**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

## December 2017

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

# Contents

1. INTRODUCTION ..... 1
2. AIR QUALITY ..... 2
3. SURFACE WATER ..... 4
4. NOISE ..... 7
5. BLASTING ..... 9

# Tables

Table 1. PM10 Monitoring Summary ..... 3
Table 2. Noise – Bengalla Only[1] LAeq (15 minute) Monitoring Summary ..... 8
Table 3: Blast Monitoring Summary ..... 10

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



# 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<br>Bengalla Road via<br>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 December 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: | 01 January 2018 |
| Monitoring Data Published: | 05 January 2018 |

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



# 2. AIR QUALITY

Under EPL 6538 BMC is required to undertake continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 (**Appendix A**). As per Condition E1.1, BMC commenced the continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 on 31 August 2017.

## 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.** |
| **Monitoring frequency required by licence:** | 10 minute intervals |
| **Sampled:** | 01/12/2017 – 31/12/2017 |

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



In accordance with EPL 6538, $PM_{10}$ 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 |
|---|---|---|---|---|---|---|
| EPA22 | Lumeah Dairy, Bengalla Road, Muswellbrook | 4464 | 4463 | 0.3 | 72 | 12 |
| EPA23 | Wybong Road (East), Muswellbrook | 4464 | 4462 | 0 | 243 | 13 |
| EPA24 | Wybong Road (West), Muswellbrook | 4464 | 4462 | 0 | 51 | 11 |

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



# 3. SURFACE WATER

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.

The location of these monitoring points is provided in **Appendix B**.

## 3.1 Mine Water

| | |
|---|---|
| **Pollutant:** | Mine water |
| **Unit of measure:** | Mega litres per day (**ML/day**) |
| **Monitoring location:** | EPA01 – Outlet pipe from 280 ML HRSTS storage dam. |
| **Monitoring frequency required by licence:** | Continuous during all discharge events. |
| **Sampled:** | Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS. |
| **Volume/mass limit:**<br>**(EPL6538 Condition L3)** | 200 ML/day |

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



## 3.2 Conductivity

| | |
|---|---|
| **Pollutant:** | Conductivity |
| **Unit of measure:** | Microsiemens per centimetre (**µS/cm**) |
| **Monitoring location:** | EPA1 – Outlet pipe from 280 ML HRSTS storage dam.<br>EPA2 – Tributary monitoring point in Dry Creek downstream of EPA1. |
| **Monitoring frequency required by licence:** | Continuous during all discharge events (EPA01); Two times daily during discharge (EPA02). |
| **Sampled:** | Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS. |

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



## 3.3 Total suspended solids and pH

| | |
|---|---|
| **Pollutants:** | pH and Total suspended solids (**TSS**) |
| **Unit of measure:** | pH and Milligrams per litre (**mg/L**) |
| **Monitoring location:** | EPA01 – Outlet pipe from 280 ML HRSTS storage dam. |
| **Monitoring frequency required by licence:** | Daily during all discharge events |
| **Sampled:** | Not applicable. During the Reporting Period, BMC did not discharge any mine water under the HRSTS. |
| **pH limit:**<br>**(EPL6538 Condition L2.4)** | 6.5 – 9.5 (100$^{th}$ percentile) |
| **TSS limit:**<br>**(EPL6538 Condition L2.4)** | 120 (100$^{th}$ percentile) |

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



## 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. The noise monitoring locations, as described, are shown in **Appendix C**.

| | |
|---|---|
| **Pollutant:** | Noise – Bengalla Only |
| **Unit of measure:** | LAeq (15 minute) |
| **Monitoring location:** | AN01 (EPA07) – Wybong Road, Castle Rock.<br>AN03 (EPA08) – Denman Road, Muswellbrook.<br>AN04 (EPA09) – Racecourse Road, Muswellbrook. |
| **Monitoring frequency required by licence:** | Monthly |
| **Sampled:** | 2nd December 2017 |
| **EPA7/AN01 and EPA9/AN04 limit:**<br>**(EPL6538 Condition L4.1)** | 35 dB(A) |
| **EPA8/AN03 limit:**<br>**(EPL6538 Condition L4.1)** | 40 dB(A) |

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



**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 |
|---|---|---|---|---|---|
| EPA07/AN01 | 1 | 1 | 2 December | 03:51 Hrs | 18 |
| EPA08/AN03 | 1 | 1 | 2 December | 04:23 Hrs | 25 |
| EPA09/AN04 | 1 | 1 | 2 December | 04:53 Hrs | 26 |

Note:

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

For the Reporting Period noise data were compliant with the EPL 6538 limits.

## 5. BLASTING

In accordance with EPL 6538, BMC 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 at Bengalla. The location of these monitors is provided in **Appendix C**.

| | |
|---|---|
| **Pollutant:** | Air blast overpressure & ground vibration peak particle velocity |
| **Unit of measure:** | dB (Lin Peak) and millimetres per second (**mm/s**) |
| **Monitoring locations:** | MRE (EPA12)<br>SCH (EPA19)<br>BLK (EPA20) |
| **Monitoring frequency required by licence:** | All blasts |
| **Sampled:** | 1 – 31 December 2017 |
| **Overpressure limits**:<br>**(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<br>b) 120 dB(L) at any time |
| **Ground vibration limits**:<br>**(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<br>b) 10mm/s at any time |

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

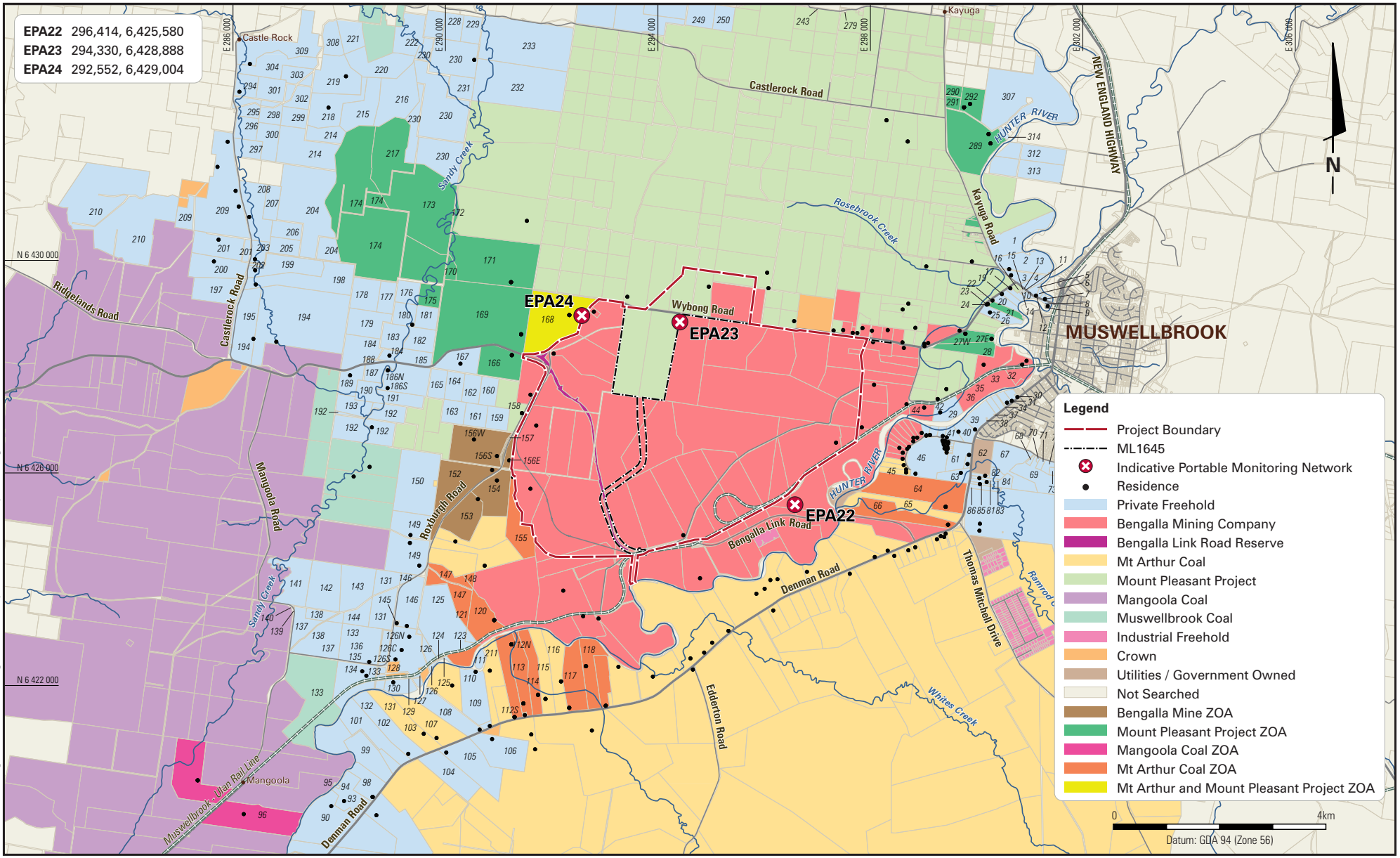
**Table 3: Blast Monitoring Summary**

| 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 |
|---|---|---|---|---|---|---|---|
| BLK (EPA20) | Overpressure | dB(L) | All blast events | 14 | 87.50 | 102.20 | 94.19 |
| | Ground vibration | mm/s | All blast events | 14 | 0.05 | 0.56 | 0.22 |
| SCH (EPA19) | Overpressure | dB(L) | All blast events | 14 | 71.40 | 106.70 | 93.44 |
| | Ground vibration | mm/s | All blast events | 14 | 0.02 | 0.21 | 0.08 |
| MRE (EPA12) | Overpressure | dB(L) | All blast events | 14 | 92.10 | 111.90 | 103.56 |
| | Ground vibration | mm/s | All blast events | 14 | 0.28 | 2.23 | 1.09 |

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 Particulate Matter Monitoring Locations




HB BENGALLA Management Plans 1642 Bengalla Mine Conceptual Revised Air Quality Monitoring Network 28 06 2017 Rev G

BENGALLA MINE

Revised Air Quality Monitoring Network

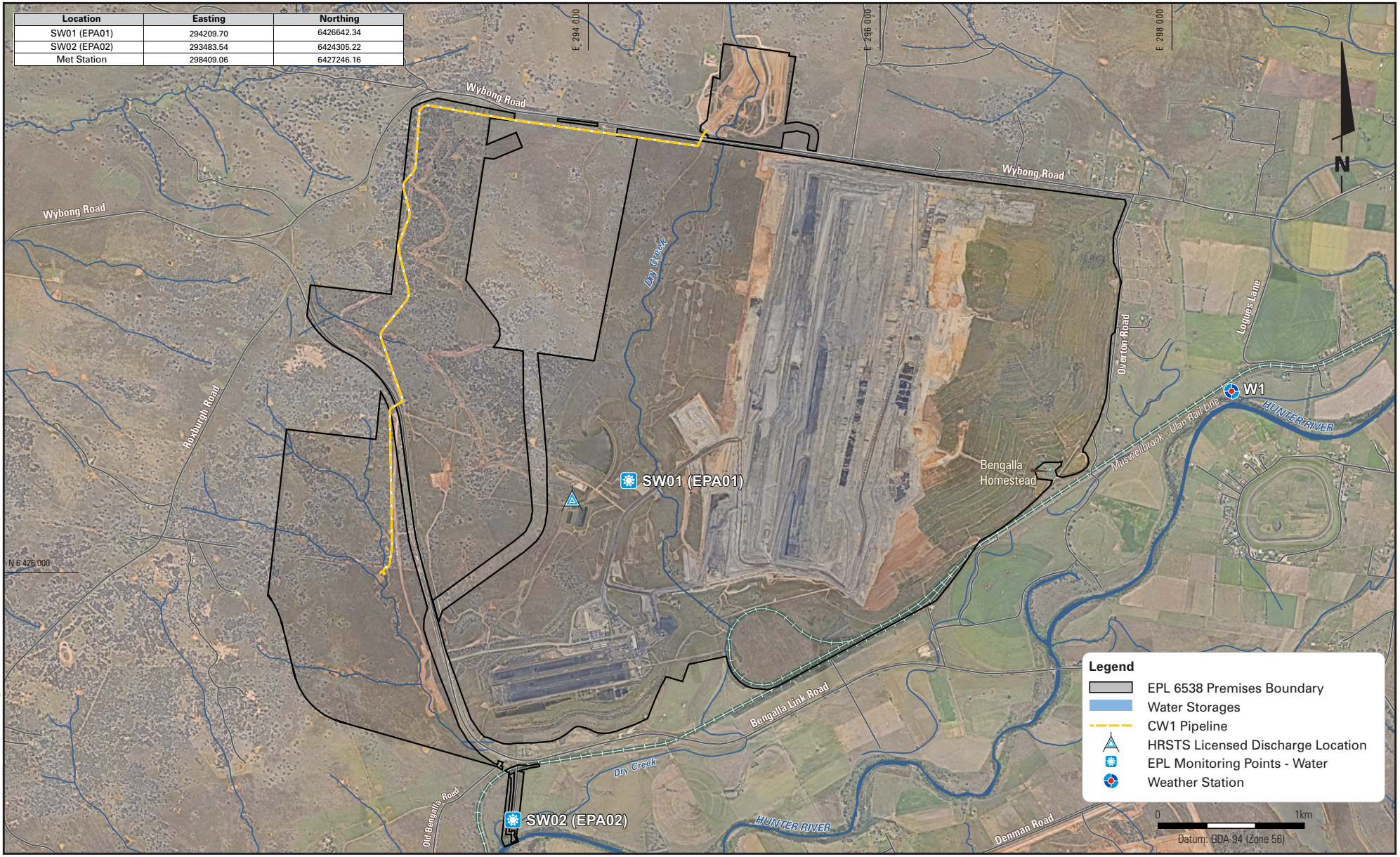
BENGALLA

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

# Appendix B

## EPL 6538 Surface Water Monitoring Locations

| Location | Easting | Northing |
|---|---|---|
| SW01 (EPA01) | 294209.70 | 6426642.34 |
| SW02 (EPA02) | 293483.54 | 6424305.22 |
| Met Station | 298409.06 | 6427246.16 |




HB BENGALLA 1642 F1 EPL Monitoring Points - Water 21 06 2017 Rev E

BENGALLA MINE

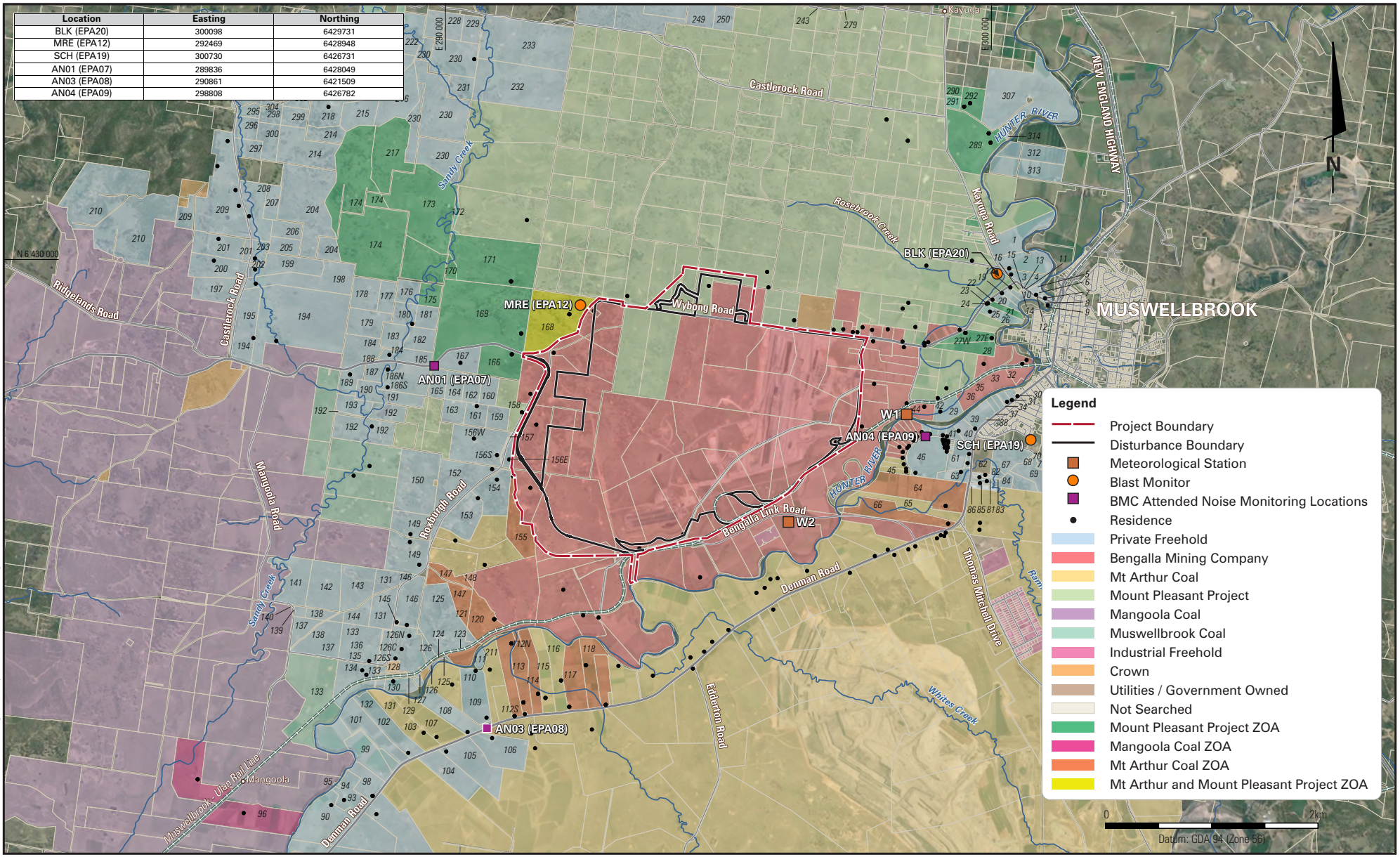
EPL Monitoring Points - Water

BENGALLA

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

# Appendix C

## EPL 6538 Noise and Blast Monitoring Locations




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

BENGALLA MINE

Bengalla Compliance Acoustic Monitoring Network

**FIGURE 1**