




PINE DALE MINE ANNUAL REVIEW 2025

Prepared by Enhance Place Pty Ltd

24 February 2026

TITLE BLOCK

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| Name of Operation: | Pine Dale Mine |
| Name of Operator: | Enhance Place Pty Limited |
| Project Approval Number: | 10_0041 |
| Project Approval Holder: | Enhance Place Pty Limited |
| Mining Lease Numbers: | ML1569, ML1578, ML1664, ML1637 |
| Mining Lease Holder: | Enhance Place Pty Limited |
| Environment Protection Licence Anniversary Date: | 24 November |
| Water Licence Number: | 10WA118780 |
| Water Licence Holder: | Enhance Place Pty Ltd |
| Rehabilitation Management Plan Commencement Date: | 1 July 2022 |
| Forward Programme Anniversary Date: | 30 June |
| Annual Review Start Date: | 1 January 2025 |
| Annual Review End Date: | 31 December 2025 |
| Annual Review Report Author: | Damien Bucior (RCA Australia) |
| <p>I, Graham Goodwin, certify that this audit report is a true and accurate record of the compliance status of Pine Dale Mine, for the period 1 January 2025 to 31 December 2025 and that I am authorised to make this statement on behalf of Enhance Place Pty Ltd.</p> <p><i>Note.</i></p> <p>a) <i>The Annual Review is an 'environmental audit' for the purposes of section 9.39 of the Environmental Planning and Assessment Act 1979. Section 9.42 provides that a person must not include 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 Tier 3 monetary penalty.</i></p> <p>b) <i>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 a fine of 200 penalty units or both).</i></p> | |
| Authorised Reporting Officer: | Graham Goodwin |
| Title: | Mining Engineering Manager |
| Signature: |  |
| Date: | 24 February 2026 |

STATEMENT OF COMPLIANCE

The Pine Dale Mine (PDM) Annual Review has been prepared to provide a summary of the performance of PDM operations during the period 1 January 2025 – 31 December 2025 (the reporting period).

The Annual Review has been prepared pursuant to Schedule 5, Condition 3 of the Project Approval (PA) 10_0041, and in accordance with the Annual Review Guideline developed by the NSW Department of Planning and Environment (Ref [1]).

A summary of the PDM compliance status during this reporting period is provided in **Table 1**. There was one (1) Administrative non-compliance during the 2025 reporting period relating to not being able to collect groundwater monitoring data due to restricted access to the State Forest area. A description of the administrative non-compliance is provided in **Table 2**. The non-compliance status recorded has been assessed under the Department of Planning, Housing and Infrastructure (DPHI) Annual Review guidelines which is outlined in **Table 3**.

Table 1 *Statement of compliance*

| Approval No. | Were all conditions of the approval complied with? |
|--------------|----------------------------------------------------|
| PA 10_0041 | No |
| EPL 4911 | Yes |
| ML1569 | Yes |
| ML1578 | Yes |
| ML1664 | Yes |
| ML1637 | Yes |
| 10WA118780 | Yes |

Table 2 *DPHI Non-Compliances*

| Relevant Approval | Condition # | Condition Description Summary | Compliance Status | Comment | Where Addressed in Annual Review |
|-------------------|---------------------------------------|---------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| PA 10_0041 | 27 (c) Groundwater Management Plan | Groundwater monitoring requirements of Groundwater Management Plan. | Non-compliant | Yarraboldy Groundwater monitoring schedule unable to be adhered to due to the State Forest closure, safety risks accessing bores caused by bushfire damage and saturated ground, and overgrown vegetation obscuring bore location. Old Shaft hasn't been sampled due to safety issues. | Section 6.2 |

Table 3 Compliance status Key for Table 2

| 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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). |

There were no reportable incidents, official cautions, warning letters, penalty notices or prosecution proceedings by any regulatory body during the reporting period.

An acceptable standard of environmental performance was achieved during the reporting period as evidenced by the following:

- Air quality monitoring results recorded during the reporting period for depositional dust were below the air quality criteria stipulated in PA 10_0041 at all monitoring locations with the exception of one result. The dust gauge D6 January 2025 result was >2 g/m² more than the December 2024 monitoring result. The majority of the results were from non combustible particulate matter which may be naturally sourced from the site however are not due to any activities being undertaken at the site.
- No mining activities were undertaken at PDM such that there were no noise exceedances from mining activities recorded at privately owned properties during the reporting period. There were no other noise related impacts identified.
- There were no surface water discharge events during the reporting period.
- The standing water level at onsite bores P6 and P7 varied throughout the reporting year however as PDM is in Care and Maintenance and is not undertaking any activities which would impact groundwater level, the results are considered representative of ambient conditions.
- Groundwater and surface water chemistry varied throughout the reporting year however as PDM is in Care and Maintenance and is not undertaking any activities which would impact groundwater or surface water, other than potentially the Water Cart Dam, the results are considered representative of ambient conditions.

During the reporting period, an assessment of rehabilitation areas was completed. Rehabilitation areas are generally stable in both the pasture and treed revegetation areas, whilst weed presence continues to be adequately controlled with the exception of an increase in *African Lovegrass* in Area 8. It is recommended to continue weed management and monitoring of performance indicators over the 2026 reporting period with targeted works in Area 8.

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PDM 2025 REHABILITATION MONITORING REPORT

1 INTRODUCTION

EnergyAustralia acquired Enhance Place Pty Ltd (Enhance Place) which owns and operates the Pine Dale Mine (PDM) in June 2012.

PDM is located at Blackmans Flat in NSW, 17 km north of Lithgow off the Castlereagh Highway. The site is approximately 3 km via the Castlereagh Highway from the Mt. Piper Power Station (MPPS). A locality plan is provided in **Plan 1, Appendix A**.

PDM is authorised by Project Approval (PA) 10_0041, dated 20 February 2011, granted by the former Department of Planning and Infrastructure, currently the Department of Planning, Housing and Infrastructure (DPHI), under section 75J of the Environmental Planning & Assessment Act 1979 (EP&A Act). PA 10_0041 provided for the extraction of up to 800,000 tonnes of Run of Mine (ROM) coal from the Yarraboldy Extension at PDM up to 31 December 2014 at a maximum rate of 350,000 tonnes per annum. Approved mining resources at PDM were exhausted in March 2014. From April 2014 the mine was placed under Care and Maintenance, with only rehabilitation activities undertaken intermittently at the site from this time.

1.1 REGULATORY REQUIREMENTS

This Annual Review (AR) has been prepared to satisfy PA 10_0041 schedule 5 Condition 3 (a) – (f).

This Annual Review will be distributed to the following stakeholders:

- NSW DPHI – Compliance.
- Department of Regional NSW – Resources Regulator.
- NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Natural Resources Access Regulator.
- NSW Environment Protection Authority.
- Lithgow City Council.
- Community Consultative Committee (CCC) via the EnergyAustralia website (<https://www.energyaustralia.com.au/about-us/energy-generation/pine-dale-coal-mine/yarraboldy-stage-1>).

1.2 KEY PERSONNEL

The key personnel for environmental management at the PDM are listed in **Table 1-1**.

Table 1-1 Key Personnel and contact information

| Contact Person | Position | Telephone | Email |
|-------------------|----------------------------|----------------|----------------------------------|
| Mr Graham Goodwin | Mining Engineering Manager | (02) 6354 8111 | community@energyaustralia.com.au |
| Mr Mark Frewin | Coal Supply Lead | | |
| Mr Ben Eastwood | NSW Environment Leader | | |

2 APPROVALS, LEASES AND LICENCES

PDM operates in accordance with a number of relevant mining authorities, licences and approvals which are summarised in **Table 2-1**. The mining and exploration lease boundaries are shown in **Plan 2, Appendix A**.

Table 2-1 Pine Dale Mine Consents, Leases and Licences

| Permit Type | Permit Number | Relevant Dates | Description |
|--------------------------------|---------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Approval | PA 10_0041 | Granted 20 Feb 2011 Expired 31 Dec 2014 | Granted by Minister of DP&I, Section 75J of the EP&A Act. A modification to PA 10_0041 was granted in March 2012. |
| Referral Decision | 2011/6016 | Date of Decision 20 October 2011 | Issued by Department of Sustainability, Environment, Water, Population and Communities under section 75 & 77A of the EPBC Act 1999; to avoid impact on Purple Copper Butterfly & Austral toadflax (<i>Thesium australe</i>). |
| Environment Protection Licence | EPL 4911 | Anniversary Date 24 November | EPL held by Enhance Place Pty Ltd. |
| Mining Lease | ML1578 | Granted 5 November 2013 | ML 1578 incorporates 69.4 hectares (ha) of land within the boundary of the PDM site. |
| Mining Lease | ML1664 | Grouped under ML1578, 5 November 2013 | ML 1664 incorporates 4.1ha of land within the boundary of the PDM site. |
| Mining Lease | ML1569 | Grouped under ML1578, 5 November 2013 | ML1569 incorporates 161ha of land with the Yarraboldy Extension and a portion of PDM. |
| Mining Lease | ML1637 | Grouped under ML1578, 5 November 2013 | ML1637 covers an area to the south of PDM for the purpose of proposed rail infrastructure. |
| Exploration Mining Lease | EL7621 | Granted 1 October 2010 | EL 7621 incorporates 312ha of land within the northwestern and central parts of the Wallerawang Colliery. |

| Permit Type | Permit Number | Relevant Dates | Description |
|----------------------|------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bore Licence | 10BL 165933 | Issued 22 December 2005 | Issued by the Department of Natural Resources (DNR) under Part 5 of the Water Act 1912 for the use of (6) six piezometers for monitoring groundwater levels and quality on the PDM site. |
| Bore Licence | 10BL 603588 | Issued 17 December 2010 | Issued by the DNR under Part 5 of the Water Act 1912 for the use of eight (8) piezometers for monitoring groundwater levels and quality on the Yarraboldy Extension. |
| Water Access Licence | WAL 36480 (approval no 10WA118780) | Dated 1 July 2013 Expires 30 June 2026 | This licence was issued by the (former) Department of Environment Climate Change and Water under Part 5 of the Water Act 1912 for interception and use of up to 200ML of groundwater per year from The Bong. |

3 OPERATIONS SUMMARY

PDM was in Care and Maintenance during the reporting period, as such, no extractive mining operations were undertaken.

3.1 EXPLORATION

There were no exploration drilling activities carried out at PDM during the reporting period.

3.2 LAND PREPARATION

There were no land preparation activities carried out at PDM during the reporting period.

3.3 CONSTRUCTION

No construction work was undertaken at PDM during the reporting period.

3.4 MINING OPERATIONS

There were no mining activities undertaken at PDM during the reporting period: PDM is currently in Care and Maintenance. The production and waste summary for 2024, 2025 and forecast for 2026 is provided in **Table 3-1**.

Table 3-1 *Production Summary*

| | Approved Limit | 2024 Reporting Period (actual) | 2025 Reporting Period (actual) | 2026 Reporting Period (forecast) |
|--------------------------------|----------------------------------|---------------------------------------|---------------------------------------|-----------------------------------------|
| Waste Rock / Overburden | NA | 0 | 0 | 0 |
| ROM Coal | 800,000tonne (over life of mine) | 0 | 0 | 0 |
| Coarse Reject | NA | 0 | 0 | 0 |
| Fine Reject (Tailings) | NA | 0 | 0 | 0 |
| Saleable product | 350,000tonne per annum | 0 | 0 | 0 |

3.5 COAL PROCESSING

Due to the Care and Maintenance status of PDM, no coal was processed during the reporting period. The coal crushing plant was decommissioned at the completion of mining extraction in April 2014.

3.6 COAL TRANSPORTING

Due to the Care and Maintenance status of PDM, no product coal was required to be transported during the reporting period.

3.7 WASTE MANAGEMENT

General waste bins are kept at the site office for the collection of putrescible waste. These bins are inspected and emptied as part of the regular inspection and maintenance programme. Minimal general waste is generated at PDM as the mine is in Care and Maintenance.

Sewage management facilities associated with personnel offices were maintained at the site during the reporting period with regular inspections and pump outs undertaken as required.

3.8 PRODUCT STOCKPILES

All product stockpiles were decommissioned prior to the reporting period.

3.9 HAZARDOUS MATERIAL MANAGEMENT

There are no bulk oils stored on site and none were brought onto site during the reporting period. In the event hazardous materials are to be brought on site, they are to be accompanied by Safety Data Sheets (SDS).

3.10 FORECAST OPERATIONS

There are no operations forecast for PDM during 2026. The mine will continue to remain under Care and Maintenance.

4 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

The 2024 Annual Review recommended:

- Weed management and fertilising as part of rehabilitation activities. Chemical control and fertilising have been undertaken (refer **Section 5.7**) and audited against relevant legislative requirements. The current status is considered satisfactory, and it continues to be monitored.
- Installation of nesting boxes once the treed area contains adequate structure to support nesting birds.

Relinquishment of successfully remediated Areas B, C and 8 (as confirmed by the 2018 SLR Rehabilitation and Completion Assessment report (Ref [2])) was intended to be further progressed during the 2025 reporting period.

There were no further specific actions (other than maintenance requirements) from the 2024 Annual Review.

5 ENVIRONMENTAL PERFORMANCE

PDM regards sound environmental performance and community liaison as integral components of its operations.

Environmental monitoring and management at PDM are governed by the requirements of PA 10_0041 and the supporting environmental assessment. The following management plans have been developed for PDM to minimise the potential risk to the surrounding environment.

- PDM Rehabilitation Management Plan (RMP, Ref [3]).
- Aboriginal Heritage Management Plan.
- Air Quality and Greenhouse Gas Management Plan.
- Blast Management Plan.
- Bushfire Management Plan.
- Waste Management Plan.
- Water Management Plan.
- Noise Management Plan.
- Pollution Incident Response Management Plan.
- Pine Dale Mine Environmental Management Strategy.

These management plans are available on the EnergyAustralia website.

A summary of the environmental performance for noise and air quality monitoring is provided in **Table 5-1** along with applicable approval and Environmental Assessment criteria. Detailed discussions of the environmental performance are presented further in this section.

Meteorological data is collected from the nearby Mt. Piper Power Station (MPPS) weather station which is owned and operated by EnergyAustralia.

Table 5-1 Summary of Environmental Performance and assessment criteria

| Aspect | Approval Criteria | Environment Assessment Prediction | Performance during 2025 | Trends / Management Implications | Management Actions |
|--------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise | NM1 – NM3 Daytime Criterion 42dB(A) L _{Aeq} (15minute) ^a | NM1 41 NM2 32 NM3 39 dB(A) L _{Aeq} (15minute) | NM1 Nil detected. NM2 Nil detected. NM3 Nil detected. dB(A) L _{Aeq} (15minute) | Not Applicable (NA) – no operational noise generated | Nil management actions required |
| | NM4 – NM6 Daytime Criterion 35dB(A) L _{Aeq} (15minute) ^a | NM4 34 NM6 <30 dB(A) L _{Aeq} (15minute) | NM4 Nil detected. NM5 Nil detected. NM6 Nil detected. dB(A) L _{Aeq} (15minute) | NA – no operational noise generated | Nil management actions required |
| Air Quality: Depositional Dust | Maximum total deposited dust 4g/m ² /month | Annual average of 3.2 g/m ² /month deposited dust | Annual average range of 0.6 to 1.2 g/m ² /month deposited dust | Concentrations during previous five (5) years are considered consistent noting that there has been impact to the results from external factors (climate and bushfires in 2020) | Maintain dust suppression measures as required |
| | Maximum increase in deposited dust 2 g/m ² /month | Annual average increase of deposited dust 1.2 g/m ² /month | Monthly change of -4.5 to 4.8 g/m ² . Annual average change -0.3 to 0.6 g/m ² /month deposited dust | Annual average dust levels are generally consistent with 2021-2025 data. | Ensure dust suppression measures are efficiently utilised during extended dry periods, otherwise maintain current measures as required. |

^a The A-weighted, equivalent continuous sound level in decibels measured across 15-minutes.

5.1 NOISE

Mining related noise impacts at PDM are managed in accordance with Schedule 3, Condition 1 of PA 10_0041, EPL 4911 and the Noise Management Plan. Noise emissions from PDM operations were monitored on a quarterly basis at six (6) locations surrounding PDM. Although PDM is currently in Care and Maintenance, rehabilitation maintenance activities and inspections were undertaken on the site during the 2025 reporting period. The noise monitoring locations are described as:

- NM1 – Noon Street, Blackman's Flat.
- NM2 – former Cherry residence, Blackman's Flat.
- NM3 – front of Barnes residence, east of Blackman's Flat along the Castlereagh Highway.
- NM4 – North of View Street, Blackman's Flat.
- NM5 – Fraser residence, Wolgan Road, Lidsdale.
- NM6 – Turek residence, Wolgan Road, Lidsdale.

The locations of these noise monitoring locations are shown in **Plan 3a**, located in **Appendix A**.

The operational noise assessment criteria are summarised in **Table 5-2**.

Table 5-2 Noise Impact Assessment Criteria

| Location | Day ^a Period L _{Aeq} (15min), dB | Evening ^b Period L _{Aeq} (15min), dB |
|----------|---------------------------------------------------------|-------------------------------------------------------------|
| NM1 | 42 | 39 |
| NM2 | 42 | 35 |
| NM3 | 42 | 35 |
| NM4 | 35 | 35 |
| NM5 | 35 | 35 |
| NM6 | 35 | 35 |

^a Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and public holidays.

^b Evening is defined as the period between 6pm and 10pm.

Attended noise monitoring was undertaken quarterly during the reporting period to assess any noise impacts from PDM against the relevant criteria detailed within EPL 4911 and PA 10_0041 (**Table 5-2**) on the following dates:

- Quarter 1 – January to March, monitoring conducted 26 February 2025.
- Quarter 2 – April to June, monitoring conducted 18 June 2025.
- Quarter 3 – July to September, monitoring conducted on 17 & 18 September 2025.
- Quarter 4 – October to December, monitoring conducted on 17 December 2025.

The measured L_{Aeq} 15 minutes noise contribution from PDM was below the noise assessment criteria for all 15-minute surveys at all noise monitoring locations measured during the reporting period. Similarly, the measured noise contribution from PDM was below the noise levels predicted in the Environmental Assessment (refer **Table 5-1**). Audible noise emanating from PDM operations have not been detected during noise surveys since the cessation of mining operations in April 2014.

Results for each noise monitoring survey during the 2025 reporting period are presented in full in **Appendix B**.

During the reporting period, no environmental performance or management measures were required to be implemented at the site in respect to noise generation by PDM.

5.2 AIR QUALITY

During Care and Maintenance, water for dust suppression is to be sourced from the onsite sediment basins.

Air quality at PDM is managed in accordance with Schedule 3, Condition 18 of PA 10_0041, EPL 4911 and the approved Air Quality and Greenhouse Gas Management Plan.

The scope of air quality comprises five (5) depositional dust gauges (D1, D3, D4, D5 & D6) as shown on **Plan 3a, Appendix A**.

Four (4) additional dust gauges associated with the Purple Copper Butterfly (PCB) Monitoring Programme are located surrounding the Yarraboldy Extension. The PCB Monitoring Programme was prepared to address concerns raised by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (now Department of Agriculture, Fisheries and Forestry, DAFF). The PCB monitoring programme has been suspended as the decision relates to mining activities only, which have stopped at PDM and EnergyAustralia has notified the relevant Federal agency accordingly. EnergyAustralia has continued the dust monitoring for due diligence and to provide baseline data.

Monitoring is undertaken by RCA Australia; a summary report data collected throughout the monitoring period is available in **Appendix B**.

5.2.1 DEPOSITIONAL DUST

All deposited dust results have been compared to the nominated annual average assessment criterion of 4.0 g/m²/month, as stipulated in PA 10_0041. Depositional dust results for the reporting period showed an annual average insoluble solids range of 0.6 g/m²/month to 1.2 g/m²/month across the nine (9) dust gauges.

Comparative annual average depositional data for the previous five (5) year period is presented in **Table 5-3**. Depositional dust data are presented graphically in **Figure 5-1**.

An examination of the historical data (**Table 5-3**) that the 2025 annual averages are similar to those from 2024. All averages remain below the NSW EPA criterion. The substantial decrease in the 2021 & 2022 annual averages of deposited dust concentrations when compared to the 2020 historical data is not considered to be due to a change in site activities at PDM as the mine has been in Care and Maintenance since 2014, rather it is considered to be influenced by the increased rainfall following prolonged dry conditions and associated correlation with dust storms and bushfires (observed in early 2020).

Table 5-3 *Depositional dust monitoring results*

| Total insoluble solids (g/m² per month) | | | | | | | | | |
|----------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-------------|-------------|-------------|-------------|
| Date | D1 | D3 | D4 | D5 | D6 | PCB1 | PCB2 | PCB3 | PCB7 |
| Jan-25 | 1.9 | 1.2 | 1.0 | 2 | 6.7 | 2.4 | 1.4 | 1.5 | 1.6 |
| Feb-25 | 1.4 | 1.1 | 1.2 | 0.9 | 2.2 | 1.3 | 1.1 | 1 | 1.2 |
| Mar-25 | 0.5 | 0.4 | 0.2 | 0.8 | 0.5 | 1.5 | 0.7 | 1.5 | 0.4 |
| Apr-25 | 0.9 | 1 | 1.5 | 1.5 | 0.9 | 1.0 | 0.6 | 0.9 | 0.5 |
| May-25 | 0.5 | 0.1 | 0.1 | 0.4 | 0.5 | 0.6 | 0.3 | 0.5 | 0.4 |
| Jun-25 | 0.4 | 0.3 | 0.9 | 1 | 0.3 | 0.7 | 0.3 | 0.6 | 0.3 |
| Jul-25 | 0.7 | 0.6 | 0.5 | 0.7 | 0.4 | 0.9 | 0.5 | 0.5 | 0.4 |
| Aug-25 | 0.8 | 0.6 | 0.2 | 0.9 | 0.4 | 0.4 | 0.3 | 0.3 | 0.2 |
| Sep-25 | 0.8 | 0.5 | 0.1 | 0.7 | 0.3 | 0.1 | 0.2 | 0.3 | 0.2 |
| Oct-25 | 1.2 | 1 | 0.7 | 1.2 | 0.6 | 1.4 | 0.9 | 1.7 | 1.0 |
| Nov-25 | 1.6 | 0.7 | 0.9 | 0.9 | 0.9 | 1.3 | 0.6 | 0.9 | 0.9 |
| Dec-25 | 1.5 | 1 | 0.5 | 0.3 | 0.6 | 1.3 | 0.6 | 1.1 | 0.4 |
| Annual Averages | | | | | | | | | |
| 2020 | 1.2 | 1.2 | 1.2 | 1.6 | 1.1 | 1.9 | 1.1 | 1.1 | 1.1 |
| 2021 | 0.5 | 1.0 | 0.3 | 0.4 | 0.6 | 0.7 | 0.4 | 0.4 | 0.2 |
| 2022 | 0.6 | 0.5 | 0.3 | 0.5 | 0.8 | 0.8 | 0.4 | 0.5 | 0.5 |
| 2023 | 0.5 | 0.7 | 0.5 | 0.4 | 0.4 | 1.2 | 0.5 | 0.6 | 0.6 |
| 2024 | 0.7 | 1.0 | 0.5 | 0.8 | 1.8 | 1.1 | 0.6 | 0.9 | 0.6 |
| 2025 | 1.0 | 0.7 | 0.7 | 0.9 | 1.2 | 1.1 | 0.6 | 0.9 | 0.6 |
| Annual average assessment criterion: 4.0g/m²/month | | | | | | | | | |

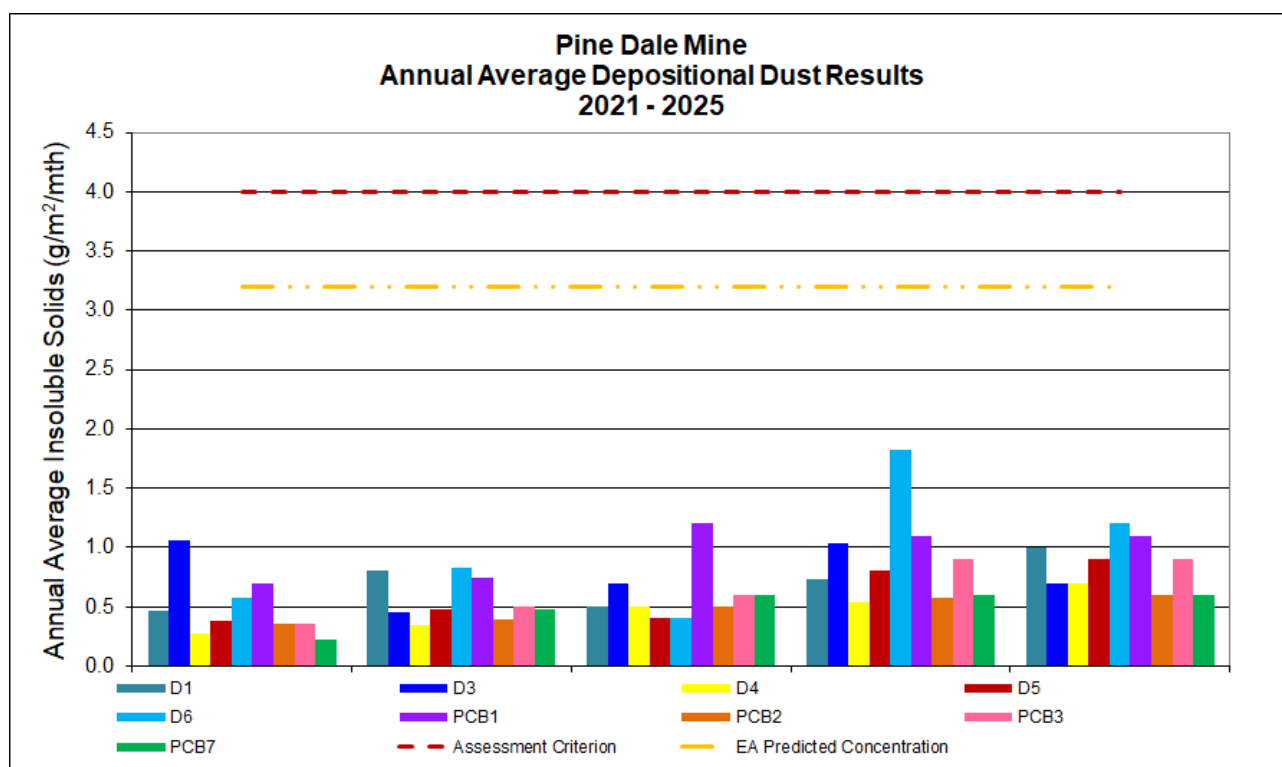


Figure 5-1 Depositional dust data: 2021 – 2025

The 2025 annual average deposited dust concentrations are shown to be significantly lower than the predicted 3.2 g/m²/month annual average (refer **Table 5-1**); this is as expected as the predicted value was for an operational mine.

5.3 METEOROLOGICAL MONITORING

In accordance with Schedule 3, Condition 22 of PA 10_0041 and EPL 4911, data from the meteorological monitoring station situated at Mt. Piper Power Station (MPPS, located 3.2 km to the west of PDM) is used to monitor conditions relating to revegetation and rehabilitation progress. Air temperature, wind direction, wind speed, solar radiation, sigma theta, rainfall, evapotranspiration and relative humidity data were collected from this station.

A summary of monthly meteorological conditions recorded during the 2025 reporting period are presented in the following sub-sections and in **Appendix B**.

The total annual rainfall and the minimum and maximum temperature at 2 m from 2021 to 2025 are shown graphically in **Figure 5-2**.

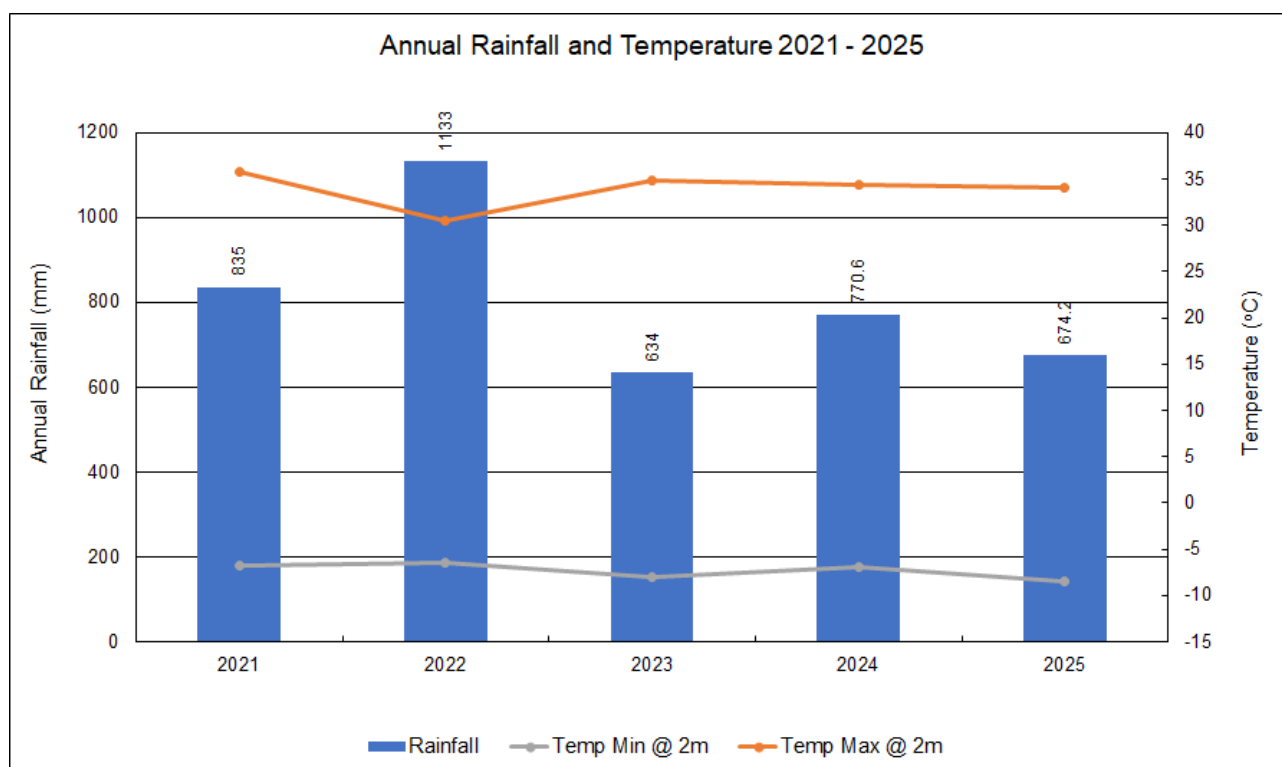


Figure 5-2 Annual Temperature and Rainfall Summary: 2021 – 2025

5.3.1 RAINFALL

PDM received 674.2 mm of rainfall across 190 rainfall days during the 2025 reporting period. Rainfall during this reporting period was observed to be greater than the annual rainfall recorded during 2023 and lower than that in 2021, 2022 and 2024 (**Figure 5-2**).

The Bureau of Meteorology (BoM) weather station located at Lithgow¹ (Birdwood Street) (approximately 16 km from PDM), reported a long-term median² annual rainfall total (years 1889 – 2006) of 710.8 mm. During the last five (5) years (**Figure 5-2**), the 2021, 2022 and 2024 monitoring periods reported total rainfall greater than the median.

The monthly rainfall data for 2025 is summarised in **Table 5-4**.

5.3.2 TEMPERATURE

Temperature is monitored at two (2) heights (2 metres and 10 metres above the ground surface) to account for temperature inversions. The maximum temperatures recorded during the reporting period were 34.0°C at the 2 m sensor and 33.0°C at the 10 m sensor during January. The lowest temperatures were -8.5°C at 2 m and -5.4°C at 10 m in July and June respectively.

A summary of monthly temperatures for 2025 is included in **Table 5-4**. A graphical presentation of annual temperature variations at 2 m during the last five (5) years is presented in **Figure 5-2**.

¹ Data for the Coerwull Station (14km from PDM) was not available at date of access

² The use of median value is specified as the preferred measure for 'typical' rainfall from a meteorological perspective as it reduces bias from extreme rainfall events.

5.3.3 *WIND SPEED AND DIRECTION*

The wind direction at PDM during 2025 was observed to be primarily from the south-westerly quadrant with the exception in January, March, May and August where the primary winds were from the south eastern quadrant (refer **Table 5-4**).

The maximum wind speed measured at the site was 12.6 m/s during January when the predominant winds were from the south-east.

Sigma theta data was measured continuously throughout the entire 2025 monitoring period.

A summary of monthly wind speed, predominant directions and sigma theta recordings in 2025 is included in **Table 5-4**.

5.3.4 *RELATIVE HUMIDITY*

Relative humidity was measured during the 2025 reporting period. The lowest humidity, at 4.8%, was recorded in June, while the highest humidity, reaching 99.0%, occurred in January, February and April. A summary of monthly humidity variations for 2025 is included in **Table 5-4**.

Table 5-4 Pine Dale Mine Meteorological Monitoring Summary 2025

| Month | Rainfall (mm) | Cumulative Rainfall (mm) | No of Rain Days / Month | Air Temp. @ 2 m (°C) | | | Air Temp. @ 10 m (°C) | | | Sigma theta (°) | | | Relative Humidity (%) | | | Wind Speed (m/s) | | | Modal Wind Direction |
|----------------|---------------|--------------------------|-------------------------|----------------------|------|------|-----------------------|------|------|-----------------|-----|-----|-----------------------|------|------|------------------|------|------|----------------------|
| | | | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | |
| Jan | 92.6 | 92.6 | 21 | 16.8 | 6.0 | 34.0 | 17.6 | 6.0 | 33.0 | 25 | 2 | 101 | 77 | 19.0 | 99.0 | 2 | 0.1 | 12.6 | SE |
| Feb | 64.2 | 156.8 | 11 | 17.8 | 3.0 | 32.0 | 17.9 | 4.0 | 30.0 | 25 | 2 | 101 | 76 | 21.0 | 99.0 | 2 | 0.1 | 7.1 | SW |
| Mar | 41.6 | 198.4 | 16 | 17.2 | 5.9 | 32.0 | 17.3 | 7.5 | 31.2 | 24 | 1 | 103 | 79 | 17.9 | 98.6 | 2 | 0.1 | 6.3 | ESE |
| April | 47.6 | 246 | 11 | 12.2 | -1.0 | 24.0 | 12.8 | 2.0 | 23.0 | 22 | 2 | 98 | 76 | 16.0 | 99.0 | 2 | 0.1 | 8.4 | SW |
| May | 64.8 | 310.8 | 17 | 9.1 | -2.0 | 19.1 | 9.6 | -0.5 | 18.4 | 22 | 2 | 101 | 86 | 25.4 | 98.6 | 2 | 0.12 | 10.1 | SE |
| June | 32.6 | 343.4 | 22 | 3.8 | -7.4 | 16.7 | 4.5 | -5.4 | 16.3 | 20 | 1 | 100 | 83 | 4.8 | 98.6 | 2 | 0.1 | 8.9 | SW |
| July | 89.4 | 432.8 | 24 | 4.7 | -8.5 | 15.2 | 5.3 | -4.8 | 13.3 | 21 | 2 | 102 | 84 | 16.0 | 98.5 | 3 | 0.13 | 10.0 | WSW |
| Aug | 78.4 | 511.2 | 25 | 6.4 | -6.1 | 20.5 | 6.8 | -3.0 | 17.9 | 20 | 2 | 99 | 84 | 33.4 | 98.6 | 2 | 0.11 | 10.5 | SE |
| Sept | 62 | 573.2 | 13 | 9.9 | -4.7 | 26.7 | 10.2 | -2.0 | 23.6 | 23 | 1 | 99 | 71 | 16.6 | 98.6 | 2 | 0.11 | 8.8 | SW |
| Oct | 21 | 594.2 | 12 | 13.3 | 0.5 | 29.3 | 14.0 | 2.4 | 29.3 | 23 | 2 | 102 | 65 | 16.8 | 98.6 | 2 | 0.12 | 9.2 | WSW |
| Nov | 32.4 | 626.6 | 8 | 14.5 | -0.9 | 28.4 | 15.2 | 0.6 | 29.3 | 21 | 2 | 103 | 61 | 13.7 | 98.7 | 3 | 0.08 | 11.2 | WSW |
| Dec | 47.6 | 674.2 | 10 | 16.5 | 1.3 | 31.9 | 17.4 | 2.7 | 32.2 | 24 | 1 | 101 | 62 | 11 | 98.6 | 2 | 0.06 | 8.0 | WSW |
| TOTAL | | 674.2 | 190 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Minimum | | 21 | 8 | -- | -8.5 | -- | -- | -5.4 | -- | -- | 1 | -- | -- | 4.80 | -- | -- | 0.06 | -- | WSW |
| Maximum | | 92.6 | 25 | -- | -- | 34.0 | -- | -- | 33.0 | -- | -- | 103 | -- | -- | 99.0 | -- | -- | 12.6 | SE |

5.4 EROSION AND SEDIMENT

The erosion and sediment controls for PDM have been implemented to safeguard against soil loss and minimise potential water quality impacts. Erosion control structures have been installed around PDM with the principle aim of containing sediment at its source. All runoff from disturbed areas is contained in temporary pollution control ponds within the open cut mine and surrounding hardstand areas.

Exposed areas which have been disturbed by previous mining operations are controlled through the use of windrows constructed by subsoil and/or clay material. Once vegetation has been cleared and topsoil removed, subsoil and clay material are pushed against the interface between the disturbed and undisturbed area creating a windrow where the potential for erosion impacts exist. Exposed areas are also managed through the use of temporary measures, such as silt fencing, to avoid sedimentation impacts on downstream waterways until the area has been rehabilitated. Additionally, temporary sediment ponds are constructed downslope of disturbed areas to ensure the capture of 'dirty' water and enable treatment prior to discharge into the underground workings. The management measures for the control of erosion described above are also put in place to increase batter and bench stability prior to establishment of permanent rehabilitation measures, where possible.

Erosion control structures at PDM are inspected on a monthly basis by the Mining Engineering Manager, particularly after significant rainfall events and repaired where necessary. Erosion and sediment control works which were undertaken during the reporting period comprised the inspection and maintenance of windrows and silt fencing to prevent potential surface water impacts and sediment entering Wangcol Creek.

5.5 CONTAMINATED AND POLLUTED LAND

There was no land identified as being contaminated or polluted during the reporting period. In the unlikely event that contaminated material is identified at the site, the remedial actions taken shall be those outlined in the PDM RMP (Ref [3]), whereby the affected material is either treated on-site or disposed of offsite by a licensed contractor.

5.6 THREATENED FLORA AND FAUNA

Measures for the management and mitigation of flora and fauna impacts at PDM and in the surrounding area are provided in the PDM RMP (Ref [3]).

5.6.1 PURPLE COPPER BUTTERFLY

The Purple Copper Butterfly (PCB), also known as the Bathurst Copper Butterfly, is listed as an endangered species under the *Biodiversity Conservation Act 2016* and vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*. The PCB and larvae have been identified adjacent to the eastern boundary of the PDM Yarraboldy Extension within an area of its habitat of native Blackthorn (*Bursaria spinosa* subsp. *Lasiophylla*).

PCB monitoring has been suspended with the agreement of DAFF in early November 2020. Monitoring at the four (4) deposition dust gauges associated with the PCB Monitoring Programme has continued.

5.6.2 AUSTRAL TOADFLAX (*THESIUM AUSTRALE*)

Austral Toadflax is listed as vulnerable under the *Biodiversity Conservation Act 2016* and the *Environment Protection and Biodiversity Conservation Act 1999*. An erect to scrambling perennial herb, it occurs in small populations, parasitising a range of grass species, which at PDM is Kangaroo Grass. At subalpine and tableland climates the species dies back to rootstock during winter and re-sprouts in spring.

Surveys conducted by Eco Logical Australia in March 2011 identified a total of 260 individual Austral Toadflax plants in three (3) patches located beyond the north-west crest of the Yarraboldy Stage 1 Extension pit.

A 2014 Species Management Plan completed in 2014 in consultation with the Department of Planning and Environment was developed to mitigate the impact of open cut mining on the host habitat within the Austral Toadflax buffer area. This includes:

- Inclusion of a buffer zone from known specimens referred to as the Austral Toadflax buffer area.
- Installation and maintenance of fencing and signage between the open cut boundary and known location of specimens.
- Installation of additional signage and barriers (e.g., tape) when operating in close proximity to the Austral toadflax buffer area.
- Control of priority weed infestations and feral animals.

The Gospers Mountain bushfire, which spread through Ben Bullen State Forest and PDM during December 2019 and January 2020, had burnt out the Austral Toadflax during the 2020 reporting period.

During the reporting period, Care and Maintenance operations did not encroach within the habitat area. Details regarding control of noxious weeds within and surrounding the habitat area for the reporting period is presented in **Section 5.7** and will continue to be undertaken in the next reporting period.

5.7 WEEDS AND FERAL ANIMALS

Weed and feral animal control activities at PDM are undertaken in accordance with the PDM RMP (Ref [3]). Weed control methods target four (4) priority weeds previously identified within PDM and the Yarraboldy Extension area, namely:

- African Lovegrass (*Eragrostis curvula*)
- Blackberry (*Rubus fruticosus* aggregate species)
- Briar Rose (*Rosa rubiginosa*)
- St John's Wort (*Hypericum perforatum*)

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) identified African Lovegrass (*Eragrostis curvula*) was the primary weed present at all rehabilitated pasture locations. The presence of weeds including African Lovegrass comprised <10% of the pasture sward in the majority of locations and have been subjected to ongoing chemical control in accordance with legislation. African Lovegrass was considered to comprise >10% of the pasture sward at Transect 4 and spot spraying was recommended. At time of writing this work has been authorised however not yet undertaken.

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) indicated there were no burrows or dens observed within and in the vicinity of the transects. Scat, considered to be from foxes, was observed within the treed rehabilitation areas and rabbit scat was observed within the pasture and treed rehabilitation areas.

The control of weeds and feral animals will be undertaken on an ongoing basis as required and consistent with the PDM RMP (Ref [3]) to ensure species are managed accordingly.

5.8 BLASTING

As PDM is currently in Care and Maintenance, there were no blasting activities undertaken during the reporting period.

5.9 VISUAL AND STRAY LIGHT

There were no adverse impacts associated with stray light or visual disturbance identified during the reporting period. There were no complaints received during the reporting period regarding visual and stray light impacts.

5.10 ABORIGINAL HERITAGE

There were no artefacts of Aboriginal cultural heritage found at PDM during the reporting period.

5.11 NATURAL HERITAGE

No items or areas of natural heritage significance have been recorded or are considered to occur within the approved disturbance area at PDM.

5.12 SPONTANEOUS COMBUSTION

There were no incidences of spontaneous combustion in or overburden material during the reporting period. The Lithgow Seam is known to have a low propensity for spontaneous combustion. All coal stockpiles have been decommissioned.

5.13 MINE SUBSIDENCE

There were no issues identified regarding mine subsidence during the reporting period.

5.14 BUSHFIRE

Bush fire control strategies for PDM are managed in accordance with PA 10_0041 and the approved PDM Bush Fire Management Plan. These strategies are employed for preventing the occurrence and spread of any fire events that may impact on the site or in surrounding lands (i.e., Ben Bullen State Forest). As such, measures are taken at PDM to prevent the occurrence and spread of fire through proper maintenance of machinery and equipment, and the maintenance of access roads.

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**), determined fuel loads within rehabilitation areas A, B, C and 8 were low and fuel hazard mitigation activities were not required. The internal access road within PDM provides a firebreak between Area A (refer **Plan 4, Appendix A**) and the PDM office and infrastructure to the south. The haul road provides a firebreak to the north of area A, and to the north and west of Areas B, C and 8 (refer **Plan 4, Appendix A**). Fire-fighting access roads were also considered to be adequate, with all access roads within rehabilitated areas maintained in good condition and suitable for the passage of Category 1 (vertical clearance of >4 m and width of >2.8 m) tankers.

During the 2025 reporting period there were no bush fire events at PDM or in its immediate vicinity.

5.15 METHANE DRAINAGE AND VENTILATION

The underground workings at the PDM site were closed in 1986 and decommissioned over a period from 1987 to 1990. Methane levels are considered to be negligible at PDM.

5.16 PUBLIC SAFETY

No issues of public safety occurred during the reporting period. The entire perimeter of PDM is fenced, with “*No Trespassing*” signs displayed at various intervals. “*Do Not Enter*” and “*Danger*” signs are also displayed along the fence of the private sealed haul road. Continuation of the control of trespassing during the reporting period has occurred through routine inspection, monitoring, upgrades and repairs of fencing structures. During the Care and Maintenance term, PDM has continued to be regularly monitored by mine personnel.

6 WATER MANAGEMENT

PDM lies within the Wangcol Creek (also known, and formerly referred to as, Neubeck's Creek) catchment which is a sub-catchment of the Upper Coxs River catchment, which in turn is part of the Warragamba Catchment, administered by WaterNSW.

The runoff from the surrounding area flows to the Coxs River via Wangcol Creek (a perennial tributary) which runs into Blue Lake, a former open cut mining void. Wangcol Creek is understood to flow intermittently (noting that many of its tributaries are temporary), with flows influenced by water discharges from other upstream industrial land uses and/or natural seepage.

Water resources at PDM are managed in accordance with the Water Management Plan (WMP, Ref [4]) which was developed under the requirements of PA 10_0041, EPL 4911, respective groundwater bore licences, the water access licence (WAL 36480) and Water Supply Works Approval 10WA118780.

The water management system has been designed as a closed loop system, with all clean water diverted around the mining site where practicable. It is also designed not to discharge any water from PDM into Wangcol Creek unless required to under an emergency. Drainage of surface water within the site's disturbed areas is generally to the south and southeast following the natural topography for treatment prior to free draining into the underground workings (see **Plan 2, Appendix A**). The runoff from the north is captured in temporary sumps and used as dust suppression when required.

Due to PDM being within Care and Maintenance, with only rehabilitation activities being undertaken intermittently, it is not considered feasible that groundwater and surface water results are being impacted by PDM other than, potentially, the Water Cart Dam monitoring point, although it has not been actively used during the Care and Maintenance period and is filled with storm water. The on and offsite groundwater monitoring points and the other six (6) surface water monitoring sites are considered to represent ambient water quality with variations in monitored parameters likely due to changes in climatic conditions, other land-use activities and activities outside the outside the PDM site. Groundwater results as presented below are considered to be representative of ambient conditions.

6.1 GROUNDWATER

Management of groundwater at PDM is undertaken in accordance with PA 10_0041 and the PDM WMP (Ref [4]). PDM has a water access licence (WAL 36480) for the extraction and use of groundwater from the underground mine workings; and Bore Licences (10BL 165933 & 10BL 603588) for the monitoring of groundwater levels and quality. Results of groundwater monitoring are presented in **Section 6.2**, with the complete results for the reporting period provided in **Appendix B**.

Review of groundwater extraction data is required to be undertaken by a qualified groundwater consultant in accordance with WAL 36480 to validate the recorded data against groundwater predictions. As there was no measurable groundwater intercepted from the underground workings during the 2025 reporting period, no review was required.

6.2 GROUNDWATER MONITORING LOCATIONS

Current groundwater monitoring locations from the Groundwater Management Plan within the WMP (Ref [4]) are shown in **Plan 3a, Appendix A**.

It is noted that sampling of some of these locations has been historically limited due to unsafe access due to falling trees from a combination of wet conditions and remnant damage from the bushfire in early 2020. The National Parks and Wildlife Service formally closed access to the Gardens of Stone State Conservation Area temporarily on 14 October 2022.

Groundwater field data and samples are collected by RCA Australia personnel and analysed at a NATA registered laboratory.

Monitoring during the reporting period was not in accordance with the WMP as per the following:

- Sampling from Old Shaft was discontinued after the February 2021 sampling round when an internal audit identified that the sampling posed a fall risk due to the requirement for an elevated position to collect samples and the absence of any formal attachment points for a harness required for working at heights.
- Sampling from bores within the Yarraboldy extension Bore E has not been attempted during the monitoring period due to safety concerns associated with falling trees in the area.
- Bore B logger data has not been retrieved between the middle of May 2024 and June 2025 due to a malfunction of the logger which was unable to be resolved. A new unit was installed in June 2025.
- Bore C logger data has not been retrieved between September 2022 and June 2025 due to a malfunction of the logger which was unable to be resolved. A new unit was installed in June 2025.
- EP-PDH3 and EP-PDH4 bores were decommissioned in the first quarter of the 2023 reporting period as part of the Enhance Place mining lease relinquishment.

The Bong is an opening to the old underground workings and groundwater cannot be accessed as it is under pressure; historically samples of groundwater were collected by pumping water from the underground opening into the Water Cart Dam at PDM (location of Water Cart Dam is shown in **Plan 3a**). Water is not pumped into the Water Cart Dam during the Care and Maintenance term; thus, water quality at Water Cart Dam is now considered to be representative of surface water runoff and has been presented in **Section 6.4**.

6.2.1 GROUNDWATER ASSESSMENT CRITERIA

The approved groundwater trigger levels developed for PDM are detailed in the WMP in accordance with Schedule 3, Condition 27(c) of PA 10_0041. The approved trigger levels are detailed in **Table 6-1**. No comparison of the monitoring results is made against the triggers based on the absence of an identifiable activity or other feasible impact from PDM while in Care and Maintenance: fluctuations in standing water level (SWL), pH and electrical conductivity are not considered to be related to activities at PDM and are considered likely to be related to natural variability, climatic conditions and activities outside the PDM.

Table 6-1 *Approved Groundwater Assessment Criteria*

| Groundwater Site | pH (range) | Electrical Conductivity (µS/cm) | SWL ^a Trigger (m, AHD) |
|----------------------------|------------------|---------------------------------|-----------------------------------|
| P6 | 6.2 - 8.0 | 1180 | 887.90 |
| P7 | 6.3 - 8.0 | 852 | 883.28 |
| EP DDH7/GW (Site A) | 6.5 - 8.0 | 326 | 954.40 |
| EP DDH5/GW (Site B) | NA | NA | NA |
| EP PDH1/GW (Site C) | 6.9 - 8.0 | 490 | 889.25 |
| EP DDH4/GW (Site D) | 6.8 - 8.0 | 608 | 940.61 |
| <i>EP PDH7/GW (Site E)</i> | <i>5.5 - 8.0</i> | <i>151</i> | <i>938.43</i> |

^a SWL: standing water level.

NA: Not applicable – No trigger level required for these locations.

Small, *italicised* text is not relevant to the 2025 reporting period due to access restrictions as detailed in **Section 6.2**.

Vibrating wire piezometers are installed within bores B, C and E at various target aquifers. A summary of the target aquifers and corresponding trigger levels for each bore location is shown in **Table 6-2**.

Table 6-2 *Approved Groundwater Trigger Levels (vibrating piezometers)*

| Groundwater Site | Aquifer | SWL Trigger (m AHD) |
|------------------|------------|---------------------|
| Bore B (EP DDH5) | Sandstone | 921.23 |
| | Irondale | NA |
| | Lidsdale | 899.23 |
| | Lithgow | No trigger level |
| Bore C (EP HDD3) | Irondale | 909.40 |
| | Lithgow | No trigger level |
| | Lidsdale | 891.78 |
| | Marangaroo | 889.76 |
| Bore E (EP DDH6) | Irondale | 884.67 |
| | Lithgow | No trigger level |

NA: no data, bore is depressurised (water level has dropped below sensor installation height)

Small text is not relevant to the 2025 reporting period due to access restrictions as detailed in **Section 6.2**.

6.2.2 GROUNDWATER SWL AND QUALITY

Graphical results of the SWL, pH and electrical conductivity in the onsite groundwater bores (P6 and P7) for the period 2021 – 2025 are presented in **Figure 6-1**, **Figure 6-2** and **Figure 6-3** below, and graphical results of the SWL, pH and electrical conductivity for the offsite groundwater bores (A, B, C and D) for the period 2021 – 2025 are presented in **Figure 6-4**, **Figure 6-5** and **Figure 6-6** below. The gaps in the graphs indicate that the bore was unable to be sampled because it was dry, or it was inaccessible.

Data logger measurements for Bores B and C are presented in **Figure 6-7** and **Figure 6-8** below. The gaps in the graphs are associated with malfunctions of the loggers.

The full suite of groundwater results for the 2025 reporting period is presented in **Appendix B**.

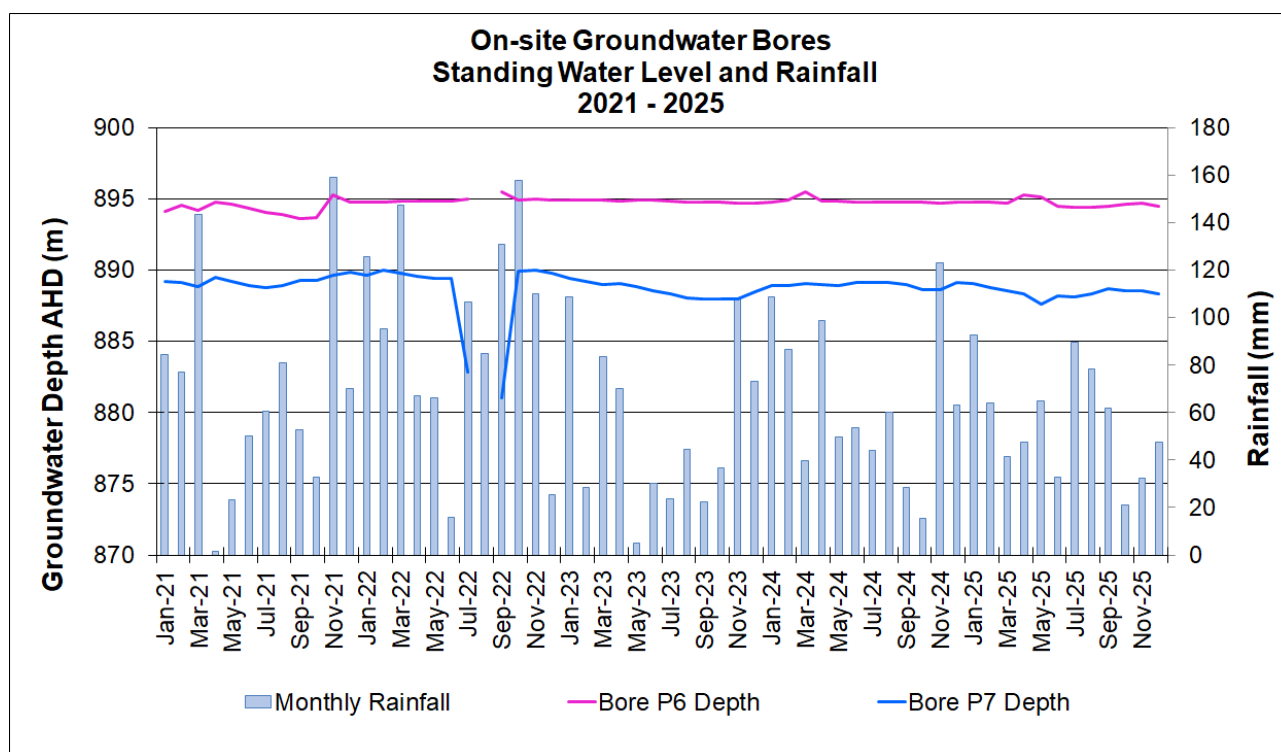


Figure 6-1 Onsite Groundwater Bores SWL and Rainfall 2021 – 2025

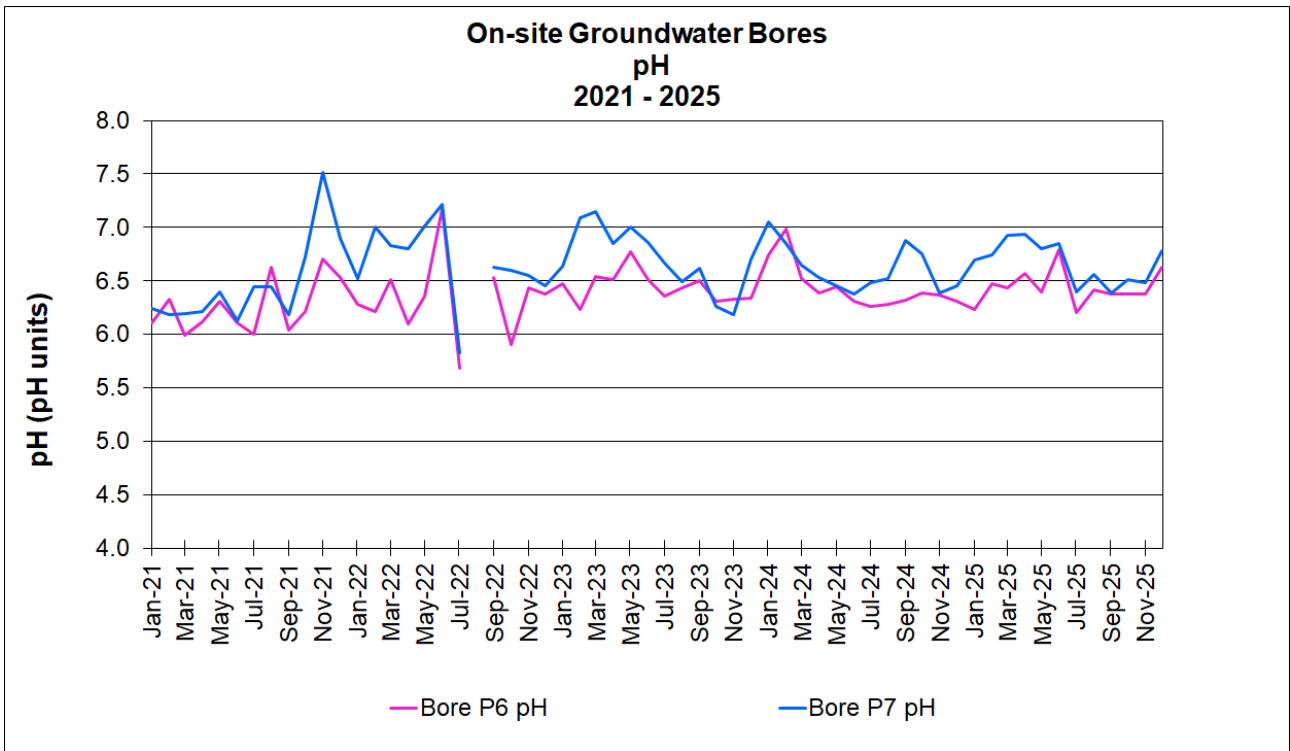


Figure 6-2 Onsite Groundwater Bores pH: 2021 – 2025

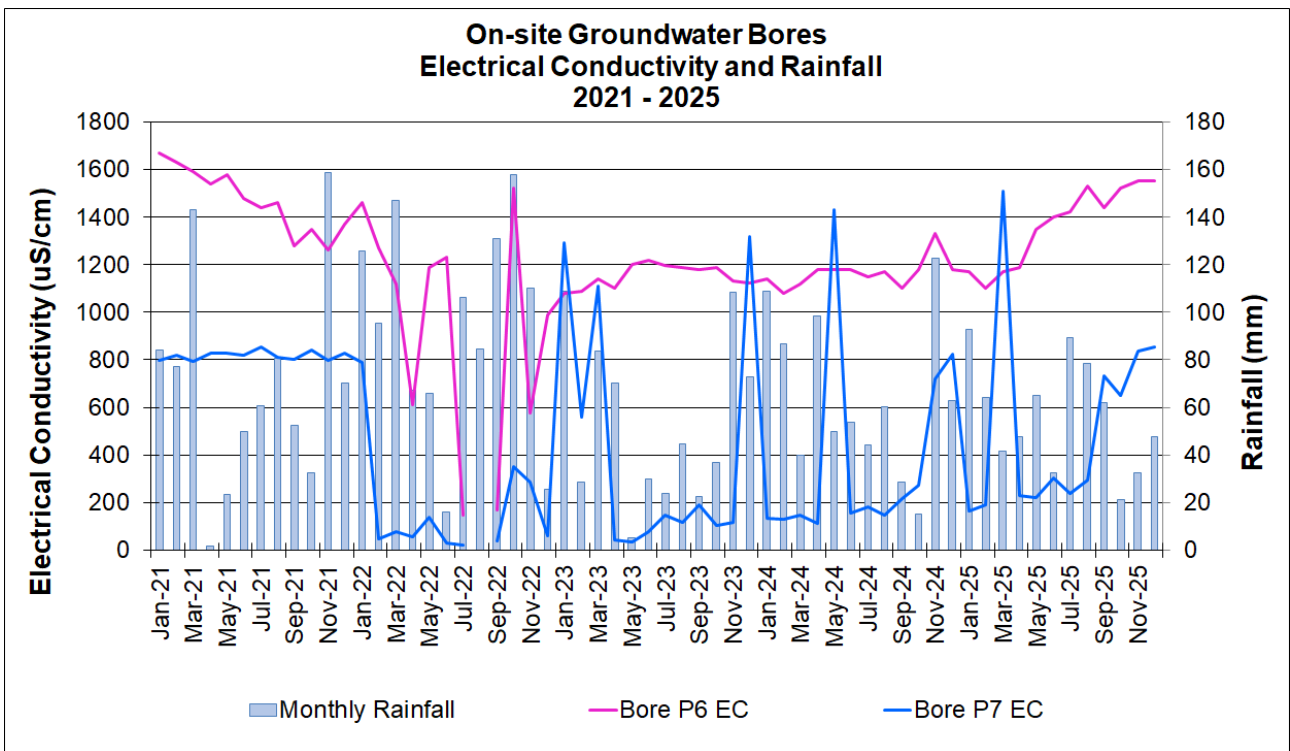


Figure 6-3 Onsite Groundwater Bores Electrical Conductivity: 2021 – 2025

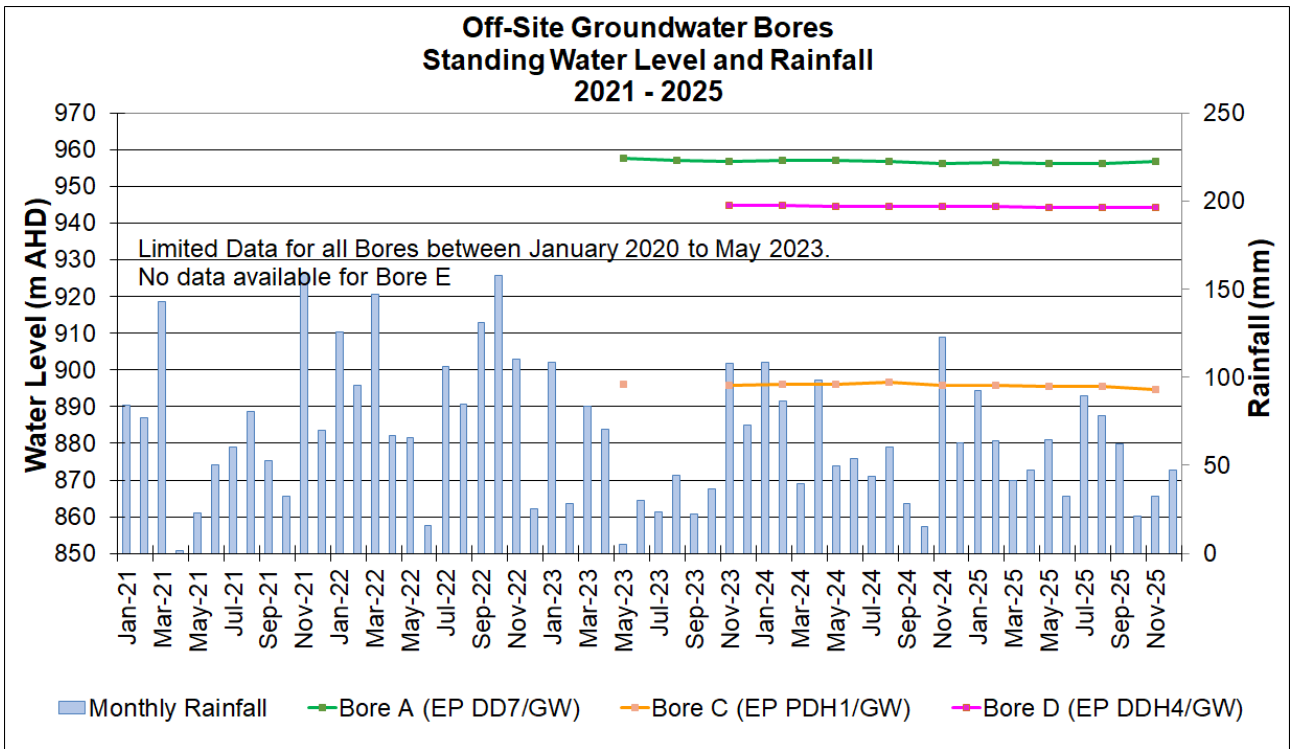


Figure 6-4 Yarraboldy Groundwater Bores Standing Water Level: 2021 – 2025

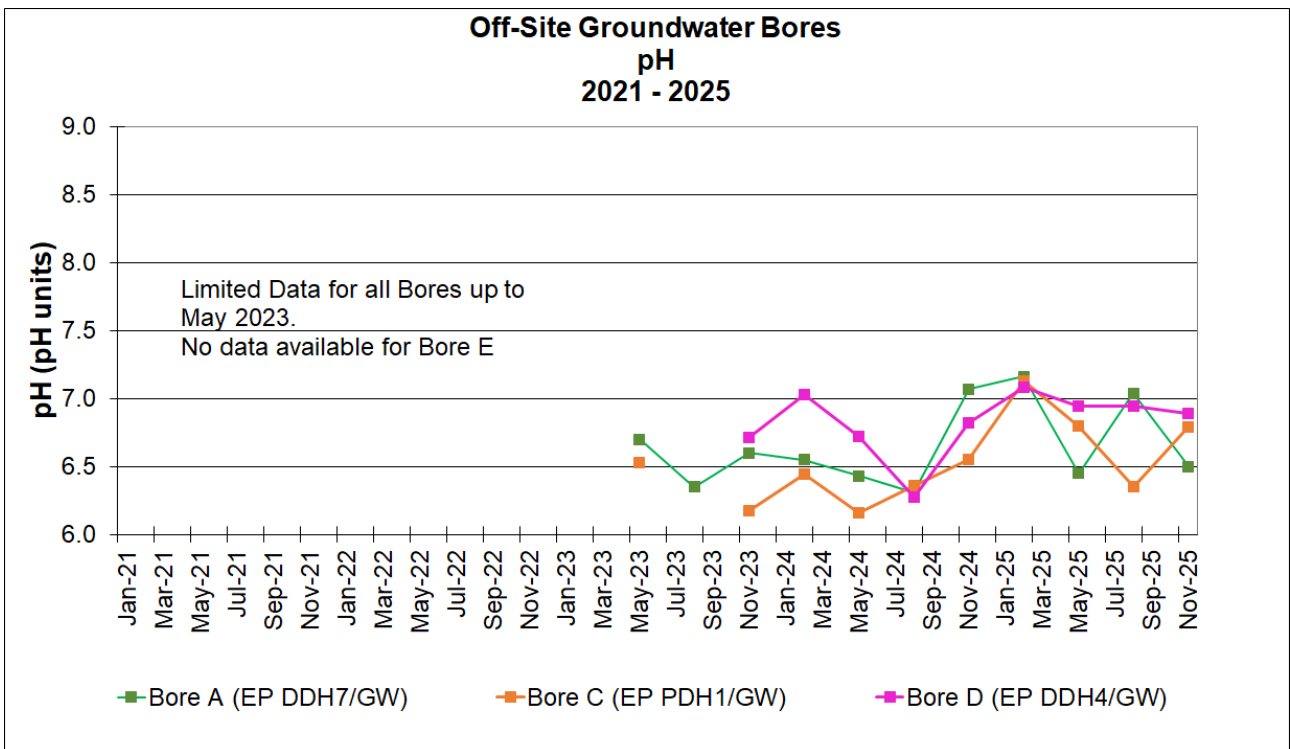


Figure 6-5 Yarraboldy Groundwater Bores pH: 2021 – 2025

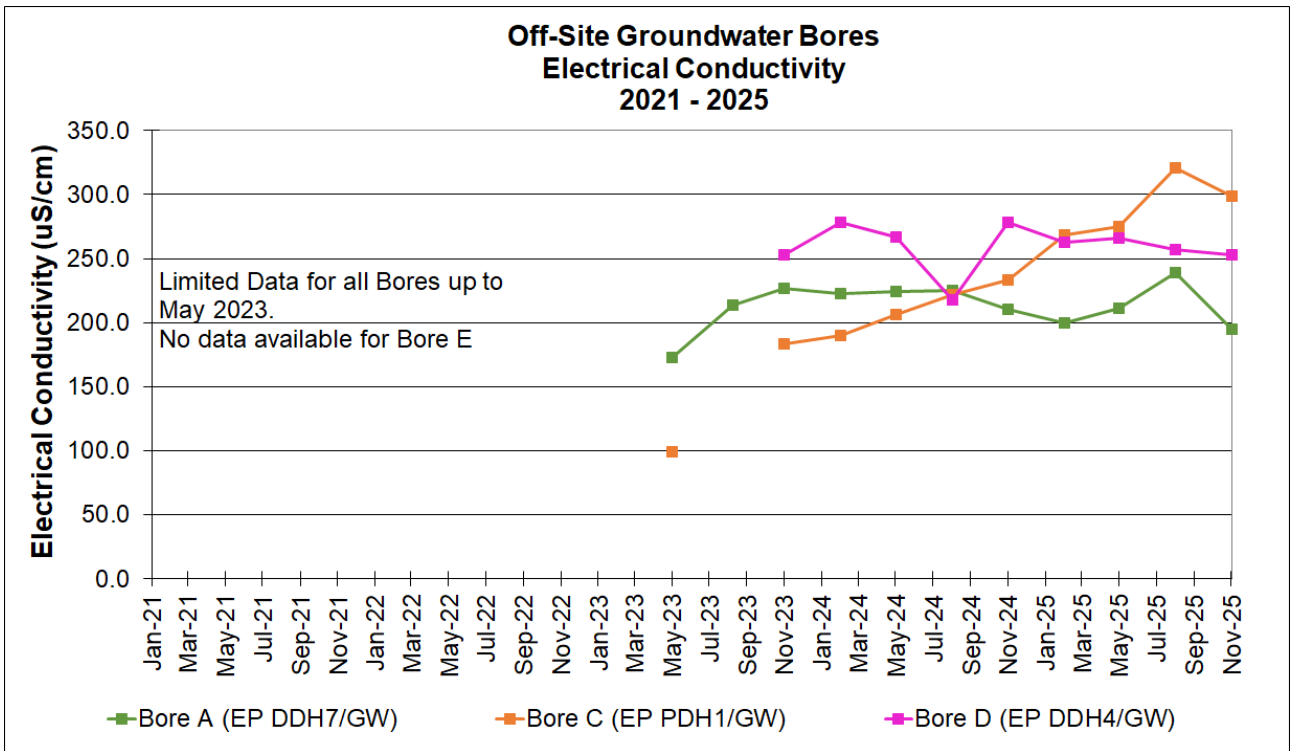


Figure 6-6 Yarraboldy Groundwater Bores Electrical Conductivity: 2021 – 2025

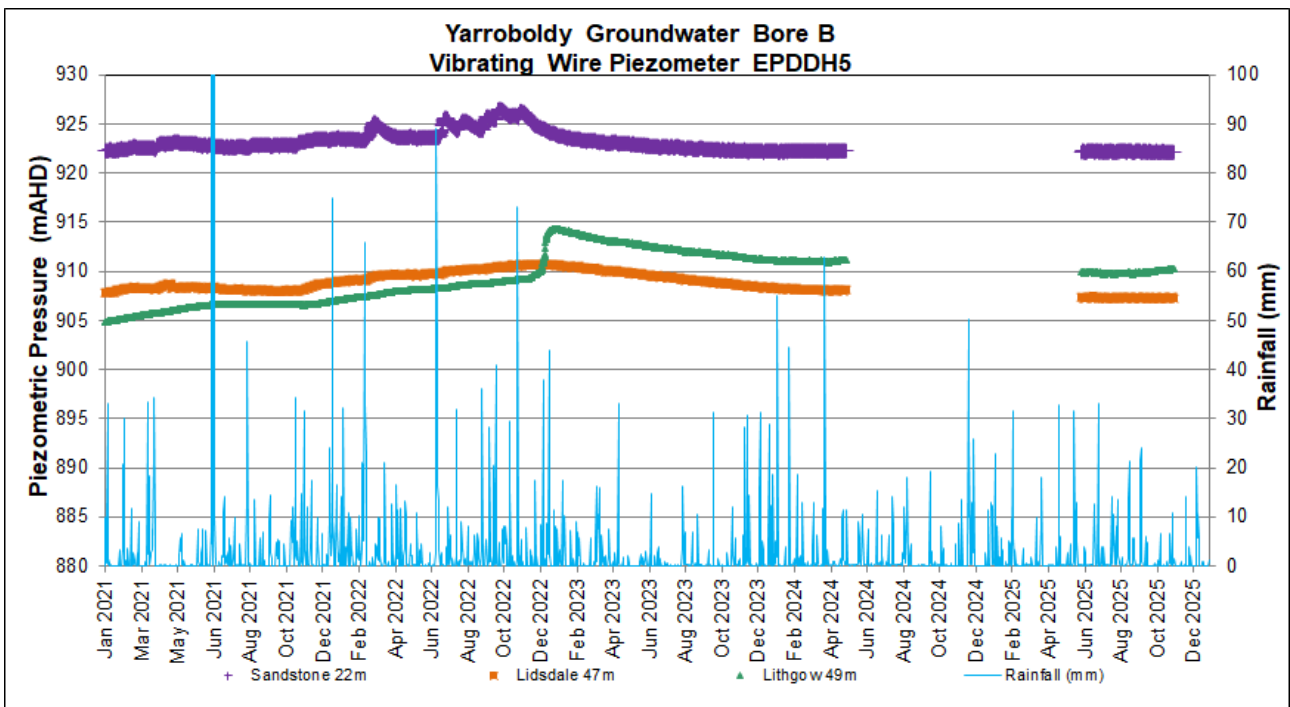


Figure 6-7 Yarraboldy Bore B Hydrograph and Rainfall 2021 – 2025

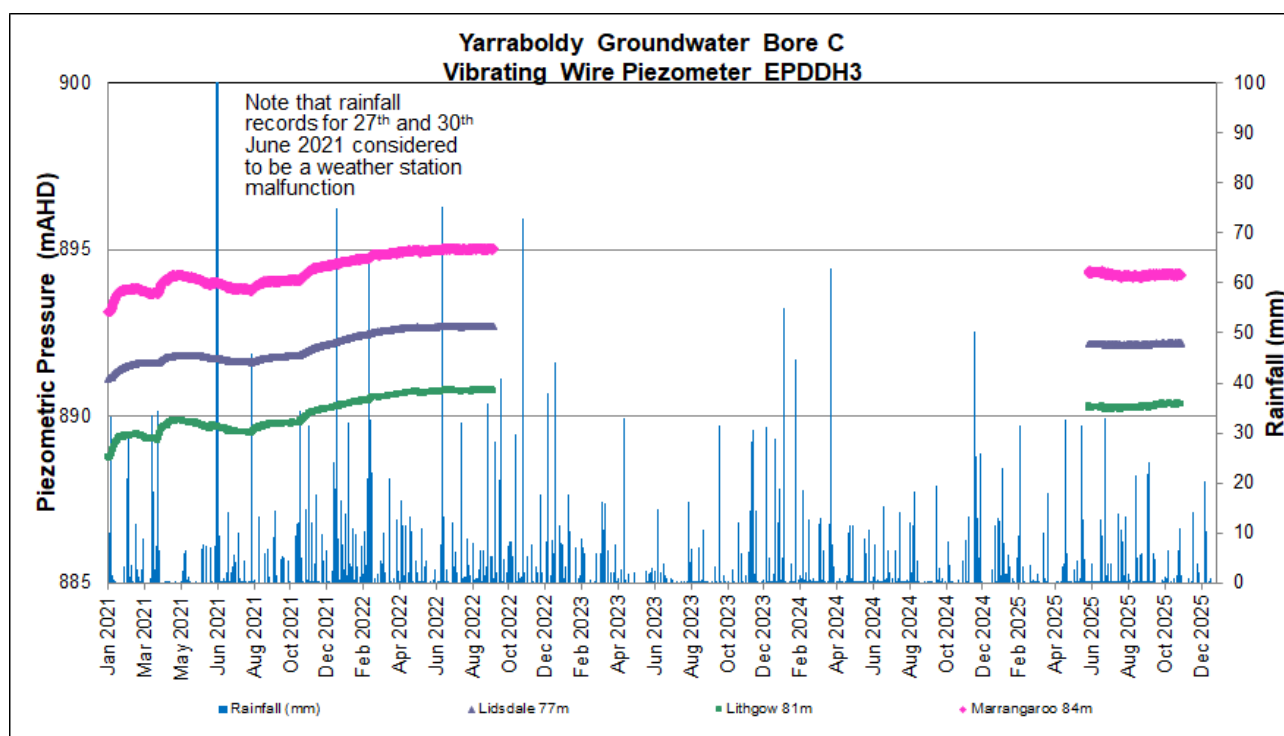


Figure 6-8 Yarraboldy Bore C Hydrograph and Rainfall 2021 – 2025

6.3 STORED WATER

There are no permanent water storage structures at the PDM. Clean water diversion structures are utilised at the site in conjunction with temporary sediment ponds. Temporary sediment ponds are constructed downslope of disturbed areas to ensure the capture of 'dirty' water and enable treatment prior to draining into the underground workings.

6.4 SURFACE WATER MONITORING

Surface water quality at PDM is managed in accordance with the WMP (Ref [4]) and EPL 4911 and comprise a total of thirteen (13) surface water locations within and surrounding the mine site (see **Plan 3a, Appendix A**).

Results of surface water monitoring are presented in **Section 6.4.2** and also provided in **Appendix B**. As detailed in **Section 6.2**, samples from Water Cart Dam are considered representative of surface water and are presented in this Section.

6.4.1 SURFACE WATER ASSESSMENT CRITERIA

Concentration limits are specified in EPL 4911 for the licensed discharge point LDP13, whilst the remaining water monitoring locations only have water quality trigger levels stipulated in the site WMP (Ref [4]) – surface water section in accordance with Schedule 3, Condition 27(b) of PA 10_0041.

The purpose of the trigger levels is to compare the water quality against ambient background water quality such that potential impacts from PDM can be identified. Impacts to water quality in Wangcol Creek are known to be occurring by other land-use activities up-stream of PDM and therefore the water quality in Wangcol Creek is not considered to be representative of the background water quality to which the water quality criteria applies. The current approved WMP trigger levels are presented in **Table 6-3**.

No comparison of the monitoring results is made against the triggers based on the absence of a feasible impact from PDM while in Care and Maintenance: fluctuations in standing water level (SWL), pH and electrical conductivity are not considered to be related to PDM and are considered likely to be related to natural variability, climatic conditions and activities outside the PDM.

Table 6-3 PDM Approved Surface Water Trigger Levels

| Surface Water Site | pH (range) | Electrical Conductivity ($\mu\text{S/cm}$) | Total Suspended Solids (mg/L) | Oil and Grease (mg/L) |
|------------------------------|------------------------|----------------------------------------------|-------------------------------|-----------------------|
| S1 | 6.2 – 8.0 | 2,325 | 30 | 10 |
| S2 | NA | NA | NA | NA |
| S3 | 6.4 – 8.0 | 2,223 | 30 | 10 |
| S4 | 7.3 – 8.0 | 957 | 30 | 10 |
| S5 | 7.0 – 8.0 | 1,013 | 30 | 10 |
| S6 | 6.7 – 8.0 | 1,941 | 30 | 10 |
| S7 | 6.8 – 8.0 | 1,007 | 30 | 10 |
| The Bong (at Water Cart Dam) | 5.8-8.0 | 1,157 | NA | NA |
| Wallerawang Downstream | NA | NA | NA | NA |
| EPL Point 2 | 7.1 – 8.0 | 2,055 | 30 | NA |
| EPL Point 3 | 6.4 – 8.0 | 2,223 | 30 | NA |
| EPL Point 13 | 6.5 – 8.0 ^a | NA | 30 ^a | 10 ^a |
| EPL Point 14 | 7.5 – 8.0 | 1,166 | 30 | NA |
| EPL Point 16 | NA | NA | NA | NA |

^a EPL concentration limit only applicable during discharge events.

6.4.2 SURFACE WATER QUALITY

Surface water field data and samples are collected by RCA Australia personnel and analysed at a NATA registered laboratory.

6.4.2.1 EPA SURFACE WATER MONITORING

During the monitoring period, the four (4) surface water sampling locations specified in the EPL 4911 were monitored on a quarterly basis: February, May, August and November.

The electrical conductivity and pH for the period 2021 – 2025 for the EPL 4911 specified monitoring points are shown in **Figure 6-9**; electrical conductivity and rainfall for the same period is shown in **Figure 6-10**.

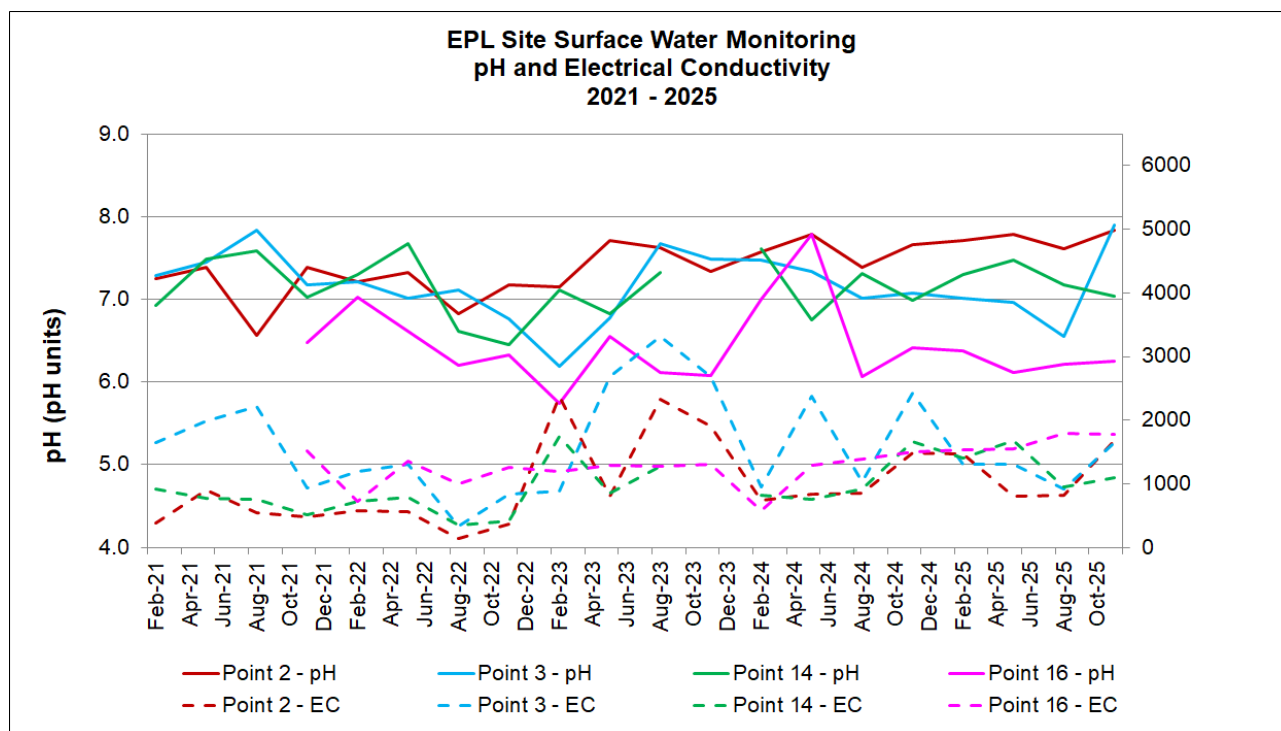


Figure 6-9 Surface water at EPL monitoring points: pH and Electrical Conductivity (2021 – 2025)

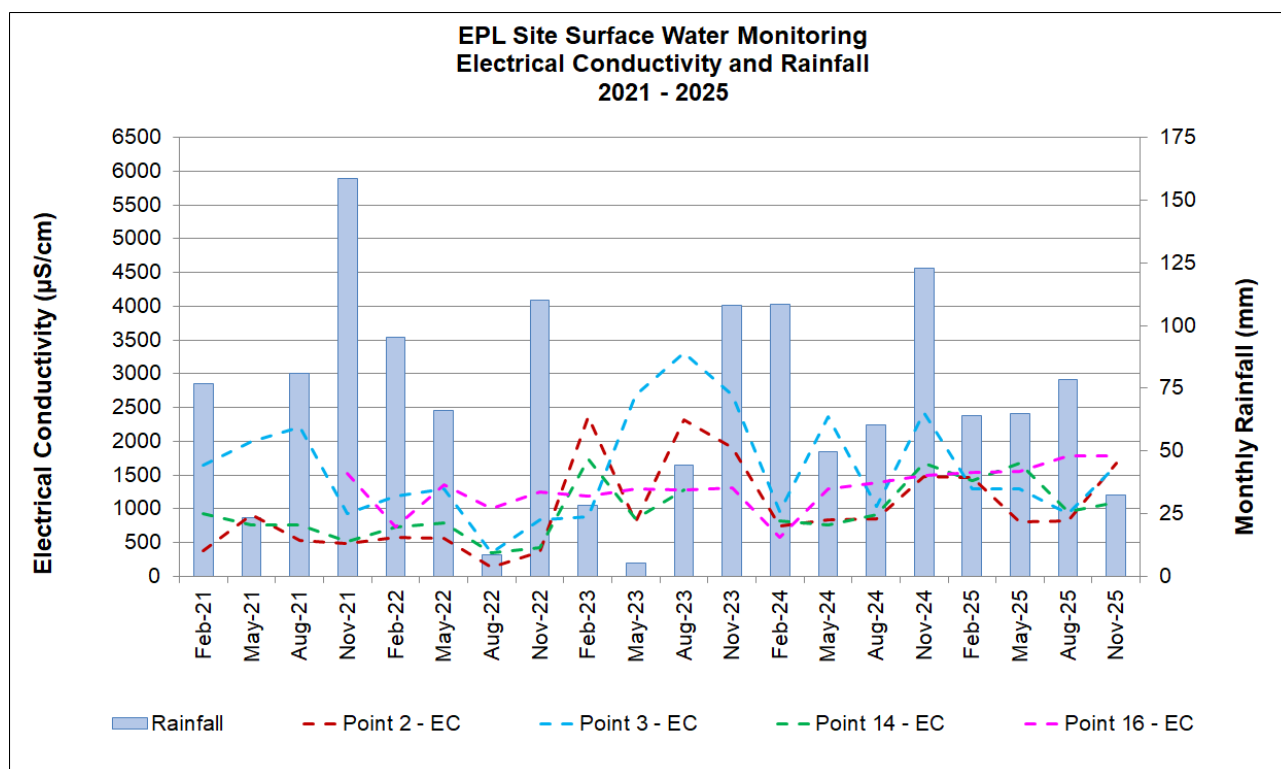


Figure 6-10 Surface water at EPL monitoring points: Rainfall and Electrical Conductivity (2021 – 2025)

6.4.2.2 GENERAL SURFACE WATER MONITORING

During the monitoring period, the seven (7) surface water sampling locations were monitored on a monthly basis: all samples were collected and analysed as per the requirements. The Bong was dry in November and December.

Results of surface water samples collected during the reporting period are compared against the approved surface water trigger levels (**Table 6-3**) from the WMP (Ref [4]) in **Appendix B**.

pH, and electrical conductivity along with rainfall for sampling locations within Wangcol Creek and the results at the off-site water licensed discharge are presented in **Figure 6-11** and **Figure 6-12** below.

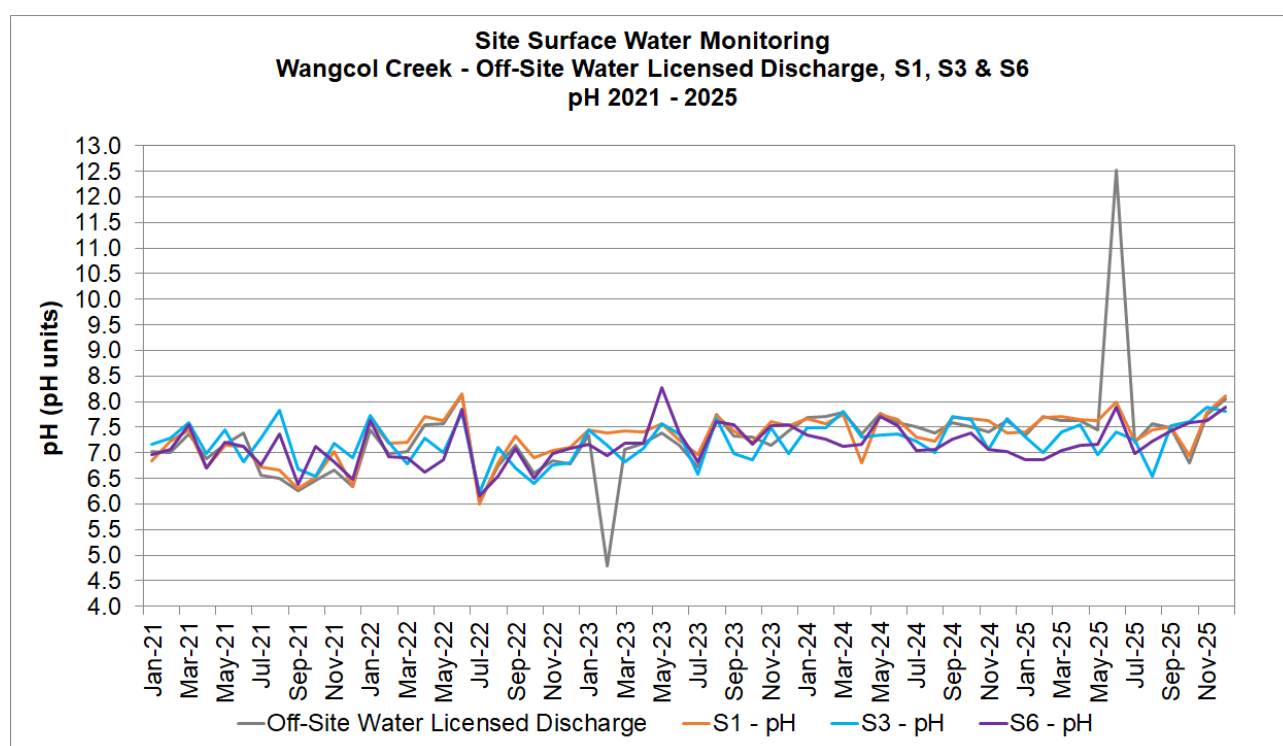


Figure 6-11 pH results at Wangcol Creek Sampling Locations S1, S3 and S6 2021 – 2025

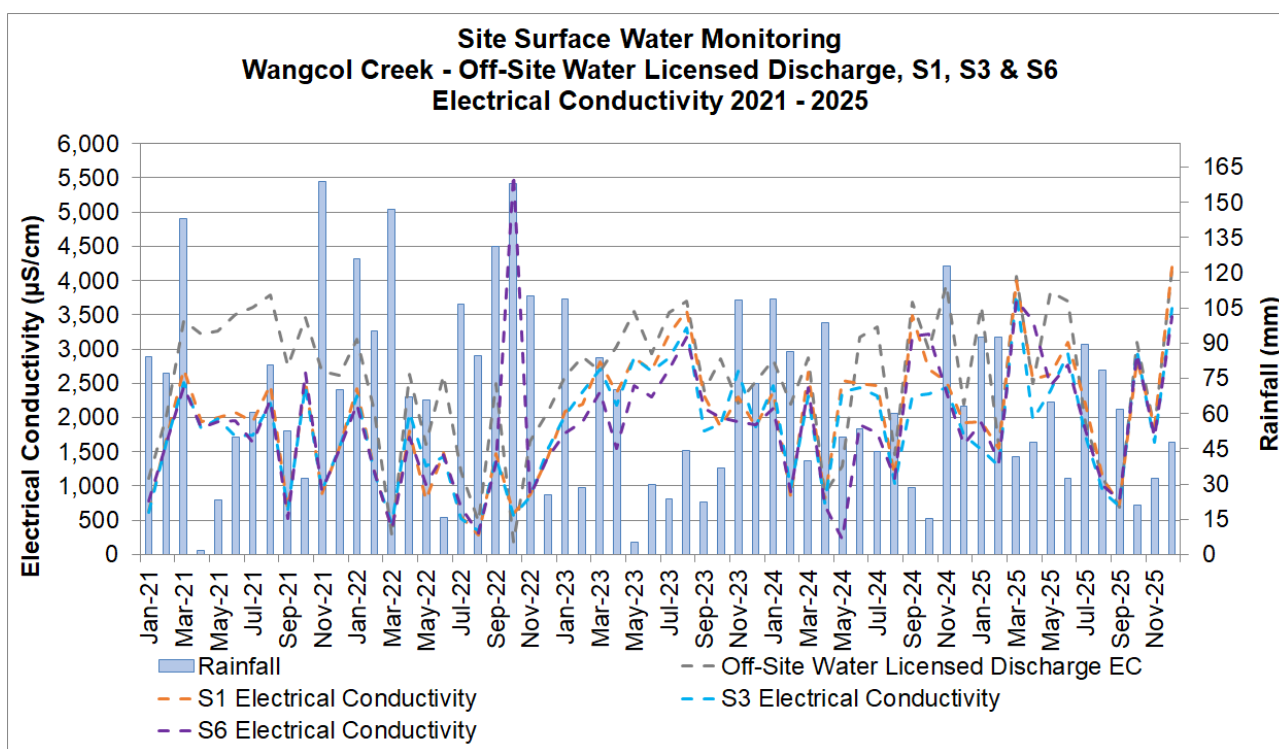


Figure 6-12 Electrical Conductivity results at Wangcol Creek Sampling Locations S1, S3 and S6 2021 – 2025

pH, and electrical conductivity along with rainfall for sampling locations within Coxs River, including the quarterly results for EPL Point 14, are presented in **Figure 6-13** and **Figure 6-14** below.

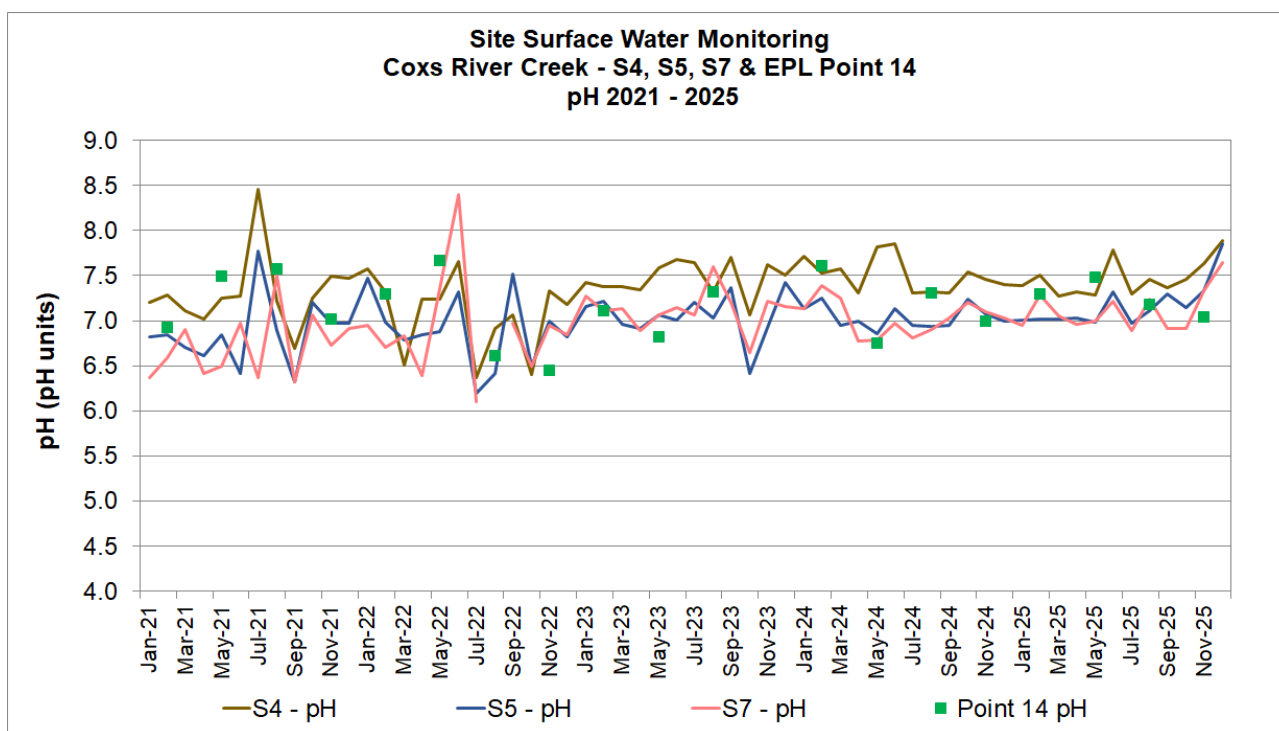


Figure 6-13 S4, S5, S7 and EPL Point 14 pH Results 2021 – 2025

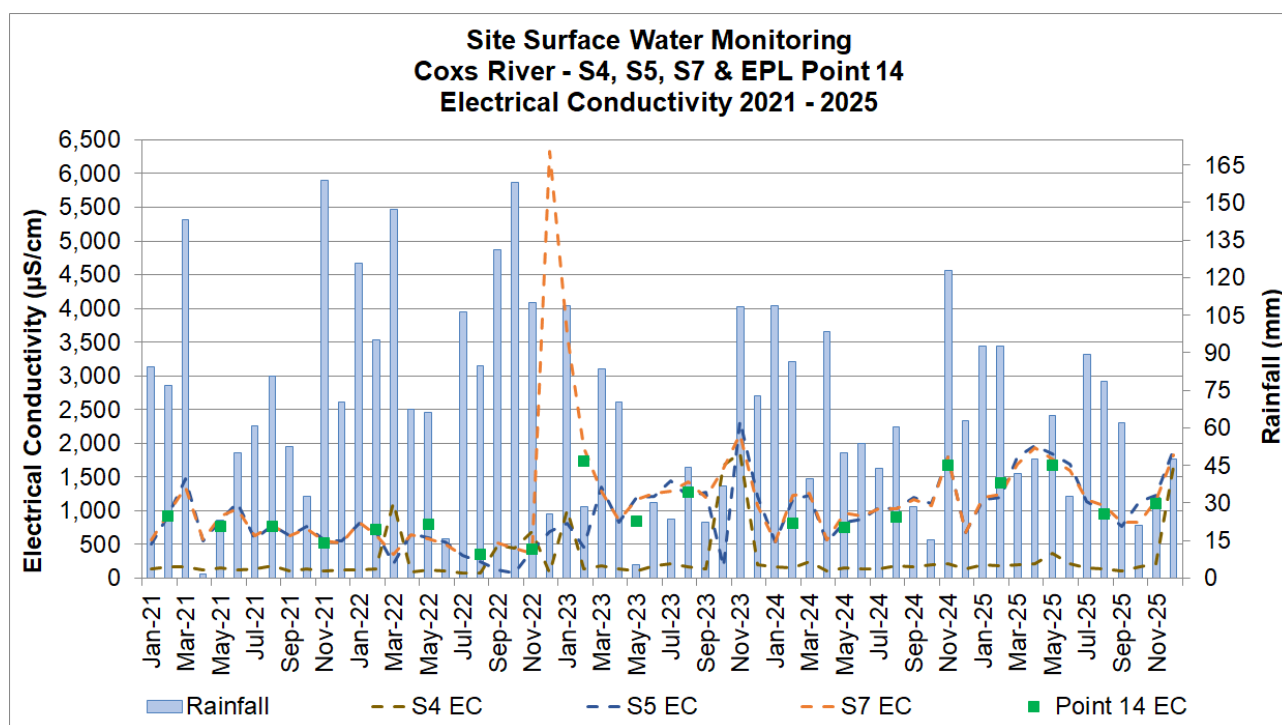


Figure 6-14 S4, S5, S7 and EPL Point 14 Electrical Conductivity Results & Rainfall 2021 – 2025 (noting that EPL Point 14 was dry in November 2023 such that no sample was collected)

pH and electrical conductivity for Wallerawang Downstream and Water Cart Dam have been plotted with the quarterly results for Wallerawang Underground as presented in **Figure 6-15** and **Figure 6-16** below.

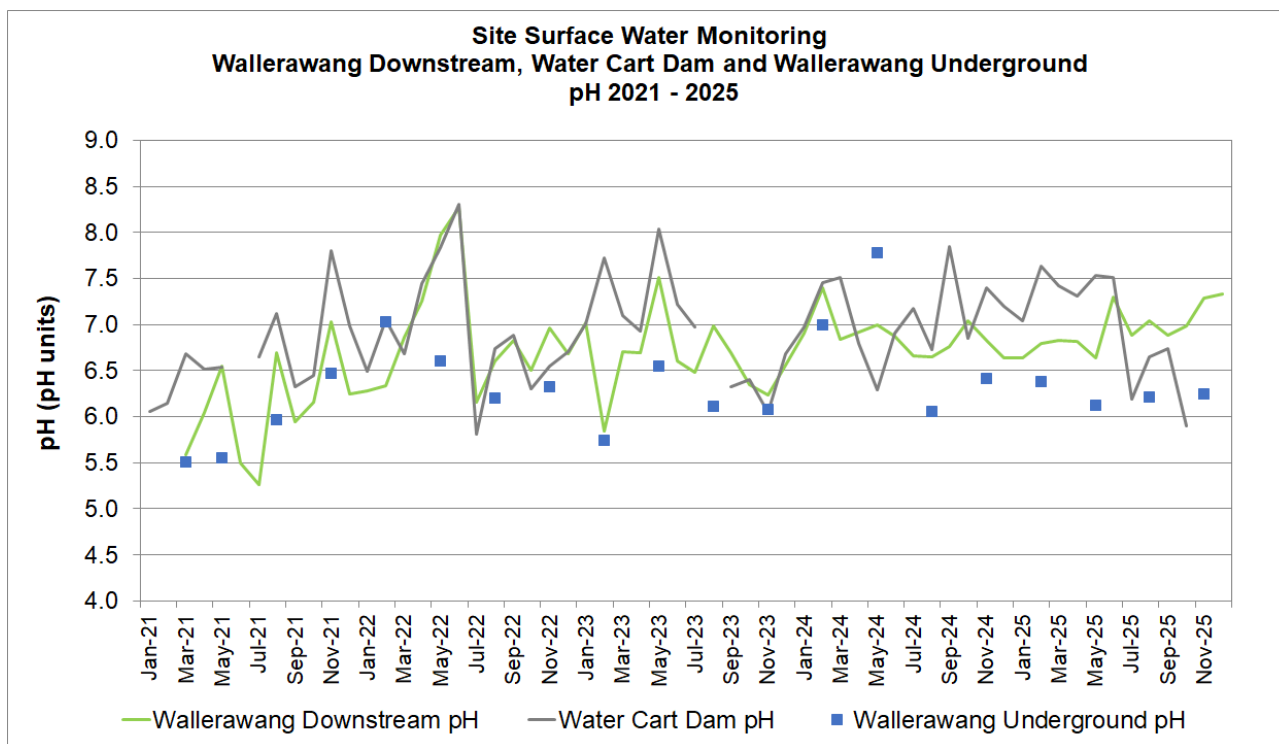


Figure 6-15 Wallerawang Downstream, Water Cart Dam and Wallerawang Underground pH Results 2021 – 2025 (noting that data gaps are when Water Cart Dam was dry and dates prior to the commencement of sampling at Wallerawang Downstream and Underground)

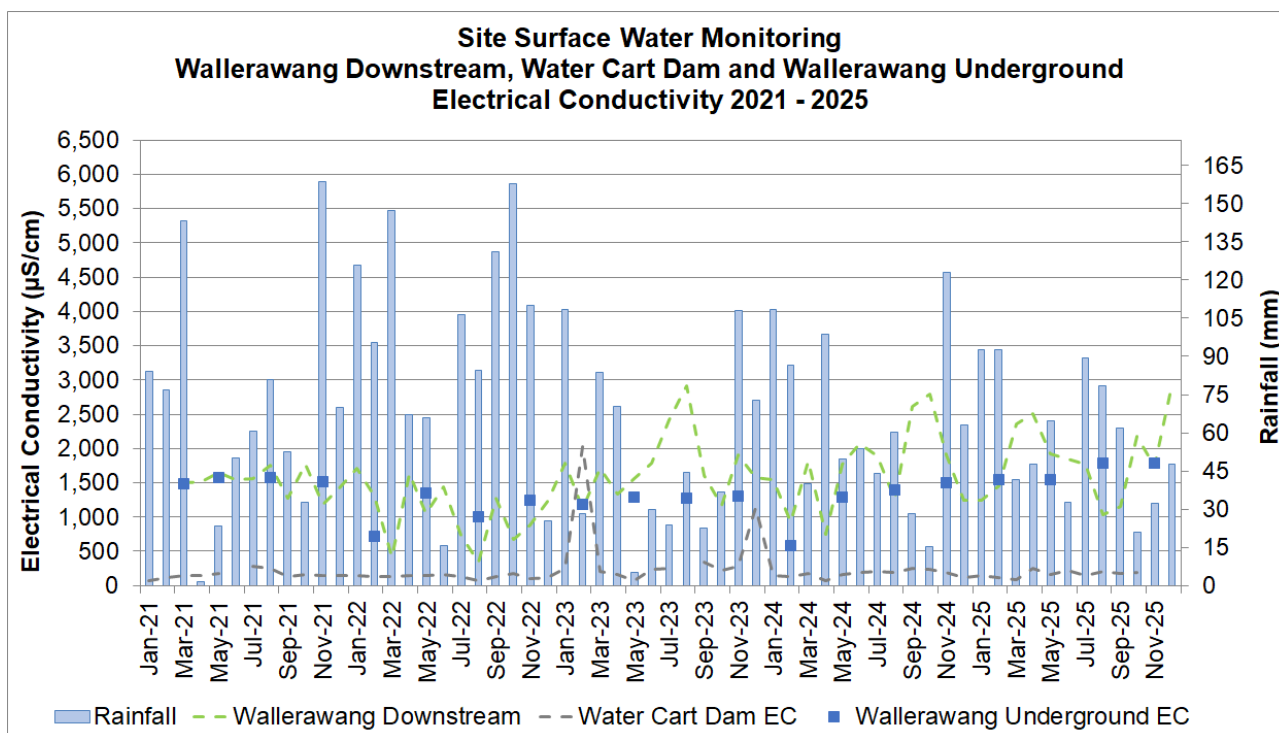


Figure 6-16 Wallerawang Downstream, Water Cart Dam and Wallerawang Underground Electrical Conductivity Results 2021 – 2025 (noting that data gaps are when Water Cart Dam was dry and dates prior to the commencement of sampling at Wallerawang Downstream and Underground)

6.5 CHANNEL STABILITY AND STREAM HEALTH MONITORING

Channel stability and stream health monitoring of Wangcol Creek is conducted on a six-monthly basis in accordance with PA 10_0041 and the WMP. Monitoring was conducted in March and September 2025. It is noted that additional inspections are undertaken on a voluntary basis each month.

Monitoring is conducted at four (4) monitoring points along Wangcol Creek (SH1, SH2, SH3 & SH3A) and one (1) location at Coxs River (SH5), which is downstream of Blue Lake (refer **Plan 3b, Appendix A**). An additional location at Blue Lake (SH4) is also included to allow for visual observation of the condition of the water bodies.

The monitoring involves an observational survey which provides a description of the locations and dimensions of erosive features. Indicators then produce a rating based on a scoring system. The combined total score of the indicators then ranks each monitoring location from very actively eroding through to very stable. This assessment enables determinations to be made as to whether the section of creek has changed over time from the classification derived during the original baseline survey. The criteria and scoring methodology are based on the CSIRO Ephemeral Stream Assessment protocol (Ref [5]).

A baseline assessment of channel stability, stream health and vegetation health of Wangcol Creek and Coxs River undertaken in 2013 indicated the drainage lines were classified as 'potentially stabilising.'

Follow-up (six-monthly) assessments have been conducted at the same monitoring locations; results are presented **Figure 6-17**. Generally, the stability of all the locations has remained consistent or increased with the exception of decrease in classification based on a loss of vegetation in October 2019 presumed to be due to below average rainfall (drought conditions). Locations SH1 and SH2 were considered 'stable', SH3 was considered 'potentially stabilising' and SH5 was considered 'very stable' during the 2025 assessment, noting that the stability at SH3A is based on the presence of spray-concrete lining.

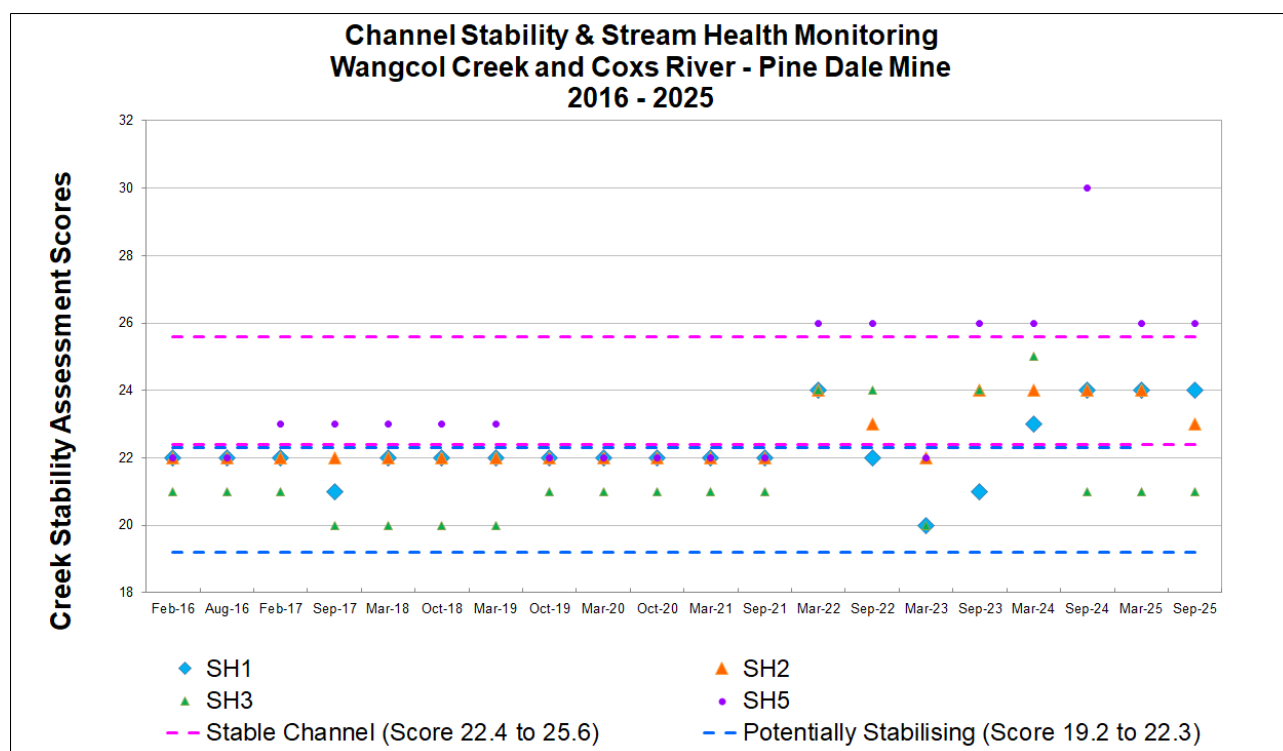


Figure 6-17 Channel Stability and Stream Health Scores during 2016 – 2025

Detailed results are presented in **Appendix B**.

7 REHABILITATION

Rehabilitation works at PDM are conducted in accordance with rehabilitation objectives in the approved PDM RMP (Ref [3]). Rehabilitation performance criteria documented in the PDM RMP define the performance indicators, measuring criteria, status and progress of rehabilitation at PDM.

PDM is made up of a series of rehabilitation areas, comprising a series of parcels of land which are at various stages of being progressively rehabilitated back to the agreed post rehabilitation land use (acceptable post-mining land use and capability). This includes Areas A, B, C and 8. As the Yarraboldy Extension may form part of future mining operations, only temporary maintenance activities have and will be undertaken within this area. The location of each rehabilitation domain is depicted in **Plan 4, Appendix A**.

A soil assessment and revised rehabilitation strategy was developed in 2014 by an agronomist (Ref [6]) and the recommendations were incorporated into the PDM RMP (Ref [3]).

The principal revegetation technique currently employed is direct seeding using native tree and shrub species for areas intended as woodland communities and pasture species for areas intended for agricultural activities.

The proposed final landform aims to emulate the pre-mining environment and to enhance local and regional ecological linkages across the site and surrounding areas.

Maintenance rehabilitation works undertaken within the reporting period comprised topsoiling and mulching of the eastern portion of ML1578 in February / March 2023. A photograph of the area as per September 2024 is presented in **Photograph 7-1**.



Photograph 7-1 *Rehabilitated area within ML1578 looking east in September 2024.*

7.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

7.1.1 AGREED POST REHABILITATION LAND USE

Areas of privately owned land within PDM (Area B, C & 8) have been returned to pasture for agricultural purposes, including grazing, as per the approved rehabilitation strategy and landholder preferences.

The principal aim for the final land use of the Yarraboldy Extension rehabilitation area (including Area A) is for native vegetation conservation and for the use of Forests NSW. The Rehabilitation domains are shown in **Plan 4, Appendix A**.

7.1.2 REHABILITATION STATUS SUMMARY

A summary of the rehabilitation status for the previous (2024), current (2025) and future (2026) reporting periods are presented in **Table 7-1**.

Table 7-1 Rehabilitation Area Summary

| Mine Area Type | Area Affected/Rehabilitated (ha) | | |
|-------------------------------------------|----------------------------------|--------------------------------|----------------------------------|
| | 2024 reporting period (Actual) | 2025 reporting period (Actual) | 2026 reporting period (Forecast) |
| A. Total Mine Footprint | 98.1 | 98.1 | 98.1 |
| B. Total active disturbance | 56.8 | 56.8 | 56.8 |
| C. Land being prepared for rehabilitation | 0 | 0 | 0 |
| D. Land under active rehabilitation | 7 | 7 | 7 |
| E. Completed Rehabilitation | 25.4 | 25.4 | 25.4 |

A rehabilitation status survey is undertaken annually, and the monitoring report provides an overview of the rehabilitation status of PDM and recommendations for the improvement of rehabilitation outcomes in reference to the approved completion criteria. The survey comprises six (6) previously established monitoring transects: four (4) transects are located within rehabilitated pastures and two (2) transects are within treed rehabilitation areas. An additional two (2) transects exist as analogue sites in grazed pasture and undisturbed naturally vegetative areas to provide benchmarks against the pasture and treed rehabilitation areas.

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) shows (Figure 1 of that report) the location of the transects along with the results of the survey and comparative photographs.

The 2025 rehabilitation status as compared against the performance indicators and completion criteria as defined in the PDM RMP (Ref [3]) are reported in the Rehabilitation Monitoring Report (**Appendix C**).

7.1.3 YARRABOLDY EXTENSION REHABILITATION PERFORMANCE

To minimise dust dispersion and soil erosion, overburden stockpiles located within the northern area of the Yarraboldy Extension have been re-contoured and seeded with pasture species.

The amenity bund located along the southern boundary of the Yarraboldy Extension was re-profiled in 2014, with the southern batter having a gradient of 18° to minimise erosion and enhance establishment of seedlings.

During the reporting period, maintenance works was not required to be undertaken in the Yarraboldy Extension. No rehabilitation maintenance activities were undertaken. The vegetative cover at the start of the monitoring period on the bund is shown in **Photograph 7-2**.



Photograph 7-2 *Amenity Bund looking northeast, January 2025*

7.1.4 **AREA A REHABILITATION PERFORMANCE**

Area A is a treed rehabilitation area located in the southern area of PDM, south-east of the Yarraboldy Extension (refer to **Plan 4, Appendix A**). During 2008, seeding was commenced in Area A (8 ha) and 1500 trees were planted. In 2010, an additional 400 trees were planted. Further direct seeding and application of an organic mulch layer and lime occurred in October 2013; however, drought conditions late in 2013 limited the outcomes of this work.

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) indicated that the total living groundcover within the monitoring transects in Area A (transect 5 and transect 6) was 90%, predominantly comprised of perennial cover (80%, an increase) with lesser (10%) annual living cover from the previous year. Litter cover and bare surface decreased at both transects.

Comparative photographs are presented in **Appendix C**.

The locations of the nesting boxes installed in Area A are presented in **Figure 7-1** below; indicative photographs of the boxes are presented in **Photograph 7-3**.

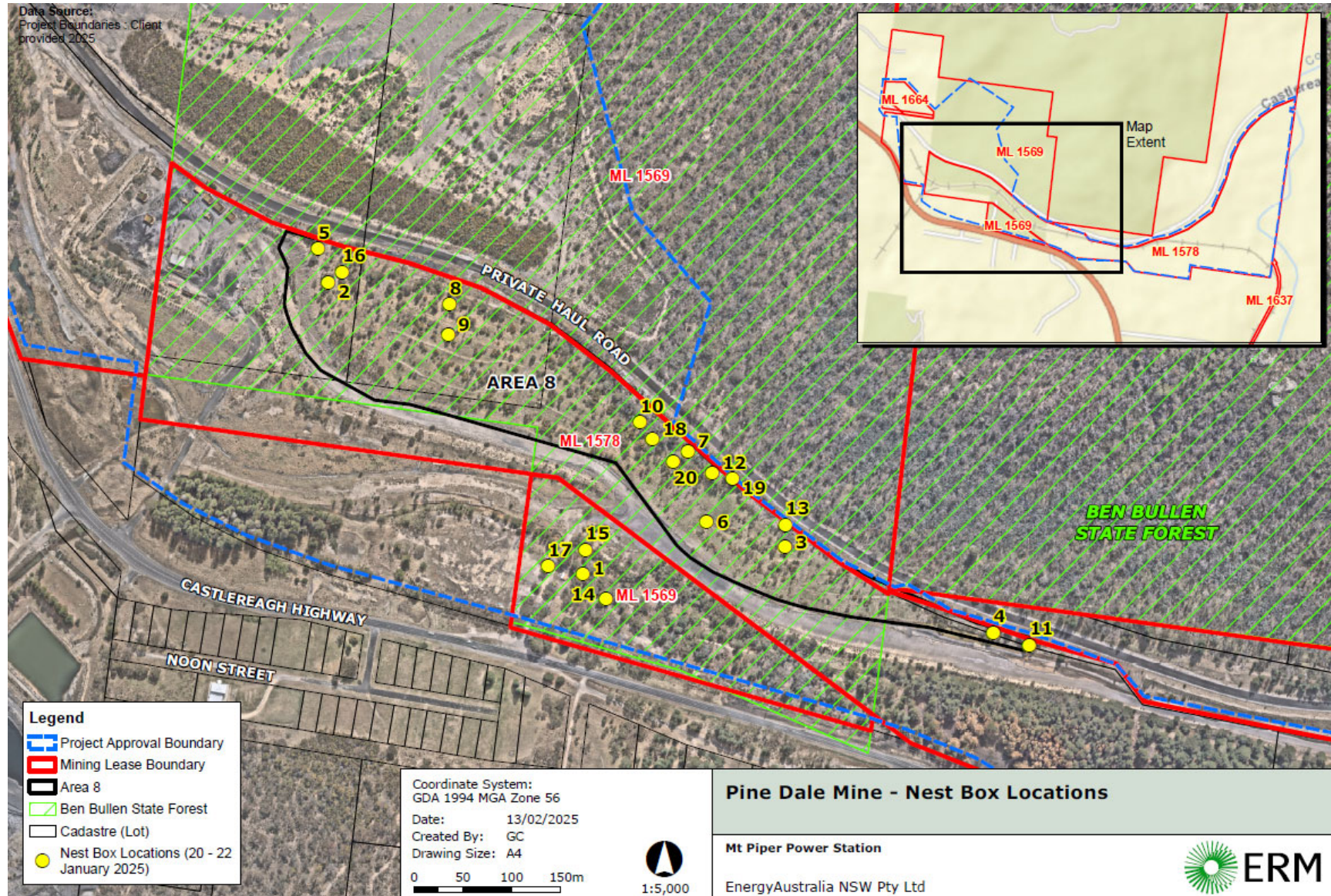


Figure 7-1 Map of Nesting Box Locations within Area A



Photograph 7-3 *Location and Indicative Photographs of Nesting Boxes within Area A*

7.1.5 AREA B AND C REHABILITATION PERFORMANCE

Rehabilitation Areas B and C are located in the eastern area of PDM; the locations are shown in **Plan 4, Appendix A**. Area B and C cover an area of approximately 25ha in total and have been rehabilitated as pasture. The final landform and water management structures have been completed and the areas seeded for pasture in accordance with PA 10_0041 and the requirements of the landowner.

The 2018 SLR Rehabilitation and Completion Assessment report (Ref [2]) indicated that rehabilitation has been successfully completed in Area B and C and all completion criteria defined in the PDM RMP (Ref [3]) had been met.

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) documented the following findings for Area B and C (transects 1, 2 and 3):

- Total living cover / Rehabilitated pasture surfaces in the three (3) transect areas support living groundcover of greater than 90%.
- Natural regeneration of groundcover species is evident across all the pasture rehabilitation areas.
- Target weed presence comprises African Lovegrass at <10% of the pasture sward.

Comparative photographs are presented in **Appendix C**.

7.1.6 AREA 8 REHABILITATION PERFORMANCE

Area 8 is a pasture rehabilitation area located in the south-eastern area of PDM, immediately south of Area B. The location of Area 8 is shown in **Plan 4, Appendix A**. The vegetation communities prior to mining include a mixture of cleared land, pasture, pines and eucalyptus. Seeding of Area 8 (10 ha) commenced in 2008, with a pasture mixture known as 'Coxs River Mix'.

The 2018 SLR Rehabilitation and Completion Assessment report (Ref [2]) indicated that rehabilitation has been successfully completed in Area 8 and all completion criteria defined in the PDM RMP (Ref [3]) have been met.

The PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) documented the following findings for Area 8 (transect 4):

- Total living cover / Rehabilitated pasture surfaces in the transect area supports living groundcover of greater than 90%.
- Natural regeneration of groundcover species is evident across all the pasture rehabilitation areas.
- Target weed presence comprises African Lovegrass at >10% of the pasture sward.

Comparative photographs are presented in **Appendix C**.

7.1.7 ADDITIONAL REHABILITATION MAINTENANCE WORKS

There were no additional rehabilitation or maintenance works undertaken or required to be undertaken during the reporting period.

7.1.8 RENOVATION / REMOVAL OF BUILDINGS

No buildings were renovated or removed during the reporting period.

7.1.9 REHABILITATION FORMAL SIGN OFF

There were no areas of rehabilitation which acquired formal sign off from the Resources Regulator during the reporting period.

7.1.10 REHABILITATION TRIALS AND RESEARCH

There were no rehabilitation trials or research undertaken during the reporting period.

7.1.11 THREATS TO REHABILITATION SUCCESS

Threats to rehabilitation at PDM have been identified in the PDM RMP Risk Assessment (Ref [3]). PDM successfully maintained the mitigation and management measures during the 2025 reporting period.

Bushfire was the dominant threat during late 2019 and early January 2020; the PDM 2025 Rehabilitation Monitoring Report (**Appendix C**) indicated that fuel loads within all rehabilitation areas were low and fuel hazard mitigation activities were not required. Details regarding firefighting access tracks, fire breaks and emergency response measures are detailed in **Section 5.14**.

7.2 ACTIONS FOR THE 2026 REPORTING PERIOD

Maintenance and rehabilitation activities recommended in the PDM RMP (Ref [3]) will continue on areas not directly impacted by future mining operations throughout 2026 (sediment fences, fertilising, re-seeding, weed control etc), where required and as conditions allow.

As per the recommendations made in the PDM 2025 Rehabilitation Monitoring Report (**Appendix C**), further weed spraying is proposed, specifically to address the increase in *African Lovegrass* in Area 8. The landowner has cattle on the successfully rehabilitated land and weed spraying will be undertaken in consultation with the landowner.

The 2018 SLR Rehabilitation and Completion Assessment report (Ref [2]) confirms that rehabilitation has been successfully completed in Areas B, C and 8 and all completion criteria defined in the PDM RMP (Ref [3]) has been successfully achieved. The process for the relinquishment of rehabilitation responsibilities of Areas B, C and 8 was continued throughout the 2025 reporting period and it is anticipated to be finalised in the 2026 reporting period, subject to arrangements with the landholders.

8 COMMUNITY RELATIONS

PDM has been providing a location for the NSW Police to undertake specialist training within the reporting period. PDM neighbours were advised of the intention to utilise the site by a letter box drop undertaken by NSW Police and a Police representative addressed the February 2025 Community Consultative Committee (refer **Section 8.2.1** below) meeting to explain the purpose. A national training event was held at PDM in August 2025.

8.1 ENVIRONMENTAL COMPLAINTS

All stakeholder and community complaints, enquiries and notifications regarding PDM are documented, with appropriate actions taken as soon as possible to determine the likely cause of the incident and all possible corrective actions to resolve the problem and prevent its recurrence. Complaints, enquiries and notifications are recorded and retained at the site office in addition to monthly publication on the EnergyAustralia website. During the 2025 reporting period, there were no complaints received as summarised by **Table 8-1**.

Table 8-1 *Community Complaints, Incidents and Notifications*

| Incident Type | Incidents Received 2025 |
|----------------------------------|-------------------------|
| Noise | 0 |
| Air Quality | 0 |
| Blasting | 0 |
| Traffic | 0 |
| Water | 0 |
| Other | 0 |
| Total Complaints Received | 0 |

No complaints have been received during the last five (5) years (2021 – 2025): the last was a notification received in May 2018.

8.2 COMMUNITY

8.2.1 COMMUNITY CONSULTIVE COMMITTEE

PDM CCC commenced in January 2012 and comprises representatives from the local community and PDM. During 2017, the then Department of Planning and Environment approved an amalgamation of the PDM CCC and the regional EnergyAustralia CCC into one. The amalgamated CCC meets three (3) times per year to discuss matters relating to PDM and meeting minutes are made publicly available via the EnergyAustralia website³. During the 2025 reporting period the CCC meetings were held on 18 February, 18 May, 5 August and 30 September 2025.

8.2.2 WEBSITE INFORMATION

A website has been established to keep the broader community up to date with recent activities at the Pine Dale Mine in accordance with Schedule 5, Condition 10 of PA 10_0041; and EPL 4911. Copies of the following documents are made publicly available on the EnergyAustralia Website⁴:

³ <https://www.energyaustralia.com.au/about-us/what-we-do/generating-energy/pine-dale-coal-mine>

⁴ <https://www.energyaustralia.com.au/about-us/community>

- EPL 4911.
- Environmental Assessment.
- PA 10_0041.
- Environment Protection and Biodiversity Conservation Act 1999 Referral Decision 2011/6016.
- The Care and Maintenance Mining Operation Plan.
- Environmental Management Plans for Pine Dale Mine.
- AEMR Reports / Annual Review.
- Pollution Incident Response Management Plan.
- Independent Environmental Audits (refer **Section 9**).
- Community Consultative Committee minutes.
- Community Complaints.
- Blasting information.
- Monthly Environmental Performance reports.

8.2.3 SOCIAL AND ECONOMIC CONTRIBUTIONS

PDM has contributed to the economy of the district and NSW by providing direct employment and indirect employment through the purchase of services and materials from regional suppliers. Coal supplies to Mount Piper Power Station provide competitively priced energy for the NSW electricity market which ultimately flows through to provide economic benefit to electricity consumers.

Additionally, EnergyAustralia undertakes a community grants programme which provides funding for local initiatives that will deliver sustainable benefits for the Lithgow region. The two (2) priority areas for funding are education and social inclusion. Details of the community grants programme is provided on the EnergyAustralia website⁴.

9 INDEPENDENT ENVIRONMENTAL AUDIT

There was no requirement within PA 10_0041 for an Independent Environmental Audit (IEA) to be conducted at PDM while PDM is in Care and Maintenance: as such none was undertaken during the 2025 reporting period.

The last IEA was undertaken in August 2014. Copies of the audit report, the audit Action Plan and the auditor's recommendations and proposed actions by PDM are provided on the EnergyAustralia website.

As per the conditions of PA 10_0041, no further IEA are required at PDM providing the Care and Maintenance status is maintained.

10 INCIDENTS AND NON-COMPLIANCES

During the 2025 reporting period, there were instances of non-compliance in relation to:

- The Old Shaft is no longer sampled as it is not safe to do so. Samples were collected from Wallerawang Underground as a suitable safe alternative site; the WMP (Ref [4]) will be updated accordingly to reflect this.

- Sampling from Bore E within the Yarraboldy extension could not be undertaken due to access and safety issues.

There were no reportable incidents, official cautions, warning letters, penalty notices or prosecution proceedings by any regulatory body during the reporting period.

The January result for dust gauge D6 increased by more than the NSW EPA threshold of 2 g/m² from the December 2024 result. The results are not considered to be related to PDM as there are no operations or activities occurring during Care and Maintenance.

There were several exceedances of the water quality triggers for surface water and groundwater during the reporting period. These are considered to be due to upstream influences in Wangcol Creek and Coxs River outside of the control of PDM. As stated in **Section 6.2.2** intermittent exceedances of the groundwater trigger levels are not considered to be due to activities undertaken by PDM, rather are due to external factors such as climate.

11 PROPOSED ACTIVITIES IN THE NEXT REPORTING PERIOD

The activities proposed for the 2026 reporting period are consistent with the PDM RMP (Ref [3]). Rehabilitation activities set out in the PDM RMP will be transitioned across into a new Rehabilitation Management Plan inclusive of Rehabilitation Objectives, Completion Criteria and Final Landform Plan. These will remain substantially consistent with that already set out in the PDM RMP. General maintenance will be undertaken at the site in addition to rehabilitation activities including weed management and fertilising as required.

11.1 MINING

All recoverable coal within the approved mining area was extracted during early 2014. No mining activities are proposed during 2025.

11.2 FUTURE MINING DEVELOPMENT

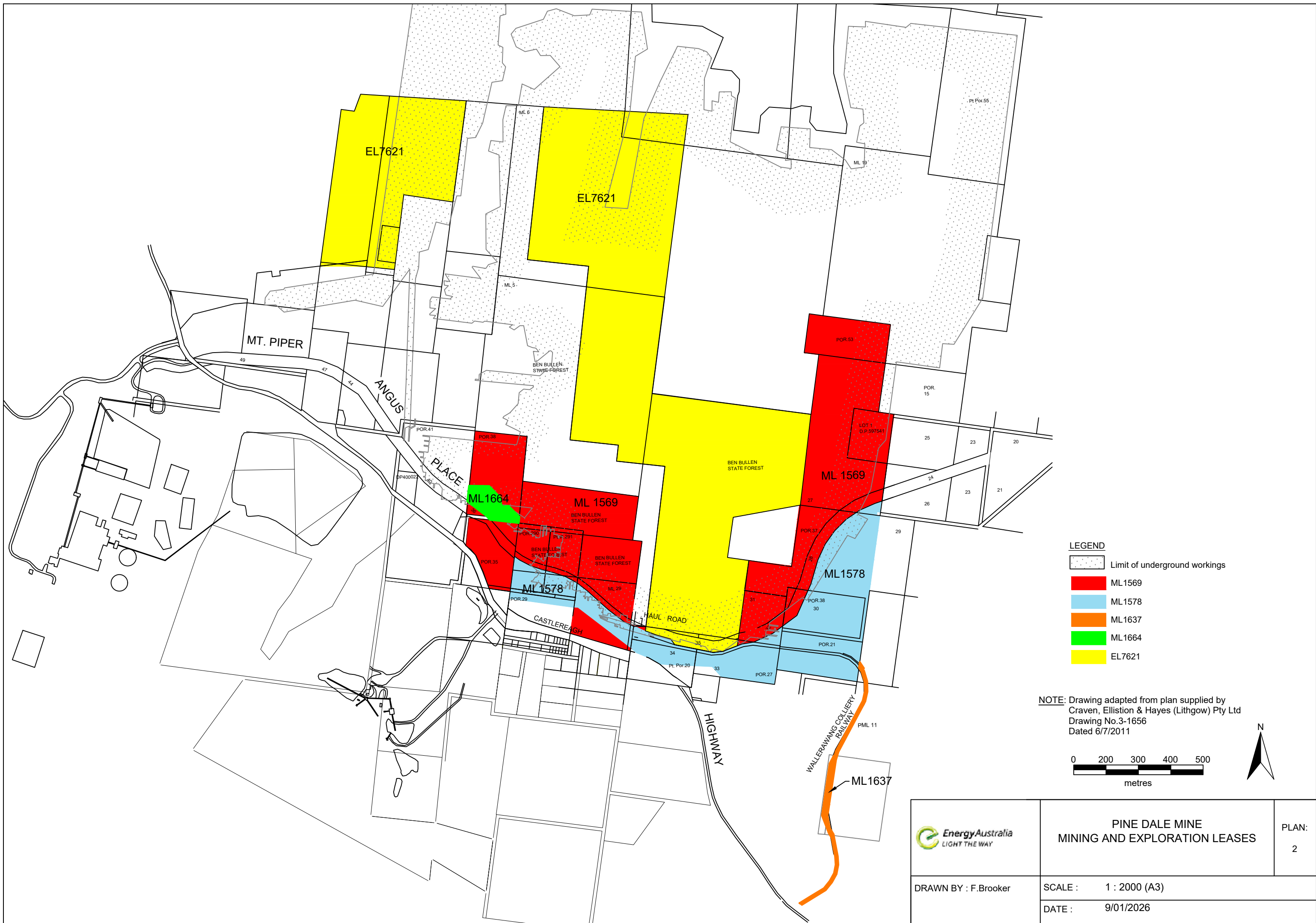
Subject to market conditions, in order to maintain supply of commercial coal to Mount Piper Power Station, Enhance Place may consider lodging an application with the DPHI to extend the existing mining operations. This will be subject to ongoing feasibility assessments associated with coal extraction within the existing authorisations.

11.3 DOCUMENT REVIEWS

The PDM WMP (Ref [4]) is being reviewed for consistency with current arrangements. The Environmental Management Strategy and other environmental Management Plans will be updated to reflect the current status of the site while in Care and Maintenance

REFERENCES

- [1] NSW Government, *Annual Review Guideline*, October 2015.
- [2] SLR, *Pine Dale Mine Rehabilitation Completion Assessment*, SLR ref 630.12362-R01, 2018.
- [3] EnergyAustralia, *Pine Dale Mine Rehabilitation Management Plan*, July 2022
- [4] Enhance Place Pty Limited, *Water Management Plan for the Pine Dale Coal Mine (Including the Yarraboldy Extension)*, August 2015.
- [5] CSIRO, *Ecosystem Function Analysis – Ephemeral Stream Assessment Protocol*.
- [6] SLR, *Soil Assessment and Recommendations for Rehabilitated Areas: Pine Dale Mine and Enhance Place*, November 2014.

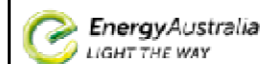
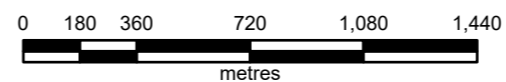




LEGEND

- ▲ Noise monitoring location
- Depositional dust monitoring location
- Groundwater monitoring location
- Surface water monitoring location
- Historic High Volume Air Sampling Location
- Meteorological monitoring location (up until 10 November 2021)
- Meteorological monitoring location (from 10 November 2021)

Note: Aerial taken from ArcGis Base Map,
23 May 2023
Coordinate System GDA 1994 Zone 56



DRAWN BY : F. Brooker

**PINE DALE MINE
ENVIRONMENTAL MONITORING
LOCATION PLAN**

PLAN:
3a

SCALE: 1:24,000 (A3)

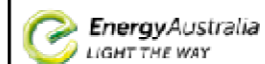
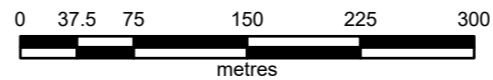
DATE: 9/01/2026



LEGEND

- Monitoring location
- Licence discharge point location
- Clean water diversion location

Note: Aerial taken from ArcGis Base Map,
23 May 2023
Coordinate System GDa 1994 Zone 56



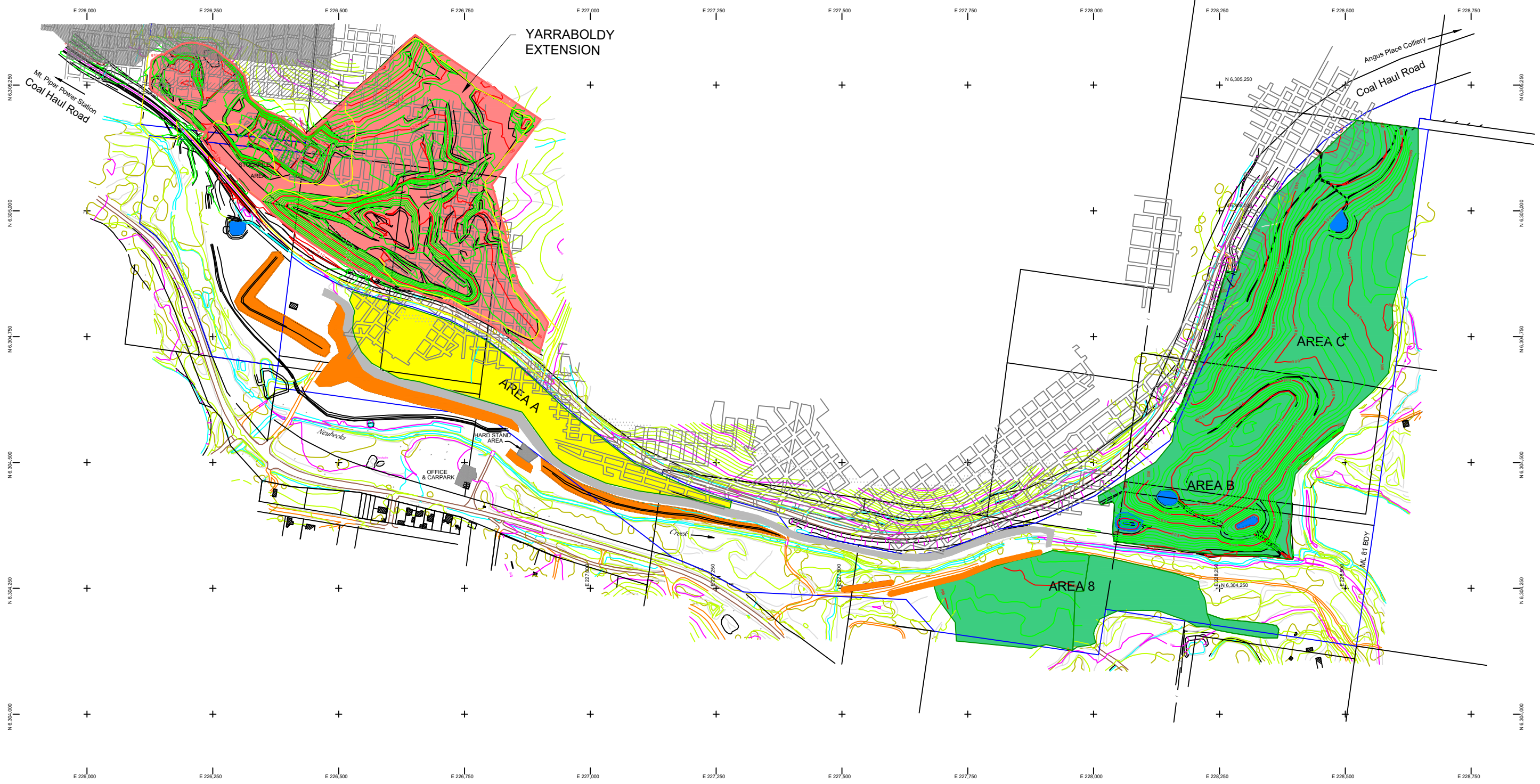
DRAWN BY : F. Brooker

**PINE DALE MINE
ENVIRONMENTAL MONITORING
CHANNEL STABILITY, STREAM AND
VEGETATIVE HEALTH
MONITORING SITES**

PLAN:
3b

SCALE: 1:5,000 (A3)

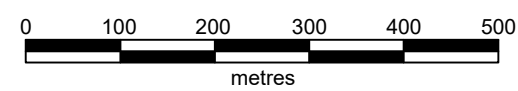
DATE: 9/01/2026




LEGEND

- Yarraboldy Extension Area (21.9ha)
- Rehabilitation Area - Native Forest (7.1ha)
- Rehabilitation Area - Pasture (25.4ha)
- Dams
- Bund Wall
- Road

NOTE: Drawing adapted from plan supplied by Craven, Ellistion & Hayes (Lithgow) Pty Ltd
 Drawing No. PINE AEMR13
 Dated 31/12/2013



| | | | |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------|------------|
|  | PINE DALE MINE REHABILITATION DOMAINS DECEMBER 2018 | | PLAN: 4 |
| | DRAWN BY : F. Brooker | SCALE: 1 : 8000 (A3) | |
| | DATE: 9/01/2026 | | |

ANNUAL REVIEW ENVIRONMENTAL SUMMARY 2025

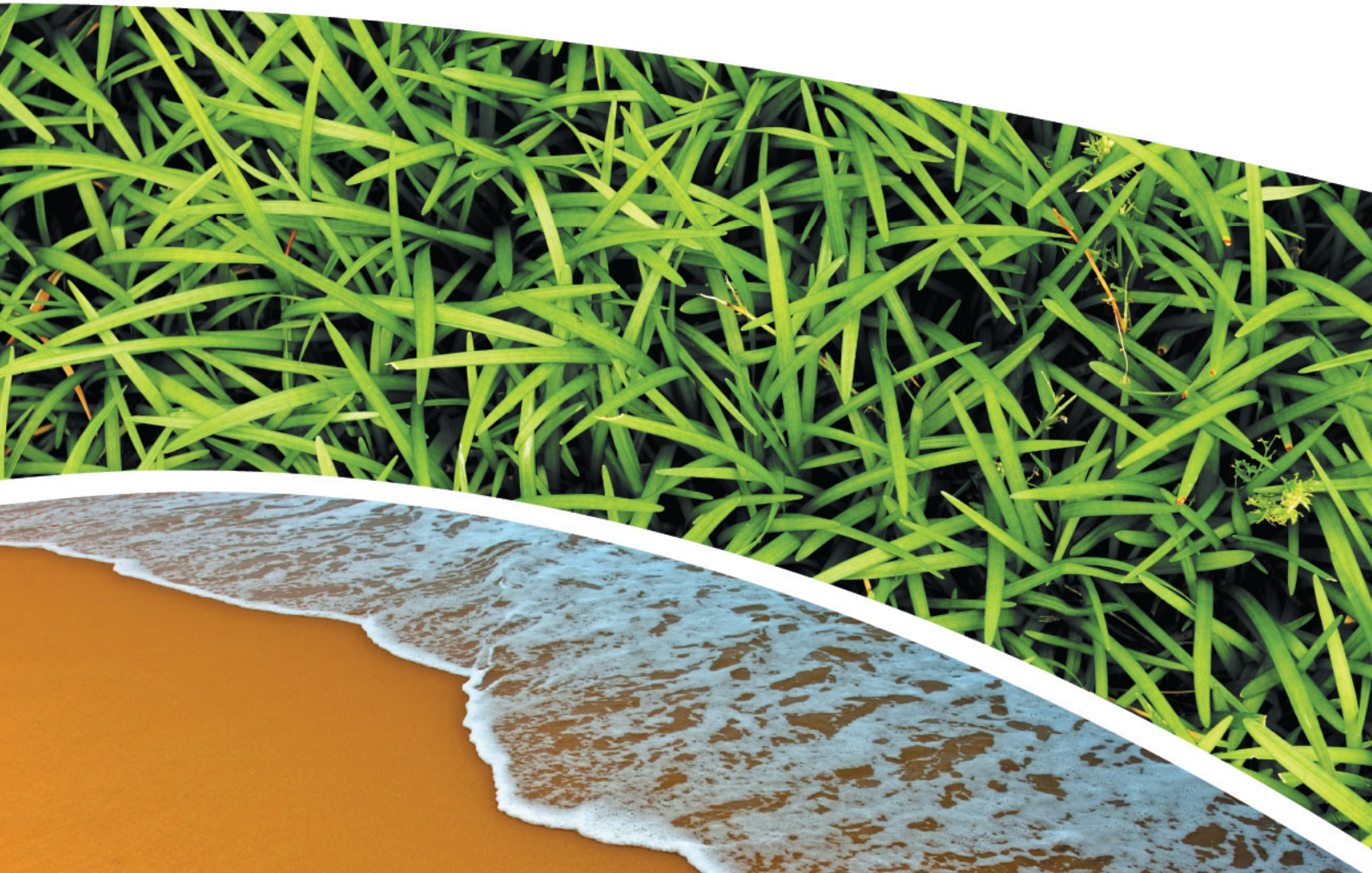
PINE DALE MINE

Prepared for ENHANCE PLACE PTY Limited

Prepared by RCA Australia

RCA ref 6880g-326/0 APPENDIX B

FEBRUARY 2026



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|-----------------|--------------------------------------------------------------------------|----------|-----------|--------------------------------------|-------------------------------------------------------------------------------------|------------|
| Rev No | Comment | Author | Reviewer | Approved for Issue (Project Manager) | | |
| | | | | Name | Signature | Date |
| /0 | Final provided as Appendix B to Pine Dale Mine Annual Review 2025 report | D Bucior | F Brooker | F Brooker |  | 24.02.2026 |

| DOCUMENT DISTRIBUTION | | | | |
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24 February 2026

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Attention: Mr Graham Goodwin

| |
|--------------------------------|
| Geotechnical Engineering |
| Engineering Geology |
| Environmental Engineering |
| Hydrogeology |
| Construction Materials Testing |
| Environmental Monitoring |
| Noise & Vibration |
| Occupational Hygiene |

**ANNUAL REVIEW ENVIRONMENTAL SUMMARY 2025
COMPILED FOR PINE DALE MINE
JANUARY – DECEMBER 2025**

EXECUTIVE SUMMARY

Pine Dale Mine achieved an acceptable standard of environmental performance during the 2025 reporting period, as evidenced by the following:

- Air quality monitoring results recorded during the reporting period for depositional dust were below the Project Approval (PA 10_0041, Ref [2])) and Environment Protection Licence (EPL 4911, Ref [1]) limits in Blackmans Flat and other privately owned properties adjacent to the Mining Leases.
 - The January 2025 results for DG6 represented an increase of more than the 2 g/m² per month deposited matter from the December 2024 results and the results are considered related to insects and other organic matter. As PDM has been in Care and Maintenance with no specific soil disturbance activities undertaken, the results are not considered indicative of impact from PDM.
- There were no surface water discharge events during the reporting period; and monitoring was conducted in accordance with EPL 4911 and the site Water Management Plan.
- Surface water and groundwater quality were assessed against the respective trigger levels that showed varied results which were generally consistent with previous years.
- There were no community complaints throughout the 2025 reporting period.

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Attachments

ATTACHMENT 1

DRAWING 1 – ENVIRONMENTAL MONITORING LOCATIONS

DRAWING 2 – STREAM HEALTH & CHANNEL STABILITY MONITORING LOCATIONS

1 INTRODUCTION

The following report provides a summary of monthly environmental monitoring data for Pine Dale Mine (PDM) for the period January – December 2025. The 2025 environmental summary data includes:

- Depositional dust monitoring.
- Groundwater monitoring.
- Surface water monitoring.
- Meteorological monitoring.
- Channel stability and stream health monitoring.
- Noise monitoring.

This report satisfies the requirements to monitor environmental parameters as presented in the PDM Environment Protection Licence (EPL 4911, Ref [1]) and Project Approval (PA 10_0041, (Ref [2]). Monitoring is also undertaken in general accordance with the PDM: Water Management Plan (Ref [3]); Air Quality and Greenhouse Gas Management Plan (Ref [4]; Purple Copper Butterfly Monitoring Programme (Ref [5]); and Noise Management Plan (Ref [6]).

A compliance assessment of each environmental monitoring parameter is made in accordance with the relevant assessment criteria outlined in EPL 4911, Project Approval and the PDM Management Plans.

It is noted that quarterly reports have been issued with the monitoring data for the majority of the year; this report is the only presentation of the October to December quarter for air quality, groundwater, surface water and meteorological data.

2 AIR QUALITY MONITORING

2.1 ASSESSMENT CRITERIA

The PDM Project Approval (Schedule 3 Condition 18, Ref [2]) and Air Quality and Greenhouse Gas Management Plan (Ref [4]) stipulates that dust emissions generated by the project must not cause additional exceedances of the long-term impact assessment criteria listed in **Table 1**.

Table 1 *Air Quality Assessment Criteria*

| Pollutant | Average Period | Assessment Criteria | |
|------------------|----------------|------------------------------------------|------------------------------------------|
| ° Deposited dust | Annual | Maximum increase in deposited dust level | Maximum total deposited dust level |
| | | ^b 2.0 g/m ² .month | ^a 4.0 g/m ² .month |

^a Total impact (incremental increase in concentrations due to the project plus background concentrations due to other sources).

^b Incremental impact (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/NZS3580.10.1 (Ref [7]).

Criteria excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed to by the Director-General in consultation with Department of Planning and Environment (DPIE).

2.2 AIR MONITORING RESULTS

Depositional dust monitoring is undertaken at nine (9) locations across PDM.

A total of five (5) depositional dust gauges are monitored in accordance with EPL 4911 (Ref [1]) and the Air Quality and Greenhouse Gas Management Plan (Ref [4]). One (1) dust gauge is located within the settlement of Blackmans Flat (gauge D1) and one (1) is located to the east of Blackmans Flat (gauge D3). The remaining three (3) gauges (D4, D5 & D6) were installed in November 2006 to coincide with the commencement of mining in Areas B & C. Gauge D4 is located to the north of View St, Blackmans Flat and gauges D5 & D6 are located to the east of Mining Areas B & C, along Wolgan Road, Lidsdale (refer **Drawing 1, Attachment 1**).

The remaining four (4) depositional dust gauges are monitored in accordance with the Purple Copper Butterfly Monitoring Programme (Ref [5]) to assess the level of dust present at each location to aid in the study of the Purple Copper Butterfly population. These gauges are: PCB1, PCB2, PCB3 and PCB7. Three (3) of the dust gauges were located within what was the major butterfly population to the east of the mine workings in the Yarraboldy Extension (PCB1, PCB2 and PCB3); whilst the fourth dust gauge (PCB7) is located to the south-west of the butterfly habitat area (refer **Drawing 1, Attachment 1**).

Depositional dust summary results for the period January – December 2025 are shown in **Table 2** to **Table 10**. Graphical presentations are shown in **Figures 1** and **2**. A discussion of results is presented in **Section 2.3**.

Table 2 *Depositional Dust Data Summary Dust Gauge D1 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 1.9 | 0.8 | 1.1 |
| Feb-25 | 1.4 | 0.5 | 0.9 |
| Mar-25 | 0.5 | 0.2 | 0.3 |
| Apr-25 | 0.9 | 0.4 | 0.5 |
| May-25 | 0.5 | 0.3 | 0.2 |
| Jun-25 | 0.4 | 0.2 | 0.2 |
| Jul-25 | 0.7 | 0.2 | 0.5 |
| Aug-25 | 0.8 | 0.2 | 0.6 |
| Sep-25 | 0.8 | 0.2 | 0.6 |
| Oct-25 | 1.2 | 0.4 | 0.8 |
| Nov-25 | 1.6 | 0.9 | 0.7 |
| Dec-25 | 1.5 | 0.8 | 0.7 |
| Annual Average | 1.0 | 0.4 | 0.6 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 3 *Depositional Dust Data Summary Dust Gauge D3 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 1.2 | 0.7 | 0.5 |
| Feb-25 | 1.1 | 0.7 | 0.4 |
| Mar-25 | 0.4 | 0.2 | 0.2 |
| Apr-25 | 1.0 | 0.3 | 0.7 |
| May-25 | 0.1 | <u>0.05</u> | 0.1 |
| Jun-25 | 0.3 | 0.1 | 0.2 |
| Jul-25 | 0.6 | 0.3 | 0.3 |
| Aug-25 | 0.6 | 0.4 | 0.2 |
| Sep-25 | 0.5 | 0.2 | 0.3 |
| Oct-25 | 1.0 | 0.5 | 0.5 |
| Nov-25 | 0.7 | 0.4 | 0.3 |
| Dec-25 | 1.0 | 0.6 | 0.4 |
| Annual Average | 0.7 | 0.4 | 0.3 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 4 *Depositional Dust Data Summary Gauge D4 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 1.0 | 0.4 | 0.6 |
| Feb-25 | 1.2 | 0.5 | 0.7 |
| Mar-25 | 0.2 | 0.1 | 0.1 |
| Apr-25 | 1.5 | 0.3 | 1.2 |
| May-25 | 0.1 | <u>0.05</u> | 0.1 |
| Jun-25 | 0.9 | 0.2 | 0.7 |
| Jul-25 | 0.5 | 0.1 | 0.4 |
| Aug-25 | 0.2 | 0.2 | <u>0.05</u> |
| Sep-25 | 0.1 | <u>0.05</u> | 0.1 |
| Oct-25 | 0.7 | 0.2 | 0.5 |
| Nov-25 | 0.9 | 0.4 | 0.5 |
| Dec-25 | 0.5 | 0.3 | 0.2 |
| Annual Average | 0.7 | 0.2 | 0.4 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 5 *Depositional Dust Data Summary Gauge D5 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 2.0 | 0.6 | 1.4 |
| Feb-25 | 0.9 | 0.4 | 0.5 |
| Mar-25 | 0.8 | 0.3 | 0.5 |
| Apr-25 | 1.5 | 0.9 | 0.6 |
| May-25 | 0.4 | 0.2 | 0.2 |
| Jun-25 | 1.0 | 0.6 | 0.4 |
| Jul-25 | 0.7 | 0.3 | 0.4 |
| Aug-25 | 0.9 | 0.6 | 0.3 |
| Sep-25 | 0.7 | 0.3 | 0.4 |
| Oct-25 | 1.2 | 0.7 | 0.5 |
| Nov-25 | 0.9 | 0.5 | 0.4 |
| Dec-25 | 0.3 | 0.2 | 0.1 |
| Annual Average | 0.9 | 0.5 | 0.5 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 6 *Depositional Dust Data Summary Gauge D6 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 6.7 | 5.2 | 1.5 |
| Feb-25 | 2.2 | 1.4 | 0.8 |
| Mar-25 | 0.5 | 0.2 | 0.3 |
| Apr-25 | 0.9 | 0.6 | 0.3 |
| May-25 | 0.5 | 0.3 | 0.2 |
| Jun-25 | 0.3 | 0.1 | 0.2 |
| Jul-25 | 0.4 | 0.2 | 0.2 |
| Aug-25 | 0.4 | 0.2 | 0.2 |
| Sep-25 | 0.3 | 0.1 | 0.2 |
| Oct-25 | 0.6 | 0.3 | 0.3 |
| Nov-25 | 0.9 | 0.5 | 0.4 |
| Dec-25 | 0.6 | 0.4 | 0.2 |
| Annual Average | 1.2 | 0.8 | 0.4 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 7 *Depositional Dust Data Summary Gauge PCB1 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 2.4 | 0.6 | 1.8 |
| Feb-25 | 1.3 | 0.4 | 0.9 |
| Mar-25 | 1.5 | 0.3 | 1.2 |
| Apr-25 | 1.0 | 0.4 | 0.6 |
| May-25 | 0.6 | 0.2 | 0.4 |
| Jun-25 | 0.7 | 0.1 | 0.6 |
| Jul-25 | 0.9 | 0.1 | 0.8 |
| Aug-25 | 0.4 | 0.2 | 0.2 |
| Sep-25 | 0.1 | <u>0.05</u> | 0.1 |
| Oct-25 | 1.4 | 0.8 | 0.6 |
| Nov-25 | 1.3 | 0.5 | 0.8 |
| Dec-25 | 1.3 | 0.5 | 0.8 |
| Annual Average | 1.1 | 0.3 | 0.7 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 8 *Depositional Dust Data Summary Gauge PCB2 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 1.4 | 0.5 | 0.9 |
| Feb-25 | 1.1 | 0.3 | 0.8 |
| Mar-25 | 0.7 | 0.2 | 0.5 |
| Apr-25 | 0.6 | 0.1 | 0.5 |
| May-25 | 0.3 | 0.1 | 0.2 |
| Jun-25 | 0.3 | <u>0.05</u> | 0.3 |
| Jul-25 | 0.5 | 0.1 | 0.4 |
| Aug-25 | 0.3 | 0.2 | 0.1 |
| Sep-25 | 0.2 | 0.1 | 0.1 |
| Oct-25 | 0.9 | 0.3 | 0.6 |
| Nov-25 | 0.6 | 0.2 | 0.4 |
| Dec-25 | 0.6 | 0.2 | 0.4 |
| Annual Average | 0.6 | 0.2 | 0.4 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 9 *Depositional Dust Data Summary Gauge PCB3 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 1.5 | 0.5 | 1 |
| Feb-25 | 1.0 | 0.3 | 0.7 |
| Mar-25 | 1.5 | 0.2 | 1.3 |
| Apr-25 | 0.9 | 0.1 | 0.8 |
| May-25 | 0.5 | 0.1 | 0.4 |
| Jun-25 | 0.6 | <u>0.05</u> | 0.6 |
| Jul-25 | 0.5 | 0.1 | 0.4 |
| Aug-25 | 0.3 | 0.1 | 0.2 |
| Sep-25 | 0.3 | 0.1 | 0.2 |
| Oct-25 | 1.7 | 0.3 | 1.4 |
| Nov-25 | 0.9 | 0.3 | 0.6 |
| Dec-25 | 1.1 | 0.4 | 0.7 |
| Annual Average | 0.9 | 0.2 | 0.7 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

Table 10 *Depositional Dust Data Summary Gauge PCB7 January – December 2025*

| Month | Insoluble Solids (g/m ² .month) | Ash Residue (g/m ² .month) | Combustible Matter (g/m ² .month) |
|-----------------------|-----------------------------------------------|------------------------------------------|-------------------------------------------------|
| Jan-25 | 1.6 | 0.5 | 1.1 |
| Feb-25 | 1.2 | 0.5 | 0.7 |
| Mar-25 | 0.4 | 0.1 | 0.3 |
| Apr-25 | 0.5 | <u>0.05</u> | 0.5 |
| May-25 | 0.4 | <u>0.1</u> | 0.3 |
| Jun-25 | 0.3 | <u>0.05</u> | 0.3 |
| Jul-25 | 0.4 | <u>0.05</u> | 0.4 |
| Aug-25 | 0.2 | 0.1 | 0.1 |
| Sep-25 | 0.2 | 0.1 | 0.1 |
| Oct-25 | 1.0 | 0.2 | 0.8 |
| Nov-25 | 0.9 | 0.3 | 0.6 |
| Dec-25 | 0.4 | 0.2 | 0.2 |
| Annual Average | 0.6 | 0.2 | 0.5 |

Small & underline – Where results are less than the detection limit, half of the detection limit has been used in statistical calculations.

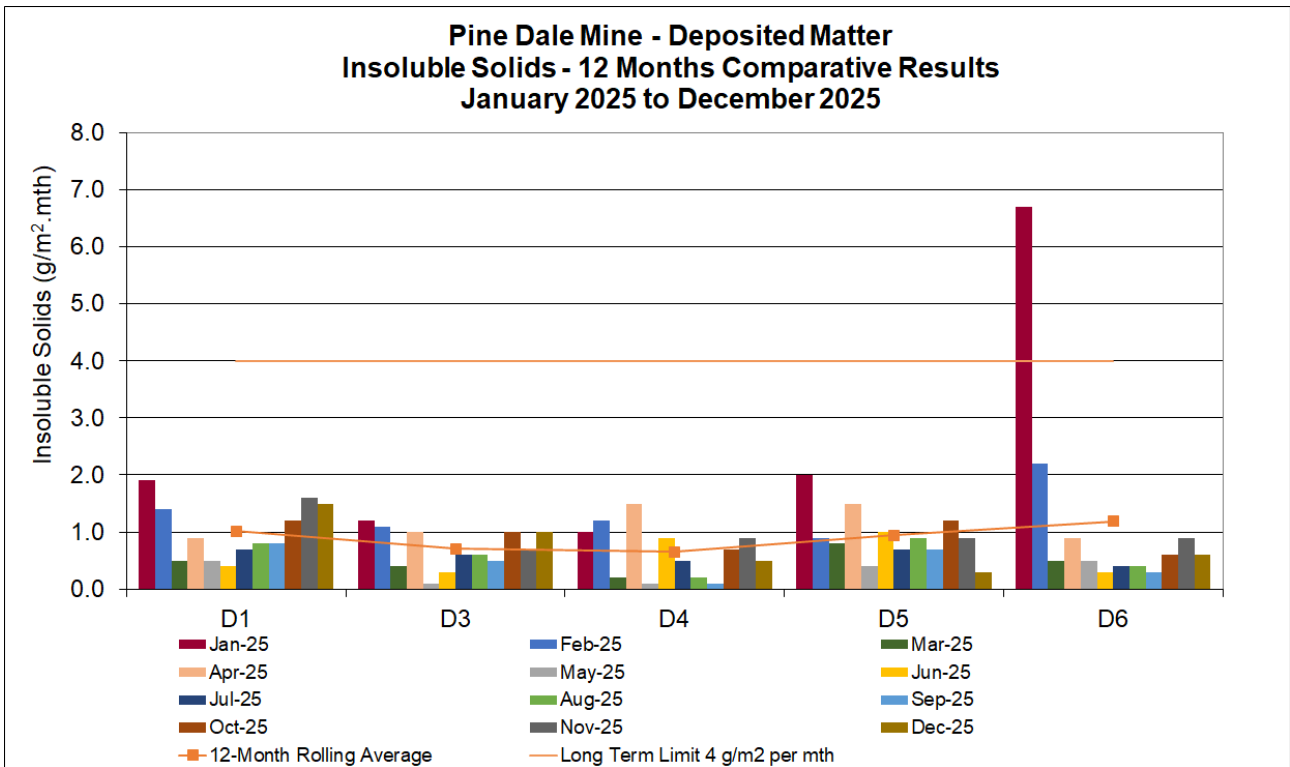


Figure 1 Depositional Dust Results – Gauges D1 & D3 to D6

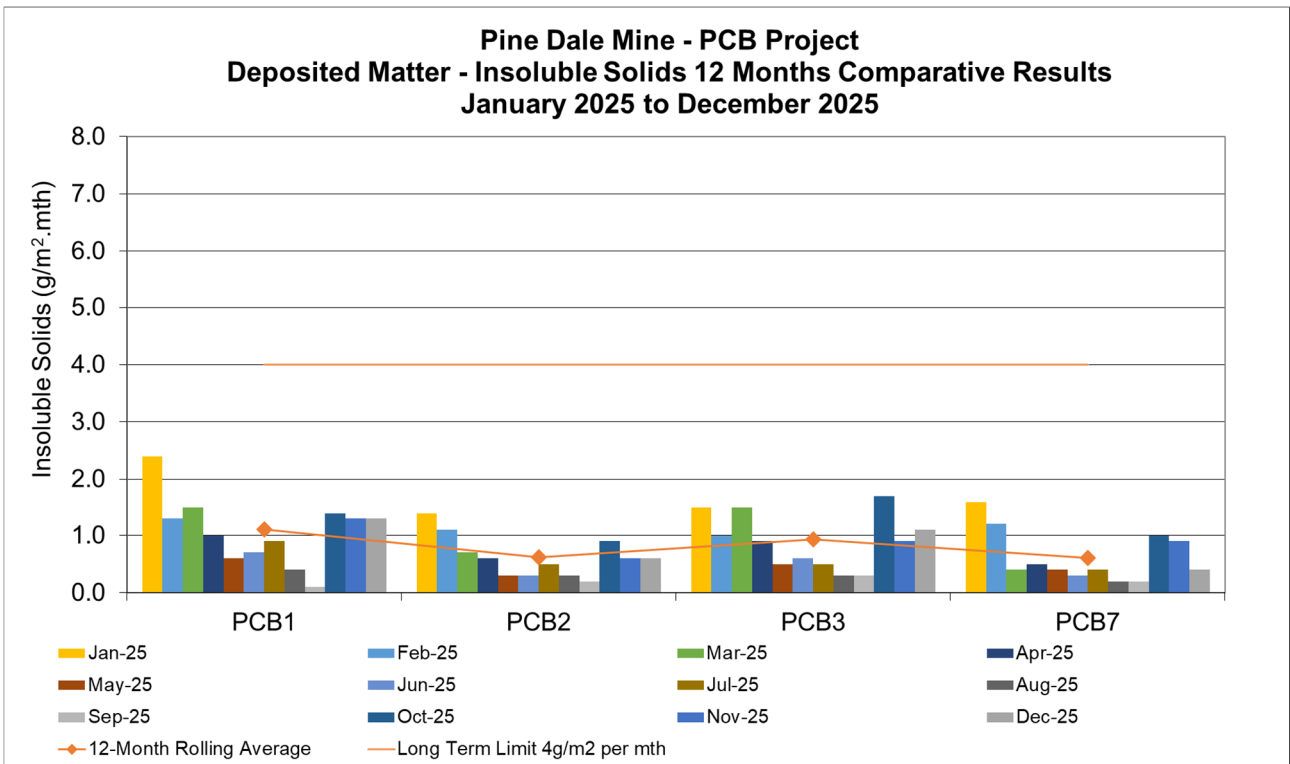


Figure 2 Depositional Dust Results – Gauges PCB1 to PCB3 & PCB7

2.3 REVIEW & INTERPRETATION OF AIR MONITORING RESULTS

The average insoluble solids within depositional dust gauges D1 and D3 to D6 for the period January – December 2025 range from 0.1 g/m² per month to 6.7 g/m² per month. These results are well below the long-term assessment criterion (refer to **Table 1**). The highest result, 6.7 g/m² per month, was recorded in January at D6. The results (refer **Table 6**) indicates that a significant portion of insoluble solids (76%) was ash which is considered to be representative of mineral content in the sample.

The average insoluble solids within depositional dust gauges PCB1, PCB2, PCB3 and PCB7 for the period January – December 2025 range from 0.1 g/m² per month to 2.4 g/m² per month. These results are well below the long-term assessment criterion (refer to **Table 1**), noting that as the dust gauges are located in a bushland setting under the canopy of tall trees and therefore do not conform to the siting requirements of AS/NZS 3580.1.1 (Ref [8]) the criteria are not strictly applicable. The highest results, 2.4 g/m² per month, were recorded in January at PCB1.

A review of historical data captured over the previous five (5) years including the 2025 monitoring period indicate there were ten (10) instances where the dust gauges D1 and D3 to D6, and four (4) instances where dust gauges PCB1, PCB2, PCB3 and PCB7 showed results which were greater than the allowable maximum annual average increase of 2.0 g/m² per month deposited matter **Table 1**. One (1) result was within the 2025 monitoring period as identified below:

- DG6 increased 4.8g/m² per month from the December 2024 to the January 2025 monitoring result. The majority of the insoluble solids results (~78%, refer **Table 6**) was 'ash' such as mineral content (soil/dust) and the photograph of the dust gauge bottle in **Figure 3** below, shows the presence of mineral content, in the January 2025 sample. As such these results are considered likely to represent elevated dust particulates. Given the absence of any soil disturbance works at PDM it is not considered that the source of the particulates is from PDM activities; however, the particulates may be sourced from the site itself.

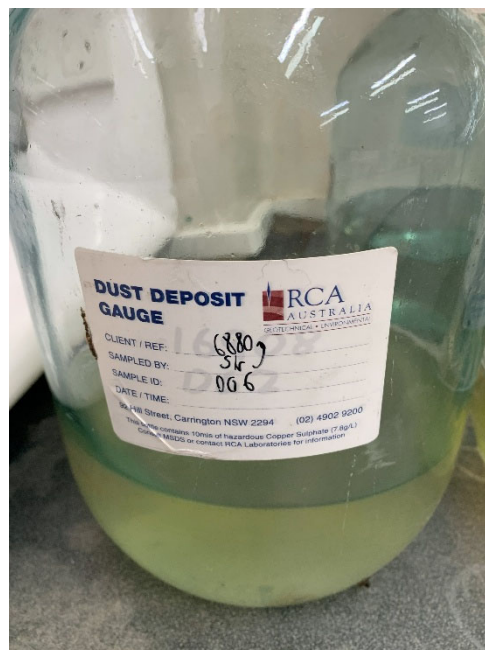


Figure 3 DG6 Dust Gauge from January 2025

All results, including the result at DG6, are within the historical ranges of results available to RCA (from December 2005 for DDG gauges and July 2011 for PCB gauges).

3 GROUNDWATER QUALITY MONITORING

Groundwater monitoring is undertaken at PDM to monitor for any potential impacts on local groundwater due to past mining operations. The intended monitoring scope in accordance with the Water Management Plan (Ref [3]) comprises:

- Four (4) locations within the mine site and a further seven (7) locations surrounding the Yarraboldy Extension area comprising four (4) sampling wells and three (3) vibrating wire piezometer wells.
 - The scope of sampling at the Yarraboldy bores was reduced to a quarterly download of Bore B only following the Gospers Mountain bushfire during late 2019 / early 2020 as detailed in the 2020 Annual Review Environmental Summary Report.
 - Access to Bore E has been restricted throughout the monitoring period due to the risk of falling branches.

Groundwater monitoring is not a requirement of EPL 4911 (refer **Drawing 1, Attachment 1**).

Sampling from one of the on-site locations, Old Shaft, was discontinued in 2021 following an internal audit which identified that the sampling posed a fall risk due to the requirement for an elevated position to collect samples and the absence of any formal attachment points for a harness required for working at heights.

Sampling of another of the on-site locations, an opening to the Old Wallerawang underground workings known as The Bong, is conducted from Water Cart Dam. Groundwater from The Bong was historically pumped into the Water Cart Dam however during Care and Maintenance, water is no longer pumped into the Water Cart Dam and therefore water quality from the Water Cart Dam is now considered to be representative of surface water runoff rather than groundwater quality. Thus, any results reported in excess of the trigger levels at the Bong are not considered indicative of impacts to groundwater and results are presented in **Section 4**.

3.1 GROUNDWATER ASSESSMENT CRITERIA

Site specific trigger levels for standing water level (SWL) and water quality parameters pH and electrical conductivity were developed for PDM are stipulated in the Water Management Plan (Ref [3]) which is in accordance with Schedule 3, Condition 27(c) of the Project Approval (PA 10_0041). The groundwater trigger levels (Ref [3]) are shown in **Table 11**.

As PDM is in Care and Maintenance there are no works undertaken which impact on groundwater and as such the results of the groundwater monitoring as presented in the following sections are considered representative of ambient conditions or as a result of the actions of other users. No formal comparison to the trigger values has therefore been made: compliance with these trigger levels is not an EPL requirement.

Table 11 Groundwater Trigger Levels

| Bore | pH (range) | Electrical Conductivity ($\mu\text{S/cm}$) | SWL Trigger (m, AHD) |
|---------------------|------------|----------------------------------------------|----------------------|
| P6 | 6.2 - 8.0 | 1,180 | 887.90 |
| P7 | 6.3 - 8.0 | 852 | 883.28 |
| EP DDH4/GW (Bore D) | 6.8 - 8.0 | 608 | 940.61 |
| EP DDH7/GW (Bore A) | 6.5 - 8.0 | 326 | 954.40 |
| EP PDH1/GW Bore C) | 6.9 - 8.0 | 490 | 889.25 |
| EP PDH7/GW (Bore E) | 5.5 - 8.0 | 151 | 938.43 |

NA – no trigger level required for these locations.

Trigger levels for Old Shaft, PDH3 and PDH4 not presented in the absence of sampling in the monitoring period.

Trigger levels for The Bong are presented in **Table 17**.

3.2 GROUNDWATER MONITORING DATA SUMMARY

Samples were collected from P6 and P7 each month during the January – December 2025 monitoring period and sampling from off-site bores (A, B, C and D within the Yarraboldy extension) was undertaken in each quarter of the monitoring period. No sampling attempts of off-site Bore E were made in the reporting period due to safety concerns associated with falling trees as encountered in the previous reporting period.

Data was retrieved from the Bore B and Bore C loggers in the August and November 2025 monitoring periods. A new unit was installed at Bore B and Bore C during the June 2025 monitoring period. Prior to this no data were retrieved from the Bore B logger from the middle of May 2024 to August 2025. Similarly, no data has been retrieved from the Bore C logger from September 2022 to June 2025.

Groundwater summary results for the period January – December 2025 are shown in **Table 12** to **Table 16**. Graphical presentations of standing water levels, pH and electrical conductivity in bores are shown in **Figure 4** to **Figure 8**.

Table 12 Groundwater Monitoring Bore P6 Results January – December 2025

| Location | Site Bore P6 | | | | | | | | | | | |
|-------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 07/02/25 | 07/03/25 | 04/04/25 | 02/05/25 | 03/06/25 | 04/07/25 | 18/08/25 | 01/09/25 | 03/10/25 | 04/11/25 | 05/12/25 |
| Time Sampled | 6:32 | 6:28 | 7:00 | 8:02 | 8:30 | 6:30 | 6:42 | 16:50 | 15:54 | 6:27 | 14:09 | 8:50 |
| Standing Water Level (m) | 22.82 | 22.86 | 22.90 | 22.33 | 22.51 | 23.13 | 23.20 | 23.22 | 23.14 | 22.96 | 22.95 | 23.13 |
| Standpipe Height (m) | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| Relative Water Level (m) | 22.16 | 22.20 | 22.24 | 21.67 | 21.85 | 22.47 | 22.54 | 22.56 | 22.48 | 22.30 | 22.29 | 22.47 |
| Water Level AHD (m) | 894.79 | 894.75 | 894.71 | 895.28 | 895.10 | 894.48 | 894.41 | 894.39 | 894.47 | 894.65 | 894.66 | 894.48 |
| Temperature (°C) | 15.58 | 15.5 | 15.61 | 13.9 | 14.46 | 11.51 | 13.44 | 12.66 | 14.25 | 12.61 | 14.42 | 16.91 |
| pH | 6.23 | 6.47 | 6.43 | 6.57 | 6.40 | 6.79 | 6.20 | 6.41 | 6.38 | 6.38 | 6.38 | 6.63 |
| Conductivity (µS/cm) | 1,170 | 1,100 | 1,170 | 1,188 | 1,350 | 1,400 | 1,420 | 1,530 | 1,440 | 1,520 | 1,550 | 1,550 |
| Turbidity (NTU) | 24.5 | 30.6 | 33.3 | 36.1 | 35.6 | 35.7 | 41.7 | 15.0 | 52.4 | 66.2 | 72.3 | 55.9 |
| Dissolved Oxygen (mg/L) | 2.2 | 2.1 | 2.13 | 1.7 | 1.3 | 4.4 | 1.5 | 2.3 | 2.8 | 1.66 | 3.10 | 1.72 |
| TSS (mg/L) | 36 | 48 | 33 | 59 | 49 | 19 | 15 | 15 | 42 | 37 | 89 | 73 |
| Oil & Grease (mg/L) | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Bicarbonate Alkalinity (mg/L) | 110 | 110 | 110 | 100 | 130 | 140 | 110 | 170 | 120 | 96 | 120 | 130 |
| Total Alkalinity (mg/L) | 110 | 110 | 110 | 100 | 130 | 140 | 110 | 170 | 120 | 96 | 120 | 130 |
| Sulphate (mg/L) | 450 | 460 | 450 | 540 | 440 | 430 | 440 | 410 | 390 | 460 | 600 | 590 |
| Chloride (mg/L) | 42 | 41 | 39 | 41 | 39 | 39 | 42 | 36 | 35 | 37 | 45 | 56 |
| Calcium (mg/L) | 110 | 120 | 110 | 110 | 110 | 120 | 110 | 110 | 110 | 98 | 110 | 130 |
| Magnesium (mg/L) | 53 | 58 | 51 | 51 | 54 | 55 | 53 | 56 | 50 | 46 | 49 | 61 |
| Sodium (mg/L) | 63 | 64 | 62 | 68 | 48 | 64 | 61 | 59 | 68 | 60 | 57 | 83 |
| Potassium (mg/L) | 20 | 22 | 21 | 21 | 21 | 22 | 19 | 21 | 20 | 20 | 21 | 23 |
| Cobalt (dissolved, mg/L) | 0.007 | 0.006 | 0.006 | 0.006 | 0.005 | 0.004 | 0.006 | 0.005 | 0.006 | 0.007 | 0.005 | 0.007 |
| Manganese (dissolved, mg/L) | 2.1 | 2.4 | 2.3 | 2 | 1.9 | 2 | 2.1 | 2.3 | 1.9 | 1.8 | 2.1 | 2.5 |
| Nickel (dissolved, mg/L) | 0.027 | 0.025 | 0.029 | 0.034 | 0.023 | 0.023 | 0.028 | 0.029 | 0.028 | 0.032 | 0.027 | 0.037 |
| Zinc (dissolved, mg/L) | 0.036 | 0.022 | 0.068 | 0.13 | 0.019 | 0.029 | 0.037 | 0.03 | 0.07 | 0.074 | 0.059 | 0.038 |
| Iron (dissolved, mg/L) | 23 | 20 | 16 | 10 | 22 | 24 | 24 | 25 | 13 | 17 | 23 | 28 |

Table 13 Groundwater Monitoring Bore P7 Results January – December 2025

| Location | Site Bore P7 | | | | | | | | | | | |
|-------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 07/02/25 | 07/03/25 | 04/04/25 | 02/05/25 | 03/06/25 | 04/07/25 | 18/08/25 | 01/09/25 | 03/10/25 | 04/11/25 | 05/12/25 |
| Time Sampled | 6:57 | 6:53 | 7:24 | 8:20 | 8:44 | 7:00 | 6:55 | 16:10 | 16:11 | 6:49 | 14:33 | 9:16 |
| Standing Water Level (m) | 5.43 | 5.72 | 5.93 | 6.15 | 6.87 | 6.26 | 6.32 | 6.12 | 5.78 | 5.91 | 5.94 | 6.14 |
| Standpipe Height (m) | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Relative Water Level (m) | 5.38 | 5.67 | 5.88 | 6.10 | 6.82 | 6.21 | 6.27 | 6.07 | 5.73 | 5.86 | 5.89 | 6.09 |
| Water Level AHD (m) | 889.02 | 888.73 | 888.52 | 888.30 | 887.58 | 888.19 | 888.13 | 888.33 | 888.67 | 888.54 | 888.51 | 888.31 |
| Temperature (°C) | 14.64 | 14.40 | 14.90 | 13.02 | 13.77 | 12.10 | 12.34 | 12.56 | 13.90 | 12.24 | 13.62 | 16.62 |
| pH (pH units) | 6.69 | 6.74 | 6.93 | 6.94 | 6.80 | 6.85 | 6.40 | 6.56 | 6.39 | 6.51 | 6.48 | 6.78 |
| Conductivity (µS/cm) | 165 | 192 | 1,510 | 229 | 221 | 305 | 240 | 296 | 732 | 650 | 838 | 852 |
| Bicarbonate Alkalinity (mg/L) | -- | 66 | -- | -- | 40 | -- | -- | 170 | -- | -- | 230 | -- |
| Total Alkalinity (mg/L) | -- | 66 | -- | -- | 40 | -- | -- | 170 | -- | -- | 230 | -- |
| Sulphate (mg/L) | -- | 7 | -- | -- | 9 | -- | -- | 23 | -- | -- | 56 | -- |
| Chloride (mg/L) | -- | 12 | -- | -- | 9 | -- | -- | 37 | -- | -- | 75 | -- |
| Calcium (mg/L) | -- | 7 | -- | -- | 4 | -- | -- | 24 | -- | -- | 35 | -- |
| Magnesium (mg/L) | -- | 5.6 | -- | -- | 4 | -- | -- | 26 | -- | -- | 37 | -- |
| Sodium (mg/L) | -- | 6.5 | -- | -- | 3 | -- | -- | 22 | -- | -- | 36 | -- |
| Potassium (mg/L) | -- | 7.3 | -- | -- | 5 | -- | -- | 6.6 | -- | -- | 8.1 | -- |
| Iron (dissolved, mg/L) | -- | 1.5 | -- | -- | 1.1 | -- | -- | 0.62 | -- | -- | 110 | -- |

-- Indicates no analysis for compound required.

Table 14 Groundwater Monitoring Bore A (EP DDH7/GW) Results January – December 2025

| Location | Off-Site Bore A (EP DDH7/GW) | | | | | | | | | | | |
|-------------------------------|------------------------------|---------|-----------------------|-----------------------|---------|-----------------------|-----------------------|----------|-----------------------|-----------------------|---------|-----------------------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | | | | | | | | | | | | |
| Date Sampled | | 6/02/25 | | | 2/05/25 | | | 18/08/25 | | | 3/11/25 | |
| Time Sampled | | 15:12 | | | 9:49 | | | 14:18 | | | 16:30 | |
| Standing Water Level (m) | | 67.95 | | | 68.25 | | | 68.32 | | | 67.60 | |
| Standpipe Height (m) | | 0.75 | | | 0.75 | | | 0.75 | | | 0.75 | |
| Relative Water Level (m) | | 67.20 | | | 67.50 | | | 67.57 | | | 66.85 | |
| Water Level AHD (m) | | 956.60 | | | 956.30 | | | 956.23 | | | 956.95 | |
| pH (pH units) | | 7.16 | | | 6.45 | | | 7.04 | | | 6.5 | |
| Conductivity (µS/cm) | | 200 | | | 211 | | | 239 | | | 195 | |
| Temperature (°C) | | 20.9 | | | 13.82 | | | 13.4 | | | 18.28 | |
| Total Dissolved Solid (mg/L) | | 140 | | | 130 | | | 130 | | | 100 | |
| Bicarbonate Alkalinity (mg/L) | | 81 | | | 82 | | | 84 | | | 73 | |
| Total Alkalinity (mg/L) | | 81 | | | 82 | | | 84 | | | 73 | |
| Sulphate (mg/L) | Sampling not required | 9 | Sampling not required | Sampling not required | 9 | Sampling not required | Sampling not required | 8 | Sampling not required | Sampling not required | 8 | Sampling not required |
| Chloride (mg/L) | | 7 | | | 6 | | | 5 | | | 7 | |
| Calcium (mg/L) | | 19 | | | 15 | | | 15 | | | 15 | |
| Magnesium (mg/L) | | 7.1 | | | 5.9 | | | 5.9 | | | 5.4 | |
| Sodium (mg/L) | | 5.6 | | | 4 | | | 5 | | | 5 | |
| Potassium (mg/L) | | 14 | | | 11 | | | 11 | | | 11 | |
| Arsenic (dissolved, mg/L) | | <0.001 | | | <0.001 | | | <0.001 | | | <0.001 | |
| Cadmium (dissolved, mg/L) | | <0.0001 | | | <0.0001 | | | <0.0001 | | | <0.0001 | |
| Chromium (dissolved, mg/L) | | <0.001 | | | <0.001 | | | <0.001 | | | <0.001 | |
| Copper (dissolved, mg/L) | | 0.001 | | | 0.001 | | | <0.001 | | | 0.002 | |
| Lead (dissolved, mg/L) | | <0.001 | | | <0.001 | | | <0.001 | | | <0.001 | |
| Nickel (dissolved, mg/L) | | 0.003 | | | 0.002 | | | 0.002 | | | 0.001 | |
| Zinc (dissolved, mg/L) | | 0.044 | | | 0.056 | | | 0.035 | | | 0.037 | |
| Iron (dissolved, mg/L) | | 0.02 | | | 0.01 | | | 0.01 | | | 0.08 | |

Table 15 Groundwater Monitoring Bore C (EP PDH1/GW) Results January – December 2025

| Location | Off-Site Bore C (EP PDH1/GW) | | | | | | | | | | | |
|-------------------------------|------------------------------|---------|-----------------------|-----------------------|---------|-----------------------|-----------------------|---------------------------------|---------|-----------------------|---------|-----------------------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | | | | | | | | | | | | |
| Date Sampled | | 7/02/25 | | | 2/05/25 | | | | 2/09/25 | | 3/11/25 | |
| Time Sampled | | 8:40 | | | 10:27 | | | | 10:41 | | 11:03 | |
| Standing Water Level (m) | | 72.35 | | | 72.63 | | | | 72.64 | | 73.54 | |
| Standpipe Height (m) | | 0.74 | | | 0.74 | | | | 0.74 | | 0.74 | |
| Relative Water Level (m) | | 71.61 | | | 71.89 | | | | 71.90 | | 72.80 | |
| Water Level AHD (m) | | 895.89 | | | 895.61 | | | | 895.60 | | 894.70 | |
| pH (pH units) | | 7.13 | | | 6.80 | | | | 6.35 | | 6.79 | |
| Conductivity (µS/cm) | | 268 | | | 275 | | | | 321 | | 299 | |
| Temperature (°C) | | 17.7 | | | 16.31 | | | | 16.45 | | 16.45 | |
| Total Dissolved Solid (mg/L) | | 200 | | | 170 | | | | 150 | | 180 | |
| Bicarbonate Alkalinity (mg/L) | | 69 | | | 65 | | | | 71 | | 68 | |
| Total Alkalinity (mg/L) | | 69 | | | 65 | | | | 71 | | 68 | |
| Sulphate (mg/L) | Sampling not required | 39 | Sampling not required | Sampling not required | 46 | Sampling not required | Sampling not required | Inaccessible due to fallen tree | 41 | Sampling not required | 56 | Sampling not required |
| Chloride (mg/L) | | 10 | | | 9 | | | | 6 | | 9 | |
| Calcium (mg/L) | | 24 | | | 23 | | | | 23 | | 24 | |
| Magnesium (mg/L) | | 8.4 | | | 8.2 | | | | 8.3 | | 8.5 | |
| Sodium (mg/L) | | 10 | | | 8.1 | | | | 10 | | 9.4 | |
| Potassium (mg/L) | | 8.6 | | | 7.6 | | | | 7.5 | | 10 | |
| Arsenic (dissolved, mg/L) | | <0.001 | | | <0.001 | | | | <0.001 | | <0.001 | |
| Cadmium (dissolved, mg/L) | | <0.0001 | | | <0.0001 | | | | <0.0001 | | <0.0001 | |
| Chromium (dissolved, mg/L) | | <0.001 | | | <0.001 | | | | <0.001 | | <0.001 | |
| Copper (dissolved, mg/L) | | <0.001 | | | 0.003 | | | | <0.001 | | <0.001 | |
| Lead (dissolved, mg/L) | | <0.001 | | | <0.001 | | | | <0.001 | | <0.001 | |
| Nickel (dissolved, mg/L) | | 0.002 | | | 0.001 | | | | 0.002 | | 0.002 | |
| Zinc (dissolved, mg/L) | | 0.02 | | | 0.016 | | | | 0.040 | | 0.067 | |
| Iron (dissolved, mg/L) | | <0.01 | | | <0.01 | | | | 0.01 | | <0.01 | |

Table 16 Groundwater Monitoring Bore D (EP DDH4/GW) Results January – December 2025

| Location | Off-Site Bore D (EP DDH4/GW) | | | | | | | | | | | |
|-------------------------------|------------------------------|---------|-----------------------|-----------------------|---------|-----------------------|-----------------------|---------------------------------|---------|-----------------------|---------|-----------------------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | | | | | | | | | | | | |
| Date Sampled | | 7/02/25 | | | 2/05/25 | | | | 2/09/25 | | 3/11/25 | |
| Time Sampled | | 8:49 | | | 10:38 | | | | 11:08 | | 11:36 | |
| Standing Water Level (m) | | 34.74 | | | 34.80 | | | | 34.89 | | 34.87 | |
| Standpipe Height (m) | | 0.71 | | | 0.71 | | | | 0.71 | | 0.71 | |
| Relative Water Level (m) | | 34.03 | | | 34.09 | | | | 34.18 | | 34.16 | |
| Water Level AHD (m) | | 944.47 | | | 944.41 | | | | 944.32 | | 944.34 | |
| pH (pH units) | | 7.08 | | | 6.94 | | | | 6.94 | | 6.89 | |
| Conductivity (µS/cm) | | 263 | | | 266 | | | | 257 | | 253 | |
| Temperature (°C) | | 16.7 | | | 15.0 | | | | 15.47 | | 20.16 | |
| Total Dissolved Solid (mg/L) | | 190 | | | 160 | | | | 130 | | 160 | |
| Bicarbonate Alkalinity (mg/L) | | 110 | | | 110 | | | | 100 | | 86 | |
| Total Alkalinity (mg/L) | | 110 | | | 110 | | | | 100 | | 86 | |
| Sulphate (mg/L) | Sampling not required | 15 | Sampling not required | Sampling not required | 14 | Sampling not required | Sampling not required | Inaccessible due to fallen tree | 12 | Sampling not required | 18 | Sampling not required |
| Chloride (mg/L) | | 11 | | | 10 | | | | 8 | | 10 | |
| Calcium (mg/L) | | 8.5 | | | 8.8 | | | | 7.9 | | 8.7 | |
| Magnesium (mg/L) | | 2 | | | 3 | | | | 2 | | 2 | |
| Sodium (mg/L) | | 38 | | | 32 | | | | 33 | | 32 | |
| Potassium (mg/L) | | 7.8 | | | 7.4 | | | | 7.0 | | 9.0 | |
| Arsenic (dissolved, mg/L) | | <0.001 | | | <0.001 | | | | <0.001 | | <0.001 | |
| Cadmium (dissolved, mg/L) | | <0.0001 | | | <0.0001 | | | | <0.0001 | | <0.0001 | |
| Chromium (dissolved, mg/L) | | <0.001 | | | <0.001 | | | | 0.014 | | <0.0001 | |
| Copper (dissolved, mg/L) | | <0.001 | | | 0.001 | | | | 0.001 | | 0.002 | |
| Lead (dissolved, mg/L) | | <0.001 | | | <0.001 | | | | <0.001 | | <0.001 | |
| Nickel (dissolved, mg/L) | | 0.004 | | | 0.003 | | | | 0.002 | | 0.003 | |
| Zinc (dissolved, mg/L) | | 0.029 | | | 0.026 | | | | 0.037 | | 0.062 | |
| Iron (dissolved, mg/L) | | 0.22 | | | 0.57 | | | | 0.27 | | 0.57 | |

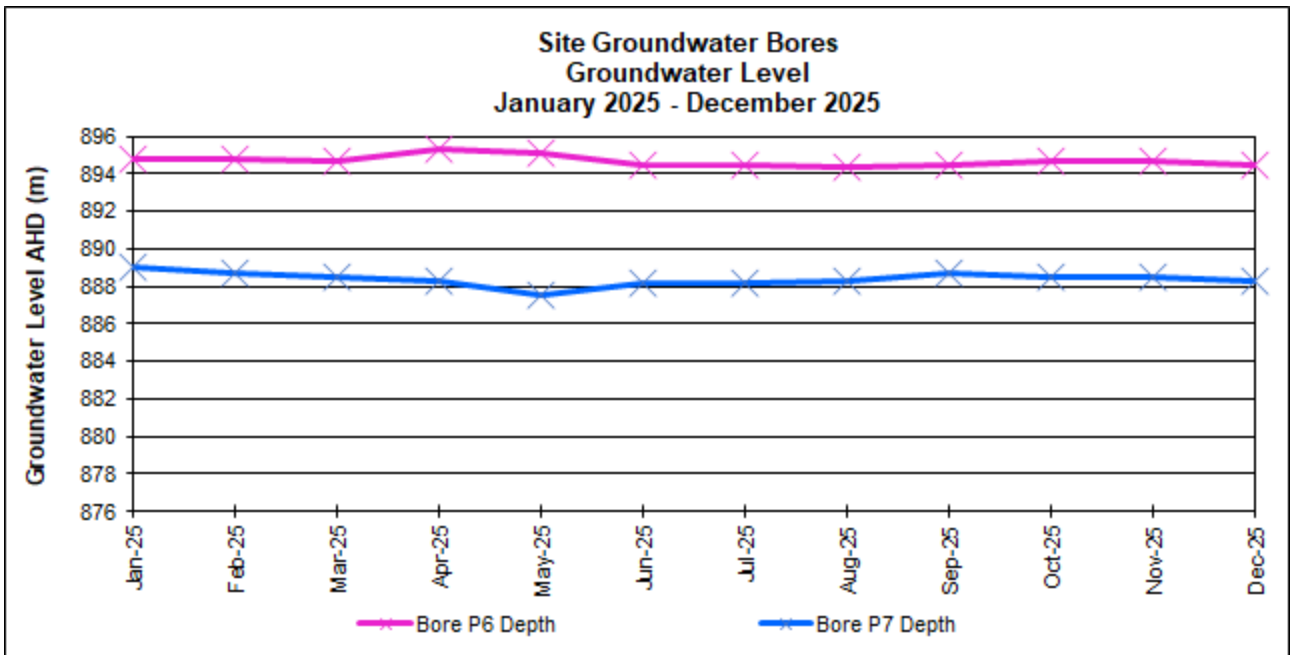


Figure 4 Onsite Groundwater Standing Water Level 2025

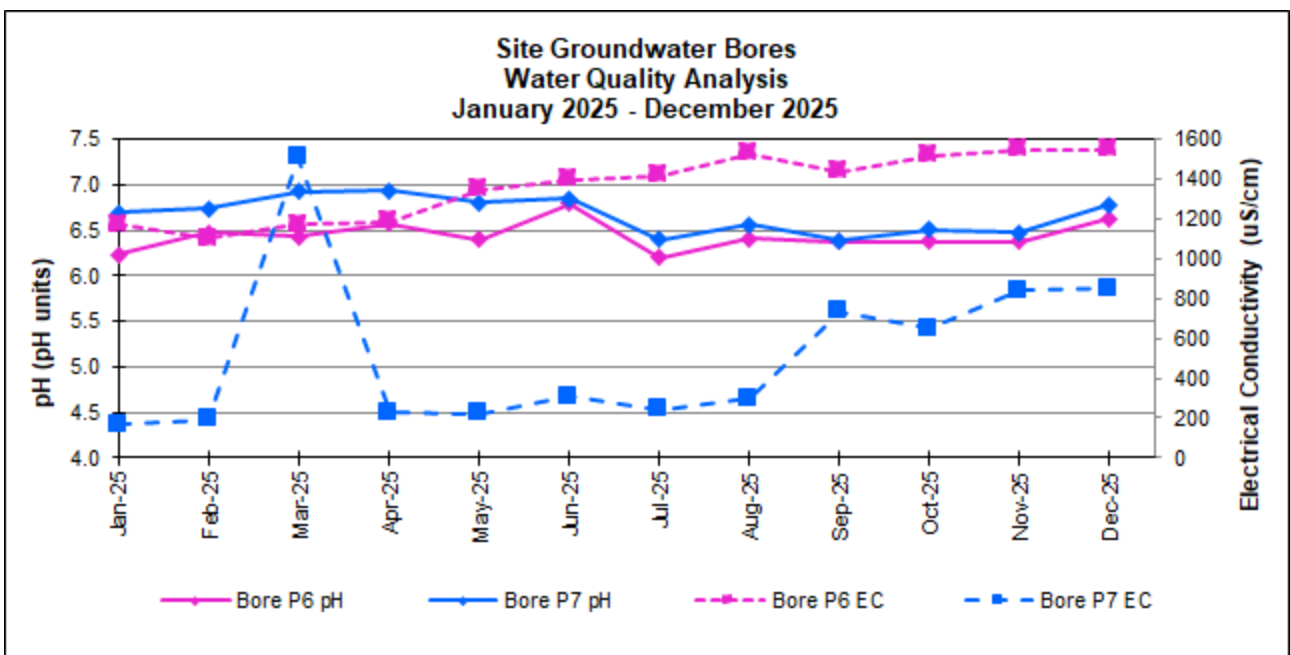


Figure 5 Onsite Groundwater pH and Electrical Conductivity 2025

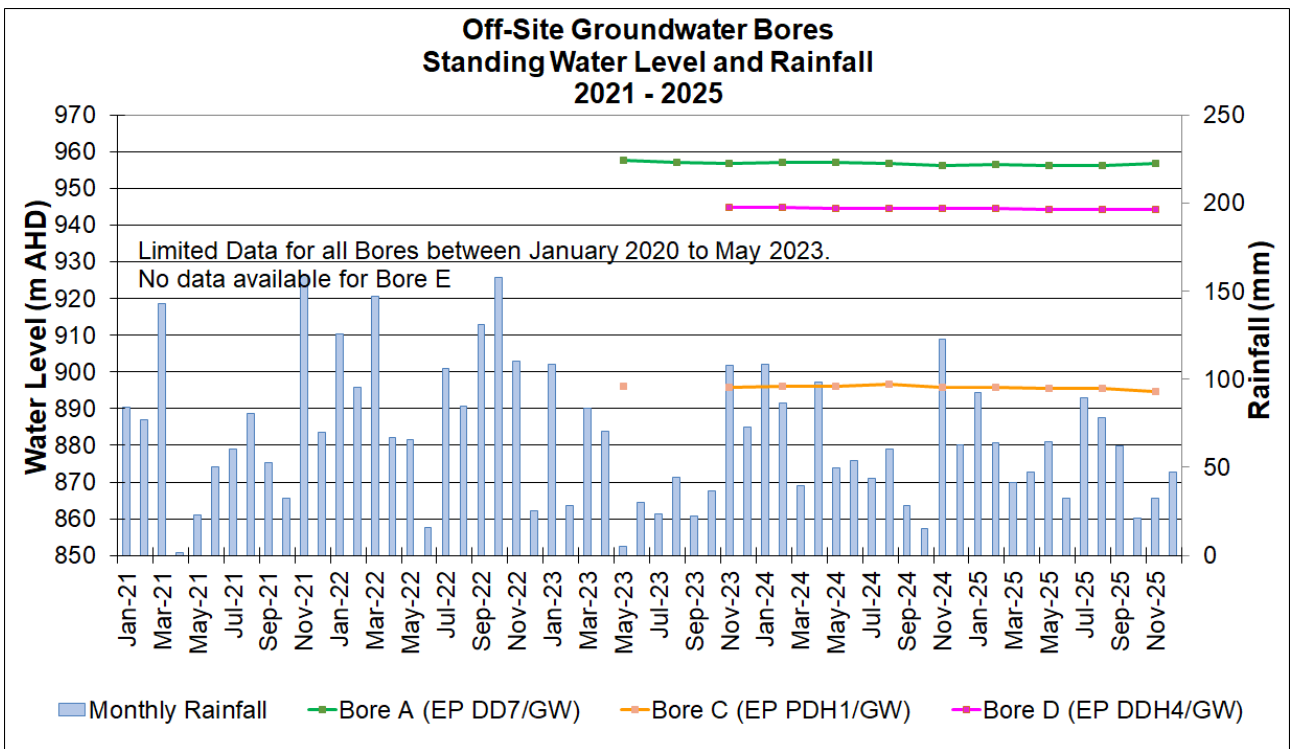


Figure 6 Standing water level and rainfall 2021 – 2025

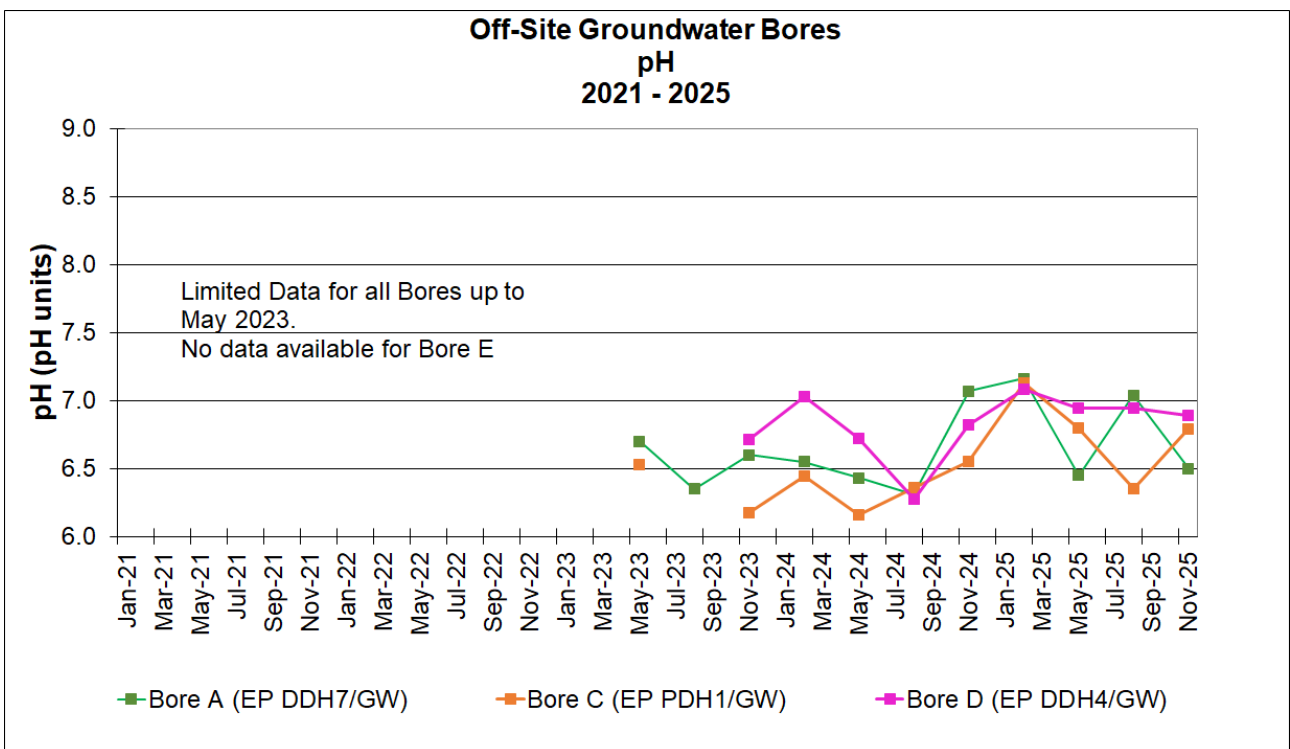


Figure 7 pH in off-site groundwater bores 2021 – 2025

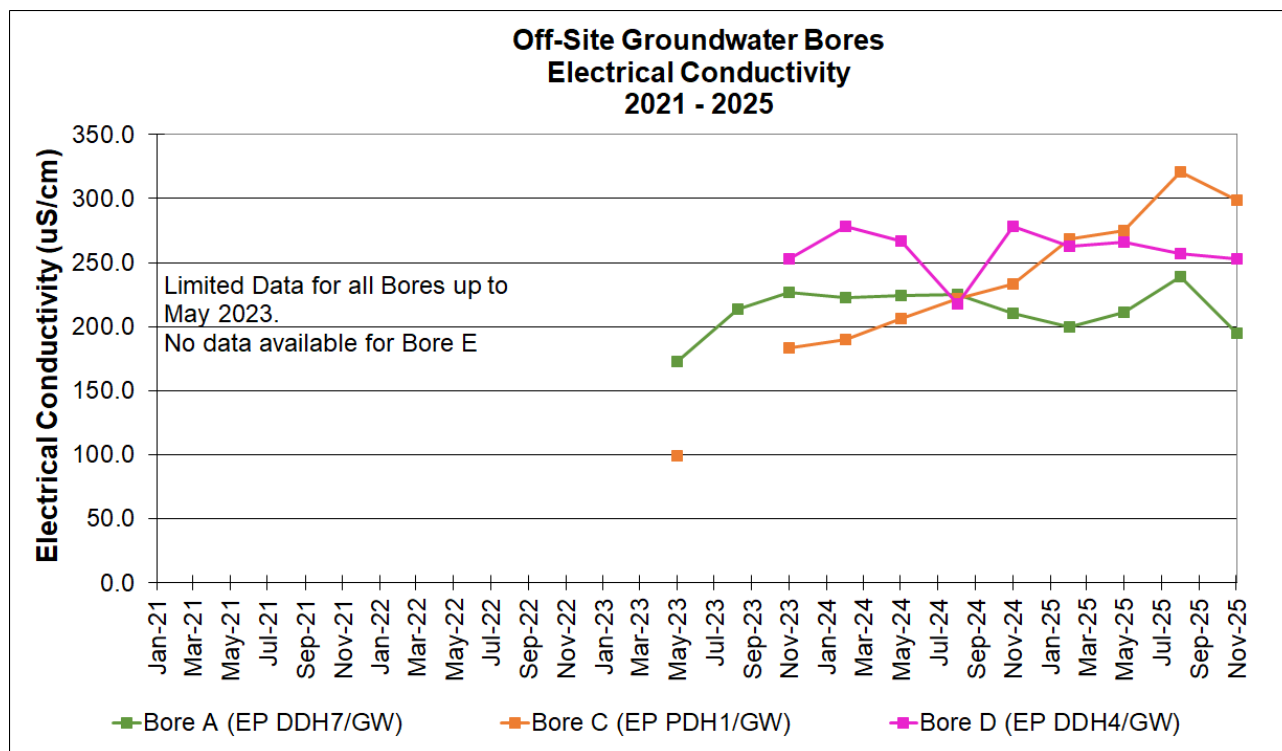


Figure 8 Electrical conductivity in off-site groundwater bores 2021 – 2025

4 SURFACE WATER QUALITY MONITORING

The purpose of surface water monitoring is to ensure that any impact of the mining operations on surface water bodies and streams can be identified, and to demonstrate compliance with relevant legislative requirements.

Surface water monitoring for the Pine Dale Mine is undertaken in accordance with the EPL 4911 (Ref [1]) and the Water Management Plan (Ref [3]) at twelve (12) monitoring locations within and surrounding the mine site (refer **Drawing 1, Attachment 1**). Frequency is on a quarterly and monthly basis for routine samples depending on location and in accordance with the EPL 4911 (Ref [1]) and Water Management Plan (Ref [3]).

EPL 4911 (Ref [1]) specifies sampling to be undertaken daily or weekly from EPL Point 13 during discharge with daily samples analysed for pH, electrical conductivity and turbidity, and weekly samples analysed for filterable (dissolved) iron, oil and grease, sulphate and total suspended solids.

EPL 4911 (Ref [1]) specifies quarterly surface water monitoring is to be undertaken at four (4) surface water monitoring locations:

- EPL Point 2: ambient water monitoring point.
- EPL Point 3: ambient water monitoring point.
- EPL Point 14: ambient water monitoring point.
- EPL Point 16: ambient water monitoring point.

The PDM Water Management Plan (Ref [3]) stipulates quarterly monitoring of EPL Point 2, 3, 14 is to include analysis for pH, electrical conductivity, turbidity, total suspended solids, sulphate and filterable (dissolved) iron.

The PDM Water Management Plan (Ref [3]) also stipulates the water level of Wangcol Creek (referred to as Neubecks Creek in the Plan) is measured (at S2) on a monthly frequency, and monthly monitoring of a further six (6) monitoring locations:

- S1 is located within Wangcol Creek upstream of PDM operations (slightly downstream of EPL Point 2).
- S3 which is the same location as EPL Point 3.
- S4 is located on Coxs River, upstream of the confluence of Wangcol Creek and does not receive water from PDM operations.
- S5 is located within Blue Lake which receives flow from Wangcol Creek and Coxs River.
- S6 is located within Wangcol Creek; downstream of S1 and PDM operations.
- S7 located within Coxs River, downstream of Wangcol Creek.

A further point, Wallerawang Downstream, has been included in the monitoring since the commencement of monitoring at EPL Point 16.

Analysis at locations S1, and locations S3-S7 is stipulated in the PDM Water Management Plan (Ref [3]) to include pH electrical conductivity, turbidity, dissolved oxygen, total suspended solids, oil & grease, bicarbonate and total alkalinity, sulphate, chloride, calcium, magnesium, sodium, potassium and filterable (dissolved) metals (cobalt, manganese, nickel, zinc, iron). Sampling at Wallerawang Downstream post-dates the WMP such that there are no stipulations with regards to analysis; analysis is undertaken consistent with the other locations.

4.1 SURFACE WATER ASSESSMENT CRITERIA

EPL 4911 stipulates maximum concentrations limits applicable to EPL Point 13 discharge events for pH, oil and grease, and total suspended solids. No concentration limits are detailed in EPL 4911 for any other analytes at EPL Point 13, or any analytes at the other locations (EPL Points 2, 3, 14 and 16).

Site specific trigger levels for pH and electrical conductivity are stipulated in the PDM Water Management Plan (Ref [3]) in accordance with Schedule 3, Condition 27(c) of the Project Approval (PA 10_0041) except for EPL Point 16 and Wallerawang Downstream for which monitoring postdates the Plan and have not yet had site specific triggers derived. Trigger levels for oil and grease and total suspended solids are not site specific and are uniform across all surface water sites except for Water Cart Dam (refer **Section 3**). The surface water trigger levels (Ref [3]) are shown in **Table 17**.

As PDM is in Care and Maintenance there are no works undertaken which impact on surface water and as such the results of the surface water monitoring as presented in the following sections are considered representative of ambient conditions or as a result of the actions of other users. No formal comparison to the trigger values has therefore been made: compliance with these trigger levels is not an EPL requirement.

Table 17 *Surface Water Trigger Levels*

| Surface Water Site | pH (range) | Electrical Conductivity ($\mu\text{S}/\text{cm}$) | Total Suspended Solids (mg/L) | Oil and Grease (mg/L) |
|---------------------------|------------------------|-----------------------------------------------------|-------------------------------|-----------------------|
| EPL Point 2 | 7.1 – 8.0 | 2,055 | 30 | NA |
| EPL Point 3 | 6.4 – 8.0 | 2,223 | 30 | NA |
| EPL Point 13 | 6.5 – 8.0 [^] | NA | 30 [^] | 10 |
| EPL Point 14 | 7.5 – 8.0 | 1,166 | 30 | NA |
| EPL Point 16 | NA | NA | 30 | NA |
| S1 | 6.2 – 8.0 | 2,325 | 30 | 10 |
| S2 | NA | NA | NA | NA |
| S3 | 6.4 – 8.0 | 2,223 | 30 | 10 |
| S4 | 7.3 – 8.0 | 957 | 30 | 10 |
| S5 | 7.0 – 8.0 | 1,013 | 30 | 10 |
| S6 | 6.7 – 8.0 | 1,941 | 30 | 10 |
| S7 | 6.8 – 8.0 | 1,007 | 30 | 10 |
| The Bong (at SW location) | 5.8 - 8.0 | 1,157 | NA | NA |

NA – no trigger level required for these locations.

[^]refers to maximum concentration limits applicable during discharge events as detailed in EPL 4911 section L2.

4.2 SURFACE WATER MONITORING DATA SUMMARY

Four (4) quarterly surface water monitoring events were conducted at EPL Point 2, 3, 14 and 16 in February, May, August and November 2025 and twelve (12) monthly surface water monitoring events were conducted at S1 – S7, Wallerawang Downstream and Water Cart Dam during the January to December 2025 monitoring period.

Surface water summary results for the period January – December 2025 are shown in **Table 18** to **Table 30**. Graphical presentations are shown in **Figure 9** to **Figure 15**.

Table 18 Surface Water Monitoring Location EPL Point 2 Results 2025

| Location | EPL Point 2 | | | |
|------------------------------------------|-------------|-----------|------------|-----------|
| | Feb | May | Aug | Nov |
| Sampling Month | 7/02/2025 | 2/05/2025 | 18/08/2025 | 3/11/2025 |
| Date Sampled | 7/02/2025 | 2/05/2025 | 18/08/2025 | 3/11/2025 |
| Time Sampled | 08:01 | 09:43 | 08:35 | 00:00 |
| pH (pH units) | 7.71 | 7.79 | 7.61 | 7.83 |
| Conductivity ($\mu\text{S}/\text{cm}$) | 1,460 | 798 | 822 | 1,680 |
| Sulphate (mg/L) | 430 | 64 | 190 | 600 |
| Iron filterable (mg/L) | 0.02 | 0.05 | 0.08 | 0.03 |
| TSS (mg/L) | <5 | <5 | <5 | <5 |
| Turbidity (NTU) | 4.7 | 10.0 | 4.2 | 3.4 |

Table 19 Surface Water Monitoring Location EPL Point 3 Results 2025

| Location | EPL Point 3 | | | |
|------------------------------------------|-------------|-----------|------------|-----------|
| | Feb | May | Aug | Nov |
| Sampling Month | 7/02/2025 | 2/05/2025 | 18/08/2025 | 3/11/2025 |
| Date Sampled | 7/02/2025 | 2/05/2025 | 18/08/2025 | 3/11/2025 |
| Time Sampled | 06:01 | 08:04 | 15:49 | 12:15 |
| pH (pH units) | 7.01 | 6.96 | 6.55 | 7.9 |
| Conductivity ($\mu\text{S}/\text{cm}$) | 1,300 | 1,300 | 923 | 1,640 |
| Sulphate (mg/L) | 390 | 820 | 230 | 600 |
| Iron filterable (mg/L) | 0.09 | 0.1 | 1 | 0.07 |
| TSS (mg/L) | <5 | <5 | <5 | <5 |
| Turbidity (NTU) | 10.6 | 10.6 | 3.8 | 2.8 |

Table 20 Surface Water Monitoring Location EPL Point 14 Results 2025

| Location | EPL Point 14 | | | |
|----------------------------|--------------|-----------|------------|-----------|
| | Feb | May | Aug | Nov |
| Sampling Month | | | | |
| Date Sampled | 7/02/2025 | 7/02/2025 | 18/08/2025 | 5/11/2025 |
| Time Sampled | 09:59 | 13:08 | 17:11 | 06:35 |
| pH (pH units) | 7.30 | 7.48 | 7.18 | 7.04 |
| Conductivity (μ S/cm) | 1,410 | 1,680 | 952 | 1,100 |
| Sulphate (mg/L) | 480 | 560 | 250 | 400 |
| Iron filterable (mg/L) | 0.06 | 0.02 | 0.18 | 0.05 |
| TSS (mg/L) | <5 | 8 | <5 | <5 |
| Turbidity (NTU) | 4.6 | 31.8 | 3.1 | 31.2 |

Table 21 Surface Water Monitoring Location EPL Point 16 Results 2025

| Location | EPL Point 16 | | | |
|----------------------------|--------------|-----------|------------|-----------|
| | Feb | May | Aug | Nov |
| Sampling Month | | | | |
| Date Sampled | 7/02/2025 | 2/05/2025 | 18/08/2025 | 4/11/2025 |
| Time Sampled | 06:13 | 08:14 | 15:57 | 13:51 |
| pH (pH units) | 6.38 | 6.12 | 6.21 | 6.25 |
| Conductivity (μ S/cm) | 1,540 | 1,550 | 1,790 | 1,780 |
| Sulphate (mg/L) | 590 | 560 | 580 | 710 |
| Iron filterable (mg/L) | 11 | 30 | 31 | 32 |
| TSS (mg/L) | 14 | 20 | 8 | 34 |
| Turbidity (NTU) | 4.15 | 35.1 | 6.2 | 29.4 |

Table 22 Surface Water Monitoring Location S1 Results 2025

| Location | Surface Water S1 | | | | | | | | | | | |
|-------------------------------|------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 2/06/25 | 4/07/25 | 18/08/25 | 1/09/25 | 2/10/25 | 3/11/25 | 5/12/25 |
| Time Sampled | 7:33 | 7:46 | 6:25 | 7:45 | 9:33 | 15:47 | 7:59 | 8:28 | 15:42 | 15:56 | 12:04 | 8:17 |
| Temperature (°C) | 18.05 | 17.45 | 18.42 | 11.47 | 12.54 | 11.80 | 6.49 | 5.71 | 9.78 | 14.49 | 20.11 | 15.79 |
| pH | 7.40 | 7.68 | 7.71 | 7.64 | 7.62 | 8.00 | 7.22 | 7.44 | 7.50 | 6.95 | 7.80 | 8.12 |
| Conductivity (µS/cm) | 1,940 | 1,550 | 4,000 | 2,550 | 2,630 | 3,100 | 2,200 | 1,120 | 741 | 2,840 | 1,870 | 4,190 |
| Turbidity (NTU) | 6.3 | 5.7 | 11.8 | 8.2 | 14.9 | 4.0 | 40.2 | 6.5 | 1.6 | 11.2 | 4.5 | 38.9 |
| Dissolved Oxygen (mg/L) | -- | 5.90 | -- | 6.80 | 6.22 | 6.50 | 7.47 | 6.88 | 7.90 | 6.20 | 7.34 | 7.10 |
| TSS (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 160 | -- | -- | 110 | -- | -- | 88 | -- | -- | 120 | -- |
| Total Alkalinity (mg/L) | -- | 160 | -- | -- | 110 | -- | -- | 88 | -- | -- | 120 | -- |
| Sulphate (mg/L) | -- | 470 | -- | -- | 870 | -- | -- | 270 | -- | -- | 680 | -- |
| Chloride (mg/L) | -- | 85 | -- | -- | 120 | -- | -- | 45 | -- | -- | 120 | -- |
| Calcium (mg/L) | -- | 72 | -- | -- | 91 | -- | -- | 37 | -- | -- | 69 | -- |
| Magnesium (mg/L) | -- | 58 | -- | -- | 77 | -- | -- | 30 | -- | -- | 55 | -- |
| Sodium (mg/L) | -- | 210 | -- | -- | 320 | -- | -- | 120 | -- | -- | 210 | -- |
| Potassium (mg/L) | -- | 15 | -- | -- | 30 | -- | -- | 10 | -- | -- | 18 | -- |
| Cobalt (dissolved, mg/L) | -- | 0.001 | -- | -- | 0.011 | -- | -- | 0.002 | -- | -- | 0.001 | -- |
| Manganese (dissolved, mg/L) | -- | 0.630 | -- | -- | 0.710 | -- | -- | 0.360 | -- | -- | 0.230 | -- |
| Nickel (dissolved, mg/L) | -- | 0.093 | -- | -- | 0.170 | -- | -- | 0.057 | -- | -- | 0.120 | -- |
| Zinc (dissolved, mg/L) | -- | 0.006 | -- | -- | 0.043 | -- | -- | 0.011 | -- | -- | 0.016 | -- |
| Iron (dissolved, mg/L) | -- | 0.040 | -- | -- | 0.040 | -- | -- | 0.110 | -- | -- | 0.030 | -- |

-- Indicates no analysis for compound required during particular period.

Table 23 Surface Water Monitoring Location S2 Results 2025

| Location | Surface Water Site S2 | | | | | | | | | | | |
|----------------------------------------------|-----------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | | | | | | | | | | | | |
| Date Sampled | 10/01/25 | 6/02/25 | 6/03/25 | 3/04/25 | 1/05/25 | 2/06/25 | 3/07/25 | 18/08/25 | 1/09/25 | 2/10/25 | 3/11/25 | 5/12/25 |
| Time Sampled | 6:15 | 16:00 | 15:33 | 15:57 | 16:14 | 15:34 | 16:00 | 15:52 | 14:45 | 15:16 | 9:54 | 7:45 |
| Depth to Surface from Top of Rail Bridge (m) | 3.69 | 3.77 | 3.74 | 3.76 | 3.73 | 3.73 | 3.72 | 3.78 | 3.76 | 3.73 | 3.8 | 3.73 |

Table 24 Surface Water Monitoring Location S3 Results 2025

| Location | Surface Water S3 | | | | | | | | | | | |
|-------------------------------|------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 2/06/25 | 3/07/25 | 18/08/25 | 1/09/25 | 2/10/25 | 3/11/25 | 5/12/25 |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 2/06/25 | 3/07/25 | 18/08/25 | 1/09/25 | 2/10/25 | 3/11/25 | 5/12/25 |
| Time Sampled | 6:07 | 6:01 | 6:12 | 7:35 | 8:04 | 15:30 | 16:40 | 15:47 | 14:41 | 16:08 | 16:08 | 7:39 |
| Temperature (°C) | 19.18 | 16.90 | 17.82 | 11.23 | 11.55 | 12.15 | 7.54 | 9.18 | 12.37 | 13.40 | 22.08 | 14.32 |
| pH | 7.30 | 7.01 | 7.40 | 7.55 | 6.96 | 7.40 | 7.24 | 6.55 | 7.52 | 7.61 | 7.90 | 7.81 |
| Conductivity (µS/cm) | 1,530 | 1,300 | 3,810 | 1,970 | 2,390 | 2,930 | 1,730 | 923 | 703 | 2,980 | 1,640 | 3,600 |
| Turbidity (NTU) | 7.40 | 10.60 | 10.60 | 6.30 | 18.90 | 3.60 | 48.50 | 3.80 | 5.5 | 7.3 | 2.8 | 44.9 |
| Dissolved Oxygen (mg/L) | -- | 6.54 | -- | 7.25 | 6.94 | 7.53 | 6.45 | 7.40 | 8.04 | 6.48 | 7.05 | 6.67 |
| TSS (mg/L) | -- | 5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 120 | -- | -- | 100 | -- | -- | 57 | -- | -- | 100 | -- |
| Total Alkalinity (mg/L) | -- | 120 | -- | -- | 100 | -- | -- | 57 | -- | -- | 100 | -- |
| Sulphate (mg/L) | -- | 390 | -- | -- | 820 | -- | -- | 230 | -- | -- | 600 | -- |
| Chloride (mg/L) | -- | 71 | -- | -- | 110 | -- | -- | 38 | -- | -- | 100 | -- |
| Calcium (mg/L) | -- | 61 | -- | -- | 88 | -- | -- | 34 | -- | -- | 61 | -- |
| Magnesium (mg/L) | -- | 47 | -- | -- | 74 | -- | -- | 25 | -- | -- | 48 | -- |
| Sodium (mg/L) | -- | 160 | -- | -- | 300 | -- | -- | 92 | -- | -- | 180 | -- |
| Potassium (mg/L) | -- | 12 | -- | -- | 28 | -- | -- | 8.6 | -- | -- | 15 | -- |
| Cobalt (dissolved, mg/L) | -- | 0.006 | -- | -- | 0.011 | -- | -- | 0.011 | -- | -- | 0.004 | -- |
| Manganese (dissolved, mg/L) | -- | 1.100 | -- | -- | 0.820 | -- | -- | 1.300 | -- | -- | 0.490 | -- |
| Nickel (dissolved, mg/L) | -- | 0.081 | -- | -- | 0.160 | -- | -- | 0.055 | -- | -- | 0.100 | -- |
| Zinc (dissolved, mg/L) | -- | 0.047 | -- | -- | 0.038 | -- | -- | 0.037 | -- | -- | 0.022 | -- |
| Iron (dissolved, mg/L) | -- | 0.090 | -- | -- | 0.100 | -- | -- | 1.000 | -- | -- | 0.070 | -- |

-- Indicates no analysis for compound required during particular period.

Table 25 Surface Water Monitoring Location S4 Results 2025

| Location | Surface Water S4 | | | | | | | | | | | |
|-------------------------------|------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 3/06/25 | 4/07/25 | 18/08/25 | 1/09/25 | 3/10/25 | 4/11/25 | 5/12/25 |
| Time Sampled | 7:06 | 7:15 | 7:43 | 8:35 | 9:11 | 7:11 | 7:27 | 16:30 | 16:25 | 7:04 | 15:10 | 9:40 |
| Temperature (°C) | 16.48 | 17.6 | 17.38 | 13.11 | 12.04 | 7.54 | 5.32 | 6.12 | 10.87 | 8.86 | 14.49 | 16.99 |
| pH | 7.39 | 7.51 | 7.27 | 7.32 | 7.29 | 7.78 | 7.3 | 7.46 | 7.37 | 7.46 | 7.63 | 7.89 |
| Conductivity (µS/cm) | 197 | 181 | 203 | 209 | 364 | 210 | 154 | 139 | 108 | 166 | 206 | 1,650 |
| Turbidity (NTU) | 18.3 | 28.0 | 53.4 | 62.9 | 10.4 | 11.4 | 12.2 | 3.4 | 7.5 | 13.0 | 27.7 | 47.3 |
| Dissolved Oxygen (mg/L) | -- | 2.9 | -- | 3.0 | 6.0 | 7.0 | 7.0 | 8.17 | 7.80 | 6.93 | 6.35 | 5.65 |
| TSS (mg/L) | -- | 12 | -- | -- | <5 | -- | -- | 5 | -- | -- | <5 | -- |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 72 | -- | -- | 10 | -- | -- | 27 | -- | -- | 62 | -- |
| Total Alkalinity (mg/L) | -- | 72 | -- | -- | 10 | -- | -- | 27 | -- | -- | 62 | -- |
| Sulphate (mg/L) | -- | 7 | -- | -- | 91 | -- | -- | 13 | -- | -- | 5 | -- |
| Chloride (mg/L) | -- | 5 | -- | -- | 17 | -- | -- | 8 | -- | -- | 8 | -- |
| Calcium (mg/L) | -- | 12 | -- | -- | 19 | -- | -- | 5 | -- | -- | 8.9 | -- |
| Magnesium (mg/L) | -- | 6.3 | -- | -- | 9.8 | -- | -- | 3 | -- | -- | 5 | -- |
| Sodium (mg/L) | -- | 13 | -- | -- | 12 | -- | -- | 8.1 | -- | -- | 8.8 | -- |
| Potassium (mg/L) | -- | 5.4 | -- | -- | 9.8 | -- | -- | 5 | -- | -- | 5.8 | -- |
| Cobalt (dissolved, mg/L) | -- | <0.001 | -- | -- | <0.001 | -- | -- | <0.001 | -- | -- | <0.001 | -- |
| Manganese (dissolved, mg/L) | -- | 0.140 | -- | -- | 0.130 | -- | -- | 0.036 | -- | -- | 0.160 | -- |
| Nickel (dissolved, mg/L) | -- | 0.002 | -- | -- | 0.002 | -- | -- | 0.002 | -- | -- | 0.001 | -- |
| Zinc (dissolved, mg/L) | -- | 0.007 | -- | -- | 0.053 | -- | -- | 0.009 | -- | -- | 0.013 | -- |
| Iron (dissolved, mg/L) | -- | 0.470 | -- | -- | 0.120 | -- | -- | 0.250 | -- | -- | 0.700 | -- |

-- Indicates no analysis for compound required during particular period.

Table 26 Surface Water Monitoring Location S5 Results 2025

| Location | Surface Water S5 | | | | | | | | | | | |
|-------------------------------|------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 3/06/25 | 4/07/25 | 18/08/25 | 1/09/25 | 3/10/25 | 4/11/25 | 5/12/25 |
| Time Sampled | 7:09 | 7:23 | 7:35 | 8:30 | 9:05 | 7:09 | 7:20 | 16:25 | 16:22 | 7:00 | 15:04 | 9:30 |
| Temperature (°C) | 18.54 | 21.00 | 18.88 | 15.07 | 14.00 | 10.14 | 6.76 | 7.65 | 12.31 | 11.52 | 16.10 | 19.70 |
| pH | 7.01 | 7.02 | 7.02 | 7.03 | 6.98 | 7.32 | 6.97 | 7.11 | 7.30 | 7.15 | 7.33 | 7.85 |
| Conductivity (µS/cm) | 1,160 | 1,190 | 1,800 | 1,970 | 1,840 | 1,690 | 1,140 | 999 | 773 | 1,130 | 1,220 | 1,910 |
| Turbidity (NTU) | 6.0 | 85.3 | 27.1 | 25.0 | 35.2 | 24.0 | 66.4 | 1.9 | 13.5 | 10.6 | 17.5 | 48.0 |
| Dissolved Oxygen (mg/L) | -- | 4.07 | -- | 4.44 | 4.89 | 5.21 | 6.55 | 7.39 | 6.49 | 6.52 | 7.11 | 6.47 |
| TSS (mg/L) | -- | 6 | -- | -- | 6 | -- | -- | <5 | -- | -- | <5 | -- |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 82 | -- | -- | 74 | -- | -- | 49 | -- | -- | 59 | -- |
| Total Alkalinity (mg/L) | -- | 82 | -- | -- | 74 | -- | -- | 49 | -- | -- | 59 | -- |
| Sulphate (mg/L) | -- | 660 | -- | -- | 620 | -- | -- | 260 | -- | -- | 430 | -- |
| Chloride (mg/L) | -- | 82 | -- | -- | 76 | -- | -- | 39 | -- | -- | 55 | -- |
| Calcium (mg/L) | -- | 91 | -- | -- | 83 | -- | -- | 37 | -- | -- | 55 | -- |
| Magnesium (mg/L) | -- | 63 | -- | -- | 61 | -- | -- | 27 | -- | -- | 36 | -- |
| Sodium (mg/L) | -- | 220 | -- | -- | 180 | -- | -- | 100 | -- | -- | 110 | -- |
| Potassium (mg/L) | -- | 23 | -- | -- | 21 | -- | -- | 13 | -- | -- | 16 | -- |
| Cobalt (dissolved, mg/L) | -- | 0.016 | -- | -- | 0.026 | -- | -- | 0.007 | -- | -- | 0.010 | -- |
| Manganese (dissolved, mg/L) | -- | 1.300 | -- | -- | 1.600 | -- | -- | 0.500 | -- | -- | 0.790 | -- |
| Nickel (dissolved, mg/L) | -- | 0.130 | -- | -- | 0.140 | -- | -- | 0.066 | -- | -- | 0.077 | -- |
| Zinc (dissolved, mg/L) | -- | 0.055 | -- | -- | 0.064 | -- | -- | 0.038 | -- | -- | 0.062 | -- |
| Iron (dissolved, mg/L) | -- | 0.030 | -- | -- | 0.050 | -- | -- | 0.200 | -- | -- | 0.020 | -- |

-- Indicates no analysis for compound required during particular period.

Table 27 Surface Water Monitoring Location S6 Results 2025

| Location | Surface Water S6 | | | | | | | | | | | |
|-------------------------------|------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 3/06/25 | 4/07/25 | 18/08/25 | 1/09/25 | 3/10/25 | 4/11/25 | 5/12/25 |
| Time Sampled | 7:02 | 7:03 | 7:29 | 8:25 | 8:54 | 7:05 | 7:22 | 16:20 | 16:18 | 6:55 | 14:44 | 9:22 |
| Temperature (°C) | 16.91 | 17.50 | 16.35 | 11.53 | 11.91 | 9.22 | 7.77 | 8.60 | 11.51 | 9.51 | 15.00 | 16.20 |
| pH | 6.87 | 6.87 | 7.05 | 7.15 | 7.17 | 7.90 | 6.99 | 7.22 | 7.43 | 7.59 | 7.62 | 7.89 |
| Conductivity (µS/cm) | 1,920 | 1,360 | 3,720 | 3,420 | 2,460 | 2,770 | 1,820 | 1,010 | 800 | 2,930 | 1,720 | 3,470 |
| Turbidity (NTU) | 7.7 | 13.8 | 14.2 | 10.7 | 15.7 | 17.3 | 50.8 | 3.2 | 0.9 | 8.5 | 16.8 | 25.1 |
| Dissolved Oxygen (mg/L) | -- | 5.97 | -- | 5.80 | 6.68 | 6.65 | 7.45 | 8.10 | 7.80 | 6.91 | 7.22 | 6.74 |
| TSS (mg/L) | -- | 5 | -- | -- | 5 | -- | -- | <5 | -- | -- | 11 | -- |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 110 | -- | -- | 110 | -- | -- | 53 | -- | -- | 100 | -- |
| Total Alkalinity (mg/L) | -- | 110 | -- | -- | 110 | -- | -- | 53 | -- | -- | 100 | -- |
| Sulphate (mg/L) | -- | 450 | -- | -- | 840 | -- | -- | 280 | -- | -- | 600 | -- |
| Chloride (mg/L) | -- | 69 | -- | -- | 120 | -- | -- | 40 | -- | -- | 93 | -- |
| Calcium (mg/L) | -- | 75 | -- | -- | 89 | -- | -- | 44 | -- | -- | 70 | -- |
| Magnesium (mg/L) | -- | 51 | -- | -- | 75 | -- | -- | 30 | -- | -- | 51 | -- |
| Sodium (mg/L) | -- | 150 | -- | -- | 310 | -- | -- | 100 | -- | -- | 170 | -- |
| Potassium (mg/L) | -- | 16 | -- | -- | 29 | -- | -- | 11 | -- | -- | 17 | -- |
| Cobalt (dissolved, mg/L) | -- | 0.001 | -- | -- | 0.006 | -- | -- | 0.010 | -- | -- | 0.002 | -- |
| Manganese (dissolved, mg/L) | -- | 0.170 | -- | -- | 0.460 | -- | -- | 1.100 | -- | -- | 0.210 | -- |
| Nickel (dissolved, mg/L) | -- | 0.068 | -- | -- | 0.160 | -- | -- | 0.063 | -- | -- | 0.096 | -- |
| Zinc (dissolved, mg/L) | -- | 0.007 | -- | -- | 0.010 | -- | -- | 0.023 | -- | -- | 0.022 | -- |
| Iron (dissolved, mg/L) | -- | 0.060 | -- | -- | 0.010 | -- | -- | 0.090 | -- | -- | 0.070 | -- |

-- Indicates no analysis for compound required during particular period.

Table 28 Surface Water Monitoring Location S7 Results 2025

| Location | Surface Water S7 | | | | | | | | | | | |
|-------------------------------|------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 3/06/25 | 4/07/25 | 18/08/25 | 1/09/25 | 3/10/25 | 4/11/25 | 5/12/25 |
| Time Sampled | 7:17 | 7:31 | 7:49 | 8:45 | 9:17 | 7:20 | 7:37 | 16:40 | 16:30 | 7:15 | 15:49 | 9:50 |
| Temperature (°C) | 18.82 | 20.1 | 19.08 | 13.94 | 12.82 | 9.34 | 6.27 | 7.82 | 12.04 | 12.04 | 16.17 | 18.79 |
| pH | 6.95 | 7.29 | 7.05 | 6.96 | 6.99 | 7.21 | 6.89 | 7.24 | 6.91 | 6.91 | 7.33 | 7.64 |
| Conductivity (µS/cm) | 1,200 | 1,250 | 1,690 | 1,930 | 1,770 | 1,600 | 1,170 | 1,080 | 820 | 820 | 1,150 | 1,820 |
| Turbidity (NTU) | 6.4 | 40.8 | 24.1 | 14.6 | 21.6 | 22 | 58.4 | 9.3 | 10.6 | 10.6 | 30.8 | 27 |
| Dissolved Oxygen (mg/L) | -- | 3.97 | -- | 5.9 | 5.55 | 5.63 | 6.21 | 8.54 | 6.98 | 6.98 | 7.29 | 6.05 |
| TSS (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 92 | -- | -- | 71 | -- | -- | 50 | -- | -- | 65 | -- |
| Total Alkalinity (mg/L) | -- | 92 | -- | -- | 71 | -- | -- | 50 | -- | -- | 65 | -- |
| Sulphate (mg/L) | -- | 660 | -- | -- | 620 | -- | -- | 300 | -- | -- | 430 | -- |
| Chloride (mg/L) | -- | 84 | -- | -- | 77 | -- | -- | 43 | -- | -- | 55 | -- |
| Calcium (mg/L) | -- | 95 | -- | -- | 86 | -- | -- | 41 | -- | -- | 52 | -- |
| Magnesium (mg/L) | -- | 67 | -- | -- | 62 | -- | -- | 30 | -- | -- | 34 | -- |
| Sodium (mg/L) | -- | 240 | -- | -- | 180 | -- | -- | 120 | -- | -- | 100 | -- |
| Potassium (mg/L) | -- | 24 | -- | -- | 22 | -- | -- | 14 | -- | -- | 15 | -- |
| Cobalt (dissolved, mg/L) | -- | 0.004 | -- | -- | 0.013 | -- | -- | 0.006 | -- | -- | 0.006 | -- |
| Manganese (dissolved, mg/L) | -- | 0.740 | -- | -- | 1.200 | -- | -- | 0.520 | -- | -- | 0.700 | -- |
| Nickel (dissolved, mg/L) | -- | 0.100 | -- | -- | 0.130 | -- | -- | 0.075 | -- | -- | 0.069 | -- |
| Zinc (dissolved, mg/L) | -- | 0.007 | -- | -- | 0.050 | -- | -- | 0.024 | -- | -- | 0.042 | -- |
| Iron (dissolved, mg/L) | -- | 0.050 | -- | -- | 0.080 | -- | -- | 0.380 | -- | -- | 0.100 | -- |

-- Indicates no analysis for compound required during particular period.

Table 29 Surface Water Monitoring Location Wallerawang Downstream Results 2025

| Location | Surface Water Wallerawang Downstream | | | | | | | | | | | |
|-------------------------------|--------------------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Sampling Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Date Sampled | 10/01/25 | 7/02/25 | 7/03/25 | 4/04/25 | 2/05/25 | 3/06/25 | 4/07/25 | 18/08/25 | 1/09/25 | 3/10/25 | 4/11/25 | 5/12/25 |
| Time Sampled | 14:35 | 6:20 | 6:45 | 7:55 | 8:22 | 7:30 | 7:49 | 16:02 | 15:50 | 6:05 | 15:59 | 8:32 |
| Temperature (°C) | 22.1 | 16.8 | 16.5 | 12.6 | 13.3 | 10.2 | 8.5 | 9.58 | 12.78 | 10.10 | 13.82 | 16.63 |
| pH | 6.64 | 6.79 | 6.83 | 6.82 | 6.64 | 7.30 | 6.89 | 7.04 | 6.89 | 6.99 | 7.29 | 7.33 |
| Conductivity (µS/cm) | 1,240 | 1,460 | 2,350 | 2,510 | 1,920 | 1,850 | 1,770 | 1,030 | 1,150 | 2,180 | 1,740 | 2,930 |
| Turbidity (NTU) | 6.4 | 8.0 | 8.6 | 14.1 | 25.7 | 15.4 | 30.7 | 1.9 | 13.6 | 34.5 | 23.3 | 27.1 |
| Oil & Grease (mg/L) | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- | -- | <5 | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 86 | -- | -- | 82 | -- | -- | 56 | -- | -- | 100 | -- |
| Total Alkalinity (mg/L) | -- | 86 | -- | -- | 82 | -- | -- | 56 | -- | -- | 100 | -- |
| Sulphate (mg/L) | -- | 510 | -- | -- | 700 | -- | -- | 280 | -- | -- | 580 | -- |
| Chloride (mg/L) | -- | 57 | -- | -- | 79 | -- | -- | 41 | -- | -- | 92 | -- |
| Calcium (mg/L) | -- | 100 | -- | -- | 110 | -- | -- | 44 | -- | -- | 64 | -- |
| Magnesium (mg/L) | -- | 57 | -- | -- | 69 | -- | -- | 30 | -- | -- | 47 | -- |
| Sodium (mg/L) | -- | 110 | -- | -- | 190 | -- | -- | 100 | -- | -- | 160 | -- |
| Potassium (mg/L) | -- | 17 | -- | -- | 25 | -- | -- | 11 | -- | -- | 16 | -- |
| Cobalt (dissolved, mg/L) | -- | 0.027 | -- | -- | 0.039 | -- | -- | 0.006 | -- | -- | 0.004 | -- |
| Manganese (dissolved, mg/L) | -- | 1.300 | -- | -- | 1.600 | -- | -- | 0.580 | -- | -- | 0.320 | -- |
| Nickel (dissolved, mg/L) | -- | 0.098 | -- | -- | 0.140 | -- | -- | 0.059 | -- | -- | 0.095 | -- |
| Zinc (dissolved, mg/L) | -- | 0.059 | -- | -- | 0.065 | -- | -- | 0.017 | -- | -- | 0.036 | -- |
| Iron (dissolved, mg/L) | -- | 7.700 | -- | -- | 16.000 | -- | -- | 0.090 | -- | -- | 0.180 | -- |

-- Indicates no analysis for compound required during particular period.

Table 30 Surface Water Monitoring Location 'The Bong' Results January – December 2025

| Location | The Bong | | | | | | | | | | | |
|-------------------------------|----------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov # | Dec # |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov # | Dec # |
| Date Sampled | 10/01/25 | 6/02/25 | 6/03/25 | 3/04/25 | 2/05/25 | 2/06/25 | 3/07/25 | 19/08/25 | 1/09/25 | 2/10/25 | 3/11/25 | 5/12/25 |
| Time Sampled | 7:40 | 16:35 | 15:41 | 16:06 | 9:55 | 15:55 | 16:10 | 7:17 | 14:52 | 15:25 | 11:52 | 7:50 |
| Temperature (°C) | 14.75 | 26.20 | 22.90 | 18.94 | 11.63 | 11.22 | 8.82 | 5.32 | 14.25 | 14.82 | -- | -- |
| pH | 7.04 | 7.63 | 7.42 | 7.31 | 7.53 | 7.51 | 6.19 | 6.65 | 6.74 | 5.90 | -- | -- |
| Conductivity (µS/cm) | 141 | 116 | 92 | 251 | 169 | 222 | 150 | 211 | 181 | 186 | -- | -- |
| Turbidity (NTU) | 8.9 | 10.6 | 25.7 | 7.0 | 20.2 | 10.8 | 74.0 | 7.4 | 12.0 | 11.5 | -- | -- |
| Dissolved Oxygen (mg/L) | -- | 21 | -- | -- | 11 | -- | -- | 5 | -- | -- | -- | -- |
| TSS (mg/L) | -- | 21 | -- | -- | 11 | -- | -- | 5 | -- | -- | -- | -- |
| Oil & Grease (mg/L) | -- | 38 | -- | -- | 50 | -- | -- | 66 | -- | -- | -- | -- |
| Bicarbonate Alkalinity (mg/L) | -- | 1.00 | -- | -- | 4.00 | -- | -- | 3.00 | -- | -- | -- | -- |
| Total Alkalinity (mg/L) | -- | 11 | -- | -- | 13 | -- | -- | 18 | -- | -- | -- | -- |
| Sulphate (mg/L) | -- | 4 | -- | -- | 4 | -- | -- | 5.8 | -- | -- | -- | -- |
| Chloride (mg/L) | -- | 2 | -- | -- | 2 | -- | -- | 3 | -- | -- | -- | -- |
| Calcium (mg/L) | -- | 2 | -- | -- | 5.8 | -- | -- | 4 | -- | -- | -- | -- |
| Magnesium (mg/L) | -- | <0.001 | -- | -- | <0.001 | -- | -- | <0.001 | -- | -- | -- | -- |
| Sodium (mg/L) | -- | <0.0001 | -- | -- | <0.0001 | -- | -- | <0.0001 | -- | -- | -- | -- |
| Potassium (mg/L) | -- | <0.001 | -- | -- | <0.001 | -- | -- | <0.001 | -- | -- | -- | -- |
| Cobalt (dissolved, mg/L) | -- | <0.001 | -- | -- | 0.003 | -- | -- | <0.001 | -- | -- | -- | -- |
| Manganese (dissolved, mg/L) | -- | <0.001 | -- | -- | <0.001 | -- | -- | <0.001 | -- | -- | -- | -- |
| Nickel (dissolved, mg/L) | -- | 0.002 | -- | -- | 0.004 | -- | -- | 0.007 | -- | -- | -- | -- |
| Zinc (dissolved, mg/L) | -- | 0.008 | -- | -- | 0.018 | -- | -- | 0.022 | -- | -- | -- | -- |
| Iron (dissolved, mg/L) | -- | 0.210 | -- | -- | 0.030 | -- | -- | 0.010 | -- | -- | -- | -- |

--- Indicates no analysis for compound required

Dry at time of sampling event

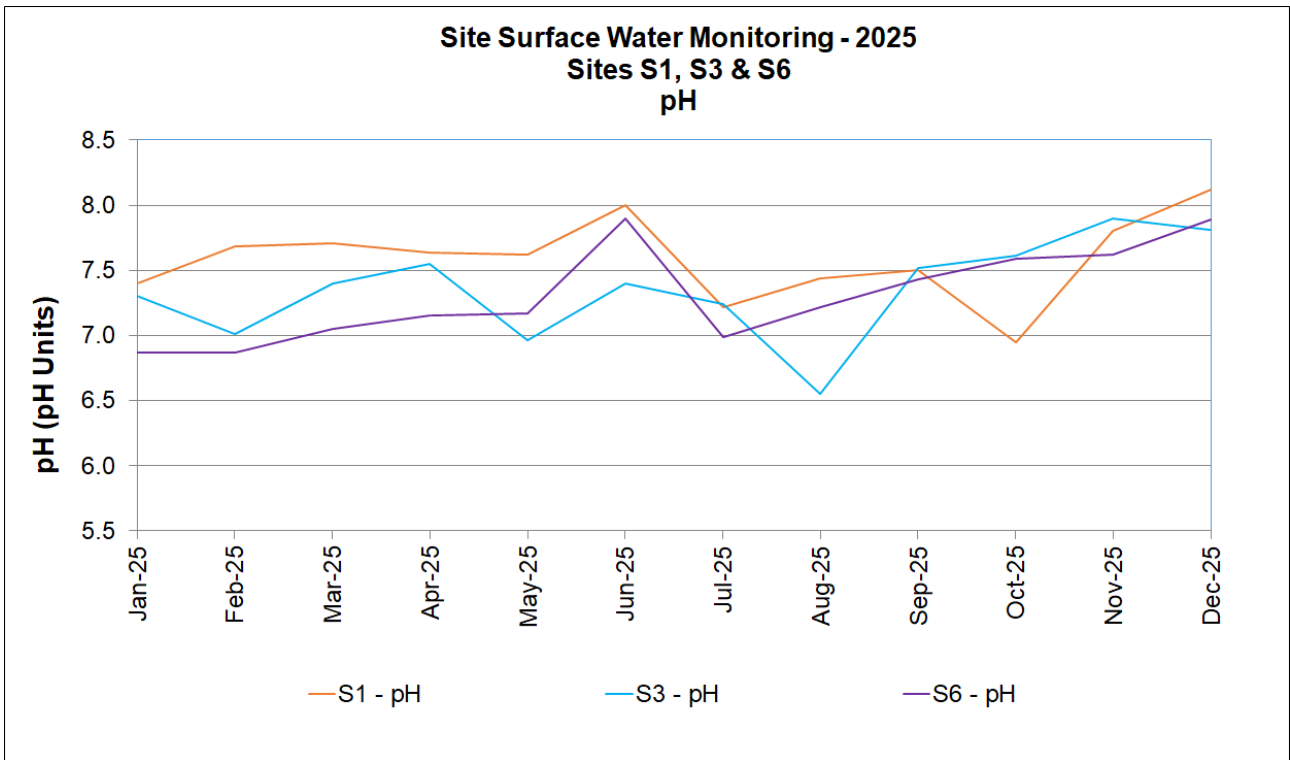


Figure 9 Site Surface Water S1, S3 & S6 pH Results 2025

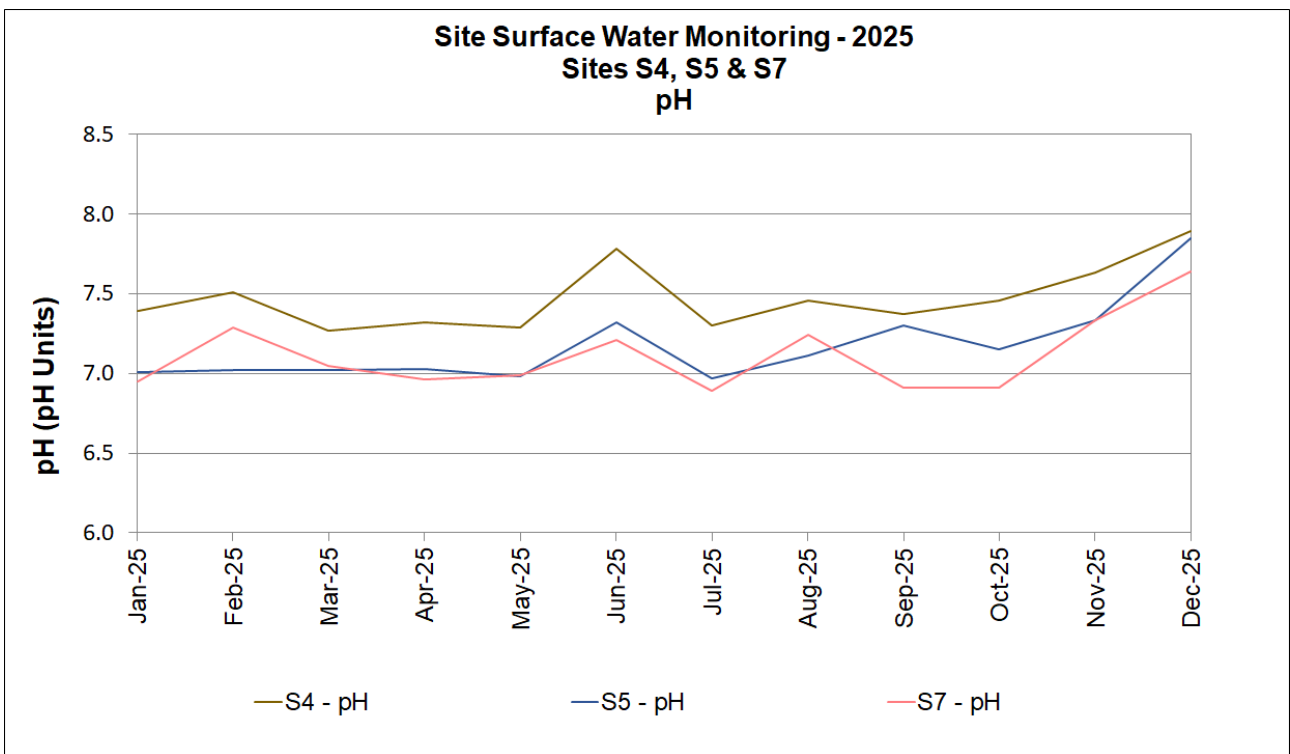


Figure 10 Site Surface Water S4, S5 & S7 pH Results 2025

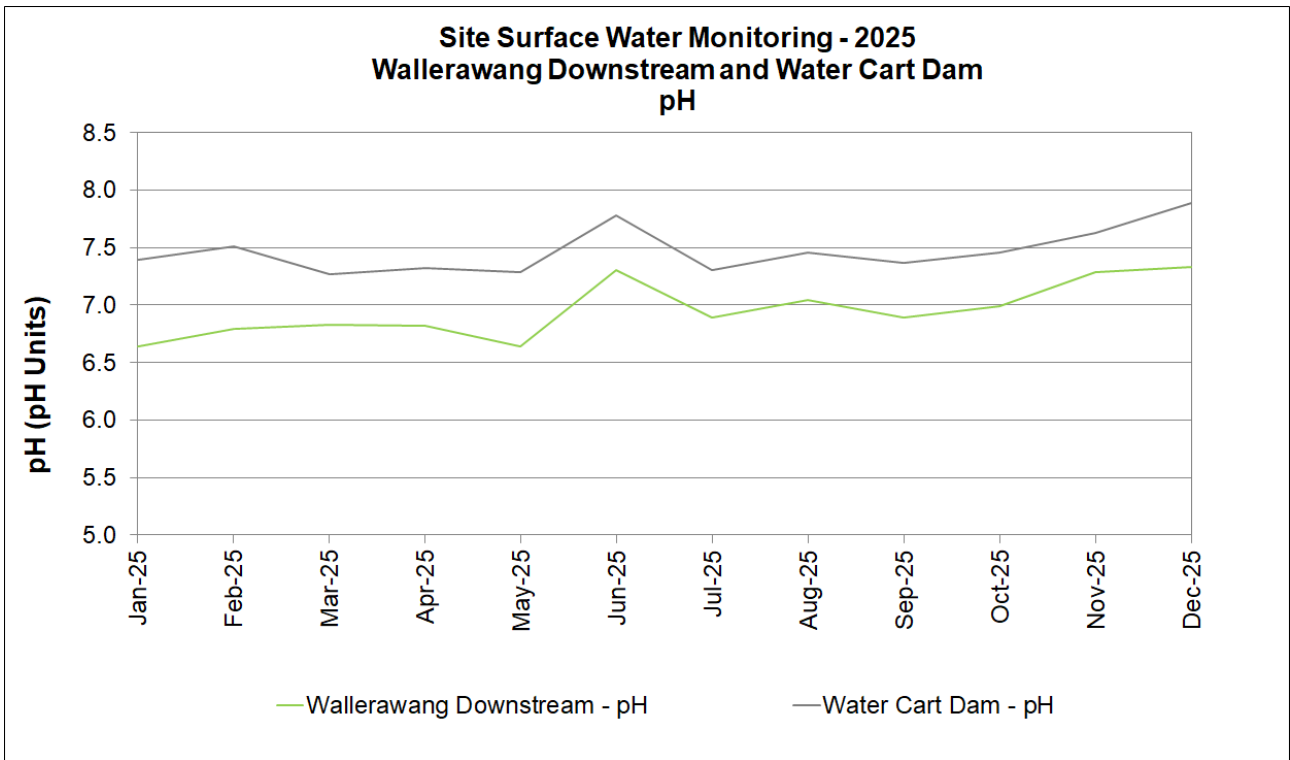


Figure 11 Wallerawang Downstream and Water Cart Dam pH Results 2025

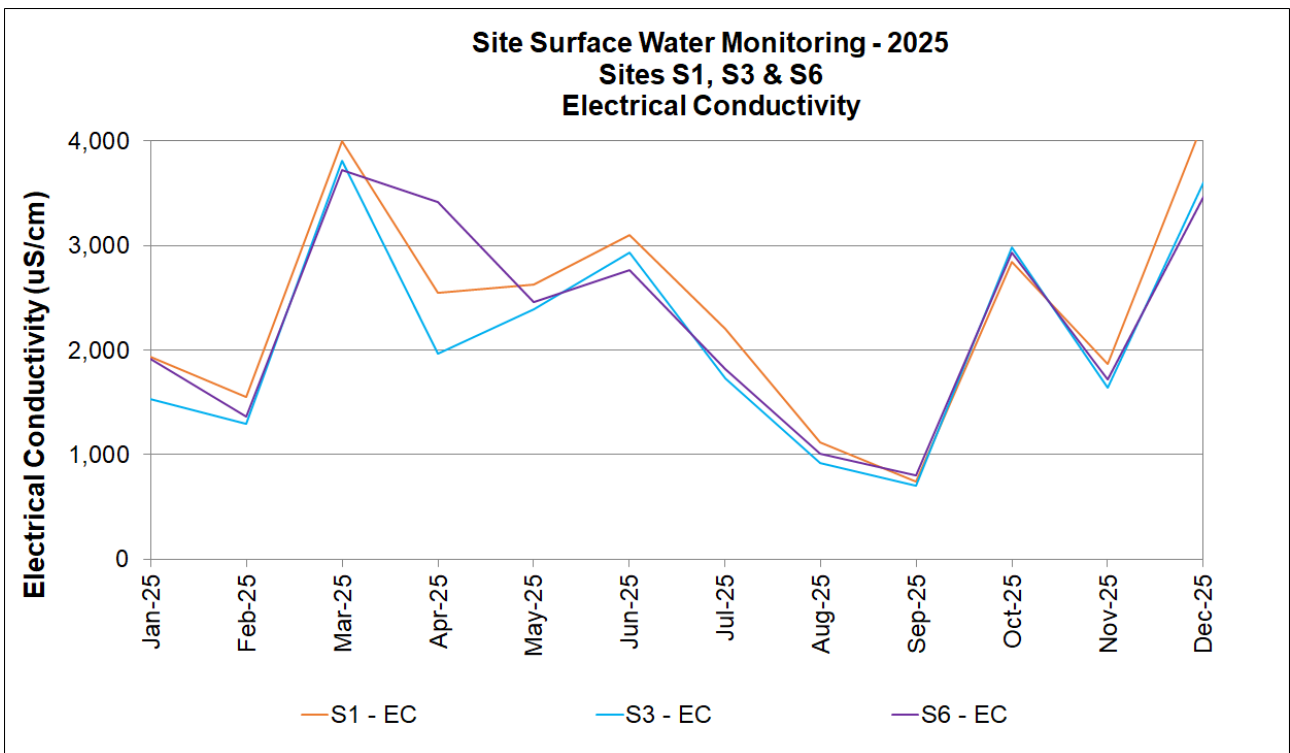


Figure 12 Site Surface Water S1, S3 & S6 Electrical Conductivity Results 2025

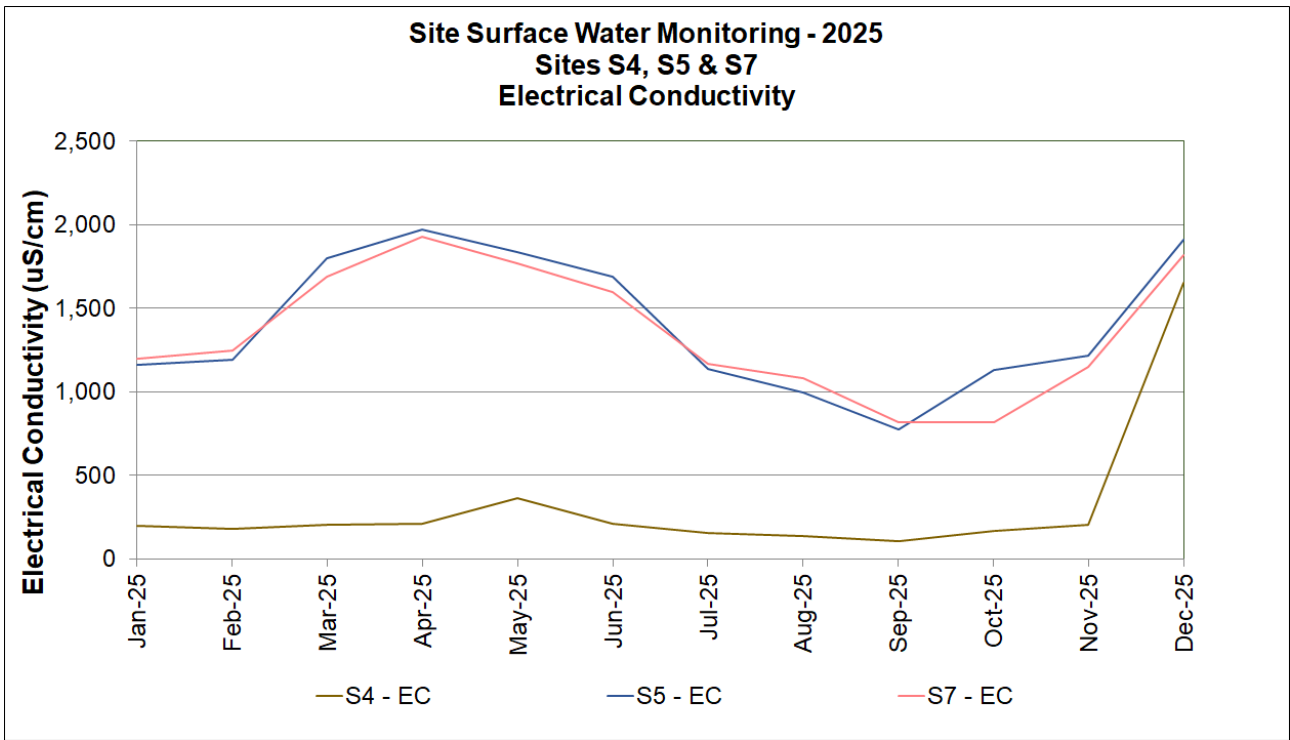


Figure 13 Site Surface Water S4, S5 & S7 Electrical Conductivity Results 2025

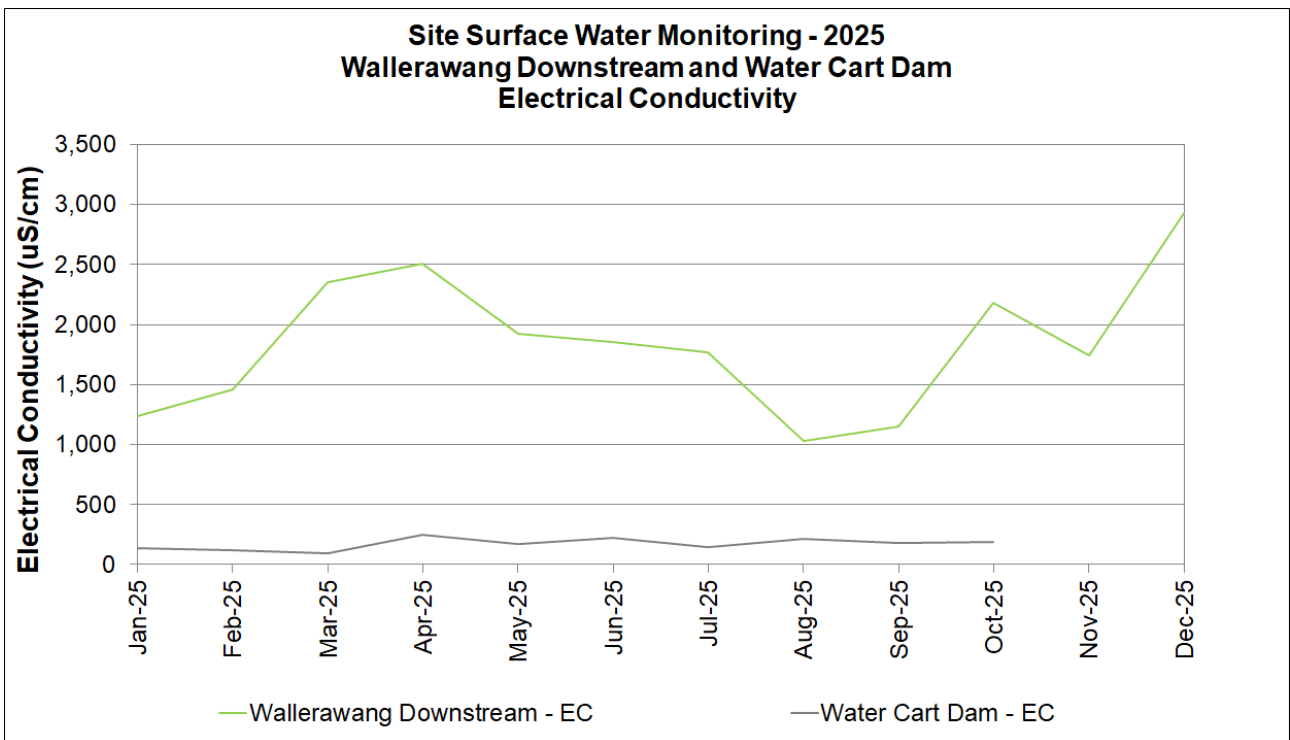


Figure 14 The Bong and Wallerawang Downstream Electrical Conductivity Results 2025.

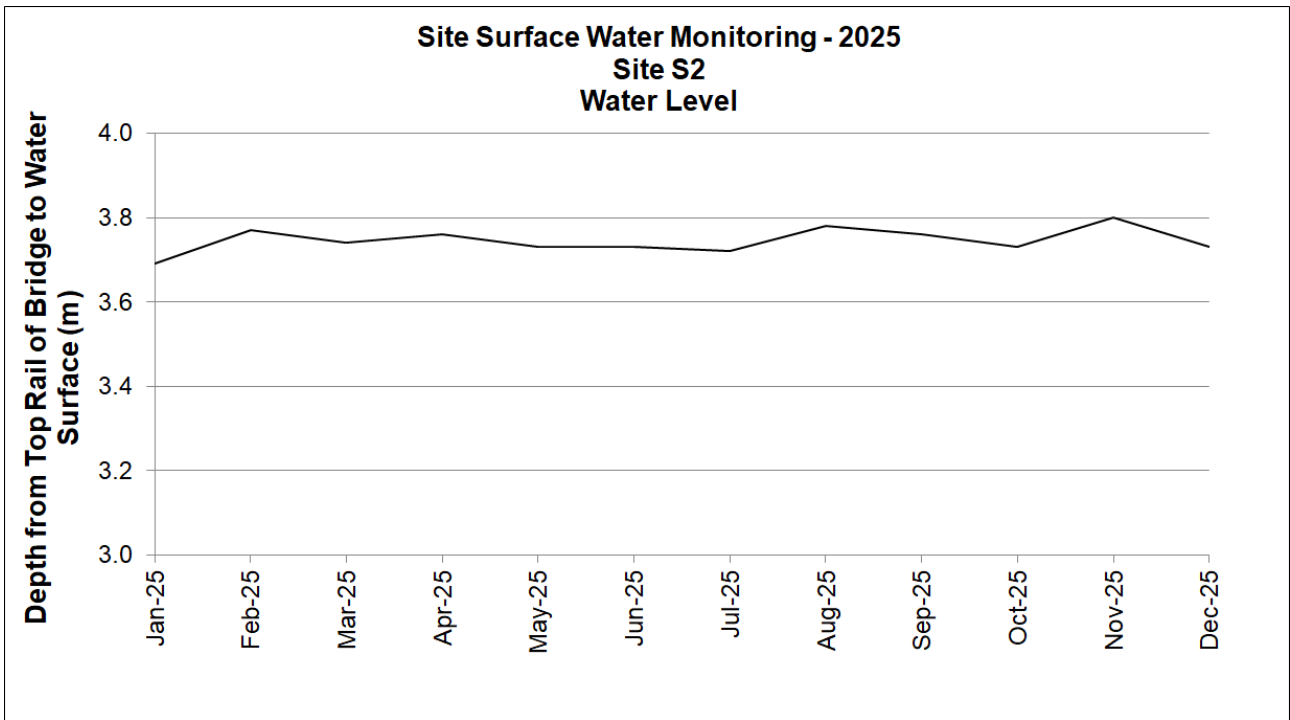


Figure 15 Site Surface Water S2 – 2025 Water Level

The variation of electrical conductivity with rainfall is presented in **Figure 16**: electrical conductivity theoretically increases in response to decreased rainfall however there are other contributions to the salinity of the water such as sediment which is eroded by rainfall from the catchment.

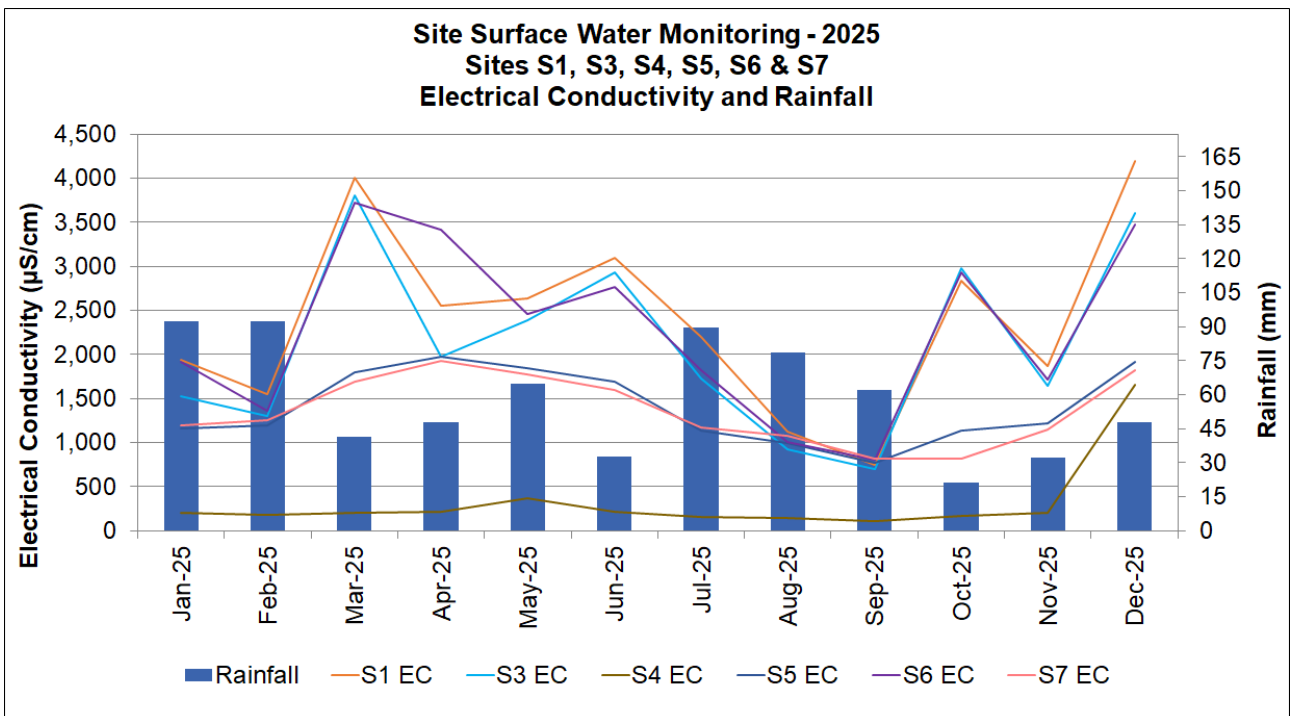


Figure 16 Site Surface Water Electrical Conductivity and Monthly Rainfall

5 METEOROLOGICAL MONITORING

The meteorological monitoring requirements of EPL 4911 (Ref [1]) are presented in **Table 31**.

Table 31 *EPL Meteorological Monitoring Requirements*

| Parameter | Units of Measure | Frequency | Averaging Period |
|-------------------|------------------|------------|------------------|
| Rainfall | mm | Continuous | 15 minute |
| Air temperature | °C | Continuous | 1.0 hour |
| Sigma theta | ° | Continuous | 15 minute |
| Relative humidity | % | Continuous | 1.0 hour |
| Wind direction | ° | Continuous | 15 minute |
| Wind speed | m/s | Continuous | 15 minute |

5.1 METEOROLOGICAL MONITORING DATA SUMMARY

Meteorological monitoring was undertaken via the monitoring station at Mt Piper Power Station in accordance with the EPL 4911.

The station presents data for rainfall, temperature at 2 m height, temperature at 10 m height, sigma theta, humidity, wind speed, wind direction and satisfies the requirements as per **Table 31**. The station does record additional data (pressure, solar radiation, evapotranspiration) which is not considered relevant to this report and is therefore not presented.

The completeness of the data set is presented in **Table 32** and a summary of the weather data recorded for the period January to December 2025 is presented in **Table 33**.

Table 32 *Completeness (%) of Weather Station Data Capture*

| Month | Rainfall | Air Temperature | | Sigma Theta | Relative Humidity | Wind Speed | Wind Direction |
|-----------|----------|-----------------|-------|-------------|-------------------|------------|----------------|
| | | 2m | 10m | | | | |
| January | 99.9% | 99.9 | 99.9 | 99.9 | 99.9 | 99.9 | 99.9 |
| February | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 |
| March | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| April | 99.8 | 99.8 | 99.8 | 93.1 | 99.8 | 93.1 | 93.1 |
| May | 100.0 | 100.0 | 99.9 | 97 | 100.0 | 97.0 | 97.0 |
| June | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| July | 99.6 | 99.6 | 99.6 | 96.5 | 99.6 | 96.5 | 96.5 |
| August | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| September | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| October | 99.8 | 99.8 | 99.8 | 99.8 | 99.8 | 99.8 | 99.8 |
| November | 100.0 | 100.0 | 99.9 | 100.0 | 100.0 | 100.0 | 100.0 |
| December | 99.8 | 99.8 | 99.8 | 99.9 | 99.8 | 99.9 | 99.9 |

Table 33 Meteorological Monitoring Summary Data 2025

| Month | Rainfall (mm) | Cumulative Rainfall (mm) | No of Rain Days / Month | Air Temp. @ 2 m (°C) | | | Air Temp. @ 10 m (°C) | | | Sigma theta (°) | | | Relative Humidity (%) | | | Wind Speed (m/s) | | | Modal Wind Direction |
|----------------|---------------|--------------------------|-------------------------|----------------------|------|------|-----------------------|------|------|-----------------|-----|-----|-----------------------|------|------|------------------|------|------|----------------------|
| | | | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | |
| Jan | 92.6 | 92.6 | 21 | 16.8 | 6.0 | 34.0 | 17.6 | 6.0 | 33.0 | 25 | 2 | 101 | 77 | 19.0 | 99.0 | 2 | 0.1 | 12.6 | SE |
| Feb | 64.2 | 156.8 | 11 | 17.8 | 3.0 | 32.0 | 17.9 | 4.0 | 30.0 | 25 | 2 | 101 | 76 | 21.0 | 99.0 | 2 | 0.1 | 7.1 | SW |
| Mar | 41.6 | 198.4 | 16 | 17.2 | 5.9 | 32.0 | 17.3 | 7.5 | 31.2 | 24 | 1 | 103 | 79 | 17.9 | 98.6 | 2 | 0.1 | 6.3 | ESE |
| April | 47.6 | 246 | 11 | 12.2 | -1.0 | 24.0 | 12.8 | 2.0 | 23.0 | 22 | 2 | 98 | 76 | 16.0 | 99.0 | 2 | 0.1 | 8.4 | SW |
| May | 64.8 | 310.8 | 17 | 9.1 | -2.0 | 19.1 | 9.6 | -0.5 | 18.4 | 22 | 2 | 101 | 86 | 25.4 | 98.6 | 2 | 0.12 | 10.1 | SE |
| June | 32.6 | 343.4 | 22 | 3.8 | -7.4 | 16.7 | 4.5 | -5.4 | 16.3 | 20 | 1 | 100 | 83 | 4.8 | 98.6 | 2 | 0.1 | 8.9 | SW |
| July | 89.4 | 432.8 | 24 | 4.7 | -8.5 | 15.2 | 5.3 | -4.8 | 13.3 | 21 | 2 | 102 | 84 | 16.0 | 98.5 | 3 | 0.13 | 10.0 | WSW |
| Aug | 78.4 | 511.2 | 25 | 6.4 | -6.1 | 20.5 | 6.8 | -3.0 | 17.9 | 20 | 2 | 99 | 84 | 33.4 | 98.6 | 2 | 0.11 | 10.5 | SE |
| Sept | 62 | 573.2 | 13 | 9.9 | -4.7 | 26.7 | 10.2 | -2.0 | 23.6 | 23 | 1 | 99 | 71 | 16.6 | 98.6 | 2 | 0.11 | 8.8 | SW |
| Oct | 21 | 594.2 | 12 | 13.3 | 0.5 | 29.3 | 14.0 | 2.4 | 29.3 | 23 | 2 | 102 | 65 | 16.8 | 98.6 | 2 | 0.12 | 9.2 | WSW |
| Nov | 32.4 | 626.6 | 8 | 14.5 | -0.9 | 28.4 | 15.2 | 0.6 | 29.3 | 21 | 2 | 103 | 61 | 13.7 | 98.7 | 3 | 0.08 | 11.2 | WSW |
| Dec | 47.6 | 674.2 | 10 | 16.5 | 1.3 | 31.9 | 17.4 | 2.7 | 32.2 | 24 | 1 | 101 | 62 | 11 | 98.6 | 2 | 0.06 | 8.0 | WSW |
| TOTAL | | 674.2 | 190 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Minimum | | 21 | 8 | -- | -8.5 | -- | -- | -5.4 | -- | -- | 1 | -- | -- | 4.80 | -- | -- | 0.06 | -- | WSW |
| Maximum | | 92.6 | 25 | -- | -- | 34.0 | -- | -- | 33.0 | -- | -- | 103 | -- | -- | 99.0 | -- | -- | 12.6 | SE |

5.2 REVIEW OF METEOROLOGICAL MONITORING RESULTS

Rainfall was recorded across 190 days during the 2025 monitoring period.

The total rainfall recorded by the meteorological monitoring was 674.2 mm, less than rainfall recorded during 2021, 2022 and 2024 (892, 835, 1,133 and 770.6 mm respectively) and higher than in 2023 (634 mm).

The maximum temperatures recorded during the reporting period were 34.0°C at the 2 m sensor and 33.0°C at the 10 m sensor during January. The lowest temperatures were both in September: -8.5°C at the 2 m sensor in July and -5.4°C at the 10 m sensor in June.

Predominant wind directions at the PDM during 2025 was observed to be primarily from the south-westerly quadrant.

6 STREAM HEALTH & CHANNEL STABILITY MONITORING

6.1 STREAM HEALTH & CHANNEL STABILITY MONITORING SUMMARY

Schedule 3 Condition 27(b) of Project Approval PA 10_0041 requires performance criteria and a programme to monitor the stream health, riparian vegetation health and channel stability of creeks and other water bodies that could potentially be affected by the PDM. As defined in Schedule 3 Condition 27(b) of the Project Approval, the creeks and other water bodies that could potentially be affected by the project include Wangcol Creek, the Blue Lake and Coxs River.

A Channel Stability and Stream Health Monitoring programme is outlined in Section 4.6.5 of the PDM Water Management Plan (Ref [3]) for the purpose of monitoring channel stability and stream health and vegetation health of Wangcol Creek. In addition to the requirements of the Channel Stability and Stream Health Monitoring programme, the water bodies of Blue Lake and Coxs River have also been included in the monitoring programme, to satisfy the conditions outlined in the Project Approval (Ref [2]).

Routine six-monthly assessments of Wangcol Creek, Blue Lake and Coxs River were undertaken in March and September 2025 in accordance with the Channel Stability and Stream Health Monitoring programme. The performance criteria utilised for the stream health assessment of each monitoring point is derived from the CSIRO Ephemeral Stream Assessment protocol (Ref [9]) which is reproduced in **Table 34**.

Results of the routine six-monthly assessments are presented in **Table 35** to **Table 38**. The locations of stream health monitoring sites are presented in **Drawing 2, Attachment 1**.

Visual assessments and photographic documentation of each site are also undertaken on monthly basis detailing evidence of erosion, newly exposed soils, and vegetation disturbance. Results of this monthly monitoring indicate no evidence of erosion, newly exposed soils, or vegetation disturbance.

A stream health assessment of the Blue Lake site was not undertaken, as the site does not fit the requirements of the Ephemeral Stream Assessment protocol (Ref [9]), which has been developed for streams and drainage lines. Nevertheless, the Blue Lake is still included in monthly erosion and vegetation disturbance observation inspections.

Table 34 Classification of Different Drainage Line States (CSIRO)

| Activity Rating (%) | Classification | Discussion of Classification |
|---------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 80 + | Very Stable | Drainage line is very stable and likely to be in original form. It is able to withstand all flow velocities that have previously occurred in this area and only minimal monitoring is required, predominantly after high flow events, to ensure condition does not deteriorate. |
| 70-80 | Stable | Drainage line is stable. It is important to assess this zone in relation to the other classifications and define whether this zone is moving from potentially stabilising to a more stable form, or if it is deteriorating from a very stable form. The nature of this relationship will identify the type of monitoring required. |
| 60-69 | Potentially Stabilising | Drainage line is potentially stabilising. Ongoing monitoring is required while rehabilitation works are not needed in the immediate future. |
| 50-59 | Active | Drainage line is actively eroding and remedial actions are required. It is important to classify if erosion is caused primarily by upstream flows, lateral flows or unstable wall materials so that appropriate rehabilitation can be carried out. |
| < 50 | Very Active | Drainage line is very actively eroding and immediate remedial actions are required. It is important to classify if erosion is caused primarily by upstream flows, lateral flows or unstable wall materials so that appropriate rehabilitation can be carried out. |

Table Source: CSIRO Ephemeral Stream Assessment (CSIRO, undated)

Table 35 Classification of Different Drainage Line State – Site SH1

| Activity | | Rating 7 March | Rating 2 September | Explanation of Rating |
|----------------------------------------|---------------------------------------------------|--------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vegetation | On Drainage Line Floor | 2 | 2 | 2 – Any vegetation present is annual or short lived; partial burial of plants by recently deposited sediment evident. Some vegetation growing on the drainage line floor. |
| | On Drainage Line Walls | 3 | 3 | 3 – Dense perennial plant cover, similar to vegetation on floodplain/riparian zone. Characteristic wetland species composition. No observable plant burial by sediment. |
| Profile of D/L | Shape and Aspect of Drainage Line Section | 3 | 3 | 3 – Potentially stabilising. Side walls become rounded and crusted alluvial fan at foot of side walls. Width > depth. |
| | Longitudinal Morphology of Drainage Line | 3 | 3 | 3 – Flat with a cohesive fine textured 'soil-like' bed. |
| | Particle Size of Materials on Drainage Line Floor | 3 | 3 | 3 – Material on floor is much larger in particle size and/or denser (more consolidated) than material on walls (e.g., well sorted gravel). |
| Wall Materials | Nature of Drainage Line Materials | 3 | 3 | 3 – Materials that slake rapidly and/or disperse are exposed on less than 0.3 metres of vertical wall height (the sum of multiple layers if present). |
| Bank Edge | Shape of Stream Bordering Slopes | 2 | 3 | 2 – Steep bank, 10-30°, permitting moderate to high velocity flows. |
| | | | | 3 – Moderately sloped bank, 5-10°. |
| | Nature of Lateral Flow Regulation | 4 | 4 | 4 – Dense grassland: low inflow rate, mostly diffuse. |
| 2025 Overall Scores | | | | |
| Classification of Drainage Line | | 24/32 75 | 24/32 75 | Drainage is considered stable. |

Table 36 Classification of Different Drainage Line State – Site SH2

| Activity | | Rating 7 March | Rating 2 September | Explanation of Rating |
|----------------------------------------|---------------------------------------------------|--------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vegetation | On Drainage Line Floor | 2 | 1 | 1 - Little or no vegetation growing on drainage line floor. 2 - Any vegetation present is annual or short lived; partial burial of plants by recently deposited sediment evident. Some vegetation growing on the drainage line floor. |
| | On Drainage Line Walls | 3 | 3 | 3 – Dense perennial plant cover, similar to vegetation on floodplain/riparian zone. Characteristic wetland species composition. No observable plant burial by sediment. |
| Profile of D/L | Shape and Aspect of Drainage Line Section | 3 | 4 | 3 – Potentially stabilising. Side walls become rounded and crusted alluvial fan at foot of side walls. Width > depth. 4 – Stabilising: wall angle less than 65°, small inactive alluvial fan at foot of side walls: width > depth. |
| | Longitudinal Morphology of Drainage Line | 3 | 3 | 3 – Flat with a cohesive fine textured 'soil-like' bed. |
| | Particle Size of Materials on Drainage Line Floor | 3 | 3 | 3 – Material on floor is much larger in particle size and/ or denser than material on walls. Surface armouring (e.g., cobbles, competent country rock). |
| Wall Materials | Nature of Drainage Line Materials | 3 | 3 | 3 – Materials that slake and/or disperse are exposed on less than 0.3m of wall height. |
| Bank Edge | Shape of Stream Bordering Slopes | 3 | 3 | 3 – Moderately sloped bank, 6-10°. |
| | Nature of Lateral Flow Regulation | 4 | 3 | 3 – Sparse grassland/woodland with bare soil bank lip: moderate flow rate, some highly focused inflow locations. 4 – Dense grassland: low inflow rate, mostly diffuse. |
| 2025 Overall Scores | | | | |
| Classification of Drainage Line | | 24/32 75 | 23/32 72 | Drainage line is stable. |

Table 37 Classification of Different Drainage Line State – Site SH3

| Activity | | Rating 7 March | Rating 2 September | Explanation of Rating |
|----------------------------------------|---------------------------------------------------|--------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vegetation | On Drainage Line Floor | 2 | 1 | 1 – Little or no vegetation growing on drainage line floor 2 – Any vegetation present is annual or short lived; partial burial of plants by recently deposited sediment evident. Some vegetation growing on the drainage line floor. |
| | On Drainage Line Walls | 3 | 3 | 3 – Dense perennial plant cover, similar to vegetation on floodplain/riparian zone. Characteristic wetland species composition. No observable plant burial by sediment. |
| Profile of D/L | Shape and Aspect of Drainage Line Section | 2 | 3 | 2 – Actively eroding: slight undercutting, near vertical walls fans also eroding: depth = width 3 – Potentially stabilising. Side walls become rounded and crusted alluvial fan at foot of side walls. Width > depth. |
| | Longitudinal Morphology of Drainage Line | 2 | 3 | 2 – Flat, continuous, loose sediment with signs of recent/frequent movement. 3 – Flat with a cohesive fine textured 'soil-like' bed. |
| | Particle Size of Materials on Drainage Line Floor | 2 | 1 | 1 – Material on floor is similar or smaller in particle size and/or density than material in the walls (e.g. unconsolidated fine sand deposits). |
| | | | | 2 – Material on floor is slightly larger in particle size and/or denser (more consolidated) than material on walls (e.g. well sorted gravel). |
| Wall Materials | Nature of Drainage Line Materials | 3 | 3 | 3 – Materials that slake and/or disperse are exposed on less than 0.3m of wall height. |
| Bank Edge | Shape of Stream Bordering Slopes | 3 | 3 | 3 – Moderately sloped bank, 6-10°. |
| | Nature of Lateral Flow Regulation | 4 | 4 | 4 – Dense grassland: low inflow rate, mostly diffuse. |
| 2025 Overall Scores | | | | |
| Classification of Drainage Line | | 21/32 66 | 21/32 66 | Drainage line is potentially stabilising. Ongoing monitoring is required while rehabilitation works are not needed in the immediate future. |

Table 38 Classification of Different Drainage Line State – Site SH5

| Activity | | Rating 7 March | Rating 2 September | Explanation of Rating |
|----------------------------------------|---------------------------------------------------|--------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vegetation | On Drainage Line Floor | 2 | 2 | 2 – Any vegetation present is annual or short lived; partial burial of plants by recently deposited sediment evident. |
| | On Drainage Line Walls | 3 | 3 | 3 – Dense perennial plant cover, similar to vegetation on floodplain/riparian zone. Characteristic wetland species composition. No observable plant burial by sediment. |
| Profile of D/L | Shape and Aspect of Drainage Line Section | 3 | 3 | 3 – Potentially stabilising. Side walls become rounded and crusted alluvial fan at foot of side walls. Width > depth. |
| | Longitudinal Morphology of Drainage Line | 3 | 3 | 3 – Flat with a cohesive fine textured 'soil-like' bed. |
| | Particle Size of Materials on Drainage Line Floor | 3 | 3 | 3 – Material on floor is much larger in particle size and/ or denser than material on walls. Surface armouring (e.g., cobbles, competent country rock). |
| Wall Materials | Nature of Drainage Line Materials | 4 | 4 | 4 – Materials that do not slake or disperse are exposed on wall surface. |
| Bank Edge | Shape of Stream Bordering Slopes | 4 | 4 | 4 – Moderately sloped bank, 5 – 10°. |
| | Nature of Lateral Flow Regulation | 4 | 4 | 4 – Dense grassland: low inflow rate, mostly diffuse. |
| 2025 Overall Scores | | | | |
| Classification of Drainage Line | | 26/32 81 | 26/32 81 | Drainage line is very stable. |

6.2 REVIEW & INTERPRETATION OF STREAM HEALTH MONITORING RESULTS

The routine six-monthly assessment of channel stability, stream health and vegetation health of the Wangcol Creek monitoring locations (SH1, SH2, and SH3) at PDM indicates the drainage line classification is 'stable' at SH1 and SH2, while it is considered 'potentially stabilising' at SH3. The drainage line at location SH3a is considered stable as this section of the creek is lined with spray concrete.

An assessment of the Coxs River monitoring site (SH5) indicated the drainage line is 'very stable' conditions.

The CSIRO Ephemeral Stream Assessment protocol Ref [9]) does not indicate either specific ongoing monitoring or rehabilitation works are required for the stable systems. Ongoing monitoring is required for the potentially stabilising systems.

7 NOISE MONITORING

Noise monitoring is undertaken in accordance with Project Approval (Ref [2]) conditions and the PDM Noise Management Plan (Ref [6]) on a quarterly basis. There is no specific requirement for monitoring in the EPL 4911 (Ref [1]) although limits are set (refer **Section 7.1**).

The purpose of noise monitoring is to ensure that any impact of operations on the surrounding sensitive receivers can be identified; and to show compliance with relevant legislative requirements.

As PDM is currently in Care and Maintenance, rehabilitation activities are considered to be the primary noise source.

7.1 NOISE ASSESSMENT CRITERIA

The conditional requirements within EPL 4911 (Ref [1]), Project Approval (PA 10_0041, Schedule 3, Condition 1, Ref [2]) are presented in **Table 39**.

Table 39 Noise Assessment Criteria (Ref [1] and [2])

| Location | | Noise Monitoring Location | Day LAeq (15 min) dBA | Evening LAeq (15 min) dBA |
|-----------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------|---------------------------|
| Residences 18, 32 and 33 | | NM1 - (EPL Ref No.33) | 42 | 39 |
| Residences 20-23, 25 and 27-29 | | N/A | 42 | 36 |
| Residences 8, 10-12 and 14 | | NM2 - (EPL Ref No.14) NM3 - (EPL Ref No.10) | 42 | 35 |
| Residences 2, 5-7 and 35 | | NM4 - (EPL Ref No.5) NM6 - (EPL Ref No.2) | 35 | 35 |
| All other residences | | NM5 - (EPL Ref No.4) | 35 | 35 |
| During construction and removal of the amenity bund | Residences 8, 10-12, 14, 18, 20-23, 25, 27- 29 and 32 - 33 | N/A | 46 | N/A |

Noise generated by the project should not exceed the above criteria at any residence on privately-owned land or on more than 25 of any privately-owned land.

Day: The period from 7:00a.m. to 6:00p.m. Monday to Saturday and 8:00am to 6:00pm Sundays and Public Holidays.

Evening: The period from 6:00p.m. to 10:00p.m. Monday to Sunday.

Noise survey locations are presented in **Drawing 1, Attachment 1**.

7.2 NOISE MONITORING DATA SUMMARY

Quarterly attended noise surveys of PDM for the 2025 monitoring period were undertaken during the Care and Maintenance stage of the site on the following dates:

- Quarter 1 – January to March, monitoring conducted 26 February 2025.
- Quarter 2 – April to June, monitoring conducted 18 June 2025.
- Quarter 3 – July to September, monitoring conducted on 17 & 18 September 2025.
- Quarter 4 – October to December, monitoring conducted on 17 December 2025.

The conditions and operations during noise surveys were considered to be representative of those undertaken on a normal daily basis.

Monitoring comprised two (2) consecutive 15-minute surveys conducted at each of the six (6) monitoring locations. Measurements were recorded in free field conditions with a Class 1 sound level meter (SLM) attached to a tripod at a height of 1.5 metres above the ground. A handheld calibrator was used to check the calibration of the SLM in between all measurement locations. All calibration checks were within the acceptable range of $94 \text{ dB} \pm 0.5$.

Results of attended noise surveys carried out during the 2025 monitoring period are presented in **Table 40** to **Table 43**, including ambient sound resulting from non PDM sources to address the requirement of the relevant Australian Standard (Ref [10]). Meteorological conditions recorded during each noise survey are presented in **Table 44**; the 10 m data has been sourced from the meteorological data (refer **Section 5**) subsequent to the completion of the noise surveys.

In summary there were no audible noise contributions from PDM at any of the six (6) noise monitoring locations at any of the monitoring events. Road traffic along Castlereagh Highway was typically the dominant noise source with bird calls and distant traffic contributing to the acoustic environment.

Table 40 *Attended Noise Survey – Quarter 1, February 2025*

| Survey Date | Survey Start Time | Location | Overall | | | Pine Dale Mine L _{Aeq} 15min Contribution | Pine Dale Mine L _{Aeq} 15min Limit | Road traffic, birds & other L _{Aeq} 15min Contribution | Noise Sources & Level Ranges (Min to Max) dB(A) |
|-------------|-------------------|----------|---------------------------|---------------------------|---------------------------|----------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| | | | L _{Aeq} 15min | L _{A10} 15min | L _{A90} 15min | | | | |
| 26/02/2025 | 01:15p.m. | NM1 | 55.8 | 59.3 | 38.5 | NIL | 42 | 55.8 | Pine Dale Mine NIL* Insects and small birds constant Passing trucks/cars/motorbikes: 52 – 65 dBA Plane 70 dBA |
| 26/02/2025 | 01:30p.m. | NM1 | 52.6 | 56.3 | 35.6 | NIL | 42 | 52.6 | Pine Dale Mine NIL* Insects and small birds constant Passing trucks/cars/motorbikes: 50 – 68 dBA |
| 26/02/2025 | 02:00p.m. | NM2 | 46.3 | 49.6 | 37.2 | NIL | 42 | 46.3 | Pine Dale Mine NIL* Insects and small birds constant Passing trucks, cars, & motorbikes: 51 – 59 dBA |
| 26/02/2025 | 02:15p.m. | NM2 | 49.1 | 53 | 35.6 | NIL | 42 | 49.1 | Pine Dale Mine NIL* Insects and small birds constant Passing trucks, cars, & motorbikes: 51 – 63 dBA |
| 26/02/2025 | 02:45p.m. | NM3 | 58.7 | 62.4 | 38.5 | NIL | 42 | 58.7 | Pine Dale Mine NIL* Insects and birds constant Passing trucks, cars, & motorbikes: 61 – 72 dBA |
| 26/02/2025 | 03:00p.m. | NM3 | 60.3 | 64.8 | 39.2 | NIL | 42 | 60.3 | Pine Dale Mine NIL* Insects and birds constant Passing trucks, cars, & motorbikes: 61 – 72 dBA |
| 26/02/2025 | 03:30p.m. | NM4 | 37.2 | 38.8 | 32.5 | NIL | 35 | 37.2 | Pine Dale Mine NIL* Insects and birds constant Wind in nearby trees: ~48 dBA |
| 26/02/2025 | 03:45p.m. | NM4 | 35.7 | 37.6 | 33.1 | NIL | 35 | 35.7 | Pine Dale Mine NIL* Insects and birds constant |
| 26/02/2025 | 05:00p.m. | NM5 | 54.8 | 47.9 | 42 | NIL | 35 | 54.8 | Pine Dale Mine NIL* Birds constant Occasional vehicle pass: 71 – 80 dBA Plane: ~60 dBA |
| 26/02/2025 | 05:15p.m. | NM5 | 55.2 | 48.5 | 41.3 | NIL | 35 | 55.2 | Pine Dale Mine NIL* Birds constant Occasional vehicle pass: 71 – 80 dBA Wind in powerlines: ~48 dBA |
| 26/02/2025 | 04:16p.m. | NM6 | 52.2 | 45.1 | 42 | NIL | 35 | 52.2 | Pine Dale Mine NIL* Birds/Insects constant Occasional vehicle pass: 65 – 76 dBA |
| 26/02/2025 | 04:31p.m. | NM6 | 57 | 48 | 37 | NIL | 35 | 57 | Pine Dale Mine NIL* Birds / Insects constant Occasional vehicle pass: 65 – 72 dBA. |

* Nil – Noise source not audible during survey session

Table 41 *Attended Noise Survey – Quarter 2, June 2025*

| Survey Date | Survey Start Time | Location | Overall | | | Pine Dale Mine L _{Aeq} 15min Contribution | Pine Dale Mine L _{Aeq} 15min Limit | Road traffic, birds & other L _{Aeq} 15min Contribution | Noise Sources & Level Ranges (Min to Max) dB(A) |
|-------------|-------------------|----------|---------------------------|---------------------------|---------------------------|----------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| | | | L _{Aeq} 15min | L _{A10} 15min | L _{A90} 15min | | | | |
| 18/06/2025 | 01:13p.m. | NM1 | 52 | 56 | 36 | Nil | 42 | 52 | Pine Dale Mine NIL* Insects constant Passing Vehicles: 42 – 69 dBA |
| 18/06/2025 | 01:28p.m. | NM1 | 53 | 57 | 37 | Nil | 42 | 53 | Pine Dale Mine NIL* Insects constant Passing Vehicles: 42 – 68 dBA |
| 18/06/2025 | 01:47p.m. | NM2 | 49 | 53 | 34 | Nil | 42 | 49 | Pine Dale Mine NIL* Insects & small birds constant Passing Vehicles: 38 – 62 dBA |
| 18/06/2025 | 02:02p.m. | NM2 | 52 | 55 | 37 | Nil | 42 | 52 | Pine Dale Mine NIL* Insects & small birds constant Passing Vehicles: 38 – 66 dBA |
| 18/06/2025 | 02:21p.m. | NM3 | 61 | 65 | 40 | Nil | 42 | 61 | Pine Dale Mine NIL* Insects constant & large birds occasionally Passing Vehicles: 40 – 74 dBA |
| 18/06/2025 | 02:36p.m. | NM3 | 62 | 66 | 39 | Nil | 42 | 62 | Pine Dale Mine NIL* Insects constant & large birds occasionally Passing Vehicles: 40 – 76 dBA |
| 18/06/2025 | 02:57p.m. | NM4 | 32 | 34 | 27 | Nil | 35 | 32 | Pine Dale Mine NIL* Insects & birds constant Distant road noise: 30-35 dBA |
| 18/06/2025 | 03:12p.m. | NM4 | 38 | 34 | 25 | Nil | 35 | 35.7 | Pine Dale Mine NIL* Insects & birds constant Distant road noise: 30-35 dBA |
| 18/06/2025 | 04:17p.m. | NM5 | 61 | 55 | 30 | Nil | 35 | 61 | Pine Dale Mine NIL* Occasional vehicle pass: 70 – 84 dBA |
| 18/06/2025 | 04:32p.m. | NM5 | 58 | 47 | 32 | Nil | 35 | 58 | Pine Dale Mine NIL* Occasional vehicle pass: 70 – 85 dBA |
| 18/06/2025 | 03:42p.m. | NM6 | 55 | 50 | 27 | Nil | 35 | 55 | Pine Dale Mine NIL* Occasional vehicle pass: 65 – 79 dBA |
| 18/06/2025 | 03:57p.m. | NM6 | 53 | 44 | 27 | Nil | 35 | 57 | Pine Dale Mine NIL* Occasional vehicle pass: 65 – 77 dBA. |

* Nil – Noise source not audible during survey session

Table 42 *Attended Noise Survey – Quarter 3, September 2025*

| Survey Date | Survey Start Time | Location | Overall | | | Pine Dale Mine L _{Aeq} 15min Contribution | Pine Dale Mine L _{Aeq} 15min Limit | Road traffic, birds & other L _{Aeq} 15min Contribution | Noise Sources & Level Ranges (Min to Max) dB(A) |
|-------------|-------------------|----------|---------------------------|---------------------------|---------------------------|----------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| | | | L _{Aeq} 15min | L _{A10} 15min | L _{A90} 15min | | | | |
| 17/09/2025 | 03:46p.m. | NM1 | 57 | 61 | 43 | Nil | 42 | 57 | Pine Dale Mine NIL* Wind in grass & trees constant Passing Vehicles: 42 – 69 dBA |
| 17/09/2025 | 04:01p.m. | NM1 | 58 | 62 | 47 | Nil | 42 | 58 | Pine Dale Mine NIL* Wind in grass & trees constant Passing Vehicles: 42 – 70 dBA |
| 17/09/2025 | 04:21p.m. | NM2 | 52 | 56 | 42 | Nil | 42 | 52 | Pine Dale Mine NIL* Birds & wind in grass constant Passing Vehicles: 38 – 60 dBA |
| 17/09/2025 | 04:41p.m. | NM2 | 53 | 56 | 42 | Nil | 42 | 53 | Pine Dale Mine NIL* Birds & wind in grass constant Passing Vehicles: 38 – 66 dBA |
| 17/09/2025 | 05:01p.m. | NM3 | 64 | 68 | 51 | Nil | 42 | 64 | Pine Dale Mine NIL* Wind in the trees constant Passing Vehicles: 44 – 78 dBA |
| 18/09/2025 | 09:30a.m. | NM3 | 61 | 66 | 43 | Nil | 42 | 61 | Pine Dale Mine NIL* Birds occasionally Passing Vehicles: 38 – 74 dBA |
| 18/09/2025 | 9:57a.m. | NM4 | 48 | 50 | 33 | Nil | 35 | 48 | Pine Dale Mine NIL* Insects & birds constant Distant road noise constant Plane overhead: 40-59 dBA |
| 18/09/2025 | 10:12a.m. | NM4 | 39 | 42 | 31 | Nil | 35 | 39 | Pine Dale Mine NIL* Insects & birds constant Distant road noise constant Plane overhead: 40-53 dBA |
| 18/09/2025 | 11:15a.m. | NM5 | 57 | 42 | 32 | Nil | 35 | 57 | Pine Dale Mine NIL* Dogs barking: 43-68 dBA Passing vehicle: 45-77 dBA |
| 18/09/2025 | 11:30a.m. | NM5 | 59 | 47 | 32 | Nil | 35 | 59 | Pine Dale Mine NIL* Plane overhead: 40-53 dBA Passing vehicle: 50-84 dBA |
| 18/09/2025 | 10:41a.m. | NM6 | 56 | 50 | 34 | Nil | 35 | 56 | Pine Dale Mine NIL* Birds constant Passing vehicle: 50 – 80 dBA |
| 18/09/2025 | 10:56a.m. | NM6 | 59 | 49 | 34 | Nil | 35 | 59 | Pine Dale Mine NIL* Birds constant Passing vehicle: 50 – 86 dBA |

* Nil – Noise source not audible during survey session

Table 43 *Attended Noise Survey – Quarter 4, December 2025*

| Survey Date | Survey Start Time | Location | Overall | | | Pine Dale Mine L _{Aeq} 15min Contribution | Pine Dale Mine L _{Aeq} 15min Limit | Road traffic, birds & other L _{Aeq} 15min Contribution | Noise Sources & Level Ranges (Min to Max) dB(A) |
|-------------|-------------------|----------|---------------------------|---------------------------|---------------------------|----------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| | | | L _{Aeq} 15min | L _{A10} 15min | L _{A90} 15min | | | | |
| 17/12/2025 | 01:01p.m. | NM1 | 55 | 58 | 42 | Nil | 42 | 55 | Pine Dale Mine NIL* Birds occasionally Passing Vehicles: 42 – 70 dBA |
| 17/12/2025 | 01:16p.m. | NM1 | 56 | 60 | 40 | Nil | 42 | 56 | Pine Dale Mine NIL* Birds occasionally Passing Vehicles: 42 – 68 dBA |
| 17/12/2025 | 01:35p.m. | NM2 | 50 | 53 | 36 | Nil | 42 | 50 | Pine Dale Mine NIL* Insects & small birds constant Passing Vehicles: 40 – 64 dBA |
| 17/12/2025 | 01:50p.m. | NM2 | 50 | 54 | 40 | Nil | 42 | 50 | Pine Dale Mine NIL* Insects & small birds constant Passing Vehicles: 40 – 62 dBA |
| 17/12/2025 | 02:09p.m. | NM3 | 62 | 65 | 42 | Nil | 42 | 62 | Pine Dale Mine NIL* Insects & birds constant Passing Vehicles: 43 – 78 dBA |
| 17/12/2025 | 02:24p.m. | NM3 | 61 | 65 | 44 | Nil | 42 | 61 | Pine Dale Mine NIL* Insects & birds constant Passing Vehicles: 45–77 dBA |
| 17/12/2025 | 02:46p.m. | NM4 | 39 | 39 | 32 | Nil | 35 | 39 | Pine Dale Mine NIL* Insects & birds constant Distant road noise: 30-35 dBA Plane overhead: 35-42 dBA |
| 17/12/2025 | 03:01p.m. | NM4 | 37 | 38 | 31 | Nil | 35 | 37 | Pine Dale Mine NIL* Insects & birds constant Distant road noise: 30-35 dBA |
| 17/12/2025 | 04:04p.m. | NM5 | 59 | 47 | 32 | Nil | 35 | 59 | Pine Dale Mine NIL* Vehicle passing: 40 – 84 dBA |
| 17/12/2025 | 04:19p.m. | NM5 | 58 | 41 | 30 | Nil | 35 | 58 | Pine Dale Mine NIL* Insects constant & birds occasionally Vehicle passing: 40 – 80 dBA |
| 17/12/2025 | 03:29p.m. | NM6 | 56 | 50 | 33 | Nil | 35 | 56 | Pine Dale Mine NIL* Birds & insects constant Vehicle passing: 40 – 74 dBA |
| 17/12/2025 | 03:44p.m. | NM6 | 54 | 49 | 33 | Nil | 35 | 54 | Pine Dale Mine NIL* Birds & insects constant Vehicle passing: 40 – 73 dBA |

* Nil – Noise source not audible during survey session

Table 44 Meteorological Conditions during Attended Noise Surveys

| Survey Date | Start Time | Location | Temperature at 10 m (°C) | Average Wind Speed (m/s) | Average Wind Direction (degrees) |
|-------------|------------|----------|--------------------------|--------------------------|----------------------------------|
| 26/02/2025 | 1:15p.m. | NM1 | 27 | 1.8 | 228 |
| 26/02/2025 | 2:00p.m. | NM2 | 27 | 1.5 | 165 |
| 26/02/2025 | 2:45p.m. | NM3 | 28 | 2.1 | 83 |
| 26/02/2025 | 3:30p.m. | NM4 | 28 | 2 | 277 |
| 26/02/2025 | 5:00p.m. | NM5 | 28 | 2.8 | 247 |
| 26/02/2025 | 4:16p.m. | NM6 | 28 | 2 | 261 |
| 18/06/2025 | 01:13p.m. | NM1 | 11 | 0.8 | 136 |
| 18/06/2025 | 01:47p.m. | NM2 | 11 | 1.8 | 247 |
| 18/06/2025 | 02:21p.m. | NM3 | 12 | 1.7 | 205 |
| 18/06/2025 | 02:57p.m. | NM4 | 11 | 1.1 | 223 |
| 18/06/2025 | 04:17p.m. | NM5 | 8 | 1.2 | 259 |
| 18/06/2025 | 03:42p.m. | NM6 | 11 | 0.4 | 284 |
| 17/09/2025 | 3:46p.m. | NM1 | 15 | 4.9 | 242 |
| 17/09/2025 | 4:21p.m. | NM2 | 15 | 3.2 | 263 |
| 17/09/2025 | 5:01p.m. | NM3 | 13 | 4 | 268 |
| 18/09/2025 | 9:57a.m. | NM4 | 12 | 1.4 | 210 |
| 18/09/2025 | 11:15a.m. | NM5 | 15 | 3 | 115 |
| 18/09/2025 | 10:41a.m. | NM6 | 14 | 1.5 | 108 |
| 17/12/2025 | 01:02p.m. | NM1 | 31 | 3.2 | 316 |
| 17/12/2025 | 01:35p.m. | NM2 | 31 | 3.2 | 295 |
| 17/12/2025 | 02:09p.m. | NM3 | 30 | 1.3 | 212 |
| 17/12/2025 | 02:46p.m. | NM4 | 29 | 2.4 | 232 |
| 17/12/2025 | 04:04p.m. | NM5 | 31 | 2.0 | 213 |
| 17/12/2025 | 03:29p.m. | NM6 | 31 | 2.7 | 238 |

The Industrial Noise Policy states “Wind can also create extraneous noise on noise-monitoring equipment; an upper limit of 5 m/s at the microphone position is commonly applied during noise measurement to reduce this effect”.

8 BLAST MONITORING

8.1 BLASTING OPERATIONS ASSESSMENT CRITERIA

The purpose of blast monitoring is to ensure that any impact of blasting operations on the surrounding land and nearby sensitive locations can be identified, and to show compliance with relevant legislative requirements. Conditional requirements within Project Approval (PA 10_0041, Schedule 3, Condition 8, Ref [2]) and EPL 4911 (Ref [1]) are presented in **Table 45**.

Table 45 *Blasting Operations: Compliance Requirements*

| Location | Airblast overpressure (dB (Lin Peak)) | Ground vibration (mm/s) | Allowable exceedance |
|--------------------------------------|------------------------------------------|----------------------------|---------------------------------------------------------------|
| Residence on privately owned land | 115 | 5 | 5 of the total number of blasts over a period of 12 months |
| | 120 | 10 | 0 |

8.2 BLASTING OPERATIONS MONITORING DATA SUMMARY

Throughout the 2025 monitoring period there were no blast events conducted at the site as a result of the mine being in Care and Maintenance.

9 LIMITATIONS

This report has been prepared for Enhance Place Pty Limited in accordance with an agreement with RCA Australia (RCA). The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

This report has been prepared for the sole use of Enhance Place Pty Limited. The report may not contain sufficient information for purposes of other uses or for parties other than Enhance Place Pty Limited. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the site. Conditions can vary across any site that cannot be explicitly defined by investigation.

Environmental conditions including analyte concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

RCA AUSTRALIA



per Damien Bucior
Environmental Scientist
BScience

REFERENCES

- [1] NSW EPA, *Environment Protection Licence 4911*, 22 March 2013 updated 10 November 2021.
- [2] NSW Department of Planning, *Project Approval Application Number 10_0041*.
- [3] Enhance Place Pty Ltd, *Water Management Plan for the Pine Dale Coal Mine*, August 2015.
- [4] Enhance Place Pty Ltd, *Air Quality and Greenhouse Gas Management Plan for the Pine Dale Coal Mine*, November 2020.
- [5] Enhance Place Pty Ltd, *Purple Copper Butterfly Monitoring Program for the Pine Dale Coal Mine*, August 2015.
- [6] Enhance Place Pty Ltd, *Noise Management Plan for the Pine Dale Coal Mine*, August 2015.
- [7] Standards Australia, *AS/NZS 3580.10.1:2016: Methods for sampling and analysis of ambient air: Determination of particulate matter – Deposited matter – Gravimetric Method*, 2016.
- [8] Standards Australia, *AS/NZS 3580.1.1:2007: Methods for sampling and analysis of ambient air: Guide to siting air monitoring equipment*, 2007.
- [9] CSIRO, *Ecosystem Function Analysis – Ephemeral Stream Assessment*.
- [10] Standards Australia, *AS 1055:2018: Acoustics – Description and measurement of environmental noise*, August 2018.

GLOSSARY

| | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AHD | Australian height datum, based on a mean sea level. |
| dB | Unit of sound pressure level |
| DPIE | Department of Planning and Environment – formerly known as Department of Planning, Industry and Environment (2019 – 2023), Department of Planning and Environment (2014 – 2019), Department of Industry (2015 – 2019) and the Office of Environment and Heritage (OEH, 2011 – 2019). |
| EPL | Environment Protection Licence |
| kg | kilogram, 1000 gram. |
| L _{A90} | Average A-weighted minimum noise level in a measurement period |
| L _{Aeq} | Average acoustic energy over the duration of the measurement, represented using the A-weighting filter. |
| L _{Aeqmax} | Maximum A-weighted noise level in a measurement period. |
| mg | milligram, 1/1000 gram. |
| NSW EPA | NSW Environment Protection Authority. |
| NTU | Nephelometric Turbidity Units: unit for the measurement of turbidity. |
| PDM | Pine Dale Mine |
| µg | microgram, 1/1000 milligram. |

Chemical Compounds

| | |
|------------------|-----------------------------------------------------------------------------------------|
| EC | Electrical conductivity: a measure of the ability of a solution to conduct electricity. |
| PM ₁₀ | particulate matter less than or equal to 10 micrometres. |
| TSP | Total suspended Particulates |
| TSS | Total suspended solids. |
| Turbidity | Cloudiness of fluid |

Attachment 1

Drawing 1 – Environmental Monitoring Locations

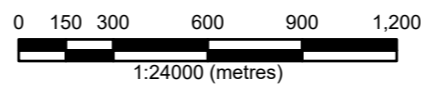
Drawing 2 – Stream Health & Channel Stability
Monitoring Locations



LEGEND

- ▲ Noise Monitoring Location
- Depositional Dust Monitoring Location
- Groundwater Monitoring Location
- Surface Water Monitoring Location
- Meteorological monitoring location (from 10 November 2021)

Note: Aerial taken from ArcGis Base Map, 23 May 2023



PINE DALE MINE ENVIRONMENTAL MONITORING LOCATION PLAN

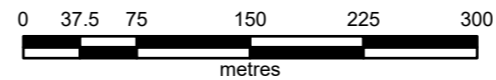
| | | | | |
|-----------------------|---------------------|-----------|-------------------------|--|
| CLIENT Pine Dale Mine | | | RCA Ref 688g-326/0 AppB | |
| DRAWN BY DB | SCALE 1:24,000 (A3) | DRAWING 1 | REV 0 | |
| APPROVED BY FB | DATE 9/01/2026 | OFFICE | NEWCASTLE | |



LEGEND

- Monitoring location
- Licence discharge point location
- Clean water diversion location

Note: Aerial taken from ArcGis Base Map, 23 May 2023



**PINE DALE MINE
CHANNEL STABILITY, STREAM AND
VEGETATIVE HEALTH MONITORING SITE**

| | | | |
|------------------------------|--------------------|------------------|--------------------------|
| CLIENT Enhance Place Pty Ltd | | | RCA Ref 6880g-326/0 AppB |
| DRAWN BY DB | SCALE 1:5,000 (A3) | DRAWING 2 | REV 0 |
| APPROVED BY FB | DATE 9/01/2026 | OFFICE NEWCASTLE | |



Pine Dale Mine Rehabilitation Monitoring Report 2025

Report prepared by First Field Environmental Pty Ltd
on behalf of EnergyAustralia

5 November 2025

Revision history

| Version | Date | Author |
|-----------|-----------------|----------------|
| Version 1 | 5 November 2025 | Michelle Evans |

Cover image: Treed rehabilitation area near Transect 6

This report has been prepared by First Field Environmental Pty Ltd for EnergyAustralia. The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report.

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1. Introduction

Pine Dale Mine is located in the Western Coalfields of New South Wales, at Blackmans Flat, approximately 15 km north of Lithgow, on the northern side of the Castlereagh Highway. The site lies around 3 km east of Mount Piper Power Station.

The mine is operated in accordance with Project Approval 10_0041, along with all relevant subsidiary licenses and environmental approvals. This Rehabilitation Monitoring Report has been prepared to satisfy the requirements of Schedule 3, Condition 55 of Project Approval 10_0041.

The purpose of this report is to assess the performance of rehabilitation areas against the approved completion criteria and performance indicators. It identifies areas of success, highlights any deficiencies, and provides recommendations for ongoing improvement in the progression toward rehabilitation objectives.

2. Performance indicators

Table 1 identifies the performance indicators and completion criteria for Pine Dale Mine as determined by the *Rehabilitation Management Plan 2025* (EnergyAustralia NSW 2025).

Table 1 Performance indicators and completion criteria

| Performance indicator | Completion criteria |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feral animal and priority weed presence | Feral animal and weed species presence and abundance is not considered to adversely impact the intended final land use. |
| Feral animal and priority weed control | Feral animals and priority weeds are controlled in accordance with legislation. |
| Fuel loads | Fuel loads and fire breaks in and surrounding rehabilitation areas are assessed and maintained in accordance with the Bushfire Management Plan. |
| Access | Adequate access for fire-fighting is maintained on rehabilitation areas. |
| Habitat features | Habitat features are installed on native forest rehabilitation areas including: <ul style="list-style-type: none"> - Nesting boxes and salvaged hollows - Crushed timber spread over native forest rehabilitation areas - Rock pile clusters. |
| Vegetation health | More than 75% of native forest indicator species are assessed to be healthy and growing at year 5. |
| | Native forest indicator species tree height and girth is within the range of analogue sites. |
| Soil loss | Net annual soil loss is comparable to analogue sites at year 10. |
| Erosion | There are no significant erosion features that compromise landform stability or public safety (including gullyng or tunnelling). |
| Woodland birds present | Evidence of woodland birds utilising rehabilitation areas. |
| Evidence of mammals | Evidence of target mammal species presence in rehabilitation areas. |
| Natural regeneration | Evidence of second generation of native forest indicator species from desired vegetation community. |
| | Evidence of natural regeneration of at least four pasture species at year 5. |

| Performance indicator | Completion criteria |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Structure | Structural layers (canopy, mid-storey, understorey and ground cover) are comparable to analogue sites. |
| Management inputs | Management inputs (ameliorants, fertilisers, weed treatments) are within the range of analogue sites. |
| Rural land capability | Pasture rehabilitation areas are assessed to have a Rural Land Capability Class VI or better (suitable for grazing). |
| Species composition | Establishment of pasture comprising approximately 70% perennial grass and 20% annual legume, representative of species at analogue sites. Vegetation within the treed rehabilitation areas are established in accordance with the approved species mix. Approved pasture species mix is sown at the specified rate per hectare. |
| Weed presence | Weeds including African Lovegrass to comprise <10% of the pasture sward. |
| Ground cover | Ground cover (vegetation, leaf litter, mulch) >70% at year 5. |

Source: *Rehabilitation Management Plan 2025* (EnergyAustralia NSW 2025)

3. Weather conditions

Weather conditions in the lead-up to the September 2025 ecological survey were marked by cooler-than-average temperatures and above-average rainfall during late winter, both of which may have influenced vegetation growth and condition in rehabilitated areas across the project site.

The combination of suppressed winter temperatures and elevated late-season rainfall is considered in the interpretation of vegetation structure and condition presented in Section 5. These climatic factors may have contributed to observed variations in species composition, canopy cover, and ground-layer biomass, especially in areas undergoing progressive rehabilitation.

Rainfall (Lidsdale – Station 063132) - Rainfall during the May–August 2025 period totalled 172.4 mm, with a distinct increase in precipitation during late winter. June recorded a below-average total of 27.0 mm (long-term average: 48.8 mm), while July and August received 65.2 mm and 80.2 mm, respectively, both exceeding their long-term monthly averages of 51.0 mm and 63.2 mm. This late winter rainfall likely enhanced soil moisture availability across the site, which may have supported vegetation vigour, particularly in areas with established pasture or native species.

Temperature (Marangaroo – Station 063308) - Maximum temperatures during the winter period were consistently below recent averages. Mean daily maximum temperatures were 12.4°C in June, 10.9°C in July, and 11.9°C in August, compared to the 2017–2024 means of 12.6°C, 13.7°C, and 15.7°C, respectively. These cooler-than-average conditions may have slowed growth and delayed phenological development, particularly for introduced pasture species and native vegetation in early establishment stages.

4. Survey methodology

4.1 Rehabilitation monitoring

Monitoring locations - Previous studies have seen the establishment of six monitoring transects; four transects are located within rehabilitated pastures while the remaining two transects are within treed rehabilitation areas. Additional transects exist as analogue sites in grazed pasture and an undisturbed naturally vegetated area of the property to provide benchmarks against which the pasture and treed rehabilitation areas are assessed. Monitoring locations are shown in Figure 1.

Photopoint monitoring - Coordinates for each transect and analogue site are provided in Appendix A. Each transect area contains previously established photo monitoring points. Photos taken from these points enable a visual comparison to photos from previous surveys and are provided in Appendix E.

4.2 Erosion and sedimentation




Evidence of erosion and sedimentation along and within the vicinity of each transect has been determined in accordance with *Best Practice Erosion and Sediment Control* (IECA 2006).

4.3 Soil loss

The *Rehabilitation Management Plan 2025* (EnergyAustralia NSW 2025) recommends that net soil loss be determined in accordance with the *Ecosystem Function Analysis* (CSIRO 2008). This method has been found to be inadequate for determining soil loss in comparison with the widely used *RUSLE* (IEAC Australasia 2012). An estimation of soil loss at each transect site has been calculated using the *Revised Universal Soil Loss Equation* (RUSLE) (IEAC Australasia 2012). Values used for these calculations are presented in Appendix C.



Legend

-  Transect lines
-  Treed rehabilitation site
-  Pine Dale Mine

0 250 500 m



Pindale Mine Rehabilitation Monitoring Report

| | | |
|---------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drawing No: A1 | | Prepared for Enhanced Place Mine |
| Date: 26/9/2019 | Drawing Size: A4 | This figure may be based on third party data or data which has not been verified by First Field Environmental and it may not be to scale. Unless expressly agreed otherwise this figure is intended as a guide only and First Field Environmental does not warrant its accuracy. |
| Drawn By: Andrew Evans | Reviewed By: Michelle Evans | |
| Coordinate System: GDA2020 MGA Zone 56 EPSG:28356 | | |

Figure 1 Monitoring locations

4.4 Vegetation assessment

Pasture rehabilitation areas – Cox’s River seed mix was sown in 2010-2011 at Areas B, C and Area 8 at the following rates:

- 40% Fescue (*Festuca* spp.)
- 25% Cocksfoot (*Dactylis glomerata*)
- 20% Subterranean clover (*Trifolium subterranean*)
- 6% Perennial rye grass (*Lolium perenne*)
- 5% White clover (*Trifolium repens*)
- 4% Phalaris (*Phalaris aquatica*)

The proportion of perennial grasses and annual legumes currently in evidence at pasture transects has been recorded and compared with the proportion at which these species were initially sown.

Tree rehabilitation areas – The *Rehabilitation Management Plan 2025* (EnergyAustralia NSW 2025) recommends that vegetation structure be determined in accordance with the *Ecosystem Function Analysis* (CSIRO 2008). This method does not adequately enable the identification of all completion criteria and vegetation health, natural regeneration, structure and species composition have instead been determined in accordance with the *Australian Soil and Land Survey Field Handbook* (CSIRO 2009).

4.5 Evidence of fauna and habitat features

Fauna - Evidence of woodland birds and native fauna utilising rehabilitated areas has been recorded through the observation of scats and tracks and sightings.

Habitat features - The presence of nesting boxes, crushed timber piles and rock pile clusters within the rehabilitation areas is noted.

4.6 Pest animal and weed survey

Pest animal presence - Evidence of feral animal presence across the rehabilitation areas has been determined through scat and trail identification.

Priority weeds - The location and extent of priority weeds as declared for the Central Tablelands Region (Central Tablelands Local Land Services 2019) have been recorded. Target weed species, particularly African Lovegrass were identified in accordance with field guides and botanical keys.

4.7 Fuel loads and fire-fighting access

Fuel loads - Fuel loads within and adjacent to rehabilitation areas have been assessed in accordance with the *Overall Fuel Hazard Assessment Guide* (Department of Sustainability 2010).

Fire-fighting access - Access trails within rehabilitated areas have been assessed in accordance with *Policy No. 2/2007 Fire Trails* (Bush Fire Coordinating Committee 2007).

4.8 Rural land capability assessment

Pasture rehabilitation areas have been assessed in accordance with the *Land and Soil Capability Assessment* (OEH 2007).

4.9 Management input assessment

Land management activities - Land management and soil amelioration activities conducted in the past year have been identified through discussions with the land manager.

Feral animal and weed management - Evidence of feral animal and priority weed control activities have been sought from the land manager and audited against relevant legislative requirements.

5. Field survey results

Field survey was conducted on 25 September 2025 by a qualified ecologist. The survey revisited six transects representing rehabilitated pasture and treed areas as well as pasture and treed analogue sites.

5.1 Erosion and sedimentation

The presence and extent of active surface erosion within transect areas is recorded in Appendix A. There are no significant erosion features that compromise landform stability or public safety (including gullying or tunnelling) within the pasture rehabilitation areas.

Pasture rehabilitation areas – No active erosion was evident at pasture rehabilitation sites.

Treed rehabilitation areas - Minor wind and rill erosion is occurring at treed rehabilitation areas.

Analogue sites - No active erosion was evident at the pasture or treed analogue sites.

5.2 Soil loss

Estimated annual soil loss at rehabilitated transects is summarised in Table 2. Note that soil loss in transect 3 is affected by increased slope. Current tonnes per hectare soil loss in transect 3 is considered acceptable. Full calculations are provided in Appendix C.

Table 2 Estimated soil loss due to erosion

| Estimated annual soil loss t/ha | Pasture analogue site | Transect 1 (pasture) | Transect 2 (pasture) | Transect 3 (pasture) | Transect 4 (pasture) | Transect 5 (treed) | Transect 6 (treed) | Treed analogue site (transect 7) |
|---------------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|--------------------|--------------------|----------------------------------|
| | 0.09 t/ha | 0.09 t/ha | 0.09 t/ha | 0.18 t/ha | 0.03 t/ha | 0.36 t/ha | 0.36 t/ha | 0.00 t/ha |

5.3 Vegetation assessment

Flora species identified along and within the vicinity of transects are listed in Appendix D.

Species composition at pasture rehabilitation areas – Pasture rehabilitation areas were originally established with a sown mix comprising approximately 70% perennial grasses and 20% annual legumes, consistent with the analogue pasture site. Surveys undertaken in 2025 indicate that this composition has generally been maintained, with rehabilitation areas continuing to be dominated by introduced perennial pasture species such as *Phalaris aquatica* and *Lolium perenne*, and naturalised legumes including *Trifolium subterraneum*.

At Transect 4, the composition of the pasture sward has been locally influenced by increased cover of African Lovegrass (*Eragrostis curvula*), which exceeded 10% and may be suppressing sown and native species in some areas.



Figure 2 Pasture composition at analogue site



Figure 3 Pasture composition Area C

Groundcover at pasture rehabilitation areas – Vegetation monitoring recorded total living cover above 90% across all pasture transects in September 2025, consistent with previous years. A notable trend was the continued decline in annual species, with annual cover decreasing from 20% in 2023 to 10% in 2025 across all pasture transects. Concurrently, perennial cover increased to 80%, reflecting a shift toward a more stable and persistent groundcover layer.

Bare surface remained low (<5%), and litter cover was also minimal (<5%), consistent with previous observations and suggesting reduced erosion risk and well-established cover.

Natural regeneration at pasture rehabilitation areas – Evidence of natural regeneration of groundcover species continues to be observed across all pasture rehabilitation areas. While the composition remains dominated by sown exotic perennials and legumes, native grass species are appearing sporadically, indicating some natural recruitment. No regeneration of native woody species was recorded in pasture zones.

Rehabilitation at the treed analogue site - The treed analogue site, first assessed in 2019, was affected by fire in 2020, resulting in the loss of canopy and understorey vegetation. Post-fire recovery continues, with observations in 2025 indicating an increase in shrubby vegetation and juvenile eucalypt regrowth. The canopy has partially recovered, with canopy height reaching 14 m and approximately 20% cover, consistent with pre-fire conditions. Groundcover at the analogue site was >95%, consisting of a mix of native grasses and forbs.



Figure 4 Natural regeneration of the treed analogue site

Species composition at treed rehabilitation areas – Treed rehabilitation areas were established using an approved species mix representing local native vegetation communities, including dominant canopy species such as *Eucalyptus macrorhyncha*. Surveys in 2025 recorded the continued presence and growth of native species across all treed rehabilitation sites, including mid-storey shrubs (*Acacia dealbata*, *Bursaria spinosa*) and native groundcovers.

Species composition remains consistent with earlier surveys and reflects the planted mix, with some evidence of natural regeneration from adjacent native vegetation.

Vegetation cover at treed rehabilitation areas – Canopy cover across treed rehabilitation areas remains sparse, with scattered juvenile trees contributing to vertical structure. The mid-storey is also sparse, comprising mostly isolated shrubs and small regenerating trees. Understorey vegetation consists of a mix of native and exotic broadleaf herbs and grasses.

Groundcover cover remained high in 2025, with total living cover above 90%, consistent with previous years. Annual species cover declined to 10%, while perennial cover increased to 80%, indicating a similar trend to pasture areas. Litter and bare surface remained low (<5%) across all transects.

Structure of vegetation at treed rehabilitation areas – The structure of vegetation in treed rehabilitation areas continues to develop but remains simpler than the analogue forest. While a sparse canopy and mid-storey are present, they are composed primarily of juvenile trees and early-successional shrubs. The vertical complexity and species layering observed in the analogue site have not yet developed fully in the rehabilitation areas.

Vegetation health at treed rehabilitation areas – Health indicators were assessed based on the presence and condition of key native species that also occur in the treed analogue site. In 2025, over 60% of native tree and shrub species recorded in the analogue site were also found actively growing in the treed rehabilitation areas. These species showed signs of active growth, including new leaf flush, shoot extension, and absence of dieback.

No evidence of widespread stress or decline was observed. The good condition of indicator species suggests that rehabilitation areas are developing in line with ecological expectations, despite structural simplification.

Natural regeneration of treed rehabilitation areas - There is continued evidence of natural regeneration within treed rehabilitation areas. Second-generation individuals of native canopy species (*Eucalyptus macrorhyncha*) and native shrubs have been recorded. This recruitment is occurring in both open patches and beneath planted trees, suggesting that the rehabilitation areas are supporting natural ecological processes. The presence of seedlings and saplings across multiple strata indicates progress toward structural and compositional resilience.

5.4 Evidence of fauna and habitat features

Habitat features – Nesting boxes were installed in treed rehabilitation areas in September of 2024 to enhance habitat availability for hollow-dependent fauna. Additional habitat structures, including timber and rock pile clusters, were installed prior to 2020 and remain present across these areas. However, the 2020 bushfire reduced the availability of surface habitat materials such as mulch and fallen timber, particularly at Transects 5 and 6, where these features were less abundant at the time of the 2025 survey.

Fauna – Evidence of native fauna use was recorded across the site during the survey. Macropod scats and tracks were observed throughout the property, indicating regular movement and activity. In the treed rehabilitation areas, native woodland bird species were observed perching within the canopy and mid-storey vegetation. The treed analogue site also supported active birdlife, including several specialist forest species, consistent with the site's recovering structural complexity. Australian magpies (*Gymnorhina tibicen*) were frequently observed foraging on the ground within pasture rehabilitation areas A, B, and C.

5.5 Feral animals and weeds

The presence and abundance of feral animals and weed species is not considered likely to significantly impact the achievement of the intended final land use. Feral animals and priority weed species are managed in accordance with relevant legislative requirements and control programs.

Observations of pest species and weed presence within and surrounding each monitoring transect are provided in Appendix A.

Pest animal presence – No burrows, dens, or other ground shelters were observed during the survey. However, scats consistent with fox activity were recorded within the treed rehabilitation areas, indicating likely presence of this species. Rabbit scats were also observed across both pasture and treed rehabilitation areas, suggesting widespread use of the site by this species.

Priority and targeted weed species – In pasture rehabilitation areas, African Lovegrass (*Eragrostis curvula*) generally comprises less than 10% of the pasture sward. However, at Transect 4, *E. curvula* was recorded at greater than 10% cover, and targeted management will be required to reduce its extent and limit further spread. Blackberry (*Rubus fruticosus* spp. agg.) was also observed at Transect 4, where it is considered, a priority weed under current management plans.

Table 3 Feral animal and priority weed presence

| Common name <i>Species name</i> | Location | Management obligation |
|-------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| African lovegrass <i>Eragrostis curvula</i> | All pasture rehabilitation areas (notably >10% cover at Transect 4) | Managed under the general biosecurity duty (NSW Biosecurity Act 2015). Persons dealing with the plant must prevent, eliminate or minimise associated biosecurity risks as far as reasonably practicable. |
| Blackberry <i>Rubus fruticosus</i> spp. agg. | Transect 4 | Declared a priority weed in NSW. Control required under the general biosecurity duty, with management actions to prevent further spread. |
| Red Fox <i>Vulpes vulpes</i> | Treed rehabilitation areas (scats observed) | Managed under the general biosecurity duty. Control should aim to reduce predation risk to native fauna and minimise ecological impact. |
| European Rabbit <i>Oryctolagus cuniculus</i> | Widespread – scats observed throughout pasture and treed rehabilitation areas | Recognised as a priority pest species in NSW. Control required under the general biosecurity duty to minimise land degradation and ecological impacts. |

5.6 Fuel loads and fire-fighting access

Fuel loads and fire breaks in and surrounding rehabilitation areas are assessed and maintained in accordance with the Bushfire Management Plan, and adequate access for firefighting is maintained on rehabilitation areas.

Fuel loads – Fuel loads within Areas A, B and C and Area 8 are low and fuel hazard mitigation activities are not required at this time.

Firebreaks - The internal road provides a mineral earth firebreak between Area A and Pine Dale Mine infrastructure to the south, while the Coal Haul Road provides a mineral earth firebreak immediately to the north of Area A. The Coal Haul Road and internal road provide a mineral earth firebreak to the north and west of Areas B and C and Area 8. Private grazing land is located immediately adjacent to the east and south of Areas B and C and Area 8. The majority of this interface supports mature Pine and Eucalypt trees which would provide a barrier to wind-borne embers spreading to private grazing land during a fire event.

Fire-fighting access - Access to each of the rehabilitation areas is considered to be adequate. The Coal Haul Road is a private road located immediately to the north of Areas A, B and C and Area 8 and allows movement from within the former Wallerawang Power Station site, through Pine Dale Mine and to Mount Piper Power Station. An internal road is located immediately to the south of Areas A and B and to the north of Area 8. This road connects to Castlereagh Highway through the administration area of Pine Dale Mine. Area C is accessible by following the internal road through Area B. All access roads within rehabilitated areas are maintained in good condition and are suitable for the passage of Category 1 tankers, having a vertical clearance of >4 m and a width of >2.8 m (*Policy No. 2/2007 Fire Trails* (Bush Fire Coordinating Committee 2007)).

5.7 Rural land capability assessment

Pasture rehabilitation areas are assessed as being Land and Soil Capability Class V and are suitable for grazing. The limiting factors for land use are generally related to wind erosion hazard. Note that the area of Transect 4 is also subject to soil acidification hazard due to soil texture (Table 4).

Table 4 Rural land capability assessment of pasture areas

| Class | Transect 1 | Transect 2 | Transect 3 | Transect 4 |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------|------------------------------------------------------------------------------|
| Water erosion hazard class | 2 1 - <3% slope | 3 3 - <10% slope | 4 10 - <20% slope, no gully erosion present | 2 1 - <3% slope |
| Wind erosion hazard class | 5 Moderate wind erodibility class of surface soil, high winds erosive power, high exposure to wind, average annual rainfall >500 mm | | | |
| Soil structural decline class | 4 Fragile light textured soil - hardsetting | | | |
| Soil acidification hazard class | 4 Very low texture /buffering capacity, pH 6.7 – 7.5 (CaCl ₂) | | | 5 Very low texture /buffering capacity, pH 4.0 – 4.7 (CaCl ₂) |
| Salinity hazard class | 1 Moderate to high recharge potential, low discharge potential, low salt store | | | |
| Waterlogging hazard class | 2 0 – 0.25 months typical waterlogging duration, moderately well drained soils | | | |
| Shallow soils and rockiness hazard class | 1 Nil rocky outcrop, soil depth >100 cm | | | |
| Mass movement hazard class | 1 No mass movement present | | | |

5.8 Management input assessment

Management inputs (ameliorants, fertilisers, weed treatments) are within the range of analogue sites.

Control of priority and targeted weed species has been undertaken across all rehabilitation areas as required and in accordance with the recommendations of the *Pine Dale Mine Rehabilitation Monitoring Report 2014* (First Field Environmental 2014).

6. Rehabilitation status

The status of performance indicators and completion criteria are summarised in Table 5.

Table 5 Status of completion criteria

| Performance indicator | Completion criteria | Status |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Feral animal and priority weed presence | Feral animal and weed species presence and abundance is not considered to adversely impact the intended final land use. | Satisfactory – Continue to monitor |
| Feral animal and priority weed control | Feral animals and priority weeds are controlled in accordance with legislation. | Satisfactory – Continue to monitor |
| Fuel loads | Fuel loads and fire breaks in and surrounding rehabilitation areas are assessed and maintained in accordance with the Bushfire Management Plan. | Satisfactory – Continue to monitor |
| Access | Adequate access for firefighting is maintained on rehabilitation areas. | Satisfactory – Continue to monitor |
| Habitat features | Habitat features are installed on native forest rehabilitation areas including: <ul style="list-style-type: none"> - Nesting boxes and salvaged hollows - Crushed timber spread over native forest rehabilitation areas - Rock pile clusters. | Complete |
| Vegetation health | More than 75% of native forest indicator species are assessed to be healthy and growing at year 5. | Complete |
| | Native forest indicator species tree height and girth is within the range of analogue sites. | Ongoing – continue to monitor |
| Soil loss | Net annual soil loss is comparable to analogue sites at year 10. | Complete |
| Erosion | There are no significant erosion features that compromise landform stability or public safety (including gullyng or tunnelling). | Satisfactory – Continue to monitor |
| Woodland birds present | Evidence of woodland birds utilising rehabilitation areas. | Ongoing – continue to monitor |
| Evidence of mammals | Evidence of target mammal species presence in rehabilitation areas. | Ongoing – continue to monitor |
| Natural regeneration | Evidence of second generation of native forest indicator species from desired vegetation community. | Satisfactory – Continue to monitor |
| | Evidence of natural regeneration of at least four pasture species at year 5. | Complete |

| Performance indicator | Completion criteria | Status |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Structure | Structural layers (canopy, mid-storey, understorey and ground cover) are comparable to analogue sites. | Ongoing – continue to monitor |
| Management inputs | Management inputs (ameliorants, fertilisers, weed treatments) are within the range of analogue sites. | Satisfactory – Continue to monitor |
| Rural land capability | Pasture rehabilitation areas are assessed to have a Rural Land Capability Class VI or better (suitable for grazing). | Satisfactory – Continue to monitor |
| Species composition | Establishment of pasture comprising approximately 70% perennial grass and 20% annual legume, representative of species at analogue sites. | Complete |
| | Vegetation within the treed rehabilitation areas is established in accordance with the approved species mix. | Complete |
| | Approved pasture species mix is sown at the specified rate per hectare. | Complete |
| Weed presence | Weeds including African lovegrass to comprise <10% of the pasture sward. | Ongoing – Continue to monitor |
| Ground cover | Ground cover (vegetation, leaf litter, mulch) >70% at year 5. | Complete |

7. Key findings

Changes in 2025 monitoring

- Current data from the treed analogue site (Transect 7) is now being used to assess progress of treed rehabilitation areas. This change reflects the stabilisation of post-fire regeneration following the 2020 bushfire, with vegetation structure and species composition now considered more representative of the site's current condition than pre-fire data.
- Monitoring at Transect 7 resumed in 2023 following a two-year gap (2021–2022) due to inaccessibility caused by post-fire conditions and site safety. With access restored and vegetation regrowth progressing, Transect 7 will continue to be used as the analogue reference site for treed rehabilitation areas moving forward.

Current findings

- Vegetation establishment remains on track, with total living groundcover exceeding 90% across all monitored transects. Pasture areas show a continued shift toward perennial dominance, and treed rehabilitation areas are supporting native vegetation consistent with the approved species mix.
- Natural regeneration is occurring in both pasture and treed rehabilitation areas. Native grasses are emerging sporadically in pastures, while second-generation trees and shrubs are established in treed rehabilitation zones, particularly under and adjacent to planted vegetation.
- Vegetation health is satisfactory, with more than 60% of native forest indicator species from the analogue site actively growing in treed rehabilitation areas. These species are showing signs of healthy development, including shoot extension and new leaf growth.
- Fauna use is evident across the site, with macropod tracks and scats observed throughout, and native woodland bird species recorded in both rehabilitation and analogue sites. Specialist forest bird species were noted within the treed analogue area, suggesting partial recovery of habitat structure.
- African Lovegrass (*Eragrostis curvula*) remains within acceptable thresholds (<10%) at most sites, but exceeded 10% cover at Transect 4, where targeted weed management is required to reduce its extent and limit further spread.
- No active erosion was recorded in pasture rehabilitation or analogue areas. Minor wind and rill erosion was observed in treed rehabilitation areas (Transects 5 and 6), but landform stability was not compromised.
- Estimated soil loss remains low across all transects, with calculated erosion rates comparable to or better than those at analogue sites. Slightly higher loss was noted at steeper sites (e.g. Transect 3) but remained within acceptable parameters.
- Fuel loads and fire access requirements are being met, with low fuel loads observed in pasture areas and mineral earth firebreaks maintained around key areas, consistent with the Bushfire Management Plan.
- Habitat features are established and maintained, with nesting boxes installed in September of 2024 and earlier-installed rock and timber piles still present. However, fire damage in 2020 reduced surface organic material at some sites.
- Feral animals are present but not at levels that compromise rehabilitation goals. Rabbit and fox activity was observed across rehabilitation areas, but no dens or burrows were recorded.
- Management inputs (including soil amelioration and weed control) remain within expected levels, consistent with those recorded at analogue sites.
- All assessed pasture areas are suitable for grazing, with a Rural Land Capability classification of Class V or better. Soil acidity is a consideration at Transect 4 but does not preclude land use for grazing.

8. Recommendations

The following recommendations for ongoing management and mitigation are consistent with the Rehabilitation Management Plan 2025 (EnergyAustralia NSW 2025) and support continued progress toward achieving approved rehabilitation outcomes:

- Implement targeted weed control at Transect 4, where *Eragrostis curvula* (African Lovegrass) exceeds acceptable thresholds. Spot-spraying should continue at this and other locations where outbreaks are detected.
- Continue to monitor and control priority weeds, including Blackberry (*Rubus fruticosus* spp. agg.), in accordance with legislative requirements and the site weed control program.
- Monitor and maintain nesting boxes installed in treed rehabilitation areas to ensure ongoing functionality and detect evidence of fauna use.
- Continue feral animal monitoring, particularly for rabbit and fox activity, and undertake control if signs of active denning or grazing pressure increase.

9. References

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- DSE (2010) *Overall Fuel Hazard Assessment Guide*, Department of Sustainability and Environment, VIC
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- SLR (2014) *Soil Assessment and Recommendations for Rehabilitation Areas*, NSW

Appendix A

Survey data 2025

| Pasture analogue site (Pine Dale Mine) 2024 | |
|---------------------------------------------|---------------------------------------------------------------------|
| Easting | Northing |
| 228300 | 6304880 |
| 228317 | 6304925 |
| Landform and soils | |
| Slope | 1 - <3% slope inclining to the northwest. |
| Erosion | Not observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | Groundcover of mixed native and exotic grasses and broadleaf herbs. |
| Species richness | 31 forb, graminoid and grass species identified. |
| Cover classification | |
| Total living cover | >90% |
| Annual living cover | 10% |
| Perennial living cover | 80% |
| Litter cover | <5% |
| Bare surface | <5% |

| Transect 1 Pasture rehabilitation area 2025 | |
|---------------------------------------------|-----------------------------------------------------------------------------|
| Easting | Northing |
| 228621 | 6305093 |
| 228594 | 6305048 |
| Landform and soils | |
| Slope | Transect located along a contour. 1 - <3% slope inclining to the northwest. |
| Erosion | Not observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | Groundcover of mixed native exotic grasses and broadleaf herbs. |
| Species richness | 31 forbs, graminoids and grasses identified, dominated by exotic species. |

| Transect 1 Pasture rehabilitation area 2025 | | | | | | | | | |
|----------------------------------------------------|-----------------------------|----------------|----------------|----------------|---------------|---------------|----------------|-------------|----------------|
| Cover classification | % cover at each observation | | | | | | | | |
| | September 2017 | September 2018 | September 2019 | September 2020 | November 2021 | November 2022 | September 2023 | August 2024 | September 2025 |
| Total living cover | 90% | 90% | 90% | 90% | >90% | >90% | >95% | >90% | >90% |
| Annual living cover | 40% | 40% | 40% | 20% | 20% | 20% | 20% | 20% | 10% |
| Perennial living cover | 50% | 50% | 50% | 70% | 70% | 70% | 75% | 70% | 80% |
| Litter cover | <10% | 10% | - | - | - | - | - | <5% | <5% |
| Bare surface | <10% | 10% | 10% | 10% | <10% | <10% | <5% | <5% | <5% |
| Target weed presence | | | | | | | | | |
| African Lovegrass (<i>Eragrostis curvula</i>) | <10% | | | | | | | | |

| Transect 2 Pasture rehabilitation area 2025 | |
|---------------------------------------------|---------------------------------------------------------------------------|
| Easting | Northing |
| 228454 | 6304718 |
| 228400 | 6304744 |
| Landform and soils | |
| Slope | Transect located along a contour. 3 - <10% slope inclining to the west. |
| Erosion | Not observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | Groundcover of mixed native exotic grasses and broadleaf forbs. |
| Species richness | 34 forbs, graminoids and grasses identified, dominated by exotic species. |

| Transect 2 Pasture rehabilitation area 2025 | | | | | | | | | |
|----------------------------------------------------|-----------------------------|----------------|----------------|----------------|---------------|---------------|----------------|-------------|----------------|
| Cover classification | % cover at each observation | | | | | | | | |
| | September 2017 | September 2018 | September 2019 | September 2020 | November 2021 | November 2022 | September 2023 | August 2024 | September 2025 |
| Total living cover | 90% | 90% | 90% | 90% | >90% | >90% | >95% | >90% | >90% |
| Annual living cover | 40% | 40% | 40% | 20% | 20% | 20% | 20% | 20% | 10% |
| Perennial living cover | 50% | 50% | 50% | 70% | 70% | 70% | 75% | 70% | 80% |
| Litter cover | <10% | 10% | - | - | - | - | - | <5% | <5% |
| Bare surface | <10% | 10% | 10% | 10% | <10% | <10% | <5% | <5% | <5% |
| Target weed presence | | | | | | | | | |
| African Lovegrass (<i>Eragrostis curvula</i>) | <10% | | | | | | | | |

| Transect 3 Pasture rehabilitation area 2025 | |
|---------------------------------------------|-------------------------------------------------------------------------------|
| Easting | Northing |
| 228267 | 6304532 |
| 228306 | 6304560 |
| Landform and soils | |
| Slope | Transect located along a contour. 10 - <20% slope declining to the northwest. |
| Erosion | Not observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | Groundcover of mixed native and exotic grasses and broadleaf forbs. |
| Species richness | 31 forbs, graminoids and grasses recorded, dominated by exotic species. |

| Transect 3 Pasture rehabilitation area 2025 | | | | | | | | | |
|----------------------------------------------------|-----------------------------|----------------|----------------|----------------|---------------|---------------|----------------|-------------|----------------|
| Cover classification | % cover at each observation | | | | | | | | |
| | September 2017 | September 2018 | September 2019 | September 2020 | November 2021 | November 2022 | September 2023 | August 2024 | September 2025 |
| Total living cover | 90% | 90% | 90% | 90% | >90% | >90% | >95% | >90% | >90% |
| Annual living cover | 40% | 40% | 40% | 20% | 20% | 20% | 20% | 20% | 10% |
| Perennial living cover | 50% | 50% | 50% | 70% | 70% | 70% | 75% | 70% | 80% |
| Litter cover | <10% | 10% | - | - | - | - | - | <5% | <5% |
| Bare surface | <10% | 10% | 10% | 10% | <10% | <10% | <5% | <5% | <5% |
| Target weed presence | | | | | | | | | |
| African Lovegrass (<i>Eragrostis curvula</i>) | <10% | | | | | | | | |

| Transect 4 Pasture rehabilitation area 2025 | |
|---------------------------------------------|-------------------------------------------------------------------------|
| Easting | Northing |
| 228318 | 6304224 |
| 228249 | 6304227 |
| Landform and soils | |
| Slope | Transect located along a contour. 1 - <3% slope declining to the west. |
| Erosion | Not observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | Groundcover of mixed native and exotic grasses and broadleaf forbs. |
| Species richness | 51 forbs, graminoids and grasses recorded, dominated by exotic species. |

| Transect 4 Pasture rehabilitation area 2025 | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------|-----------------------------|----------------|----------------|----------------|---------------|-------------------------------------|----------------|-------------|----------------|
| Cover classification | % cover at each observation | | | | | | | | |
| | September 2017 | September 2018 | September 2019 | September 2020 | November 2021 | November 2022 | September 2023 | August 2024 | September 2025 |
| Total living cover | 90% | 90% | 90% | >90% | >90% | Not assessed due to inaccessibility | >95% | >90% | >90% |
| Annual living cover | 30% | 30% | 40% | 20% | 20% | | 20% | 20% | 10% |
| Perennial living cover | 60% | 60% | 50% | 70% | 70% | | 75% | 70% | 80% |
| Litter cover | <10% | 10% | - | - | - | | - | <5% | <5% |
| Bare surface | <10% | 10% | 10% | 10% | <10% | | <5% | <5% | <5% |
| Target weed presence | | | | | | | | | |
| Blackberry (<i>Rubus fruticosus</i> spp. agg.) African Lovegrass (<i>Eragrostis curvula</i>) | >10% | | | | | | | | |

| Transect 5 Treed rehabilitation area 2025 | |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Easting | Northing |
| 227846 | 6304272 |
| 227787 | 6304251 |
| Landform and soils | |
| Slope | Transect located along contour of mid slope inclining 10-20% to the north. |
| Erosion | Minor wind erosion observed on exposed soils. Isolated incidences of inactive gullying observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | <p>Sparse tree layer to 3 m height with juvenile trees and sparse mixed native shrub species.</p> <p>Sparse shrub layer consists of native species and juvenile trees to 2 m height.</p> <p>Groundcover dominated by native and exotic grasses with scattered mixed native and exotic forbs.</p> |
| Species richness | <p>Groundcover dominated by exotic grasses.</p> <p>56 species recorded. 31 species are exotic.</p> |

| Transect 5 Treed rehabilitation area 2025 | | | | | | | | | |
|----------------------------------------------------|-----------------------------|----------------|----------------|----------------|---------------|---------------|----------------|-------------|----------------|
| Cover classification | % cover at each observation | | | | | | | | |
| | September 2017 | September 2018 | September 2019 | September 2020 | November 2021 | November 2022 | September 2023 | August 2024 | September 2025 |
| Total living cover | 70% | 70% | 70% | 80% | 80% | 80% | >90% | 80% | 90% |
| Annual living cover | 10% | 10% | 10% | 10% | 20% | 10% | 20% | 20% | 10% |
| Perennial living cover | 60% | 60% | 60% | 60% | 60% | 70% | 70% | 60% | 80% |
| Litter cover | 10% | 10% | 15% | 10% | - | 10% | 5% | >10% | <5% |
| Bare surface | 20% | 20% | 15% | 10% | 20% | 10% | <5% | <10% | 5% |
| Target weed presence | | | | | | | | | |
| African Lovegrass (<i>Eragrostis curvula</i>) | <10% | | | | | | | | |

| Transect 6 Treed rehabilitation area 2025 | |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Easting | Northing |
| 226604 | 6304724 |
| 226647 | 6304706 |
| Landform and soils | |
| Slope | Transect located along contour of mid slope inclining 10-20% to the northeast. |
| Erosion | Minor wind erosion observed on exposed soils. Isolated incidences of inactive gullyng observed. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | <p>Sparse tree layer to 5 m height with juvenile trees and sparse mixed native shrub species.</p> <p>Sparse shrub layer consists of native species and juvenile trees to 3 m height.</p> <p>Groundcover dominated by native and exotic grasses with scattered mixed native and exotic forbs.</p> |
| Species richness | <p>Groundcover dominated by exotic grasses.</p> <p>44 species recorded, of these 27 were exotic.</p> |

| Transect 6 Treed rehabilitation area 2025 | | | | | | | | | |
|----------------------------------------------------|-----------------------------|----------------|----------------|----------------|---------------|---------------|----------------|-------------|----------------|
| Cover classification | % cover at each observation | | | | | | | | |
| | September 2017 | September 2018 | September 2019 | September 2020 | November 2021 | November 2022 | September 2023 | August 2024 | September 2025 |
| Total living cover | 80% | 70% | 70% | 80% | >90% | 80% | 80% | 80% | 90% |
| Annual living cover | 10% | 10% | 10% | 10% | 20% | 20% | 20% | 20% | 10% |
| Perennial living cover | 70% | 60% | 60% | 70% | 70% | 60% | 60% | 60% | 80% |
| Litter cover | 10% | 10% | 15% | 10% | - | 10% | 10% | >10% | <5% |
| Bare surface | 10% | 20% | 15% | 10% | <10% | 10% | 10% | <10% | 5% |
| Target weed presence | | | | | | | | | |
| African Lovegrass (<i>Eragrostis curvula</i>) | <10% | | | | | | | | |

| Treed analogue site (transect 7) 2025 | |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Easting | Northing |
| 226801 | 6305097 |
| 226838 | 6305039 |
| Landform and soils | |
| Slope | Transect located along contour of mid slope gently inclining to the north. |
| Erosion | Minor wind erosion observed on exposed soils. |
| Cracking soils | Not observed. |
| Surface drainage impediments | No significant drainage impediments. |
| Vegetation | |
| Vegetation structure | Open canopy to 12 m height. Mid to dense shrub layer including juvenile tree species. Groundcover dominated by native grasses with native forbs. |
| Species richness | 55 species observed. 4 of these species are exotic. |
| Cover classification | |
| Total living cover | >90% |
| Annual living cover | <5% |
| Perennial living cover | >85% |
| Litter cover | <10% |
| Bare surface | <5% |
| Target weed presence | |
| None observed. | |

Appendix B

Vegetation assessment of treed areas

Vegetation assessment treed areas 2025

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | 2025 Treed analogue site (transect 7) | 2019 Treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | 25 | 17 | 51 | >25 |
| Trees | Sparse. To 3 m height. | Sparse. To 5 m height. | 12 species, 12-14 m height. 20% canopy cover. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | 34 species, 1-3 m height, 20% cover | >14 species, 1-3 m height, 10% cover |
| Groundcover | 90% cover. Mix of exotic grasses, native and exotic forbs. | 90% cover. Mix of exotic grasses, native and exotic forbs. | Dominated by <i>Poa</i> spp. >90% cover. Mixed native forbs also present. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | 31 | 27 | 4 | <5 |
| Recruitment | Observed. | Observed. | Observed. | Observed. |
| Organic litter | Thin, sparse. | Thin, sparse. | Thin, sparse. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. Some burned. | Large logs placed along contours on upper slope. | Some fallen logs of >20 cm diameter present along transect. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2024

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | 2019 treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >20 | >25 | >25 |
| Trees | Sparse. To 3 m height. | Sparse. To 5 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >14 species, 1-3 m height, 10% cover |
| Groundcover | 90% cover. Mix of exotic grasses, native and exotic herbs. | 80% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >30 | >30 | <5 |
| Recruitment | Observed. | Observed. | Observed. |
| Organic litter | Thin, sparse. | Thin, sparse. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. Some burned. | Large logs placed along contours on upper slope. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2023

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | 2019 treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >10 | >15 | >25 |
| Trees | Sparse. To 3 m height. | Sparse. To 5 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >14 species, 1-3 m height, 10% cover |
| Groundcover | 90% cover. Mix of exotic grasses, native and exotic herbs. | 80% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >25 | >20 | <5 |
| Recruitment | Observed. | Observed. | Observed. |
| Organic litter | Thin, sparse. | Thin, sparse. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. Some burned. | Large logs placed along contours on upper slope. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2022

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | 2019 treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >5 | >10 | >25 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >14 species, 1-3 m height, 10% cover |
| Groundcover | 80% cover. Mix of exotic grasses, native and exotic herbs. | 80% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >25 | >25 | <5 |
| Recruitment | Observed. | Observed. | Observed. |
| Organic litter | Thin, sparse. | Thin, sparse. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. Some burned. | Large logs placed along contours on upper slope. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2021

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | 2019 treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >5 | >10 | >25 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >14 species, 1-3 m height, 10% cover |
| Groundcover | 80% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. >90% cover. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >5 | >10 | <5 |
| Recruitment | Observed. | Observed. | Observed. |
| Organic litter | Thin, sparse. | Thin, sparse. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. Some burned. | Large logs placed along contours on upper slope. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2020

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >5 | >10 | >20 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >5 species, 12-14 m height. No significant canopy cover not assessable due to recent fire. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse. <10 species, 1-3 m height, No significant cover due to recent fire. |
| Groundcover | 90% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. 90% cover. | 70% cover. Mixed native herbs and grasses. |
| Non-native species | >5 | >10 | <5 |
| Recruitment | Observed. | Observed. | Regeneration observed. |
| Organic litter | Thin, sparse. | Thin, sparse. | Thin, sparse. |
| Logs | Large logs placed along contours on upper slope. Some burned. | Large logs placed along contours on upper slope. | Sparse fallen timber from burned trees. |

Vegetation assessment treed areas 2019

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >10 | >15 | >25 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >14 species, 1-3 m height, 10% cover |
| Groundcover | 80% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. 80% cover. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >10 | >10 | <5 |
| Recruitment | Not observed. | Not observed. | Observed. |
| Organic litter | Very sparse layer of mulch remaining. | Very sparse layer of mulch remaining. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. | Large logs placed along contours on upper slope. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2018

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >30 | >30 | >50 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >14 species, 1-3 m height, 10% cover |
| Groundcover | 70% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. 80% cover. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >10 | >10 | <5 |
| Recruitment | Not observed. | Not observed. | Observed. |
| Organic litter | Very sparse layer of mulch remaining. | Very sparse layer of mulch remaining. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. | Large logs placed along contours on upper slope. | >10 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2017

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >30 | >30 | >50 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Includes juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Includes juvenile Eucalyptus and Acacia species. | >9 species, 1-2 m height, 10% cover |
| Groundcover | 70% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. 80% cover. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >10 | >10 | <5 |
| Recruitment | Not observed. | Not observed. | Observed. |
| Organic litter | Very sparse layer of mulch remaining. | Very sparse layer of mulch remaining. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. | Large logs placed along contours on upper slope. | 8 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2016

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >30 | >30 | >50 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >10 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Juvenile Eucalyptus and Acacia species. | Sparse, to 3 m height. Juvenile Eucalyptus and Acacia species. | >9 species, 1-2 m height, 10% cover |
| Groundcover | 75% cover. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. 80% cover. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >15 | >13, including <i>Senecio madagascariensis</i> . | <10 |
| Recruitment | Not observed. | Not observed. | Present |
| Organic litter | Very sparse layer of mulch remaining. | Very sparse layer of mulch remaining. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. | Large logs placed along contours on upper slope. | 8 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2015

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >30 | >30 | >50 |
| Trees | Sparse. To 3 m height. | Sparse. To 3 m height. | >5 species, 12-14 m height. 20% canopy cover. |
| Understorey | Sparse, to 2 m height. Juvenile Eucalyptus and Acacia species. <i>Cassinia arcuata</i> . | Sparse, to 2 m height. Juvenile Eucalyptus and Acacia species. <i>Cassinia arcuata</i> . | >7 species, 1-2m height, 10% cover |
| Groundcover | <40%. Mix of exotic grasses, native and exotic herbs. | Dominated by exotic grasses and herbs. Some native herbs present. 20% cover. | Dominated by <i>Poa</i> spp. >95% cover. Mixed herbs and grasses also present. |
| Non-native species | >10, including <i>Rubus fruticosus</i> . | >10 | <10 |
| Recruitment | Not observed. | Not observed. | Present |
| Organic litter | Thin mulch present. | Thin mulch present. | Well-developed to 2 cm depth. |
| Logs | Large logs placed along contours on upper slope. | Large logs placed along contours on upper slope. | 8 fallen logs of >20 cm diameter present along transect. |

Vegetation assessment treed areas 2014

| Transect | Treed rehabilitation area (transect 5) | Treed rehabilitation area (transect 6) | Treed analogue site (transect 7) |
|-------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------|
| Vegetation type | Rehabilitated | Rehabilitated | Dry Sclerophyll Forest (grassy) |
| Native plant species richness | >30 | >30 | >50 |
| Trees | Sparse. To 3m height. | Sparse. To 3m height. | >5 species, 12-14 m height. 40% canopy cover. |
| Understorey | Sparse. Juvenile Eucalyptus spp. present with Acacia shrubs. | Sparse. Juvenile Eucalyptus spp. present with Acacia shrubs. | >7 species, 1.5 - 3 m height, 35% cover |
| Groundcover | Sparse. Mix of exotic grasses, native and exotic herbs. | Sparse. Mix of exotic grasses, native and exotic herbs. | 70% cover. Dominated by <i>Poa</i> spp. with mixed native herbs. |
| Non-native species | >10 | >10 | <10 |
| Recruitment | Not observed. | Not observed. | Present |
| Organic litter | Thin mulch present. | Thin mulch present. | Well-developed to >2cm depth. |
| Logs | Large logs placed along contours on upper slope. | Large logs placed along contours on upper slope. | 8 fallen logs of >20 cm diameter present along transect. |

Appendix C

Estimation of annual soil loss

| Annual soil loss factors | Pasture analogue site | Transect 1 (pasture) | Transect 2 (pasture) | Transect 3 (pasture) | Transect 4 (pasture) | Transect 5 (treed) | Transect 6 (treed) | Treed analogue site (transect 7) |
|--------------------------------------|-----------------------------------------------------------------------|----------------------|----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Annual rainfall erosivity factor (R) | 1365 Bathurst | | | | | | | |
| Soil erodibility factor (K) | 0.03 Sandy loam /fine sandy loam | | | 0.025 Sandy clay-loam | | | 0.03 Sandy loam /fine sandy loam | |
| Topographic factor (LS) | 0.17 3% gradient, 5 m slope length | | 0.34 8% gradient, 5 m slope length | 0.09 1% gradient, 5 m slope length | 0.89 20% gradient, 5 m slope length | | 0.52 12% gradient, 5 m slope length | |
| Cover and management factor (C) | 0.01 No appreciable canopy cover, 80-95% grassy groundcover | | | | 0.01 25% canopy cover of tall weeds or short brush, 80-95% grassy groundcover | | 0.01 25% canopy cover of tall weeds or short brush, 80-95% grassy groundcover | 0.00 50% canopy cover of appreciable brush, 80-95% grassy groundcover |
| Erosion control practice factor (P) | 1.3 Compacted | | | | | 1.2 Consistent with track walking along contour | | 1.2 Consistent with track walking along contour |
| Annual soil loss due to erosion (A) | 0.09 t/ha | 0.09 t/ha | 0.09 t/ha | 0.18 t/ha | 0.18 t/ha | 0.36 t/ha | 0.36 t/ha | 0.00 t/ha |

Appendix D

Species list

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|---------------------------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Acacia baileyana</i> | | | | | ✓ | ✓ | |
| <i>Acacia dealbata</i> subsp. <i>dealbata</i> | | | | | ✓ | ✓ | ✓ |
| <i>Acacia parramattensis</i> | | | | | ✓ | ✓ | |
| <i>Acacia rubida</i> | | | | | ✓ | ✓ | ✓ |
| <i>Acacia</i> sp. | | | | | ✓ | ✓ | ✓ |
| <i>Acacia ulicifolia</i> | | | | | | | ✓ |
| <i>Ajuga australis</i> | | | | | | | ✓ |
| <i>Amaranthus</i> sp. | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Anthosachne scaber</i> | | | | | | | ✓ |
| <i>Aristida</i> sp. | | | | | | | ✓ |
| <i>Astroloma humifusum</i> | | | | | | | ✓ |
| <i>Bossiaea</i> sp. | | | | | | | ✓ |
| <i>Brassica</i> spp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Bursaria spinosa</i> subsp. <i>lasiophylla</i> | | | | | ✓ | ✓ | ✓ |
| <i>Callistemon salignus</i> | | | | | | ✓ | |
| <i>Cassinia aculeata</i> subsp. <i>aculeata</i> | | | | | ✓ | ✓ | |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|-------------------------------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Cassinia sifton</i> | | | | ✓ | ✓ | ✓ | |
| <i>Cerastium glomeratum</i> | | | | | ✓ | | |
| <i>Cheilanthes</i> sp. | | | | | | | ✓ |
| <i>Chloris truncata</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Chrysocephalum apiculata</i> | | | | | | | ✓ |
| <i>Cirsium vulgare</i> | | | | ✓ | ✓ | ✓ | |
| <i>Craspedia</i> sp. | | | | | | | ✓ |
| <i>Cyperus eragrostis</i> | | ✓ | | | ✓ | | |
| <i>Cryptandra amara</i> | | | | | | | ✓ |
| <i>Dactylis glomerata</i> | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Desmodium varians</i> | | | | | | | ✓ |
| <i>Dianella revoluta</i> | | | | | | | ✓ |
| <i>Dillwynia phillicoides</i> | | | | | | | ✓ |
| <i>Eragrostis curvula</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Erigeron</i> spp. | | ✓ | | ✓ | ✓ | ✓ | |
| <i>Eucalyptus macrorhyncha</i> subsp. <i>cannonii</i> | | | | | | | ✓ |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|---------------------------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Eucalyptus aggregata</i> | | | | | | | ✓ |
| <i>Eucalyptus baueriana</i> | | | | | ✓ | | |
| <i>Eucalyptus bridgesiana</i> | | | | | ✓ | | |
| <i>Eucalyptus cinerea</i> subsp. <i>cinerea</i> | | | | | ✓ | | |
| <i>Eucalyptus cypellocarpa</i> | | | | | ✓ | ✓ | ✓ |
| <i>Eucalyptus dives</i> | | | | | ✓ | ✓ | ✓ |
| <i>Eucalyptus melliodora</i> | | | | | | ✓ | ✓ |
| <i>Eucalyptus mannifera</i> | | | | | | | ✓ |
| <i>Eucalyptus macrorhyncha</i> | | | | | | | ✓ |
| <i>Eucalyptus pauciflora</i> | | | | | ✓ | ✓ | |
| <i>Eucalyptus piperita</i> | | | | | | | ✓ |
| <i>Eucalyptus racemosa</i> subsp. <i>racemosa</i> | | | | | ✓ | | |
| <i>Eucalyptus radiata</i> subsp. <i>radiata</i> | | | | | | ✓ | ✓ |
| <i>Eucalyptus rubida</i> subsp. <i>rubida</i> | | | | | | | ✓ |
| <i>Eucalyptus sideroxylon</i> | | | | | ✓ | ✓ | |
| <i>Eucalyptus</i> sp. | | | | | ✓ | ✓ | ✓ |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|-----------------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Euchiton spaericus</i> | | | | ✓ | ✓ | | |
| <i>Euphorbia</i> sp. | | | | ✓ | ✓ | ✓ | |
| <i>Exocarpos cupressiformis</i> | | | | | | | ✓ |
| <i>Festuca</i> sp. | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Gamochaeta coarctata</i> | | | | ✓ | ✓ | ✓ | |
| <i>Geranium molle</i> var. <i>molle</i> | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Geranium solanderi</i> | | | | ✓ | ✓ | | |
| <i>Gnaphalium sphaericum</i> | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| <i>Gompholobium</i> sp. | | | | | | | ✓ |
| <i>Goodenia hederacea</i> | | | | | | | ✓ |
| <i>Hibbertia obtusifolia</i> | | | | | | | ✓ |
| <i>Hypochoeris glabra</i> | | | | ✓ | | | |
| <i>Hypochoeris radicata</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Juncus</i> spp. | | ✓ | | ✓ | ✓ | | |
| <i>Leontodon saxatilis</i> | | | | | ✓ | ✓ | |
| <i>Lepidium africanum</i> | | | | ✓ | | | |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|------------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Lepidium</i> sp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| <i>Lepidosperma laterale</i> | | | | | | | ✓ |
| <i>Leptospremum</i> sp. | | | | | | | ✓ |
| <i>Leptospermum myrtifolium</i> | | | | | | | ✓ |
| <i>Leptospermum polygalifolium</i> | | | | | | | ✓ |
| <i>Leucopogon muticus</i> | | | | | | | ✓ |
| <i>Leucopogon virgatus</i> | | | | | | | ✓ |
| <i>Lissanthe strigosa</i> | | | | | | | ✓ |
| <i>Lobelia</i> sp. | | | | | | | ✓ |
| <i>Lolium perenne</i> | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Lomandra longifolia</i> | | | | | | | ✓ |
| <i>Lysimachia arvensis</i> | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| <i>Malva neglecta</i> | | | | ✓ | | | |
| <i>Malva parviflora</i> | | | | ✓ | ✓ | ✓ | |
| <i>Medicago</i> sp. | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Melicytus dentatus</i> | | | | | | | ✓ |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|----------------------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Modiola carolina</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Oxalis corniculata</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Oxalis perenans</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Oxalis</i> sp. | | | | ✓ | ✓ | | |
| <i>Paspalum</i> sp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Patersonia</i> sp. | | | | ✓ | | | ✓ |
| <i>Persoonia laurina</i> | | | | | | | ✓ |
| <i>Persoonia linearis</i> | | | | | | | ✓ |
| <i>Persoonia mollis</i> subsp. <i>mollis</i> | | | | | | | ✓ |
| <i>Persoonia</i> sp. | | | | | | | ✓ |
| <i>Phalaris</i> sp. | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Pinus radiata</i> | | | | ✓ | | | |
| <i>Plantago lanceolata</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Poa annua</i> | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| <i>Poa labillardieria</i> | | | | | | | ✓ |
| <i>Poa</i> spp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|----------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Portulaca oleracea</i> | | | | ✓ | ✓ | ✓ | |
| <i>Pultenaea</i> sp. | | | | | | | ✓ |
| <i>Ranunculus</i> sp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Romulea minutiflora</i> | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Rorippa</i> sp. | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Rubus fruticosus</i> spp. agg | | | | ✓ | | | |
| <i>Rumex acetosella</i> | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Senecio quadridentatus</i> | | | | | ✓ | ✓ | |
| <i>Senecio</i> sp. | | | ✓ | | | | |
| <i>Solanum</i> sp. | | | | ✓ | | | |
| <i>Solenogyne bellioides</i> | | | | | | | ✓ |
| <i>Sonchus oleraceus</i> | ✓ | ✓ | ✓ | ✓ | | | |
| <i>Stellaria media</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Sisymbrium</i> sp. | | | | ✓ | | | |
| <i>Taraxacum officinale</i> | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| <i>Themeda triandra</i> | | | | | ✓ | ✓ | |

| Scientific name | Transect 1 | Transect 2 | Transect 3 | Transect 4 | Transect 5 | Transect 6 | Treed analogue site (Pine Dale Mine transect 7) |
|-------------------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------------|
| <i>Trifolium arvense</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Trifolium repens</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Trifolium</i> spp. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Trifolium subterraneum</i> | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| <i>Verbascum thapsus</i> | | | | | ✓ | ✓ | |
| <i>Veronica calycina</i> | | | | | | | ✓ |

Appendix E

Photo point monitoring to 2025



Transect 1 looking south 2014



Transect 1 looking south 2015



Transect 1 looking south 2016



Transect 1 looking south 2017



Transect 1 looking south 2018



Transect 1 looking south 2019



Transect 1 looking south 2020



Transect 1 looking east 2021 note that the transect 1 photo-monitoring point was inaccessible to the presence of livestock



Transect 1 looking south 2022



Transect 1 looking south 2023



Transect 1 looking south 2024



Transect 1 looking south 2025



Transect 2 looking southeast 2014



Transect 2 looking southeast 2015



Transect 2 looking southeast 2016



Transect 2 looking southeast 2017



Transect 2 looking southeast 2018



Transect 2 looking southeast 2019



Transect 2 looking southeast 2020



Transect 2 looking southeast 2021



Transect 2 looking southeast 2022



Transect 2 looking southeast 2023



Transect 2 looking southeast 2024



Transect 2 looking southeast 2025



Transect 3 looking southwest 2014



Transect 3 looking southwest 2015



Transect 3 looking southwest 2016



Transect 3 looking southwest 2017



Transect 3 looking southwest 2018



Transect 3 looking southwest 2019



Transect 3 looking southwest 2020



Transect 3 looking south 2021



Transect 3 looking south 2022



Transect 3 looking south 2023



Transect 3 looking south 2024



Transect 3 looking south 2025



Transect 4 looking west 2014



Transect 4 looking west 2015



Transect 4 looking west 2016



Transect 4 looking west 2017



Transect 4 looking west 2018



Transect 4 looking west 2019



Transect 4 looking west 2020



Transect 4 looking west 2021



Adjacent to Transect 4 looking south-west 2022



Transect 4 looking west 2023



Transect 4 looking west 2024



Transect 4 looking west 2025



Transect 5 looking west 2014



Transect 5 looking west 2015



Transect 5 looking west 2016



Transect 5 looking west 2017



Transect 5 looking west 2018



Transect 5 looking west 2019



Transect 5 looking west 2020



Transect 5 looking west 2021



Transect 5 looking west 2022



Transect 5 looking west 2023



Transect 5 looking west 2024



Transect 5 looking west 2025



Transect 6 looking east 2014



Transect 6 looking east 2015



Transect 6 looking east 2016



Transect 6 looking east 2017



Transect 6 looking east 2018



Transect 6 looking east 2019



Transect 6 looking east 2020



Transect 6 looking east 2021



Transect 6 looking east 2022



Transect 6 looking east 2023



Transect 6 looking east 2024



Transect 6 looking east 2025



Transect 7 looking east 2014



Transect 7 looking east 2015



Transect 7 looking east 2016



Transect 7 looking east 2017



Transect 7 looking east 2018



Transect 7 looking east 2019



Transect 7 looking east 2020

Note that Transect 7 was inaccessible in 2021 and 2022



Looking towards Transect 7 2022



Transect 7 looking east 2023



Transect 7 looking east 2024



Transect 7 looking east 2025



Quadrat 1 February 2010 (Cunningham 2012)



Quadrat 1 September 2011 (Cunningham 2012)



Quadrat 1 November 2012 (Cunningham 2012)



Quadrat 1 April 2014



Quadrat 1 September 2015



Quadrat 1 September 2016



Quadrat 1 September 2017



Quadrat 1 September 2018



Quadrat 1 September 2019



Quadrat 1 September 2020



Quadrat 1 November 2021

Note that Quadrat 1 was inaccessible in 2022



Quadrat 1 November 2023



Quadrat 1 August 2024



Quadrat 1 September 2025