Bengalla Mining Company Pty. Limited
Bengalla Road, (Locked Mailbag 5)
Muswellbrook NSW 2333 Australia
A.B.N. 32 053 909 470

Bengalla Mine

Environment Protection Licence 6538
Monthly Monitoring Data Summary

January 2017

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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=POEO licence&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 January 2017 (reporting period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM_{10});
- Surface water, including discharge mine water, conductivity, total suspended solids and pH;
- Noise - LAeq (15 minute); and
- Blast vibration and overpressure.

Monitoring Data Obtained:	20 February 2017
Monitoring Data Published:	6 March 2017

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2. AIR QUALITY

Under EPL 6538 (variation 22-Dec-2016) BMC is no longer required to monitor or report on Total Suspended Particulates (TSP) or dust deposition.

Under EPL 6538 (variation 22-Dec-2016) Conditions P1.1, M2.1, M2.2 and M9.5 BMC is now required to undertake continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 (**Appendix A – Revised Air Quality Monitoring Network**). However, as per Condition E1.1, BMC does not have to commence the continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 until 30 June 2017. In the interim, BMC must maintain a particulate matter monitoring network at locations where particulate matter being sampled is representative of emissions from the operation of Bengalla.

In accordance with Condition E1.1 of EPL 6538, BMC will continue to operate and maintain a network of three high volume air samplers (HVAS) measuring PM10 on land representative of private receivers surrounding the Bengalla operations. Additional PM10 data will continue to be sourced from Mt Arthur Coal through an information sharing agreement. The air quality monitoring network, as described, is shown in **Appendix A - Existing PM10 Monitoring Network (HVAS)**.

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2.1 Particulate Matter less than 10 Microns

Pollutant:	PM_{10}
Unit of measure:	Micrograms per cubic metre (µg/m3)
Monitoring location:	See **Table 1** and **Appendix A - Existing PM10 Monitoring Network (HVAS)**
Monitoring frequency required by licence:	Every 6 days (24 hours)
Sampled:	19/12/2016, 25/12/2016, 31/12/2016, 06/01/2017 and 12/01/2017 Results for 19/12/2016, 25/12/2016 and 31/12/2016 to be presented in this summary due to sample schedule.
Development consent limit:	Annual average 30 µg/m^3 24-hour average 50 µg/m^3

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In accordance with Condition E1.1 of EPL 6538, PM10 data for the reporting period is provided in **Table 1**.

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	Annual rolling average *
PM_{10} - 1	Racecourse Road, Muswellbrook	5	5	10	51	31	19
PM_{10} - 2	St James School, Muswellbrook	5	5	18	38	28	17
PM_{10} - 3	Mt Arthur Coal Residence, Muswellbrook †	5	5	9	56	140	19
PM_{10} - 4	Wybong Road (West), Muswellbrook	5	5	17	57	37	22

* Annual rolling average as at 12/01/17.

† Data sourced from Mt Arthur Coal.

For the reporting period, annual rolling average PM_{10} data were below the annual average Development Consent limit of 30 µg/m^3.

For the reporting period, 24-hour average PM_{10} data were below the 24-hour average Development Consent limit of 50 µg/m^3 with the exception of PM1, PM3 and PM4 on 12 January 2017.

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3. SURFACE WATER

Bengalla Mine participates in the Hunter River Salinity Trading Scheme (HRSTS). In accordance with Condition P1.3, M2.3 and M7 of EPL6538, Bengalla Mine maintains three monitoring locations to measure concentration, volume and mass of mine water discharges.

The location of these monitoring points is provided in **Appendix A EPL Monitoring Points - Water**.

3.1 Mine Water

Pollutant:	Mine water
Unit of measure:	Megalitres per day (ML/day)
Monitoring location:	EPA Monitoring Point 1 (EPA01) – Outlet pipe from 280 ML HRSTS storage dam. EPA Monitoring Point 25 (EPA25) – HRSTS discharge and monitoring point.
Monitoring frequency required by licence:	Continuous during all discharge events.
Sampled:	Not applicable. During the reporting period, Bengalla Mine did not discharge any mine water under the HRSTS.
Volume/mass limit: **(EPL6538 Condition L3)**	200 ML/day

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3.2 Conductivity

Pollutant:	Conductivity
Unit of measure:	Microsiemens per centimetre (µS/cm)
Monitoring location:	EPA Monitoring Point 1 (EPA1) – Outlet pipe from 280 ML HRSTS storage dam. EPA Monitoring Point 25 (EPA25) – HRSTS discharge and monitoring point. EPA Monitoring Point 2 (EPA2) – Tributary monitoring point in Dry Creek downstream of EPA1.
Monitoring frequency required by licence:	Continuous during all discharge events (EPA01 and EPA25); Two times daily during discharge (EPA02).
Sampled:	Not applicable. During the reporting period, Bengalla Mine did not discharge any mine water under the HRSTS.

3.3 Total suspended solids and pH

Pollutants:	pH and Total suspended solids (TSS)
Monitoring location:	EPA Monitoring Point 1 (EPA01) – Outlet pipe from 280 ML HRSTS storage dam. EPA Monitoring Point 25 (EPA25) – HRSTS discharge and monitoring point.
Monitoring frequency required by licence:	Daily during all discharge events
Sampled:	Not applicable. During the reporting period, Bengalla Mine did not discharge any mine water under the HRSTS.
Obtained:	Not applicable.
pH limit: **(EPL6538 Condition L2.4)**	6.5 – 9.5 (100th percentile)
TSS limit: **(EPL6538 Condition L2.4)**	120 Milligrams per litre (mg/L) (100th percentile)

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4. NOISE

In accordance with Condition P1.4, L4 and M10 of EPL 6538, Bengalla Mine 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. The noise monitoring locations, as described, are shown in **Appendix A - Bengalla Compliance Acoustic Monitoring Network**.

Pollutant:	Noise – Bengalla Only LAeq (15 minute)
Monitoring location:	EPA Monitoring Point 7 (EPA7) AN01 – Wybong Road, Castle Rock. EPA Monitoring Point 8 (EPA8) AN03 – Denman Road, Muswellbrook. EPA Monitoring Point 9 (EPA9) AN04 – Racecourse Road, Muswellbrook.
Monitoring frequency required by licence:	Monthly
Sampled:	30-31 January 2017
EPA7/AN01 and EPA9/AN04 limit: **(EPL6538 Condition L4.1)**	35 dB(A)
EPA8/AN03 limit: **(EPL6538 Condition L4.1)**	40 dB(A)

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Table 2. Noise – Bengalla Only[1] 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
EPA7/AN01	1	1	31/01/2017	01:06	IA [2]
EPA8/AN03	1	1	31/01/2017	00:24	IA [2]
EPA9/AN04	1	1	30/01/2017	23:14	30

For the reporting period noise data were below the EPL 6538 limits of 35 dB(A) for AN01 and AN04 and 40 dB(A) for AN03.

Note:

1. LAeq,15minute operational noise levels for Bengalla in the absence of all other noise sources;
2. Inaudible (IA) - No noise from the source of interest audible at the monitoring location.
3. Not Measurable (NM) - Some noise from the source of interest was audible at low-levels, but could not be quantified.

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5. BLASTING

In accordance with Condition P1.4, L5 and M8 of EPL 6538, Bengalla Mine maintains a network of three blast monitors on private (non-mine owned) land to measure air-blast overpressure and ground vibration for all blasts events undertaken by the operation. The location of these monitors is provided in **Appendix A - Bengalla Compliance Acoustic Monitoring Network**.

Monitoring locations:	EPA Monitoring Point 12 (EPA12) MRE EPA Monitoring Point 19 (EPA19) SCH EPA Monitoring Point 20 (EPA20) BLK
Monitoring frequency required by licence:	All blasts
Sampled:	1 – 31 January 2017
Overpressure limits: **(Condition L5)**	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: **(Condition L5)**	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

In accordance with Condition M8 of EPL 6538, overpressure and ground vibration data is provided in **Table 3**.

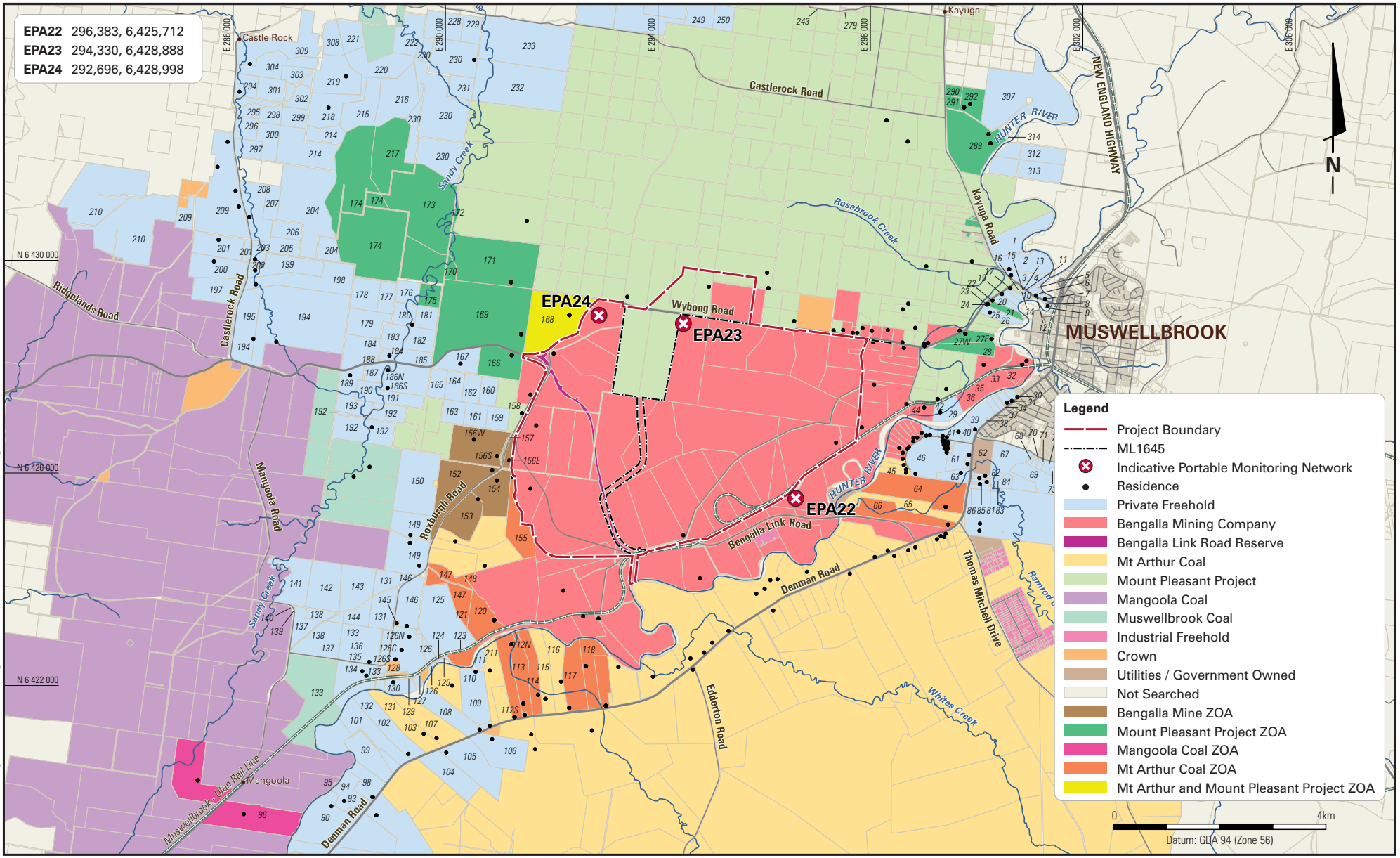
Table 3: Blast Monitoring Summary

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
Blake (BLM)	Overpressure	dB(L)	All blast events	16	87.40	111.00	97.92
	Ground vibration	mm/s	All blast events	16	0.03	0.34	0.19
St James School (SCH)	Overpressure	dB(L)	All blast events	16	84.90	101.00	91.91
	Ground vibration	mm/s	All blast events	16	0.03	0.13	0.08
Moore (MRE)	Overpressure	dB(L)	All blast events	16	92.90	112.90	101.45
	Ground vibration	mm/s	All blast events	16	0.32	2.94	1.16

For the reporting period, overpressure and ground vibration data were below the maximum limit and within the 5% allowance limit specified in Condition L5 of EPL 6538.

Appendix A

EPL 6538 Monitoring Locations



HB BENGALLA Management Plans 1642 Bengalla Mine Conceptual Revised Air Quality Monitoring Network 14 12 2016 Rev F

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Revised Air Quality Monitoring Network

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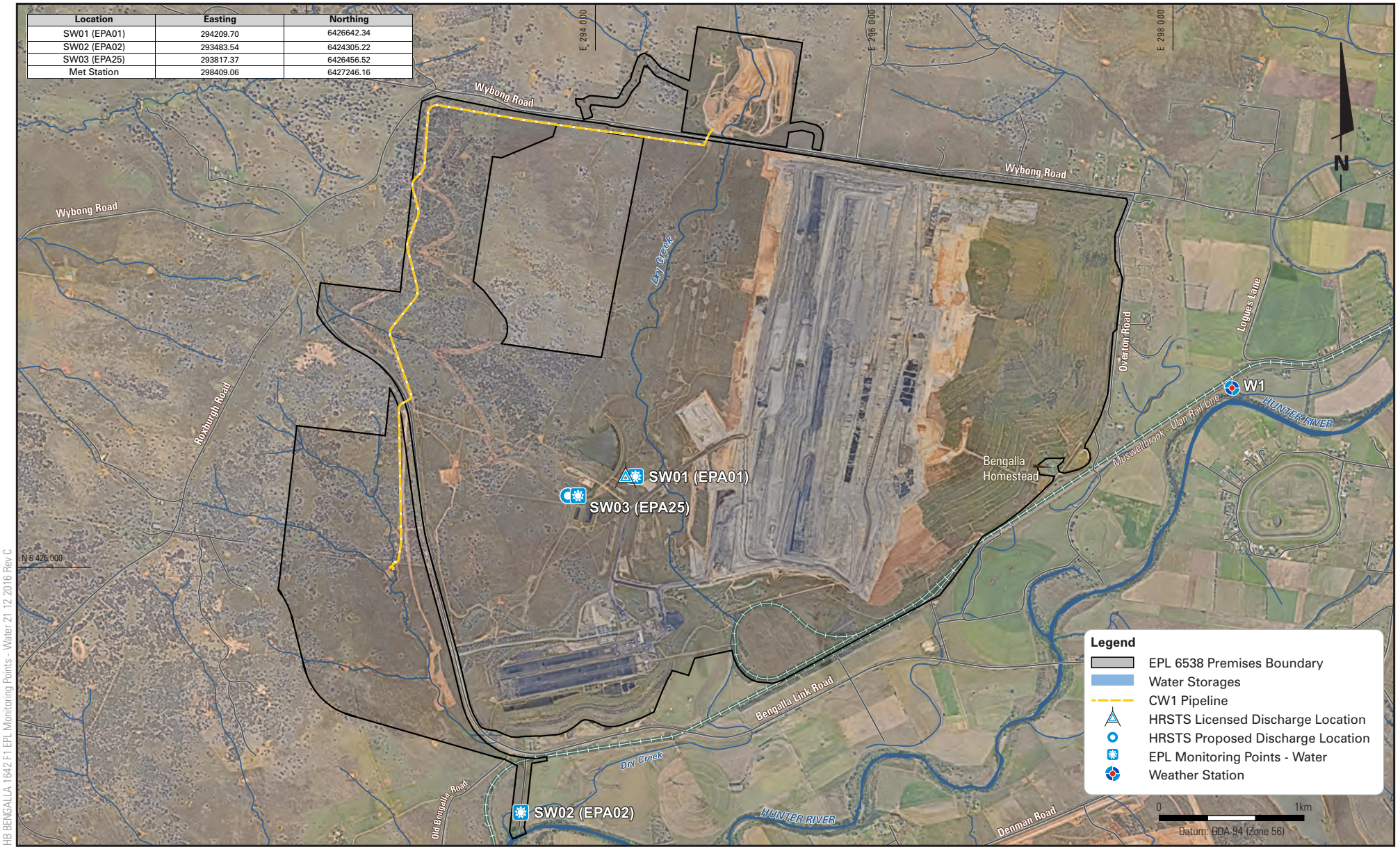
Existing PM10 Monitoring Network (HVAS)

Location	Easting	Northing
SW01 (EPA01)	294209.70	6426642.34
SW02 (EPA02)	293483.54	6424305.22
SW03 (EPA25)	293817.37	6426456.52
Met Station	298409.06	6427246.16



HB BENGALLA 1642 F1 EPL Monitoring Points - Water 21 12 2016 Rev C

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EPL Monitoring Points - Water

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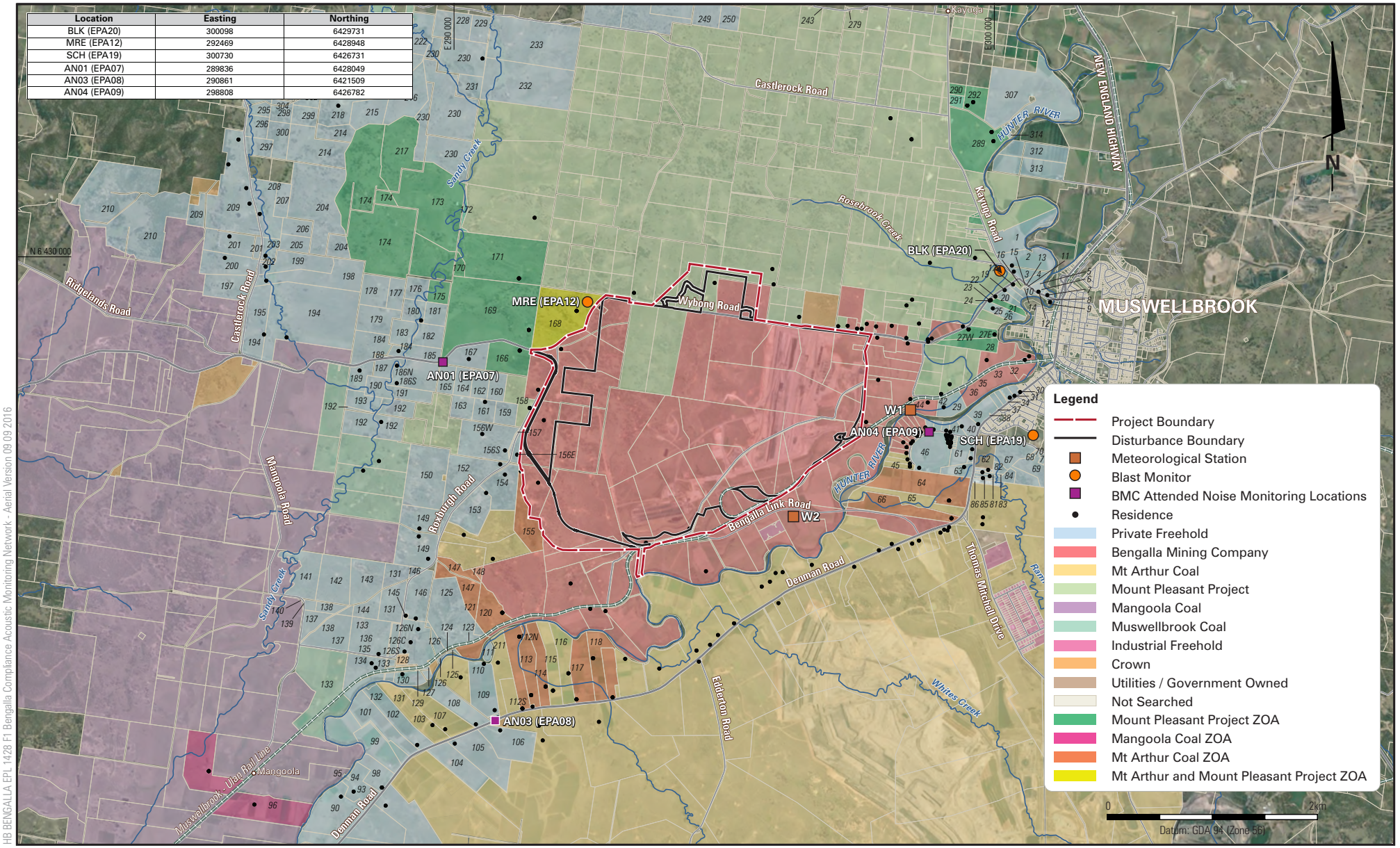
Location	Easting	Northing
BLK (EPA20)	300098	6429731
MRE (EPA12)	292469	6428948
SCH (EPA19)	300730	6426731
AN01 (EPA07)	289836	6428049
AN03 (EPA08)	290861	6421509
AN04 (EPA09)	298808	6426782



HB BENGALLA EPL 1428 F1 Bengalla Compliance Acoustic Monitoring Network - Aerial Version 09 09 2016

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Bengalla Compliance Acoustic Monitoring Network