



Bengalla Mining Company Pty Limited

Bengalla Road (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia

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Bengalla Mine

Environment Protection Licence 6538 Monthly Monitoring Data Summary

December 2021



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1. INTRODUCTION

Environmental Protection Licence (EPL) holders are required under the *Protection of the Environment Operations Act 1997* to make publicly available their monitoring results for those parameters specified in the EPL. This document has been prepared to satisfy this requirement.

Bengalla Mining Company Pty Limited's (BMC) operations are conducted in accordance with EPL 6538. The licence details are as follows:

License Holder:	Bengalla Mining Company Pty Limited
Licence Number:	6538
Premises:	Bengalla Mine Bengalla Road via Muswellbrook NSW 2333
Access to Licence:	http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=6538&id=6538&option=licence&searchrange=licence&range=POEOlicence&prp=no&status=Issued
Monitoring Locations:	See main text and Appendix A

This document provides a summary of environmental monitoring data sampled as prescribed by EPL 6538 for December 2021 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM₁₀);
- Surface water, including discharge mine water and effluent water;
- Noise; and
- Blast vibration and overpressure.



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2. AIR QUALITY

Under EPL 6538 BMC is required to continuously record the average PM₁₀ concentration at EPA Monitoring Points 22, 23 and 24 at intervals of 10 minutes. As per Condition M2.2, BMC commenced monitoring at these EPA Monitoring Points on 31 August 2017.

PM₁₀ data for the Reporting Period is provided in **Table 1**.

2.1 Particulate Matter less than 10 Microns

Pollutant:	PM ₁₀
Unit of measure:	Micrograms per cubic metre (µg/m ³)
Monitoring location:	See Table 1 and Appendix A .
Monitoring frequency required by licence:	10-minute intervals
Sampled:	01/12/2021 – 31/12/2021

Table 1. PM10 Monitoring Summary

Sampling point		No. of samples required by licence	No. of samples collected and analysed	Minimum sample value	Maximum sample value	Monthly mean of sample
EPA22	Lumeah Dairy, Bengalla Road, Muswellbrook	4464	4450	0	93.5	9.9
EPA23	Wybong Road (East), Muswellbrook	<i>The equipment at EPA23 was removed at 9:50am on 27/10/2021 due to impending blasting operations on 29/10/2021. This monitor is in the direct path of mining and will not be reinstated at this location. BMC will remove this monitoring point when the next Variation for EPL 6538 is lodged with the NSW Environment Protection Authority.</i>				
EPA24	Wybong Road (West), Muswellbrook	4464	3459 ^{#1}	0	55.9	10.0

(Table 1 represents total impact (ie incremental increase in concentration due to the development plus background concentrations due to other sources))

#1 EPA24 experienced power outages during the month. These were rectified and monitoring was restored during December

3. SURFACE WATER

3.1 Discharge Monitoring

BMC participates in the Hunter River Salinity Trading Scheme (**HRSTS**). In accordance with EPL 6538, BMC maintains two monitoring locations to measure concentration, volume and mass of mine water discharges (see **Appendix B**).

3.1.1 Volume

Pollutant:	Mine water
Unit of measure:	Mega litres per day (ML/day)
Monitoring location:	EPA26 – Outlet pipe from 700 ML HRSTS storage dam.
Monitoring frequency required by licence:	Continuous during all discharge events.
Volume/mass limit:	200 ML/day



Sampled:

During the Reporting Period, Bengalla discharged 134.55ML of mine water under the HRSTS.

21.47 ML was discharged during Block No 346 (4:00am 10th December 2021 to 4:00am 11th December 2021);

27.44 ML was discharged during Block No 347 (4:00am 11th December 2021 to 4:00am 12th December 2021);

25.39 ML was discharged during Block No 348 (4:00am 12th December 2021 to 4:00am 13th December 2021);

30.92 ML was discharged during Block No 349 (4:00am 13th December 2021 to 4:00am 14th December 2021);

24.99 ML was discharged during Block No 350 (4:00am 14th December 2021 to 4:00am 15th December 2021); and

4.34 ML was discharged during Block No 351 (4:00am 15th December 2021 to 4:00am 16th December 2021).

3.1.2 Conductivity

Pollutant:

Conductivity

Unit of measure:

Microsiemens per centimetre (**µS/cm**)

Monitoring location:

EPA26 – Outlet pipe from 700 ML HRSTS storage dam.

Monitoring frequency required by licence:

Continuous during all discharge events (EPA26)

Sampled:

See Table 2.

Table 2: Electrical Conductivity Summary for EPA26 (10/12/2021 – 16/12/2021)

Discharge Block Number	No. of records
346	1055
347	1245
348	1174
349	1427
350	1398
351	1211

3.1.3 Total suspended solids and pH

Pollutants:	pH and Total Suspended Solids (TSS)
Unit of measure:	pH and Milligrams per litre (mg/L)
Monitoring location:	EPA26 – Outlet pipe from 700 ML HRSTS storage dam.
Monitoring frequency required by licence:	Daily during all discharge events
pH limit:	6.5 – 9.5 (100 th percentile)
TSS limit:	120 (100 th percentile)
Sampled:	See Tables 3 & 4

Table 3: Total Suspended Solids Summary – EPA26 (10/12/2021 – 16/12/2021)

Block Number	No of Samples collected and analysed	Minimum sample value mg/L	Maximum sample value mg/L	Average sample value mg/L
346	2	45	82	63.5
347	2	54	61	57.5
348	2	43	44	43.5
349	2	71	45	58.0
350	1	20	20	20.0
351	2	19	22	20.5

Table 4: pH Summary – EPA26 (10/12/2021 – 16/12/2021)

Block Number	No of Samples collected and analysed	Minimum sample value mg/L	Maximum sample value mg/L	Average sample value mg/L
346	2	9.33	9.44	9.39
347	2	9.41	9.42	9.42
348	2	9.38	9.39	9.39
349	2	9.33	9.41	9.37
350	1	9.32	9.32	9.32
351	2	9.27	9.29	9.28

3.2 Effluent Quality Monitoring

Under EPL 6538 BMC is required to take quarterly grab samples from effluent quality monitoring point EPA25.

Pollutants:	Faecal Coliforms and pH
Unit of measure:	Colony Forming Units (CFU) per 100 millilitres (CFU/100mL) and pH
Monitoring location:	EPA25 – See Appendix B .
Monitoring frequency required by licence:	Quarterly
Sampled:	See Table 5

Table 5: Effluent Quality Monitoring – EPA25

Sample Date	Faecal Coliforms (cols/100ML)	pH
14/12/2021	<2	8.56

4. NOISE

In accordance with EPL 6538, BMC undertakes compliance attended noise monitoring for 15minutes once per calendar month during the night period (10 pm to 7 am) at three locations representative of the nearest private receivers.

Noise monitoring data for the Reporting Period is provided in **Table 6**.

Pollutant:	Noise – Bengalla Only
Unit of measure:	LAeq (15 minute)
Monitoring locations:	See Table 6 and Appendix C .
Monitoring frequency required by licence:	Monthly
EPA7/AN01 limit:	35 dB(A)
EPA9/AN04 limit:	35 dB(A)
EPA8/AN03 limit:	40 dB(A)
Sampled:	21 December 2021



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Table 6: Noise – Bengalla Only¹ LAeq (15 minute) Monitoring Summary

Sampling point	No. of samples required by licence	No. of samples taken and analysed	Sample Date	Sample Time	Measured value
EPA07/AN01	1	1	21/12/2021	00:24 – 00:39	24
EPA08/AN03	1	1	21/12/2021	01:04 – 01:19	IA
EPA09/AN04	1	1	21/12/2021	01:34 – 01:49	IA

Note:

IA - Inaudible. When there was no noise from the source of interest (Bengalla Mine) audible at the monitoring location.

1. LAeq,15minute operational noise levels for Bengalla in the absence of all other noise sources.



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5. BLASTING

In accordance with EPL 6538, BMC maintains three blast monitors on private (non-mine owned) land to measure air-blast overpressure and ground vibration for all blast events undertaken at Bengalla.

Overpressure and ground vibration data for the Reporting Period is provided in **Tables 7 and 8**.

Pollutant:	Air blast overpressure & ground vibration peak particle velocity
Unit of measure:	dB (Lin Peak) and millimetres per second (mm/s)
Monitoring locations:	See Table 7 , Table 8 and Appendix C .
Monitoring frequency required by licence:	All blasts
Overpressure limits:	a) 115 linear decibels (dB(L)) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and b) 120 dB(L) at any time
Ground vibration limits:	a) exceed 5 millimetres/second (mm/s) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and b) 10mm/s at any time
Sampled:	01/12/2021 – 31/12/2021



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Table 7: Blast Vibration Monitoring Summary

Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Overpressure	dB(L)	All blast events	10	0.05	0.37	0.15
SCH (EPA19)	Overpressure	dB(L)	All blast events	10	0.04	0.13	0.07
MRE (EPA12)	Overpressure	dB(L)	All blast events	10	0.34	2.13	1.09

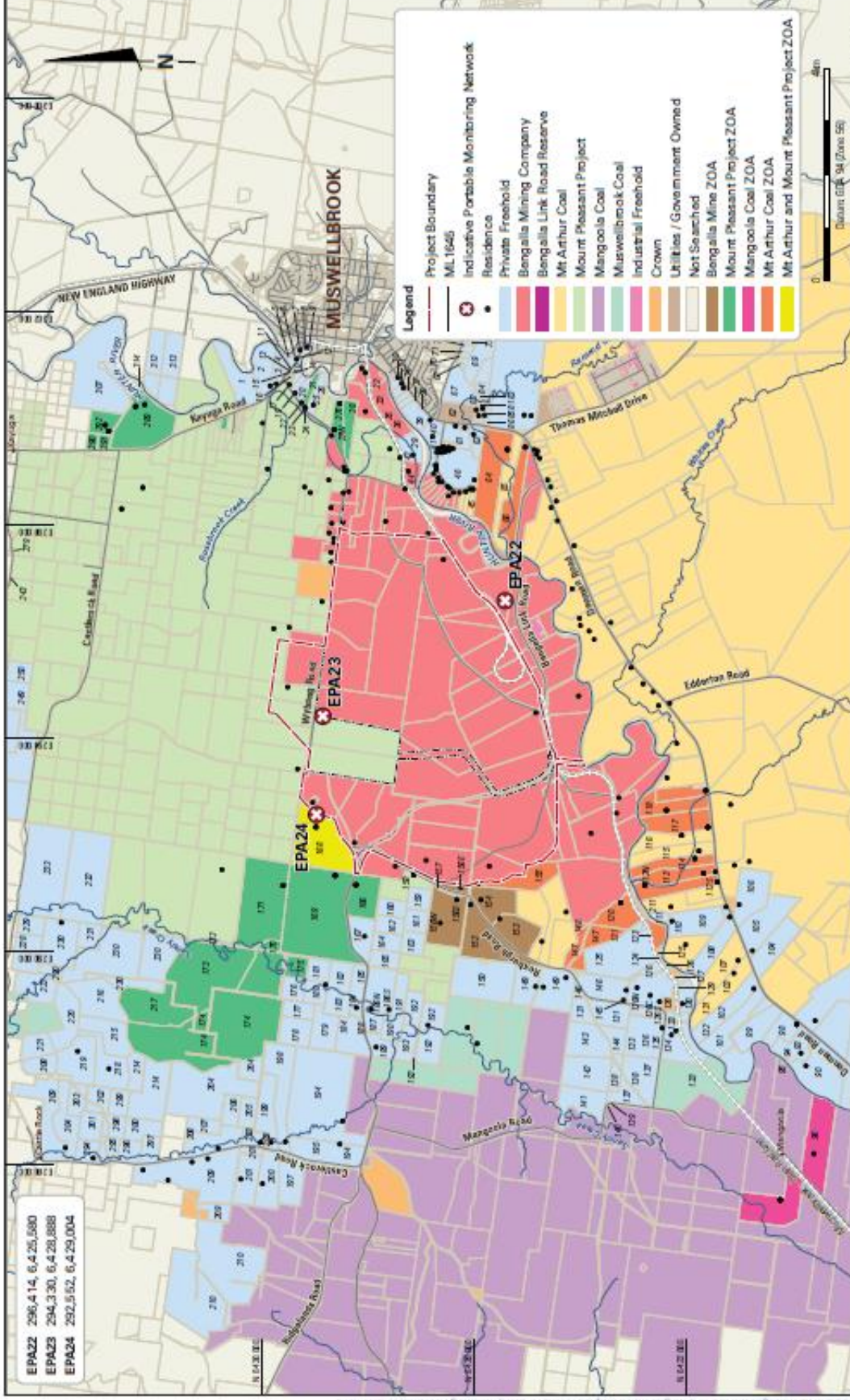
Table 8: Blast Overpressure Monitoring Summary

Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Ground vibration	mm/s	All blast events	10	89.1	100.0	93.5
SCH (EPA19)	Ground vibration	mm/s	All blast events	10	87.3	102.0	95.7
MRE (EPA12)	Ground vibration	mm/s	All blast events	10	98.8	107.2	104.6

Operator, for and on behalf of Bengalla Joint Venture, an unincorporated joint venture between:
New Hope Bengalla Pty Ltd, Taipower Bengalla Pty Limited.

Appendix A

EPL 6538 Particulate Matter Monitoring Locations



BENGALLA MINE

EPL 6538 PM10 Monitoring Locations



Appendix B

EPL 6538 Surface Water Monitoring Locations

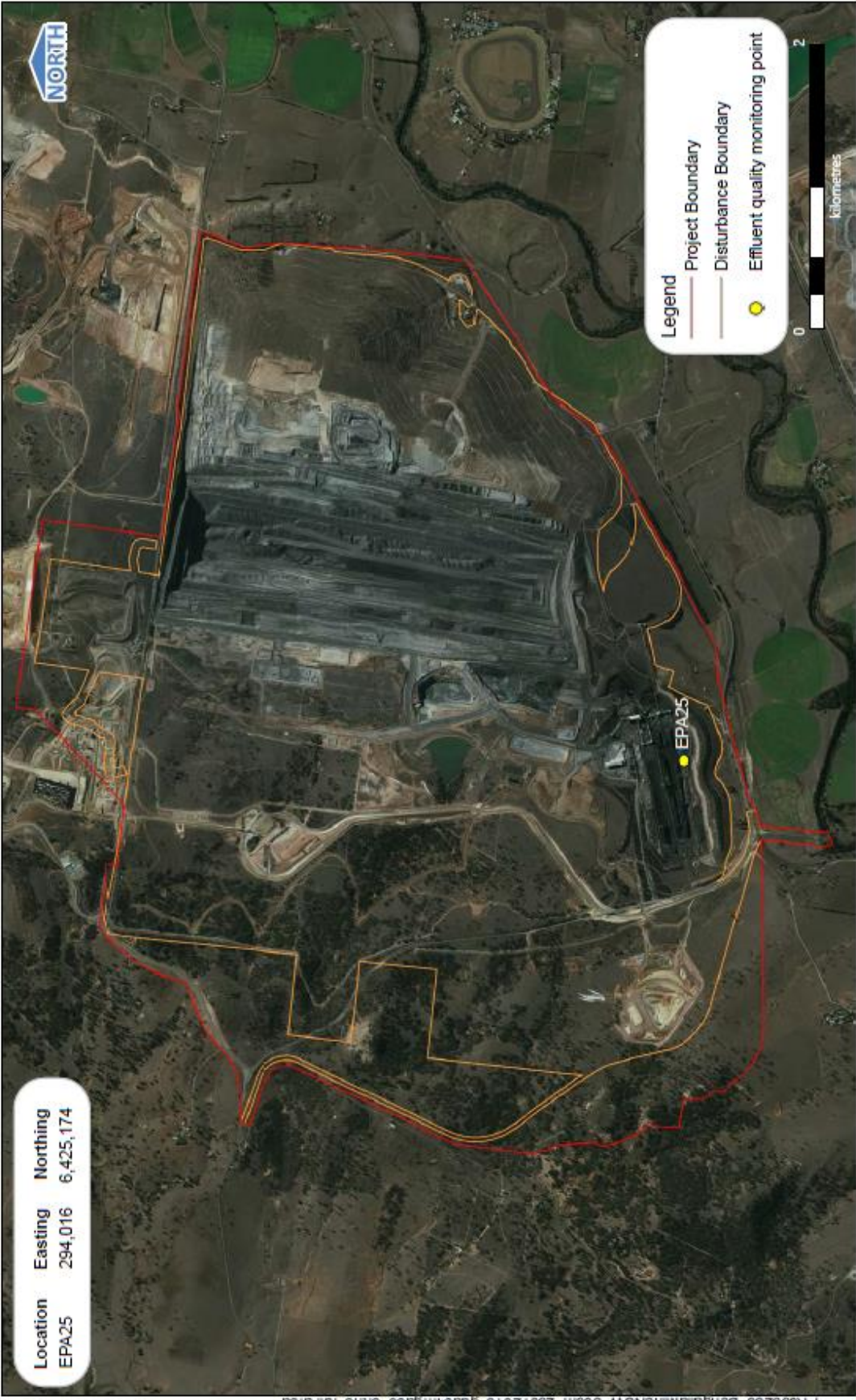


Aerial photo captured 22/01/2020
 Coordinates are approximate only
 Coordinate system MGA zone 56 GDA 94

Bengalla Mine

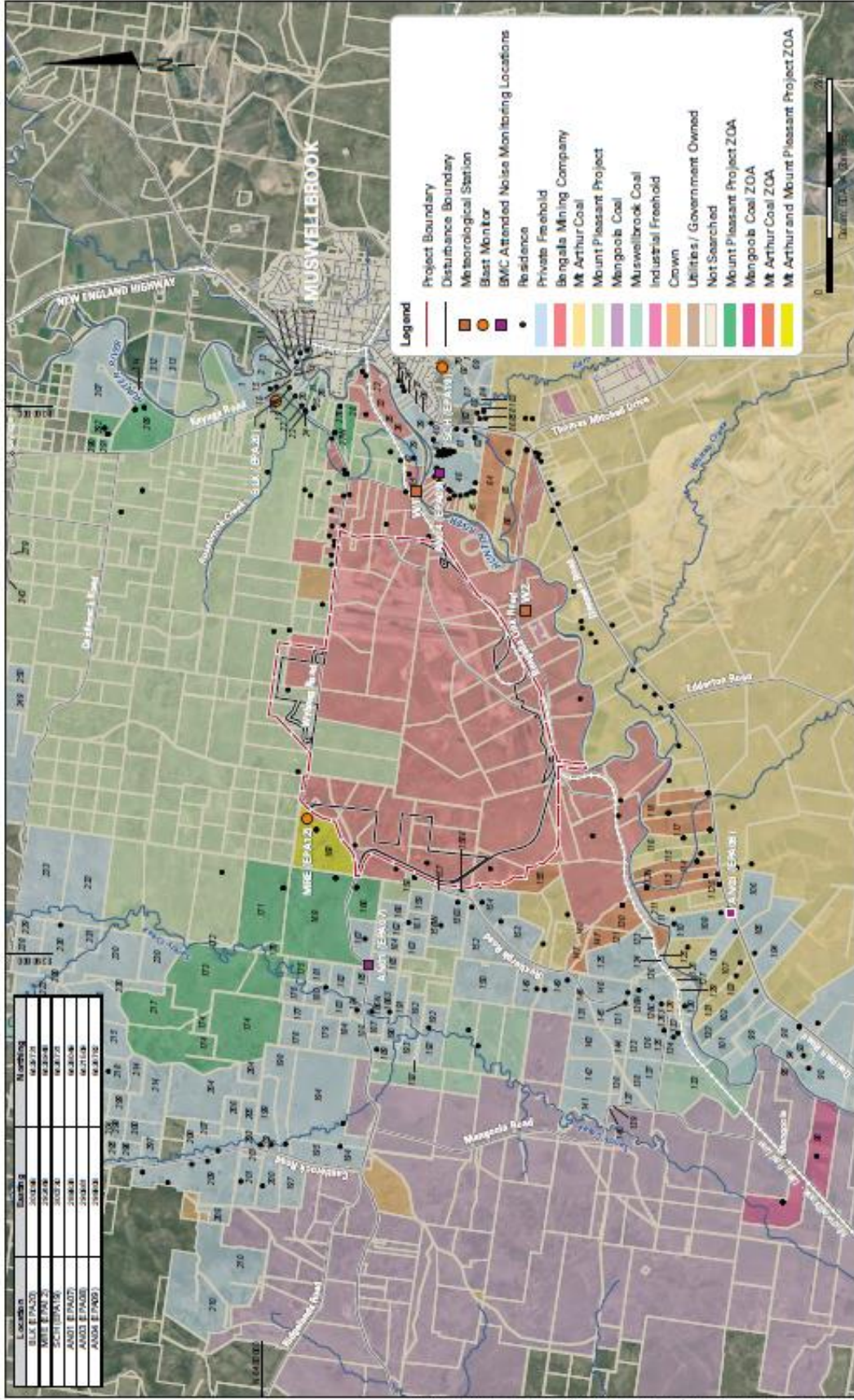
EPL 6538 Monitoring Points - Water





Appendix C

EPL 6538 Noise and Blast Monitoring Locations



BENGALLA MINE

EPL 6538 Noise & Blast Monitoring Locations