey stratification

Stratification of the monitoring sites within the offset area was determined on-site whilst conducting the first round of monitoring surveys in spring 2012. Stratification was based on condition such that an accurate comparison of the improvement in that condition could be gained over time. Three broad condition categories existed on the site:

1. Woodland (Section 4.2.1)
2. Native Blackthorn (*Bursaria spinosa*) thicket (Section 4.2.2)
3. Pasture (Section 4.2.3).

From 2012 to 2022, five BAM plots were conducted in each of MZ5 and MZ6 (ten in total) and distributed over the three condition types as shown in Table 3. In 2023 and 2024, four BAM plots were conducted in MZ5 and two BAM plots within MZ6 (six in total) and distributed over two condition types (Table 3).



Table 3: Location of monitoring sites

Management Zone	Area (ha)	Monitoring Site	Easting	Northing	Condition Class
MZ5	8.7	MZ5-001	290285	6216759	Woodland
		MZ5-002	290360	6216591	Woodland
		MZ5-003	290365	6216665	Woodland
		MZ5-004*	290195	6216725	Native Blackthorn thicket
		MZ5-005	290017	6216883	Pasture
MZ6	12.43	MZ6-006	289842	6216418	Woodland
		MZ6-007*	289990	6216474	Woodland
		MZ6-008*	289852	6216665	Woodland
		MZ6-009	289925	6216342	Pasture
		MZ6-010*	289974	6216678	Native Blackthorn thicket

*Plot was inaccessible in 2024.

Eastings and Northings provided in GDA94, MGA Zone 56.

3.4 Data analysis and interpretation

A series of key attributes were identified for assessing the current condition of the vegetation and habitats in MZ5 and MZ6, the restoration pathways and progress towards attaining the conservation objectives. These attributes relate to species richness and percent cover of native plants in vegetation layers, as well as fauna habitat features and canopy regeneration. This monitoring report presents the 2024 monitoring data according to these key attributes.

Basic statistical analyses have been conducted incorporating temporal variation (i.e., changes over time) in vegetation condition to assess the magnitude and direction of change in vegetation communities. Statistical analysis conducted involved temporal comparisons of means and standard errors (variability in data between floristic plots) between the average survey data from 2012 to 2024. Key attributes which would be most informative for management input were selected for comparison, such as native species diversity, percent cover of exotics and native canopy cover. Calculations of mean and standard error were not conducted where less than three plots were undertaken within a plant community type as this is not enough data to provide a meaningful or statistically robust analysis. Therefore, statistical analysis was limited to the woodland plots in MZ5 and MZ6 from 2012 to 2022, and to the woodland plots in MZ5 from 2023-2024.

Benchmark values based on the Plant Community Type (PCT) accessed from the Vegetation Information System (VIS) database were used to provide an indication of the condition of the vegetation in a broader context. It should be noted that these benchmark values are not site specific and therefore are not intended to represent a



target for measuring restoration success. Comparison of site values with benchmark values is intended to provide a broader context for interpreting the restoration pathway and the trajectory of change (direction of change) as management measures are implemented.

3.5 Limitations

Some plant species are cryptic and can only be detected when flowering at certain times of the year. For example, some orchids flower within certain seasons and cannot be detected at other times of the year.

In 2024, similarly to the 2023 survey, plots MZ5_004, MZ6_007, MZ6_008 and MZ6_010 (Plate 1, Plate 2, Plate 3 and Plate 4) were inaccessible due to dense Native Blackthorn thickets and exotic species such as Blackberry, Lantana and African Box thorn. The data provided will therefore only be reflective of the plots that were accessible.

In addition, monitoring events have been analysed by different staff over the years introducing observer bias to the results. The analysis of results should be undertaken with consideration of these limitations.



Plate 1: Plot MZ5_004 - Native Blackthorn thicket (2023)



Plate 2: Plot MZ6_007 - Woodland (2023)



Plate 3: Plot MZ6_008 - Woodland (2023)



Plate 4: Plot MZ6_010 - Native Blackthorn thicket (2023)



4 Results

4.1 Flora recorded

A total of 99 species were recorded across the six floristic plots within the site during the 2024 monitoring event (Annex 2). The number of species recorded varies slightly with each monitoring event and the observed differences in the years prior are likely driven by seasonal variation and antecedent climatic conditions. The species diversity in 2024 is markedly higher than that observed in 2023 and 2022, however the percentage of exotic species recorded has increased since the previous monitoring period (2023). Additionally, the flora recorded during both 2023 and the current monitoring period is inclusive of six floristic plots only, as opposed to the 10 floristic plots surveyed during and prior to 2022. In 2023, it was suggested that the decline in species diversity observed may be driven by the reduced number of plots, which is possible. Even though there was a 39% increase in the total number of species recorded this year, it is still likely that the species diversity would have been even higher if there was data from all 10 plots. Even though the total number of species has increased since 2023, the number of exotic species has increased at an even higher rate (63%), and the percentage of exotic species recorded has increased by 7.2%.

Table 4: Flora recorded over monitoring years

Year of survey	Total number of species recorded	Number of exotic species recorded	Percentage exotic species recorded
2024	99*	49	49.5%
2023	71*	30	42.3%
2022	85	37	43.5%
2021	103	41	39.8%
2020	44	15	20%
2019	74	14	19%
2018	82	30	37%
2017	81	23	28%
2016	83	38	46%
2015	96	43	45%
2014	96	53	55%
2013	85		
2012	90		

*n=6



4.2 Assessment of site attribute data

4.2.1 Woodland

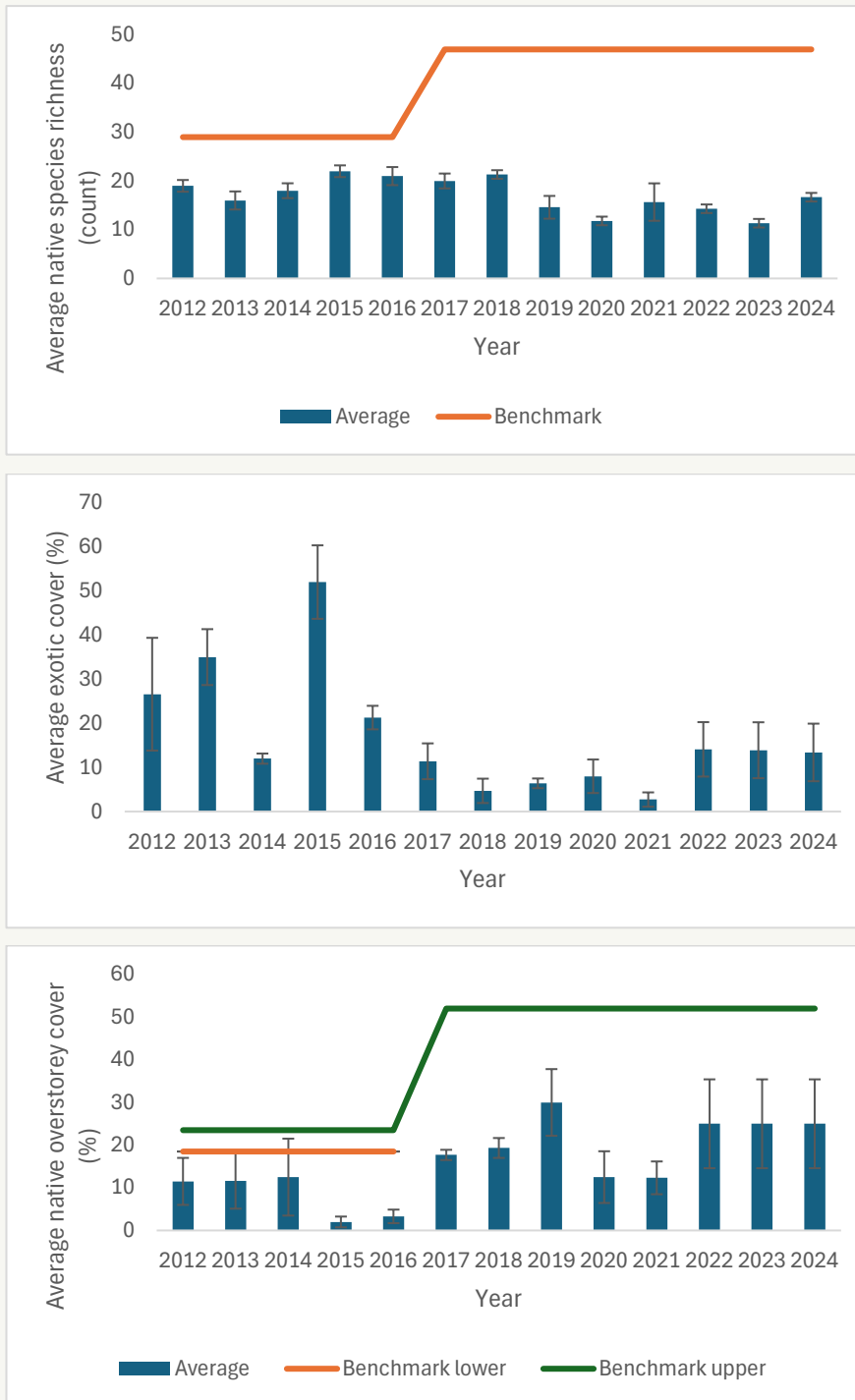


Plate 5: Woodland during 2024 at monitoring plot MZ6_006

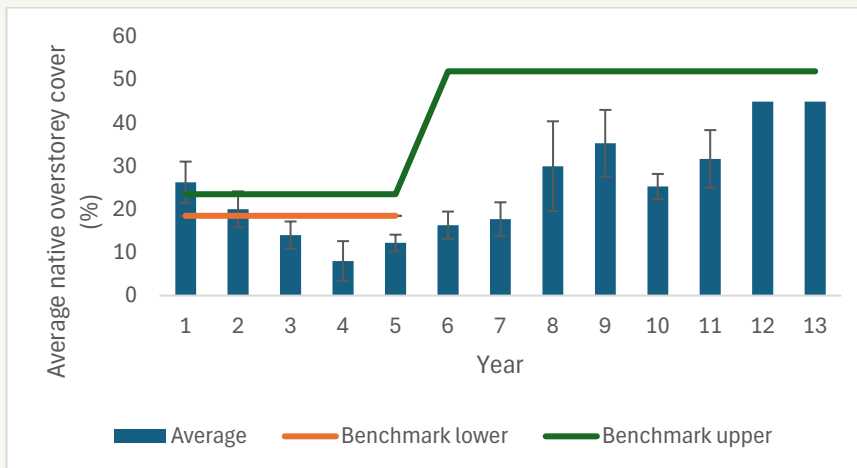
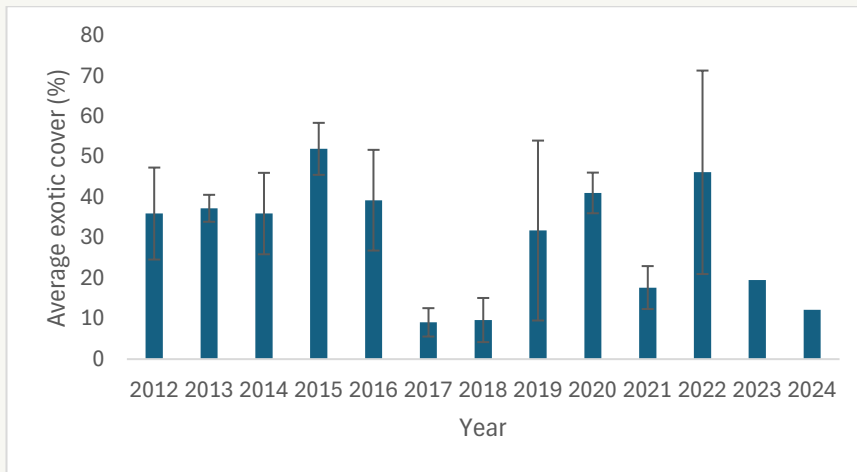
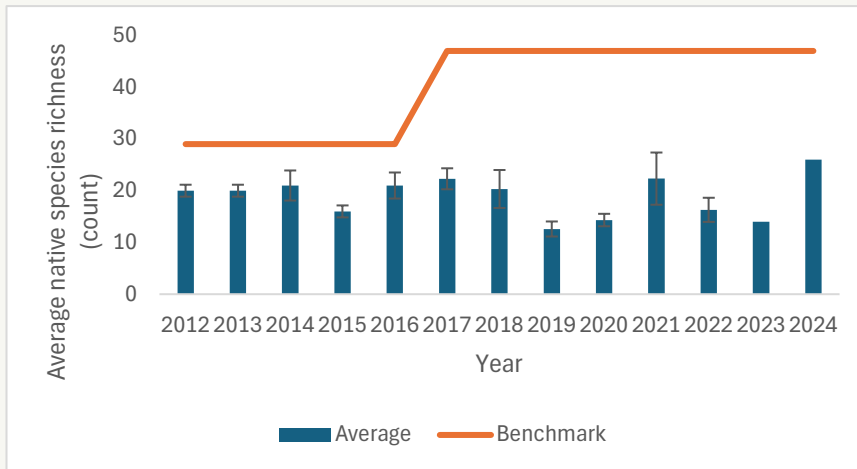
Plot data

In 2024, the BAM site attribute data was collected at four sites that corresponded to a woodland structure. Three of the sites were collected from MZ5 (MZ5_001, MZ5_002 & MZ5_003) and one was collected from MZ6 (MZ6_006). The data collected is contained in Table 8 (2017-2024 data) and Table 9 (2012-2016 data) (Annex 3). The tables also include the benchmarks for each of the site attributes for the relevant PCT (PCT 850 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain). Benchmarks for 2012-2016 data are for Biometric Vegetation Type (BVT) HN529.

Graph 1 and Graph 2 show the temporal change for key attributes for woodland plots in MZ5 and MZ6, respectively, and compare the average values to benchmarks (shown as line graphs).



Graph 1: Comparison of key attributes for woodland plots in MZ5 ($n = 3$) (HN529/PCT850). Error bars depict S.E. Benchmark values/ranges shown as line graphs.



Graph 2: Comparison of key attributes for woodland plots in MZ6 (2012-2022 $n = 3$, 2023-2024 $n = 1$) (HN529/PCT850). Error bars depict S.E. Benchmark values/ranges shown as line graphs.



Discussion

In 2024, the woodland plots in MZ5 and MZ6 scored below benchmark for species richness for all growth form groups (Table 8). The overall average native plant species richness (NPSR) for MZ5 and MZ6 was 16.7 and 26, respectively, representing a significant increase from last year, following a decrease for both zones between 2022 and 2023 (Table 5). The NPS remains below benchmark in both MZ5 and MZ6; this trend has been observed since 2014 (Graph 1, Graph 2). However, when the BAM methodology was introduced in 2017, the updated benchmark values are much higher and represent the ideal condition state for good quality remnant vegetation on a state level. The benchmark condition provided may therefore be unrepresentative of the local remnant vegetation condition. Moreover, all results for MZ6 in 2023 and 2024 were inclusive of one plot only (MZ6_006) due to inaccessibility of plots MZ6_007 and MZ6_008 (as opposed to the three plots monitored from 2012-2022). Plot data for MZ6_007 and MZ6_008 was not recorded this year due to the areas being inaccessible as a result of the dense thicket of exotic species such as African Olive, African Boxthorn and Lantana, in addition to Native Blackthorn.

Table 5: The average NPSR for woodland plots recorded in MZ5 and MZ6 from 2012-2024

Year of survey	Average native species richness	
	MZ5	MZ6
2024	16.7	26*
2023	11.3	14*
2022	14.3	16.3
2021	15.7	22.3
2020	12.3	14.3
2019	14.7	12.7
2018	21.3	20.3
2017	20	22.3
2016	21	21
2015	22	16
2014	18	21
2013	16	20
2012	19	20

Note: Benchmark for 2012-2016 is 29 species, and 2017-2024 is 47 species. *n = 1



In 2024, the cover of the trees, grasses, forbs and ferns growth forms remained below benchmark in the woodland plots for both MZ5 and MZ6. Shrub cover for MZ5 and MZ6 has been above benchmark for all years, apart from in 2021 for both MZ5 and MZ6 and 2022 for MZ6 only (Annex 3, Table 8).

The average native overstorey cover (tree cover) for 2024 was below benchmark for both management zones. The overstorey cover for both zones has not changed since last year's monitoring. MZ5 has remained the same since 2022, and MZ6 has remained the same since 2023 (Graph 1, Graph 2). Regeneration of canopy species was observed in all plots in MZ5 and the one plot in MZ6, and included stem size classes <5 cm and 5-9cm diameter at breast height (DBH). Due to the current management of MZ5 and MZ6 and the presence of regenerating overstorey species, it is considered likely that the overstorey canopy of MZ5 and MZ6 will trend towards benchmark in future years.

Average native grass cover also remained below benchmark in 2024 for both management zones, however both have increased from 2023 and are approaching benchmark. Compared to 2023, native grass cover in MZ5 increased slightly by 7.9% while native grass cover in MZ6 increased markedly by 35.8%. Overall, there has been a trend of increasing native grass cover in both MZ5 and MZ6 over the last three years (Annex 3, Table 8).

Since 2023, the native shrub cover in MZ5 has increased by 18.6%. Native shrub cover in MZ5 is above benchmark, which has been the case since 2016 (excluding 2021). As stated in the previous monitoring reports, this was attributed to the regeneration of Native Blackthorn which has consistently increased in cover over the monitoring years. The high average rainfall between 2020-2022 has made the completion of management actions difficult and the increase in shrub cover observed may be attributed to this. With the undertaking of management actions, it is anticipated that the shrub cover would stabilise in MZ5. In MZ6, native shrub cover has remained the same since 2023 and is once again above benchmark. This is also due to an increase in Native Blackthorn cover (Annex 3, Table 8). It is recommended that thinning of the Native Blackthorn is undertaken in MZ6 by qualified bush regenerators under a management plan to diversify the habitat structure and allow for natural regeneration of an increased native species diversity. Average shrub cover will decrease across both management zones once the Native Blackthorn has been thinned, but hopefully this will allow for the overall native species richness to increase.

Native ground-cover other remains below benchmark in both MZ5 and MZ6, and has been below benchmark since 2017 when BAM benchmarks were introduced. This may be due to the native shrub cover being over the benchmark in both MZ5 and MZ6 making it increasingly difficult for native ground cover to germinate.

In 2023, the functional attributes monitored, including litter cover (LC), large trees (NLT) and length of fallen logs (FL), were both above and below benchmark. LC was below benchmark in MZ5, but above benchmark in MZ6. Both MZ5 and MZ6 saw a decrease in LC from 2023. However, both NLT and FL were below benchmark in all woodland plots (Annex 3, Table 8).

High threat weed cover in MZ5 and MZ6 was 13.4% and 12.2%, respectively, in 2024, which was 3.6% and 37.8% lower than 2023. Similarly, there was an observed decrease in high threat weed cover for both management zones between 2022 and 2023. The decrease observed in MZ5 is most likely due to the bush regeneration works and by the above average rainfall experienced in the locality from 2020-2022 followed by the less than average rainfall in 2023 and 2024, resulting in a slowing of weed growth and germination in the plots surveyed. The decrease observed in MZ6 would be predominantly due to the exclusion of plots MZ6_007 and MZ6_008 in 2023 and 2024, which were found to have high weed cover in 2022. Woody weeds such as African Olive, Lantana and African Boxthorn as well as Spear Thistle (*Cirsium vulgare*), Arrowleaf Sida (*Sida rhombifolia*), and Purpletop (*Verbena bonariensis*) are persisting in the woodland area throughout MZ5 and MZ6. It is recommended that woody weed control continue to be undertaken in this area in 2024.



4.2.2 Native Blackthorn thicket



Plate 6: Native Blackthorn thicket in inaccessible plot MZ5_004 (2023)

Plot data

From 2012 to 2022, BAM site attribute data was collected at two sites within patches of Native Blackthorn thicket. One site was located within the MZ5 offset area (MZ5_004), and the other in the MZ6 (MZ6_010) voluntary management site. In 2023 and 2024, BAM site attribute data was not collected in the Native Blackthorn thicket due to the inaccessibility of plots. Previous data collected is presented in Table 10 (2017-2022 data) and Table 11 (2012-2016 data) (Annex 3), which also includes the benchmarks for each of the site attributes for the relevant PCT (PCT 850 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain). Benchmarks for 2012-2016 data are for BVT HN529.

Discussion

Plot MZ5_004 was deemed inaccessible for the 2023 and 2024 monitoring due to the area being dominated by Native Blackthorn and encroaching exotic species such as Blackberry and Lantana (Plate 1). Plot MZ6_010 was considering equally inaccessible due to dense Native Blackthorn thicket surrounding the plot and within the plot (Plate 4).

Previously the Native Blackthorn thicket plots scored below benchmark for all growth form groups. NPS has scored below benchmark in all monitoring years, including the most recent accessible monitoring year (2022). However, this was to be expected given the dominance of Native Blackthorn.



This report and previous monitoring reports have recommended thinning the Native Blackthorn to diversify the habitat structure and allow for natural regeneration of an increased diversity of native species. One such ecological benefit may be in controlling the Bell Miner population, as discussed below. As previously stated, the density of Native Blackthorn in these areas is considered unnaturally high.

As recommended in previous monitoring reports, bush regeneration works should continue and focus on the removal of African Olive, Lantana and Blackberry within the vicinity of plot MZ5_004 and MZ6_010, due to the presence of the threatened plant, *Pimelea spicata*, at MZ5_004. Thinning of the Native Blackthorn is also recommended to provide access to the plots and to ensure the area does not become a monoculture and start to outcompete *Pimelea spicata*. A management plan regarding the thinning of Native Blackthorn and increasing native diversity with plantings would need to be put into place, and consultation with the NSW DCCEW is recommended before implementing any management actions. Any management in this area should be conducted with care and by suitably qualified bush regenerators who are familiar with *Pimelea spicata*, so as to minimise any impact to *Pimelea spicata* individuals.

4.2.3 Pasture



Plate 7: Plot (MZ5_005) within pastureland during 2024



Plot data

In 2023, BAM site attribute data was collected at two sites dominated by pasture. One site was located within the MZ5 offset area (MZ5_005) and the other in the MZ6 voluntary management area (MZ6_009). The data collected is contained in Table 12 (2017-2024 data) and Table 13 (2012-2016 data) (Annex 3), which also includes the benchmarks for each of the site attributes for the relevant PCT (PCT 850 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain). Benchmarks for 2012-2016 data are for BVT HN529.

Discussion

In 2024, the pasture plots in MZ5 and MZ6 scored below benchmark for species richness for all growth form groups; this was consistent with the results from 2012-2023 (Annex 3, Table 12). The average NPS for the pasture plots was 14.5, which was slightly higher than 2023. The condition in these areas however remains poor; a total of 36 exotic species were observed in the two plots, including eight HTWs. While there is a high cover of Weeping Grass (*Microlaena stipoides*), Wallaby Grass (*Rytidosperma spp.*) and Kangaroo Grass (*Themeda triandra*), these are likely to be outcompeted by the exotic pasture grasses present, including Kikuyu, Great Brome (*Bromus diandrus*), Soft Brome (*Bromus hordeaceus*) and Paspalum (*Paspalum dilatatum*).

As discussed in previous monitoring reports, Native Blackthorn is likely to establish over time, however it is recommended that overstorey eucalypt species are planted to improve revegetation in this area. As discussed in Niche (2014), higher condition patches of pasture dominated by native grasses should be prioritised if weed management work is to be conducted. In 2024, Chilean Needle Grass (*Nassella neesiana*) was recorded in the pasture plot in MZ6_009 and has been recorded there since 2017. It has also been observed to be dominant in parts of pasture surrounding the woodland areas. In 2022, Chilean Needle Grass was also observed in the grassy areas of MZ5, and has been recorded in MZ5_005 since then, including 2024. This exotic grass is very invasive and should be appropriately controlled as part of the bush regeneration program.

4.3 Bell Minors

During the monitoring surveys in 2017-2019, it was noted that Bell Miners were abundant in the MZ5 area. Management actions to reduce the Bell Miner colony should be considered as the birds seem to be having an impact on mature overstorey in woodland areas in MZ5. Eucalypt dieback in association with Bell Miners is listed as a Key Threatening Process on the BC Act (Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners). However, during the 2020, 2021, 2022, 2023 and 2024 monitoring surveys the Bell Miners were not observed to be in large numbers, and this may be due to the now lack of habitat.

An independent review of Bell Miner associated dieback was commissioned by Office of Environment and Heritage, which details management recommendations for Bell Miner associated dieback (Silver and Carnegie 2017):

- Prevention:
 - Disturbance of the canopy should be minimised where possible.
 - Where the canopy is disturbed, rehabilitation should focus on re-establishment of a canopy as soon as possible to limit unnatural understorey density.
 - Site rehabilitation should include ongoing management of invasive weeds, particularly those that minimise natural regeneration and can act as superior nesting sites for Bell Miners.
 - Exclusion of fire is an artificial disturbance activity that can lead to woody weed invasion. Appropriate fire regimes should be designed and implemented.
- Treatment
 - A site assessment should be undertaken to ensure that Bell Miners are present and psyllid attack is the primary cause of dieback.
 - If the prevailing vegetation community is naturally dense in the understorey or midstorey then consideration should be given to not intervening in the site as Bell Miner associated dieback (BMAD) may be a natural process there.



- At sites with an unnatural level of understorey and/or midstorey density the viability of the seed bank for rehabilitation without planting should be assessed.
- In sites with high value assets being impacted by BMAD (e.g. threatened flora or fauna) consideration should be given to culling of Bell Miners followed by site rehabilitation. This has been shown to have an immediate reduction on exclusion of other bird species for example.
- The primary aim of site treatment should be to reduce the occurrence of superior nesting sites for the Bell Miner. The method best to use to achieve this will depend on site-specific characteristics.

Management at the offset site would involve undertaking primary weed management works surrounding areas of woodland. Weed management would involve removing all woody weeds, including African Olive, Lantana and African Boxthorn and potentially plantings of native overstorey species, primarily Eucalyptus. Given the potential decrease of Bell Miners in MZ5 over the last five survey periods, an additional recommendation is to monitor the presence of Bell Miners and canopy dieback in MZ5 over the coming years and alter the management plan if required.

4.4 *Pimelea spicata* annual count

Annual counts of *Pimelea spicata* where they occur within the fixed monitoring BAM plots are required. *Pimelea spicata* is historically known to occur in plots MZ5_001, MZ5_003, and MZ5_004. In 2021, 2022 and 2023, the species was also possibly recorded in MZ5_002 (see details below Table 6). The annual count trigger for intervention is significant loss of population (>20% decline from one year to the next in population across plots), which would trigger full scale census.

At the time of the 2024 surveys, there were no flowers present, therefore the results are likely an underestimate of the *Pimelea spicata* stem count within the plots. There is no plot data available for this year for plot MZ5_004 due to the accessibility issues in relation to the Native Blackthorn thicket and encroaching exotic species, hence the stem count of *Pimelea spicata* is not applicable and will need to be assessed in next year's monitoring (2025) once management actions have taken place. Note, previously only percent cover was estimated for *Pimelea spicata* within plots (not stem count), so stem count data is restricted to the years that the annual census was undertaken, 2019, 2020, 2021, 2022, 2023 and the current survey (2024).



Table 6: Stem count of *Pimelea spicata* within fixed monitoring plots

Plot code	2012	2013	2014	2016	2019	2020	2021	2022	2023	2024
MZ5_001	12	0	20	47	14	0	0	0	0	0
MZ5_002	0	0	0	0	0	0	1 (possible record, to confirm when in flower at next census)	10 (possible record, to confirm when in flower at next census)	5 (possible record, to confirm when in flower at next census)	5 (possible record, to confirm when in flower at next census)
MZ5_003	5	0	4	4	0 (2 plants at 30 m mark of transect)	0	0	0	0	0
MZ5_004	52	218	61	7	47	50	50	50	NA*	NA*
Total count within BAM plots	69	218	85	58	61	50	51 (including possible record)	60 (including possible record)	NA*	NA*
							50 (excluding possible record)	50 (excluding possible record)	NA*	NA*
% change from previous year	-	+216%	-61%	-31.7%	+5.17%	-18%	+2% (including possible record)	+17.6% (including possible record)	NA*	NA*
							No change (excluding possible record)	No change (excluding possible record)	NA*	NA*

*Results for 2024 are not valid due to accessibility issues.



In 2021, 2022, 2023 and 2024, a possible new observation of *Pimelea spicata* was recorded at plot MZ5_002, which needs to be confirmed at the next population census when the species is in flower (location of new *Pimelea spicata* record: E290361.016, N6216582.182). The species has not historically (prior to 2021) been recorded at this location and occurs outside of the previously mapped extent of the species on site. If confirmed, this would indicate the species is expanding on site to new areas. The confirmation of *Pimelea spicata* at this location would occur at the next census in 2026, or during the next monitoring survey which coincides with an on-site flowering event for the species.

The number of *Pimelea spicata* present in plot MZ5_004 was unable to be assessed during the 2023 and 2024 monitoring due to accessibility issues (i.e. the area being dominated by Native Blackthorn and encroaching exotic species such as Blackberry and Lantana). Management actions (such as woody weed control and Native Blackthorn thinning) need to be put into place so that the plot will be accessible for next year's monitoring program. It is recommended that bush regeneration works should continue and focus on the removal of African Olive, Lantana and Blackberry within the vicinity of plot MZ5_004 and thinning of the Native Blackthorn to diversify the habitat structure and allow for natural regeneration/expansion of *Pimelea spicata*.

Differences in population counts between years are likely due to varying conditions around the time of monitoring (wet season/dry season). During a dry season the species may not occur above the ground. This is supported by the Recovery Plan for *Pimelea spicata* (DEC 2005) which states:

'It is difficult to accurately estimate population size and extent of occurrence for Pimelea spicata given that the species is cryptic and difficult to detect, particularly when not in flower, and may not be apparent aboveground during drought conditions'.

Every five years a full-scale population census for *Pimelea spicata* is to be undertaken in the known areas and extensively across the two management zones. The last census was conducted in 2021, and the next census is scheduled to occur during Spring 2026 (FY26/27).

The key on-going management actions include excluding stock permanently from MZ5, feral animal control (evidence of rabbit occupation during previous surveys), weed management targeting Blackberry and African Olive within the extent of the *Pimelea spicata* population (these exotic species were observed in abundance within known habitat) and monitoring the health of the population as native herbs and grasses compete more vigorously upon the exclusion of grazing. Any weed management in these areas should exclude spraying of Blackberry as many *Pimelea spicata* individuals are present within and around blackberry patches. Any blackberry patches throughout the site should be visually inspected for *Pimelea spicata* individuals prior to spraying.

It should be noted that the long-term absence of any disturbance mechanism may itself be detrimental to the longevity of a *Pimelea spicata* population as it appears that at least some disturbance may be an important germination cue for the species (DEC 2005).

4.5 Photo points

Photo point monitoring was conducted at each of the locations shown in Figure 2. A selection of the photo points has been provided in Annex 5 (Table 14 - Table 20). Changes evident include increased cover of ground and shrub layer over the monitoring period (2012 to present). Continued woody weed control is required in 2025, evidenced by the increase in woody weeds in the photo point monitoring.



4.6 Vegetation distribution monitoring

The extent of the wooded native vegetation of MZ5 and MZ6 was mapped using aerial photography from NearMap (latest imagery December 2024) and data from the field surveys. The results were then compared with previous monitoring years.

An increase in woody native vegetation cover has been detected since the 2021 monitoring event. The increase in vegetation extent for 2023 to 2024 is illustrated in Figure 3 and Table 7. Changes in vegetation extent for the duration of the monitoring program can be seen in Annex 5 (Figure 4.1 to Figure 4.6) and Table 7.

Table 7: Woody native vegetation changes per monitoring year

Management zone	2011 (NPWS 2003)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
M5 Woody vegetation	5.28 ha	6.58 ha (1.3 ha increase)	6.73 ha (0.15 ha increase)	7.19 ha (0.46 ha increase)	7.19 ha (no detectable increase since 2014)	7.19 ha (no detectable increase since 2014)	7.27 ha (0.08 ha increase)	7.27 ha (no detectable increase since 2017)	7.27 ha (no detectable increase since 2017)	7.27 ha (no detectable increase since 2017)	7.62 ha (0.35 ha increase)	7.63 ha (0.01 ha increase)	7.74 ha (0.11 ha increase)	7.80 ha (0.06 ha increase)
M6 Woody vegetation	4.49 ha	7.99 ha (3.5 ha increase)	8.34 ha (0.35 ha increase)	8.79 ha (0.45 ha increase)	8.79 ha (no detectable increase since 2014)	8.79 ha (no detectable increase since 2014)	8.91 ha (0.12 ha increase)	8.91 ha (no detectable increase since 2017)	8.91 ha (no detectable increase since 2017)	8.91 ha (no detectable increase since 2017)	9.30 ha (0.39 ha increase)	9.42 ha (0.12 ha increase)	9.76 ha (0.34 ha increase)	10.09 (0.33 ha increase)
Total native woody vegetation	9.77 ha	14.57 ha	15.07 ha	15.98 ha	15.98 ha	15.98 ha	16.18 ha	16.18 ha	16.18 ha	16.18 ha	16.92 ha	17.05 ha	17.5 ha	17.89 ha



5 Recommendations

The management actions recommended in the BMP are provided in Annex 1. A summary of the management actions implemented throughout 2023-2024, and a qualitative assessment of the outcomes and recommendations for 2025-26 are each described below.

5.1 Fencing and stock management

Description/Requirement – Stock exclusion through the upgrading of existing fences and installation of new fences where required.

Enacted management – New four-strand post and wire fencing was installed in 2011 and stock removed from the offset area (MZ5). The top strand is barbed wire.

Outcome (Spring 2024) – Fencing was intact. No recent evidence of stock in offset areas during field survey.

Recommendations for 2024

1. Continue to ensure integrity of fencing through regular inspections of the site
2. Continue to exclude stock from MZ5.

5.2 Bush regeneration

Description/Requirement – Primary, secondary and maintenance weed management by Toolijooa was conducted between 2011 and 2018 in the MZ5 offset area, and the MZ6 voluntary management area. Since 2019 Landcare Australia (2019) has undertaken primary, secondary and maintenance weed management. In 2024 Landcare Australia undertook primary and maintenance weed management over 10 site visits between January and December (Landcare Australia 2024).

Previous weed species targeted include: Blackberry, African Olive, Lantana, African Boxthorn, Privet, Cape Ivy and a variety of exotic perennial grasses such as African lovegrass, Rhodes grass, Chilean needle grass and Kikuyu.

The weed species identified and targeted in 2024 included: Lantana, African boxthorn, African olive, Blackberry, Cape Ivy, Moth Vine, Asparagus Fern, Brassica, Spear thistle, Fleabane, Purple Broom, Paterson's Curse, Cotton Bush, Scotch Thistle, Pigeon Grass, Paddy's Lucerne and Purpletop.

Enacted management – Landcare Australia was engaged to undertake bush regeneration, completing 34 site visits over the previous 5 years:

- 2020 – 2 July, 10 November, 8 December
- 2021 – 15 January, 25 March, 29 April
- 2022 – 25 January, 24 March, 20 April, 26 May, 22 June, 4 August, 2 September, 19 October, 10 November
- 2023 – 2 February, 15 February, 24 February, 31 March, 14 April, 31 April, 31 May, 19 July, 2 November
- 2024 – 1 March, 28 May, 13 June, 27 August, 29 August, 11 September, 15 November, 28 November, 11 December, 18 December.

Outcome (Spring 2024) – Woody weed density has significantly declined in target areas in the past 12 months. Both MZ5 and MZ6 continue to be impacted by the presence of African Olive and Lantana and to a lesser extent African Boxthorn and Blackberry where no weed treatment has occurred. Herbaceous weed species remain prevalent onsite due to previous land use and windblown seed from surrounding properties. Large infestations of Cape Ivy and Moth Vine are present within the North-Eastern upper forest. These weeds are dramatically



impacting the overall health of the site by shading native shrubs, grasses and canopy species (Landcare Australia 2024)

Recommendations for 2024

1. Continue bush regeneration works to target exotic vine Cape Ivy and Moth Vine within better condition areas, focusing on preventing the spread of these vines to other areas and reducing the growth of vines into trees
2. Ensure that herbaceous weeds and introduced grasses are targeted within woodland areas.
3. Areas which have had large woody weed removal should be followed up to promote native regeneration and ensure herbaceous weeds do not dominate.
4. Targeted treatment of woody weeds, primarily African Olive, Lantana, African Box Thorn and Blackberry, throughout MZ5 and MZ6. Ensure that those areas previously treated are re-inspected and follow up conducted where required.
5. Targeted removal of Chilean Needle Grass, which has previously been found dominating in parts of the pasture areas surrounding the woodland.
6. Ensure bush regeneration company staff are familiar with *Pimelea spicata* so as to identify and avoid individuals during bush regeneration activities, especially weed spraying.
7. Selectively remove/trim areas of Native Blackthorn thicket surrounding eucalypts. This will help reduce the Bell Miner population from returning.
8. Consult with a suitably qualified bush regeneration company to develop a management plan for the thinning of Native Blackthorn thickets and increasing native diversity in MZ5 and MZ6 areas via tubestock planting and/or direct seeding.

5.3 Monitoring of native vegetation and *Pimelea spicata*

Description/Requirement – Design a program to determine the success of management or the need for intervention including assessment of improvement in the condition of native vegetation, annual *Pimelea spicata* population counts, assessment of species and habitat condition and monitoring against stochastic environmental events.

Enacted management – Niche was engaged to develop and implement a monitoring strategy. The methodology is based on the BioBanking Assessment Methodology (DECCW 2014) (now modified to be consistent with the Biodiversity Assessment Method (DPIE 2020), photographic records and formalised *Pimelea spicata* population counts.

Outcome (Spring 2024) – Monitoring of native vegetation was undertaken in November and December 2024, using four of the original five fixed BAM plots in MZ5, and two of the original five fixed BAM plot in MZ6 and a number of photo points. Weed control is required in 2025 to reduce exotic species cover.

Monitoring of *Pimelea spicata* was conducted in October 2021, using five fixed monitoring plots established in 2012. There has been a significant increase in the estimated population of *Pimelea spicata*, however individual monitoring plots have historically showed a fluctuation in counts.

Recommendations for future monitoring

1. Conduct the next monitoring of native vegetation in Spring 2025.
2. Conduct the population census during next monitoring of *Pimelea spicata* during the species flowering period (October-November) in 2026.
3. Maintain annual presence/absence and stem count monitoring for *Pimelea spicata* within BAM plots, and continue opportunistic observations of the presence and spread of the species throughout the offset area.
4. Ensure the bush regeneration company staff are familiar with *Pimelea spicata* so as to identify and avoid individuals during bush regeneration activities, especially weed spraying.



6 Conclusion

The aim of this report was to demonstrate the results of the on-going management actions at the offset area (MZ5) and voluntary management area (MZ6) associated with the Appin Ventilation Shaft Site No.6.

The offset area requires an on-going commitment to weed management and ecological restoration in order to reach a benchmark state and successfully achieve and improve or maintain outcome for biodiversity.

Recommendations for future adaptive management and monitoring of the management zones include:

1. Continue to ensure integrity of fencing through regular inspections.
2. Continue to ensure stock remains excluded from MZ5 in order to ensure the recovery and conservation of the *Pimelea spicata* population.
3. Continue to target woody and vine weeds within better condition areas, beneath driplines of large trees and adjacent to regenerating overstorey plants.
4. Conduct herbaceous weed and introduced grass management within areas of woodland and immediate surrounds.
5. Continue targeted spraying of Blackberry (or other recommended treatment) throughout site. This includes re-visiting areas that have been previously treated to ensure treatment has been effective.
6. Consider management actions to reduce the Bell Miner colony which seems to be having an impact on mature overstorey. This would involve initially undertaking primary weed control works surrounding areas of woodland, or where emergent canopy species occur within Native Blackthorn thicket. First removing all woody weeds, including African Olive and African Boxthorn; then thinning areas of Native Blackthorn.
7. Consider feral herbivore control (rabbits), as evidence of rabbit occupation within *Pimelea spicata* habitat has been observed.
8. Ensure bush regeneration staff are familiar with the identification of *Pimelea spicata*.
9. Maintain the timing of annual vegetation monitoring surveys to late October - early December such that the data collected for the species richness and native ground-cover attributes are optimised.
10. Consult with NSW DCCEEW and a suitably qualified bush regeneration company to develop a management plan for the thinning of Native Blackthorn thickets and increasing native diversity in MZ5 and MZ6 areas via tubestock planting and/or direct seeding.

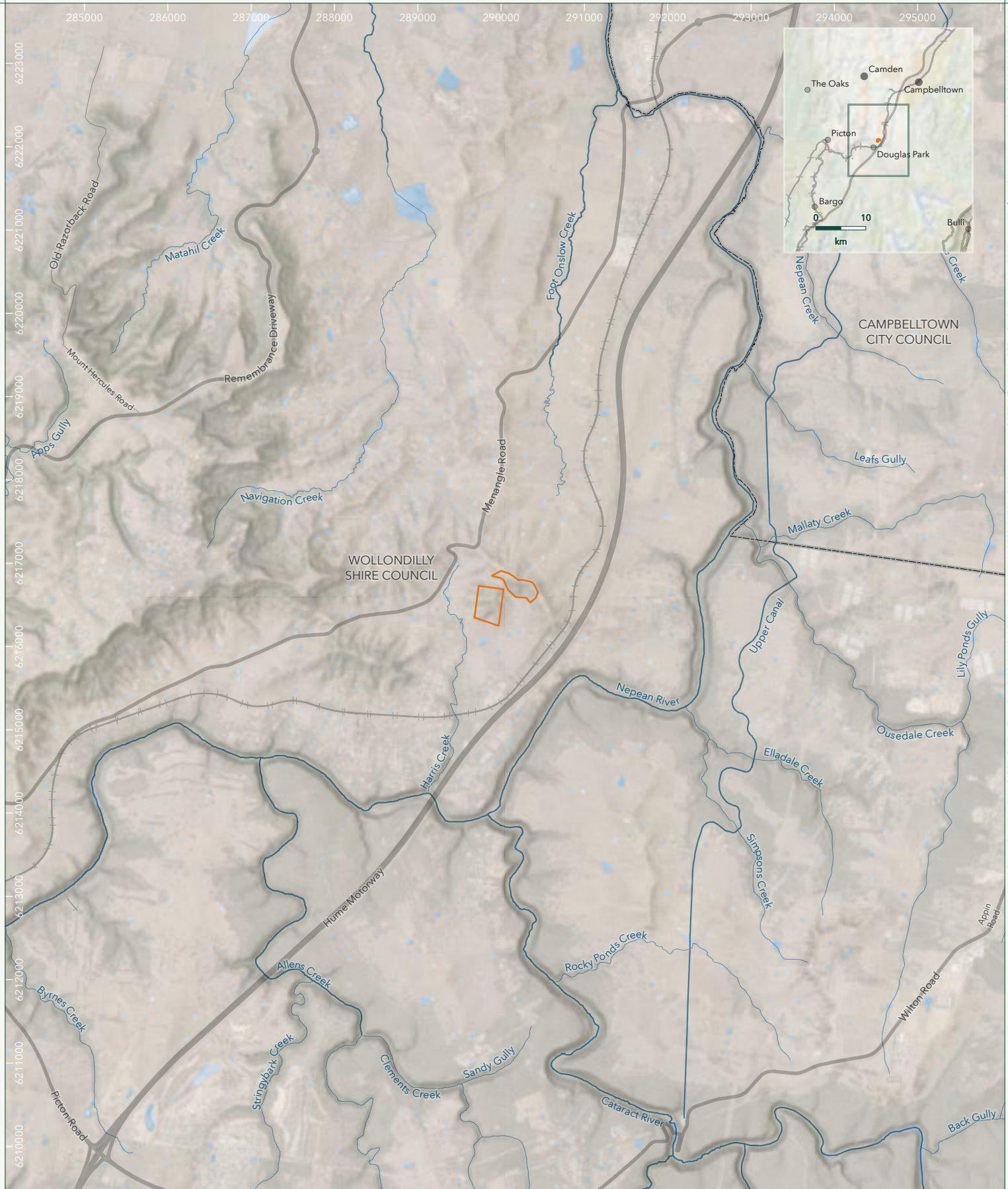


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Figures



 Management zone
 Transport
 Major road

 Minor road
 Rail

Hydrography
 Perennial Stream
 Non Perennial Stream

 Waterbody
Administrative and Property Boundaries
 Local Government Area

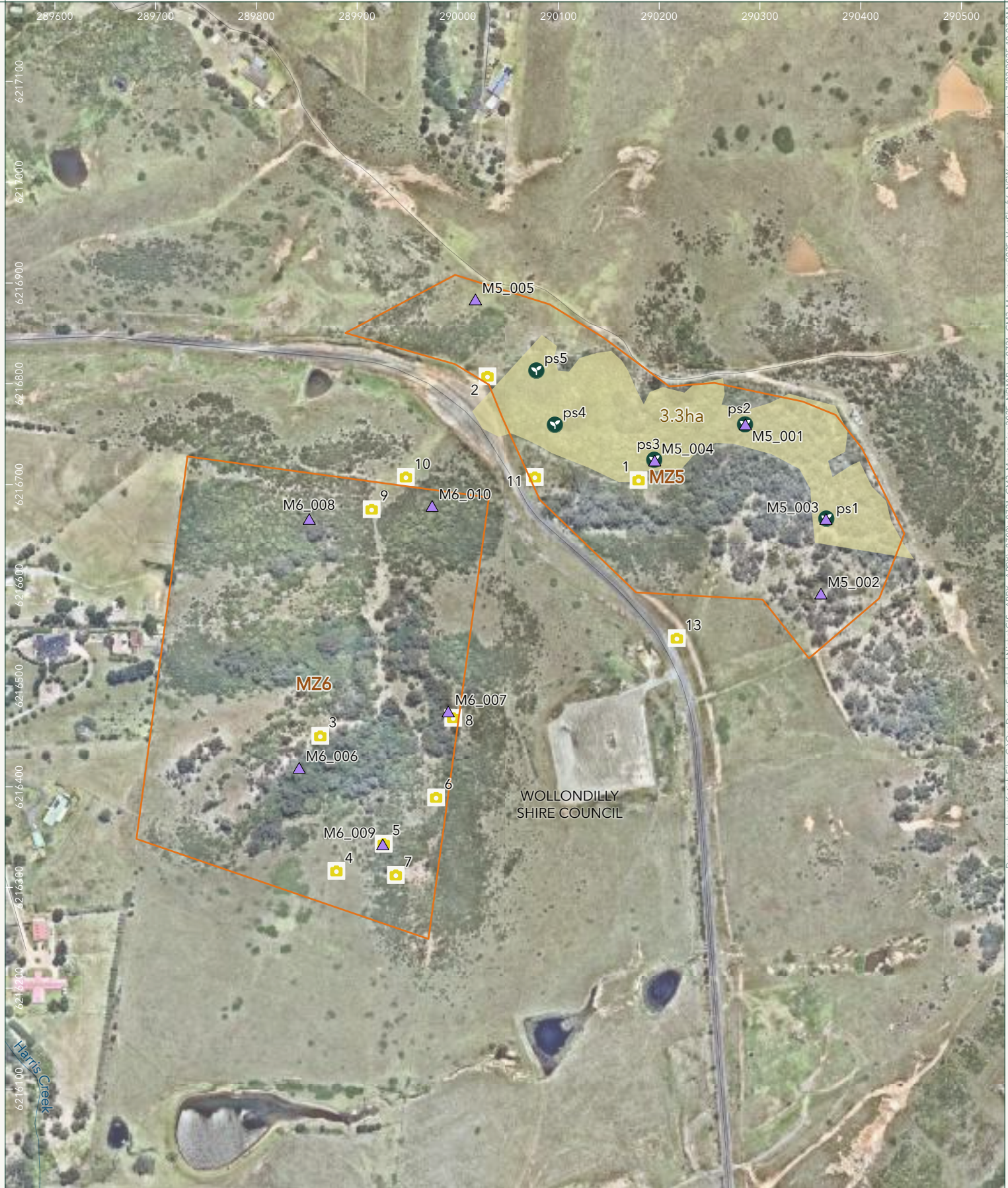


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 GDA2020 MGA Zone 56



Figure 1
Location Map
 VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3



- ▭ Management zone
- ▭ Pimelea spicata habitat zone
- Pimelea spicata count location
- ▴ Monitoring plot
- ▣ Photo monitoring point
- ▭ Minor road

Hydrography

— Non Perennial Stream

Administrative and Property Boundaries

▭ Local Government Area

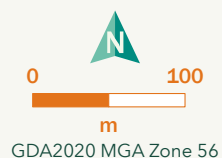
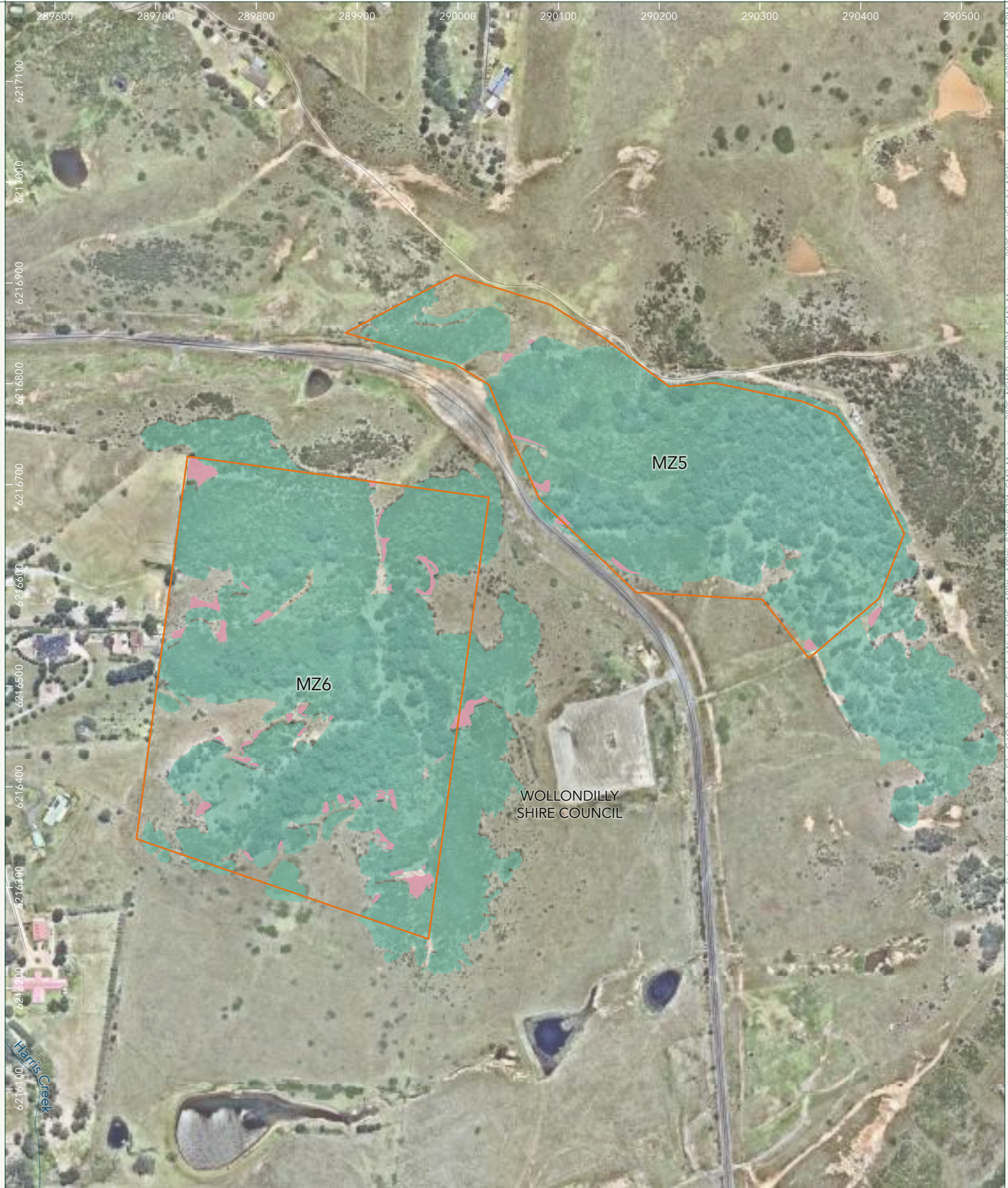


Figure 2
Monitoring locations
VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
Niche Proj. #: 8721
Client: ICHPL - GM3



 Management zone	Transport
 Increased vegetation extent 2024	 Minor road
 Total vegetation extent 2024	Hydrography
	 Non Perennial Stream

- Administrative and Property Boundaries**
-  Local Government Area

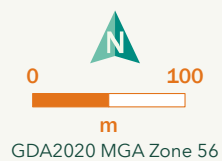


Figure 3

Increased vegetation extent 2023 to 2024

VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
Niche Proj. #: 8721
Client: ICHPL - GM3



Annex 1: Management actions, performance criteria, corrective actions and timeframes

Action	Description	Performance target (milestones)	Corrective actions	Timeframe
MZ5 and MZ6 Fencing	The first action within the offset area will be to exclude stock. Existing four-strand post-and-wire fence will be utilised and additional fencing installed where required. No barbed wire will be used and the bottom strand will have a clearance of 400mm above the ground to allow the movement of native fauna. Stock will be herded out of the area prior to fencing taking place.	Four-strand post-and-wire fence has been installed, no strands barbed and 400 mm separation from ground to lowest strand.	Maintenance of fencing – fencing to be inspected at regular intervals and repairs made as required.	Every 3 months
Bush Regeneration in MZ5	Primary, secondary and maintenance weed management within MZ5 will target the treatment of Blackberry, African Olive, Lantana, African Boxthorn, Privet, Cape Ivy and a variety of exotic perennial grasses including African lovegrass, Rhodes Grass, Kikuyu and Couch.	Engagement of a suitably qualified bush regeneration contractor to implement primary, secondary and maintenance weed management program has occurred.	On-ground weed management regime to be adaptable and able to respond to changing conditions and weed problems. Given that the offset area has an intact soil profile and moderate resilience, sound bush regeneration methods and observance of integrated pest	Annually



Action	Description	Performance target (milestones)	Corrective actions	Timeframe
	All weed management works will be supervised by a suitably qualified bush regenerator. A team of four bush regenerators will be engaged for five days for the primary weeding and then a team of two for one day every four months thereafter for secondary and maintenance weed management as required.	Annual vegetation condition assessment has commenced. Improvement in condition of offset bushland to within, or as near as possible to, benchmark condition levels – on-going.	management should minimise the need for corrective actions. Weed management program in offset area to be annually reviewed and altered actions documented and implemented. Revegetation with locally collected native vegetation of local genetic stock as recommended by an appropriately qualified expert.	
<i>Pimelea spicata</i> Monitoring program	Design a program to determine the success of management or the need for intervention. Annual population counts within permanent plots. Five yearly population census. Condition of individual plants from mixed cohorts. Condition of habitat. Annual inspections of fencing to ensure maintenance and up-keep. Regular site visits to check for presence of stock and/or feral	Sustainable <i>Pimelea spicata</i> population with population numbers staying level with or exceeding current numbers.	Annual count trigger for intervention is significant loss of population (>20% of monitored population plots over two consecutive years). Response: undertake full scale census. Stochastic events (such as one off fire events) will reset the baseline population size which will be determined after a population census immediately following the event and then again at six, 12, 18 and 24 months post disturbance. Five yearly population census trigger for intervention is:	Annually as part of the fixed plot vegetation monitoring and population census undertaken every five years



Action	Description	Performance target (milestones)	Corrective actions	Timeframe
	herbivores that have breached fencing to ensure that such impact is eliminated by fencing and that trapped stock or feral herbivores are freed. Monitoring against stochastic events.		– >35% decline in population from preceding census; or – Two consecutive (over two census') declines of >20%; or – Area of occupancy is mapped at 50% or lower than originally mapped. Intervention Actions: – Stop regeneration works – Consult with experts (Australian Botanic Garden Mt Annan). – Implement actions as recommended by experts; additional actions may include slashing of competing native grasses, thinning of competing native shrubs or trees (e.g., Native Blackthorn), ecological burning or resting of weed management until the population stabilises. Crash grazing should only be utilised as a last resort. In emergency	



Action	Description	Performance target (milestones)	Corrective actions	Timeframe
			situations, plant rescue and re-introduction may be required.	
Bush Regeneration in MZ6	Weed management within MZ6 will target the treatment of Blackberry, African Olive, Lantana, African Boxthorn, Privet, Cape Ivy and a variety of exotic perennial grasses such as African Lovegrass, Rhodes Grass, Kikuyu and Couch. All weed management works will be supervised by a suitably qualified bush regenerator.	Engagement of a suitably qualified bush regeneration contractor to implement weed management program has occurred. Improvement in condition of offset bushland to within, or as near as possible to, benchmark condition levels – on-going.	On-ground weed management regime to be adaptable and able to respond to changing conditions and weed problems. Given that the native vegetation areas have an intact soil profile and moderate resilience, sound bush regeneration methods and observance of integrated pest management the need for corrective actions should be minimal. Weed management program in native vegetation area to be annually reviewed and altered actions documented and implemented.	Annually



Annex 2: Plant species list (2024)

Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Anagallis arvensis</i> *	0.1	30	0.2	100	0.1	20	0.2	100	0.2	50	5	1000
<i>Angophora floribunda</i>									10	1		
<i>Araujia sericifera</i> *	0.2	10										
<i>Aristida ramosa</i>									5	50		
<i>Avena barbata</i> *							0.3	10				
<i>Bidens pilosa</i> *											0.1	5
<i>Bothriochloa macra</i>			0.1	10			2	100			0.5	30
<i>Brachypodium distachyon</i> *							0.5	100				
<i>Brachyscome</i> spp.									0.1	20		
<i>Briza minor</i> *			0.1	5								
<i>Briza subaristata</i> *							0.1	10				



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Bromus catharticus</i> *							0.5	50				
<i>Bromus diandrus</i> *							5	100	0.5	20		
<i>Bromus hordeaceus</i> *											6	200
<i>Brunoniella australis</i>			0.1	20	0.1	5			0.3	50		
<i>Bursaria spinosa</i>	75	100	50	30	35	30	0.5	1	20	50	35	20
<i>Calotis cuneifolia</i>									0.1	20		
<i>Calotis lappulacea</i>									0.3	50		
<i>Carex inversa</i>							0.2	50				
<i>Centaurium erythraea</i> *	0.1	20	0.1	100	0.1	20	0.1	50	0.1	20	0.5	100
<i>Cheilanthes sieberi</i>									0.2	50		
<i>Chloris ventricosa</i>									5	30		
<i>Cirsium vulgare</i> *	0.1	5	0.3	30	0.1	5	2	50	0.1	1	0.1	10
<i>Clematis aristata</i>	0.3	30							0.1	1		
<i>Convolvulus erubescens</i>			0.1	10							0.1	20



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Conyza bonariensis</i> *							0.2	50	0.1	20	0.5	50
<i>Crassula sieberiana</i>									0.1	10		
<i>Cyclospermum leptophyllum</i> *			0.1	10	0.1	5	0.1	5				
<i>Cynodon dactylon</i>									0.5	50	2	100
<i>Cyperus gracilis</i>									2	200	0.1	5
<i>Dactylis glomerata</i> *											0.1	2
<i>Delairea odorata</i> *	5	50			8	100						
<i>Dichelachne micrantha</i>			1	100							1	50
<i>Dichelachne rara</i>	0.2	30			0.3	30	0.3	30				
<i>Dichondra repens</i>	0.2	100	0.5	1000	0.2	100	0.1	50	0.3	100	0.2	100
<i>Echinopogon ovatus</i>	0.1	10			0.1	10						
<i>Ehrharta erecta</i> *	0.2	20			0.1	10						
<i>Einadia nutans</i>					0.1	10			0.3	500		



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Elymus scaber</i>											5	100
<i>Eragrostis brownii</i>					0.1	5			5	200		
<i>Eragrostis spp.</i>					0.1	10						
<i>Eucalyptus crebra</i>									20	0		
<i>Eucalyptus moluccana</i>					5	5			15	20		
<i>Eucalyptus tereticornis</i>	30	10	5	2	35	15						
<i>Euchiton sphaericus</i>									0.1	10		
<i>Galium gaudichaudii</i>			0.1	20			0.1	10			0.5	100
<i>Gamochaeta subfalcata</i> *							0.1	2				
<i>Geranium solanderi</i>							0.1	2				
<i>Glycine tabacina</i>	0.1	100	0.1	50	0.1	30	0.1	10	0.3	100	5	500
<i>Gomphocarpus physocarpus</i> *							0.1	2				
<i>Goodenia paniculata</i>	0.1	5										



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Hypericum gramineum</i>			0.1	200							0.2	100
<i>Hypochaeris radicata</i> *	0.1	5	0.1	30							0.1	10
<i>Lantana camara</i> *									0.5	10		
<i>Lepidium virginicum</i> *									0.1	10		
<i>Linum trigynum</i> *	0.1	10	0.1	100	0.1	20	0.1	20	0.1	10	0.3	200
<i>Lolium rigidum</i> *			0.2	30			0.3	50			0.3	50
<i>Lycium ferocissimum</i> *	0.5	10							1	2		
<i>Medicago lupulina</i> *			0.1	50								
<i>Microlaena stipoides</i>	3	100	80	5000	70	5000	35	1000	25	500	30	1000
<i>Nassella neesiana</i> *							0.2	20			2	100
<i>Olea europaea</i> *	10	100	0.3	30	15	100			10	10	10	5
<i>Opismenus imbecillis</i>	10	1000			1	200			0.1	10		
<i>Opuntia stricta</i> *					0.2	5						
<i>Oxalis perennans</i>	0.1	5	0.1	30	0.1	50	0.1	10	0.3	200	0.5	200



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Paronychia brasiliiana</i> *									0.1	20		
<i>Paspalum dilatatum</i> *			0.1	1			10	200			0.5	50
<i>Pennisetum clandestinus</i> *							10	500				
<i>Pimelea spicata</i>			0.1	10								
<i>Plantago lanceolata</i> *			0.3	200			0.5	200	0.1	10	10	1000
<i>Poranthera microphylla</i>			0.1	5								
<i>Romulea rosea</i> *			0.1	1					0.1	1		
<i>Rubus fruticosus</i> *			0.5	20			2	2				
<i>Rumex brownii</i>					0.1	2	0.1	2				
<i>Rytidosperma racemosum</i>							15	500	15	100		
<i>Rytidosperma spp.</i>			0.5	50							5	100
<i>Senecio madagascariensis</i> *			0.1	5			0.2	30	0.1	20	0.1	20
<i>Senecio pterophorus</i> *									0.1	5		
<i>Setaria parviflora</i> *											0.1	10



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Sida corrugata</i>			0.1	20					0.2	50	0.1	10
<i>Sida corrugata</i> *	0.2	30	0.5	30	0.5	100	1	50	0.5	20	0.5	20
<i>Sida rhombifolia</i>	0.1	10			0.1	30						
<i>Sida rhombifolia</i> *											0.1	2
<i>Sigesbeckia orientalis</i>	0.1	5			0.1	10						
<i>Solanum nigrum</i>							0.2	1				
<i>Solanum prinophyllum</i>											0.1	5
<i>Solanum prinophyllum</i> *			0.1	5			0.1	5				
<i>Solanum sisymbriifolium</i> *	0.1	2					0.5	20				
<i>Sonchus asper</i> *											0.3	20
<i>Sonchus oleraceus</i> *	0.3	30	10	200			5	100				
<i>Sporobolus africanus</i> *	0.1	5	0.1	10	0.1	5	0.3	50	0.1	5	3	100
<i>Sporobolus creber</i>											0.2	50
<i>Themeda triandra</i>	0.3	100			0.1	5						



Species Name	MZ5_001		MZ5_002		MZ5_003		MZ5_005		MZ6_006		MZ6_009	
	C	A	C	A	C	A	C	A	C	A	C	A
<i>Verbena bonariensis</i> *							2	100				
<i>Verbena rigida</i> *											5	200
<i>Veronica plebeia</i>									0.1	10		

*exotic species



Annex 3: BAM and BBAM plots (raw data)

Woodland

MZ5 offset area and MZ6 voluntary management area woodland plot comparison.

Table 8: Comparison of woodland plots to PCT benchmarks in MZ5 and MZ6 (2017-2024)

Plot	Composition (Richness)						Structure (Cover)						Function				
	T	S	G	F	FE	O	T	S	G	F	FE	O	HBT	NLT	LC	FL	HTW
PCT 850 Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	-	3	35	40	0
MZ5																	
MZ5_001 (2024)	1	1	5	6	0	2	30	75	13.6	0.9	0	0.4	0	0	73	16	15.9
MZ5_002 (2024)	1	2	5	7	0	2	5	50.1	91.6	1.1	0	0.2	0	1	13.6	5	1.1
MZ5_003 (2024)	2	1	6	8	0	1	40	35	71.6	0.9	0	0.1	0	2	13	4	23.3
2024 Average	1.3	1.3	5.3	7.0	0	1.7	25.0	53.4	58.9	1.0	0.0	0.2	0	1.0	33.2	8.3	13.4
MZ5_001 (2023)	1	1	4	3	1	1	30	55	2.1	0.3	0.1	1	0	0	80	10	20.3
MZ5_002 (2023)	1	2	4	5	0	1	5	50.1	91.1	0.7	0	0.1	0	0	21	14	1.2
MZ5_003 (2023)	2	1	4	2	0	1	40	30	70.5	0.3	0	0.1	0	1	63	4	20.1
2023 Average	1.3	1.3	4.0	3.3	0.3	1.0	25	45.0	54.6	0.4	0.0	0.4	0	0.3	54.7	9.3	13.9
MZ5_001 (2022)	1	2	4	7	0	2	30	55.5	12	0.8	0	1.5	1	1	60	45	20.4
MZ5_002 (2022)	1	2	6	4	0	1	5	50.1	91.8	0.8	0	0.1	1	2	8.2	10	1.8
MZ5_003 (2022)	2	1	5	4	0	1	40	30	71.5	1.4	0	0.1	1	2	8	3	20.2



Plot	Composition (Richness)						Structure (Cover)						Function				
	T	S	G	F	FE	O	T	S	G	F	FE	O	HBT	NLT	LC	FL	HTW
PCT 850 Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	-	3	35	40	0
2022 Average	1.3	1.7	5.0	5.0	0.0	1.3	25.0	45.2	58.4	1.0	0.0	0.6	1	1.7	25.4	19.3	14.1
MZ5_001 (2021)	1	1	0	4	0	2	5	0.1	0	0.4	0	0.2	0	0	88	5	2.1
MZ5_002 (2021)	3	2	4	9	0	2	14	15.1	30.4	9	0	0.2	1	0	5.4	15	0.3
MZ5_003 (2021)	2	2	4	9	0	2	18	35.3	12.3	17.4	0	0.3	0	1	14	4	5.8
2021 Average	2	1.7	2.7	7.3	0	2	12.3	16.8	14.2	8.9	0	0.2	0.3	0.3	35.8	8	2.7
MZ5_001 (2020)	2	1	2	5	1	3	17	55	5.5	3.3	0.1	1.3	-	1	32	12	10.2
MZ5_002 (2020)	1	1	4	3	0	2	0.5	5	31.5	0.3	0	0.2	-	1	15	3	0.6
MZ5_003 (2020)	2	2	1	4	0	3	20	12	7	2.1	0	0.3	-	2	19	6	13.2
2020 Average	1.6	1.3	2.3	4	0.3	2.6	12.5	24	14.7	1.9	0.03	0.6	-	1.3	22	7	8
MZ5_001 (2019)	2	2	4	8	0	3	37	45.1	7.1	2.8	0	1.2	-	1	52	8	8.6
MZ5_002 (2019)	1	1	5	3	0	1	10	15	21	0.4	0	0.1	-	0	43	0	5
MZ5_003 (2019)	2	1	3	6	0	2	25	20	20	5.7	0	0.2	-	2	36	3	5.7
2019 Average	1.6	1.3	4	5.6	0	2	24	26.7	16	2.9	0	0.5	-	1	43.6	3.6	6.4
MZ5_001 (2018)	1	2	4	12	0	4	20	45.1	10.6	4.1	0	1.3	-	1	87	36	10.1
MZ5_002 (2018)	2	1	5	8	0	4	15	15	46.5	1.4	0	0.4	-	0	37	2	1
MZ5_003 (2018)	2	2	2	10	0	5	23	15.1	15	6.1	0	0.9	-	1	38	0	3
2018 Average	1.7	1.7	3.7	10.0	0.0	4.3	19.3	25.1	24.0	3.9	0.0	0.9	-	0.7	54.0	12.7	4.7



Plot	Composition (Richness)						Structure (Cover)						Function				
	T	S	G	F	FE	O	T	S	G	F	FE	O	HBT	NLT	LC	FL	HTW
PCT 850 Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	-	3	35	40	0
MZ5_001 (2017)	2	2	6	9	0	4	20	40.1	25.6	4.1	0	0.5	-	1	56	8	5.2
MZ5_002 (2017)	2	1	5	8	0	3	16	10	27.1	1.2	0	0.3	-	0	22	1	17
MZ5_003 (2017)	2	2	2	8	0	4	17	9.1	20.5	7.3	0	0.8	-	1	64	3	4.5
2017 Average	2.0	1.7	4.3	8.3	0.0	3.7	17.7	19.7	24.4	4.2	0.0	0.5	-	0.7	47.3	4.0	8.9
MZ6																	
MZ6_006 (2024)	3	1	8	11	1	2	45	20	57.6	2.2	0.2	0.4	3	2	49	22	12.2
MZ6_007 (2024)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZ6_008 (2024)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2024 Average	3	1	8	11	1	2	45	20	57.6	2.2	0.2	0.4	3	2	49	22	12.2
MZ6_006 (2023)	3	1	7	2	0	1	45	20	42.4	0.2	0	0.1	3	2	58	15	19.6
MZ6_007 (2023)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZ6_008 (2023)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2023 Average	3	1	7	2	0	1	45	20	42.4	0.2	0	0.1	3	2	58	15	19.6
MZ6_006 (2022)	3	1	10	5	0	1	45	20	58.1	5.4	0	0.1	1	4	43	11	16.9
MZ6_007 (2022)	1	1	5	3	0	2	25	5	5.8	0.3	0	0.2	1	6	100	5	96.3
MZ6_008 (2022)	1	2	6	6	0	2	25	15	12.2	1.5	0	0.3	0	1	100	2	25.5
2022 Average	1.7	1.3	7.0	4.7	0.0	1.7	31.7	13.3	25.4	2.4	0.0	0.2	0.7	3.7	81.0	6.0	46.2



Plot	Composition (Richness)						Structure (Cover)						Function				
	T	S	G	F	FE	O	T	S	G	F	FE	O	HBT	NLT	LC	FL	HTW
PCT 850 Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	-	3	35	40	0
MZ6_006 (2021)	4	1	1	6	0	3	26	10	0.1	0.7	0	0.5	0	1	4.6	0	20.4
MZ6_007 (2021)	1	1	8	8	0	2	30	8	19.6	11.4	0	2.1	1	1	2.6	35	7.5
MZ6_008 (2021)	1	3	7	15	1	5	20	36	2.8	3.4	0.2	0.6	0	1	45.4	0	25.3
2021 Average	2	1.7	5.3	9.7	0.3	3.3	25.3	18	7.5	5.2	0.1	1.1	1	1	17.5	11.7	17.7
MZ6_006 (2020)	1	2	3	4	1	4	41	5.1	0.9	0.5	0.1	0.5	-	2	18	20	37
MZ6_007 (2020)	1	1	5	3	0	2	45	5	1.9	0.4	0	0.3	-	8	35	17	51.1
MZ6_008 (2020)	1	2	4	6	1	2	20	75	0.9	0.9	0.1	0.2	-	1	10	0	35.2
2020 Average	1.0	1.7	4.0	4.3	0.7	2.7	35.3	28.4	1.2	0.6	0.1	0.3	-	3.7	21.0	12.3	41.1
MZ6_006 (2019)	2	1	4	8	0	0	25	50	55.1	4.1	0	0	-	2	39	7	1
MZ6_007 (2019)	1	1	4	4	0	0	50	10	12.5	6.2	0	0	-	2	97.4	0	75
MZ6_008 (2019)	1	2	6	3	0	1	15	30	45.8	5.6	0	0.1	-	1	62	0	19.4
2019 Average	1.3	1.3	4.6	5	0	0.3	30	30	37.8	5.3	0	0.1	-	1.6	66.1	2.3	31.8
MZ6_006 (2018)	4	1	5	11	0	3	23	20	12.6	5.7	0	0.3	-	2	71	24	6
MZ6_007 (2018)	1	1	2	7	0	2	20	12	9	2.8	0	0.2	-	3	77	50	20.4
MZ6_008 (2018)	1	2	5	11	0	5	10	53	18.6	4.7	0	0.9	-	1	75	8	2.6
2018 Average	2.0	1.3	4.0	9.7	0.0	3.3	17.7	28.3	13.4	4.4	0.0	0.5	-	2.0	74.3	27.3	9.7
MZ6_006 (2017)	3	1	6	10	0	2	19	15	24.1	4.2	0	0.3	-	2	52	18	7.2



Plot	Composition (Richness)						Structure (Cover)						Function				
	T	S	G	F	FE	O	T	S	G	F	FE	O	HBT	NLT	LC	FL	HTW
PCT 850 Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	-	3	35	40	0
MZ6_007 (2017)	1	1	7	6	0	4	20	25	18.3	7.4	0	0.4	-	6	48	51	15.9
MZ6_008 (2017)	1	2	8	11	0	4	10	50	21.4	4.2	0	0.5	-	1	61	4	4.2
2017 Average	1.7	1.3	7.0	9.0	0.0	3.3	16.3	30.0	21.3	5.3	0.0	0.4	-	3.0	53.7	24.3	9.1

Note: T - Tree, S - Shrub, G - Grass and grass-like, F - Forb, Fe - Fern, O - Other, HBT - Hollow Bearing Tree, NLT - Number of Large Trees, LC - Litter Cover, FL - Fallen Logs, HTW - High Threat Weed



Table 9: Comparison of woodland plots to BVT benchmarks (2012-2016)

Plot	NPS	NOS		NMS		NGCG		NGCS		NGCO		EPC	NTH	OR	FL
		L	U	L	U	L	U	L	U	L	U				
Benchmark	29	18.5	23.5	20	30	23	31	0	5	11.75	19.75	0	0	1	0
MZ5															
MZ5_001 (2016)	22		3.5		26		44		28		22	24	1	1	37
MZ5_002 (2016)	17		6		1.2		94		8		8	24	1	1	2
MZ5_003 (2016)	23		0.5		17.5		76		4		8	16	1	1	10
Average 2016	21		3.3		14.9		71.3		13.3		12.7	21.3	1	1	16.3
MZ5_001 (2015)	24		1		41.5		92		10		4	56	1	1	15
MZ5_002 (2015)	20		4.5		1.5		86		2		18	36	1	1	0
MZ5_003 (2015)	23		0.5		22.5		68		16		6	64	1	1	8
Average 2015	22		2.0		21.8		82.0		9.3		9.3	52.0	1.	1	7.7
MZ5_001 (2014)	21		0		62.5		26		26		6	10	1	1	12
MZ5_002 (2014)	17		7.5		0		78		2		0	12	1	1	3
MZ5_003 (2014)	16		30		53		22		28		9	14	2	1	0
Average 2014	18		12.5		38.5		42		18.5		5	12	1	1	5
MZ5_001 (2013)	12		9		20.5		58		10		42	39	1	1	12
MZ5_002 (2013)	18		2		1.5		82		0		30	44	1	1	6
MZ5_003 (2013)	17		24		3		6		2		16	23	2	1	0
Average 2013	16		11.6		8.3		48		4		29	35	1	1	6



Plot	NPS	NOS		NMS		NGCG		NGCS		NGCO		EPC	NTH	OR	FL
		L	U	L	U	L	U	L	U	L	U				
Benchmark	29	18.5	23.5	20	30	23	31	0	5	11.75	19.75	0	0	1	0
MZ5_001 (2012)	17		5.5		24		66		8		50	24	1	1	8
MZ5_002 (2012)	18		6.5		3		92		2		18	50	1	1	6
MZ5_003 (2012)	21		22.5		1		3.8		3.4		12	6	2	1	0
Average 2012	19		11.5		9.3		53.9		4.5		26.6	26.6	1	4.6	4.6
MZ6															
MZ6_006 (2016)	23		10		15		88		16		20	24	6	1	32
MZ6_007 (2016)	16		16		10		36		20		4	64	8	1	70
MZ6_008 (2016)	24		10.5		30		70		14		16	30	1	1	10
Average (2016)	21		12.2		18.3		64.7		16.7		13.3	39.3	5	1	37.3
MZ6_006 (2015)	16		0		60		85		0		6	50	1	0	0
MZ6_007 (2015)	18		16		7.5		26		16		10	42	4	1	40
MZ6_008 (2015)	14		8.5		13.5		76		12		6	64	1	1	8
Average (2015)	16		8		27		62		9		7	52	2	1	16
MZ6_006 (2014)	27		18		8		60		6		30	48	2	1	16
MZ6_007 (2014)	21		17		0		26		16		24	16	4	1	10
MZ6_008 (2014)	17		8		16		50		0		16	44	1	1	8
Average 2014	21		14		8		45		7		23	36	2	1	11



Plot	NPS	NOS		NMS		NGCG		NGCS		NGCO		EPC	NTH	OR	FL
		L	U	L	U	L	U	L	U	L	U				
Benchmark	29	18.5	23.5	20	30	23	31	0	5	11.75	19.75	0	0	1	0
MZ6_006 (2013)	22		26		16		90		2		30	34	2	1	22
MZ6_007 (2013)	20		22		0		22		12		16	44	4	1	20
MZ6_008 (2013)	18		12		12		60		12		18	34	1	1	10
Average (2013)	20		20		9.3		57.3		8.6		21.3	37.3	2.3	1	17.3
MZ6_006 (2012)	20		26.5		10.5		82		4		44	42	2	1	22
MZ6_007 (2012)	18		34.5		0		8		18		6	14	4	1	14
MZ6_008 (2012)	22		18		10		72		0		22	52	1	1	8
Average (2012)	20		26.3		6.8		54.0		7.3		24	36	2.3	1	14.6

Note: NPS - Native Plant Species richness, NOS - Native Over-storey cover, NMS - Native Mid-storey cover, NGCG - Native Ground Cover (grasses), NGCS - Native Ground Cover (shrubs), NGCO - Native Ground Cover (other), EPC - Exotic Plant Cover, NTH - Number of Trees with Hollows, OR - Over-storey Regeneration, FL - Length of Fallen Logs. L - Lower Benchmark, U - Upper Benchmark



Native Blackthorn thicket

MZ5 offset area and MZ6 voluntary management area Native Blackthorn thicket plot comparison.

Table 10: Comparison of Native Blackthorn thicket plots to PCT benchmarks (2017-2024)

Plot	Composition (Richness)						Structure (Cover)						Function			
	T	S	G	F	FE	O	T	S	G	F	FE	O	NLT	LC	FL	HTW
Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	3	35	40	0
MZ5																
MZ5_004 (2024)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZ5_004 (2023)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZ5_004 (2022)	0	3	7	5	0	3	0.0	70.2	25.5	0.6	0.0	0.3	0	23.6	0	40.9
MZ5_004 (2021)	0	1	3	6	0	2	0	0.2	25.1	0.7	0	0.4	0	4.4	0	5.2
MZ5_004 (2020)	0	3	4	4	0	3	0	55.2	20.6	0.5	0	0.3	0	10	0	16
MZ5_004 (2019)	0	3	4	5	0	3	0	70.2	20.3	1	0	0.3	0	45	0	30.1
MZ5_004 (2018)	0	2	6	7	0	5	0	66	31	0.9	0	0.5	0	52	0	26.1
MZ5_004 (2017)	0	2	6	7	0	4	0	42	29.1	2.7	0	0.4	0	40	0	10.1
MZ6																
MZ6_010 (2024)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZ6_010 (2023)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MZ6_010 (2022)	0	1	2	3	0	1	0.0	60.0	20.0	0.3	0.0	0.1	0	40	0	40.1
MZ6_010 (2021)	0	1	5	6	1	5	0	68	0.6	0.7	0.1	0.5	0	12	0	20.3
MZ6_010 (2020)	0	1	4	3	0	4	0	65	5.4	1.3	0	0.4	0	6	0	40.1



Plot	Composition (Richness)						Structure (Cover)						Function			
	T	S	G	F	FE	O	T	S	G	F	FE	O	NLT	LC	FL	HTW
Benchmark	5	8	12	15	2	5	52	18	61	10	1	5	3	35	40	0
MZ6_010 (2019)	0	1	7	3	0	3	0	60	65.2	0.6	0	0.3	0	68	0	30.2
MZ6_010 (2018)	0	1	4	6	0	4	0	60	11.2	1.9	0	0.4	0	50	0	15.2
MZ6_010 (2017)	0	1	3	5	0	5	0	45	19.1	7.3	0	0.6	0	39	0	10.1

Note: T - Tree, S - Shrub, G - Grass and grass-like, F - Forb, Fe - Fern, O - Other, NLT - Number of Large Trees, LC - Litter Cover, FL - Fallen Logs, HTW - High Threat Weed



Table 11: Comparison of Native Blackthorn thicket plots to BVT benchmarks (2012-2016)

Plot	NPS	NOS		NMS		NGCG		NGCS		NGCO		EPC	NTH	OR	FL
		L	U	L	U	L	U	L	U	L	U				
Benchmark	29	18.5	23.5	20	30	23	31	0	5	11.75	19.75	0	0	1	0
MZ5															
MZ5_004 (2016)	16		0		37.5		80		4		24	18	0	0	0
MZ5_004 (2015)	16		0		45		75		5		20	25	0	0	0
MZ5_004 (2014)	18		0		20		70		28		22	55	0	0	0
MZ5_004 (2013)	15		0		18		84		22		24	55	0	0	0
MZ5_004 (2012)	18		0		11		82		26		32	67	0	0	0
MZ6															
MZ6_010 (2016)	18		0		60		65		10		8	60	0	1	0
MZ6_010 (2015)	10		12		10.5		74		20		2	38	3	1	15
MZ6_010 (2014)	18		0		50		54		2		32	28	0	0	0
MZ6_010 (2013)	20		0		60		62		12		20	10	0	0	0
MZ6_010 (2012)	20		0		53		56		14		18	10	0	0	0

Note: NPS - Native Plant Species richness, NOS - Native Over-storey cover, NMS - Native Mid-storey cover, NGCG - Native Ground Cover (grasses), NGCS - Native Ground Cover (shrubs), NGCO - Native Ground Cover (other), EPC - Exotic Plant Cover, NTH - Number of Trees with Hollows, OR - Over-storey Regeneration, FL - Length of Fallen Logs. L - Lower Benchmark, U - Upper Benchmark



Pasture

MZ5 offset area and MZ6 voluntary management area pasture plot comparison.

Table 12: Comparison of pasture plots to PCT benchmarks (2017-2024)

Plot	Composition (Richness)						Structure (Cover)						Function			
	T	S	G	F	Fe	O	T	S	G	F	Fe	O	NLT	LC	FL	HTW
Benchmarks	5	8	12	15	2	5	52	18	61	10	1	5	3	35	40	0
MZ5																
MZ5_005 (2024)	0	1	6	5	0	1	0	0.5	57.5	0.5	0	0.1	0	0.2	0	17.5
MZ5_005 (2023)	0	1	7	2	0	0	0.0	2.0	75.7	0.2	0.0	0.0	0	2.0	0	19.0
MZ5_005 (2022)	0	1	8	4	0	0	0.0	0.5	72.5	0.6	0.0	0.0	0	1	0	21.1
MZ5_005 (2021)	0	1	4	0	0	0	0	0.2	31.3	0	0	0	0	0	0	30.4
MZ5_005 (2020)	0	1	3	2	0	2	0	2	9.5	0	0.6	0.2	0	0	0	0.7
MZ5_005 (2019)	0	1	4	1	0	2	0	2	17	0.5	0	0.2	0	20	0	2.2
MZ5_005 (2018)	0	2	4	4	0	3	0	2.1	28	20.7	0	0.3	0	24	0	6.5
MZ5_005 (2017)	0	1	6	3	0	1	0	1	22.1	2.1	0	0.1	0	28	0	11.1
MZ6																
MZ6_009 (2024)	0	1	8	5	0	2	0	35	43.9	1.5	0	5.1	0	25	12	12.7
MZ6_009 (2023)	0	1	9	4	0	2	0.0	30.0	42.6	0.5	0.0	0.2	0	60.0	0.0	12.0
MZ6_009 (2022)	0	1	6	5	0	1	0.0	45.0	37.0	0.5	0.0	0.3	0	13	0	14.1
MZ6_009 (2021)	0	1	5	3	0	2	0	4	23.3	0.5	0	5.1	0	0.8	0	10
MZ6_009 (2020)	0	1	3	2	0	1	0	20	15.4	0.3	0	0.1	0	5	0	0.5
MZ6_009 (2019)	0	1	6	3	0	1	0	5	83	0.3	0	0.1	0	33	0	3.5
MZ6_009 (2018)	0	1	4	8	0	2	0	5	13.2	0.8	0	1.1	0	24	0	5
MZ6_009 (2017)	0	1	5	5	0	2	0	4	18.1	0.5	0	0.2	0	14	0	23.5

Note: T - Tree, S - Shrub, G - Grass and grass-like, F - Forb, Fe - Fern, O - Other, NLT - Number of Large Trees, LC - Litter Cover, FL - Fallen Logs, HTW - High Threat Weed



Table 13: Comparison of the pasture plots to BVT benchmarks (2012-2016)

Plot	NPS	NOS		NMS		NGCG		NGCS		NGCO		EPC	NTH	OR	FL
		L	U	L	U	L	U	L	U	L	U				
Benchmark	29	18.5	23.5	20	30	23	31	0	5	11.75	19.75	0	0	1	0
MZ5															
M5_005 (2016)	10		0		0		90		0		8	56	0	0	0
M5_005 (2015)	12		0		0		94		0		4	72	0	0	0
M5_005 (2014)	14		0		0		76		0		2	50	0	0	0
M5_005 (2013)	10		0		0		86		0		0	64	0	0	0
M5_005 (2012)	12		0		0		78		0		0	74	0	0	0
MZ6															
M6_009 (2016)	13		0		1.2		88		0		10	52	0	1	0
M6_009 (2015)	18		0		44		2		0		0	99	0	1	0
M6_009 (2014)	13		0		0		38		6		12	76	0	0	0
M6_009 (2013)	14		0		0		50		0		0	68	0	0	0
M6_009 (2012)	16		0		0		58		0		0	70	0	0	0

Note: NPS - Native Plant Species richness, NOS - Native Over-storey cover, NMS - Native Mid-storey cover, NGCG - Native Ground Cover (grasses), NGCS - Native Ground Cover (shrubs), NGCO - Native Ground Cover (other), EPC - Exotic Plant Cover, NTH - Number of Trees with Hollows, OR - Over-storey Regeneration, FL - Length of Fallen Logs. L - Lower Benchmark, U - Upper Benchmark



Annex 4: Biodiversity Assessment Method: survey method (DPIE 2020)

Measuring vegetation integrity attributes

Composition attributes

Composition attributes refers to the number of native species within each growth form group recorded within the survey plot. It is this number that is entered in the BAM-C.

The assessor assigns native plant species to a growth form group using the look-up table developed by the Department, downloadable from the BAM Calculator home page (see Appendix A for weblink). Allocation of native species (including juveniles) to a growth form group was based on the most common growth form expressed by the mature plant across the extent of the species' range. If a species is not present in the table, the assessor must assign the species to a growth form group according to the definitions provided in BAM Appendix F. For more information see Oliver et al. (2019), available on the Department's Vegetation Condition Benchmarks webpage.

Whilst only native species are used in the calculations for composition the assessor is also required to document non-native species and whether they are high threat weeds (see BAM Subsection 4.3.4(16.c)).

Structure attributes

Structure attributes relate to the foliage cover of each native species in each growth form group within the plot.

The assessor records an estimate of foliage cover for each native and exotic species present in the 20 m x 20 m plot using the following number series: 0.1, 0.2, 0.3... 1, 2, 3... 10, 15, 20, 25... 100%. Foliage cover is the percentage of the plot covered by a vertical projection of all attached plant material, regardless of whether it appears alive or dead, of all individuals of a species. The estimate must include leaves, stems, twigs, branchlets and branches, from forb, grass and grass-like species, and any canopy overhanging the plot, even if the stem is outside the plot.

The structure of each growth form group in each 20 m x 20 m plot is calculated by adding the individual foliage cover estimates for all native plant species recorded within the growth form group. For example, if there are two tree species recorded in a plot, the first with an individual foliage cover estimate of 10% and the second with an estimate of 15%, then the total native foliage cover estimate for the tree growth form group is 25%. Total percentage foliage cover within a growth form group is cumulative and therefore may exceed 100% due to overlapping canopies.

The assessor enters the total native foliage cover estimate for each growth form group into the BAM-C. Note that the 'other' column in the BAM-C under structure is for recording native species that do not fit into the standard growth form groups; for example, cycads or vines (see BAM Appendix F).



Function attributes

Function attributes include tree stem size classes, number of large trees, tree regeneration, length of fallen logs and leaf litter. Attributes are assessed in each 20 m x 50 m plot and should only include living trees (except for fallen logs) and the largest stem of multi-stemmed trees.

Presence or absence of each tree stem size class from 5 centimetres DBH (diameter at breast height, over bark and measured at 1.3 metres above ground level) to the large tree threshold size is recorded and entered into the BAM-C. Threshold size is located in the PCT description in the BioNet Vegetation Classification; for example, when the large tree threshold size is 50 centimetres, tree stem size classes are 5-9, 10-19, 20-29, 30-49 centimetres DBH.

While only presence or absence data is required for an assessment, assessors are encouraged to record actual counts or estimates of the number of stems within each size class, as these data can be used to improve thinning thresholds and benchmark data within the BioNet Vegetation Classification.

The number of large trees is assessed by counting all living stems with a DBH equal to or greater than the large tree threshold DBH for the PCT or vegetation class. The number of large trees is entered into the BAM-C.

Tree regeneration is assessed as presence or absence of living trees from the tree growth form group with a maximum stem diameter of less than 5 centimetres regardless of height. Only presence or absence is entered into the BAM-C.

An estimate of the total length of fallen logs is made by adding together the lengths of all dead woody material greater than 10 centimetres in diameter that is entirely or partly on the ground, within the 20 m x 50 m plot. Where logs extend outside the plot only the length within the plot is recorded. The assessor enters the total length of fallen logs in metres into the BAM-C.

Percentage litter cover is measured in five 1 m x 1 m sub-plots located evenly along the 50 metres mid-line (see Figure 9). Litter is taken as plant material detached from a plant including leaves, seeds, twigs, branchlets and branches with diameter of <10 centimetres. Litter not in contact with the ground is not recorded. The assessor averages the litter cover from the five sub-plots to generate the average percentage litter cover for the entire plot, which is entered into the BAM-C.



Annex 5: Photo point monitoring

Table 14: Derived grassland and area of woodland from MZ6_009 (photo point 5)



2012



2013



2014



2015



2016



2017



2018



2019



2020



2021



2022



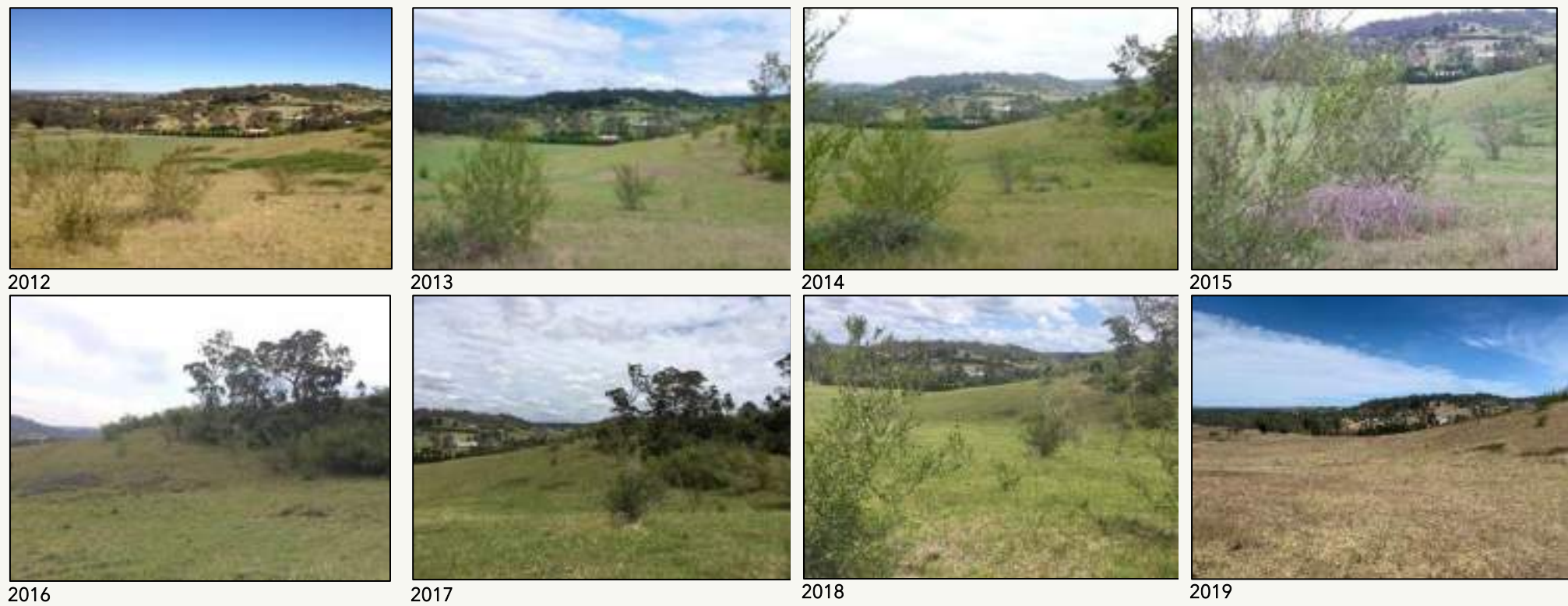
2023



2024



Table 15: Derived grassland from photo point 4





2020



2021



2022



2023



2024



Table 16: Area of erosion, photo point 7



2012



2013



2014



2015

No photo available

2016



2017



2018



2019



2020



2021



2022



2023



2024



Table 17: MZ6_006. Note the obvious cover difference between years. Woody weed control required in 2025.



2012



2013



2014



2015



2016



2017



2018



2019



2020



2021



2022



2023



2024



Table 18: MZ6_007. Note the ground cover since 2012. Woody weed control required in 2025.



2012



2013



2014



2015



2016



2017



2018



2019



2020



2021



2022

2023

No photo available

No photo available

2024



Table 19: Regenerating woodland from MZ5_002. Note the increase in the regeneration of *Bursaria spinosa* within the woodland understorey.



2012



2013



2014



2015



2016



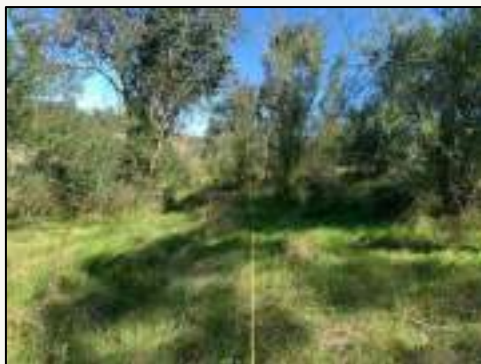
2017



2018



2019



2020



2021



2022



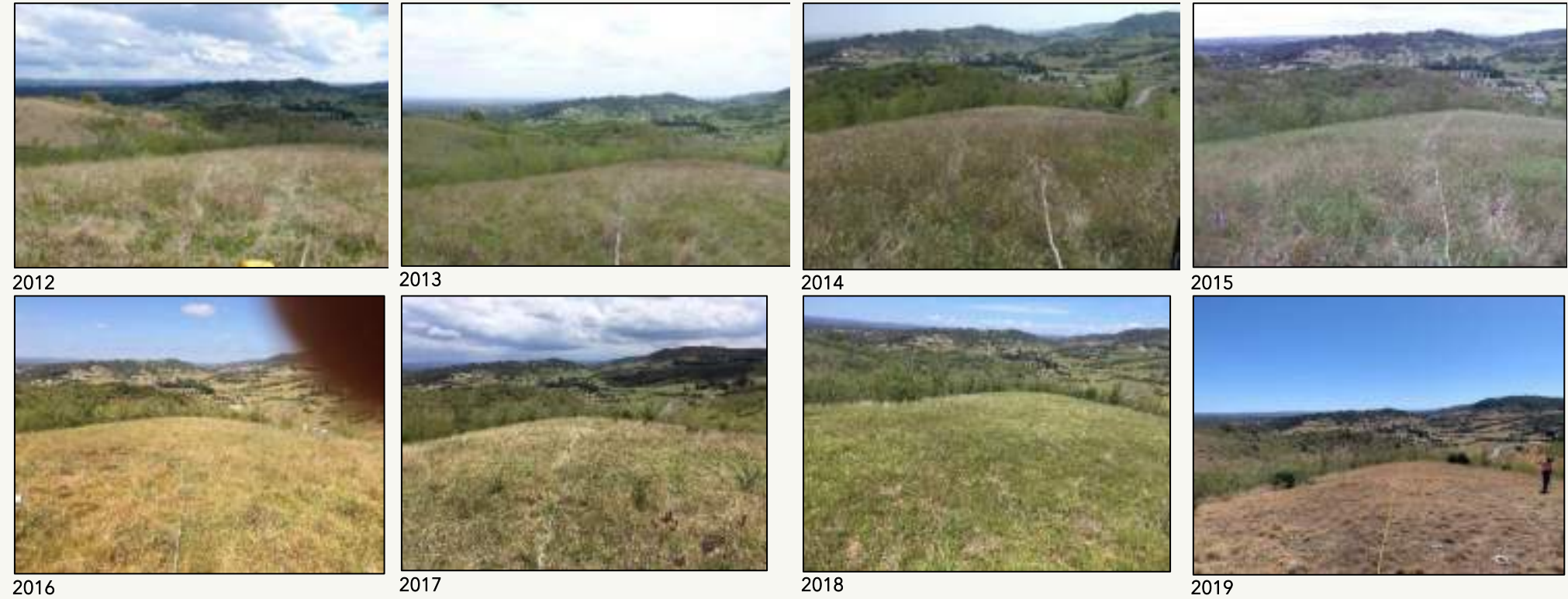
2023



2024



Table 20: Derived grassland from MZ5_005.





2020



2021



2022



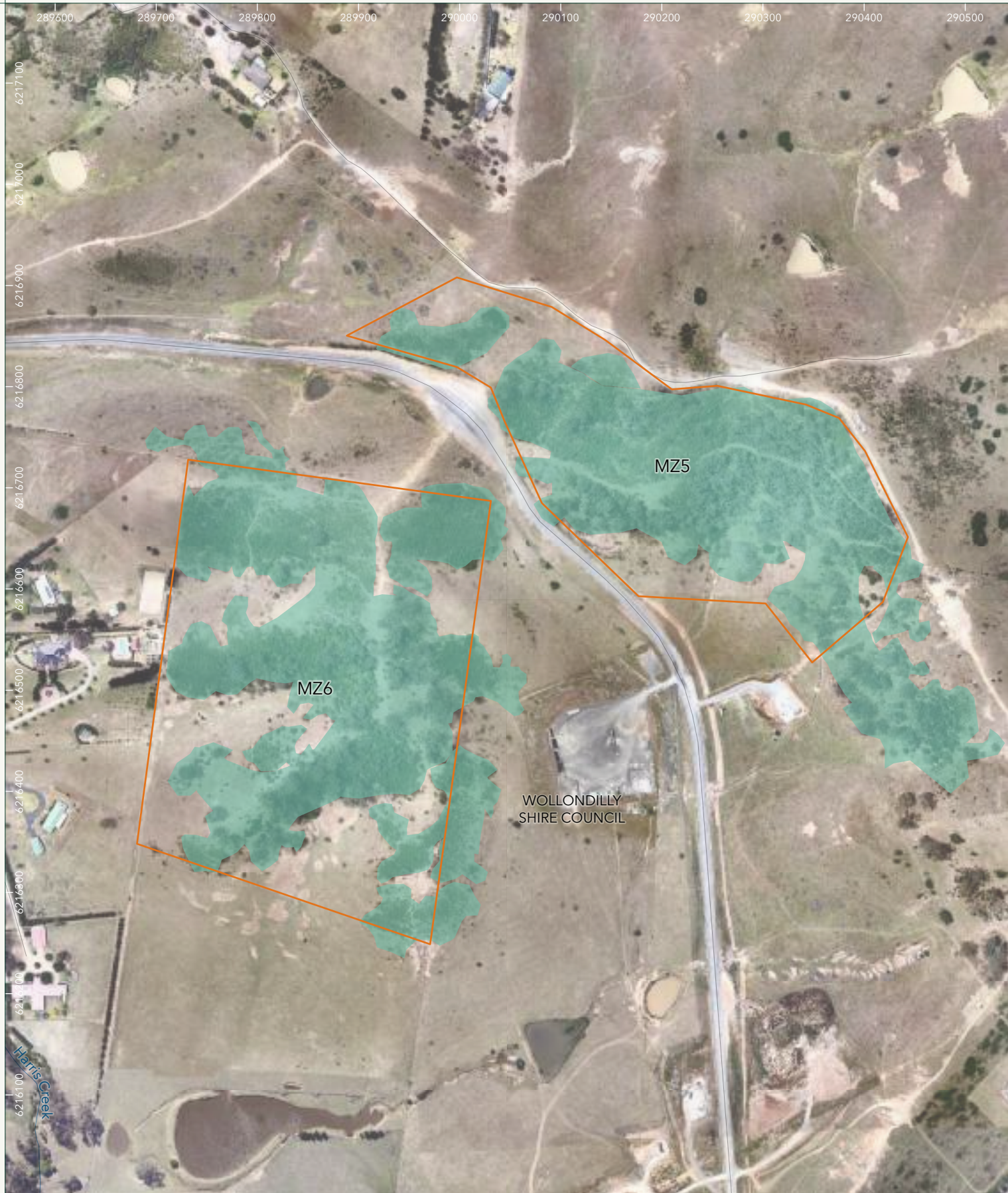
2023



2024



Annex 6: Increase in vegetation extent throughout monitoring program



 Management zone
 Transport
 Minor road

Hydrography
 Non Perennial Stream

Administrative and Property
 Boundaries
 Local Government Area


 0 100

 m
 GDA2020 MGA Zone 56



Figure 4.1
Total vegetation extent 2013
 VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3



- Management zone
- Increased vegetation extent 2014
- Total vegetation extent 2013

- Transport**
- Minor road
- Hydrography**
- Non Perennial Stream

- Administrative and Property Boundaries**
- Local Government Area

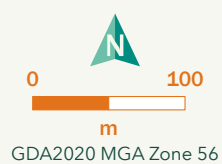


Figure 4.2

Increased vegetation extent 2013 to 2014

VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
Niche Proj. #: 8721
Client: ICHPL – GM3



- Management zone
- Increased vegetation extent 2017
- Total vegetation extent 2015

- Transport**
- Minor road
- Hydrography**
- Non Perennial Stream

- Administrative and Property Boundaries**
- Local Government Area

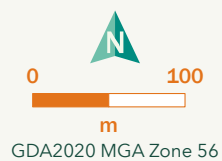
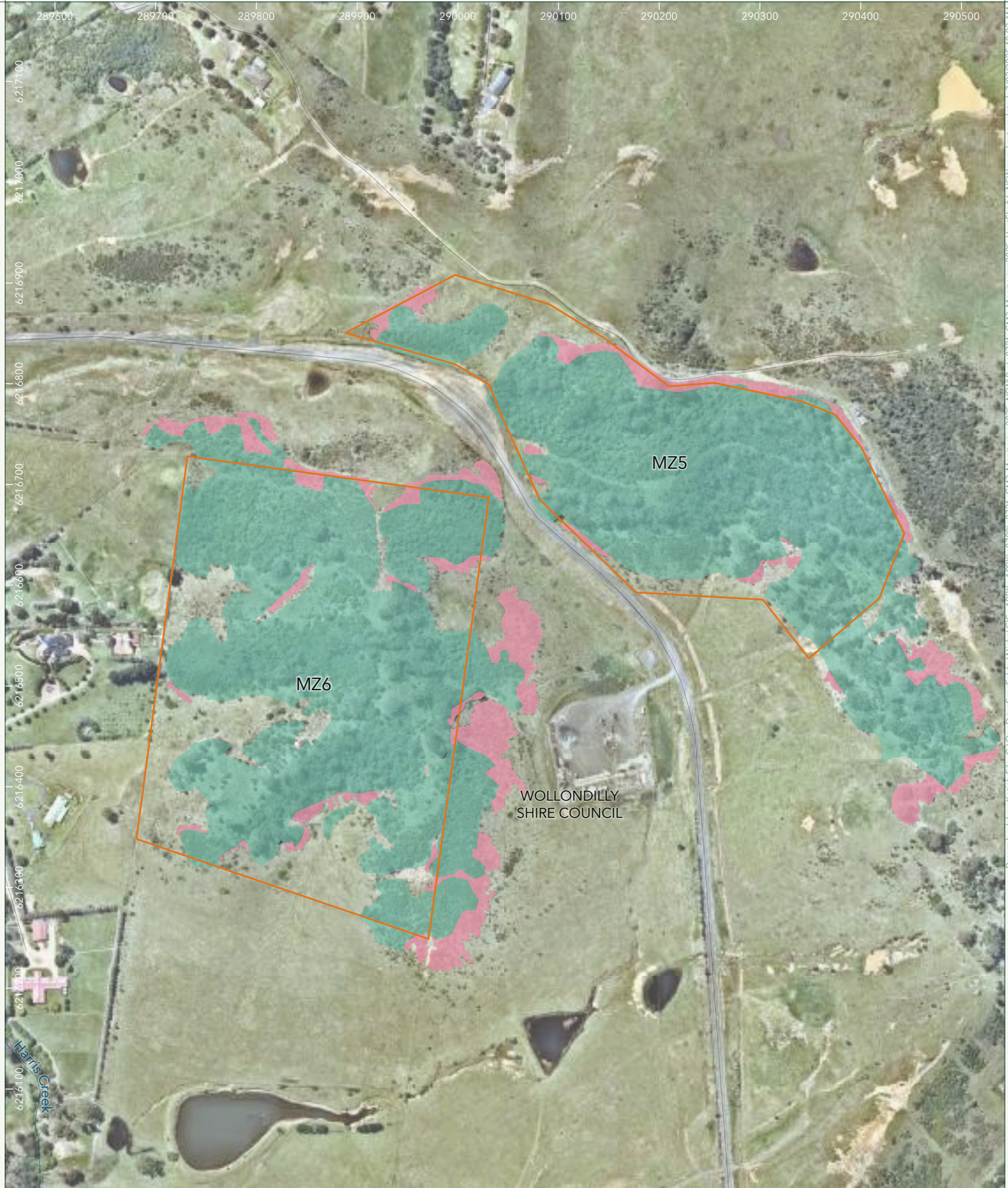


Figure 4.3
Increased vegetation extent 2014-2015 to 2017
 VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
 Niche Proj. #: 8721
 Client: ICHPL - GM3



- Management zone
- Increased vegetation extent 2021
- Total vegetation extent 2018

- Transport**
- Minor road
- Hydrography**
- Non Perennial Stream

- Administrative and Property Boundaries**
- Local Government Area

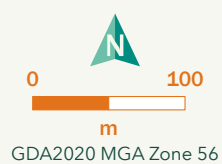
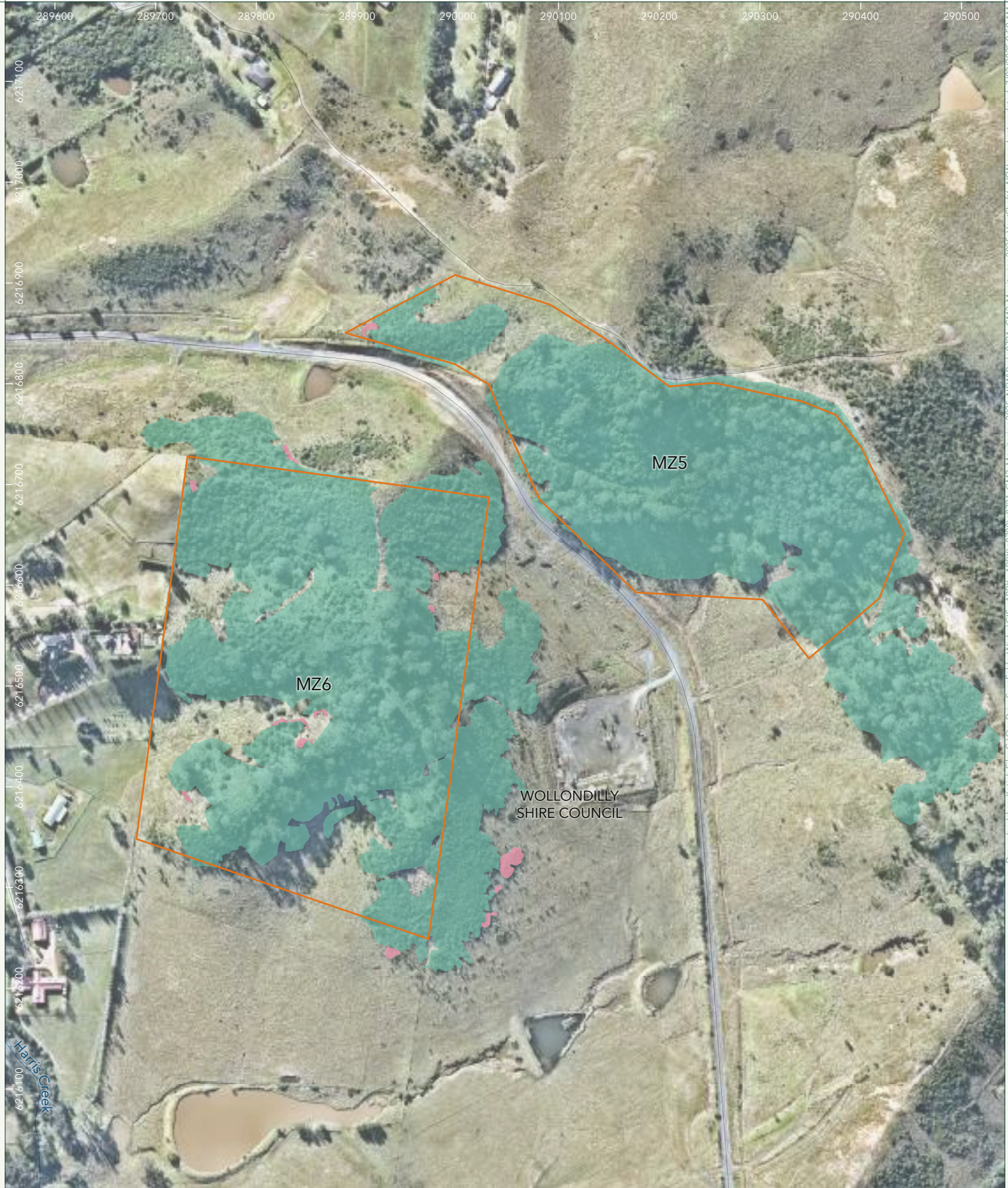
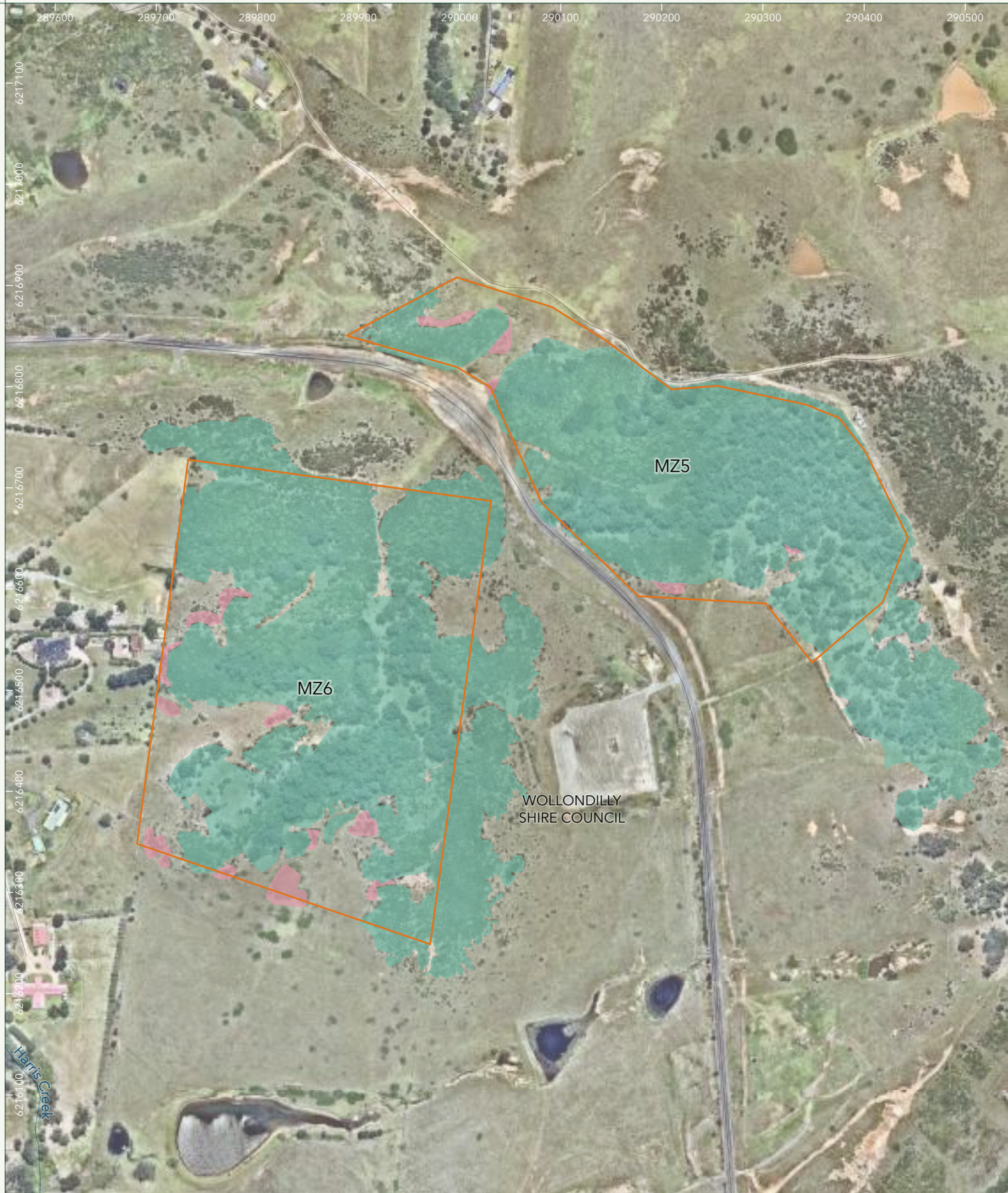


Figure 4.4

Increased vegetation extent 2017-2018 to 2021
VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
Niche Proj. #: 8721
Client: ICHPL - GM3





- Management zone
- Increased vegetation extent 2023
- Total vegetation extent 2022

- Transport**
- Minor road
- Hydrography**
- Non Perennial Stream

- Administrative and Property Boundaries**
- Local Government Area

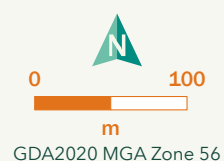


Figure 4.6

Increased vegetation extent 2022 to 2023

VentShaft 6 - Annual Biodiversity Monitoring FY2025

Niche PM: Lily Cains
Niche Proj. #: 8721
Client: ICHPL - GM3



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Our Expertise



Natural capital
and offsetting



Ecology



Heritage
management



Environmental
planning, approvals
and management



Spatial Services

Appendix 11: Ventilation Shaft 6 Bush Regeneration Report – 2024/2025



Landcare Australia

Appin Ventilation Shaft 6 Bush Regeneration Report for GM³

January 2024 - December 2024

Document Control

Project Name

APPIN VENTILATION SHAFT 6 BUSH REGENERATION REPORT FOR GM³

		Date
Prepared by	Anna Charlton Shick	14/01/2025
Approved by	Rob Porter	24/01/2025

Disclaimer

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Landcare Australia – Appin Vent Shaft 6 Bush Regeneration Report

1. Introduction

Vent Shaft 6 is found approximately 6 kilometres South-South-West of the township of Menangle Park, NSW (Figure 1). Landcare Australia was engaged to undertake bush regeneration works (including weed control and reporting) at the site between January 2024 to December 2024. Bush regeneration works have predominately focused on the treatment of African Olive (*Olea europaea* ssp. *Cuspidate*), African Box Thorn (*Lycium ferocissimum*), Blackberry (*Rubus fruticosus aggregate*) and Lantana (*Lantana camara*), with targeted treatment of other broad leaf annual and perennial weeds during site visits.

The bush regeneration works associated with this project relate to management zones:

- Management Zone 5 (MZ 5) the offsets area,
- Management Zone 6 (MZ 6) the native vegetation area.

Refer to the Figure 2 in Section 5 for location details.

This site exhibits native vegetation that is part of the Cumberland Shale Hills Woodland that form the canopy, mid storey and shrub layer with small sections of native grasses occurring in some areas. The ground layer consists of mostly exotic pastures that cover the bulk of the site and have been mapped in the Appin Vent Shaft 6 Biodiversity Management Plan. Both management zones are heavily affected by infestations of woody and herbaceous weed species that have formed single species communities. These invasive weed species heavily affect the overall health of the site, reducing biodiversity and shading the emergent native vegetation.

During this management year new there has been several new observations of vertebrate pest species, including the European Red Fox (*Vulpes vulpes*) and feral Goats (*Capra hircus*).

2. Description of Work

Weed management efforts this year has primarily focused on primary treatment of African Olive, African Boxthorn, Blackberry and Lantana in MZ5.

Management Zones	Type of Work	Weed Type	Work Description
MZ5	Primary	Woody	Cut and paint or scrape and paint woody weeds. Target weeds include African olive, African boxthorn, Blackberry and Lantana. All vegetative material was cut, formed into piles and left onsite.
	Primary	Vine	Targeting of Cape Ivy and Moth Vine within areas free of vines. Skirting of vines climbing trees to prevent native vegetation from being shaded from sunlight.

	Maintenance	Woody and Herbaceous	Follow-up spot spraying and hand weeding the areas previously treated within native vegetation. Target weeds include African olive, African boxthorn, Black Berry, Lantana, Cape Ivy and Moth Vine regrowth/emerging seedlings and Scotch thistle, Spear Thistle, Paterson's curse, Purpletop, Fleabane, and Brassica.
MZ6			Weed control focused within MZ5 in this reporting period due to the resilience and improvement in native understory of those areas that were targeted. Further primary treatment is to recommence within MZ6 in 2025.

Table 1 Description of conducted work from January 2024 to December 2024

Refer to Figure 2 for location of areas treated for both primary and maintenance weed control.

3. Comments

3.1. Management Issues:

Woody weed density has significantly declined in target areas in the past 12 months. Following primary treatment of woody weeds two methods were used to treat emergent weedy species. *Method 1* includes the use of a broadleaf selective herbicide to treat emerging woody weeds where it is possible to not impact surrounding native vegetation. *Method 2* involves the mechanical removal of woody weeds by hand pulling or digging out small seedlings where spray drift could negatively impact native vegetation. This treatment has resulted in a good understory of native grasses and herbs in those areas targeted.

Both zones continue to be impacted by the presence of African Olive and Lantana and to a lesser extent African Boxthorn and Blackberry where no weed treatment has occurred. Herbaceous weed species remain prevalent onsite due to previous land use and windblown seed from surrounding properties. Large infestations of Cape Ivy (*Delairea odorata*) and Moth Vine (*Araujia sericifera*) are present within the North-Eastern upper forest. These weeds are dramatically impacting the overall health of the site by shading native shrubs, grasses and canopy species. Cape Ivy and Moth vine will continue to be targeted by Landcare Australia staff in 2025, with a large focus on preventing the spread of these vines to other areas and reducing the growth of vines into trees.

Gully erosion is evident on site however, it does not appear to have deteriorated in the past 12 months. Care will be taken when treating weeds within or alongside the gullies to prevent further erosion.

Native herbivores have been observed onsite by Landcare Australia staff during site visits but do not appear to be overabundant in the region. During site visits Red Foxes have also been observed near the gate to the site and when startled run into the nearby gully. Vent Shaft Six may benefit from being included in the local areas fox baiting program, to reduce the presence of Red Foxes onsite.

Feral goats have been observed onsite twice in the last year with a large herd (approximately 30 individuals) being observed on the 11th of December 2024. Damage from goats appears to be minimal with no observations of herbivory being found.

3.2. Site Progress

Landcare Australia has completed 10 site visits between January 2024 to December 2024, including the below dates:

- 1st March 2024
- 28th May 2024
- 13th June 2024
- 27th August 2024
- 29th August 2024
- 11th September 2024
- 15th November 2024
- 28th November 2024
- 11th December 2024
- 18th December 2024

A further 4 site visits are scheduled to conduct weed control in the first quarter of 2025.

A full list of all weed species observed and treated in MZ5 during these site visits is listed in Table 2.

No observations of *Pimelea spicata* occurred during these site visits. The completion of primary and maintenance weed treatment during this period ensures compliance with Management Actions 13 and 16 of the Appin Vent Shaft 6 Biodiversity Management Plan, Bulli Seam Operations.

4. Weed Species Identified and Treated within MZ5.

Scientific Name	Common Name
Herbaceous	
<i>Asparagus virgatus</i>	Asparagus Fern
<i>Brassica spp.</i>	Brassica
<i>Cirsium vulgare</i>	Spear Thistle
<i>Conyza spp.</i>	Fleabane
<i>Cytisus Purpureus</i>	Purple Broom
<i>Echium plantagineum</i>	Paterson's Curse
<i>Gomphocarpus fruticosus</i>	Cotton Bush
<i>Onopordum acanthium</i>	Scotch Thistle
<i>Setaria sphacelata</i>	Pidgeon Grass
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Verbena bonariensis</i>	Purpletop
Woody	
<i>Lantana camara</i>	Lantana
<i>Lycium ferocissimum</i>	African boxthorn
<i>Olea europaea subsp. cuspidata</i>	African olive
<i>Rubus sp.</i>	Blackberry

Vines	
<i>Araujia sericifera</i>	Moth Vine
<i>Delairea odorata</i>	Cape Ivy

Table 2 Weed Species Treated Between January 2024 to December 2024

5. Map of Management Zones and Areas Treated



Figure 1 Location of Vent Shaft 6



Figure 2 Map of treated weeds on site

6. Photos of Weed Treatment Onsite



Figure 3 Landcare Australia staff member treating emerging weed



Figure 4 Thicket of African Olive prior to treatment



Figure 5 Treated patch of African Olive



Figure 6 Emerging African Olive seedlings prior to treatment



Landcare Australia

Appin Ventilation Shaft 6 Bush Regeneration Report for GM³

January 2025 - June 2025

Document Control

Project Name

APPIN VENTILATION SHAFT 6 BUSH REGENERATION REPORT FOR GM³

		Date
Prepared by	Anna Charlton Shick	20/08/2025
Approved by	Rob Porter	20/08/2025

Disclaimer

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Landcare Australia Pty Ltd has prepared this report for GM³ and accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this document and its supporting material by any third party. Information provided is not intended to be a substitute for site-specific assessment or legal advice in relation to any matter.

Landcare Australia – Appin Vent Shaft 6 Bush Regeneration Report

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Vent Shaft 6 is found approximately 6 kilometres South-South-West of the township of Menangle Park, NSW (Figure 1). Landcare Australia was engaged to undertake bush regeneration works (including weed control and reporting) at the site between January 2025 to June 2025. Bush regeneration works have predominately focused on the treatment of African Olive (*Olea europaea* ssp. *Cuspidate*), African Box Thorn (*Lycium ferocissimum*), Blackberry (*Rubus fruticosus aggregate*) and Lantana (*Lantana camara*), with targeted treatment of other broad leaf annual and perennial weeds during site visits.

The bush regeneration works associated with this project relate to management zones:

- Management Zone 5 (MZ 5) the offsets area
- Management Zone 6 (MZ 6) the native vegetation area

Refer to the Figure 2 in Section 5 for location details.

This site exhibits native vegetation that is part of the Cumberland Shale Hills Woodland that form the canopy, mid storey and shrub layer with small sections of native grasses occurring in some areas. The ground layer consists of mostly exotic pastures that cover the bulk of the site and have been mapped in the Appin Vent Shaft 6 Biodiversity Management Plan. Both management zones are heavily affected by infestations of woody and herbaceous weed species that have formed single species communities. These invasive weed species heavily affect the overall health of the site, reducing biodiversity and shading the emergent native vegetation.

During this management year there has been several observations of vertebrate pest species, including the European Red Fox (*Vulpes vulpes*) and feral Goats (*Capra hircus*).

2. Description of Work

Weed management efforts this year has primarily focused on primary treatment of African Olive, African Boxthorn, Blackberry and Lantana in MZ5.

Management Zones	Type of Work	Weed Type	Work Description
MZ5	Primary	Woody	Cut and paint, scrape and paint, fill and drill or ringbarking woody weeds. Target weeds include African olive, African boxthorn, Blackberry and Lantana. All vegetative material was cut, formed into piles and left onsite. Where woody weeds are too large to fell, they have been left standing.
	Primary	Vine	Targeting of Cape Ivy and Moth Vine within areas with dense vine infestations. Skirting of vines climbing trees to prevent native vegetation from being shaded from sunlight.
	Maintenance	Woody and Herbaceous	Follow-up spot spraying or hand weeding the areas previously treated within native vegetation. Target weeds include African olive, African boxthorn, Black

			Berry, Lantana, Cape Ivy and Moth Vine regrowth/emerging seedlings and Scotch thistle, Spear Thistle, Paterson's curse, Purpletop, Fleabane, and Brassica.
	Maintenance	Vine	Hand weeding or scrape and paint of vines found within good bush. Target weeds include Cape Ivy and Moth Vine within MZ6.
MZ6	Primary	Woody	Primary weed treatment of mature African Boxthorn and African Olive in MZ6. A site inspection during April 2025 revealed that dense monocrops of large mature African Olives exist within MZ6. Weed control primarily focused in MZ5, due to the condition of the native bushland here, still presenting opportunity for regeneration.

Table 1 Description of conducted work from January 2025 to June 2025

Refer to Figure 2 for location of areas treated for both primary and maintenance weed control.

3. Comments

3.1. Management Issues:

Woody weed density has significantly declined in target areas in the past 12 months. Following primary treatment of woody weeds two methods were used to treat emergent weed species.

Method 1 involves the mechanical removal of woody weeds by hand pulling or digging out small seedlings where spray drift could negatively impact native vegetation and

Method 2 includes the use of a broadleaf selective herbicide to treat emerging woody weeds where it is possible not to impact surrounding native vegetation. This treatment has resulted in a reduction of emergent woody weeds within the treatment areas.

Both zones continue to be impacted by the presence of African Olive and Lantana and to a lesser extent African Boxthorn and Blackberry where no weed treatment has occurred. Herbaceous weed species remain present onsite due to previous land use and windblown seed from surrounding properties.

Large infestations of Cape Ivy (*Delairea odorata*) and Moth Vine (*Araujia sericifera*) are present within the North-Eastern upper forest (Figure 2). These weeds are dramatically impacting the overall health of the site by shading native shrubs, grasses and canopy species. Cape Ivy and Moth vine have been targeted this management year and will continue to be targeted by Landcare Australia staff during future site visits. Targeted control will include hand weeding small immature vines of Cape Ivy from non-established areas, to prevent the growth and establishment of this species into the canopy of native vegetation. Large infestations of Capy Ivy will be treated by foliar spray of herbicides to reduce the presence of this weed onsite. Areas treated with herbicide will be revisited during follow up control to either hand pull emerging juvenile plants or spot spray where possible.

Gully erosion is evident on site however, it does not appear to have deteriorated in the past 12 months. Care will be taken when treating weeds within or alongside the gullies to prevent further erosion.

Native herbivores have been observed onsite by Landcare Australia staff during site visits but do not appear to be overabundant in the region. During site visits European Red Foxes have also been observed near the gate to the site and when startled run into the nearby gully. Vent Shaft Six may benefit from being included in the local areas fox baiting program, to reduce the presence of European Red Foxes onsite.

Feral goats have been observed onsite several times during this reporting period, with a large herd (approximately 30 individuals) being observed on the 30th May 2025, (Figure 3). Damage from goats has been found to be increasing on site through the observation of grazed vegetation, including both non-native species and native plants such as Tick Bush. Most of the damage appears to be restricted to African Olives, with the goats stripping the bark from the plants, see figures 9-11 for further details.

3.2. Site Progress

Landcare Australia has completed 14 site visits between January 2025 to June 2025, including the below dates:

- 23rd January 2025
- 10th February 2025
- 24th February 2025
- 25th February 2025
- 6th March 2025
- 11th March 2025
- 21st March 2025
- 10th April 2025
- 11th April 2025
- 17th April 2025
- 30th May 2025
- 3rd June 2025
- 19th June 2025
- 29th June 2025

A full list of all weed species observed and treated in MZ5 and MZ6 during these site visits is listed in Table 2.

Some observations of *Pimelea spicata* occurred, in known survey locations, during Spring of 2025. Over the course of 2 site visits, tracks were made to the survey locations of *Pimelea spicata*, to allow for ease of access to these areas.

The completion of primary and maintenance weed treatment during this period ensures compliance with Management Actions 13 and 16 of the Appin Vent Shaft 6 Biodiversity Management Plan, Bulli Seam Operations.

4. Weed Species Identified and Treated within MZ5 and MZ6

Table 2 Weed Species Treated Between January 2025 to June 2025

Scientific Name	Common Name
MZ5	
Grasses	
<i>Nassella neesianna</i>	Chilean Needle Grass
Herbaceous	
<i>Asparagus virgatus</i>	Asparagus Fern
<i>Cirsium vulgare</i>	Spear Thistle
<i>Conyza spp.</i>	Fleabane
<i>Gomphocarpus fruticosus</i>	Narrow-leaved Cotton Bush
<i>Opuntia sp.</i>	Prickly Pear
<i>Verbena bonariensis</i>	Purpletop
Woody	
<i>Lantana camara</i>	Lantana
<i>Lycium ferocissimum</i>	African Boxthorn
<i>Olea europaea subsp. Cuspidata</i>	African Olive
<i>Rubus sp.</i>	Blackberry
Vines	
<i>Araujia sericifera</i>	Moth Vine
<i>Delairea odorata</i>	Cape Ivy
MZ6	
Woody	
<i>Lycium ferocissimum</i>	African Boxthorn
<i>Olea europaea subsp. Cuspidata</i>	African Olive

5. Map of Management Zones and Areas Treated



Figure 1 Site Location, Showing Broader Area and Situation



Figure 2 Weeds Treated or Identified Onsite Within MZ5 and MZ6

Photos of Weeds Treated Onsite and Damage from Feral Goats



Figure 3 Large herd of approximately 30 goats seen at VS6 in MZ6



Figure 4 Before Photo of Primary Weed Treatment in MZ5



Figure 5 After Photo of Primary Weed Treatment in MZ5



Figure 6 Before Photo of Primary Weed Management in MZ6



Figure 7 After Photo of Primary Weed Management in MZ6



Figure 8 Cape Ivy Covering Native Vegetation Onsite



Figure 9 Stripped Vegetation from Feral Goats



Figure 10 Feral Goat Foraging Marks



Figure 11 Damage to Tree Bark from Feral Goats

Appendix 12: EPBC Approval 2010/5350 Compliance Report – FY25

Bulli Seam Operations Annual Compliance Report – August 2025 (EPBC 2010/5350)

Date of submission: 12 August 2025

GM³ Website Upload Date: 12 August 2025

Abbreviations:

DOtEE – Federal Department of the Environment and Energy (now DCCEEW)

DAWE – Department of Agriculture, Water and the Environment (formerly DOtEE)

DCCEEW – Department of Climate Change, Energy, the Environment and Water (formerly DAWE)

OEH – NSW Office of Environment and Heritage (now Biodiversity and Conservation Science Directorate)

CCL – Consolidated Coal Lease

EPBC – Environment Protection and Biodiversity Conservation

ICHPL – Illawarra Coal Holdings Pty Ltd

In accordance with condition 14 of the EPBC Approval (2010/5350), within three months of every 12-month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the compliance report is published.

Condition	Condition Summary	Status	Compliant 2025
1	<u>Persoonia Hirsuta (Hairy Geebung)</u> Approval holder must legally secure the approved offset area for conservation for the duration of the EPBC approval.	Proposed offset area submitted to DOfEE in the <i>Persoonia hirsuta</i> Offset Management Plan. Application submitted on 26 Nov 2013 to amend CCL 724 via a s238 Condition under the Mining Act 1992 to legally secure a <i>Persoonia hirsuta</i> Offset Area at Appin North (formerly West Cliff Mine) as required by the Bulli Seam Operations EPBC Approval (2010/5350). The Minister for Resources and Energy amended CCL 724 on 23 March 2014. CCL 724 includes Schedule A requiring compliance with the <i>Persoonia hirsuta</i> Offset Management Plan as required by EPBC Approval 2010/5350.	Yes
2	<u>Persoonia Hirsuta</u> Develop a management plan for the <i>Persoonia hirsuta</i> offset area. Annual monitoring requirements and provide results of the monitoring to the Dept within a timeframe. No clearing of Stage 4 emplacement area permitted until the Offset MP has been approved by the Minister.	<i>Persoonia hirsuta</i> Offset Management Plan was submitted to DOfEE prior to 31 December 2012 and approved on 22 November 2013 (ref 2013/10882). The latest revision (Version 1.1) was approved in May 2022. The Plan is available on the GM³ website using this link. The plan was reviewed in FY25 and has been submitted to DCCEEW for review and approval. <i>Persoonia hirsuta</i> Condition Reports were submitted as required in 2013, 2014, 2015 (submitted late), 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 and 2024. Clearing for Stage 4 coal-wash emplacement has not yet been undertaken, however clearing for test pits has been undertaken.	Yes
3	<u>Persoonia Hirsuta</u>	ICHPL received an extension to the deadline for finalising and reporting the research to 30 June 2021. The research report was	Yes

Condition	Condition Summary	Status	Compliant 2025
	Engage a suitably qualified expert to undertake targeted research to inform conservation activities. Make research publicly available.	submitted to DAWE on 29 June 2021. The research report is available on the GM³ website using this link . The research report is included within the approved Offset MP (see link above).	
4	<u>Shale/Sandstone Transition Forest</u> Implement the approved SSTF Offset MP. Legally secure the offset for long term conservation.	In 2012, ICHPL provided an offset management plan as well as ecological survey information to comply with these conditions. The plan was approved by DOTEE in June 2013. In 2014, ICHPL requested an extension to the deadline to have the offset secured in perpetuity. DOTEE granted an additional 18 months, making the deadline March 2016. In October 2015, ICHPL made an application to (then) NSW Office of Environment & Heritage (OEH) to have the SSTF offset secured via a BioBanking Agreement under Part 7A Division 2 of the <i>Threatened Species Conservation Act 1995</i> . The BioBanking Agreement was finalised and executed on 1 February 2017.	Yes
5	<u>Shale/Sandstone Transition Forest</u> Provide a management plan for shale/sandstone transition forest.	Management plan submitted and approved on 7 June 2013. The revised Plan was updated and approved on 2 September 2014. The Management Plan was updated in 2018 and re-submitted to the DOTEE to reflect the new offset mechanism (BioBanking). Condition 5A was added to the EPBC approval in May 2018:	Yes

Condition	Condition Summary	Status	Compliant 2025
		<i>Conditions attached to the approval</i> 5A If the Shale Sandstone Transition Forest is legally secured as a registered NSW BioBanking site, the management plan developed under the NSW BioBanking Agreement for that site is an Offset Management Plan for the purposes of Condition 4. This annual reporting required under that scheme may be provided to the department in place of the reports containing monitoring results required at Condition 5c, on the proviso that all measures specified in Condition 5 are covered. The 2017/18, 2018/19, 2019/20, 2020/21, 2021/22, 2022/23, 2023/24 and 2024/25 SSTF monitoring was conducted under the requirements of the BioBanking Agreement. The 2024/25 annual report was also completed in accordance with the BioBanking Agreement and will be provided to DCCEEW in August 2025. The Shale Sandstone Transition Forest Offset Management Plan was updated in November 2024. The current version of the SSTF OMP (APNMP0118 Version 2.0) is available on the GM³ website at link.	
6	<u>Coal Wash Emplacement Staging and Rehabilitation Plan</u> Develop a Coal Wash Emplacement Staging and Rehabilitation Plan for stage 4 coal wash emplacement area. Submission of rehabilitation monitoring results.	The Coal Wash Emplacement Area Management Plan (available on the GM³ website at link) incorporates the requirements of both the <i>EPBC Act</i> approval and NSW <i>EP&A Act</i>. The latest version of the Plan (Version 6) was approved by DCCEEW on 10 June 2025. Results of the monitoring are provided in the Annual Review which is published on the GM³ website. The 2024 report was submitted on time by email on 24 June 2025 and will be included in the FY25 Annual Review.	Yes

Condition	Condition Summary	Status	Compliant 2025
7	<u>Southern Brown Bandicoot and Broad Headed Snake Management Plan or Plans</u> Develop a Southern Brown Bandicoot and Broad Headed. Snake conservation management plan or plans.	Draft Plans completed and submitted to DOfEE on 15 May 2013. Plans were revised following comments from DOfEE and OEH. Final Plans re-submitted to DOfEE and OEH on 29 April 2014. Plans approved on 28 May 2014. The Plans were revised and combined in 2020 in APNMP0111. The plan (Version 2) was approved by DCCEEW on 10 June 2025. The current Plan is available on the GM ³ website at link .	Yes
8	<u>Surface and Ground Water Quality Monitoring and Adaptive Management Plan</u> Develop a Surface and Ground Water Quality Monitoring and Adaptive Management Plan for species listed in the EPBC Act.	Original Plan submitted on the 30 September 2012 to DOfEE. Plan was approved on 3 July 2014. The Plan was reviewed in 2024 and approved by DCCEEW on 10 September 2024. The current plan is available on the GM ³ website at link .	Yes
9	<u>Mine Closure Environmental Management Plan</u> Develop a mine closure plan 3 years prior to closure for EPBC Act listed species.	Mine Closure Plan not yet submitted. Closure is not planned in the next three (3) years.	N/A
10	<u>Mine Closure Environmental Management Plan</u> Management for EPBC listed bats through the decommissioning of mining equipment.	Mine Closure Plan will include management of EPBC listed bats as applicable. Mine Closure Plan not yet submitted. Closure is not planned in the next three years.	N/A
11	<u>Shapefiles</u> Provide offset area shapefiles to the DOfEE.	Shapefiles provided on 26 November 2013.	Yes
12	<u>Notification of Actual Date of Commencement</u>	Letter sent to DOfEE (previously DSEWPac) on 31 May 2012.	Yes

Condition	Condition Summary	Status	Compliant 2025
	Notification date of commencement to be supplied to DSEWPaC.		
13	<u>Publication Requirements</u> Publish all management plans, reports, strategies or agreements with the Department	Undertaken as required. See GM³ website: link .	Yes
14	<u>Compliance Report</u> Publish a report on website addressing compliance with each of the conditions of this approval.	This compliance report meets this condition. The 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 and 2024 reports were submitted and are available on the GM³ website.	Yes
15	<u>Accurate Records Must be Maintained</u> Maintain accurate records substantiating all activities associated with or relevant to the conditions of approval.	Documents are maintained in the ICHPL controlled document system.	Yes
16 (16A, 16B, 16C, 16D, 16E)	<u>Minister's Approval of the Modification to a Management Plan, Report, Strategy or Agreement</u> Apply to the minister for approval to modify management plans, reports, strategies or agreements.	The following EPBC Approval management plans were reviewed and submitted in FY25: - <i>Persoonia hirsuta</i> Offset Management Plan This management plan is currently being reviewed by DCCEW and have not yet been approved. Management plans reviewed in FY24 were approved in FY25.	Yes

Condition	Condition Summary	Status	Compliant 2025
		It is noted that the revisions to the management plans do not indicate a new or increased impact associated with the approved action.	
17	<u>Minister's Modification to a Management Plan, Report, Strategy or Agreement</u> Comply with the minister's request to modify management plans, reports, strategies or agreements.	Feedback from DCCEEW has been progressively addressed as part of the management plan review process.	Yes
18	<u>Independent Auditor</u> Commission and pay the full cost for independent environmental auditor of the project.	Independent audits were carried out in accordance with the conditions in 2013/14, 2017, 2019 and 2022. This most recent report was submitted to DCCEEW and is available on the GM³ website at link . The next audit will take place prior to the end of December 2025. The audit team and audit criteria for the 2025 audit have been endorsed by the Minister.	Yes
19	<u>Unsatisfactory Commencement of Action</u> If work has not commenced within 5 years of approval, written approval needs to be obtained from the minister.	Work commenced on 15 May 2012 as per date of commencement letter sent to the Department.	Yes

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

AUDIT REVIEW					
Section	MP Ref.	Requirement / Obligation	Outcome	Comment and Evidence	Proposed Action
Management Strategies	6.1	Clearing practices will incorporate appropriate controls to minimise mortality and injury to Broad-headed Snakes and Southern Brown Bandicoots occupying the site.	In Control	Clearing practices involve a two-staged process as required by the MP.	
Pre clearance surveys	6.1.1	Prior to the first stage of clearing, the area to be cleared will be marked using flagging and surveyed by an ecologist or suitably trained and experienced fauna catcher/spotter to locate, record and mark specific habitat features that are proposed for preservation and redistribution to the emplacement (e.g. rocks and boulders, stags and large hollows).	In Control	Pre-clearance surveys undertaken as required which contains instructions for redistributing habitat	
Two stage Clearing	6.1.2	Where possible, (i.e. where access to trees by the excavator is safe and practical), clearing of hollow bearing trees will be performed in a two stage process where surrounding vegetation is cleared separately, before the removal of habitat trees to allow fauna an opportunity to move.	In Control	Clearing practices involve a two-staged process as required by the MP. Pre-clearance surveys undertaken as required which contains instructions for redistributing habitat.	
Management of Captured Animals	6.1.3.1	If a Broad-headed Snake is found during the two-stage clearing process, the animal will be relocated to pre-determined suitable habitat within the Appin North surface mining lease area	In Control	In April 2016, one individual Broad-headed Snake was found in the Stage 3 area during a pre-clearing survey. The individual was captured and released to another location in accordance with this Plan. No other individuals have been located in areas being cleared since.	

				Two juvenile Broad-headed Snakes (one alive and one deceased) were observed in the Appin North switch room in January 2024. The snake that was alive exited the switch room of its own accord and did not require	
Management of Captured Animals	6.1.3.1	Pre-determined sites for relocation will take into account the species home ranges and be evenly spaced to avoid social conflict.	In Control	In April 2016, one individual Broad-headed Snake was found in the Stage 3 area during a pre-clearing survey. The individual was captured and released to another location in accordance with this Plan. Two juvenile Broad-headed Snakes (one alive and one deceased) were observed in the Appin North switch room in January 2024. The snake that was alive exited the switch room of its own accord and did not require relocation.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Management of Captured Animals	6.1.3.1	Pre-determined relocation sites will necessarily consist of the following: • occur on Hawkesbury Sandstone within the current known range of the species and provide rocky (rock on rock) outcrops with a westerly or north-westerly aspect, and horizontal crevices; and/or • have large adjacent areas of woodland that support large stags or trees bearing numerous hollows. The adjacent woodland will ideally be larger than the area supporting rocky outcrops and contain preferred species of 'habitat trees' (trees most often selected by Broad-headed Snakes) such as <i>Eucalyptus gummifera</i>, <i>E. punctata</i>, <i>E. agglomerata</i> and <i>E. pipperita</i>.	In Control	The snake found in April 2016 was relocated to pre-determined habitat in accordance with Figure 3 of the MP.	
Management of Captured Animals	6.1.3.1	Any other fauna located within the CWEA during the pre-clearance survey will also be relocated. In particular, any Velvet Geckos (and other lizards) encountered will be relocated to the same pre-determined sites for Broad-headed Snakes to provide prey for the relocated snakes.	In Control	Not triggered	
Management of Captured Animals	6.1.3.1	Where possible, snakes will be translocated from the initial capture point to the nearest site considered suitable for the long-term habitation by the species, but not more than 1 km from that point (where possible) to reduce the possibility for unfavourable genetic mixing. Snakes will be released at sites as soon as practicable after capture.	In Control	The snake found in April 2016 was relocated to pre-determined habitat in accordance with Figure 3 of the MP.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Management of Captured Animals	6.1.3.1	BCD will be notified within one month of any Broad-headed Snakes identified during preclearance surveys and relocated.	In Control	Not triggered for pre-clearance surveys. BCD was notified of the two juvenile Broad-headed Snakes observed in the Appin North switch room.	
Management of Captured Animals	6.1.3.2	Sites for relocation will take into account the species home ranges and be evenly spaced to avoid social conflict. Where possible, captured bandicoots will be translocated from the initial capture point to the nearest site considered suitable for the long-term habitation by the species, but not more than 1 km from that point (where possible) to reduce the possibility for unfavourable genetic mixing.	N/A	Not triggered	
Management of Captured SBBs	6.1.3.2	Bandicoots will be released at sites as soon as practicable after capture.	N/A	Not triggered	
Habitat Translocation - Broad-headed Snake	6.1.4	Suitable winter habitat occurring within the Stages 3 and 4 of the Emplacement Area will be identified during the pre-clearance survey.	In Control	Pre-clearance surveys undertaken as required which contains instructions for redistributing habitat.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Habitat Translocation - Broad-headed Snake	6.1.4	Rehabilitation of the CWEA for the Broad-headed Snake, in terms of winter habitat, will include the following: • Salvaged rocky outcrops and boulders will ideally be positioned with a westerly or north-westerly aspect and crevices should remain horizontal. • The Velvet Gecko should also be translocated. Suitable habitat for this prey species is the same as for the Broad-headed Snake's winter habitat and includes loose rock on rock substrate. • Translocated rocky features/shelter sites will ideally be evenly spaced and not clumped together to encourage a greater number of Broad-headed Snakes to the area. If shelter sites are too close together, they are likely to remain uninhabited due to home range overlap. Shelter sites will ideally be placed at least 300 m apart and close/adjacent to suitable summer habitat (translocated hollow-bearing trees/stags or limbs within rehabilitating sections of the old CWEAs).	In Control	Artificial pavers were installed in the emplacement area in FY22. The FY25 monitoring was undertaken in Early Spring as recommended in the previous Annual CWEA Rehabilitation Report. This will be continued as part of the Annual Monitoring schedule.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

		• Artificial rocks/concrete pavers will be added to the CWEA behind the line of clearing to increase habitat opportunities for prey items and the Broad-headed Snake if insufficient natural rock cannot be sourced from the CWEA for this purpose. The use of large pavers (30 – 45 cm wide and 5 – 10 cm thick) are recommended, as well as a range of smaller pavers (e.g. 19 cm wide) and thicker pavers (e.g. > 30 cm thick) placed with a variety of crevice sizes (up to 10 mm). The artificial rocks will be placed in both shaded and exposed areas to provide a range of suitable micro-climates for the snake and its prey depending on the time of year. • Hollow logs and hollow-bearing stags will also be translocated to provide additional retreat-sites for the Broad-headed Snake and its prey.			
Habitat Protection during construction	6.1.5	Sediment control measures will be adopted during clearing, as outlined in the CWEAMP.	In Control	Incorporated into CWEA design requirements	
Habitat Protection during construction	6.1.5	Areas approved for clearing will be clearly demarcated using flagging tape and regularly inspected to prevent unnecessary clearing or access by construction vehicles and plant to surrounding potential habitat.	In Control	CWEA boundaries are defined on digital plans and bounded by haul roads and diversion drains. Areas to be progressively cleared are defined in the pre-clearance survey.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Habitat Protection during construction	6.1.5	Construction materials and spoil must not be stored, dumped or stockpiled within surrounding habitat.	In Control	Stockpiling of freshly stripped topsoil is avoided through progressive rehabilitation. There are some stockpiles onsite containing topsoil material from the original Stage 3 emplacement development construction; however this is strategically set aside for future capping material as the emplacement progresses down the valley. These stockpiles are stable and non-polluting and situated within the approved disturbance footprints. There is also a single stockpile of VENM gained from a local construction project. The material has since been identified as being incommensurate with capping material for the CWEA. In FY25 the material has been utilised to reinforce the walls of Stockpile number 4 and Pond 5. There is still a volume of VENM stockpiled for later use.	
Habitat Protection during construction	6.1.5	Induction of the CWEA Supervisory personnel will include information about the Southern Brown Bandicoot and its habitat within Stage 4 of the CWEA, along with protection measures that will be in place and enforced during the construction period.	In Control	Training was provided to CWEA Supervisory personnel in FY25. Construction in Stage 4 has not yet commenced.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Habitat Protection during construction	6.1.5	General information on threatened species (including key site contacts for threatened species) will be provided to all CWEA personnel and included in the pre-clearance survey and Permit to Disturb.	In Control	Threatened species identification provided to all supervisory personnel during onboarding. CWEA pre-clearance process provides a refresh to personnel in relation to threatened flora and fauna prior to any clearing works being undertaken. Supervisor refresher training completed in FY25.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Vegetation clearing to be within approved boundaries as defined in the Project Approval and shown in Figure 1 of the CWEAMP	In Control	Boundaries set out in CWEAMP. Progressive clearing boundaries defined in pre-clearance survey and Permit to Disturb. Any additional clearing (outside the emplacement area) onsite will consider internal and external approval requirements.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Summary of Impact Minimisation Strategies	6.2/ Table 3	Conduct pre-clearance surveys in the Stage 3 and 4 CWEAs and subsequent two-stage clearing, to give animals the opportunity to move away. Individuals found will be relocated to pre-determined suitable habitat within the Appin North surface mining lease area.	In Control	Two-stage clearing processes are being followed as required. No SBB individuals have been found to date. The BHS found in April 2016 was relocated to pre-determined habitat in accordance with Figure 3 of the MP. Two juvenile Broad-headed Snakes (one alive and one deceased) were observed in the Appin North switch room in January 2024. The snake that was alive exited the switch room of its own accord and did not require relocation.	
Summary of Impact Minimisation strategies	6.2/ Table 3	Document by preparation of pre-clearance survey reports for every emplacement phase cleared including use of GIS coordinates for survey results.	In Control	Pre-clearance survey reports completed as required and issued to the CWEA contractors undertaking the clearing. Last report completed April 2025.	
Summary of Impact Minimisation strategies	6.2/ Table 3	Document numbers of individuals observed, trapped and released. Observation of animal condition. Record release location. Document the number of injuries and deaths and report in Annual Review. Complete post-clearance survey report.	In Control	ICHPL engaged a snake expert from Niche Environment & Heritage in 2016 to capture and relocate the individual. A brief report was prepared documenting the process. The April 2016 snake was relocated to pre-determined habitat in accordance with Figure 4 of the MP.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Summary of Impact Minimisation strategies	6.2/ Table 3	Placement of hollow logs, stags and hollows and rock outcrop elements of habitat for the Broad-headed Snake in rehabilitated areas.	In Control	Rehabilitation includes placement of rocks and hollows as required. Pre-clearance surveys also identify flat rock to be retained and translocated to the rehabilitation areas. Artificial pavers were installed in the emplacement area in FY22. No translocation of Velvet Geckos has been undertaken or required.	
Summary of Impact Minimisation strategies	6.2/ Table 3	Installation of artificial habitat (e.g. concrete paving slabs) if necessary when suitable rocky habitat from salvage is not available or cannot be positioned acceptably.	In Control	Rehabilitation includes placement of rocks and hollows as required. Pre-clearance inspections also identify flat rock to be retained and translocated to the rehab areas. Artificial pavers were installed in the emplacement area in FY22. No translocation of Velvet Geckos has been undertaken or required. The FY25 monitoring was undertaken in early Spring as recommended in the previous Annual CWEA Rehabilitation Report. This will be continued as part of the Annual Monitoring schedule.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Placement of topsoil, hollow logs and other structural elements of habitat for the Southern Brown Bandicoot in rehabilitated areas.	In Control	Undertaken as part of the progressive rehabilitation program - See Annual Emplacement Rehabilitation Monitoring Report.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Annual Emplacement Rehabilitation Inspection program undertaken.	In Control	As above	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Summary of Impact Minimisation Strategies	6.2/ Table 3	Reports from the annual rehabilitation monitoring program to be attached to the Appin Mine Annual Review.	In Control	Report is included each year as an appendix to the Annual Review.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Dust impacts from CWEA operations will be mitigated by the coal wash material being wet from coal washing processes, use of water carts and being compacted once emplaced.	In Control	In addition to coal wash moisture content, a watercart is in use for the active CWEA as additional dust control.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Active CWEA will be capped and vegetated as soon as practicable.	In Control	Rehabilitation is progressive as required. ~1.7 ha of Stage 3 active emplacement was capped and topsoiled over FY25. Seeding of these areas is planned to be completed early FY26.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Annual environmental reporting of air quality results and performance of mitigation measures in the Appin Mine Annual Review.	In Control	Dust results are provided in the Annual Review each year as required.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Participation in regional vertebrate pest programs with National Parks and Wildlife Service and WaterNSW through liaison with program managers and funding (if applicable).	In Control	No programs initiated over FY25. If required vertebrate and pest programs will be initiated.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Note: The regional research program established under the EPBC Act project approval (condition 7b) will focus on population monitoring. A regional pest problem will be designed once a population of Southern Brown Bandicoots has been confirmed and defined.	In Control	No population of SBBs has been confirmed or defined.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Reporting of project to DCCEEW and other stakeholders.	In Control	DCCEEW is provided with a copy of the Annual Review each year.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Summary of Impact Minimisation Strategies	6.2/ Table 3	Adjustments made to systems and methods as a result of monitoring results or a review of procedures as required.	N/A	Not Triggered	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Monitoring including pre-clearance surveys, capture and transfer of animals, implementation of two-stage clearing, success of habitat translocation efforts and progress in rehabilitation of emplacement sites.	In Control	Pre-clearance surveys undertaken as required, no SBB have been captured and no BHS since 2016. Success of rehabilitation reported in the Annual Review.	
Summary of Impact Minimisation Strategies	6.2/ Table 3	Annual compliance report to DCCEW.	In Control	Annual compliance report submitted as required.	
Monitoring	6.3	Monitoring requirements will include: • pre-clearing surveys, which includes monitoring of habitat and species presence; • records of capture and transfer of animals (if required); • implementation of two-stage clearing; • success of habitat translocation efforts; and • progress of rehabilitation in emplacement sites through the Annual Emplacement Monitoring Program.	In Control	Two pre-clearing inspections for Stage 3 occurred over FY25. Inspections recorded any habitat and species present and utilised a Two-stage clearing methodology. No animals were captured or transferred over FY25. Success of the rehabilitation efforts are recorded in the 2024 Annual Emplacement Monitoring Report.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Provision of Regional Funding	7.1	ICHPL has funded \$250,000 towards the regional management of the Southern Brown Bandicoot and Broad-headed Snake programs as outlined in this Plan and as detailed in the Offset Strategy (Appendix 7). The project took place over three years commencing July 2014 and finishing June 2017 with payments issued as follows: • Year 1 \$85,000 July 2014. • Year 2 \$85,000 July 2015. • Year 3 \$80,000 July 2016.	In Control	Program completed as required	
Actions to be funded	7.2	OEH developed a Project Proposal to be funded by ICHPL, which addressed points (c) to (f) of the EPBC Approval Condition 7. The Project Proposal, OEH Letter of endorsement and BHPBilliton letter of endorsement are provided in Appendix 7, Appendix 8 and Appendix 9 respectively.	In Control	The (then) NSW Office of Environment and Heritage (OEH) developed a Project Proposal to be funded by ICHPL, which addresses points (c) to (f) of the EPBC Act Approval Condition 7.	
Impacts to other EPBC Act Listed Species	7.3	Condition 7(d) of the EPBC Approval for works conducted by OEH as follows: (d) a demonstration that management actions to be undertaken will not adversely impact EPBC Act listed species; The OEH Proposal addressed the above requirement (see section titled Consideration of Impacts of the Project).	In Control	The OEH Proposal addressed the above requirement.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan
 APNMP0111
 Management Plan Version 2.0

Funding Arrangements	7.4	OEH provided a Project Proposal for the Broad headed snake and Southern Brown bandicoot Recovery Actions (see Appendix 8). ICHPL provided the funding through a Non-order Invoice (NOI). OEH issued three separate invoices, prior to the start of each financial year i.e. Year 1, Year 2 and Year 3.	In Control	ICHPL provided the funding through a Non-order Invoice (NOI). OEH issued three separate invoices, prior to the start of each financial year i.e. Year 1, Year 2 and Year 3.	
Documentary Evidence of Funding	7.5	ICHPL provided documentary evidence to the DoTE&E in September 2016 to satisfy this condition. The relevant results were included in the FY17 BSO Annual Review.	In Control	ICHPL provided documentary evidence to the DoTE&E in September 2016 to satisfy this condition. This has been described in the FY17 Annual Review, available at this link: https://gm3.au/appin-mine/.	
Reporting	8.1	Incidents and non-compliances will be reported to all relevant agencies via the Annual Review or notified in accordance with Section 8.2.	N/A	There were no incidents or non-compliances associated with this MP in FY25.	
Reporting	8.3.1	Annual reporting is undertaken as per Condition 14 of the EPBC Approval. The Compliance Report is required to be submitted to DCCEEW by 15 August of each year via EPBCMonitoring@dcceew.gov.au, is attached as an appendix in the Annual Review , and is published on the GM³ website. The Compliance Report is also submitted to the Resources Regulator in accordance with Schedule A of Consolidated Coal Lease 724.	In Control	The Compliance Report has been submitted as required and attached as an Appendix in the relevant Annual Review.	

Reporting	8.3.2	ICHPL will report on the performance of the SBMP in the Annual Review. The Annual Review is prepared in accordance with Condition 4 of Schedule 6 of the Project Approval and is submitted to relevant agencies in September each year. Annual Reviews are made available to the general public via the GM ³ website.	In Control	The Annual Reviews have been completed as required and published to the company website. Actions taken to support the SBMP will be detailed in the Annual Review.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Review of SBMP	8.4	In accordance with Condition 5 of Schedule 6 of the Project Approval, the SBMP will be reviewed, and if necessary revised, within three months, of: • the submission of an annual review; • the submission of an incident report; • the submission of an Independent Environmental Audit (IEA) report; and • any modification to the conditions of the Project Approval (unless the conditions require otherwise) or. • a direction of the Planning Secretary under Condition 4 of Schedule 2. Review of the SBMP will also be undertaken: • following significant environment incidents; • when there is a need to improve performance in an area of environmental impact; and • periodically to maintain SBMP currency. Outcomes from each review will be documented in the Management Plan Review Log (unless the SBMP is being updated as part of the review). The SBMP will only be revised where a material change to site operations or environmental management has occurred, or in accordance with the review period on the SBMP. Administrative or descriptive changes do not constitute a material change. Where a review triggers a revision of the SBMP, the SBMP will be revised and submitted to the Secretary and/or Minister for approval. Once approved, the SBMP will be uploaded to the GM³ website.	In Control	The Management Plan Review log is being maintained. The Broad-headed Snake and Southern Brown Bandicoot Management Plan was approved by DPHI on 9 April 2025 and DCCEEW on 10 June 2025.	

Broad-headed Snake and Southern Brown Bandicoot Management Plan

APNMP0111

Management Plan Version 2.0

Publication	12.3	Condition 13 of the EPBC Approval requires the proponent to: <i>...publish all management plans, reports, strategies or agreements required by these conditions of approval on their website. Each management plan, report strategy or agreement must be published on the website within 30 days of being approved.</i> Approved versions of the SBMP will be displayed on the GM³ website.	In Control	The approved SBMP is available on the GM³ website here: https://gm3.au/appin-mine/.	
Independent Environmental Audit	12.4.1	In accordance with Condition 9 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval, an IEA shall be commissioned every three (3) years, that will include a review of the SBMP. The report is required to be submitted to the Secretary within six weeks of completion of the audit, in accordance with Condition 10 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval. IEAs have been conducted in 2013, 2016/17 and 2019 and 2022, with the next IEA to be conducted in 2025. Recommendations from the IEA will be incorporated into the SBMP where appropriate.	In Control	The last IEA was conducted in 2022. A copy of the IEA Report was provided to DCCEE as required. The next IEA will be completed in 2025.	

ISO 14001	12.4.2	As part of the ISO 14001 certification, ICHPL maintains an environmental auditing and governance program across all of its operational sites. The program, which includes the use of competent internal and accredited external auditors, is an integral part of maintaining certification under the ISO 14001 standard. External surveillance audits are undertaken on an annual basis, with recertification audits undertaken every three years. Internal audits (Governance Reviews) of the SBMP are nominally undertaken on a three yearly basis.	In Control	The last Governance Review was undertaken in March 2023. The next Governance Review is scheduled for 2026.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

AUDIT REVIEW					
Section	MP Ref.	Requirement / Obligation	Outcome	Comment and Evidence	Proposed Action
Protection Mechanism	3.2.2	The <i>Persoonia hirsuta</i> Offset Area is protected by incorporating a special condition into Consolidated Coal Lease No. 724 (CCL 724)	In Control	CCL 724 includes Schedule A requiring compliance with the <i>Persoonia hirsuta</i> Offset Management Plan as required by EPBC Approval 2010/5350.	
Protection Mechanism	3.2.2	The leaseholder must comply with the <i>Persoonia hirsuta</i> Offset Management Plan approved (and modified if applicable) in accordance with the requirements of the Bulli Seam Operations Expansion, Bulli, NSW (EPBC 2010/5350) Approval dated 15 May 2012, made under sections 130(1) and 133 of the Environment Protection and Biodiversity Conservation Act 1999 (<i>EPBC Act</i> Approval).	In Control	Last IEA was completed in 2022 that assessed and confirmed compliance with this condition. Next IEA scheduled for 2025.	
Protection Mechanism	3.2.2	The leaseholder must provide the Secretary of the Department of Regional NSW with a copy of the Compliance Report required by condition 14 of the EPBC Act Approval at the same time that the report is published in accordance with that condition.	In Control	The FY24 Compliance Report was submitted at the same time as it was submitted to DCCEE.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Protection Mechanism	3.2.2	The leaseholder must also provide the Secretary with a copy of the Audit Report required by Condition 18 of the <i>EPBC Act</i> Approval as soon as practicable following confirmation that the Audit Report addresses the audit criteria to the satisfaction of the Minister responsible for the administration of the <i>EPBC Act</i> (or their delegate).	In Control	The triennial audit reports are provided to the Resources Regulator as required. The last IEA was undertaken in 2022. The next IEA is scheduled for 2025.	
Protection Mechanism	3.2.2	In the event that the <i>Persoonia</i> Offset cannot achieve the objectives of Conditions 1 and 2 of the EPBC Approval, ICHPL will provide an offsite offset or alternative offset if: - Annual surveys over the period 2037 – 2039 (both inclusive) demonstrate that the <i>P. hirsuta</i> core population has not been maintained or enhanced to the satisfaction of the Department. An offsite offset to be agreed by the department must be provided. The offsite offset must be secured by a legal mechanism acceptable to the Department six (6) months prior to the expiry date of the EPBC approval (by 18 December 2041). In the event it can be demonstrated that a suitable offsite offset could not be found, ICHPL will provide an alternative compensatory measure commensurate with the requirements of Condition 1 of the EPBC Approval to the satisfaction of the	In Control	Not triggered.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

		- CCL 724 is not renewed or is revoked at any time prior to the expiry date of the EPBC approval (15 May 2042). An alternative offset to be agreed by the Department must be secured by a legal mechanism acceptable to the Department within two (2) years of the relinquishment or revocation of CCL 724. In the event it can be demonstrated that a suitable alternative offset could not be found, ICHPL will provide an alternative compensatory measure commensurate with the requirements of Condition 1 of the EPBC Approval to the satisfaction of the Department.			
Persoonia Monitoring	5.2.1	All extant plants will be inspected annually to record the following attributes: * height and width to measure growth rates; * age class and condition to assess reproductive activity, age to maturity overall health of the population etc; * visual observations for any seedlings; and * comments on any imminent threat or risk to the plants health (e.g. apparent disease, excessive dust deposition) to assess the effectiveness of management actions	In Control	Refer to Annual <i>Persoonia</i> health monitoring report that is submitted each year to DCCEEW.	

Persoonia hirsuta Offset Management Plan

APNMP0122

Management Plan Version 1.1

Persoonia Monitoring	5.2.1	Height will be measured using a tape measure, measuring from the ground surface to the highest point on the plant, without physically moving any part of the plant. Condition will be defined using a combination of factors, including the percent cover of leaves, colour of leaves and the presence or absence of fruit or flowers, rating condition from 0 to 6, or from very poor condition to excellent condition. All plants have been recorded with a Garmin GPS and flagged with fluorescent, biodegradable flagging tape and given a unique ID.	In Control	Monitoring methods as per the above.	
Survey Timing	5.2.1	The survey will be conducted from late spring into early summer which is the peak flowering period for the species.	In Control	Monitoring is undertaken during the peak flowering season. This does change slightly depending on season but generally falls late Spring into early summer.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Reporting	5.2.3	In accordance with Condition 2 (h) of the EPBC Approval, the results of the monitoring will be provided to the Department within 30 days of every 12-month anniversary of the implementation date of the OMP.	In Control	A request for an extension was submitted prior to the due date due to the additional monitoring requirements included as part of the biodiversity monitoring program for FY25, that resulted in the partial delay of the monitoring schedule. No response was received from DCCEEW to reject the extension. The 2024 report was submitted on 7 February 2025.	
Research	6	ICHPL has engaged the University of Wollongong (UoW) and ABGMA to conduct research on <i>P. hirsuta</i> . The aim of the research is to gain a better understanding of the ecology and genetics to satisfy Condition 3 of the <i>EPBC Act</i> Approval. A summary of the research undertaken to-date as well as the research planned is provided in Table 3.	In Control	The research report was submitted to DAWE on 29 June 2021 in accordance with Condition 3e of EPBC Approval 2010/5350. Monitoring of <i>Persoonia hirsuta</i> translocations continued over FY24. Seed collection occurred in FY25 with stocks being maintained by Mount Annan Botanic Gardens.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Research	6	As new information becomes available regarding the local population of <i>P. hirsuta</i> , this will be incorporated into the OMP revisions as required.	In Control	The research report was submitted to DAWE on 29 June 2021 in accordance with Condition 3e of EPBC Approval 2010/5350. The Offset Management Plan was reviewed in 2025 to incorporate the outcomes of the research. The updated OMP was submitted to DCCEE on 2 May 2025 and has not yet been approved.	
Research	6	In accordance with Condition 3 of the EPBC Approval, ICHPL prepared a research report that was submitted to DAWE by 30 June 2021. The research report is available on the GM3 website in accordance with Condition 3 (f) of the EPBC Act Approval.	In Control	The research report was submitted to DAWE on 29 June 2021 in accordance with Condition 3e of EPBC Approval 2010/5350. The research report has been published on the GM3 website: https://gm3.au/appin-mine/	
Performance Objectives and Management Actions	7.1	1a. Secure Offset by the required timeframe i.e. 15 May 2014.	In Control	Offset secured as per timing requirements.	
Performance Objectives and Management Actions	7.1	1b. Offset must include a minimum area of suitable habitat to support at least 150 <i>P. hirsuta</i> plants.	In Control	Minimum area is available as per the Offset Management Plan.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Performance Objectives and Management Actions	7.1	1c. Maintain or increase the number of individual plants in the Offset Area relative to the 2012 baseline population (~44 plants).	In Control	Three translocations have been undertaken to Appin North (Autumn 2019, Autumn 2021 and Autumn 2022), resulting in an increase in numbers of individual plants (noting that the second translocation was in the CWEA and not the offset area).	
Performance Objectives and Management Actions	7.1	2a. Develop a <i>P. hirsuta</i> research strategy.	In Control	Research strategy is included in the MP.	
Performance Objectives and Management Actions	7.1	2b. Targeted research commenced by July 2013.	In Control	Targeted research has been underway since 2013.	
Performance Objectives and Management Actions	7.1	2c. Research findings published by 30 June 2021 as per the EPBC Approval.	In Control	The research report was submitted to DAWE on 29 June 2021 in accordance with Condition 3e of EPBC Approval 2010/5350.	
Performance Objectives and Management Actions	7.1	2d. Undertake Phase 3 translocation in FY22.	In Control	The Phase 3 translocation was undertaken in May 2022.	
Performance Objectives and Management Actions	7.1	2e. Continue to monitor outcomes of translocation trials.	In Control	Annual monitoring of the trials has been and will continue to be undertaken.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Performance Objectives and Management Actions	7.1	2f. Investigate opportunities with suitable organisations and research institutions for undertaking targeted research to progress recommendations as outlined in the Research Report.	In Control	Monitoring of <i>Persoonia hirsuta</i> translocations continued over FY24. Seed collection occurred in FY25 with stocks being maintained by Mount Annan Botanic Gardens. Progress will be reported in the Annual Review.	
Performance Objectives and Management Actions	7.1	3a. No loss of <i>P. hirsuta</i> in the Offset Area due to land clearing or operational activities	In Control	Plants in an exposed position are clearly demarcated. There has been no loss due to land clearing or operational activities. Permit to Disturb process is in place.	
Performance Objectives and Management Actions	7.1	3b. No loss of <i>P. hirsuta</i> in other areas of site (outside the approved emplacement and development footprints) due to land clearing or operational activities.	In Control	Plants in an exposed position are clearly demarcated. There has been no loss due to land clearing or operational activities. Permit to Disturb process is in place.	
Performance Objectives and Management Actions	7.1	3c. Restrict access to Offset Area.	In Control	Signage in place. Access to Appin North is restricted. Permit to Disturb process in place. The area is not fenced to allow unimpeded access for wildlife and pollination vectors across the site.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Performance Objectives and Management Actions	7.1	3d. Avoidance of surface runoff from emplacement areas entering the <i>Persoonia hirsuta</i> Offset Area	In Control	Routine inspections of the Offset have not identified any issues regarding surface runoff from emplacement areas. Stage 4 emplacement construction has not yet commenced. Stage 3 is buffered by a haul road separating the Offset from the active disturbance areas. Drainage from disturbance areas is directed to dedicated catchment ponds. Drainage will be incorporated into the design of Stage 4 CWEA. CWEA activities are currently being undertaken in Stage 3 and Stage 4 is not yet required.	
Performance Objectives and Management Actions	7.1	3e. Minimise weed infestation within the Offset Area	In Control	Minor weed control is undertaken by experienced personnel for perennial grasses on the powerline easement.	Weed control is ongoing.
Performance Objectives and Management Actions	7.1	3f. Minimise dust impacts to <i>P. hirsuta</i> from operational activities.	In Control	Dust from CWEA is mitigated by the wet coal washing process and the compaction of emplaced coal wash. Areas are rehabilitated as soon as practicable. Water carts are in use on the active CWEA. Routine inspections of the Offset have not identified any issues regarding dust impacts.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Performance Objectives and Management Actions	7.1	4. Adequate regeneration of emplacement as per the approved CWEA Management Plan.	In Control	Adequate regeneration is occurring as noted in the annual Emplacement Rehabilitation Report.	
Performance Objectives and Management Actions	7.1	Soil translocation protocols and re-vegetation protocols are implemented as per the CWEA Management Plan e.g. topsoil from the donor site will be stripped from the surface in layers. The most valuable layer is the top 50 mm of soil which contains the majority of soil stored seed and propagules, plant nutrients and beneficial soil microbes.	In Control	As per CWEAMP.	
Performance Objectives and Management Actions	7.1	<i>P. hirsuta</i> individuals within the approved emplacement and development footprints were translocated to the rehabilitating emplacement in 2021. Future translocations may occur to supplement existing populations if required.	N/A	Not required at this stage.	
Performance Objectives and Management Actions	7.1	Successfully propagated plants (or seed from propagated plants) are introduced from the nursery at ABGMA to the rehabilitating emplacement (or other suitable areas outside the emplacement and disturbance footprints).	In Control	Translocation of <i>Persoonia</i> Plants into the Offset Area was undertaken in Autumn 2022. No translocations were undertaken in FY25.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Performance Objectives and Management Actions	7.1	Installation of eight (8) native bee habitats was completed in 2023 to promote pollination of <i>P. hirsuta</i> individuals present in the CWEA rehabilitation areas.	In Control	Monitoring of native bee habitats is ongoing.	
Performance Objectives and Management Actions	7.1	Annual rehabilitation survey will be conducted and a report attached to the Appin Mine Annual Review.	In Control	Annual report is attached as an appendix each year to the Annual Review. The most recent rehabilitation report was submitted to DCCEEW via email on 24 June 2025.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Management Actions and Commitments from Research	7.2	1. Promoting outcrossing conditions. • This has been achieved through sourcing propagative material over three years (2017-2019) from several wild populations throughout the Sydney region to supply the <i>P. hirsuta</i> translocation trials occurring at Appin North. This strategy ensures the translocated population will contain a level of genetic diversity that reflects the natural species' distribution. • Genetic studies conducted by ABGMA have confirmed there is a significant amount of genetic diversity in the Sydney region which has been enhanced in the Appin North translocations. • The following sourced material (location, year, propagative material) was utilised in the translocations stages 1, 2 and 3 translocation: - Appin North, 2017, vegetative cuttings and seeds (stages 1, 2 and 3) - Glenorie, 2017-19, seeds (stages 1, 2 and 3) - Yanderra, 2018, vegetative cuttings (stages 1, 2 and 3) - Parr SCA, 2019, seeds (stages 2 and 3) - Yango NP, 2017-2019. Seeds and	In Control	Sourcing of vegetative material from a diverse set of locations for the <i>P. hirsuta</i> translocations has achieved this action.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Management Actions and Commitments from Research	7.2	2. Encouraging the presence of natural pollinators. • This will be encouraged by the placement of native bee habitat in areas of known <i>P. hirsuta</i> populations. In 2023 eight (8) native bee habitats were placed in the CWEA Rehabilitation area, <i>P. hirsuta</i> offset area and along the Dam Road. These habitats were installed to specifically encourage the visitation of native solitary bees (including <i>Tetragonula</i> spp., <i>Exoneura</i> spp. and <i>Amegilla</i> spp.) that have been identified as pollinating species of <i>P. hirsuta</i>. • The presence of natural pollinators is also being encouraged in the Appin North Rehabilitation areas through promoting the growth of native flowering plants that attract natural pollinators. This is achieved through using fresh soil with a naturally occurring seed bank of flowering native plant species as capping material for the rehabilitation areas as well as directly seeding native flowering plants onto the freshly capped areas. This will encourage native Australian bees to naturally inhabit areas within the Appin North site. Some native flowering species present on the	In Control	Native bee habitats were installed in FY23. Monitoring of bee habitat occurred in FY25. The monitoring indicated use of the habitat by various bee and wasp species, and indicated the presence of known pollinators of <i>P. hirsuta</i>. The translocation of soil from areas stripped in advance of the CWEA onto the active rehabilitation area will continue to be implemented. Seeding of the translocated soil to initiate the growth of various native flowering plants will also be continued.	Continue to monitor success of bee habitat installation.

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Management Actions and Commitments from Research	7.2	3. Discouraging damage of plants from herbivory. • Translocated plants will be protected with plant guards to assist in preventing potential herbivory, particularly in early translocation stages where introduced plants are adapting to an in-situ environment. • ICHPL placed mesh plant guards around the remaining <i>P. hirsuta</i> individuals in the Stage 1 translocation area as well as placing plant guards on all future translocations to protect them from herbivory.	In Control	Stage 1 translocation trial adopted mesh guards for a portion of the individuals to allow for observation of herbivory. Stages 2 and 3 translocations included the use of mesh guards on all plants.	
Management Actions and Commitments from Research	7.2	4. Managing bushfire risk. • Research has identified the importance of extended fire intervals in <i>Persoonia</i> populations. • The Appin Mine Bushfire Management Plan has been updated to show the location of adult plants at Appin North. The plan can be referred to in the event of a bushfire to avoid backburning in these areas.	In Control	Bushfire regimes for the Offset Area continue to be reviewed.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Management Actions and Commitments from Research	7.2	5. Maintaining <i>Persoonia</i> stocks through propagation. • Translocations of <i>Persoonia</i> plants have been effective in maintaining populations. • In 2024, through collaboration with the Saving Our Species government program, seed was collected from wild and translocated <i>P. hirsuta</i> populations in Appin North for processing at ABGMA. The goal of 30 individuals will be maintained by ABGMA for future translocations. • ICHPL will support the ABGMA to maintain a stock of <i>Persoonia</i> plants in their nursery for future translocations and future collection of seed (to be reviewed annually).	In Control	Two <i>Persoonia hirsuta</i> translocations have occurred within the offset area within Appin North to maintain populations. One <i>P. hirsuta</i> translocation has also occurred within the Stage 3 CWEA rehabilitation. Seed collection occurred in FY25 and Mount Annan are currently maintaining <i>P. hirsuta</i> stocks to supplement populations as required.	
Reporting	8.1.1	ICHPL will report on the activities undertaken under the OMP in the Annual Review. The Annual Review is prepared in accordance with Condition 4 of Schedule 6 of the Project Approval and is submitted to relevant agencies in September each year. Annual Reviews are made available to the general public via the GM3 website.	In Control	The Annual Review has been prepared annually and is available on the GM³ website.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Reporting	8.1.2	The purpose of the <i>P. hirsuta</i> Condition Monitoring Report is to provide the results of the annual monitoring of the <i>P. hirsuta</i> population at Appin North. The report is provided following the annual inspection. The monitoring is undertaken in accordance with the approved <i>P. hirsuta</i> Offset Management Plan, which complies with Condition 2 (h) of EPBC Approval 2010/5350. The report is required to be submitted to DCCEEW by 22 December of each year via EPBCMonitoring@dcceew.gov.au. A copy of the report is appended to the Appin Mine Annual Review.	In Control	A request for an extension was submitted prior to the due date due to the additional monitoring requirements included as part of the biodiversity monitoring program for FY25, that resulted in the partial delay of the monitoring schedule. No response was received from DCCEEW to reject the extension. The 2024 report was submitted on 7 February 2025.	
Incident and Non-compliance Notifications	8.2	Events, non-compliances, corrective actions and preventative actions are managed in accordance with the Reporting and Investigation Standard and Environmental Compliance/Conformance Assessment and Reporting Procedure. These procedures, which relate to all ICHPL operations, detail the processes to be utilised with respect to event and hazard reporting, investigation and corrective action identification.	In Control	There were no events or non-compliances relating to the OMP in FY25.	
Incident and Non-compliance Notifications	8.2	Incidents and non-compliances as defined under the Project Approval relating to biodiversity will be reported to all relevant stakeholders as detailed in Section 8.2.1.	In Control	There were no events or non-compliances relating to biodiversity in FY25.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Incident and Non-compliance Notifications	8.2	The Emergency Response Control Plan (APNMP0005) will be activated in an emergency. The plan includes contact details and duty cards for site personnel.	N/A	There were no emergencies relevant to <i>P.hirsuta</i> in the reporting period.	
Incident and Non-compliance Notifications	8.2	The Pollution Incident Response Management Plan (PIRMP), available on the GM3 website here, will be activated where a pollution incident occurs that causes or threatens material harm to the environment.	N/A	There were no emergencies relevant to <i>P.hirsuta</i> in the reporting period. The PIRMP was not activated.	
Review of the OMP	8.3	In accordance with Condition 5 of Schedule 6 of the Project Approval, the OMP will be reviewed, and if necessary revised, within three months, of: • the submission of an Annual Review; • the submission of an incident report; • the submission of an Independent Environmental Audit (IEA) report; or • any modification to the conditions of the Project Approval (unless the conditions require otherwise), or • a direction of the Planning Secretary under Condition 4 of Schedule 2.	In Control	The research report was submitted to DAWE on 29 June 2021 in accordance with Condition 3e of EPBC Approval 2010/5350. The Offset Management Plan was reviewed by ICHPL in discussions with DAWE (now DCCEEW). The Offset Management Plan was approved by DAWE on 18 May 2022. Reviews are undertaken in relation to these requirements and outcomes recorded in the Management Plan Review log.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Review of the OMP	8.3	Outcomes from each review will be documented in the Management Plan Review Log (unless the OMP is being updated as part of the review). The OMP will only be revised where a material change to site operations or environmental management has occurred, or in accordance with the review period on the OMP. Administrative changes do not constitute a material change.	In Control	The OMP was reviewed in FY25 and submitted to the Department and DCCEEW on 2 May 2025. Feedback on/approval of the revised OMP has not yet been received.	
Review of the OMP	8.3	Where a review triggers a revision of the OMP, the OMP will be revised and submitted to the Planning Secretary for approval.	In Control	The OMP was reviewed in FY25 and submitted to the Department and DCCEEW on 2 May 2025. Feedback on/approval of the revised OMP has not yet been received.	
Review of the OMP	8.3	The OMP will be reviewed in accordance with Condition 2(i) of the EPBC Approval. The findings from the research programs required by Condition 3 will be incorporated into the approved <i>Persoonia hirsuta</i> OMP. The approved OMP will be implemented.	In Control	This was completed in FY22. The OMP was approved on 18 May 2022. The OMP was reviewed in FY25 and submitted to the Department and DCCEEW on 2 May 2025. Feedback on/approval of the revised OMP has not yet been received.	

Persoonia hirsuta Offset Management Plan
APNMP0122
Management Plan Version 1.1

Independent Environmental Audit	8.4.1	In accordance with Condition 9 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval, an Independent Environmental Audit (IEA) shall be commissioned every three years, that will include a review of the AMP. The report is required to be submitted to the Planning Secretary within six weeks of completion of the audit, in accordance with Condition 10 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval. IEAs have been conducted in 2013, 2016/17, 2019 and 2022, with the next IEA to be conducted in 2025. Recommendations from the IEA will be incorporated into the AMP where appropriate.	In Control	The last IEA was conducted in 2022. The IEA report was submitted to DCCEEW as required. The next IEA is scheduled to be conducted in 2025.	

ISO 14001	8.4.2	As part of the ISO 14001 certification, ICHPL maintains an environmental auditing and governance program across all of its operational sites. The program, which includes the use of competent internal and accredited external auditors, is an integral part of maintaining certification under the ISO 14001 standard. External surveillance audits are undertaken on an annual basis, with recertification audits undertaken every three years. Internal Governance Reviews of the AMP are nominally undertaken on a three yearly basis.	In Control	The last Governance Review was undertaken in December 2024, with the next review scheduled for 2027. The ISO 14001 surveillance audit was undertaken in April/May 2025.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

AUDIT REVIEW					
Section	MP Ref.	Requirement / Obligation	Outcome	Comment and Evidence	Proposed Action
Monitoring and Adaptive Management Framework	4	Potential impacts from mining induced subsidence is monitored and managed via an Extraction Plan which is to be approved by the Planning Secretary prior to longwall mining commencing in any area.	In Control	Extraction Plan in place for Area 7.	
Ecological Outcomes and Performance Measures	6	The “Trigger-Action-Response Plans (TARPs)” relate to identifying, assessing and responding to the range of conditions related to potential subsidence impacts on the Rivers which form the potential habitat for Macquarie Perch which is the primary species of management concern in this Plan.	In Control	TARP triggers have been identified, assessed and reported as required.	
Ecological Outcomes and Performance Measures	6	If any impact is recorded, consideration would be given to implementing appropriate management, remediation and/or mitigation measures in consultation with the Commonwealth Department of Climate Change, Energy, the Environment and Water and other relevant stakeholders (refer Section 10). If the performance measures are exceeded, ICHPL will notify relevant stakeholders and implement the Contingency Plan (Section 11).	In Control	Recorded impacts are reported to relevant agencies in line with the Trigger Action Response Plan (TARP). This includes initiating discussion around remediation measures. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan, including post-rehabilitation monitoring, will continue in FY26.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Water Requirements for Fish	7.1	Macquarie Perch could be impacted by subsidence through reduced habitat availability through pool diminution and possible discontinuity in smaller tributaries. These impacts are largely mitigated through the Mine Plan or longwall layout that does not longwall mine below rivers and aims to avoid impacts to critical ecological assets such as the Macquarie Perch.	In Control	No Macquarie Perch have been identified within mining areas. Longwall mining does not occur below named streams where Macquarie Perch are found. Macquarie Perch are not expected to occur in the current and future Area 7 mining area due to the limited aquatic habitat provided by ephemeral first, second and third order drainage lines present. eDNA analysis of sediment samples was undertaken in FY22. No DNA for Macquarie Perch was identified.	
Water Requirements for Fish	7.1	Any impacts to potential habitat for Macquarie Perch would be rehabilitated as part of the BSO Project.	N/A	There have been no impacts to known Macquarie Perch habitat.	
Water Requirements for Fish	7.1	Through the implementation of programs to reduce pollutants and compliance with license requirements, impacts from mine water discharges such as the BCD discharge are mitigated.	In Control	EPL 2504 is in place at Appin North.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Water Requirements for Fish	7.1	A water treatment plant (WTP) is in operation at Appin North to provide an improvement in water quality released from site. The WTP was commissioned in February 2023, following the decommissioning of the temporary WTP in January 2023, that had been commissioned in May 2021. The WTP nominally releases 1.5 ML/day averaged over the month.	In Control After Action Close-out	High quality permeate is being discharged from the water treatment plant at the required volumes. Discharge from BCD will be modified once ecotoxicity issues associated with the permeate have been resolved.	Continue discussions with the EPA regarding discharge from Appin North.
Water Requirements for Fish	7.1	Monitoring of mine water discharge and upstream and downstream water quality is an EPL requirement and is part of the ongoing management of mine water releases e.g. Brennans Creek.	In Control	Monitoring is undertaken as per EPL requirements.	
Water Requirements for Fish	7.1	Hydrological and water quality monitoring of streams within the Project mining areas is conducted to determine any surface water and surface/ground water impacts. This monitoring will fall under the Extraction Plan process.	In Control	Localised impacts to fish habitat has occurred as predicted in the EIS. No listed species of fish have been impacted. Macquarie Perch are not expected to occur in the current and future Area 7 mining area due to the limited aquatic habitat provided by ephemeral first, second and third order drainage lines present. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results.	Implementation of the Georges River Rehabilitation Plan, including post-rehabilitation monitoring, will continue in FY26.

Water Requirements for Amphibians	7.2	No EPBC listed threatened amphibian species have been recorded in the BSO project area therefore it is highly unlikely that project discharges will affect any populations. Subsidence related impacts may affect small permanent or semi-permanent pools which they require to complete their life cycle. These impacts are largely mitigated through the mine planning that aims to avoid critical ecological areas.	In Control	No EPBC listed threatened amphibian species have been recorded in the BSO project area.	Continue monitoring impacts in the mining areas.
Monitoring Overview	9.1	There are no records for Macquarie Perch within the Project Area. Potential habitat occurs in the project area but the species is highly unlikely to be present due to numerous fish barriers in the subject watercourses. A precautionary approach has been taken and routine aquatic monitoring (including fish sampling) is being undertaken in the relevant watercourses.	In Control	No Macquarie Perch have been identified within mining areas. Longwall mining does not occur below named streams where Macquarie Perch are found. Macquarie Perch are not expected to occur in the current and future Area 7 mining area due to the limited aquatic habitat provided by ephemeral first, second and third order drainage lines present.	Continue monitoring impacts in the mining areas.

Monitoring Overview	9.1	There are no records for either the Giant Burrowing Frog or Littlejohns Tree Frog within the Project Area despite targeted surveys for these species. Marginal potential habitat exists within the Project Area but the species are unlikely to be present due to lack of preferred habitat. Accordingly, no targeted monitoring is proposed for these species unless unpredicted impacts occur or these species are detected.	In Control	No EPBC listed threatened amphibian species have been recorded in the BSO Project Area.	Continue monitoring impacts in the mining areas.
Monitoring Overview	9.1	Potential habitat for the Woronora Beard-heath (<i>Leucopogon exolasius</i>) occurs within the Georges River but there are no records for this species within the Project Area despite survey completed for this species. Accordingly, no targeted monitoring is proposed for these species unless this species is detected in the project area.	In Control	Potential habitat for the Woronora Bearded Heath (<i>Leucopogon exolasius</i>) occurs within the Georges River but there are no records for this species within the Project Area despite surveys completed for this species.	
Table 6 Monitoring Summary for Macquarie Perch	9.1	Aquatic monitoring (including fish sampling) refer to Section 9.2, Figure 11 and Figure 12.	In Control	Monitoring plan in place.	Continue monitoring impacts in the mining areas, noting that rehabilitation of pools in the Georges River as a result of previous mining has commenced however has not yet been completed.
Table 6 Monitoring Summary for Macquarie Perch	9.1	EPL 2504 Water quality monitoring (EPA Licence) for West Cliff, Appin East and Appin West Pit Top sites. Refer Section 8.2, Section 8.5 and Appendix 7.	In Control	As per EPL requirements	Continue monitoring in line with plans.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Table 6 Monitoring Summary for Macquarie Perch	9.1	General water quality monitoring of subsidence impacts under the Extraction Plans referred to above.	In Control	Water quality monitoring is being undertaken in the BSO project area in line with the SMP, EP or EMP for each area or specific feature e.g. Georges River.	Continue monitoring in line with plans.
Table 6 Monitoring Summary for Macquarie Perch	9.1	EPL Georges River Aquatic Health Monitoring Program (including program to improve water quality and minimum flow requirements).	In Control	Aquatic Health Monitoring Program in place.	Continue monitoring in line with plans.
Table 6 Monitoring Summary for Macquarie Perch	9.1	Surface water monitoring . Refer Section 9.	In Control	Surface water monitoring plan in place.	Continue monitoring impacts in the mining areas.
Table 6 Monitoring Summary for Macquarie Perch	9.1	Monitoring of subsidence impacts.	In Control	Subsidence monitoring plan in place.	As above
Table 6 Monitoring Summary for Giant Burrowing Frog	9.1	Targeted monitoring may be initiated if relevant subsidence management TARPs reach level 3, triggering corrective management actions for terrestrial biodiversity. Refer to the relevant Extraction Plan.	In Control	TARPs are in place and reported, corrective actions as required. No triggers have been reported.	Continue monitoring impacts in the mining areas.
Table 6 Monitoring Summary for Giant Burrowing Frog	9.1	Any individuals of this species discovered in the Project Area will be addressed by targeted monitoring that will be included in subsequent revisions of this Plan.	In Control	No individuals identified.	Continue monitoring impacts in the mining areas.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Table 6 Monitoring Summary for Littlejohns Tree Frog	9.1	Targeted monitoring may be initiated if relevant subsidence management TARPs reach level 3, triggering corrective management actions for terrestrial biodiversity. Refer to the relevant Extraction Plan.	In Control	No triggers have been reported.	Continue monitoring impacts in the mining areas.
Table 6 Monitoring Summary for Littlejohns Tree Frog	9.1	Any individuals of this species discovered in the Project Area will be addressed by targeted monitoring that will be included in subsequent revisions of this Plan.	In Control	No individuals identified.	Continue monitoring impacts in the mining areas.
Table 6 Monitoring Summary for <i>Leucopogon exolasius</i>	9.1	Any individuals of this species discovered in the Project Area will be addressed in subsequent revisions of this Plan.	In Control	No individuals identified.	Continue monitoring impacts in the mining areas.
Aquatic Monitoring Programs	9.2.2	Currently aquatic monitoring is conducted across three programs relating to the current longwall mining areas (Appin Area 7, Area 9) and monitoring under the Georges River Aquatic Health Monitoring Program required by EPL 2504.	In Control	Georges River Aquatic Health Monitoring Program is in place. Aquatic ecology monitoring programs are also in place for Appin Area 9 and Appin Area 7.	Continue monitoring impacts in the mining areas.
Aquatic Monitoring Methods	9.2.3	The following habitat features are recorded: * in-stream features such as sequence of pools, runs and riffles; * stream substratum; * presence, type and extent of aquatic vegetation; * presence of barriers to fish passage into and beyond the study area; and * a photographic record of the habitat.	In Control	Refer to Georges River Aquatic Health Monitoring Program methods.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Aquatic Monitoring Methods	9.2.3	Water quality will be measured at each site using a water quality probe. Variables to be measured include; pH, dissolved oxygen, oxidation-reduction potential, temperature, turbidity and conductivity. Where applicable, the results will be compared to ANZG (2018) water quality guidelines for the protection of aquatic ecosystems.	In Control	Georges River Aquatic Health Monitoring Program is in place.	Continue monitoring in line with plans.
Aquatic Monitoring Methods	9.2.3	Fish will be sampled using a back-pack electro fisher and baited traps. At each site, six baited traps are to be deployed in a variety of habitats such as amongst aquatic plants and snags, in deep holes and over bare substratum. The back-pack electro fisher is to be operated around the edge of pools and in riffles. At each site, four, two minute shots are to be performed. Fish are to be collected in a scoop net, identified and measured. Native species are to be released unharmed whilst exotics are not to be returned to the water.	In Control	Georges River Aquatic Health Monitoring Program has no requirement to monitor fish. This is only relevant to extraction plan monitoring.	Continue monitoring impacts in the mining areas.
Aquatic Monitoring Methods	9.2.3	At each site macroinvertebrates will be sampled using the AusRivAS protocol developed under the National River Health Program. Where available, riffle and edge habitats will be sampled using a dip net along a 10 m stretch of habitat. Samples will be sorted in the field, preserved in alcohol and transported to a laboratory for identification. Taxa will be identified to levels required for calculating SIGNAL2 values according to the AusRivAS protocol.	In Control	Monitoring plan in place.	Continue monitoring impacts in the mining areas.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Aquatic Monitoring Methods	9.2.3	Reports will be produced at the conclusion of each aquatic monitoring survey that provide sufficient information to describe the habitats and biota that may be affected by subsidence or Appin Mine water releases.	In Control	Refer to last AHMP report on the GM3 website: https://gm3.au/appin-mine/ .	Continue monitoring impacts in the mining areas.
Management Responses Monitoring Methods	9.2.4	If level 3 TARPs are triggered within potential Macquarie Perch habitat, CMAs such as additional monitoring, habitat rehabilitation or other adaptive management measures will be considered.	In Control	No Macquarie Perch identified.	Continue monitoring impacts in the mining areas.
Management Responses Monitoring Methods	9.2.4	Monitoring results will be reviewed by the ICHPL Subsidence Management Committee and determine whether performance indicators have been exceeded; and whether CMAs are required.	In Control	Monthly meetings are conducted.	Continue with meetings and documentation.
Management Responses Monitoring Methods	9.2.4	If the findings of monitoring are deemed to warrant an immediate response, the Manager Approvals will initiate the requirements of the TARP.	In Control	Actions are implemented as required and reported in the Monthly Subsidence Meeting Minutes.	Continue with meetings and documentation.
Terrestrial Biodiversity Monitoring Methods	9.3.2	Terrestrial monitoring occurs over longwall mining areas (i.e. Appin Area 7, Appin Area 9) and focuses on detecting significant changes to vegetation communities and fauna habitat present within the mining area and aims to ensure complete coverage across the Study Area. Specific targeted monitoring sites will be determined if justified (e.g. if threatened species populations, EECs or habitats are known and have more than a negligible potential to be impacted).	In Control	Monitoring plan in place.	Continue monitoring impacts in the mining areas. Negligible impact to EECs, habitats or populations to date.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Terrestrial Biodiversity Monitoring Methods	9.3.2	Inspections of vegetation communities within the mining areas is undertaken as a part of routine landscape and water monitoring programs. Targeted inspection by a qualified ecologist will follow should vegetation health changes be observed.	In Control	No vegetation health changes detected to date.	Continue monitoring impacts in the mining areas.
Terrestrial Biodiversity Monitoring Methods	9.3.2	Monitoring will focus on detecting significant changes to vegetation communities and fauna habitat present within the Study Area and will aim to ensure complete coverage across the Study Area. Inspections of vegetation condition will assess the following: * Does the vegetation appear healthy? * Are there any detectable visual impacts (e.g. canopy thinning, thinning of shrub layer, loss of ground cover, dead branches present)? * Are there any significant detectable visual impacts (e.g. canopy loss with areas of dieback present, loss of whole shrubs, loss of ground cover)? Areas of impact or any subsidence effects will be mapped and documented using digital photography. Where a significant visual impact is detected a qualified ecologist will be engaged to document the following: * the total area of impact. This will be mapped using a GPS and aerial photo interpretation; * the Foliage Percentage Cover (FPC); and * Modified Braun-Blanquet cover abundance scores	In Control	No vegetation health changes detected to date.	Continue monitoring impacts in the mining areas.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Terrestrial Biodiversity Monitoring Methods	9.3.2	This information will be used to objectively assess extent and degree of impact. Assessment of similar vegetation communities or fauna habitat within the broader locality will be undertaken to determine if the detected changes are within normal variation or represent a possible impact of mining. Additional studies (e.g. gas release measurements) will be commissioned in response to an observed mining impact to understand the mechanism involved and consider any CMAs that may be required.	In Control	No vegetation health changes detected to date.	Continue monitoring impacts in the mining areas.
Terrestrial Biodiversity Monitoring Methods	9.3.2	Impacts are to be monitored as a part of ongoing observations to determine any change in extent or degree.	In Control	No vegetation health changes detected to date.	Continue monitoring impacts in the mining areas.
Terrestrial Biodiversity Monitoring Methods	9.3.2	The typical frequency of terrestrial biodiversity monitoring is: * two baseline monitoring campaigns 1 year prior to mining; * monthly visual inspections (as part of Landscape Features Monitoring), increased to weekly inspections during critical periods during mining; * six monthly monitoring for two years (as part of Landscape Features Monitoring) post mining; * general observation of active mining areas during all other monitoring.	In Control	No vegetation health changes detected to date.	Continue monitoring impacts in the mining areas.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Terrestrial Biodiversity Monitoring Methods	9.3.2	ICHPL will implement remediation measures where impacts to vegetation communities or fauna habitat are deemed to be caused by subsidence effects.	In Control	Recorded impacts are reported to relevant agencies in line with the Trigger Action Response Plan (TARP). This includes initiating discussion around remediation measures. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan will continue in FY26.
Monitoring methods for <i>Leucopogon exolasius</i>	9.4.2	Standard monitoring will be conducted as per Section 9.3.2. Any future targeted monitoring for this species may include (but not be limited to): * Fixed photo points. * Fixed vegetation quadrats. Data collected from each quadrat may include species richness, community structure and composition, vegetation condition, mortality and recruitment, the presence of soil profile development (leaf litter, presence/absence of invertebrates). * Random meander transects in targeted monitoring areas in order to identify recruitment.	In Control	<i>Leucopogon exolasius</i> not identified in monitoring program.	
Water Monitoring Overview and Context for EPBC Listed Species	9.5.1	Water releases from surface operations are monitored and managed via the relevant management plans as shown in Figure 1.	In Control	Refer to Appin Mine Water MP, Coal Wash Emplacement Area MP and Georges River Aquatic Health Monitoring Program on the GM3 website.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Water Monitoring Overview and Context for EPBC Listed Species	9.5.1	Impacts associated with longwall mining areas are addressed through specific Extraction Plans (and their associated Water Management Plans).	In Control	Extraction Plans for Area 7 and 9 are on the GM3 website: https://gm3.au/appin-mine/	
Water Monitoring for Potential Impacts from Mining Induced Subsidence	9.5.2	Extractions Plans with detailed monitoring programs are submitted on a progressive basis as mining commences in each mining domain.	In Control	Approved monitoring plans in place.	Continue monitoring impacts in the mining areas.
Groundwater monitoring	9.5.3	The groundwater monitoring program will be used to monitor the subsidence effects from the extraction of longwalls on groundwater within the BSO Project Area. Note: The groundwater monitoring program has not been implemented to monitor the effects of groundwater drawdown on aquatic ecology.	In Control	Monitoring program in place.	
Water Monitoring for Potential Impacts from Surface Operations	9.5.4	Potential impacts from Appin Mine surface operations are monitored and managed via the Appin Mine Water Management Plan and EPL 2504.	In Control	Refer to Appin Mine Water MP, Coal Wash Emplacement Area MP and Georges River Aquatic Health Monitoring Program on the GM3 website.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Monitoring Parameters and Performance Indicators	9.5.5	EPL 2504 regulates, among other things, the discharge of water from the surface operations into receiving waters. Quantified limits are currently stated in EPL 2504 for a range of parameters. These limits are effectively the surface water quality performance indicators for the AMP as they are aimed at maintaining suitable water quality to support downstream aquatic habitat for species such as Macquarie Perch.	In Control	EPL 2504 is in place. Water quality limits have been achieved.	
Monitoring Parameters and Performance Indicators	9.5.5	Monitoring is conducted monthly in accordance with the requirements of EPL 2504.	In Control	Monthly samples are collected as required by EPL 2504.	
Georges River Aquatic Health Monitoring	9.5.6.1	Five samples will be collected biannually from each pool to represent the different substrates. A suction sampler will be placed over the substrate and operated for one minute at each sampling location. The sample will be washed thoroughly over a 500-µm mesh sieve. All material retained on the 500-µm mesh sieve will be preserved in 70% ethanol for laboratory sorting and identification to at least Family level.	In Control	FY25 Macroinvertebrate sampling occurred at nine monitoring locations in Brennans Creek and the Georges River over Spring 2024 and Autumn 2025. Sorting and identification was undertaken by a suitably qualified Aquatic Ecologist.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Georges River Aquatic Health Monitoring	9.5.6.2	At each site, five sediment samples will be collected for eDNA metabarcoding. DNA samples will be amplified, targeting at least two taxonomically informative genes: 18S rDNA for eukaryotes and 16S rDNA for bacteria. Additional loci will be included in the metabarcoding work targeting the V4 region of 18S rDNA for diatoms. All products will be amplified three times to capture the stochasticity associated with polymerase chain reaction. Sequencing will be performed on an Illumina genome sequencer (platform may vary), with >50,000 reads allocated per sample. Appropriate replicated positive and negative controls will be used in each run. Bioinformatics will be performed using in-house custom software. This monitoring is currently undertaken annually.	In Control	eDNA metabarcoding in accordance with the GRAHMP concluded in Spring 2023 and was included in the FY24 monitoring report. Monitoring not undertaken in FY25. eDNA metabarcoding put on hold while waiting for the release of a new Pollution Reduction Program as indicated by the EPA.	
Georges River Aquatic Health Monitoring	9.5.6.3	Ecotoxicity testing for investigative purposes is undertaken at Points 10 and 40. Monitoring commenced in the quarter before the commencement of operation of the respective WTPs, as prescribed in Condition E2 of EPL 2504.	In Control	Quarterly ecotoxicity testing in accordance with the GRAHMP concluded in Spring 2023 and was included in the FY24 monitoring report. One investigative sample was taken in FY25 of Point 40, occurring in July 2024. investigative testing of Point 10 was not required in FY25.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Georges River Aquatic Health Monitoring	9.5.6.4	Measures of water quality indicators will be taken biannually at a surface depth at each site. Field parameters will include water temperature, electrical conductivity, pH, dissolved oxygen and turbidity.	In Control	FY25 field water quality measurements continued to be collected at nine monitoring locations in Brennans Creek and the Georges River over Spring 2024 and Autumn 2025.	
Georges River Aquatic Health Monitoring	9.5.6.5	The following chemical parameters have been selected to align with the EPL requirements. This analysis will be undertaken in conjunction with biannual biota sampling and field water quality measurements. Analytes to be measured include pH, electrical conductivity, bicarbonate alkalinity, dissolved aluminium, dissolved cobalt, dissolved copper, dissolved nickel, dissolved zinc, total nitrogen.	In Control	FY25 field water quality measurements continued to be collected at nine monitoring locations in Brennans Creek and the Georges River over Spring 2024 and Autumn 2025.	
Georges River Aquatic Health Monitoring	9.5.6.6	Pool water levels will be monitored using installed pressure sensors and loggers at each of the pool monitoring sites. Water level data will be calibrated to an installed benchmark, typically a single bolt inserted to the rockbar or bedrock step. Loggers will be housed in PVC pipes bolted to the pool's rockbar or step. Logging will be set to 1-hour intervals to adequately capture fluctuating water levels across the duration of the monitoring program. Data will be collected on a biannual basis.	In Control	Pool water level loggers have continued to be monitored over the FY25 period.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Georges River Aquatic Health Monitoring	9.5.6.7	Surface flows will be monitored using spot flow gaugings at GR_UFS. A Pygmy flow meter will be used to calculate the discharge during inspections at the site, on a biannual basis. This discharge is obtained by measuring the velocity of the water at different points across a known cross-sectional area at the site.	In Control	Spot flows at GR_UFS continued to be collected biannually over FY25.	
Summary of Performance Measures	10.1	The implementation of remedial or adaptive management measures would be assessed through the results of the Extraction Plan monitoring programs, EPL (surface water discharge) monitoring and additional detailed assessments as required.	In Control	Georges River Remediation Plan and Georges River Aquatic Health Monitoring Program are in place.	Implementation of the Georges River Rehabilitation Plan, including post-rehabilitation monitoring, will continue in FY26.
Summary of Performance Measures	10.1	In the event the Performance Measures detailed in Table 10 of the AMP are considered to have been exceeded, or are likely to be exceeded, ICHPL will implement a Contingency Plan (refer Section 11) to manage any unpredicted impacts and their consequences. Such an exceedance would normally represent a Level 3 TARP for surface water quality, flow or aquatic habitat being triggered.	In Control	Performance measures have not been exceeded.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Adaptive Management Options - Mine Planning	10.2.1	If impacts exceed performance measures, adaptive management techniques will be considered, such as seeking variations to adjustment the length of planned longwalls. This has been implemented in the past for Longwall 34 in West Cliff Area 5 where Level 2 impacts were identified from Longwall 33.	In Control	No performance measures exceeded. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan will continue in FY26.
Active Flow Management	10.2.2	During no or low rainfall periods the flow in the Georges River is largely determined by the volume of water discharged via LDP 40 (discharge from Appin North WTP), LDP 10 (discharge from BCD) and LDP 19 (discharge from Appin East). A minimum discharge limit of 1 ML/day (averaged over the month) has been included in EPL 2504 since the installation and operation of the Appin North WTP to maintain pool levels in the Georges River. Additional flow could potentially be released from LDP 40 or LDP 10 to maintain pool water levels if required.	In Control	Supplementary flows are being provided from BCD and the WTP at Appin North. The EPA is regularly advised and, where required, consulted on the discharge from BCD. Discussions are underway with the EPA regarding BCD discharges and ecotoxicity issues associated with the high quality of the permeate being discharged from the WTP.	Continue discussions with the EPA regarding discharge from Appin North.
Water Quality and Discharge Management	10.2.3	Where low water quality is identified to be resulting from mining induced subsidence or surface discharges this exceeds relevant TARPs , consideration of appropriate CMAs will be undertaken with relevant stakeholders. Any CMA will be highly dependent on the parameter being exceeded and technical feasibility of interventions.	In Control	No performance measures exceeded. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan will continue in FY26.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Natural Remediation	10.2.4	While sealing of surface fractures will occur naturally in some instances and over time, it is recognised that this may not provide sufficient mitigation in some situations and that active sealing of the streams may be required in some locations.	In Control	Active sealing of streams, with the exception of the Georges River, not yet triggered	
Hand Mortaring	10.2.5.1	Should large fractures occur in the base of the pools they may be sealed over with hand placed cement grout and natural oxides.	In Control	The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan will continue in FY26.
Pattern Grouting	10.2.5.2	Large surfaces of the river bed may be sealed using pattern grouting. Pattern grouting involves drilling injection holes in the base of the river in a grid pattern (commencing at a nominal grid spacing of 1 m x 1 m to 3 m x 2 m) and injecting a grouting medium into the voids of the fractured strata. The intention of this grouting is to achieve a low permeability 'layer' approximately 1 - 2 meters thick below the riverbed over the length of the impacted area.	In Control	Some pattern grouting was undertaken during rehabilitation work on the Georges River. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan will continue in FY26.

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Curtain Grouting	10.2.5.3	Installation of a grout curtain involves drilling a line of closely spaced grout injection drill holes into the rock, and pumping grout into the holes. Multiple passes, with several grout stages are usually required. Curtain grouting generally occurs to the full depth of fracturing of about 20 - 25 m. Curtains may be installed sequentially down the river.	In Control	Curtain grouting to depths of approximately 10 m has been the primary grouting methodology used on the Georges River as part of the current campaign. The implementation of the Georges River Rehabilitation Plan continued in FY25, with promising early results. Details of the program are provided in the Annual Review.	Implementation of the Georges River Rehabilitation Plan will continue in FY26.
Permeation Grouting	10.2.5.4	Permeation grouting involves isolating a section of riverbed by temporary bunding, to allow the impoundment of grouting media of various viscosities that then permeate the rock due to gravity. The grout mixture would vary for the treatment of wide through to finer cracks. Impoundment and treatment would be repeated cyclically along the identified length of river.	N/A		
Deep Angled Hole Grouting	10.2.5.5	Where access constraints make pattern grouting inappropriate (for example where a pool has not totally drained), directionally drilled holes may be installed some distance away from the river to allow grouting to be delivered remotely. This technique was used to access and grout fracture horizons under Marhnyes Hole.	N/A		

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Impermeable lining	10.2.5.6	This option involves lining the ground surface of pools with an applied membrane / coating of some impermeable material. This requires the removal of all material from the riverbed prior to construction of the liner and therefore has short and long-term impacts on the environment. Impermeable materials that could be used include shotcrete and geosynthetic clay liners.	N/A		
Gas Releases	10.2.7	Where vegetation is impacted by gas releases, the areas affected will be revegetated once monitoring determines the gas releases have ceased or reduced to an extent that vegetation is no longer affected.	In Control	No vegetation health changes detected to date.	Continue monitoring impacts in the mining areas.
Gas Releases	10.2.7	Where low dissolved oxygen is identified to be resulting from mining induced gas release and this exceeds relevant TARPS, consideration of appropriate CMAS will be undertaken with relevant stakeholders.	In Control	No CMAs have been required as a result of low DO from gas release zones. Consideration includes agencies and specialist consultants.	Continue monitoring impacts in the mining areas.

Contingency and Response Plans	11.1	In the event the Performance Measures pertaining to Macquarie Perch or other EPBC listed species detailed in Section 10 of the AMP are considered to have been exceeded, or are likely to be exceeded, ICHPL will implement a Contingency Plan to manage any unpredicted impacts and their consequences. This would involve: * capture photographic record if appropriate; * notify relevant stakeholder, agencies and specialists soon as practicable; * conduct site visits with stakeholders as required; * contract specialists to investigate and report on changes identified; * provide incident report to relevant agencies; * review monitoring and implement additional monitoring if required; * inform relevant agencies and stakeholders of results of investigation; * develop site CMA in consultation with key stakeholders if required and seek approvals; * implement CMA as agreed with stakeholders following approvals; * conduct initial follow up monitoring and reporting following CMA completion; * review relevant management plan(s); and * report in regular reporting and Annual Review.	In Control	No Macquarie Perch identified to date. Macquarie Perch are not expected to occur in the current and future Area 7 mining area due to the limited aquatic habitat provided by ephemeral first, second and third order drainage lines present.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Contingency and Response Plans	11.1	ICHPL will consult with appropriate specialists and relevant agencies in order to devise an appropriate response in respect to any identified exceedance.	In Control	No exceedance to date.	Continue monitoring impacts in the mining areas.
Contingency and Response Plans	11.1	The development and implementation of contingency measures will be designed to address the specific circumstances of the exceedance and assessment of environmental consequences.	In Control	No exceedance to date.	Continue monitoring impacts in the mining areas.
Contingency and Response Plans	11.1	If the contingency measures implemented by ICHPL fail to remediate or mitigate the impact or the Planning Secretary determines that it is not reasonable or feasible to remediate the impact, ICHPL will provide a suitable offset to compensate for the impact to the satisfaction of the Planning Secretary (or DCCEEW as appropriate), in accordance with Condition 2 of Schedule 3 of the Project Approval.	In Control	No exceedance to date.	Continue monitoring impacts in the mining areas.
Non-compliance, Corrective Action and Preventative Action	11.2	Events, non-compliances, corrective actions and preventative actions are managed in accordance with the Reporting and Investigation Standard and Environmental Compliance/Conformance Assessment and Reporting Procedure. These procedures, which relate to all ICHPL operations, detail the processes to be utilised with respect to event and non-conformance/non-compliance classification and reporting, and identification of corrective and preventative actions.	In Control	No incidents to date relevant to water sensitive EPBC Act listed species.	Continue monitoring impacts in the mining areas.

Performance Improvement	12	As part of the Statement of Commitments prepared for the BSO Project EA, ICHPL committed to implement “research, offset and compensatory measures for Project impacts on water quality and ecological aspects” with the aim of continual performance review and improvement. The annual review process will also formalise opportunities for improvement based on the monitoring data.	In Control	As per <i>Persoonia hirsuta</i> Offset Management Plan and research, Georges River Aquatic Health Monitoring Program and operation of the WTP at Appin North.	
Compliance Report	13.1.1	Annual reporting is undertaken as per Condition 14 of the EPBC Approval which requires the proponent to: <i>Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the compliance report is published.</i> The Annual Compliance Report is required to be submitted to DCCEEW by 15 August of each year via EPBCMonitoring@dcceew.gov.au and is attached as an appendix in the Annual Review.	In Control	This report	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Annual Review	13.1.2	ICHPL will report on the performance of the AMP in the Annual Review. The Annual Review is prepared in accordance with Condition 4 of Schedule 6 of the Project Approval and is submitted to relevant agencies in September each year. Annual Reviews are made available to the general public via the GM3 website.	In Control	Annual Reviews are published on the GM3 website as required.	
EPL Reporting	13.1.3	The specific requirements for the publication of EPL monitoring results are set out in section 66(6) of the POEO Act. In summary, this provision requires that licensees who undertake monitoring as a result of a licence condition must publish or make available monitoring data that relates to pollution within 14 days of obtaining the data and/or receiving a specific request for a copy of the data.	In Control	Results are reporting online via the 14 day monitoring report on the GM ³ website: https://gm3.au/appin-mine/ Monitoring data is stored in EQUIS.	
EPL Reporting	13.1.3	In addition to the above, an Annual Return is submitted to the NSW EPA as required by the EPL.	In Control	The 2024/25 Annual Return was submitted as required.	
Annual Rehabilitation Report	13.1.4	ICHPL submits an Annual Rehabilitation Report to the Resources Regulator in accordance with Condition 13(2) of Schedule 8a of the Mining Regulation 2016. ICHPL publishes the Annual Rehabilitation Report on the GM ³ website.	In Control	The Annual Rehabilitation Report was submitted and is published on the GM ³ website.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

End of Panel Reports	13.1.5	End of Panel (EoP) reports are prepared in accordance with the relevant Extraction Plan or Subsidence Management Plan. They are prepared following the completion of longwall extraction of each panel. The report outlines the measured and observed impacts relevant to the extraction of the longwall panel and summarises a comparison of observed impacts to predictions and performance criteria. ICHPL publishes the EoP Reports on the GM ³ website.	In Control	The most recent EoP report completed is for Longwall 709 (February 2024).	Longwall 710 End of Panel Report will be completed in late 2025.
Incident Reporting	13.1.6	In accordance with Condition 7 of Schedule 6 of the Project Approval, ICHPL is to notify the Planning Secretary and relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. Within seven days of the date of the incident, ICHPL is to provide the Planning Secretary and relevant agencies with a detailed report on the incident.	In Control	Not triggered on the operational mine sites or mining area.	

Review	13.2	In accordance with Condition 5 of Schedule 6 of the Project Approval, the AMP will be reviewed, and if necessary revised, within three months, of: • the submission of an annual review; • the submission of an incident report; • the submission of an Independent Environmental Audit report; and • any modification to the conditions of the Project Approval (unless the conditions require otherwise), or. • a direction of the Planning Secretary under Condition 4 of Schedule 2. Outcomes from each review will be documented in the Management Plan Review Log. The AMP will only be revised where a material change to site operations or environmental management has occurred, or in accordance with the review period on the AMP. Administrative or descriptive changes do not constitute a material change. Where a review triggers a revision of the AMP, the AMP will be revised and submitted to the Planning Secretary and/or Minister for approval. In accordance with Condition 16 of the EPBC Approval, the AMP will be submitted in accordance with the requirements of the EPBC Act. If the Minister approves a revised AMP then, from the date specified, the revised AMP must be implemented in place of the previous AMP.	In Control	The AMP was reviewed in FY24 and was approved by DCCEEW on 10 September 2024.	

Adaptive Management Plan for Water Sensitive EPBC Act Listed Species
APNMP0135
Version 1.2

Publication	12.3	Condition 13 of the EPBC Approval requires the proponent to: <i>...publish all management plans, reports, strategies or agreements required by these conditions of approval on their website. Each management plan, report strategy or agreement must be published on the website within 30 days of being approved.</i> Approved versions of the AMP will be displayed on the GM³ website.	In Control	The approved AMP is available on the GM3 website.	
Independent Environmental Audit	13.4.1	In accordance with Condition 9 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval, an Independent Environmental Audit (IEA) shall be commissioned every three years, that will include a review of the AMP. The report is required to be submitted to the Planning Secretary within six weeks of completion of the audit, in accordance with Condition 10 of Schedule 6 of the Project Approval and Condition 18 of the EPBC Approval. IEAs have been conducted in 2013, 2016/17, 2019 and 2022, with the next IEA to be conducted in 2025. Recommendations from the IEA will be incorporated into the AMP where appropriate.	In Control	The last IEA was conducted in 2022. The IEA report was submitted to DCCEE as required. The next IEA is scheduled to be conducted in 2025.	

ISO 14001	13.4.2	As part of the ISO 14001 certification, ICHPL maintains an environmental auditing and governance program across all of its operational sites. The program, which includes the use of competent internal and accredited external auditors, is an integral part of maintaining certification under the ISO 14001 standard. External surveillance audits are undertaken on an annual basis, with recertification audits undertaken every three years. Internal Governance Reviews of the AMP are nominally undertaken on a three yearly basis.	In Control	The last Governance Review was undertaken in December 2024, with the next review scheduled for 2027. The ISO 14001 surveillance audit was undertaken in April/May 2025.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

AUDIT REVIEW					
Section	MP Ref.	Requirement / Obligation	Outcome	Comment and Evidence	Proposed Action
Scope	1.2	Emplacement construction and operations will be conducted in accordance with the detailed design plans prepared for each emplacement phase. Detailed designs are prepared progressively and are therefore not outlined in this plan for Stage 4.	In Control	The design for Stage 3 was reviewed in FY24 to avoid Aboriginal heritage sites. Detailed design plans are not yet available for Stage 4, construction of which has not yet commenced.	
Emplacement Design and Staging	5.1	The maximum design parameter for Stage 3 is: * No more than 60.5 ha of native vegetation to be cleared	In Control	The area cleared to date for Stage 3 is ~40 Ha (38.51 Ha in desktop review).	
Emplacement Design and Staging	5.1	The maximum design parameters for Stage 4 of the emplacement design are: * volume of 26 Mt; * height of 331 m AHD; * footprint that retains the existing Brennans Creek Dam storage capacity and stockpile areas (refer to Plan 1); and * maximum of 60 ha of native vegetation clearance.	In Control	Detailed design plans are not yet available for Stage 4, construction of which has not yet commenced.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Emplacement Design and Staging	5.1	Measures to limit the clearing of native vegetation to no more than 60 ha will include: • survey and demarcation of the Stage 4 boundary prior to clearing works by a qualified surveyor; • Stage 4 boundary will be clearly outlined on site plans and plans will be provided to clearance contractors; • pre-clearing survey will be undertaken by Specialist Environment who will be trained appropriately in survey methodology (training provided by external consultancy) or a Specialist Consultant. The area to be cleared will be clearly demarcated with flagging tape where required. Personnel working in the area will be advised of the approved clearing extent. Boundary markings will be placed in a way to ensure that each marker is within line of site.	In Control	Detailed design plans are not yet available for Stage 4, construction of which has not yet commenced. These controls are in place for the existing CWEA operations.	
Emplacement Design and Staging	5.1	The Stage 3 valley is currently and will continue to be filled in a north westerly direction and Stage 4 from the eastern (or upstream/upslope) boundary and progress in corridors from east to west down the valley, as required by EPBC Approval Condition 6 (d).	In Control	As verified on Arc GIS. Stage 3 is progressing in NW direction.	
Emplacement Design and Staging	5.1	Coal wash will be deposited in benches across the valley (in the case of Stage 4 which will be north-south) and progressively down the valley from east to west.	In Control	Stage 4 not yet commenced. Stage 3 is being deposited in benches across the valley.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Emplacement Design and Staging	5.1	As each section of fill reaches the designed height, it is top soiled and revegetated. The final landform created by the CWEA will be sympathetic with the regional morphology and will be largely masked from public view by the visual screening of existing eucalypt forest.	In Control	Morphology is as per approved design plans. The completed emplacement is topsoiled and revegetated progressively. The design for Stage 3 was reviewed in FY24 to avoid Aboriginal heritage sites.	
Emplacement Design and Staging	5.1	CWEA construction and operations will be conducted in accordance with the final detailed engineering drawings prepared for each CWEA. The Stage 3 design and 4 final landform concept designs are illustrated on Plan 3 and Plan 4.	In Control	Routine surveys and a desktop review on ArcGIS confirm the Stage 3 construction is consistent with the design plans. The design for Stage 3 was reviewed in FY24 to avoid Aboriginal heritage sites. The revised design has been incorporated into the latest revision of the CWEAMP.	
Emplacement Design and Staging	5.1	The engineering drawings for the Stage 4 CWEA will be prepared prior to implementation of the Stage 4 CWEA and these plans will show staging of the emplacement and will comply with Condition 17 (a) and (b) of the Project Approval and Condition 6(b) of the EPBC Approval.	In Control After Action Close-out	To be incorporated into the Stage 4 design plans when available	Design plans to comply with Condition 17 (a) and (b) and Condition 6 of the EPBC approval.

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Emplacement Design and Staging	5.1	Plan 5 shows a preliminary concept staging plan that provides for the progressive staging of the Stage 4 CWEA to keep the minimum 100 m wide habitat corridor to link the <i>Persoonia hirsuta</i> core population with habitat north of the Stage 4 CWEA, as required by Condition 6(b) of the EPBC Act Approval.	In Control After Action Close-out	To be incorporated into the Stage 4 design plans when available	Design plans to comply with this condition.
Emplacement Design and Staging	5.1	The Stage 4 Design Plans will be implemented and remain in place for at least ten years from the date of last approval of the CWEAMP, unless otherwise agreed to in writing by the Minister of DCCEEW, at which point a revised plan taking into account the monitoring referred to in Section 9 must be submitted to and approved by the Minister.	In Control	Condition not triggered. Stage 4 design plans are not yet initiated	
Construction of Brennans Creek Diversion Channel	5.2.4	Rehabilitation of the Brennans Creek Diversion Channel was completed in 2010 and was undertaken generally in accordance with the Brennans Creek Bypass Channel Rehabilitation Features - West Cliff Colliery report.	In Control	Diversion channel has rehabilitated.	
Erosion and Sediment Control Measures for Clean Water Cut off Drains	5.2.5.2	The drains are positioned to capture clean water runoff from valley sides and divert it past the emplacement dirty water catch pond system and into BCD.	In Control	Clean water drains are in place as required.	
Erosion and Sediment Control Measures for Clean Water Cut off Drains	5.2.5.2	The drains in Stage 3 are and future drains in Stage 4 will be sized as required for the catchment area. Excavated material will be placed beside the drains to form access tracks in the valley for construction of catch ponds and development of the CWEA.	In Control	The clean water drains are sized appropriately.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Erosion and Sediment Control Measures for Clean Water Cut off Drains	5.2.5.2	The channels will be modified as necessary during the life of the CWEA to adapt to the changing runoff conditions created by the advancing CWEA.	In Control	No modifications to the clean water drains have been required in FY25.	
Erosion and Sediment Control Measures for Clean Water Cut off Drains	5.2.5.2	Sediment from these areas are directed into on-site ponds. Dosing of these ponds may need to be undertaken to reduce suspended solids to improve the water quality in BCD to meet water quality concentration limits under EPL 2504.	In Control	Water management is undertaken as required to reduce sediment loads.	
Construction of Emplacement Subsoil Drainage Network	5.2.6	Subsurface drains have been installed in Stage 3 and will be installed on the future prepared active CWEA under engineering supervision before coal wash emplacement commences. Construction of the subsurface drains shall be installed in accordance with detailed engineering drawings. Subsurface drains will be progressively linked to subsoil drainage from previous sections of the CWEA.	In Control	In field verification is undertaken as required.	
Construction of Emplacement Catch Ponds	5.2.7.1	Emplacement ponds are designed to contain and treat dirty runoff from active emplacement areas prior to ingress to BCD.	In Control	Stage 3 emplacement is approaching Emplacement Pond 2. Emplacement Ponds 2 and 3 are still in place. With the redesign of Stage 3 of the CWEA, it is unlikely that additional emplacement ponds will be required for Stage 3.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Erosion and Sediment Control Measures for Emplacement Catch Ponds	5.2.7.3	Each phase of the CWEA is supported by two sequential ponds sited down Brennans Creek Valley. The first (upstream) pond allows passive settling of particles, while the second pond will have the capability to be chemically dosed to remove fine particulates from the water column.	In Control	The first (upstream) pond: Emplacement Pond 2 - is utilized for passive settling. The second (downstream) pond: Emplacement Pond 3 - is chemically dosed for assisted settling.	
Erosion and Sediment Control Measures for Emplacement Catch Ponds	5.2.7.3	Each pond must be operational prior to commencement of coal wash emplacement in the catchment area for that pond. As each phase approaches completion and filling of the first pond is imminent, a new pond is to be constructed downstream, prior to the CWEA encroaching on the upstream pond. Emplacement pond dam walls will be constructed using coal wash or site won material excavated (sandstone, coal wash or other appropriate material) from prepared active emplacement areas or other suitable areas. Where possible, pond dam wall fill material will be transported directly to construction areas however it may be necessary at times for this material to be temporarily stockpiled in a suitable disturbed location until required	In Control	Stage 3 emplacement is approaching Emplacement Pond 2. With the redesign of Stage 3 of the CWEA, it is unlikely that additional emplacement ponds will be required for Stage 3.	
Erosion and Sediment Control Measures for Emplacement Catch Ponds	5.2.7.3	Clean water cut-off drains will be established prior to construction of ponds and flows in Brennans Creek will be diverted around the construction area via a temporary dam and pump. This will prevent sediment contamination of clean water from surrounding clean water catchment and treated water from upstream emplacement ponds.	In Control	Clean water drains are in place as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Preparation of Active Emplacement Areas	5.2.8.1	Preparation of active emplacement areas will take place progressively as the CWEA advances down Brennans Creek Valley.	In Control	As per CWEAMP rehabilitation program.	
Preparation of Active Emplacement Areas	5.2.8.1	The area of land cleared and dedicated as the active emplacement area will be restricted to an operational size of 18 ha (where practical, with a maximum area of 21 ha) in order for the emplacement ponds to effectively treat surface flows.	In Control	Active emplacement area is within limits. Emplacement Area at 18.78 ha at time of desktop review (12 June 2025). Roughly 1.7 ha of the previously active emplacement area was capped and topsoiled during FY25. These areas were along the south eastern batter of the CWEA with material claimed from progressive stage 3 clearing.	
Preparation of Active Emplacement Areas	5.2.8.1	In general, stripped topsoil will be placed on finished emplacement areas and stripped sandstone/bedrock will be used onsite for emplacement pond dam wall construction. Stage 4 of the CWEA has a design footprint of 59.4 ha as shown in Plan 4.	In Control	As per CWEAMP rehabilitation program. VENM was imported to Appin North in FY22 and FY23 for use as capping material for the CWEA. The material has since been identified as being incommensurate with the original top soil and capping material for the CWEA. In FY25 the material has been utilised to reinforce the walls of Stockpile number 4 and Pond 5.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Vegetation and Topsoil Removal	5.2.8.3	All vegetation including shrubs, trees and roots shall be cleared from the active emplacement area using the two-stage clearing process before coal wash emplacement commences. Loose vegetation from site clearing, such as tree branches, shall be used as mulch or brush matting over areas of the CWEA being rehabilitated. Soil will be stripped from areas cleared for coal wash emplacement and where practicable, the seed rich surface layer of topsoil shall be separated from lower level soils. Stripped soil will be applied to a depth of typically 0.5 m (where appropriate) over completed areas of the CWEA as soon as practical. When seed rich topsoil stripped from cleared areas is available it will be spread as the surface layer on emplacement areas being rehabilitated. Seed rich topsoil is to be reused as quickly as possible to maintain viability of seeds.	In Control	As per CWEAMP rehabilitation program.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Vegetation and Topsoil Removal	5.2.8.3	When the CWEA is progressing to its final stages, particular attention must be paid to stockpiling the necessary volumes of soil to ensure adequate soil cover is achieved during rehabilitation of the final landform. Where required, suitable material may be sourced from off-site locations to supplement on-site material where deficiencies are identified.	In Control After Action Close-out	A Rehabilitation Risk Assessment was completed in September 2024 which identified the potential for a topsoil deficit at closure. VENM was imported to Appin North in FY22 and FY23 for use as capping material for the CWEA. The material has since been identified as being incommensurate with the original top soil and capping material for the CWEA. In FY25 the material has been utilised to reinforce the walls of Stockpile number 4 and Pond 5.	Undertake a materials balance as part of planning for Stage 4 of the CWEA. Continue to investigate other options for sourcing alternative material and progress required approvals as appropriate.
Emplacement of Coal Wash in Active Emplacement	5.2.9.1	Active emplacement areas will be revegetated as soon as possible after the final emplacement design level has been reached.	In Control	Rehabilitation is undertaken progressively.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Coal Wash Transportation	5.2.9.3	The following procedures will be implemented with regard to transportation of coal wash associated with the emplacement operations: • coal wash shall be transported in trucks on the mine site; • coal wash trucks shall be restricted to designated haul roads on the mine site; • coal wash haul roads must drain to contaminated water catchments; • coal wash haul roads must be maintained to minimise airborne dust; • only dump trucks shall be permitted on the CWEA (semi-trailers shall only be permitted on areas of the CWEA that have been specially prepared for their access); and • all haul trucks must adhere to site speed limits to maintain operational safety and minimise dust impacts.	In Control	The procedures governing the transportation of coal wash associated with the emplacement operations are consistent with the Management Plan. In field verification is undertaken as required.	
Coal Wash Transportation	5.2.9.3	Coal wash transport will comply with the safety and operational conditions of the West Cliff Surface Transport Management Plan (Document Number: WCPMP0012), Stockpile and Slope Stability Management Plan (Document Number: WCPMP0001), and the Road Maintenance Manual (Document Number: WCPM0004).	In Control		

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Coal Wash Tipping	5.2.9.4	A tipping area is provided on each active coal wash bench for haul trucks to tip their loads onto the bench. There are currently eight different materials which are required to be placed in a controlled manner into the CWEA. The tipping areas must be set up to handle all eight materials, each of which have different characteristics: • DCPP coal wash; • WCCPP coal wash; • belt press fines from the WCCPP; • oversize stone from the WCCPP; • thickener sludge from the WCCPP; • drilling muds, waters, drill cuttings and drill cores from ICHPL exploration and methane drainage programs; • inert waste (including concrete and soil from within the premises as defined in EPL 2504) and VENM; and • sump/dam clean out materials.	In Control	Tipping areas are set out on individual benches for approved materials as outlined in the Management Plan. In field verification is undertaken as required.	
Coal Wash Tipping	5.2.9.4	The Material Acceptance Form must be completed and approved by the Surface Services Superintendent prior to the transport of any material not generated by the WCCPP or DCPP to the CWEA for use or disposal.	In Control	Material Acceptance Forms have been completed for the transport of materials not generated by the WCCPP or DCPP.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Coal Wash Tipping	5.2.9.4	Each area is prepared in such a way that allows safe operation of mobile equipment while accessing the area for tipping. This includes: • adequate areas and lighting for night time operations; • berms in place; • signage marking tip areas; • allowance for drainage; • surfaces suitable for dump trucks and other approved surface mobile equipment; and • surfaces suitable for tankers around sludge ponds.	In Control	Each area is prepared in such a way that allows safe operation of mobile equipment while accessing the area for tipping as outlined in the Management Plan. In field verification is undertaken as required.	
Coal Wash Tipping	5.2.9.4	Materials that have the potential to cause harm to the environment through water or land contamination are not permitted to be disposed of in the CWEA. In the event that contamination has occurred, an investigation will be undertaken to determine the cause of the contamination and actions will be implemented to prevent reoccurrence (as per Section 10.2 and 10.3).	In Control	Materials that have the potential to cause harm to the environment have not been disposed of in the CWEA.	
Coal Wash Drying	5.2.9.5	If the moisture content of coal wash delivered to the emplacement area is too high for satisfactory compaction it will be left to dry naturally until suitable moisture content for compaction is reached.	In Control	Coal wash that is delivered to the emplacement area that has a high moisture content is left to dry naturally as outlined in the Management Plan. In field verification is undertaken as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Coal Wash Drying	5.2.9.5	Coal wash slimes/fines will be tipped into shallow temporary drying basins (i.e. sludge ponds) constructed with coarse coal wash. Temporary drying basins will be located on the CWEA away from the embankment face and perimeter drains. Surface drainage will be directed away from temporary drying basin.	In Control	Fines basin management is outlined in the OMS. Verification is undertaken through survey and site inspections.	
Compaction	5.2.9.6	Coal wash will be spread from tipped heaps to meet the design.	In Control	In field verification undertaken as required.	
Compaction	5.2.9.6	Monitoring of compaction will be managed by the OMS and is the responsibility of the Superintendent Surface Services	In Control	In field verification undertaken as required.	
Bench Heights	5.2.9.7	Coal wash emplacement will progress in a series of filled horizontal benches until each active emplacement area reaches its finished height.	In Control	In field verification undertaken as required.	
Bench Heights	5.2.9.7	Best practice at the CWEA has limited bench heights to 30 m. This height can only be exceeded following a formal risk assessment which involves suitably qualified personnel other than the contractor or persons normally supervising the work.	In Control	In field verification undertaken as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Bench Heights	5.2.9.7	The surface shape of the CWEA will be finished to blend with the surrounding landform (as per the approved final landform) and provide for non-eroding table drains to carry surface water runoff to the emplacement perimeter drains. Batter slopes on the finished emplacement will be constructed to non-eroding grades where practical in accordance with the approved finished profile design contours. This profile has been designed to a maximum grade of 1(V):3(H) to minimise erosion and sediment runoff. Suitable erosion control methods will be adapted as necessary.	In Control After Action Close-out	The finished Stage 3 landform is generally in accordance with design plans in the CWEAMP. Emplacement is now being built to the new Stage 3 design issued by the EoR – designed to 1:4 slopes to lower erosion and that avoids Aboriginal heritage sites.	Obtain approval for revised CWEAMP.
Beneficial Use of Coal Wash	5.2.12	ICHPL has committed to pursuing alternative uses for coal wash as part of the Project Approval and the Dendrobium Mine Development Consent. This commitment is demonstrated from the continuing work in this area, including researching new technologies which would enable beneficial coal wash uses.	In Control	Beneficial uses of coal wash continue to be investigated and implemented.	
Cultural Heritage Management	6.1	Detailed design plans which include options for reducing, avoiding and/or managing impacts on Aboriginal heritage sites in and adjacent to the southwestern fringe of the proposed Stage 4 footprint (including sites 52-2-2228/3617, 52-2-1373, 52-2-3533/3613 and 52-2-3506).	In Control	Stage 4 not yet commenced. Consultation was undertaken with Registered Aboriginal Parties in FY24. The RAPs were advised that Stage 4 of the CWEA would be designed to avoid direct impacts to Aboriginal sites in and adjacent to the footprint of the approved Stage 4 CWEA.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Cultural Heritage Management	6.1	Management strategies to ensure no impacts to Aboriginal heritage site 52-2-3505 other than negligible impacts, including consideration of potential staged development of the emplacement and/or buffer areas.	In Control	No emplacement activities are planned to be undertaken that would potentially impact this site.	
Management and Mitigation	6.7	There are 13 cultural heritage sites within the CWEA that will require some form of management. In the first instance, mitigation through avoidance has been incorporated into the design of the Stage 3 and proposed Stage 4 CWEA.	In Control	Cultural heritage is managed as per the approved CWEAMP.	
Management and Mitigation	6.7	For sites avoided by the CWEA footprint, but located in close proximity, proposed management includes conducting detailed recording of the site prior to works in the vicinity (if not already undertaken), demarcation of the site to minimize the potential for accidental impacts from mobile machinery working in the area and management of dust from CWEA operations.	In Control	Cultural heritage is managed as per the approved CWEAMP. Consultation with RAPs continued in FY24 regarding management of Aboriginal sites in the footprint of or adjacent to the CWEA.	
Vegetation and Fauna Management	7.1.1	The area of vegetation to be cleared will be surveyed by appropriately qualified personnel (suitably trained Specialist Environment or Specialist Consultant) and demarcated.	In Control	Relevant site personnel have been trained.	
Vegetation and Fauna Management	7.1.1	Surveys of each area will involve a walkthrough of the area at 5 – 10 metre spacing to locate, record and mark specific habitat features that are proposed for preservation and redistribution to the emplacement (e.g. rocks and boulders, stags and large hollows).	In Control	Pre-clearance surveys are undertaken as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Vegetation and Fauna Management	7.1.1	Prior to any vegetation clearance occurring on site, specific details including the type and number of each habitat feature will be clearly recorded and identified on a pre-clearing checklist. Clearance will only occur following demarcation and survey by appropriately qualified personnel.	In Control	Pre-clearance surveys are undertaken as required.	
Vegetation and Fauna Management	7.1.1	The survey will identify appropriate candidate boulders and outcrop rock that could be translocated for habitat creation in revegetated areas. Boulders shall be placed on top of replaced soils (on top of the CWEA with multiple rocks/boulders used) to recreate habitat for species dependent on rocky outcrops, such as the Broad-headed Snake.	In Control	Pre-clearing surveys are undertaken as required and suitable boulders identified.	
Vegetation and Fauna Management	7.1.1	During the pre-clearance survey, habitat features within each area will be inspected in order to identify the need for any relocation of resident fauna species. Relocation of fauna will also involve the identification of capture and release methods and release areas for the relocation of fauna species prior to clearing.	In Control	Pre-clearing surveys are undertaken as required. No relocations were required in FY25.	
Permit to Disturb	7.1.2	Prior to any vegetation clearance occurring on site, a Permit to Disturb (IMCF0209) is to be issued. Specific details including the type and number of each habitat feature will be clearly recorded and identified on Permits to Disturb prior to issue. Permits to Disturb will only be issued following inspection by the site Specialist Environment or Specialist Consultant.	In Control	Permits to Disturb are completed as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Permit to Disturb	7.1.2	A post-clearing inspection will be undertaken by the site Specialist Environment or Specialist Environment to verify the clearing was done in accordance with the Permit to Disturb.	In Control	Permits to Disturb are completed as required.	
Permit to Disturb	7.1.2	If unapproved clearing goes beyond the CWEA boundary: • the incident will be reported in accordance with Section 11.2; and • the disturbed area will be rehabilitated as soon as practicable.	N/A	Not triggered	
Clearing Process - Timing	7.2.1	Where possible, the timing of vegetation clearance of important habitat features will be between January and May to avoid the primary breeding and nesting periods of most hollow-dwelling species.	In Control	The last emplacement clearing permit was issued in January 2025 with two stage clearing implemented for this area. Habitat features checked through spotlighting before clearing approved. The area cleared between January and May 2025 was previously approved for clearing in 2024. The clearing was not cleared in 2024 due to non-suitable timing for many nesting and hollow-dwelling species.	
Clearing Process - Timing	7.2.1	Clearing of native vegetation for emplacement preparatory works in the Stage 4 CWEA is required to be undertaken in line with the staging plan.	N/A	Clearing has not yet been undertaken for emplacement in the Stage 4 CWEA.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Two-Stage Clearing	7.2.2	Where access to trees by the excavator is safe and practical), clearing of hollow bearing trees will be performed in a two-stage process where surrounding vegetation is cleared separately, before the removal of habitat trees to allow fauna an opportunity to move.	In Control	Two stage clearing undertaken as required and as per requirements of the pre-clearance assessment report that is issued to the contractor before clearing can take place.	
Injured and Juvenile Animals	7.2.2.3	The general practice of dealing with injured or juvenile (dependent young) fauna will be for the site operators to notify the site Specialist Environment or Specialist Consultant who will arrange for fauna rescue or veterinary treatment. If the site Specialist Environment or Specialist Consultant is not present when an injured or juvenile animal is found, the steps as outlined in this section will be implemented.	N/A	Not triggered	
Stockpiling	7.2.3	Vegetation shall be removed from the area in stages and stockpiled adjacent to the clearing. Stockpiling of vegetation should be avoided or limited where possible to allow for the retention of seed viability.	In Control	Stockpiling is avoided where possible. Material is preferentially translocated directly to the areas being rehabilitated.	
Stockpiling	7.2.3	Rocks and logs are to be redistributed to the recipient sites (as per the Permit to Disturb). Large boulders and stags which require partial soil cover to be secured in place will be moved to the recipient sites prior to soil translocation.	In Control	Rocks and logs are collected. Large boulders and stags are relocated as required where identified.	
Stockpiling	7.2.3	Where practical, soil stockpiling will be avoided, and stripped soil layers will be immediately redistributed to the donor sites. Soils will not be stockpiled for long periods of time. Soil horizons will not be removed during or immediately following rain to minimise the composting process during stockpiling.	In Control	Stockpiling is avoided where possible. Material is preferentially translocated directly to the areas being rehabilitated.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Erosion and Sediment Control	7.2.4	Sediment controls, including berms covered in geotextile, sediment fences, or geotextile lined drains, may be implemented on slopes or where sediment may be transported on to haul roads or into a protected area. These controls will be discussed during the development of the Permit to Disturb.	In Control	Erosion and sediment controls are implemented where required and the effectiveness checked during inspections.	
Stripping of soil horizons	7.2.5	Topsoil from the donor site will be stripped from the surface in layers. The most valuable layer is the top 50 mm of soil which contains the majority of soil stored seed and propagules, plant nutrients and beneficial soil microbes. The top 50 mm of soil will be stripped and mixed with the cleared vegetation and stockpiled adjacent to or on the selected and pre-prepared recipient site ready for spreading.	In Control	Topsoil stripping and placement is undertaken as detailed. The success of this methodology is noted in the CWEA monitoring report.	
Stripping of soil horizons	7.2.5	Stripping and stockpiling of subsoil horizons will be undertaken depending on depth of bedrock. Where possible the depth of subsoil removal should exceed 500 mm. Subsoil layers will then be translocated to the recipient sites.	In Control	Subsoil stripping and placement is undertaken as detailed.	
Progressive Rehabilitation	7.3.1	Rehabilitation of the CWEA surface will take place progressively as each section of fill reaches the finished level. Completed sections of the CWEA will be trimmed to even grades, and spread with approximately 0.5 m of soil (including subsoil and topsoil).	In Control	Progressive rehabilitation is undertaken.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Progressive Rehabilitation	7.3.1	Habitat reinstatement techniques such as transplanting dead stags, addition of habitat logs and woody debris, nest box use and installation reconstruction of rock outcrops will be undertaken as described.	In Control	Progressive rehabilitation is undertaken. Dead stags are transplanted, habitat logs and rocks are placed and nest boxes have been installed.	
Landform Design	7.3.2	The surface of the CWEA should be reshaped in order to mimic micro-topographic features. Where possible, more natural concave slope profiles and slope angles will be used to limit the loss of sediment off the slope. The finished surface profile of the CWEA will be generally in accordance with the approved design contours (refer to Plan 3 and Plan 4).	In Control	The topography of Stage 3 has been designed to comply with these requirements using modelling.	
Translocation of Habitat and Soil	7.3.3.1	To facilitate successful long term plant growth it will be necessary to avoid capillary rise of potential saline seepage from the coal wash. In order to avoid the potential for saline seepage (which can prevent seed germination and retard plant growth), the emplacement will be fully encapsulated by soil horizons to a depth of typically 0.5m where appropriate.	In Control	There is no evidence of capillary rise in the CWEA.	
Translocation of Habitat and Soil	7.3.3.1	Subsoil horizons will first be spread over the allocated recipient sites on the Emplacement surface. Finally, the remaining 50 mm (topsoil) will be spread over on top.	In Control	Soil horizons are spread as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Translocation of Habitat and Soil	7.3.3.2	All remaining stockpiles of rocks, logs and vegetation will then to be redistributed over the recipient site. Avoiding excessive soil compaction is critical to maximise plant establishment and all traffic should be excluded from the translocated soil horizons once all materials have been spread on the surface. Habitat logs and coarse woody debris from the cleared vegetation will provide microhabitat for fauna and protection for emerging seedlings.	In Control	Stockpiles of rocks, logs and vegetation are spread as detailed.	
Translocation of Habitat and Soil	7.3.3.3	Large hollow bearing trees are present within areas proposed for clearing. Selected large hollow bearing trees within each clearance compartment will be transplanted to areas within the rehabilitating emplacement to become standing dead trees (stags). Provision of these dead stags will provide fauna habitat which may otherwise take decades to form. The quantity of dead stags transplanted to the CWEA will aim to mimic the numbers originally present within the cleared compartments.	In Control	Large stags are identified during the pre-clearing surveys and placed within the rehabilitation areas.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Translocation of Habitat and Soil	7.3.3.4	To provide suitable habitats for certain fauna species (especially reptiles), relocation of sandstone rock outcrops to the emplacement will be undertaken. The location of rock outcrops will account for the thermoregulatory requirements of reptile fauna by concentrating placement of boulders and exfoliating rocks on westerly aspects of the CWEA. Artificial habitat (e.g. using pavers) will also be constructed in selected areas.	In Control	Rock outcrops are constructed as required. Soil capping was undertaken and habitats constructed over the eastern and southern side of the Stage 3 CWEA in June 2025. Pavers were installed in the rehabilitation areas to replicate habitat for the Broad-headed Snake and the Velvet Gecko in FY22. Broad-headed Snake habitats are included in the Annual Rehabilitation Monitoring Report for the CWEA.	
Translocation of Habitat and Soil	7.3.4	Seed mixes should resemble the local vegetation types Woronora Plateau Scribbly Gum Woodland (previously Exposed Sandstone Scribbly Gum Woodland) and Sydney Coastal Sandstone Gully Forest (previously Sandstone Gully Peppermint Forest) to supplement rehabilitation of the CWEA and associated areas. Seed is harvested by contractors from areas of land within the regional locality, and will be spread over areas of the CWEA where final landform design, topsoiling and habitat construction has been completed. Where required (i.e. in areas that remain without any, or poor, natural regeneration for a period longer than six months), supplementary planting of local provenance tube stock will be considered to progressively reinstate vegetation.	In Control	Seed is sourced from a contractor. It is not always possible to guarantee local seed due to availability in the local areas. Due to health and safety risks associated with seed collection on an active mine site, no seed is formally collected on the mine site and it hasn't been required due to seed being available elsewhere in the region. Supplementary planting has not been required to date.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Translocation of Habitat and Soil	7.3.4	A list of suitable plant species for collection, propagation and installation has been derived from the Species Impact Study species list and is included in Table 2.	In Control	Seed list has been provided to the seeding contractor. Monitoring results suggests revegetation is consistent with the listing provided.	
Weed and Pest Management	7.3.5.1	Weeds and vertebrate pests will be managed as detailed in Table 5.	In Control	Weed spraying and hand pulling occurred throughout the rehabilitation areas during FY25. Slashing occurred in Stage 1. There was a greater focus on the eastern batter and the removal of Pampas Grass during FY25. No pest management has been required in FY25.	
Bushfire Management	7.3.5.2	Access roads around and through the CWEA are maintained as fire breaks. Firefighting equipment is maintained on the site, and the Rural Fire Service would be engaged to provide assistance.	In Control	APZs are maintained as required.	
Rehab Phases, indicators and Completion Criteria	7.3.6	The Appin Mine Rehabilitation Management Plan) summarises the rehabilitation processes for all surface facilities and sites associated with Appin Mine. Table 4 outlines the rehabilitation phases, indicators, objectives and completion criteria for the CWEA.	In Control	Progressive rehabilitation is undertaken to achieve the Completion Criteria. The CWEA Annual Monitoring Report details progress towards meeting these criteria.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Persoonia hirsuta management strategies	7.4.1	The Stage 4 conceptual staging plan will facilitate pollination vectors for <i>Persoonia hirsuta</i> across remnant bushland for Corridors 1 through 4 as shown in Plan 5.	N/A	Not yet triggered	Design plans will be developed to comply with this Condition as required.
Water	8.1	Runoff from the active emplacement areas (or areas where the vegetation has not yet been spread) is directed to the emplacement water management system (i.e. Ponds P4, EP2, and EP3 as shown on Plan 1) for treatment (if required) prior to being gravity fed to BCD.	In Control	Inspections are undertaken to check effective operation of the water management system.	
Water	8.1	As the CWEA construction progresses, a subsurface drainage system is installed in the base of the cleared area. Emplacement under-drainage flows are generally clean. The under-drainage is pumped to the clean water diversion channel for release into BCD. If required (i.e. if the water is 50 NTU or greater), the underdrainage can be directed into the CWEA dirty water system. Overflow from the under-drainage system feeds directly to the CWEA water treatment system. Additionally, a controlled portion of water from the under-drainage is redirected to the Appin North Water Treatment Plant to be treated prior to direct discharge into Brennans Creek. The volume of water that can be treated is dependent on the capacity of the Water Treatment Plant to accept the under-drainage waters, as it can only be treated on a 30:70 ratio with underground feed water.	In Control	Underdrainage water quality is monitored monthly via grab samples.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Dust Control	8.2	Dust impacts from emplacement operations will be mitigated by the coal wash material containing moisture from coal washing processes and being compacted once emplaced. Active emplacement areas will be vegetated as soon as is practical after emplacement and revegetated emplacement is typically stable. The following measures are in place to reduce dust emissions associated with emplacement operations: • regular inspections are undertaken to identify the presence of dry windy conditions and appropriate dust suppression is implemented as necessary early warning weather alerts are received that predict adverse weather conditions and pre-emptive dust controls are implemented where required. A water cart is maintained on site and is used when the surface of the emplacement is dry and airborne dust can be created;	In Control	Watercart is in use on the haul roads and stockpiles. Coal wash is compacted and covered as soon as practicable. No specific dust impacts were identified in FY25.	
		• vehicle speed limits are followed to reduce the risk of dust emissions from unsealed roads due to vehicle movements; • water carts are used to suppress dust on haul roads and active emplacement areas. Air quality around the CWEA will be monitored by: • inspections and visual assessments by site personnel; • collection and measurement of dust samples from strategically placed dust deposition gauges; • use of a real-time air quality monitor (on Wedderburn Road); and • dust emission spot checks using hand-held photometers (as required).	In Control		

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Noise Control	8.3	Noise generated on the CWEA is from coal wash haul trucks and earthmoving equipment. The noise impact from these operations is deemed to be minimal as noise is naturally mitigated by the emplacement being located in a valley and at a distance of 1.5 km to 2.5 km from the nearest residential development in Appin. This is confirmed by the quarterly noise monitoring program and the lack of complaints about noise from the site.	In Control	No noise complaints received. No issues raised during quarterly noise monitoring.	
Noise Control	8.3	Noise complaints will continue to be recorded and if a notable increase is identified, ICHPL will undertake further investigations.	N/A		
Visual Impact	8.4	The following measures will be undertaken to minimise impacts on visual amenity due to emplacement operations: • the finished level of the CWEA will be in accordance with approval conditions; • the land area dedicated to active emplacement operations will be kept to a minimum (typically 18 ha, maximum 21 ha); • the finished surface of the emplacement will be of a shape which complements and blends, as much as possible, with the surrounding natural landform, as per the approved final landform plans; and • completed sections of the CWEA will be revegetated as soon as possible.	In Control	The CWEA is constructed generally as per design. Progressive rehabilitation is undertaken.	
Emplacement Rehabilitation Monitoring	9.1.1.5	Biometric assessments are required annually, starting at 1 year after soil translocation.	In Control	Refer to last CWEA Monitoring Annual Report.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Emplacement Rehabilitation Monitoring	9.1.1.5	Surveys at control sites only required once every three years and the benchmarks as presented in this report remain so for the ensuing three year period.	In Control	Control sites last monitored in Spring 2023. Next monitoring scheduled for Spring 2026.	
Emplacement Rehabilitation Monitoring	9.1.1.5	Photo point monitoring is required annually and done in conjunction with the biometric assessment.	In Control	Photo points last monitored in 2024. See latest CWEA Monitoring Annual Report.	
Emplacement Rehabilitation Monitoring	9.1.1.5	Meanders for threatened plants are undertaken every three years.	In Control	Threatened plant meander undertaken in Spring 2023. Next monitoring scheduled for Spring 2026.	
Emplacement Rehabilitation Monitoring	9.1.1.5	Fauna monitoring using camera traps is required annually, starting 5 years after translocation or as deemed appropriate depending on the maturity of the revegetation.	In Control	Fauna last monitored in Spring 2024. See latest CWEA Monitoring Annual Report. Next round of Fauna monitoring to be undertaken Spring 2025.	
Emplacement Monitoring	9.2	Permanent survey control benchmarks are established on stable ground outside the perimeter of the CWEA from which the monitoring stations can be surveyed. Survey heights are taken regularly to determine the appropriate design heights (as shown on Plan 3).	In Control	Drone monitoring is undertaken to verify construction against design.	
Emplacement Monitoring	9.3	Compaction testing is tested as detailed in the OMS.	In Control	Compaction testing is undertaken as required.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Emplacement Monitoring	9.4	Runoff from active emplacement areas or areas where vegetation is not established is directed to the CWEA water management system (i.e. Ponds P4A, EP2 and EP3) for treatment prior to being diverted to BCD. Emplacement under-drainage flows are generally clean but have the potential to be dirty during the first-flush period of a rainfall event, especially after a prolonged dry period. Any first flush flows that are dirty are directed to the CWEA water treatment system (i.e. Ponds P4A, EP2, and EP3). During clean subsurface flows, or once the dirty first flush flows have cleared, emplacement under-drainage is pumped to the clean water diversion channel for release into BCD. The water management system is explained in more detail in the Appin Mine Water Management Plan. Monthly water samples are taken to monitor the quality of the CWEA subsurface drainage.	In Control	Monthly samples collected as required - refer to 14-day Report (Point 16) and published on GM ³ website: https://gm3.au/appin-mine/ .	
Emplacement Monitoring	9.5	Erosion and sediment control structures will be regularly inspected to check they are operating satisfactorily and to perform any maintenance work and repairs that may be required. Regular maintenance will include: • sediment removal from drains and sediment basins; • installation, proper operation and routine maintenance of any flocculant dosing equipment; • replacement and or repair of sediment control structures as required; and • repair of areas that become unstable following periods of high flow.	In Control	Erosion and sediment controls are monitored as part of quarterly inspection regime by Specialist Environment.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Complaints and Non-compliance Management	10.1	Community complaints and enquiries may also be received in person by any employee of ICHPL, with details to be immediately shared with the responsible site or project personnel for investigation. All CWEA complaints received in relation to Appin Mine will be managed in accordance with the Community Complaints Procedure. Upon receipt of a community complaint, preliminary investigations will commence as soon as practicable to determine the likely cause of the complaint. An initial response will be provided to the complainant within 24 hours of the complaint being made, with a follow up response being provided as soon as practicable once a more detailed investigation is complete.	In Control	No complaints regarding CWEA activities received in FY25.	
Non-Compliance, Corrective Action and Preventative Action	10.2	Events, non-compliances, corrective actions and preventative actions are managed in accordance with the Reporting and Investigation Standard and Environmental Compliance/Conformance Assessment and Reporting Procedure. These procedures, which relate to all ICHPL operations, detail the processes to be utilised with respect to event and hazard reporting, investigation and corrective action identification.	In Control	Events are logged in GM360.	
Non-Compliance, Corrective Action and Preventative Action	10.2	The Emergency Response Control Plan (APNMP0005) will be activated in an emergency. The plan includes contact details and duty cards for site personnel.	N/A	There were no emergencies relevant to the CWEA in the reporting period.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Non-Compliance, Corrective Action and Preventative Action	10.2	The Pollution Incident Response Management Plan (PIRMP), available on the GM3 website, will be activated where a pollution incident occurs that causes or threatens material harm to the environment. The PIRMP includes internal and external contact details.	N/A	There were no emergencies relevant to the CWEA in the reporting period. The PIRMP was not activated.	
Adaptive Management	10.3	Where any exceedance of the criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity: a) take all reasonable and feasible steps to ensure the exceedance ceases and does not recur; b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing these options and any preferred remediation measures or other course of action; and c) implement remediation measures as directed by the Planning Secretary to the satisfaction of the Planning Secretary.	In Control	No exceedances of criteria or performance measures have occurred in FY25.	
Reporting and Review	11.1.1	ICHPL will report on the performance of the CWEAMP in the Annual Review. The Annual Review is prepared in accordance with Condition 4 of Schedule 6 of the Project Approval and is submitted to relevant agencies in September each year. Annual Reviews are made available to the general public via the GM ³ website.	In Control	Annual Review is submitted as required. Copies of previous Annual Reviews are available on the GM ³ website.	
Reporting and Review	11.1.2	The Emplacement Rehabilitation Monitoring Report is included as an appendix in the Annual Review.	In Control	Report was submitted to DCCEE on 24 June 2025.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Reporting and Review	11.1.3	ICHPL submits an Annual Rehabilitation Report to the Resources Regulator in accordance with Condition 13(2) of Schedule 8a of the Mining Regulation 2016. ICHPL publishes the Annual Rehabilitation Report on the GM ³ website.	In Control	Report has been submitted and is available on the GM ³ website.	
Reporting and Review	11.1.4	A summary of the CWEA monitoring results (where applicable), including details of exceedances and non-compliances (as determined in accordance with Section 10.2 of the CWEAMP), will be provided on the GM ³ website in the 14-day report.	In Control	Report is available on the GM ³ website.	
Reporting and Review	11.1.5	In accordance with Condition 14 of the EPBC Approval, a Compliance Report is required to be submitted within three (3) months of every 12-month anniversary of the commencement of the action. The report is required to address compliance with each of the conditions of the EPBC Approval, including implementation of any management plans as specified in the conditions. The date of submission is by 15 August of each year. A copy of the Compliance Report is also attached to the Annual Review. The Compliance Report is published to the GM ³ website.	In Control	The Compliance Report has been submitted as required and is available on the GM ³ website.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Incident, Non-compliance and Exceedance notifications	11.2.1	In accordance with Condition 7 of Schedule 6 of the Project Approval, the Planning Secretary is to be notified in writing via the Major Projects website immediately after becoming aware of an incident. Reports are to be provided in accordance with the requirements set out in Appendix 7 of the Project Approval. Notification to the EPA will also be undertaken in accordance with the reporting requirements of the Pollution Incident Response Management Plan (if applicable) or via email/phone. Incidents or non-compliances relevant to the EPBC Approval will be reported to DCCEEW.	In Control	No incidents relating to the CWEA were required to be reported in FY25.	
Incident, Non-compliance and Exceedance notifications	11.2.2	In accordance with Condition 7A of Schedule 6 of the Project Approval, the Planning Secretary must be notified in writing via the Major Projects website within seven (7) days after becoming aware of a non-compliance. The EPA is also to be notified of the non-compliance (via email).	In Control	No non-compliances relating to the CWEA were required to be reported in FY25.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Incident, Non-compliance and Exceedance notifications	11.2.3	In accordance with Condition 1 of Schedule 5 of the Project Approval, where an exceedance of criteria due to operational activities has been confirmed, the affected landowners will be notified in writing of the exceedance as soon as practicable and no longer than seven (7) days following confirmation of the exceedance. Notifications of exceedances is to be undertaken prior to inclusion in the 14-day Report. Regular monitoring results will be provided to each affected landowner until compliance with criteria is achieved. The Appin Mine Community Consultative Committee will also be advised of exceedances of criteria at the next available meeting.	In Control	No exceedances relating to the CWEA were required to be reported in FY25.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Review of CWEAMP	10.3	In accordance with Condition 5 of Schedule 6 of the Project Approval, the CWEAMP will be reviewed, and if necessary revised, within three months, of: • the submission of an Annual Review; • the submission of an incident report; • the submission of an Independent Environmental Audit (IEA) report; or • any modification to the conditions of the Project Approval (unless the conditions require otherwise); or • a direction of the Planning Secretary under Condition 4 of Schedule 2. Outcomes from each review will be documented in the Management Plan Review Log (unless the CWEAMP is being updated as part of the review). The CWEAMP will only be revised where a material change to site operations or environmental management has occurred, or in accordance with the review period on the CWEAMP. Administrative changes do not constitute a material change. Where a review triggers a revision of the CWEAMP, the CWEAMP will be revised and submitted to the Planning Secretary for approval. Once approved, the CWEAMP will be uploaded to the GM³ website. The approved CWEAMP will be implemented.	In Control	CWEAMP was reviewed in FY24 following consultation with RAPs and to reflect inclusion of operational requirements in the Operations, Maintenance and Surveillance Manual, Dry Rejects Emplacement Area. The CWEAMP was approved by DPHI on 9 April 2025 and by DCCEEW on 10 June 2025.	
Review of CWEAMP	10.3	A revised CWEAMP will be submitted to DCCEEW for approval once the elements of the Staging Plan for Stage 4 of the CWEA have been finalised and prior to commencement of emplacement activities in Stage 4.	N/A	The elements of the Staging Plan for Stage 4 have not yet been finalised.	

Coal Wash Emplacement Area Management Plan
WCPMP0019
Management Plan Version 6

Independent Environmental Audit	10.4.1	In accordance with Condition 9 of Schedule 6 of the Project Approval, an IEA shall be commissioned every three years, that will include a review of the CWEAMP. The report, together with the response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations, is required to be submitted to the Planning Secretary within six weeks of completion of the IEA, in accordance with Condition 10 of Schedule 6. The IEA is also undertaken to comply with Condition 18 of EPBC Approval 2010/5350. A copy of the report is also submitted to DCCEEW to satisfy Condition 18 (g).	In Control	The last IEA was undertaken in 2022. The IEA Report was submitted to DCCEEW (then DAWE) as required. The next IEA is scheduled in 2025.	
ISO 14001	10.4.2	External surveillance audits are undertaken on an annual basis, with recertification audits undertaken every three years. Internal Governance Reviews of the CWEAMP are nominally undertaken on an annual basis.	In Control	The last re-certification audit was undertaken in April/May 2025. The last Governance Review was undertaken in February 2025.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

MP Ref.	Requirement / Obligation	Outcome	Comment and Evidence	Proposed Action
1.5	ICHPL has committed to clearing no more than 9 ha of SSTF over the life of the project.	In Control	This target has not been exceeded.	
3	Monitoring, record keeping and reporting will be conducted as per the BioBanking Agreement, Annexure D. This will include an Annual BioBank Report to include the information required under Annexure D, Condition 2.5.	In Control	Reports submitted as required	
3	A copy of the BioBank report will be included in the Annual Review as an appendix and be submitted to the Department of Climate Change, Energy the Environment and Water (DCCEEW) to satisfy the EPBC Approval conditions.	In Control	BioBank report is included as an Appendix in the Annual Review.	
4	In accordance with Condition 5A of EPBC Approval 2010/5350, Biobanking Agreement 215 is considered to be an Offset Management Plan for the purposes of Condition 4 and therefore approval from the Minister of the SSTF Offset Management Plan is not required for this, or future, revisions of the management plan.	In Control	SSTF Management Plan reviewed in FY25. Copy was not provided for approval as changes were administrative in nature. A Management Plan review was undertaken and submitted to BCT on 19 July 2023. No issues with the updates were identified by BCT. It was noted that the Biobanking Agreement would not be reissued based on the updates.	
Ref.	Requirement / Obligation			

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

3.1	Except as otherwise permitted by this agreement, the landowner must not carry out any act or omit to carry out any act, or cause or permit any act to be carried out or any act not to be carried out which act or omission may harm biodiversity values on the biobank site, including but not limited to any native animals, native plants, threatened species, populations and ecological communities, and their habitats. NOTE: The clearing of native vegetation that is otherwise permissible in accordance with the NV Act (whether it is permissible under a PVP, routine agricultural management activity (as defined under the NV Act), or is otherwise permitted under Part 3 of that Act) can only be carried out on the biobank site to which this agreement applies if it is also permissible under this agreement. Item 5.1 of the management actions contained in Section 1 of Annexure C sets out the limited circumstances in which native vegetation can be cleared on the biobank site. Annexure C also contains limited exceptions in relation to when a landowner is not required to comply with the management actions contained in Annexure C.	In Control	As per Management Actions comments below.	
3.2	To avoid any doubt, nothing in this agreement is to be construed as authorising (including, but not limited to, by way of a consent, permit, approval or authorisation of any kind for the purposes of Part 6 of the NPW Act) any person to damage or to cause or permit damage to an Aboriginal object or Aboriginal place in, on or under the biobank site.	In Control	As per Management Actions comments below.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

3.3	The landowner is responsible for obtaining all necessary licences, consents, authorisations, permits or approvals in order to lawfully comply with and carry out its obligations under this agreement or to undertake or enable any other identified matter under clause 3.5 and/or clause 3.6	In Control	All required approvals are in place.	
3.4.1	The landowner must not carry out, or cause or permit to be carried out, any development (as defined under clause 1 above) on the biobank site, unless the development: 3.4.1 - is permitted or required under Annexure C, or 3.4.2 - is identified in the table entitled 'Permissible development on the biobank site' contained in clause 3.5 or identified in the table entitled 'Permissible human activities on the biobank site' contained in clause 3.6	In Control	As per Management Actions comments below.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

3.5	The landowner shall be permitted to carry out, or cause or permit to be carried out, the development specified in the following table in the management zone specified in the table: * All Management zones - Any development within the meaning of section 127 (1) of the Act reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property.	In Control	As per Management Actions comments below.	
3.5	The landowner shall be permitted to carry out, or cause or permit to be carried out, the development specified in the following table in the management zone specified in the table: * All Management Zones - Any development permitted or required as part of a management action under Annexure C, including but not limited to maintaining existing access tracks on the biobank site, building shed/s to store weed control chemicals or other pesticides on the biobank site, building fences to manage stock on the biobank site and building structures to restore natural water flow regimes.	In Control	As per Management Actions comments below.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

3.5	The landowner shall be permitted to carry out, or cause or permit to be carried out, the development specified in the following table in the management zone specified in the table: * All Management Zones - Construction of fencing to prevent stock incursion.	In Control	Signage and fencing as per the BBA are in good working order. In the 2022 reporting period there was minor damage to the top strand of the boundary fence with the neighbour to the south from falling branches during high wind. This fence was repaired in September 2022. There has been no known incursion of stock onto the site since the 2022 reporting period. During the 2025 reporting period, all fences were in good condition and exclude stock from the site, following the fence repairs in the 2024 reporting period. All biobanking and security signs remain attached to the access gates.	
3.6	Notwithstanding clause 3.1, the landowner may carry out or cause or permit to be carried out any human activities specified in the following table, in the management zone specified in the table: * All Management Zones - Any human activity reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property.	In Control	As per Management Actions comments below.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

3.6	Notwithstanding clause 3.1, the landowner may carry out or cause or permit to be carried out any human activities specified in the following table, in the management zone specified in the table: * All Management Zones - Any activity or any development permitted or required as part of a management action under Annexure C, including but not limited to mustering stock or feral herbivores including with mechanised vehicles, spraying or mechanically removing weeds, planting tube stock or sowing seeds of native vegetation, using drip torches, thinning native vegetation, disturbing soil temporarily to control erosion, encouraging regeneration, controlling nutrients or restoring natural flow regimes, laying baits, trapping or otherwise controlling vertebrate pests and feral herbivores and overabundant native herbivores.	In Control	As per Management Actions comments below.	
3.6	Notwithstanding clause 3.1, the landowner may carry out or cause or permit to be carried out any human activities specified in the following table, in the management zone specified in the table: * All Management Zones - Passive recreation, with the exception of overnight stays and/or camp fires, is permissible on the land to the extent that the condition of vegetation on site is not degraded. Passive recreation can include but is not limited to activities such as walking and bird watching.	In Control	As per Management Actions comments below.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

3.6	Notwithstanding clause 3.1, the landowner may carry out or cause or permit to be carried out any human activities specified in the following table, in the management zone specified in the table: * All Management Zones - Any activity required to undertake permissible development	In Control	As per Management Actions comments below.	
4.1	The landowner must carry out or procure the carrying out of the management actions in accordance with the timing, manner and requirements of Annexure C.	In Control	As per Management Actions comments below.	
4.2	The landowner must: i) implement or procure the implementation of; and ii) comply or procure the compliance with the management plans in accordance with the timing, manner and requirements of Annexure C NOTE: The management actions listed in Annexure C include requirements to take certain action and requirements to refrain from taking certain action.	In Control	As per Management Actions comments below.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

4.3	Unless otherwise indicated by Annexure C, the landowner must ensure that; i) the management actions to be carried out in accordance with clause 4.1; and ii) the management plans to be implemented and complied with in accordance with clause 4.2	In Control	As per Management Actions comments below.	
7.1	The landowner must comply with the monitoring and record keeping requirements as set out in Annexure D.	In Control	As per Management Actions comments below.	
7.2	The landowner must submit an annual report complying with the requirements set out in Annexure D to the Chief Executive within the timeframe specified in Annexure D.	In Control	Reports submitted as required.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

7.3	The landowner must notify the Chief Executive in writing as soon as practicable after becoming aware of any failure to comply with this agreement or any other incident at the biobank site (or surrounds) which results or may result in a sudden or significant decline of biodiversity values at the biobank site. In particular, the landowner must notify the Chief Executive of: 7.3.1 - the nature, location and time of the incident 7.3.2 - the impact of the incident on biodiversity values 7.3.3 - the measures that have been taken or will be taken in response to the incident 7.3.4 - any provision of this agreement which may have been breached 7.3.5 - the extent of any damage caused or permitted by the incident 7.3.6 - the measures which have been taken or will be taken to prevent a recurrence of the incident.	In Control	Trespass and unauthorised removal of trees occurred in August 2019. An incident report was provided to the Biodiversity Conservation Trust as required by this condition. BCT satisfied with the report and actions taken by ICH. Trespass and removal of 3 trees was identified in July 2024. An incident report was provided to the Biodiversity Conservation Trust as required by this condition. Fence repair contractors were contacted to provide a quote to repair fence damage during illegal access and an Intentional Damage report was lodged.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

8	The landowner must incorporate all relevant requirements of this agreement in any lease or licence issued for the biobank site, and must at all times ensure that any servant, contractor, consultant, agent, lessee or licensee occupying the biobank site area shall be aware of, and not undertake any act inconsistent with, the landowner's obligations under this agreement.	In Control	Landcare have been provided a copy of the agreement as required.	
9.1	The landowner must notify the Chief executive in writing of any change of: 9.1.1 - ownership of the biobank site, or any part thereof, within seven (7) days after the change of ownership of the biobank site; or 9.1.2 - lessee of the biobank site, or any part thereof, within twenty-eight (28) days after the change of lessee or licensee of the biobank site. The notice must include the name and address and other relevant contact details of the new landowner, lessee or licensee.	N/A	Not triggered	
9.2	The landowner must provide a copy of this agreement, including a copy of each management plan and a copy of all records required to be kept under the record keeping requirements, to the transferee before completion of the assignment, transfer, disposal or sale of any interest in the biobank site.	N/A	Not triggered	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

9.3	The landowner must notify the Chief Executive in writing no less than 14 days before the biobank site is subdivided.	N/A	Not triggered	
9.4	The landowner cannot assign, transfer, dispose of or sell its rights, title or interest in part of the land containing any area of the biobank site unless the landowner and the Minister have first agreed to vary the agreement to apportion the obligations and rights under the agreement in respect of that part of the biobank site that will be assigned, transferred, disposed of or sold.	N/A	Not triggered	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

10.1	The landowner must permit access to the biobank site at any time to the Minister, the Chief Executive, an authorised officer or an officer of OEH for the purpose of carrying out research or monitoring in relation to the biodiversity values on the biobank site for which biodiversity credits have been created under this agreement, but only where the person has given reasonable notice to the landowner and the landowner's agent, lessee or licensee, of the intention to enter the biobank site for that purpose and the nature of the research or monitoring that will be conducted. In exercising its right of access under this clause, the Minister, the Chief Executive, an authorised officer or an officer of OEH must ensure that such access does not: 10.1.1 - result in physical or radio interference which obstructs, interrupts or impedes the use or operation of any telecommunications network and telecommunications service of a lessee or licensee of a part of the land; or 10.1.2 - interfere with the electricity supply separate from the landowner's electricity supply to any part of the land occupied by a lessee or licensee.	In Control	BCT have been given access as required for the purpose of the annual audit.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

10.2	The Minister, Chief Executive, an authorised officer or an officer of OEH may make a written request to the landowner to consent to any other person specified in the written request to enter the biobank site for the purpose of carrying out the research or monitoring referred to in clause 10.2, whether or not that person will accompany the Minister, Chief Executive, an authorised officer or an officer of OEH. The landowner will not unreasonably withhold consent.	In Control	The Biodiversity Conservation Trust requested permission for contractors to access the biobanking site to conduct five yearly legacy monitoring. Access was approved and monitoring conducted August 2024. Next monitoring to be expected in 2029.	
13.4	If the landowner elects to identify the exact boundaries of the biobank site on the Deposited Plan for the land, the landowner must bear any additional costs of registration.	N/A	Not triggered	
14.1	Subject to clause 14.2, this agreement can only be varied or terminated in accordance with the Act.	N/A	Not triggered	
16.1	Where there is a dispute, difference or claim (dispute), the party raising the dispute must notify the other party in writing of the nature of the dispute, including the factual and legal basis of the dispute.	N/A	Not triggered	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

16.2	Within 14 days of the written notice, the Chief Executive and the landowner, or nominated senior representatives of the parties, must confer to attempt to resolve the dispute, and if the dispute cannot be resolved within twenty-one (21) days of the written notice, the Chief Executive and the landowner will refer the matter to mediation.	N/A	Not triggered	
16.3	The parties will agree on the terms of appointment of the mediator and the terms of the mediation in writing within twenty-eight (28) days, failing which the mediation will be at an end and either party may commence court proceedings in respect of the dispute, difference or claim.	N/A	Not triggered	
16.4	If the matter has not been resolved within 28 days of the appointment of the mediator, the mediation process will be at an end and either part may commence court proceedings in respect of the dispute, difference or claim.	N/A	Not triggered	
21.1.	Any notice, consent, information, application or request that must or may be given or made to a party is only given or made if it is in writing and delivered or posted to that party as its address set out (in the agreement), or faxed to that party at its fax number set out (in the agreement).	N/A	Not triggered	
Ref.	Requirement / Obligation			

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Map A	Map A - Biobank site boundary map dated 01/03/2016.	In Control	New plan provided in July 2023 Management Plan Review (dated 30/06/2023).	
Map B	Map B - Vegetation zones, management zones and photo points map dated 16/05/2016.	In Control	New plan provided in July 2023 Management Plan Review (dated 30/06/2023).	
Map C	Map C - <i>Grevillea parviflora</i> subsp. <i>Parviflora</i> locations dated 09/05/2016.	In Control		
Map D	Map D - <i>Epacris purpurascens</i> var. <i>Purpurascens</i> locations dated 10/05/2016.	In Control		
Map E	Map E - Koala habitat polygon dated 13/05/2016	In Control		
		In Control	New maps included in 2023 Management Plan Review: - Figure 2 - Weed Distribution Map - Weeds of National Significance - Figure 3 - Weed Distribution Map - Noxious Weed Species - Figure 4 - Weed Distribution Map - High Threat Weed Species - Figure 5 - Weed Distribution Map - Environmental Weed Species - Figure 6 - Fuel Hazard Assessment Map - Figure 7 - Evidence of Feral and Pest Animals	
Ref.	Requirement / Obligation			

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 1.1	Stock must not be permitted to graze in any area, remove stock immediately - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. As per Appin West Biobanking Agreement Annual Report 2024. No stock observed in all management zones on each site visit. Grazing by stock animals has recommenced on the property adjoining the southern boundary. There has been no incursion into the site during the reporting period.	
Section 1 - 2.1	Comply with Weed MP - Section 3 - Ongoing from commencement date	In Control	Targeted weed sweeps are conducted in order to control weeds at the site that are in low abundance including Lantana, Privet, Crofton Weed, Bridal Creeper, Narrow-Leaved Cotton Bush and a range of annual weeds. Manual removal of African Lovegrass in MZ1 and MZ2, adjoining the transmission line was completed during 2025 site visits to reduce the spread of the weed further into the site. Manual removal includes removing the entire tussock and roots. On the eastern side of the main road within MZ1, manual removal of Aloe Vera was undertaken, with the plant rafted on pallets. Follow up visits have confirmed that rafting is effective an effective method to kill the succulents. Targeted control of thistles and Pattersons curse have occurred in MZ3 by manually removing the plants.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 2.2	Review Weed Management Plan every 4 -6 years. Notify Chief Executive in writing within 14 days of commencement of review. Findings of the review must be submitted to Chief Executive within 3 months of commencing the review. Chief executive to determine if update is required. Landowner must submit updated plan within 3 months of this request. Update must cover matters as per 2.2. of Section 1. - Ongoing from first payment date	In Control	BioBanking Agreement 215 agreed on 1 February 2017, with the first payment date being 20 July 2017. Landcare were engaged to undertake the review on 23 June 2023. The BCT was notified of the commencement of the review on 4 July 2023. The review was submitted on 19 July 2023.	
Section 1 - 3.1	Comply with Fire MP - Ongoing from first payment date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. Recommendation: Apply for a hazard reduction (HR) certificate to conduct a burn in MZ1, MZ2 and MZ3 as a priority and before 2026. To be completed in accordance with the five-year management plan review actions and fire requirements for vegetation types and threatened species in the BioBanking agreement. Removal of overgrown vegetation along existing fire trails and boundary fences adjacent to neighbouring property should be undertaken as soon as practical in accordance with five-year management plan review actions.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 3.2	Review Fire Management Plan every 4 -6 years. Notify Chief Executive in writing within 14 days of commencement of review. Findings of the review must be submitted to Chief Executive within 3 months of commencing the review. Chief executive to determine if update is required. Landowner must submit updated plan within 3 months of this request. Update must cover matters as per 3.2. of Section 1. - Ongoing from first payment date	In Control	BioBanking Agreement 215 agreed on 1 February 2017, with the first payment date being 20 July 2017. Landcare were engaged to undertake the review on 23 June 2023. The BCT was notified of the commencement of the review on 4 July 2023. The review was submitted on 19 July 2023.	
Section 1 - 3.3	Do not light fires on the Biobank site other than for purposes of ecological burning of if permitted as a permissible activity as per Item 4, Clause 3.6. - Ongoing from commencement date	In Control	No ecological burns are planned in any zone until at least 2026 and then the site will be reconsidered for future ecological burns in a mosaic pattern across the site. Monitoring observations report no evidence of recent fire activity during site visit (Management report suggests last burn was in 2004). Acacia spp. in MZ 2 and MZ 7 continue to exhibit senescence. Fuel loads approx. 25 tonnes per hectare on average. No evidence of recent fire activity during all six site visits (BBA suggests last burn/wildfire was in 2004).	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 4.1	No activities that will adversely effect biodiversity must be carried out except those permitted under Clause 3.6 - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. In August 2019, a breach report was prepared and submitted to the BCT in regard to trespass and damage to the boundary fence and the illegal felling of CPW species including Ironbark species. No evidence of human activities that would adversely impact the values of the site during the 2025 reporting period. No new rubbish was identified during the 2025 reporting period. Pallets that were previously found onsite, have been utilised to raft aloe vera. All fences are in good condition and exclude stock from the site. All biobanking and security signs remain attached to the access gates.	
Section 1 - 4.2	Human activities that have negative effect on biodiversity are permitted if they are listed under Clause 3.6 or if they are undertaken as part of the management plans - Ongoing from commencement date	In Control	Trespass and unauthorised removal of trees in August 2019. Report was provided to the Biodiversity Conservation Trust as required. Trespass and removal of three trees was identified in July 2024. An incident report was provided to the Biodiversity Conservation Trust as required by this condition. Fence repair contractors were contacted to provide a quote to repair fence damage during illegal access and an Intentional Damage report was lodged.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 4.4	Must not store or dispose of waste - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. No new rubbish was identified during the 2025 reporting period. Pallets that were previously found onsite, have been utilised to raft aloe vera.	
Section 1 - 4.5	Must take all reasonable steps to remove waste deposited by others, or which is otherwise present on the site - Ongoing from first payment date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. Timber pallets removed from site at time of audit. Recommendation: Pallet with Aloe vera plants to be removed and any other scattered rubbish No evidence of additional or new waste was observed during the site quarterly visits for the 2025 reporting period. Timber pallets used to raft aloe vera plants and to be removed once completed.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 4.6	Signage must be installed and maintained to deter human disturbance including dumping. Signage must be the biobanking signs available by OEH - Within 3 months of first payment date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. For the 2025 reporting period, all fences are in good condition and exclude stock from the site. All biobanking and security signs remain attached to the access gates.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 4.6	Fencing of 3 km of the site. \$4500 allocated every three years to maintain fencing. Single sign to be installed at each of the two locked gates - Within 3 months of first payment date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. Illegally cut boundary fence on 160 Douglas Park Drive (adjoining property 200 Douglas Park Drive) repaired at time of audit. Recommendation: Surveillance signage is recommended as a deterrence against unauthorised access in areas where previously disturbed. Evidence of horse manure observed near photo point 7. Monitor for future activity. Fenced areas to replace barb wire with plain wire, on at least the top 2 strands and bottom strand to reduce the likelihood of entanglement of fauna and nocturnal animals. All future upgrades to fencing should be wildlife friendly. For the 2025 reporting period, all fences are in good condition and exclude stock from the site. All biobanking and security signs remain attached to the access gates.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 4.7	Retain the management access track on the Cataract River side - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. Access track remains in place, and is used to access photo point 9.	
Section 1 - 5.1	Native veg must not be cut down, felled, thinned, logged, killed, destroyed, poisoned, ringbarked, uprooted, burnt etc. Except in accordance with Fire Management Plan or Permissible Development under Clause 3.5 - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. No evidence of illegal removal of trees was found during the most recent site inspection. In previous reporting years, illegal logging of native Turpentine trees had occurred, on multiple instances, in MZ1 in the eastern block of the site. No evidence of fire activity.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 6.1	Planting required in the 0.5 Ha Management Zone 3 - 250 plants. Record date of planting - commencing from first payment date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action Completed Satisfactorily. Recommendation: Supplementary planting of 50 trees to be actioned in MZ3 in accordance with Planting schedule and requirements pages of this report. As commented in the five-year review, BCT recommends the installation of 800 mm tall mesh guards to protect seedlings. Supplementary tree planting occurred in MZ3 prior to the 2018.	
Section 1 -6.2	Protect plants from grazing for two years or until 50 cm high. Record the date when the plant height requirements are met. - commencing from first payment date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. No Management Actions listed in audit No planting has been undertaken within the last two years.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 6.3	Survey the plants for success - Conduct first survey 24 months after completion of planting, then every 12 months for 5 years	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. No Management Actions listed in audit. The seedlings do not appear to be impacted by grazing and have been maintained within the constraints of the site budget with survivability approximately 40% with additional recruitment observed from neighbouring native vegetation during the 2025 reporting period.	
Section 1 - 6.5	Seeds and plants used for planting must be obtained from locally collected provenances, unless reasons to do otherwise. - Conduct first survey 24 months after completion of planting, then every 12 months for 5 years	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. No Management Actions listed in audit Illawarra Landcare confirmed by email on 26/9/19 that all plantings were sourced from Western and South Western Sydney.	
Section 1 - 7.1	Don't remove dead timber except for firewood for one household (landowner) or fencing repairs. - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action completed Satisfactorily. No dead timber has been introduced or removed from the site since the commencement of the BBA.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 1 - 7.2	Timber brought from outside must be documented - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action completed Satisfactorily. Comments as per Annual biobanking Report 2025: No dead timber has been introduced or removed from the site since the commencement of the BBA.	
Section 1 - 8.1	Take reasonable steps to prevent, control erosion - Ongoing from commencement date	In Control	No areas identified across the site which currently require any supplementary erosion control or stabilisation. Observations made during maintenance sweeps for all zones during annual and quarterly sites visits. No evidence of erosion observed during site inspections for the 2025 reporting period.	
Section 1 - 9.1	Don't remove rocks from the site - Ongoing from commencement date	In Control	No rock removal has occurred on the site since the commencement of the BBA. No evidence of rock removal observed during the 2025 reporting period.	
Section 1 - 9.2	Can bring rocks from outside the site but once onsite can't be removed. - Ongoing from commencement date	In Control	No rock removal has occurred on the site since the commencement of the BBA. No evidence of rock removal observed during inspection. Action Completed Satisfactorily.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 2 - 10.1	Comply with the Management Plan - Ongoing from first payment date	In Control	Negligible feral or overabundant native herbivores observed onsite in all zones. No evidence of goats (scats) observed to date Action Completed Satisfactorily.	
Section 2 - 10.2	Review Management Plan every 4 -6 years. Notify Chief Executive in writing within 14 days of commencement of review. Findings of the review must be submitted to Chief Executive within 3 months of commencing the review. Chief executive to determine if update is required. Landowner must submit updated plan within 3 months of this request. Update must cover matters as per 3.2. of Section 1. - Ongoing from first payment date	In Control	BioBanking Agreement 215 agreed on 1 February 2017, with the first payment date being 20 July 2017. Landcare were engaged to undertake the review on 23 June 2023. The BCT was notified of the commencement of the review on 4 July 2023. The review was submitted on 19 July 2023.	
Section 2 - 11.1	Comply with Vertebrate Pest MP - Ongoing from first payment date	In Control	Fox baiting occurred between September and October 2024. A planned regional control program in autumn was cancelled due to a lack of staff availability from Local Land Services to manage the program. 1080 ejector traps were used, with one successful trigger being recorded. No goat scats have been observed during any site visits. However, there is potential for goats to access the site (and graze in MZ3) as goats have been sighted within the same gorge approx. 7 km to the northwest at Douglas Park, NSW.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 2 - 11.2	Review Pest Management Plan every 4 -6 years. Notify Chief Executive in writing within 14 days of commencement of review. Findings of the review must be submitted to Chief Executive within 3 months of commencing the review. Chief executive to determine if update is required. Landowner must submit updated plan within 3 months of this request. Update must cover matters as per 3.2. of Section 1. - Ongoing from first payment date	In Control	BioBanking Agreement 215 agreed on 1 February 2017, with the first payment date being 20 July 2017. Landcare were engaged to undertake the review on 23 June 2023. The BCT was notified of the commencement of the review on 4 July 2023. The review was submitted on 19 July 2023.	
Section 2 - 12.1	Fertilisers or pesticides not to be used except for weed or pest control - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action completed Satisfactorily. Herbicides are used on site for weed control and mainly consists of cut and paint treatment.	
Section 2 - 13.1	Not relevant to this site - Ongoing from first payment date	N/A	Not relevant to this site	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 2 - 14.3	Don't impede natural flow regimes - Ongoing from commencement date	In Control	Comments as per last annual audit by BCT (site visit 24/09/2024). The next audit will be scheduled for after August 2025. Action completed Satisfactorily. No evidence of artificial structures being constructed to impede natural flow regimes observed during site inspections for the 2025 reporting period. No artificial structures installed to impede the natural flow regimes on the site. Natural flow regimes are maintained on the site in accordance with the BBA.	
Section 3	Spray/Slashing in Management Zones - Spray/Slashing three times per year (MZ1-3). Some management zones only required once per year (MZ4, 5 & 6)	In Control	During the 2025 reporting period, targeted weed sweeps are conducted in order to control weeds at the site that are in low abundance including Lantana, Privet, Crofton Weed, Bridal Creeper, Narrow-Leaved Cotton Bush and a range of annual weeds. Manual removal of African Lovegrass in MZ1 and MZ2, adjoining the transmission line was completed at recent site visits to reduce the spread of the weed further into the site. Manual removal includes removing the entire tussock and roots. On the eastern side of the main road within MZ1, manual removal of Aloe Vera was undertaken, with the plant rafted on pallets. Follow up visits have confirmed that rafting is effective an effective method to kill the succulents. Targeted control of thistles and Pattersons curse have occurred in MZ3 by manually removing the plants.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 3	Site inspections as weed treatments applied. Annual inspection and Monitoring Report - Annually from first payment date	In Control	Included in BioBanking Agreement Annual Report. 2025 report due 19 August.	
Section 3	Fires intervals between 7 and 30 years - Once every 12 to 30 years	In Control	Apply for a hazard reduction (HR) certificate to apply a burn in MZ1, MZ2 and MZ3 as a priority and before 2026. To be completed in accordance with the five year management plan review actions and fire requirements for vegetation types and threatened species in the BioBanking agreement. Removal of overgrown vegetation along existing fire trails and boundary fences adjacent to neighbouring property should be undertaken as soon as practical in accordance with five-year management plan review actions. Action Completed Satisfactorily.	
Section 3	Exclude fire until 2026. Unplanned fires permitted. Must not burn >25% of the site at any one time. - Once every 12 to 30 years	In Control	No planned burning in any zones until 2026. Action Completed Satisfactorily.	
Section 3	In MZ5 totally exclude fire other than wildfire - Once every 12 to 30 years	In Control	Comments as per last annual audit by BCT. Action Completed Satisfactorily.	
Section 3	Visual monitoring in 2026 as per MP table - 2026	N/A	Not required until 2026	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 3	Monitoring prior to and after burning as per table - 2026 or following a wildfire	In Control	No evidence of recent fire activity during all visits (BBA suggest last burn/wildfire was in 2004). No evidence of recent fire activity observed during 2025 inspections.	
Section 3	Periodic trittering along fence lines is permitted but must not affect canopy or mid storey - Every 5 years	In Control	No evidence of recent fire activity during all visits (BBA suggest last burn/wildfire was in 2004). No evidence of recent fire activity observed during 2025 inspections.	
Section 3	Monitoring of number and impacts on annual basis - No or negligible occurrence on the site	In Control	Comments as per last annual audit by BCT. Action Completed Satisfactorily.	
Section 3	Protect MZ3 planting - Review annually	In Control	Comments as per last annual audit by BCT. Action Completed Satisfactorily. The seedlings do not appear to be impacted by grazing and have been maintained within the constraints of the site budget with survivability approximately 40% with additional recruitment observed from neighbouring native vegetation.	
Section 3	Species traces and potential impacts - Annually	In Control	During the 2025 reporting period, negligible feral or overabundant native herbivores observed onsite in all zones. Action Completed Satisfactorily.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

Section 3	1080 baiting - If warranted (Consult GSLLS)	In Control	Fox baiting occurred between September and October 2024. A second planned regional control program in autumn was cancelled due to a lack of staff availability from Local Land Services to manage the program. 1080 ejector traps were used, with one successful trigger being recorded. Action Completed Satisfactorily.	
Section 3	Den fumigation or habitat removal - If warranted	In Control	Not required during the 2025 reporting period.	
Section 3	Qualitative observation for traces and scats - Annually	In Control	No evidence of pest scats found during the 2025 reporting period across the site.	
Ref.	Requirement / Obligation			
1.3	Photo Points - Within 12 months or commencement date and every 12 months thereafter	In Control	Photo points updated within the 2025 reporting period annual report.	
1.3	Percentage of ground cover present on the biobank site - Annually	In Control	No reduction in groundcover observed during the 2025 reporting period. No stock incursion has allowed groundcover to be maintained and/or increase in density across the site over the previous 6 years due to the installation of the exclusion fencing. Action Completed Satisfactorily.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

1.3	Number of stock and dates when stock have entered - Quarterly	In Control	No stock observed in all management zones on each site visit. Grazing by stock animals has recommenced on the property adjoining the southern boundary. There has been no incursion into the site since during the reporting period.	
1.3	Physical condition of fencing - control of stock - control of humans - control of ferals and overabundant herbivores - control of vertebrates pests - Quarterly	In Control	The site fencing is maintained to prevent stock grazing. Fencing was repaired following prior illegal access to site from tree felling incident. Currently not maintained at a standard to control feral or overabundant herbivores and/or vertebrate pests, however there has been minimal impact to date by herbivore grazing	
1.3	Records of human disturbance - Bi-annually	In Control	Access for management purposes includes ICH and Landcare Australia (land management contractor) staff. There is no ability for stock or unauthorized motor vehicles to access the site with the current exclusion fencing in place. Fence was damaged in July 2024 during illegal tree felling incident onsite and has since been repaired Routine inspections conducted at each site visit to verify fencing is secure and that there have been no incursions. Any incursions and associated impacts would be reported to ICH and then escalated to the BCT as per BBA.	
1.3	Evidence of erosion - Bi-annually	In Control	No areas identified across the site during the 2025 reporting period that currently require any supplementary erosion control or stabilisation. Observations made during maintenance sweeps for all zones during annual and quarterly sites visits.	

Shale Sandstone Transition Forest Management Plan
APNMP0118
Management Plan Version 2

1.3	Evidence of waste - Bi-annually	In Control	No waste was found onsite during the 2025 reporting period	
2	Landowner must complete and submit an annual report to the Chief Executive for approval using the annual reporting template.	In Control	Previous report submitted on 19 August 2024. 2025 Report due for submission on 19 August 2025.	

Appendix 13: WaterNSW Special and Controlled Areas Consent (F2020/1545) - Annual Statement of Compliance

Schedule 6 – Annual Statement of Compliance with Consent Conditions

Consent Holder:

Illawarra Coal Holdings Pty Ltd

Consent Number:

F2020/1545

Reporting Period:

1 July 2024 - 30 June 2025

Compliance with Consent Conditions

1. Were all the following documents complied with during the reporting period? (tick a box)

Consent/Approval	Yes	No
a. Conditions of this Consent;	✓	
b. All Statutory Approvals;	✓	
c. Any environmental management plans, rehabilitation plans, revegetation plans, soil and water management plans, water monitoring plans or other plans required by Water NSW.	✓	

2. If you answered “No” to any part of Question 1, please supply the name of the non-compliance / incident and the date the written report was provided to Water NSW, in the table below:

Non-Compliance / Incident (one line)	Date written report provided to Water NSW

3. How many pages have you attached?

The Statement of Compliance has been attached as an appendix to the:

- Dendrobium Mine and Cordeaux Colliery Annual Review FY25 (Appendix 7)
- Appin Mine Annual Review FY25 (Appendix 13)

These Annual Reviews meet the requirement of Condition 4.2 of Consent F2020/1545 for an annual report to be submitted by 30 September for the reporting period.

4. Signature and certification

The Statement of Compliance must only be signed by a person(s) with legal authority to sign it as set out below:

- By affixing the common seal in accordance with *Corporations Act 2001*, or
- By two (2) Directors, or
- By a Director and a Company Secretary, or
- By a person delegated to sign on the company's behalf in accordance with the *Corporations Act 2001* and approved in writing by Water NSW to sign on the company's behalf.

Signature:

Name:
(printed)

Chris Schultz

Position

Superintendent Environment and Community - signed under Power of Attorney

Date:

dated 24 September 2025

Signature:

Name:

(printed)

Position

Date:

SEAL (if signing under seal)

The Consent Holder can request Water NSW approval for the compliance requirements of this Consent be linked to and built into other compliance reporting that may be required under approvals issued under the EP&A Act.

Appendix 14: Annual Rehabilitation Report

ARR0001577

APPIN COLLIERY ANNUAL REHABILITATION REPORT

Monday 1 July 2024 to Monday 30 June 2025

Summary table

DETAIL	
Mine	Appin Colliery
Reference	ARR0001577
Annual report period commencement date	Monday 1 July 2024
Annual report period end date	Monday 30 June 2025
Forward program	FWP0001483
Mining leases	MPL 201 (1973), ML 1832 (1992), CL 388 (1973), CCL 767 (1973), ML 1473 (1992), MPL 200 (1973), ML 1874 (1992), ML 1698 (1992), CL 381 (1973), ML 1382 (1992), ML 1678 (1992), ML 1847 (1992), CCL 724 (1973), ML 1574 (1992), ML 1433 (1992)
Lease holder(s)	Illawarra Coal Holdings Pty Ltd, Endeavour Coal Pty Limited
Contact	Amy Alice Bradbury
Date of submission	Tuesday 23 September 2025

Important

The department may make the information in your report and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Mine details

Project description

Appin Mine consists of the merged Appin, Tower, and West Cliff collieries. Appin Mine is owned and operated by Endeavour Coal Pty Ltd, a subsidiary company of Illawarra Coal Holdings Pty Ltd (ICHPL), a previously wholly owned subsidiary of South32 Limited. On 29 February 2024 South32 announced that they had entered into a binding agreement for the sale of ICHPL to Gear M Illawarra Met Coal Pty Ltd, trading as GM3, an entity owned by Golden Energy and Resources Pte Ltd (GEAR) and M Resources Pty Ltd. The transaction was completed on 29 August 2024. A Transitional Service Agreement was in place until 30 April 2025. Key areas associated with the current operations include Appin North, West and East Pit Tops, Appin East Ventilation Shaft 1/2 and 3 sites, Appin West Ventilation Shaft 6 and Ventilation Shaft 7/8 sites (under construction), Douglas North Substation site, West Cliff Coal Preparation Plant, Coal Wash Emplacement Area and North Cliff Mine site.

Life of mine

16 years

Current development consents, leases and licences

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

PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150

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

MPL 201 (1973), ML 1832 (1992), CL 388 (1973), CCL 767 (1973), ML 1473 (1992), MPL 200 (1973), ML 1874 (1992), ML 1698 (1992), CL 381 (1973), ML 1382 (1992), ML 1678 (1992), ML 1847 (1992), CCL 724 (1973), ML 1574 (1992), ML 1433 (1992)

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

Appin Area 7 Longwalls 707 - 710 SMP Approval
Appin Longwalls 709-711 and 905 Extraction Plan
Environment Protection Licence – 2504
Appin Area 9 Longwalls 901-904 Extraction Plan
EPBC 2010/5350
EPBC 2010/5722

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

MP08_0150 was modified on 9 August 2024 in relation to transport and receipt of coal wash.
An additional modification to MP08_0150 was approved on 11 October 2024 in relation to blasting hours and frequency.

Changes to land ownership and land use

No changes to land ownership or land use occurred during the annual reporting period.

Surface disturbance and rehabilitation activities during the reporting period

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

Construction of the Operational Purpose Deduction (OPD) Haul Road continued in FY25 and is expected to be completed in FY26. Earthworks were undertaken at the Appin Mine Ventilation and Access Project (AMVA Project) site for electrical installation, high voltage switchyard installation, service borehole construction, emulsion bunker construction, vent fan switchyards and transformer skids. Spoil from the No. 8 and No. 7 shaft pre-sink and main sink was used as engineered fill to construct the visual bund around the southwest perimeter of the site. Progressive rehabilitation of the Coal Wash Emplacement Area (CWEA) has been undertaken during the reporting period in accordance with the approved CWEA Management Plan. During the reporting period there was additional landform establishment of ~1.7 ha. Seeding of ~1.5 ha was completed during Spring in FY25. Progress of rehabilitation in the CWEA is detailed in the Annual CWEA Monitoring Report as published in the FY25 Annual Review. Monitoring of revegetation at the BioBanking and offset sites was undertaken during the reporting period. At the cessation of drilling, exploration site rehabilitation takes place progressively. In FY25, five sites were fully remediated, and one site is undergoing remediation. Additionally, instrumentation termination and final surface remediation was undertaken at three sites where monitoring is no longer required. Refer to the FY25 Annual Review on the GM3 website: <https://gm3.au/>.

Rehabilitation planning activities that were conducted, including any specialist studies

A Rehabilitation Options and Feasibility Analysis was submitted to WaterNSW and the Resources Regulator in June 2024 for the Bulli No. 1, 2 and 3 shafts. The shafts have been previously sealed to the standard of the day. The report provided a risk-based evaluation of a range of rehabilitation scenarios for removal of infrastructure and sealing of the shafts. Discussions were held with WaterNSW and Resources Regulator in FY25 whom both indicated their general support for a campaign of comprehensive rehabilitation for all these sites including fully backfilling each shaft to the current guidelines for coal mines entry sealing. As part of the North Cliff Rehabilitation Execution Plan (NCREP), a High-Risk Activity (HRA) application for sealing the shafts was prepared with associated studies, engineering and risk assessment in FY24. The submission was reviewed by Appin Mine statutory personnel. The application was submitted to the Resources Regulator in September 2024 and approved in November 2024. Discussions occurred with the NPWS regarding the removal of redundant powerlines between North Cliff and Appin North in the Dharawal National Park. A REF was submitted in FY24 and was approved by NPWS via a Consent in January 2025. Planning is underway in relation to decommissioning works and surface rehabilitation with works

expected to commence in FY26. Planning occurred for the construction of additional nest boxes for the CWEA. These boxes are planned to be placed in FY26.

Overview of subsidence repair and/or remediation works undertaken

The Georges River Rehabilitation Program continued during FY25. The rehabilitation involves drilling a series of boreholes in a line across the river's rockbar, then injecting the holes with polyurethane resin (PUR). Once injected, the resin expands to fill subsidence fractures in the rock. Filling these fractures creates a grout 'curtain' which essentially acts as a dam beneath the surface, where diverted flow backs up and ultimately returns water to the surface, filling pools and returning flow across rockbars. Rehabilitation works were undertaken at the following sites during the FY25 reporting period: Rockbar 40, Rockbar 39, Rockbar 36, Rockbar 45, and Rockbar 49 (commenced in FY25 and completed in FY26). Rehabilitation success is still to be determined. All sites are undergoing post-rehabilitation monitoring.

Overview of rehabilitation management and maintenance activities

Construction activities continued at the AMVA Project site in FY25. Erosion and sediment control measures implemented at the site during these construction activities included the establishment and use of clean water diversion drains, catch drains for dirty water, and use of a sediment pond. Temporary controls included sediment fences, coir logs and geofabrics. The potential for erosion at the CWEA is managed in accordance with the CWEA Management Plan. The following activities are undertaken to minimise the likelihood of erosion within the CWEA: compaction of emplaced material, profiling of finished areas to designed gradients, placement of boulders and logs; and revegetation of the CWEA (once material is emplaced to meet design criteria). Approximately 1.7 ha of landform establishment and topsoiling in preparation for seeding was completed at the CWEA. Sediment is controlled by a series of sediment ponds. Weed control was undertaken at Appin East, Appin West and Appin North Pit top sites, as well as Biobanking and Offset areas. Works include; regular spraying/ slashing of weed zones by licenced contractors and, regular inspections that review the effectiveness of weed management activities. Targeted weed control occurred within the CWEA including slashing of perennial grasses and targeted weed spraying. Further details can be found within the FY25 Annual Review, located on the GM3 website: <https://gm3.au/>.

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

A Targeted Assessment Program (TAP) for revegetation was conducted by the Resources Regulator against the RMP in FY24. Most recommendations were actioned in FY25 through the review of the RMP. Following refusal from the Resources Regulator, revised Rehabilitation Objectives and FLRP were submitted and approved during FY25. Following refusal of the rehabilitation sign-off application for Stage 1 and 2 of the CWEA, the Rehabilitation Objectives

were revised in FY25, and the Rehabilitation Completion Criteria were submitted on 11 September 2025 (pending approval). An indicative schedule was prepared for Bulli Shafts works, including background studies, approvals and physical rehabilitation works, as requested by the Resources Regulator.

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

No rehabilitation areas achieved final land use during the annual reporting period. An ESF2 Form was submitted to the Resources Regulator for assessment in FY24 for Stages 1 and 2 of the CWEA. The Resources Regulator refused the application on 14 November 2024, advising that they were unable to determine the application as Appin Colliery is yet to have a Rehabilitation Completion Criteria Statement approved. A Rehabilitation Completion Form will be submitted once the Rehabilitation Completion Criteria have been approved.

Key production milestones

MATERIAL	UNIT	FWP0001483 YEAR 1		THIS REPORT
Stripped topsoil (if applicable)	(m ³)	21,000		4,900
Rock/overburden	(m ³)	0		0
Ore	(Mt)	4.36		4.39
Reject material ¹	(Mt)	0.74		0.84
Product	(Mt)	3.63		3.55

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

Disturbance and rehabilitation statistics

Current disturbance and rehabilitation progression

ELEMENT		UNIT	THIS REPORT
A1	Total disturbance footprint – surface disturbance	(ha)	307.97
B	Total active disturbance	(ha)	228.16
C	Rehabilitation – land preparation	(ha)	11.38
D	Ecosystem and land use establishment	(ha)	4.85
E	Ecosystem and land use development	(ha)	53.8
F	Rehabilitation completion	(ha)	9.79

Rehabilitation key performance indicators (KPIs)

ELEMENT		UNIT	THIS REPORT
G	New disturbance area	(ha)	14.66
H	New rehabilitation commenced during annual reporting period	(ha)	-1.46
I	Established rehabilitation	(ha)	63.59
J	Annual rehabilitation to disturbance ratio	%	-0.1
K	Rehabilitated land to total mine footprint	%	20.65

Progressive achievement of established rehabilitation

ELEMENT		UNIT	THIS REPORT
L	Established rehabilitation for agricultural final land uses	%	1.74
M	Established rehabilitation for native ecosystem final land uses	%	97.13
N	Established rehabilitation for other/non-vegetated final land uses	%	0.01

Variation to the rehabilitation schedule

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

No components of the most recent forward program have flagged within this report. An in-depth revision of the disturbance and rehabilitation spatial data was undertaken in FY25. This included the addition of pre-existing disturbed areas and the revision of rehabilitation status to meet the Resources Regulator guidelines.

Key factors that delayed progressive rehabilitation

N/A

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

N/A

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

The 2025 CWEA Annual Report concluded that rehabilitation areas were within or above the local benchmarks for majority of the Stage 2 and 3 biometric attributes. Stage 2 and 3 are continuing to trend towards benchmark values whereas, Stage 1 continues to stay below benchmark in native plant species richness. Weed incursion remains the key threat to the rehabilitation of the CWEA. One threatened plant species, *Persoonia hirsuta*, was detected during the FY25 monitoring. In previous years, eight additional *P. hirsuta* and four *A. bynoeana* were found just outside the CWEA of Stage 4. The *Persoonia hirsuta* individuals are considered a significant observation, contributing to the understanding of the species' capacity for regeneration within the rehabilitation areas and will continue to be considered during future monitoring. The habitat features within the rehabilitation are being occupied by native mammals, reptiles and birds. As the rehabilitation matures, it is expected that native fauna abundance will increase further.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

Rehabilitation monitoring is undertaken in accordance with the Rehabilitation Management Plan (RMP) and the approved Rehabilitation Objectives. Rehabilitation progression within the CWEA is monitored in accordance with the CWEAMP. The RMP and CWEAMP can be found on the GM3 Website: <https://gm3.au/>. Rehabilitation completion criteria were submitted to the Resources Regulator in FY26 and are awaiting approval. Georges River Rehabilitation activities commenced in FY24 and were completed early FY26. All areas are undergoing post-rehabilitation monitoring. The monitoring compares logged water level data at various sites, before and after rehabilitation, as well as control sites. This approach assesses the water holding-capacity of pools following rehabilitation activities in order to determine the success of the program. Monitoring will continue to capture a range of rainfall and catchment inflow conditions. This approach will be applied at all monitoring sites where stream features allow equipment to be installed. Other monitoring used where stream features permit includes spot flow gaugings and time lapse cameras to compare surface flow before and after rehabilitation.

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

Yes

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

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

Rehabilitation is managed and progressing in accordance with the approved Rehabilitation Management Plan. Rehabilitation within the CWEA is progressing as per the CWEAMP. Rehabilitation has been completed along the Georges River and post-rehabilitation monitoring is underway as per the GRRP. Due to the anticipated long life of the mine, and the requirement of most surface facilities for operational function, detailed rehabilitation and monitoring programs for surface facilities will be developed closer to the time of closure. Rehabilitation plans will be formed to align with the proposed final landform and land use. A Rehabilitation Completion form is expected to be submitted for the CWEA Stages 1 and 2 following approval of the Completion Criteria.

Appraisal description

Rehabilitation is moving towards achieving the final land use as soon as reasonably practicable.

Rehabilitation monitoring program findings

Monitoring of the CWEA was conducted in accordance with the CWEAMP available on the GM3 website. Additional monitoring was undertaken to assess the use of nest boxes, Broad-Headed snake habitat and Bee hotels. ICHPL is continuing to explore the use of remote sensing to supplement the CWEA rehabilitation monitoring program. Monitoring of revegetation and invasive flora management at Biobanking sites BA 215, BA 382 and BA 345 occurred in FY25 in accordance with the appropriate biobanking Agreements. As of May 2025, the Cataract BioBanking site (345) moved from passive to active management. Outcomes of these monitoring events can be found within the Appendices of the FY25 Annual Review. Rehabilitation activities continued at the Georges River during FY25 and were completed in early FY26. Works were undertaken at sites: Rockbar 40, Rockbar 39, Rockbar 36, Rockbar 45 and Rockbar 49. All sites are undergoing post-rehabilitation monitoring. Details of the rehabilitation program available on the GM3 website: <https://gm3.au/>. The twelfth round of annual condition monitoring of the *P. hirsuta* population at Appin North was conducted during the reporting period. The monitoring was undertaken in accordance with the approved *P. hirsuta* Offset Management Plan, which complies with Condition 2 of EPBC Approval 2010/5350 (the EPBC Approval). Further details can be found within the FY25 Annual Review, located on the GM3 website: <https://gm3.au/>.

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

Nil.

Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT0001008	Population supplementation of the endangered <i>Persoonia hirsuta</i> to mine rehabilitation.	The overall objective of the program is to increase the population of <i>Persoonia hirsuta</i> plants within mine rehabilitation.	Propagative material was collected from source plants over three years (2017-2019) from a several wild populations throughout the natural plant distribution. <i>P. hirsuta</i> plant stock is grown within the nursery at the Australian Botanic Gardens Mt Annan (ABGMA). Plants are transported by vehicle from ABGMA to the recipient sites on the finalised planting dates. Translocations have been carried out over a number of staged plantings (2019, 2021 and 2022). Monitor the plants health overtime.	30 Jun 2026	Ongoing	Yes
RRT0001009	Impact of Fire on Rehabilitation	The overall objective is to test the resilience of the rehabilitation at the Coal Wash Emplacement Area (CWEA) and demonstrate that the rehabilitation can withstand a bushfire.	Complete a literature review. Fire Trial Design. Seek approval to carry out the burn. Subject to approval under the Rural Fires Act, carry out a test burn. Carry out post-burn monitoring of the rehabilitation.	30 Jun 2025	Complete	Yes

Outcomes of completed trials and research

N/A

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A1	Total disturbance footprint – surface disturbance	All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities. The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
A2	Underground Mining Area	Underground mining operations areas/subsidence management areas.
B	Total active disturbance	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).
C	Rehabilitation – land preparation	Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation – decommissioning, landform establishment and growth medium development. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.

REPORTING CATEGORY	DEFINITION
D Ecosystem and land use establishment	Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites. Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.
E Ecosystem and Land Use Development	Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring). This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).
F Rehabilitation Completion	The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of <i>Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure</i>.
G New active disturbance area	The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).
H New rehabilitation commenced during annual reporting period	The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem & land use establishment phase (definitions C and D in Table 5).
I Established rehabilitation (hectares)	The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5).

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

Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered ‘active’ for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a ‘reference site’ that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or ‘fit for purpose’ built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).
Domain	An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.
Ecosystem and Land Use Development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria. For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.
Growth Medium Development	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species). This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the <i>Mining Act 1992</i> .
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the NSW Resources Regulator’s online portal that lease holders must use (via a registered account) to: ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.
Mining area	As defined in the <i>Mining Act 1992</i> .
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining land	As defined in the <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

WORD	DEFINITION
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.
Rehabilitation Completion	The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.

WORD	DEFINITION
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the Department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water ² .
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

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

Attachment 3 – Rehabilitation Complaints

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

Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
4 Sep 2023	Department of Planning and Environment, NSW Resources Regulator (RR), Appin Mine Community Consultative Committee (ACCC)	Email correspondence and bi-monthly meetings. Note: Correspondence occurred over multiple dates.	Rehabilitation Management Plan, particularly: Feedback received on Rehabilitation Management Plan (6/09/2022); Refusal of Final Landform Plan (1/05/2023); and, Provide information on current and proposed plans.	Rehabilitation Management Plan revised. Final Landform Plan revised and approved on 4 September 2023.
17 Aug 2023	Biodiversity Conservation Trust, ACCC	Email correspondence, site visit (25/07/2024), and bi-monthly meetings. Note: Consultation occurred over multiple dates.	Annual Biobanking Reports, particularly: Submission of Annual Biobanking report for BA 215 (17/08/2023), BA 345 (6/03/2024) and Re-submission BA 382 (15/05/2024); and, Provide update on the Nepean Biobanking site.	Reports accepted by Biodiversity Conservation Trust.
1 Jul 2024	RR, Department	Email correspondence. Note: Consultation occurred over multiple dates.	Coal Wash Emplacement Area Rehabilitation, particularly: Refusal of ESF2 form for Stage 1 and 2 of the CWEA (14/11/2024); and, Revised CWEA Management Plan.	Rehabilitation Objectives revised. Rehabilitation Completion Criteria submitted (11/09/2025). Approval granted for revised CWEA Management Plan (10/06/2025).
1 Jul 2024	RR	Email correspondence. Note: Consultation occurred over multiple dates.	Rehabilitation Objectives, and, Final Landuse and Rehabilitation Plan (FLRP), particularly: Refusal of Rehabilitation Objectives Statement; and, Refusal of FLRP.	Rehabilitation objectives and FLRP revised and approved on 19/06/2025.
27 Aug 2024	RR, WaterNSW	Site visit (27/08/2024).	Bulli Shaft No.4 Shaft, particularly: Rehabilitation Sign off.	All parties agreed that rehabilitation sign-off should be sought for this site.
1 Jul 2024	Biodiversity Conservation Trust, Appin Mine CCC	Email correspondence and bi-monthly meetings. Note:	Annual Biobanking Reports/Biodiversity Stewardship Areas, particularly: Submission of Annual Biobanking	Reports accepted by Biodiversity Conservation Trust. BSA (BA245) changed to active management (17/04/2025).

APPIN COLLIERY ANNUAL REHABILITATION REPORT

ARR0001577 | Monday 1 July 2024 to Monday 30 June 2025

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
		Consultation occurred over multiple dates.	report for BA 215 (16/08/2024), BA 345 (7/03/2025) and BA 382 (16/08/2024).	
1 Jul 2024	NPWS	Email correspondence . Note: Consultation occurred over multiple dates.	Removal of powerlines between North Cliff and West Cliff, particularly: Approvals required to rehabilitate powerlines; and, Progress updates.	Consent issued by the NPWS in January 2025. Actions as required by the Consent prior to and during powerline removal i.e submission of track management plan.
4 Sep 2023	RR, ACCC	Email correspondence and bi-monthly meetings. Note: Consultation occurred over multiple dates.	Rehabilitation Objectives, particularly: Refusal of Rehabilitation Objectives Statement (1/05/2023); and, Provide information on current and proposed objectives.	Rehabilitation objectives revised and approved on 4 September 2023.
20 Sep 2024	Department of Planning and Environment, National Parks and Wildlife Service (NPWS), Tharawal Aboriginal Land Council, Landholders, ACCC	Email and phone correspondence, offsite meetings, site visits and bi-monthly meetings. Note: Consultation occurred over multiple dates.	Georges River Rehabilitation Project, including: Update on the progress of Georges River Rehabilitation Project; Land access arrangements; Review of Environmental Factors; Proposed locations of tracks and staging areas.	Development of land access agreements. Review of the GRRP. Regular site visits and rehabilitation updates.
29 May 2024	Tharawal Local Aboriginal Land Council, ACCC, RR	Email correspondence, onsite meetings, site visit (15/02/2024), bi-monthly meetings and Targeted Assessment Program – Revegetation (29/05/2024). Note: Consultation occurred over multiple dates.	Coal Wash Emplacement Area Rehabilitation, particularly: Appin North CWEA Aboriginal Heritage signage Stage 3; Provide information of the progress of stage 3 and updates regarding actions for Stage 4; and, Discuss redesign of Stage 3 to avoid direct impacts to Aboriginal heritage sites.	Consulted on the path to install a sign for the BC2 on Stage 3 and provided feedback on content. Awaiting methodology of consultation regarding Aboriginal Heritage sites on Stage 4.

APPIN COLLIERY ANNUAL REHABILITATION REPORT

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DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
1 Jul 2024	RR, WaterNSW	Email correspondence and meetings. Note: Consultation occurred over multiple dates.	Bulli Shafts No 1, 2 & 3, particularly: Review of Rehabilitation Options and Feasibility Analysis for Bulli Shafts 1, 2 and 3.	General support received to progress decommissioning and rehabilitation works. An indicative schedule was prepared and submitted for background studies, approvals, and physical rehabilitation works.
2 Dec 2022	RR	Email correspondence. Note: Consultation occurred over multiple dates.	Forward Program, particularly: Requesting IMC to nominate a contact person in relation to the mining lease(s) for the purposes of the Mining Act 1992; and, Requesting IMC publish the Forward Program on the IMC website.	Evidence submitted of nominated contact person provided previously. Forward Program published to the GM3 website.
29 Sep 2023	RR, Crown Lands, Environmental Protection Authority (EPA), Biodiversity and Conservation Services (BCS), Transport for NSW (TfNSW), DPE - Environment and Heritage Group , NPWS, Tharawal Aboriginal Land Council, ACCC	Email correspondence, onsite meetings, site visits (19/07/24 and 27/07/2024), bi-monthly meetings, emails and phone calls. Note: Consultation occurred over multiple dates.	North Cliff Rehabilitation, particularly: External agency consultation regarding ICHPL's proposed North Cliff Rehabilitation Execution Plan; Update on the progress of North Cliff Rehabilitation Project; and, Identified stockpiles of CWR located in the DNP (not related to North Cliff or ICHPL).	Revision of the North Cliff Rehabilitation Execution Plan to address external stakeholder feedback that was submitted to RR on 29/09/23. Letter of intent issued to NPWS from IMC dated 12/07/24 regarding assistance with removal of identified stockpiles of potential CWR in DNP.
2 Apr 2024	NPWS	Email correspondence and online meetings. Note: Consultation occurred over multiple dates.	Removal of powerlines between North Cliff and West Cliff, particularly: In principle agreement for scope of works and approvals required to rehabilitate North Cliff powerline.	Preparation and submission of a Review of Environmental Factors (REF) for the removal of the redundant North Cliff powerline to NPWS that was submitted on 02/04/2024.
1 Jul 2024	DPHI, NPWS, ACCC, Landholders, Tharawal Aboriginal Land Council	Email, phone calls, offsite meetings and site visits. Note: Consultation occurred over multiple dates.	Georges River Rehabilitation Project, particularly: Update on the progress of Georges River Rehabilitation Project; Land access arrangements; Review of Environmental Factors; and, Proposed locations of tracks and staging areas.	Review of land access agreements. Regular site visits and rehabilitation updates.

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
24 Jun 2024	RR, WaterNSW	Email correspondence and onsite meetings. Note: Consultation occurred over multiple dates.	Bulli Shafts Rehabilitation, particularly: Preliminary discussions to inform initiation of Bulli shafts rehabilitation.	Preparation and completion of a Rehabilitation Options and Feasibility Analysis Report that was issued to RR and WaterNSW on 24/06/2024.
1 Jul 2024	RR, Crown Lands, EPA, BCS, TfNSW, DPHI, NPWS, ACCC, Tharawal Aboriginal Land Council	Email correspondence, phone calls, onsite meetings, site visits (19/07/24 and 27/07/2024), and bi-monthly meetings. Note: Consultation occurred over multiple dates.	North Cliff Rehabilitation, particularly: High-Risk Activity (HRA) application submitted to the Resources Regulator in September 2024; Update on the progress of North Cliff Rehabilitation Project; and, Identified stockpiles of CWR located in the DNP (not related to North Cliff or ICHPL).	High-Risk Activity (HRA) application submitted to the Resources Regulator in September 2024 and approved in November 2024. GM3 has commenced actions to progress Shaft sealing in accordance with the HRA with procurement and design of the remote monitoring system for shaft atmosphere. Removal of Coal Wash stockpiles in Dharawal National Park, April 2025.

Attachment 5 – Plans

Plan 1A.zip

Plan 1B.zip

Annual Report (LARGE MINE) v1.11