



Bengalla Mining Company Pty. Limited

Bengalla Road, (Locked Mailbag 5)

Muswellbrook NSW 2333 Australia

A.B.N. 32 053 909 470

Bengalla Mine

State Significant Development 5170 Monthly Monitoring Data Summary

November 2019

Operator, for and on behalf of Bengalla Joint Venture, an unincorporated joint venture between:
Harcove Pty Ltd, Wesfarmers Bengalla Limited, Taipower Bengalla Pty Limited & Mitsui Bengalla Investment Pty Limited.

www.bengalla.com.au



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1. INTRODUCTION

State Significant Development (SSD) 5170 (as modified) requires the Bengalla Mining Company Pty Ltd (BMC) to make a comprehensive summary of the Bengalla Mine (Bengalla) monitoring results, reported in accordance with the specifications in any conditions of SSD-5170 (as modified), or any approved plans and programs, publicly available on its website. This document has been prepared in accordance with the Department of Planning and Environment (DPE) *Web-Based Reporting Guideline* (October 2015) to satisfy the above requirement.

This document provides a summary of environmental monitoring data sampled as prescribed by SSD-5170 (as modified) for November 2019 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM₁₀), total suspended particulate (TSP) matter and depositional dust;
- Noise; and
- Blast overpressure and ground vibration.

Monitoring Data Obtained: 11 December 2019

Monitoring Data Published: 13 December 2019



2. AIR QUALITY

The air quality monitoring program at Bengalla is undertaken in accordance with the requirements of SSD-5170 (as modified), EPL 6538 and the Bengalla Air Quality Management Plan (AQMP). Air quality monitoring results relevant to SSD-5170 are summarised in the following sections.

2.1 Particulate Matter less than 10 Microns

To evaluate the performance of Bengalla against the SSD-5170 criterion for particulate matter, BMC operates and maintains four High Volume Air Samplers (HVAS) measuring PM₁₀. The HVAS are run for 24 hours every six days.

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

| | |
|----------------------------------|---|
| Pollutant: | PM ₁₀ |
| Unit of measure: | Micrograms per cubic metre (µg/m ³) |
| Monitoring location: | See Table 1 and Appendix A . |
| Monitoring frequency: | 24 hours every 6 days |
| 24 Hour Average Criteria: | 50 µg/m ³ |
| Annual Average Criteria: | 25 µg/m ³ |
| Sampled: | 04/11/2019 – 28/11/2019 |

Table 1. PM₁₀ Monitoring Summary

| Run Date | Run Date Reading (µg/m ³) | | | |
|------------|---------------------------------------|---------------------------|-------------------------|-----------------------|
| | PM10-1 Racecourse Road | PM10-2 St James School | PM10-3 Roxburgh Road | PM10-4 Wybong Road |
| 04/11/2019 | 13 | 14 | 9 | 8 |
| 10/11/2019 | 44 | 27 | 20 | 27 |
| 16/11/2019 | 77 | 79 | 9 | 64 |
| 22/11/2019 | 158 | 136 | 112 | 99 |
| 28/11/2019 | 93 | 89 | 153 | 127 |



2.2 Total Suspended Particle Matter

To evaluate the performance of Bengalla against the SSD-5170 criterion for particulate matter, BMC operates and maintains five HVAS measuring TSP. The HVAS are run for 24 hours every six days.

TSP data for the Reporting Period is provided in **Table 2**.

| | |
|---------------------------------|--|
| Pollutant: | TSP |
| Unit of measure: | µg/m ³ |
| Monitoring location: | See Table 2 and Appendix B . |
| Monitoring frequency: | 24 hours every 6 days |
| Annual Average Criteria: | 90 µg/m ³ |
| Sampled: | 04/11/2019 – 28/11/2019 |

Table 2. TSP Monitoring Summary

| Run Date | Run Date Reading (µg/m ³) | | | | |
|------------|---------------------------------------|----------------------------|---------------------|----------------------------|-------------------------------|
| | HV01 Wybong Road (East) | HV02 Racecourse Road | HV03 Logues Lane | HV04 St James School | HV06 Wybong Road (West) |
| 04/11/2019 | 79 | 39 | 34 | 45 | 34 |
| 10/11/2019 | 130 | 111 | 96 | 116 | 90 |
| 16/11/2019 | 195 | 182 | 156 | 201 | 173 |
| 22/11/2019 | 270 | 243 | 224 | 283 | 234 |
| 28/11/2019 | 169 | 189 | 171 | 183 | 341 |



2.3 Depositional Dust

To evaluate the performance of Bengalla against the SSD-5170 criterion for depositional dust, BMC operates and maintains 14 depositional dust gauges surrounding the Bengalla operations.

Depositional dust data for the Reporting Period is provided in **Table 3**.

| | |
|---|---|
| Pollutant: | Depositional Dust |
| Unit of measure: | Grams per metre squared per month (g/m ² /month) |
| Monitoring location: | See Table 3 and Appendix C . |
| Monitoring frequency: | Monthly |
| Maximum depositional dust increase criteria: | 2 g/m ² /month |
| Maximum total depositional dust criteria: | 4 g/m ² /month |
| Sampled: | 17/10/2019 - 15/11/2019 |



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Table 3. Depositional Dust Monitoring Summary

| Sampling point | | Measured Value | Sampling Comments |
|----------------|---|----------------|---------------------|
| D01 | Queen Street, Muswellbrook | 1.6 | Insects |
| D02 | King Street, Muswellbrook | 1.9 | Insects |
| D04A | Industrial Estate, Muswellbrook | 2.7 | Insects |
| D05 | Intersection Kayuga and Wybong Road, Muswellbrook | 2.4 | Insects |
| D06 | Logues Lane, Muswellbrook | 3.6 | Insects |
| D07A | St James School, Muswellbrook | 2.1 | Insects |
| D08 | Denman Road, Muswellbrook | 1.9 | Insects |
| D09 | Wybong Road, Muswellbrook | 3.5 | Insects, vegetation |
| D10 | Racecourse Road, Muswellbrook | 3.5 | Insects |
| D20 | Wyndams Arms R.O.W., Muswellbrook | 4.2 | Insects |
| D23B | Logues Lane, Muswellbrook | 2.0 | Insects |
| D25 | Roxburgh Road, Muswellbrook | 3.0 | Insects |
| D26 | Wybong Road, Muswellbrook | 2.5 | Insects |
| DA | Roxburgh Road, Muswellbrook | 2.4 | Insects |

* denotes a contaminated sample.

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3. NOISE

The noise monitoring program at Bengalla is undertaken in accordance with the requirements of SSD-5170 (as modified), EPL 6538 and the Bengalla Noise Management Plan (NMP).

Compliance attended noise monitoring is undertaken for 15 minutes 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 4**.

| | |
|------------------------------|--|
| Pollutant: | Noise – Bengalla Only |
| Unit of measure: | L _{Aeq} (15 minute) |
| Monitoring location: | See Table 4 and Appendix D . |
| Monitoring frequency: | Monthly |
| AN01 criteria: | 35 dB(A) |
| AN04 criteria: | 35 dB(A) |
| AN03 criteria: | 40 dB(A) |
| Sampled: | 28 November 2019 |

Table 4. Noise – Bengalla Only¹ LAeq (15 minute) Monitoring Summary

| Sampling point | | Sample Date | Sample Time | Measured value |
|----------------|----------------------------|-------------|---------------|----------------|
| AN01 | 1431 Wybong Road | 28/11/2019 | 00:33 – 00:48 | 29 |
| AN03 | 1312 Denman Road | 28/11/2019 | 01:10 – 01:25 | <25 |
| AN04 | Opposite 9 Racecourse Road | 28/11/2019 | 01:43 – 01:58 | IA |

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

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



4. BLASTING

BMC maintains three blast monitors to measure blast overpressure and ground vibration against the SSD-5170 criteria.

The blast overpressure and ground vibration data for the Reporting Period is provided in **Table 5**.

| | |
|-----------------------------------|---|
| Pollutant: | Air blast overpressure & ground vibration peak particle velocity |
| Unit of measure: | dB (Lin Peak) and millimetres per second (mm/s) |
| Monitoring locations: | See Tables 5 and Appendix D . |
| Monitoring frequency: | All blasts |
| Overpressure criteria: | 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 criteria: | 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: | 02/11/2019 – 29/11/2019 |



Table 5. Blast Overpressure Monitoring Summary

| Date | Time | Ground Vibration (mm/s) | | | Overpressure (dBL) | | |
|----------|-------------|-------------------------|------|------|--------------------|--------|--------|
| | | BLK | MRE | SCH | BLK | MRE | SCH |
| 02/11/19 | 4:29:55 PM | 0.08 | 0.30 | 0.04 | 100.00 | 102.30 | 98.30 |
| 02/11/19 | 4:33:59 PM | 0.04 | 0.24 | 0.02 | 90.80 | 104.60 | 91.30 |
| 05/11/19 | 10:09:56 AM | 0.41 | 2.91 | 0.09 | 101.60 | 100.20 | 95.10 |
| 07/11/19 | 8:41:28 AM | 0.17 | 0.75 | 0.07 | 96.20 | 111.80 | 101.80 |
| 11/11/19 | 10:52:58 AM | 0.48 | 2.92 | 0.18 | 93.50 | 97.20 | 97.00 |
| 14/11/19 | 2:56:59 PM | 0.03 | 0.20 | 0.05 | 90.90 | 98.50 | 101.20 |
| 14/11/19 | 3:00:30 PM | 0.32 | 1.99 | 0.11 | 102.80 | 105.40 | 89.60 |
| 18/11/19 | 11:03:18 AM | 0.34 | 3.17 | 0.11 | 88.40 | 97.30 | 94.90 |
| 22/11/19 | 4:22:41 PM | 0.08 | 0.61 | 0.10 | 90.10 | 96.80 | 96.20 |
| 22/11/19 | 4:24:23 PM | 0.21 | 3.22 | 0.12 | 97.00 | 96.90 | 89.00 |
| 25/11/19 | 3:34:14 PM | 0.21 | 1.17 | 0.14 | 88.70 | 94.70 | 102.80 |
| 25/11/19 | 3:35:33 PM | 0.03 | 0.20 | 0.02 | 104.20 | 101.70 | 102.50 |
| 27/11/19 | 3:22:34 PM | 0.08 | 0.58 | 0.05 | 98.10 | 107.00 | 94.90 |
| 29/11/19 | 4:11:12 PM | 0.06 | 0.25 | 0.02 | 91.20 | 101.70 | 93.00 |

Appendix A

PM10 Monitoring Locations



PRJ31060_BengallaMineNSW_50cm_19102017_gda94mga56_ortho_full-area



BENGALLA MINE
PM10 Monitoring Locations

Appendix B

TSP Monitoring Locations



PRJ31060_BengallaMineNSW_50cm_19102017_gda94mga56_ortho_full-area

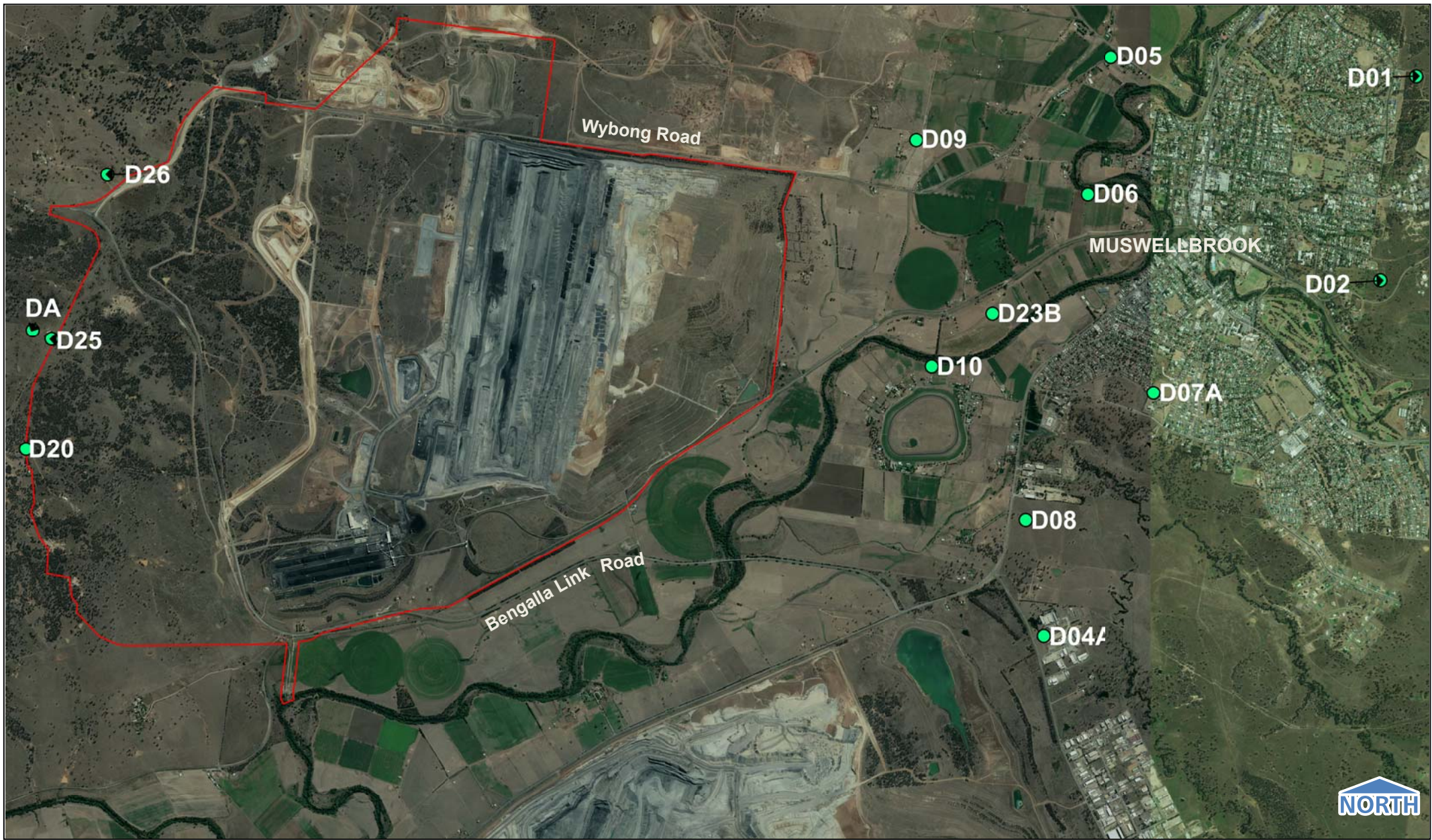


BENGALLA MINE
TSP Monitoring Locations

Appendix C

Depositional Dust Monitoring Locations

PRJ31060_BengallaMineNSW_50cm_19102017_gda94mga56_orho_full-area



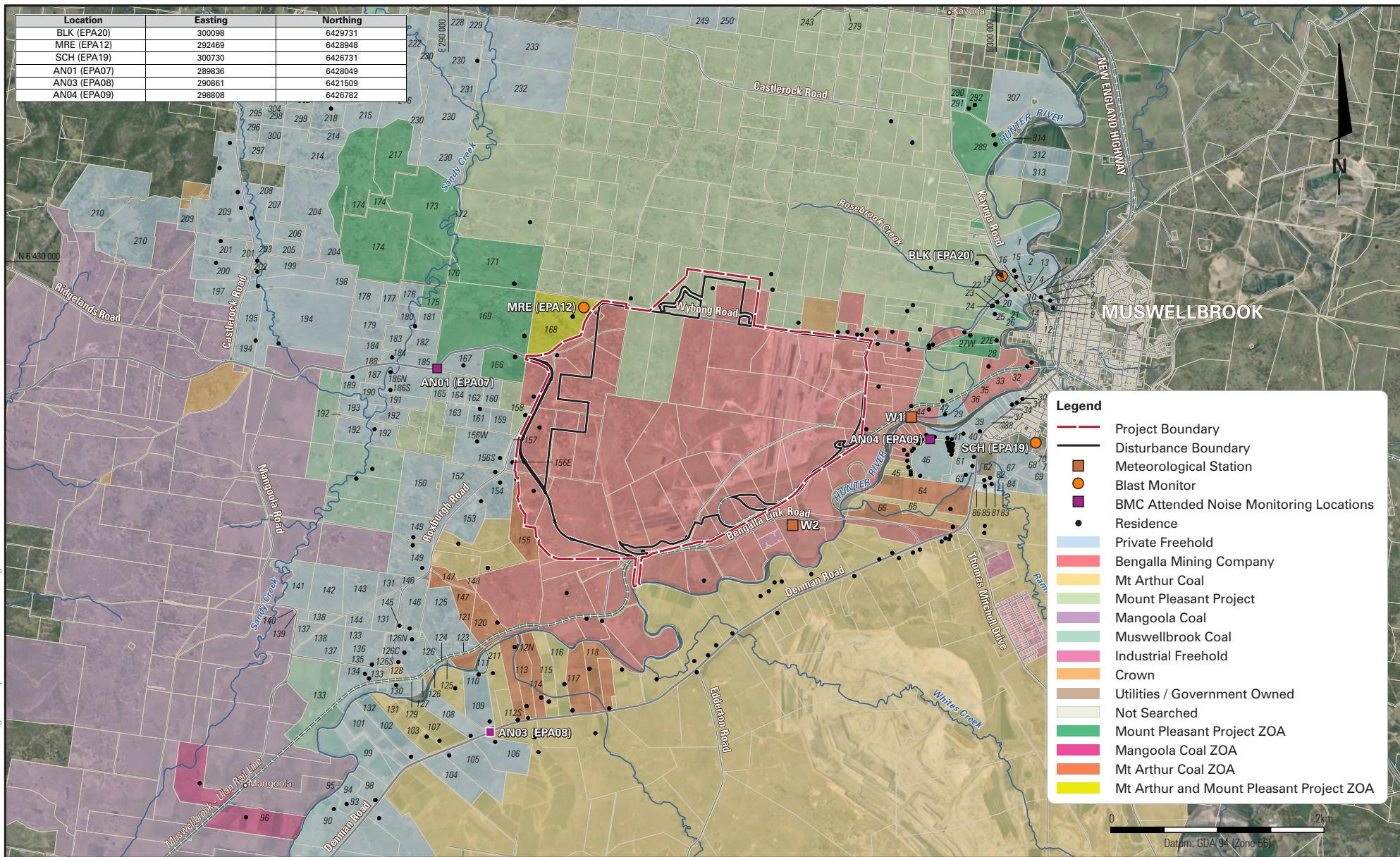
BENGALLA MINE
Depositional Dust Monitoring Locations

Appendix D

Noise and Blast Monitoring Locations

| 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



BENGALLA MINE



Bengalla Compliance Acoustic Monitoring Network

FIGURE 1