MACHEnergy

Mount Pleasant Operation

Monthly Environmental Monitoring Report

November 2025

Table of Contents

1. Introduction

The Mount Pleasant Operation (MPO) is located within the Upper Hunter Valley of New South Wales, approximately three kilometres (km) north-west of Muswellbrook and approximately 50 km north-west of Singleton. The villages of Aberdeen and Kayuga are located 12 km north-northeast and 3 km north of the operations, respectively.

The purpose of this report is to provide a monthly update of monitoring data in accordance with the requirements of NSW Environmental Protection Licence (EPL) 20850, Section 66(6) of the *Protection of the Environment Operations Act 1997* (*POEO Act*), the MPO Development Approval (DA 92/97) and the MPO Development Consent (SSD 10418).

Table 1-1 – Mount Pleasant Operation

Name of Operation	Mount Pleasant Operation
Name of Licensee	MACH Energy Australia Pty Ltd
Environmental Protection Licence	20850
Project Approval	DA 92/97 and SSD 10418
Reporting Period Start Date	1 November 2025
Reporting Period End Date	30 November 2025
Date All Data Received	22 December 2025

Links to three key regulatory documents are provided here:

- Mount Pleasant Operation Development Application Approval DA 92/97; and
- Mount Pleasant Operation Development Consent SSD 10418.
- Mount Pleasant Operation EPL 20850

2. Monitoring Requirements

The MPO EPL 20850 specifically requires the monitoring of:

- 2 x Continuous particulate monitors
- Noise monitoring.
- Blast monitoring; and
- Meteorological monitoring.

Monitoring of sites not required by the EPL are conducted in accordance with the respective Management Plans as required by Project Approval (DA 92/97) and Development Consent (SSD 10418).

All monitoring is undertaken by suitably qualified and experienced person(s). The MPO Environmental Monitoring Network is shown in Appendix A.

3. Meteorological Monitoring

Weather data is measured continuously[1] at the Kayuga Road (M-WS4) and the Wybong Road (M-WS2) meteorological stations. In addition to air quality parameters (particulate matter less than 10µm and less than 2.5µm (PM_{10} and $PM_{2.5}$)), the weather stations measure wind speed and direction, temperature (at 2 metres (m) and 10m), temperature inversion (using the sigma theta method), solar radiation, relative humidity, rainfall, and atmospheric pressure.

Meteorological data was captured at M-WS2 during the monitoring period. Throughout November 2025, there was 45mm recorded at M-WS2 noting there was some lost data over the 20 to 21 of November.

4. Dust Depositional Monitoring

4.1 Methodology

The dust deposition monitoring network comprises of thirteen (13) dust deposition gauges (DDG) that are collected on a monthly basis. Details of the monitoring locations are shown in Figure 2-2.

4.2 Assessment Criteria

Dust Deposition were assessed as per the MPO Air Quality and Greenhouse Gas Management Plan (MACH Energy, 2024). Dust deposition was monitored according to the OEH's Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DECC 2007), which references Australian Standard (AS)/New Zealand Standard (NZS) 3580.10.1:2016 Methods for Sampling and Analysis of Ambient Air: Determination of particulate matter – Deposited matter – Gravimetric Method.

DDG samples can be contaminated by a variety of means, notably by the presence of insects and bird droppings. Results for contaminated gauges were not included in the calculation of the annual averages as this would result in skewed or misleading results for the purpose of dust deposition assessment. The Australian Standard does not provide criteria for the determination of contamination of a DDG. AECOM determines a gauge sample to be contaminated only after reference to field observation sheets, historical monitoring location data, laboratory notes and results, prevailing atmospheric conditions, and feedback from field technicians. For example, a gauge sample with a statistically abnormally high insoluble solids result, a low ash residue result (indicating an elevated level of organic matter) and field notation that bird droppings or insects were present is likely to be considered contaminated.

While the new SSD 10418 doesn't explicitly mention dust deposition gauges, there's a notable shift in regulations towards embracing high volume air sampler results and continuous air quality monitoring programs, with a specific focus on total particulate matter, PM10, and PM2.5. These modern monitoring techniques offer a more comprehensive approach to environmental surveillance, furnishing real-time data and insights into air quality conditions. By harnessing these advanced methods, MPO can ensure the implementation of

[1] The EPA's Ambient air monitoring guidance note (Guidance Note) states that after allowing sufficient down time for routine maintenance and calibrations a continuous monitoring system should be able to achieve at least a 95% availability.

robust monitoring practices. This transition from the previous development consent DA 92/97 (which is yet to be surrendered) to SSD 10418 signifies a proactive measure towards upholding environmental compliance. Therefore, Dust Depositional Monitoring will continue to be included in monthly reporting as per DA92/97 up until surrender where it will be discontinued. Site D7b is located within close proximity to the northern boundary of a neighbouring mining operation and thus can be influenced by this site. D7b will continue to be monitored, however will not be used to assess compliance or to represent residential receivers in the area.

4.3 Results

Dust Deposition Data was conducted by AECOM during the monitoring period. Sample analysis was performed by ALS, a National Accreditation and Testing Authority (NATA) accredited laboratory.

Results are summarised in **Table 4-1**. Annual rolling averages have been provided as an indication of performance in the 12 months leading up to the current monitoring period as per Schedule 3, Condition 20 of DA 92/97 and Schedule 2, Condition B28 of SSD 10418.

Table 4-1: Dust Depositional Results – November 2025

Location	Monthly Insoluble Solids (g/m^2.month)	Insoluble Solids Annual Rolling Average (g/m^2.month)
D1	3.2	3.7
D3	2.3	1.5
D4	1.3	1.1
D5a	4.5	2.4
D6	3.9	2.2
D7b***	38	**12.9**
D8	5.7	**5.0**
D9a	2.3	3.6
D10	3.2	1.3
D11	3.5	**4.2**
D12	1.3	1.4
D13	2.5	2.2
D14	4.2	4.0
Criterion	-	**4.0**

Notes:
*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*
** Insufficient monthly results to calculate annual average*
*** Contaminated results*
**** Within the operational area. Not used to assess compliance or to represent residential receivers in the area.*

Figure 4-1 compares the monthly insoluble solids results to the annual averages for each dust gauge and the assessment criterion.

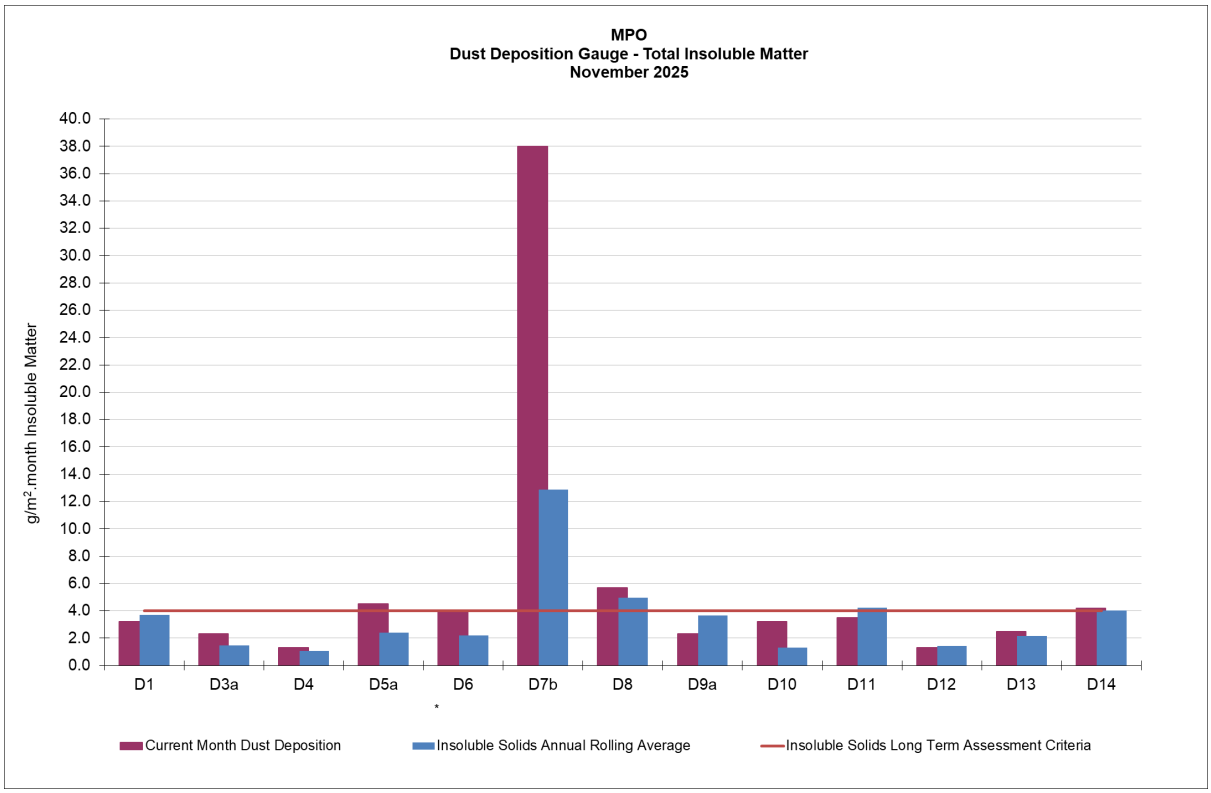


Figure 4-1: MPO Dust Deposition Monthly Results and Annual Rolling Average

5. Total Suspended Particulates

5.1 Methodology

Three Total Suspended Particulate Matter (TSP) High-Volume Air Samplers (HVAS) are run for 24 hours every six days. The locations are displayed in **Table 5-1** below.

Table 5-1 Total Suspended Particulate Monitoring Sites

ID	Description
A-PF2	Reilly's
M-WS4	Kayuga Road Met Station
A-PF5	Athlone

5.2 Assessment Criteria

Total Suspended Particulates were assessed as per the MPO Air Quality and Greenhouse Gas Management Plan (MACH Energy, 2024) in accordance with AM-15 of Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DECC, 2007), referencing AS/NZS 3580.9.3:2015 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) - High volume sampler gravimetric method, for the monitoring of TSP.

TSP is assessed against the guidelines defined in the EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA 2016), Project Approval DA 92/97 and Development Consent SSD 10418. The DA 92/97 and SSD 10418 both specify an annual average project contribution plus background criterion of 90µg/m3.

5.3 Results

Sample collection was undertaken by AECOM with sample analysis performed by ALS, a NATA accredited laboratory. TSP results for the monitoring period are provided in Table 5-2. Twelve month rolling averages to the current month are provided as an indication of performance as per Schedule 3, Condition 20 of DA 92/97 and Schedule 2, Condition B28 of SSD 10418.

The Northern Link Road (NLR) and Northern Surface Water Infrastructure (NSWI) construction works are currently being undertaken near HVAS M-WS4 and HVAS A-PF5. The NLR project works are expected to continue until June 2026 and then cease to impact on HVAS A-PF5. The NSWI works will have a permanent impact to HVAS M-WS4. A revised Air Quality and Greenhouse Gas Management Plan was submitted to the Department of Planning, Infrastructure and Housing in May 2025 to relocate A-PF4 to a more suitable location. DPHI have not completed their review of the management plan. When the Management Plan is approved, the monitoring station will be relocated. The station will continue to be impacted until it is able to be relocated. Results are no longer considered indicative of impacts to residential receivers from the operations.

Table 5-2 Total Suspended Particulate Monitoring Data – November 2025

Run Date	Assessment Criterion	TSP µg/m^3		
		HVAS A-PF2	HVAS A-PF5	HVAS M-WS4
02/11/2025	-	35.4	58.4	44.1
08/11/2025	-	139	52.2	68.7
14/11/2025	-	94.2	121	203
20/11/2025	-	68.6	59.3	67.3
26/11/2025	-	36.1	35.2	31.9
Monthly Mean	-	74.7	65.2	83
Annual Rolling Average	90	57	50	46

Notes:
Results have been rounded to one decimal place for reporting purposes where applicable.
*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*

6. Real Time Air Quality Monitoring

6.1 Methodology

Monitoring of continuous particulate matter less than 10µm (PM10) and particulate matter less than 2.5µm (PM2.5) was conducted continuously at three locations (one utilised for management only) at MPO during the monitoring period.

6.2 Assessment Criteria

The EPA identification numbers 1 and 2 refer to monitors installed on Wybong Road (A-PF2) and Dorset Road (A-PF5), respectively. In addition, a third monitor (A-PF4) is installed on Kayuga Road with data used for management purposes only. Project Approval Schedule 3, Condition 20 of DA 92/97 and Development Consent Schedule 2, Condition B28 of SSD 10418 specify a limit for PM10 of 50 µg/m3 and PM2.5 of 25 µg/m3 in a 24-hour daily average.

The Northern Link Road (NLR) and Northern Surface Water Infrastructure (NSWI) construction works are currently being undertaken near A-PF5 and A-PF4. The NLR project works are expected to continue until June 2026 and then cease to impact on A-PF5. The NSWI works will have a permanent impact to A-PF4. A revised Air Quality and Greenhouse Gas Management Plan was submitted to the Department of Planning, Infrastructure and Housing in May 2025 to relocate A-PF4 to a more suitable location. DPHI have not completed their review of the management plan. When the Management Plan is approved, the monitoring station will be relocated. The station will continue to be impacted until it is able to be relocated. Results are no longer considered indicative of impacts to residential receivers from the operations.

6.3 Results

Real time PM10 and PM2.5 annual rolling averages to the current month have been provided in **Figures 6.2 and 6.4**, respectively. **Figure 6.1 and Table 6.1** below show the real-time PM_{10} 24 hour daily average results at MPO air quality monitoring sites during the monitoring period. Real time $PM_{2.5}$ 24-hour average results during the reporting period are presented in **Figure 6.3** and **Table 6.2.**

Table 6-1: MPO Continuous Particulate PM_{10} Data – November 2025

Date	A-PF2/ EPA ID 1	A-PF4[1]	A-PF5/ EPA ID 2	A-PF2, A-PF5 24 Hour Average Limit (µg/m^3)
	24-hour Average Result			
01/11/2025	14.59	14.05	8.56	50
02/11/2025	15.85	14.95	10.32	50
03/11/2025	22.24	19.80	13.19	50
04/11/2025	28.89	13.90	6.54	50
05/11/2025	22.36	8.91	4.15	50
06/11/2025	20.87	25.53	5.25	50
07/11/2025	23.25	38.14	8.78	50
08/11/2025	41.89	24.93	10.75	50
09/11/2025	33.33	17.00	8.42	50
10/11/2025	22.85	24.29	13.28	50

Date	A-PF2/ EPA ID 1	A-PF4[1]	A-PF5/ EPA ID 2	A-PF2, A-PF5 24 Hour Average Limit (µg/m^3)
	24-hour Average Result			
11/11/2025	27.92	32.76	6.54	50
12/11/2025	34.12	**58.96**	5.37	50
13/11/2025	30.15	**50.74**	8.17	50
14/11/2025	32.79	37.53	6.87	50
15/11/2025	31.53	40.69	11.12	50
16/11/2025	19.21	14.61	6.52	50
17/11/2025	42.80	11.36	4.37	50
18/11/2025	28.19	22.16	4.70	50
19/11/2025	21.32	28.03	4.83	50
20/11/2025	24.49	23.79	5.09	50
21/11/2025	-	20.44	7.45	50
22/11/2025	13.80	-	7.32	50
23/11/2025	17.34	-	9.04	50
24/11/2025	18.33	-	10.35	50
25/11/2025	18.84	21.23	7.62	50
26/11/2025	16.83	14.61	5.07	50
27/11/2025	23.04	17.70	6.36	50
28/11/2025	46.71	-	10.00	50
29/11/2025	33.32	16.00	5.60	50
30/11/2025	34.03	19.84	6.07	50

*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*
Results with "- "indicate dates where data was affected by maintenance or servicing (scheduled and unscheduled
[1] Criteria of 50µg/m^3 does not apply to A-PF4 as it is not representative of a residence on privately owned land.

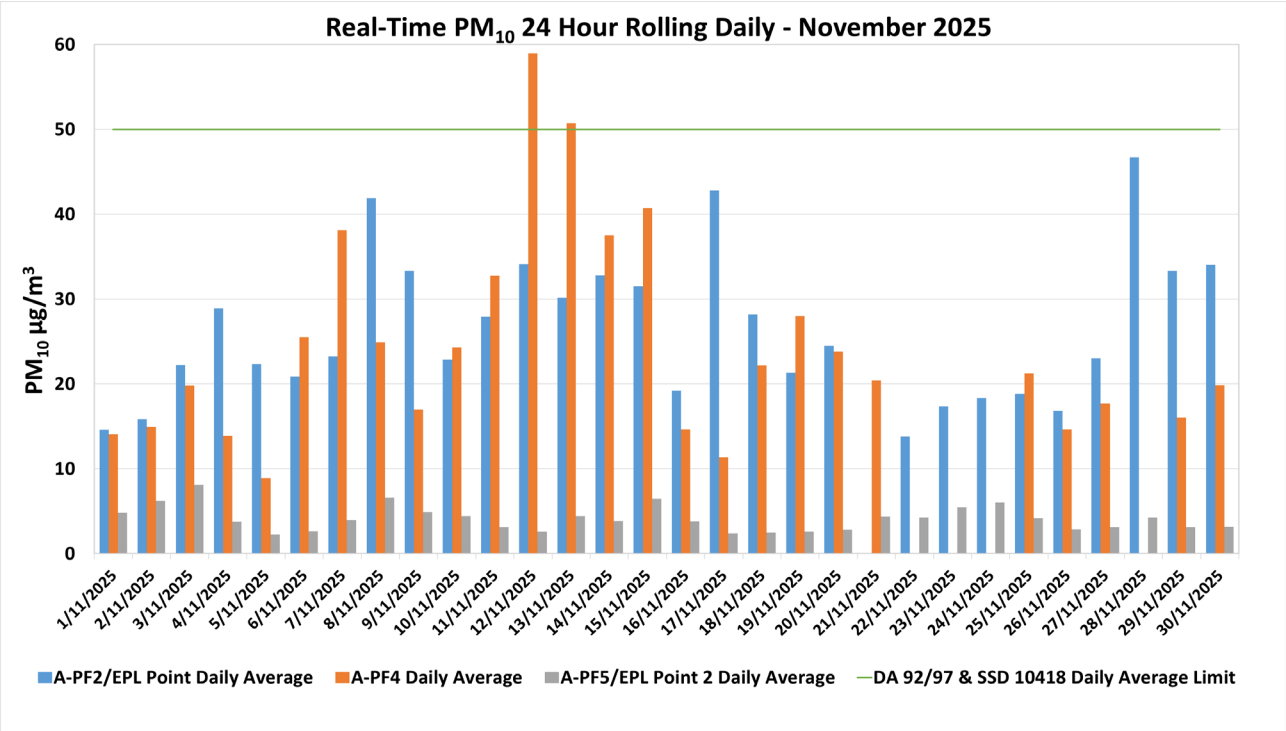


Figure 6-1: Real-time PM_{10} 24 Daily Average Results for November 2025.

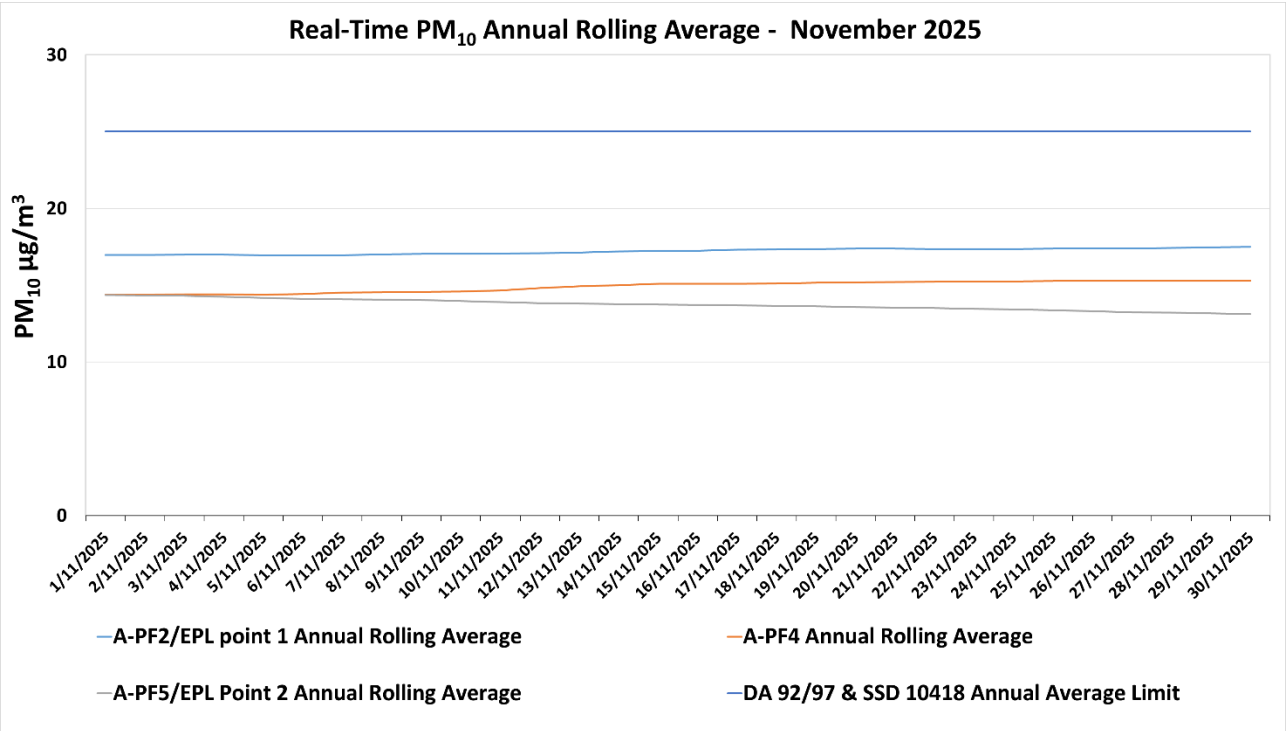


Figure 6-2: Real-time PM_{10} Annual Rolling Average Results for November 2025.

Table 6-2: MPO Palas Fidas $PM_{2.5}$ Data – November 2025

Date	A-PF2/EPA ID 1	A-PF4[1]	A-PF5/EPA ID 2	A-PF2, A-PF5 24 Hour Average Limit (µg/m³)
	24-hour Average Result			
01/11/2025	5.64	5.74	4.83	25
02/11/2025	7.08	7.20	6.24	25
03/11/2025	9.53	9.79	8.11	25
04/11/2025	6.33	4.97	3.77	25
05/11/2025	4.49	2.99	2.27	25
06/11/2025	4.47	4.61	2.63	25
07/11/2025	5.44	6.49	3.92	25
08/11/2025	10.34	9.08	6.58	25
09/11/2025	8.12	6.71	4.91	25
10/11/2025	5.43	5.48	4.41	25
11/11/2025	6.17	6.14	3.12	25
12/11/2025	5.21	6.83	2.59	25
13/11/2025	7.16	8.47	4.42	25
14/11/2025	6.94	7.23	3.85	25
15/11/2025	10.86	11.87	6.47	25
16/11/2025	6.16	5.60	3.81	25
17/11/2025	6.07	3.41	2.39	25
18/11/2025	4.87	4.46	2.47	25
19/11/2025	4.44	4.87	2.60	25
20/11/2025	5.14	5.25	2.85	25
21/11/2025	-	6.99	4.37	25
22/11/2025	5.47	-	4.27	25
23/11/2025	7.46	-	5.46	25
24/11/2025	6.36	-	6.01	25
25/11/2025	5.43	5.69	4.17	25
26/11/2025	4.75	4.33	2.86	25
27/11/2025	5.56	5.10	3.11	25
28/11/2025	7.83	-	4.26	25
29/11/2025	6.41	4.57	3.11	25
30/11/2025	6.02	4.92	3.18	25

*Results in **bold** indicate an elevated measurement of adopted assessment criteria.*
Results with "- "indicate dates where data was affected by maintenance or servicing (scheduled and unscheduled)
[1]Criteria of 25µg/m³ does not apply to A-PF 4 as it is not representative of a residence on privately owned land.

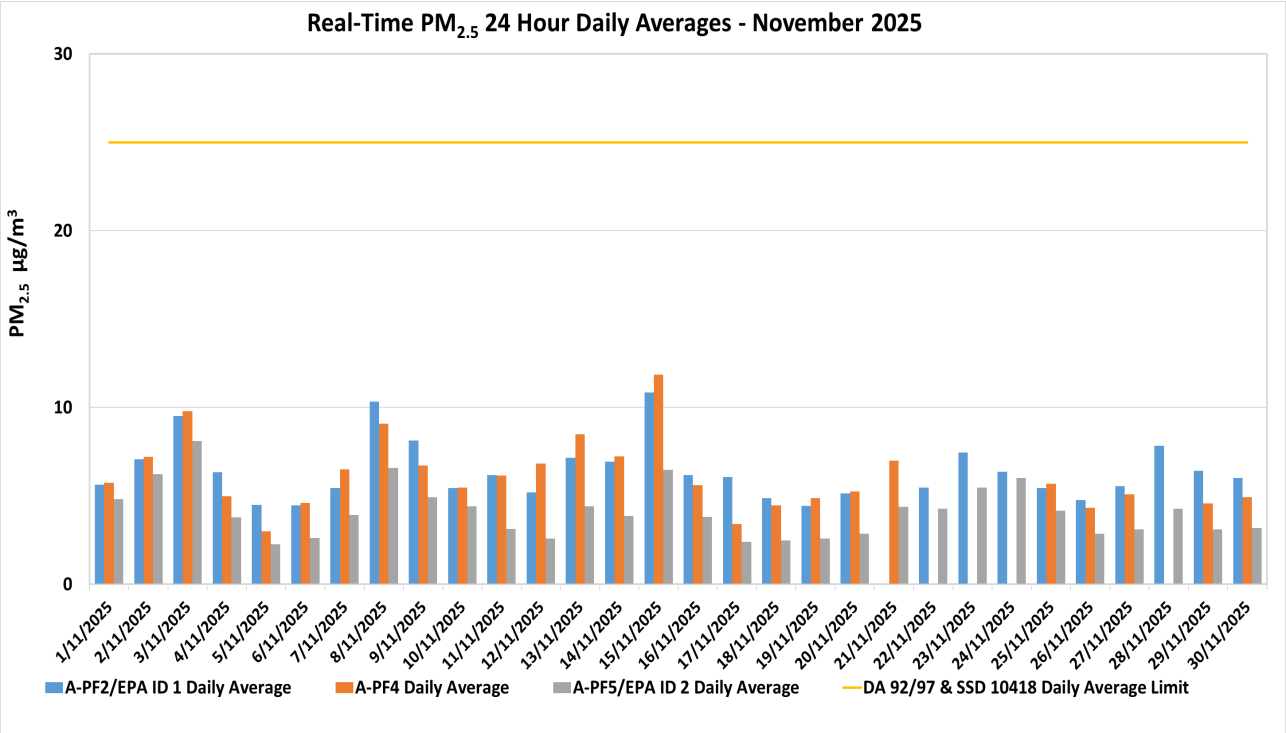


Figure 6-3: Real-time $PM_{2.5}$ 24 hour Daily Average Results for November 2025.

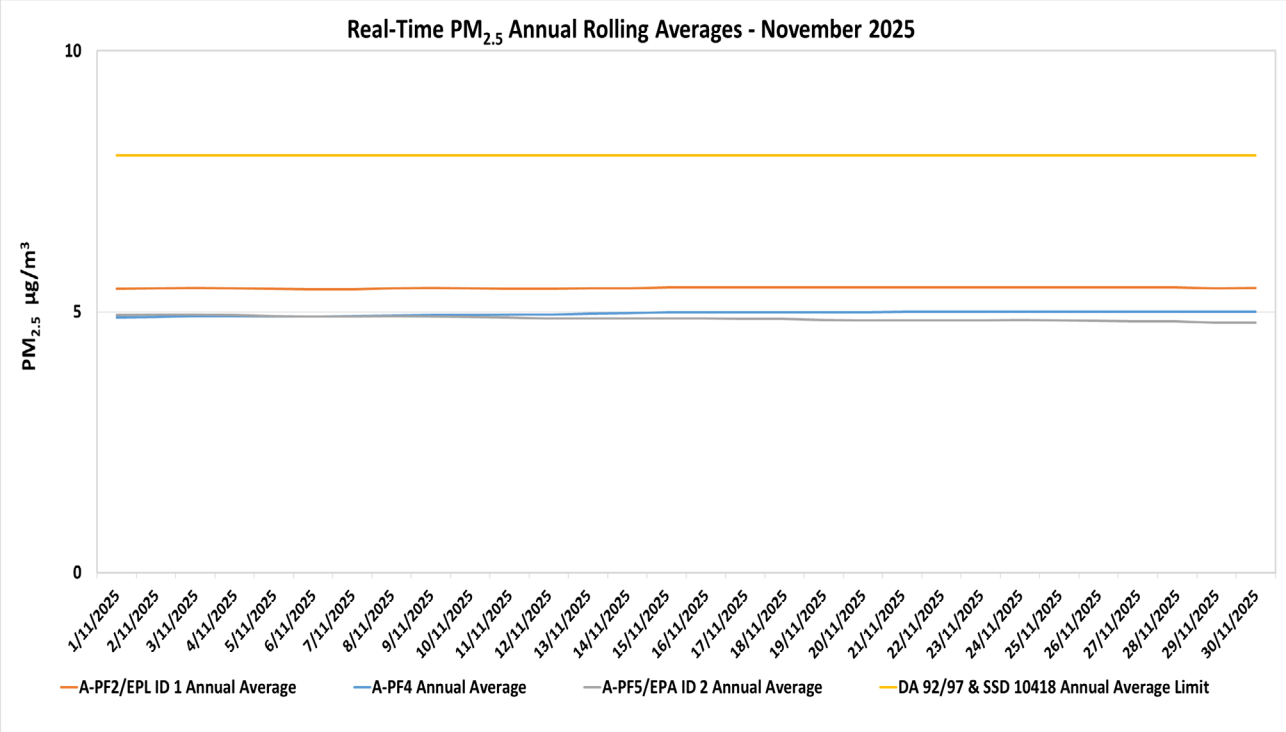


Figure 6-4: Real-time $PM_{2.5}$ Annual Rolling Average Results for November 2025.

7. Dust Shutdowns

7.1 Methodology

PM_{10} dust levels and wind direction is continually monitored at the Muswellbrook NW Upper Hunter Air Quality Monitoring Network Station to assess any exceedances over a 24-hour period.

7.2 Assessment Criteria

Adverse conditions that lead to the shutdown of dust generating activities at Mount Pleasant are assessed as per EPL 20850 requirement O3. Adverse conditions are defined as the occurrence of both adverse wind conditions and adverse PM_{10} conditions measured at the Muswellbrook NW Air Quality Monitoring Station.

- Adverse wind conditions are the result of a one-hour average wind direction between 250 degrees and 340 degrees.
- Adverse PM_{10} conditions are the occurrence of the rolling 24- hour average PM_{10} concentration exceeding 44 µg/m^3.

When adverse conditions have passed and a minimum of one hour of no dust generating activities have been undertaken, activities may resume.

7.3 Results

Table 7.1. presents a log of days throughout the reporting period when adverse conditions were triggered leading to a shutdown event, in accordance with EPL Condition O3.4.

Table 7-1 Dust Shutdowns MPO- November 2025

Date	Muswellbrook NW 24- hour rolling PM10 Average (µg/m^3)	Wind Direction (˚)
17/11/2025	44.5	283
28/11/2025	50	307
28/11/2025	59.3	267

8. Surface Water Monitoring

8.1 Methodology

Surface water quality is monitored at fourteen (14) sites on a monthly basis, with additional monitoring conducted if triggered by a rain event. A more comprehensive suite of analysis is performed at these sites on a quarterly basis.

8.2 Assessment Criteria

Surface waters were assessed as per the *MPO Water Management Plan* (MACH Energy, 2025) in accordance with site specific trigger values that have been developed using the ANZECC (2000) guidelines for sites that contain a minimum of two years of monthly data. Sites with insufficient data are assessed on default trigger values adopted from ANZECC (2000) guidelines. In accordance with the MPO Water Management Plan (WMP) Table 26 (MACH Energy, 2024) if a water quality indicator at a potential impact monitoring location or

at a downstream receiving water monitoring location is above (or outside the range) of the site-specific trigger value for three consecutive sampling events an investigation is required.

8.3 Results

Surface water monitoring was conducted by AECOM during the monitoring period. Laboratory analysis was performed by ALS NATA accredited laboratory. Monthly monitoring results for pH, EC, TSS and Total Dissolved Solids (TDS) are presented in **Table 8-1**.

This is the third consecutive sampling event where EC levels have been above trigger levels for W6A and W15. As W1 (Upstream Reference Site) has also been above the criteria for the same period, in accordance with the MPO Water Management Plan there is no trigger of the response protocol or further investigation required.

Table 8-1 – MPO Monthly Surface Water Monitoring Results – 26 November 2025

Station	pH	Electrical Conductivity (EC) (µs/cm)	Total Dissolved Solids (TDS) (mg/L)	Total Suspended Solids (TSS) (mg/L)
Hunter River				
W1 (Upstream Reference Site)	**8.3**	**690**	382	11
W2	**	**	**	**
W6A	8.2	**811**	460	15
W15	8.1	**965**	603	23
W17	8.0	**917**	554	16
Sandy Creek				
W11 (Upstream Reference Site)	**8.3**	**8080**	4770	**11**
W12	8.1	5200	2950	7
Muscle Creek				
W4 (Upstream Reference Site)	7.8	2250	1360	**14**
Unnamed Tributaries				
W3	7.9	872	509	**32**
W5	*	*	*	*
W9	*	*	*	*
W13	*	*	*	*
W14	*	*	*	*
W16	8.5	9350	5620	14

*Note: Results in **bold** indicate exceedances of adopted assessment criteria of less than three consecutive events.*
**Dry or insufficient water to sample.*
*** No access due to track conditions.*

9. Groundwater Monitoring

9.1 Methodology

Groundwater monitoring is conducted on a quarterly basis, in February, May, August and November.

9.2 Assessment Criteria

An investigation is triggered if elevated measurements occur for three consecutive sampling events in accordance MPO Water Management Plan (MACH Energy, 2022).

An investigation was triggered (AGE, 2023) examining the cause of elevated EC values in the alluvial zone, specifically MPBH2. The data strongly suggests that the cause of the increase in EC is persistent above-average stage in the adjacent Hunter River, caused by above-average rainfall since 2020, which is causing a rise in groundwater levels in similar alluvial bores. Further Investigations have been undertaken during 2025, and in accordance with recommendations from Specialist Groundwater Consultants AGE, the *MPO Water Management Plan* (MACH Energy, 2025) has been revised to new recommended trigger levels for MPBH2. The revised MPO Water Management Plan was submitted to the Department of Planning Housing and Infrastructure in August 2025. Based on the previous assessment it is expected that EC levels of MPBH2 will continue to be above the older trigger level, this will not be reported each monitoring period as the investigation and recommendations have been completed as required.

9.3 Results

Water level results for the groundwater bores are presented in **Table 8-1**. The quarterly pH and EC results are presented in **Table 8-2** and **Table 8-3**, respectively.

Table 8-1 - MPO Quarterly Groundwater Water Level Results

Monitoring Location/ ID	Trigger	November 2025 Water Level (DTW)	August 2025 Water Level (DTW)	May 2025 Water Level (DTW)	Triggered (Yes/ No)
WRA1L	-	1.02	1.77	2.73	-
WRA1U	-	*	*	*	-
WRA3L-R	-	*	*	*	-
WRA3U-R	-	*	*	*	-
WRA5L-R	-	*	^	*	-
WRA5U-R	-	*	^	*	-
WRA6L	-	0.52	0.15	0.03	-
WRA6U	-	1.14	0.82	0.75	-
MPBH1	10.70	9.52	7.01	9.06	No
MPBH2	13.59	10.74	11.03	11.81	No
MPBH3b	13.04	10.89	10.56	11.68	No

Monitoring Location/ ID	Trigger	November 2025 Water Level (DTW)	August 2025 Water Level (DTW)	May 2025 Water Level (DTW)	Triggered (Yes/ No)
MPBH4	-	11.21	11	11.70	-
MPBH5	-	*	*	*	-
MPBH1-C	-	9.383	6.863	^	-
MPBH1-HR	-	45.69	34.73	^	-
MPBH2-C	-	10.733	11.063	11.83	-
MPBH2-HR	-	14.246	28.916	11.87	-
MPBH4-C	-	9.923	9.503	10.41	-
MPBH4-HR	-	50.045	49.605	^	-
MPBH5-C	-	10.659	12.179	^	-
MPBH5-HR	-	10.3	11.11	^	-
MPBH6	-	8.601	8.391	8.85	-
MPBH6-C	-	9.998	9.738	10.18	-
MPBH6-HR	-	9.795	8.815	8.88	-
MPBH7	10.10	4.827	4.327	5.42	No
MPBH7-C	-	17.045	17.415	17.62	-
3500C500L	-	27.54	27.11	26.42	-
3500C500S	-	24.51	25.44	25.70	-
4500F000	-	22.10	22.09	^	-
5000D000-R	-	139.14	138.92	138.63	-
5500D000	-	139.60	134.92	134.32	-
6000C000L-R	-	*	*	*	-
6000C000U-R	-	*	*	*	-
6500F500L	-	50.73	52.16	52.10	-
6500F500M	-	51.21	52.61	52.77	-
6500F500U	-	28.03	26.56	31.74	-
6500F625	-	14.04	14.45	16.18	-
Melody	-	10.13	10	13.14	-
7500F000	-	36.18	36.51	36.55	-
GDE Bore Shallow	-	^	*	*	-

Monitoring Location/ ID	Trigger	November 2025 Water Level (DTW)	August 2025 Water Level (DTW)	May 2025 Water Level (DTW)	Triggered (Yes/ No)
GDE Bore Deep	-	^	^	10.92	-
NE Alluvium	-	*	*	*	-
East Alluvium	-	*	*	*	-

Results in **bold** indicate that the bore has exceeded the adopted assessment criterion for changes in standing water level from the previous measurement.
* Dry/insufficient water to sample.
^Unsafe access.
'-' indicates no trigger level

Table 8-2 - MPO Quarterly Groundwater pH Results

Monitoring Location/ ID	pH Trigger Range	November 2025 pH	August 2025 pH	May 2025 pH	Triggered (Yes/No)
WRA1L	6 - 8.5	7.2	7.4	7.1	No
WRA1U		*	*	*	No
WRA3L-R		7.4	7.5	7.5	No
WRA3U-R		*	*	*	No
WRA5L-R		7.2	^	7.4	No
WRA5U-R		7.5	^	7.5	No
WRA6L		7.0	7.5	7	No
WRA6U		6.8	6.8	6.9	No
MPBH1		7.1	7.3	6.9	No
MPBH2		6.8	6.7	6.8	No
MPBH3b		7.7	7.4	7.7	No
MPBH4		6.9	6.9	6.9	No
MPBH5		*	*	*	No
MPBH1-C	-	8.7	7.2	^	-
MPBH1-HR	-	7.7	7.6	^	-
MPBH2-C	-	7.9	8.1	7.4	-
MPBH2-HR	-	7.0	7.5	7.7	-
MPBH4-C	-	8.0	7.4	8	-
MPBH4-HR	-	7.4	7.4	^	-
MPBH5-C	-	11.0	11.1	^	-
MPBH5-HR	-	7.5	7.6	^	-
MPBH6	-	7.0	7	7	-
MPBH6-C	-	7.1	7.2	7.2	-
MPBH6-HR	-	7.1	7	7.4	-
MPBH7	-	7.0	7.3	7.1	-
MPBH7-C	-	7.0	7.1	7.1	-

Monitoring Location/ ID	pH Trigger Range	November 2025 pH	August 2025 pH	May 2025 pH	Triggered (Yes/No)
3500C500L	6 - 8.5	7.4	7.5	7.5	No
3500C500S	-	7.2	7.3	7.3	-
4500F000	6 – 8.5	6.8	6.8	^	No
5000D000-R		7.4	7.5	7.5	No
5500D000		*	*	*	No
6000C000L-R		8.4	8.4	8.4	No
6000C000U-R		*	*	*	No
6500F500L		7.2	7.2	7.2	No
6500F500M		7.2	7.2	7.2	No
6500F500U		6.8	6.8	6.8	No
6500F625		7.0	7.0	7.0	No
Melody		7.1	6.8	6.8	No
7500F000		7.7	7.8	7.8	No
GDE Bore Shallow	-	^	*	*	-
GDE Bore Deep	-	^	6.8	6.8	-
NE Alluvium	-	*	*	*	-
East Alluvium	-	*	*	*	-

*Results in **bold** indicate that the pH values recorded are outside the baseline range (20th – 80th percentile).*
** Dry/insufficient water to sample.*
^Unsafe access.
'-' indicates no trigger level

Table 8-3 - MPO Quarterly Groundwater EC Results

Monitoring Location/ ID	Maximum Beneficial Use Trigger	November 2025 EC	August 2025 EC	May 2025 EC	Triggered (Yes/No)
WRA1L	7800	2940	2990	3120	No
WRA1U	-	*	*	*	-
WRA3L-R	22000	8110	7810	7500	-
WRA3U-R	22000	*	*	*	-
WRA5L-R	7800	5290	^	5070	-
WRA5U-R	7800	6220	^	5980	-
WRA6L	7800	5580	5540	6670	No
WRA6U	22000	7770	7760	8430	No
MPBH1	800	658	576	604	No
MPBH2	930	**1038**	**1083**	**1222**	**Yes**[1]
MPBH3b	7800	4500	4480	5280	No

Monitoring Location/ ID	Maximum Beneficial Use Trigger	November 2025 EC	August 2025 EC	May 2025 EC	Triggered (Yes/No)
MPBH4	7800	5510	5470	5290	No
MPBH5	-	*	*	*	-
MPBH1-C	-	1596	612	^	-
MPBH1-HR	-	1715	1626	^	-
MPBH2-C	-	1198	1223	1363	-
MPBH2-HR	-	1159	1424	1113	-
MPBH4-C	-	5570	4870	4820	-
MPBH4-HR	-	5570	5240	^	-
MPBH5-C	-	728	831	^	-
MPBH5-HR	-	827	1149	^	-
MPBH6	-	873	989	1274	-
MPBH6-C	-	2500	2650	3770	-
MPBH6-HR	-	1418	1543	6150	-
MPBH7	-	9940	6690	7630	-
MPBH7-C	-	10430	10290	10220	-
3500C500L	7800	3820	3830	3820	No
3500C500S	-	5710	5710	5610	-
4500F000	22000	7900	8620	*	No
5000D000-R	800	5210	5020	4500	Yes
5500D000	7800	*	*	*	No
6000C000L-R	7800	4790	4550	4760	No
6000C000U-R	7800	*	*	*	No
6500F500L	7800	2540	2470	2570	No
6500F500M	7800	2520	2770	2670	No
6500F500U	7800	6180	5300	5080	No
6500F625	7800	3040	987	4190	No
Melody	-	2340	914	6280	-
7500F000	7800	6330	6390	6290	No
GDE Bore Shallow	-	*	*	*	-
GDE Bore Deep	-	*	12920	12850	-
NE Alluvium	-	*	*	*	-
East Alluvium	-	*	*	*	-

Results in **bold** indicate that the bore has exceeded the adopted assessment for EC values
** Dry/insufficient water to sample*
^Unsafe access
'-' indicates no trigger level
[1] See assessment criteria section for further information.

10. Noise Monitoring

10.1 Methodology

Attended noise monitoring was undertaken during the monitoring period at eight (8) monitoring locations as per the *MPO Noise Management Plan* (MACH Energy, 2024) in accordance with DA 92/97, SSD 10418 and EPL 20850.

10.2 Results

The results for nighttime attended noise monitoring against noise criteria is shown in **Table 10-1**; **Table 10-2;** and **Table 10-3.**

Table 10-1 $L_{A1,1min}$ Generated by MPO: Attended Night Monitoring 19 and 20 Nov 2025

Location	Time	MPO Only LA1,1min dB	Criterion dB	Wind Speed m/s Direction °	Criterion Applies	Stability Class	Exceedance dB
N-AT1	1:36am	IA	45	0.9 / 118	Yes	E	No
N-AT2	10:54pm	IA	45	2.6 / 325	Yes	D	No
N-AT3	11:30pm	IA	45	2.4 / 311	Yes	D	No
N-AT4	11:58pm	35	45	1.1 / 146	Yes	E	No
N-AT5	12:19am	35	45	0.8 / 136	Yes	E	No
N-AT6	1:13am	IA	45	0.9 / 151	Yes	E	No
N-AT7	10:11pm	IA	45	2.4 / 316	Yes	E	No
N-AT8	12:45am	43[2] 45 adjusted	49[1]	0.7 / 118	Yes	E	No

Notes: As per Condition L2.3 of EPL 20850, noise emission limits do not apply during wind speeds greater than 3m/s at 10m above ground level, or stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level, or stability category G temperature inversion conditions.
*IA = inaudible; and **Bold** results indicate exceedance of criteria.*
NA in the exceedance column means atmospheric conditions outside those specified in the EPL, therefore criterion was not applicable.

Table 10-2 $L_{Aeq,15min}$ Generated by MPO: Attended Night Monitoring 19 and 20 Nov 2025

Location	Time	MPO Only LA1,1min dB	Criterion dB	Wind Speed m/s Direction °	Criterion Applies	Stability Class	Exceedance dB
N-AT1	1:36am	IA	37[1]	0.9 / 118	Yes	E	No
N-AT2	10:54pm	IA	35	2.6 / 325	Yes	D	No
N-AT3	11:30pm	IA	40	2.4 / 311	Yes	D	No
N-AT4	11:58pm	31	38	1.1 / 146	Yes	E	No
N-AT5	12:19am	31	37[1]	0.8 / 136	Yes	E	No
N-AT6	1:13am	IA	35	0.9 / 151	Yes	E	No
N-AT7	10:11pm	IA	37	2.4 / 316	Yes	E	No
N-AT8	12:45am	39[2] 41 adjusted	43[1]	0.7 / 118	Yes	E	No

Notes: As per Condition L2.3 of EPL 20850, noise emission limits do not apply during wind speeds greater than 3m/s at 10m above ground level, or stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level, or stability category G temperature inversion conditions.
*IA = inaudible; and **Bold** results indicate exceedance of criteria.*
NA in the exceedance column means atmospheric conditions outside those specified in the EPL, therefore criterion was not applicable.

Table 10-3 $L_{Aeq, period}$ Cumulative Noise: Attended Night Monitoring 19 and 20 Nov 2025

Location	Time	Measured Mining Only LAeq, period dB1,2,3	Cumulative Noise Criterion LAeq dB	Exceedance dB
N-AT1	1:36am	30	40	No
N-AT2	10:54pm	IA	40	No
N-AT3	11:30pm	IA	40	No
N-AT4	11:58pm	31	40	No
N-AT5	12:19am	31	40	No
N-AT6	1:13am	23	40	No
N-AT7	10:11pm	IA	40	No
N-AT8	12:45am	39[3] 41 adjusted	NA[2]	NA[1]

Notes: These are the results for MPO and all other mining sources. 15-minute measurements have been assumed to apply across the entire night period as a conservative measure and to represent "worst case" results.
Cumulative noise refers to two or more noise sources. If only one other source of mining is audible, or if MPO is inaudible, the measured cumulative noise defined here is 'Nil'.
N-AT8 is under acquisition rights and has no cumulative dB criteria.
*IA- inaudible; and **Bold** results indicate exceedance of criteria.*
NA[1]- in the exceedance column means atmospheric conditions outside those specified in the EPL, therefore criterion was not applicable.
NA[2]- This is not a compliance monitoring location under DA92/97, and cumulative noise criteria are only applicable under DA92/97.
[3]- low-frequency adjusted.

11. Blast Monitoring

There were ten (10) blast events (a total of 106 blasts YTD). Results are presented in **Table 11-3**. All blast results during this monitoring period were below the criteria stated in Schedule 3, Condition 10 of DA 92/97, Schedule 2; Condition B12 of SSD 10418; and L5 of EPL 20850 as shown in **Table 11-1** and **Table 11-2**.

Table 11-1 Development Consent DA 92/97 Blasting Criteria

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s [Peak Particle Velocity])	Allowable Exceedance
Residence on privately owned land	120	10	0%
	115	5	% of the total number of blasts over a period of 12 months
Historic heritage sites[1]	-	10	0%
All public infrastructure	-	50	0%

Source: Development Consent DA 92/97
dB = decibels, mm/s = millimetres per second.
[1] The blasting criteria in relation to historic heritage sites applies to each historic heritage site until such a time as the relevant management requirements for the sites have been fulfilled. Refer to Section 7.4.2 for further detail.

Table 11-2 Development Consent DA 92/97 Blasting Criteria

Location	Airblast Overpressure (dB[Lin Peak])	Ground Vibration (mm/s [Peak Particle Velocity])	Allowable Exceedance
Residence on privately owned land[a]	120	10	0%
	115	5	% of the total number of blasts over a period of 12 months
Mine-owned residences	-	10	
Historic heritage sites[b]	-	10	0%
Other public infrastructure	-	50 (or a limit determined by the structural design methodology in AS 2187.2 - 2006, or its latest version)	0%

Source: Development Consent SSD 10418
[a]The locations referred to in Table 2 are shown in Appendix 3 of Development Consent SSD 10418.
[b]These limits do not apply to historic heritage sites located within the approved disturbance area. Refer to Section 7.4.2 for further detail

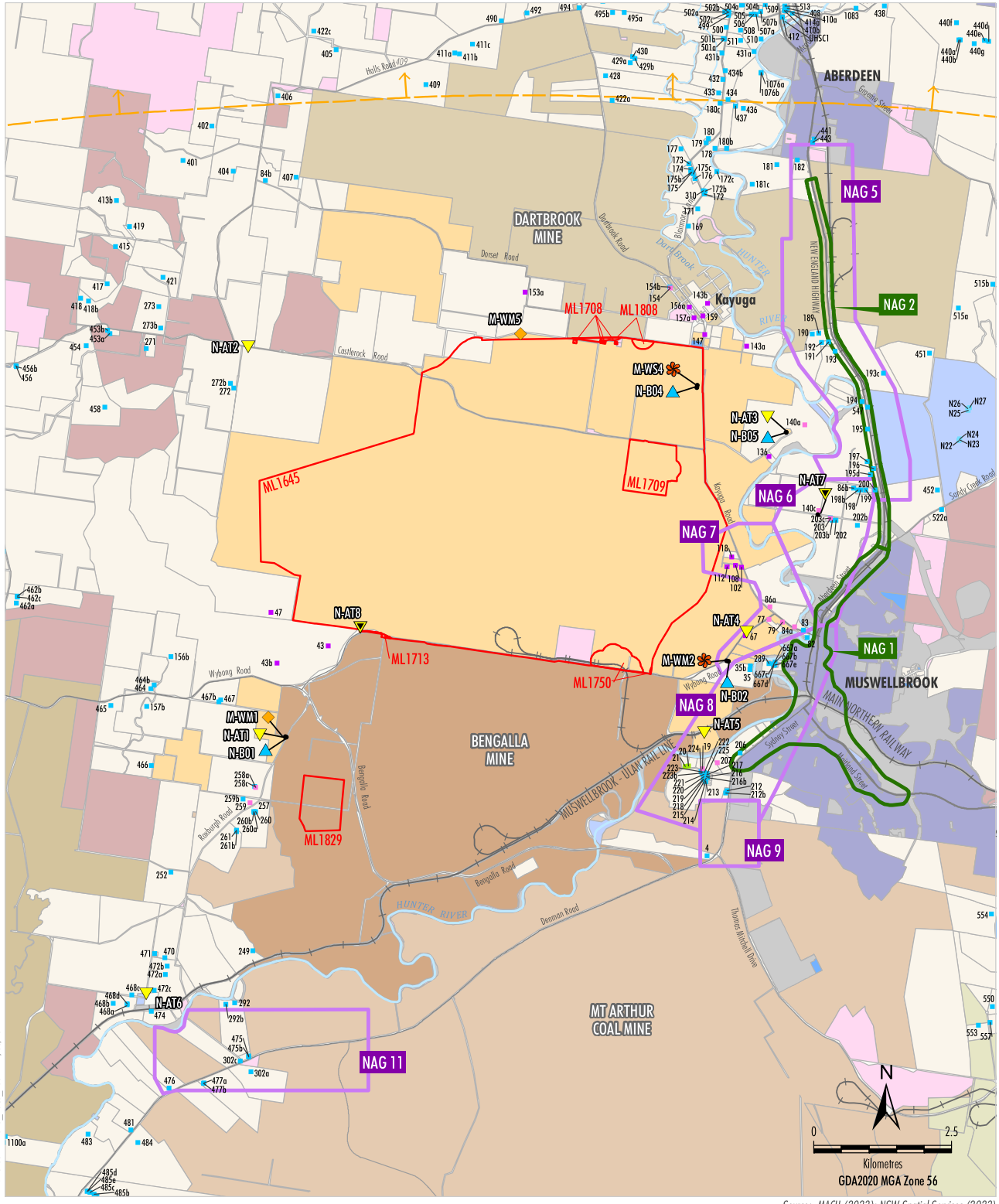
Table 11-3 – MPO Blast Monitoring Results – November 2025

Date Fired	Time Fired	BVOC Vibration (mm/s)	BVOC Overpressure (dBL)	BVO2 Vibration (mm/s)	BVO2 Overpressure (dBL)	Blast Fume Compliant
03/11/25	9:17	0.37 mm/s	103.1 DBL	0.44 mm/s	103.4 DBL	Y
04/11/25	9:06	0.24 mm/s	96.8 DBL	0.36 mm/s	105.8 DBL	Y
05/11/25	15:16	0.01 mm/s	98 DBL	0.03 mm/s	102.5 DBL	Y
06/11/25	11:01	0.31 mm/s	95.1 DBL	0.25 mm/s	94.1 DBL	Y
10/11/25	14:08	0.45 mm/s	97.4 DBL	0.73 mm/s	99 DBL	Y
17/11/25	09:15	0.71 mm/s	105.5 DBL	0.82 mm/s	103.2 DBL	Y
21/11/25	10:47	0.81 mm/s	101.4 DBL	0.25 mm/s	100 DBL	Y
21/11/25	14:35	0.28 mm/s	108.5 DBL	0.44 mm/s	108.7 DBL	Y
26/11/25	09:23	0.27 mm/s	92.7 DBL	0.45 mm/s	99.6 DBL	Y
28/11/25	09:25	0.21 mm/s	81.9 DBL	0.22 mm/s	91.4 DBL	Y

APPENDIX A

MPO Environmental Monitoring Network.

Figure numbers referred to in respective management plans.



MAC-18-03A MP2023_Noise_2030 12/03/2024

Source: MACH (2023); NSW Spatial Services (2023)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mount Pleasant-controlled
- Bengalla-controlled
- Dartbrook-controlled
- Mangoola-controlled
- Muswellbrook Coal-controlled
- Mt Arthur-controlled
- Other Mining/Resource-controlled
- Crown
- The State of NSW
- Muswellbrook Shire Council
- Upper Hunter Shire Council
- Privately-owned Land
- Muswellbrook and Upper Hunter LEP Zones B2, B5, R1, R5
- Muswellbrook and Upper Hunter LEP Zones IN1, SP2, RE1, RE2, W1
- Railway

- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned
- Specific Receivers not modelled
- DA 92/97 Noise Assessment Group (NAG)
- SSD 10418 Noise Assessment Group (NAG)

Monitoring Sites

- Attended Noise
- Proposed Attended Noise [1]
- Real-time Noise Monitoring Site
- Weather Mast
- Weather Station

[1] Proposed Site to be Implemented

* Mitigation on Request - rail noise/Aquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

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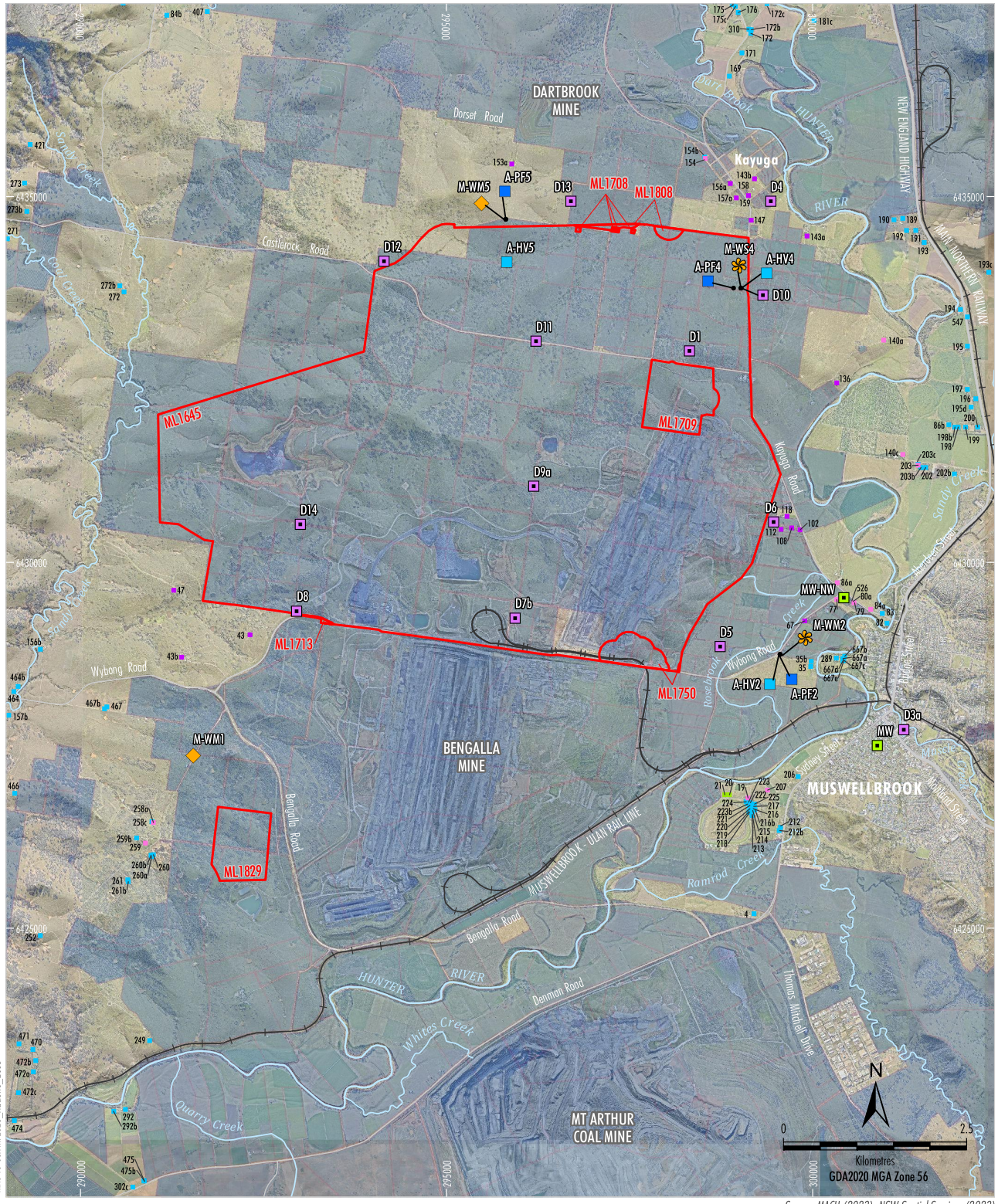
MOUNT PLEASANT OPERATION

Nominal Noise and Meterological Monitoring Sites

Figure 8



MAC-18-03A MP2023_A0&GHG_203B

Source: MACH (2023); NSW Spatial Services (2023)
Orthophoto: MACH (Dec 2022)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Mine-owned Land
- Railway

Monitoring Sites

- Air Quality - High Volume Sampler
- Air Quality - Palas Fidas
- Dust Deposition Gauge
- Upper Hunter Air Quality Monitoring Network
- Weather Mast
- Weather Station

Category of Rural Residence under DA92/97

- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned

* Mitigation on Request - rail noise/Aquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

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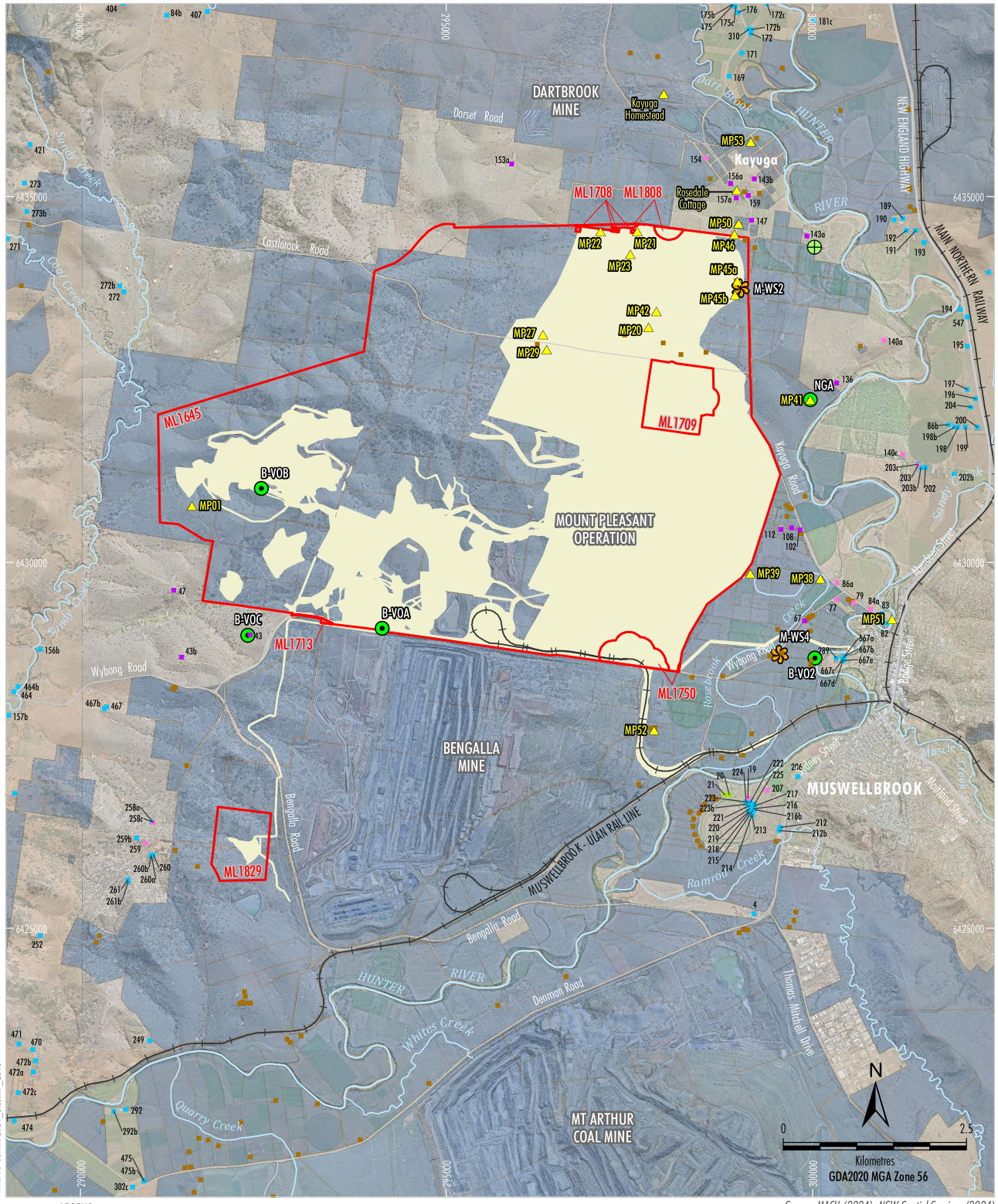
MOUNT PLEASANT OPERATION

Air Quality and Meteorological Monitoring Sites

Figure 3



Source: MACH (2024); NSW Spatial Services (2024)
Orthophoto: MACH (Dec 2023)

LEGEND

- Mine-owned Land
- Mining Lease Boundary (Mount Pleasant Operation)
- Project Continuation of Existing/Approved Surface Development (DA 927/97)[1]
- Weather Station
- Blast Monitoring Site (Vibration/Overpressure)
- Proposed Blast Monitoring Site (Vibration/Overpressure)
- Relevant Historic Heritage Sites # ^

Category of Rural Residence under DA 92/97

- Mine-owned

Category of Rural Residence under DA 92/97

- Privately-owned - Acquisition on Request
- Privately-owned - Mitigation on Request
- Privately-owned - Mitigation/Acquisition on Request*
- Other Privately-owned

[1] Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

Blast criteria only apply until the heritage site is excavated, salvaged or demolished in accordance with the Historic Heritage Management Plan.

^ Blast criteria do not apply to historic heritage sites located within the approved disturbance area.

* Mitigation on Request - rail noise/Aquisition on Request - air quality. MACH is only required to acquire and/or install air quality mitigation measures at this property if not reasonably achievable under a separate approval for the Bengalla Mine.

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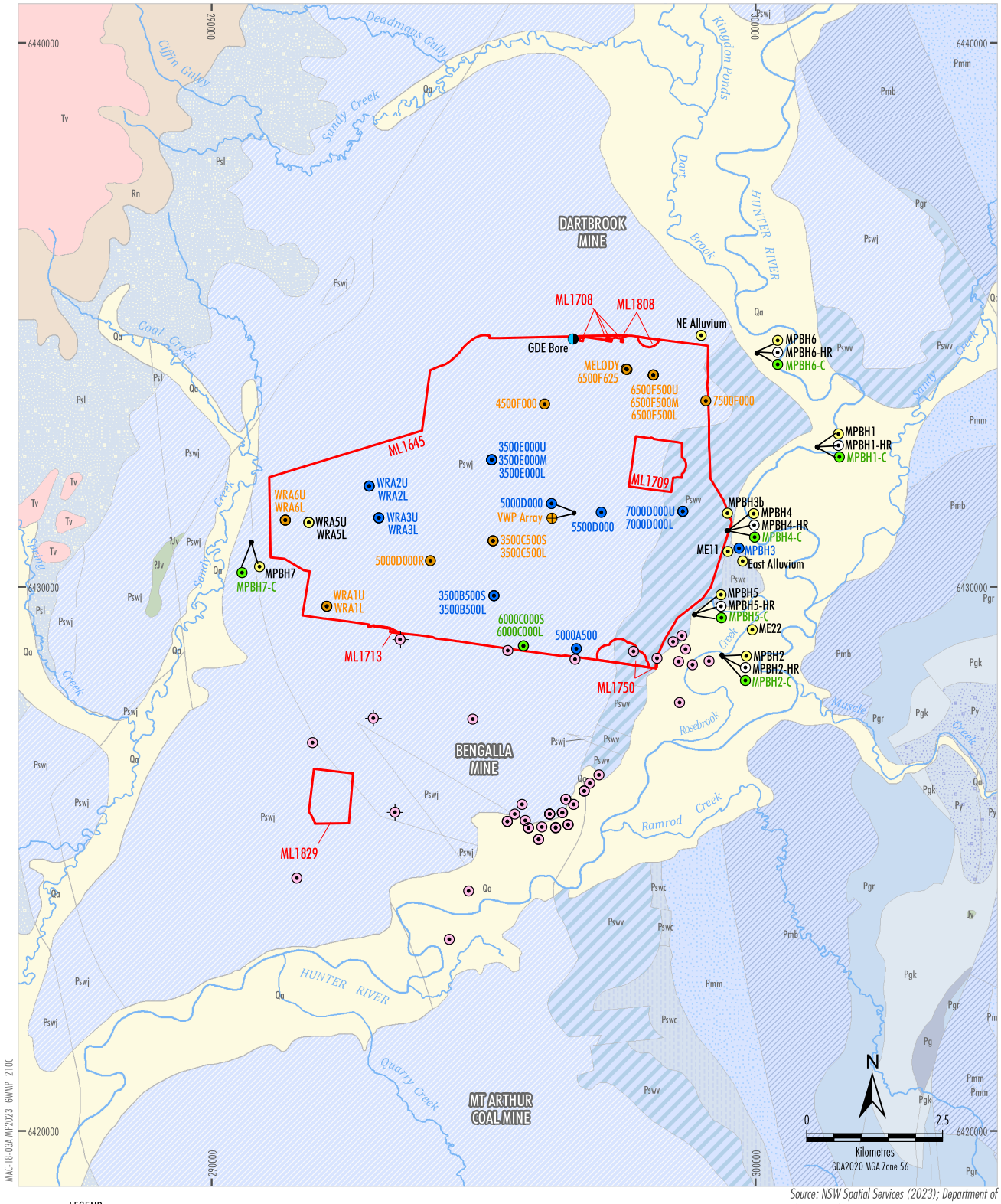
MOUNT PLEASANT OPERATION

Blast Monitoring Locations

Figure 3



MAC-18-03A MP2023_GWMP_210C

Source: NSW Spatial Services (2023); Department of Planning and Environment (2019)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)

Mount Pleasant Monitoring

- GDE Bore
- Vibrating Wire Piezometer
- Standpipe
- Standpipe - Alluvium
- Standpipe - Coal Seam
- Standpipe - Interburden
- Standpipe - Historical

Bengalla Monitoring

- Bengalla Standpipe
- Bengalla Vibrating Wire Piezometer

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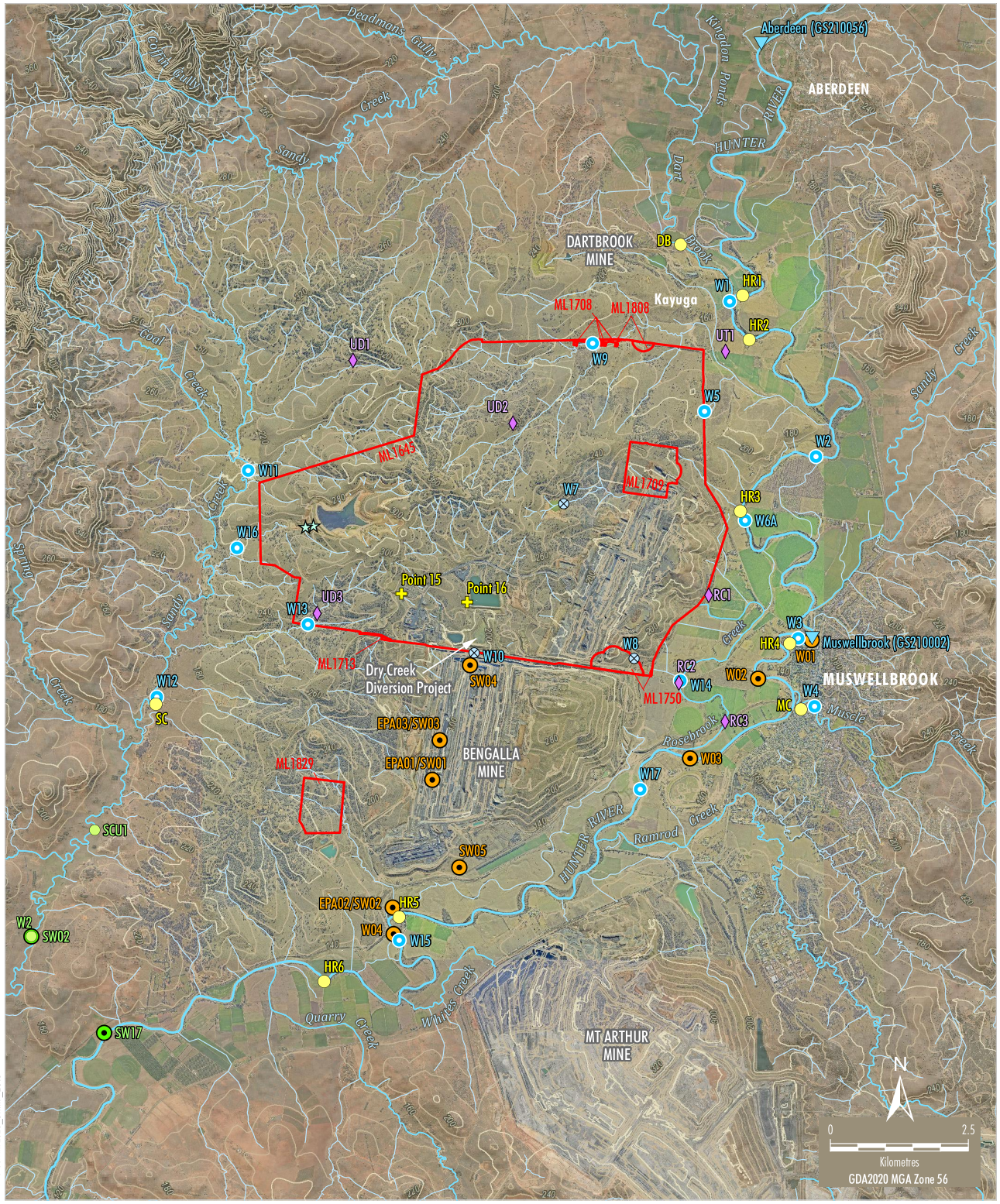
MOUNT PLEASANT OPERATION

Groundwater Monitoring Network

Figure 5



MAC-18-03A MP2023_SWMP_2010

Source: MACH (2023); NSW Spatial Services (2023); NSW Department of Primary Industries - Water (2016); Bengalla Mining Company (2015); Mangoal Coal Operations Pty Ltd (2014)
Orthophoto: MACH (Jun 2023, 2020)

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Contour (20 m Interval)
- DPI Water Gauging Station

Mount Pleasant Monitoring

- Aquatic Ecology Habitat Assessment Site
- Surface Water Monitoring Site
- Historical Surface Water Monitoring Site
- Stream Health Monitoring Site
- V-notch Weir
- Water Discharge/Monitoring Point (EPL 20850)

Mangoola Monitoring

- Surface Water Monitoring Site
- Stream Health Monitoring Site

Bengalla Monitoring

- Surface Water Monitoring Site

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MOUNT PLEASANT OPERATION

Surface Water and Stream Health Monitoring Sites

Figure 4