

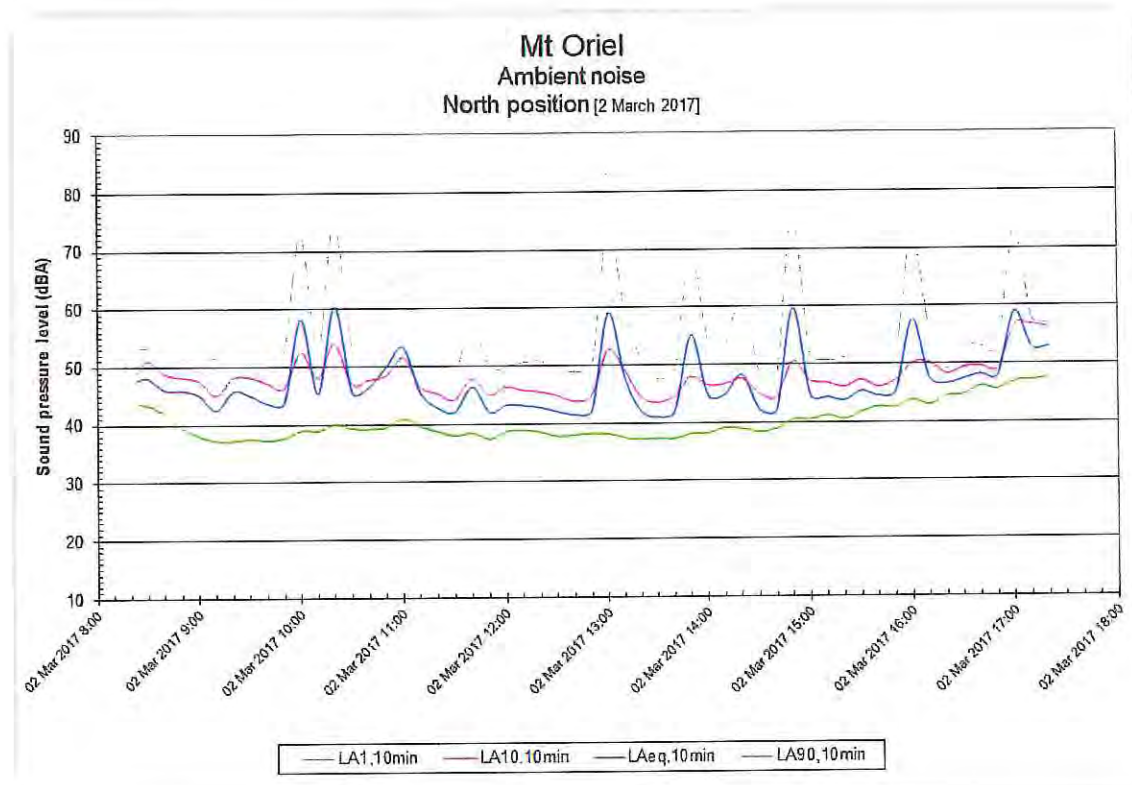


Figure 5 – Monitored Ln-statistics, position SLM\_2.

**From the above:-**

- Background levels were typically above 38 dBA at the two SLM positions. Observation indicated that this statistic was largely controlled at both positions by traffic flow on the Midland Hwy and Hobart Rd to the west.  $L_{A90}$  levels increased to approx. 45 dBA during times when peak traffic on the Hwy was likely to be occurring, i.e. morning and afternoon periods associated with the travel to and from work.
- $L_{Aeq}$  levels typically tracked background approx. 2 to 3 dB higher with 15 to 20 dBA spikes throughout the monitoring likely to be the result of overfly activity associated with flights to and from the nearby Launceston Airport. Maximum noise levels also spiked at these times to levels between 70 and 80 dBA. Other more sustained periods of high  $L_{Aeq}$  levels at SLM\_1 were likely to have been associated with local rural or commercial activity.
- From local observation at the SLM\_1 position it was noted that trucks movements on the haul road used by McGraths Pit and Raeburn quarry were audible but not such that it would control any of the measured statistics presented.

### 3.2 Assessment criteria

From the observed data presented above Tarkarri Engineering considered it appropriate to adopt environmental noise mission criteria similar to the environmental noise emission limits provided in the McGraths Pit Environmental Protection Notice (EPN) No. 8742/3 (r1). These are provided below for reference.



#### N1 Noise emission limits

- 1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:
  - 1.1 46 dB(A) between 0700 hours and 1800 hours (Day time); and
  - 1.2 40 dB(A) between 1800 hours and 2200 hours (Evening time); and
  - 1.3 35 dB(A) between 2200 hours and 0700 hours (Night time).
- 2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).
- 3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.
- 4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.
- 5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

With consideration of ambient noise levels presented in section 3.1 above and the *Quarry Code of Practice*<sup>[2]</sup>, Tarkarri Engineering consider the following noise emission criteria for this assessment to be conservative and to reasonably reflect consideration of additional noise emissions to a noise environment with existing commercial, extractive and rural noise producing activities.

- **L<sub>Aeq,10min</sub> 46 dBA: Day (0700 to 1800 hrs).**
- **L<sub>Aeq,10min</sub> 40 dBA: Evening (1800 to 1900 hrs).**

### 3.3 Environmental noise modelling

SoundPLAN<sup>[3]</sup> software was used for carrying out detailed noise emission spectra and contour modelling. This program allows the use of the CONCAWE<sup>[4]</sup> calculation method for modelling atmospheric attenuation of noise. Parameters influencing sound propagation and attenuation include:

- Source type (point, line, plane).
- Relative source and receiver height.
- Topography and barriers.
- Industrial buildings as sources and/or barriers.
- Ground absorption.
- Distance attenuation.
- Atmospheric conditions (pasquill stability, temperature, humidity and vector wind speed).
- Reflecting surfaces.
- Source directivity.

As all propagation and attenuation parameters are frequency dependent, all input source data has been based on 1/3-octave band sound power spectra.

Geo-referenced topographic, transport, building and hydrologic data was obtained from Department of Primary Industry, Parks, Water and Environment. This provided contours at 10 m intervals; residential locations; road layouts; and river and stream courses for the area. More





detailed topographic data for the lease area and adjacent Cocked Hat Hill, McGraths Pit and Raeburn quarry was available, allowing for 5 m interval contours across these areas.

Quarry development phases were provided by VDC.

All source and geodata is referenced to the Map Grid of Australia (MGA).

### 3.3.1 Model input data

Input sound power (SWL) spectra were determined for potential noise sources from; equipment lists provided by VDC; near-field source SWL measurements of equipment operating in the adjacent McGraths Pit; and Tarkarri Engineering SWL library data for quarrying equipment.

| Overall sound power levels (dBA) |              |     |                                                                                                                                   |
|----------------------------------|--------------|-----|-----------------------------------------------------------------------------------------------------------------------------------|
| Area                             |              | SWL | Comment                                                                                                                           |
| Excavator 30 t                   | Engine       | 102 | CAT 365C LME (McGraths Pit)                                                                                                       |
|                                  | Engine / Dig | 111 |                                                                                                                                   |
| Excavator 20t                    |              | 101 | CAT 320 (Tarkarri Engineering SWL library)                                                                                        |
| Crusher                          |              | 115 | Pegson Premiertrak 1100 x 650 (Tarkarri Engineering SWL library)                                                                  |
| Screen                           |              | 109 | Powerscreen Cheiftain 1400 (Tarkarri Engineering SWL library)                                                                     |
| Front End Loader (FEL)           |              | 100 | Komatsu WA470 (Tarkarri Engineering SWL library)                                                                                  |
| Bulldozer                        |              | 108 | CAT D7H (Tarkarri Engineering SWL library)                                                                                        |
| Haul / Water Truck               |              | 107 | Road truck IVECO with CAT 650 engine (Tarkarri Engineering SWL library)                                                           |
| Drill                            | Engine       | 112 | Roc F7 Atlas Copco (Tarkarri Engineering SWL library).<br>Drilling and rattling scaled for time of operation in 10-minute period. |
|                                  | Drill        | 124 |                                                                                                                                   |
|                                  | Rattle       | 124 |                                                                                                                                   |

Table 2 – Sound power levels.

### 3.3.2 Atmospheric conditions

SoundPLAN<sup>[3]</sup>, via the CONCAWE<sup>[4]</sup> prediction algorithm, models atmospheric attenuation using Pasquill stability indices in combination with vector wind speed and direction to determine appropriate frequency dependent attenuation/amplification. In this study the following propagation condition was considered:-

- **Neutral propagation:** Situations where the atmospheric conditions are considered to be neutral occur with a Pasquill stability class D and no wind. These conditions can typically occur in the hour before sunset and the hour after sunrise. Neutral conditions also occur fairly frequently during still, cloudy conditions.

### 3.3.3 Model scenarios

Quarry development plans provided in VDC's DA supporting information formed the basis for the development of model scenarios for this project, particularly in relation to pit development



through the life of the quarry. Model plan views and wire frame model views are provided below for the following quarry operation model scenarios:-

- Overburden removal
- Drilling (blast preparation)
- Quarrying

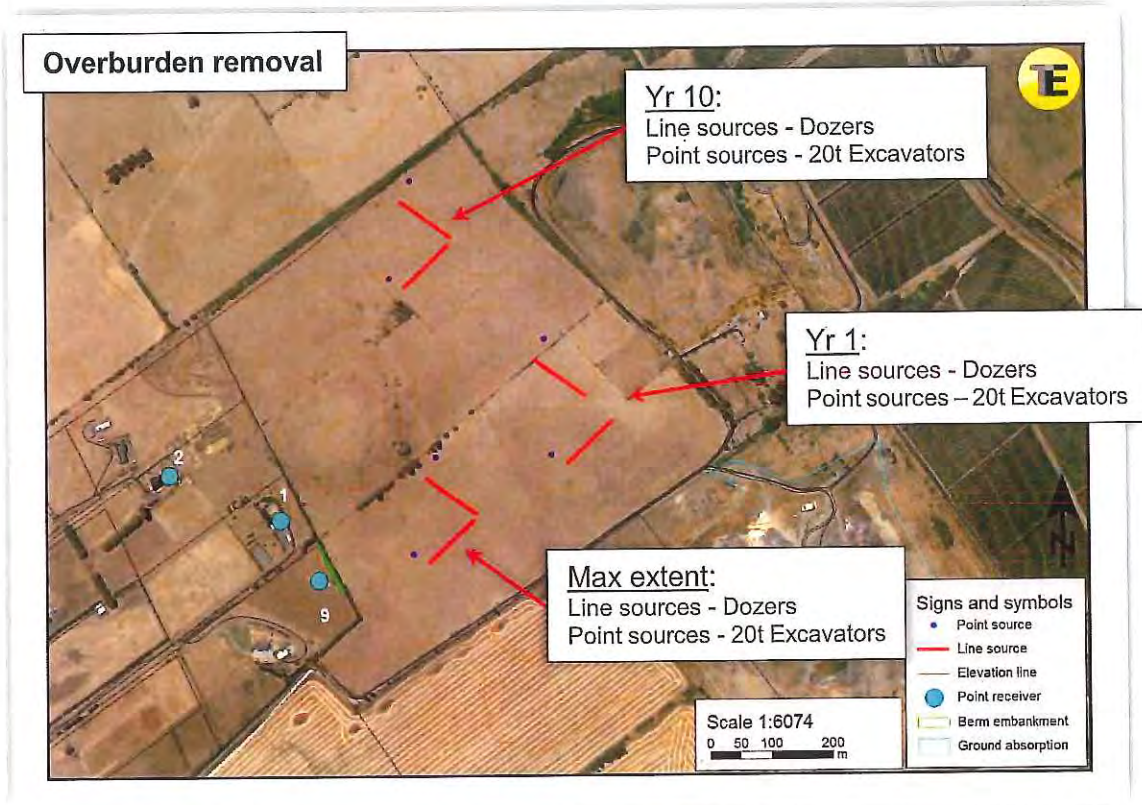
The following quarry stages were modelled:-

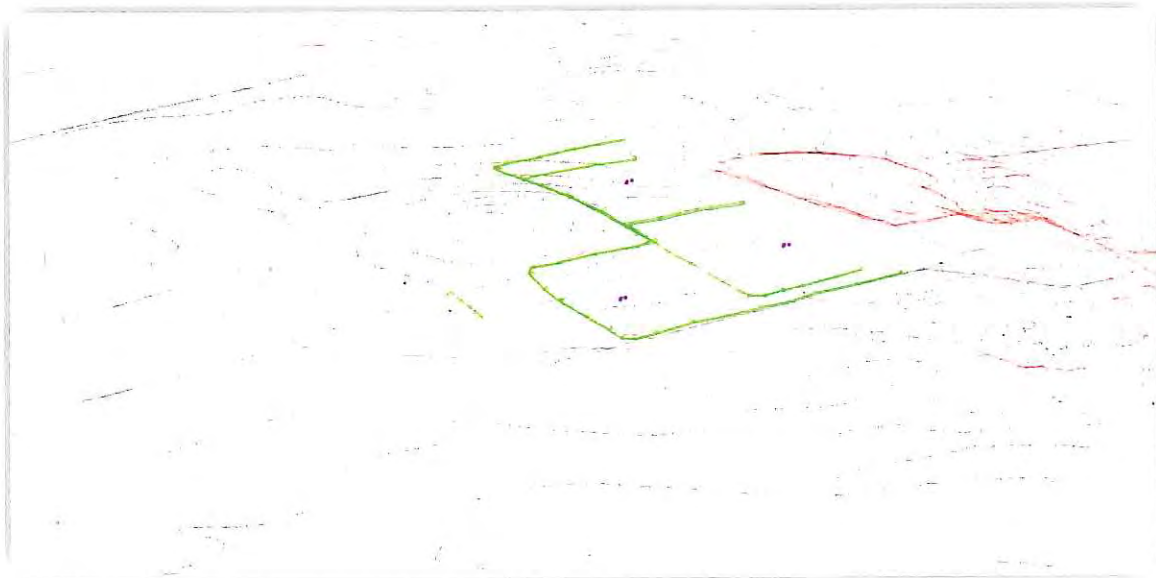
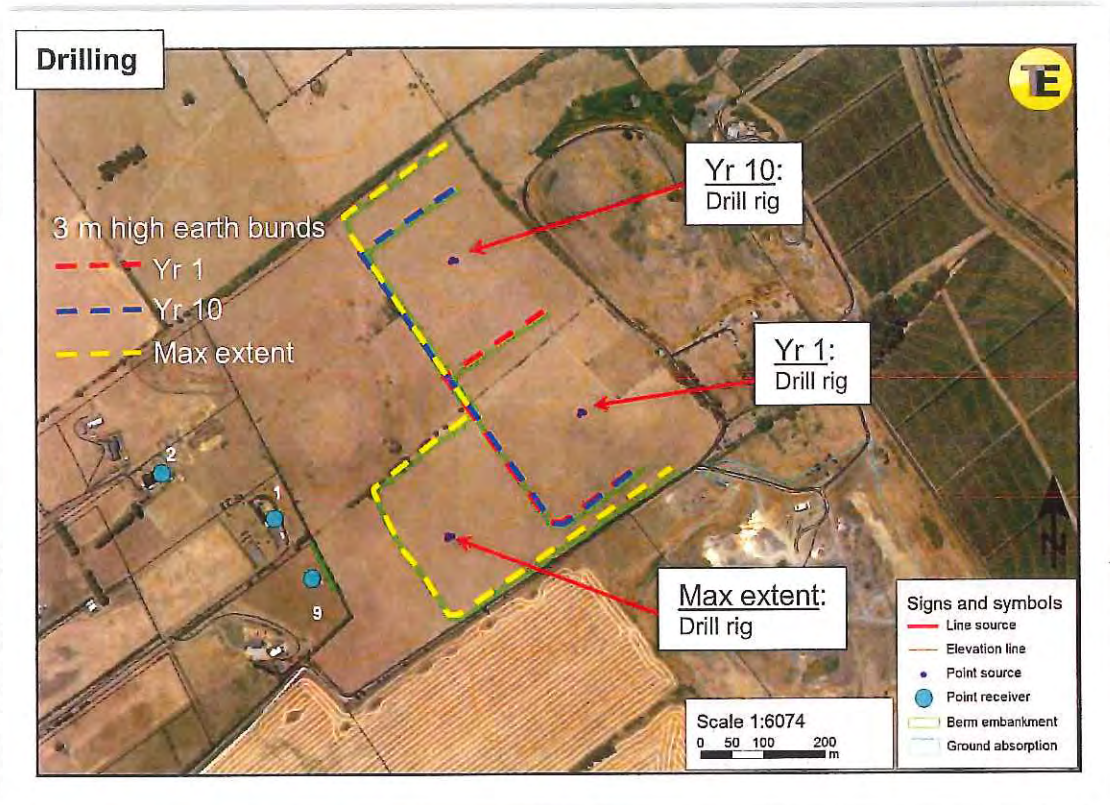
- Year 1
- Year 10
- Maximum extent

A list of sources, source locations and earth bunding locations are provided on the model plan views.

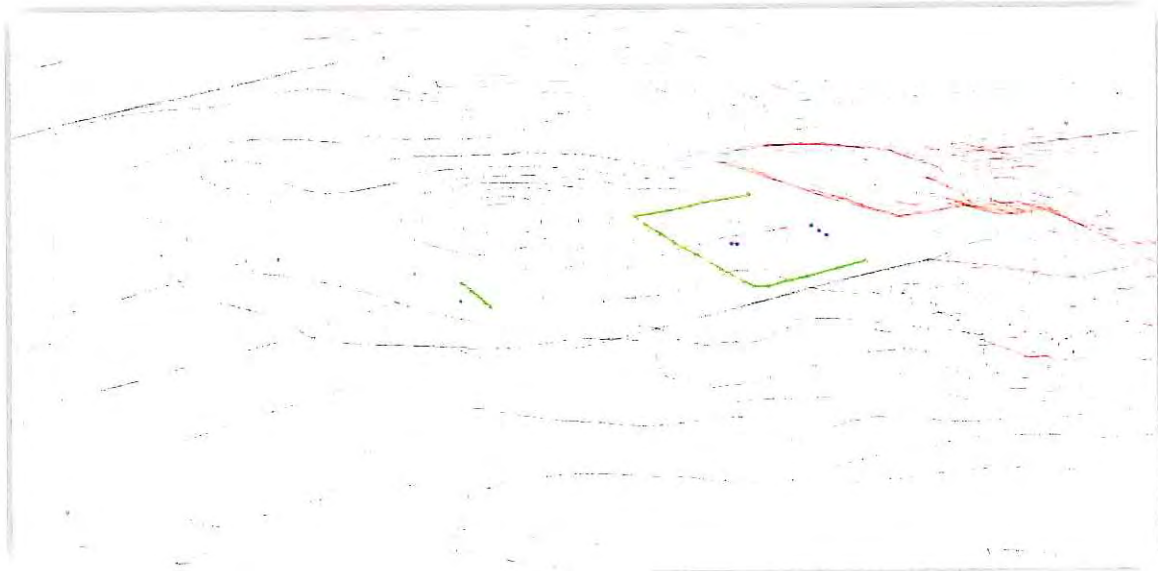
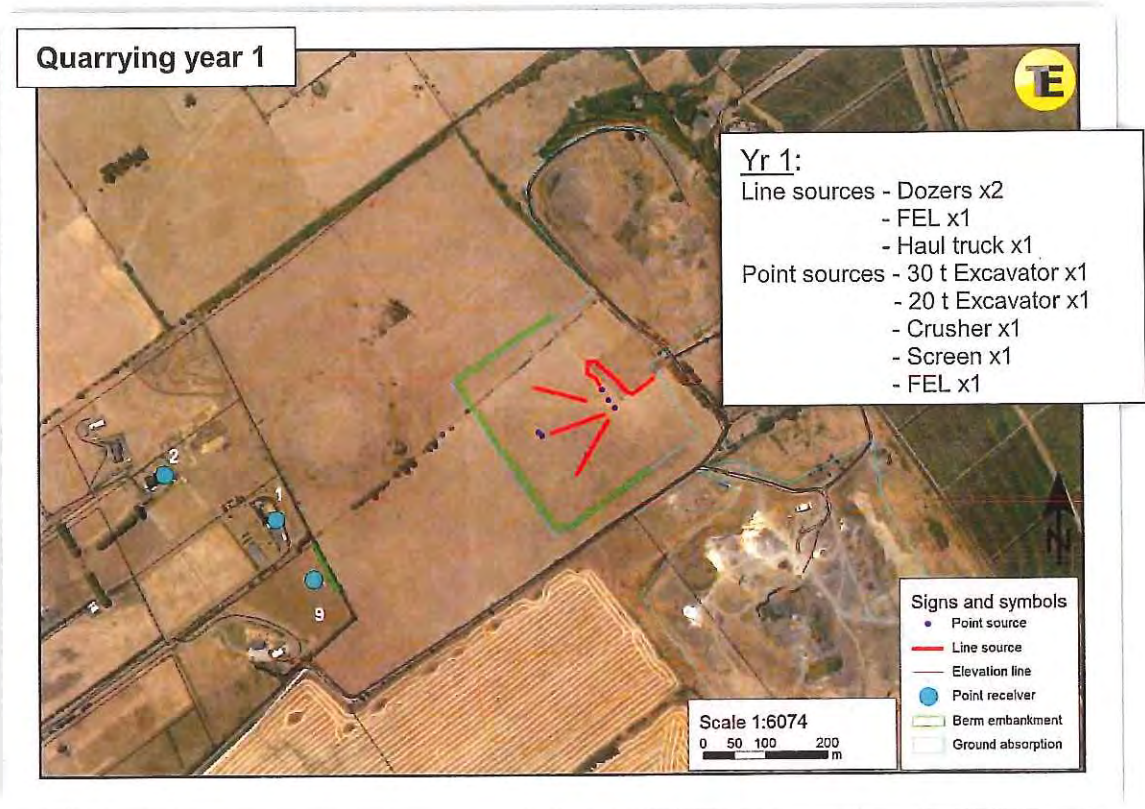
**NB:** All model scenarios include a 3 m high bund along the north-east boundary of the property at 805 Hobart Rd. The bund extends from the northern corner of the property to approx. 35 m past the south-eastern corner of the proposed residential building, resulting in a total bund length of approx. 85 m. This bund is to accommodate noise mitigation measures associated with the dwelling proposed for that property.

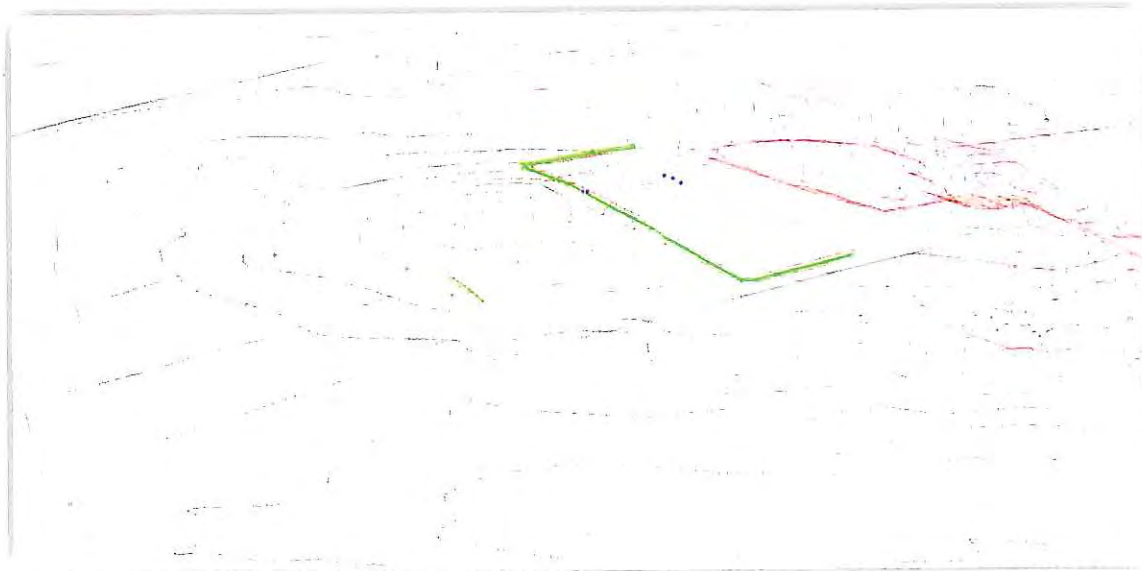
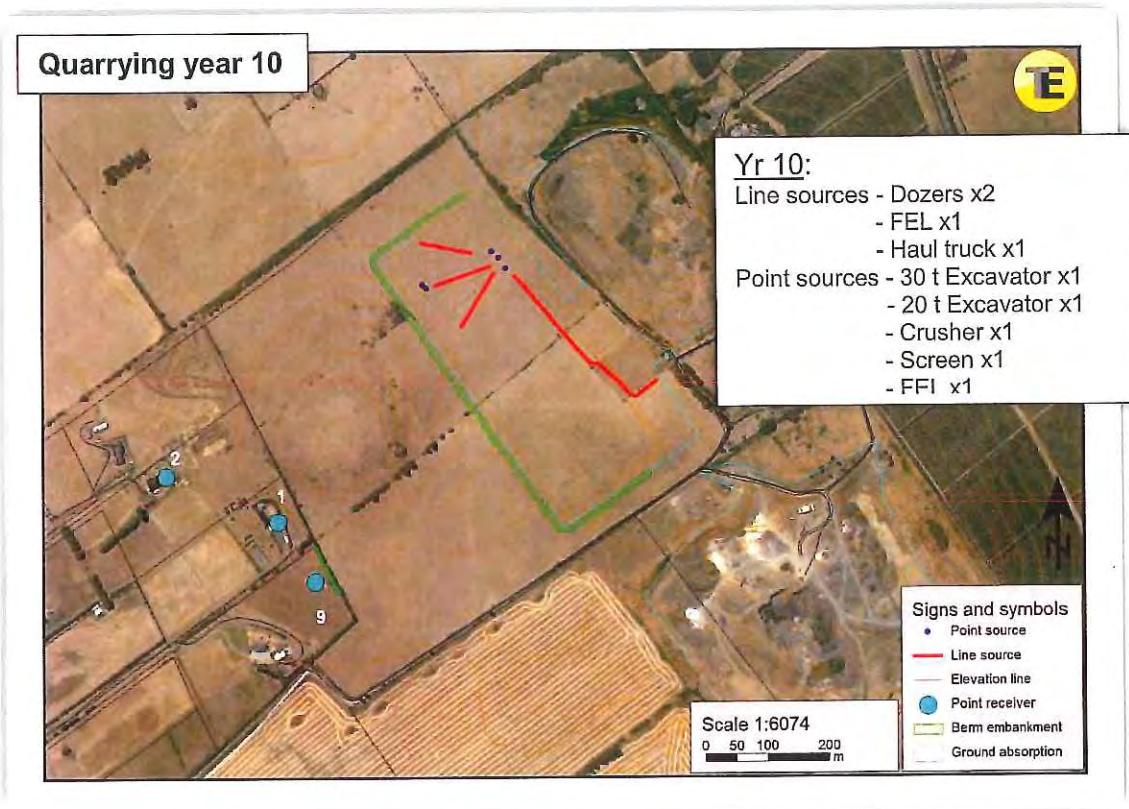




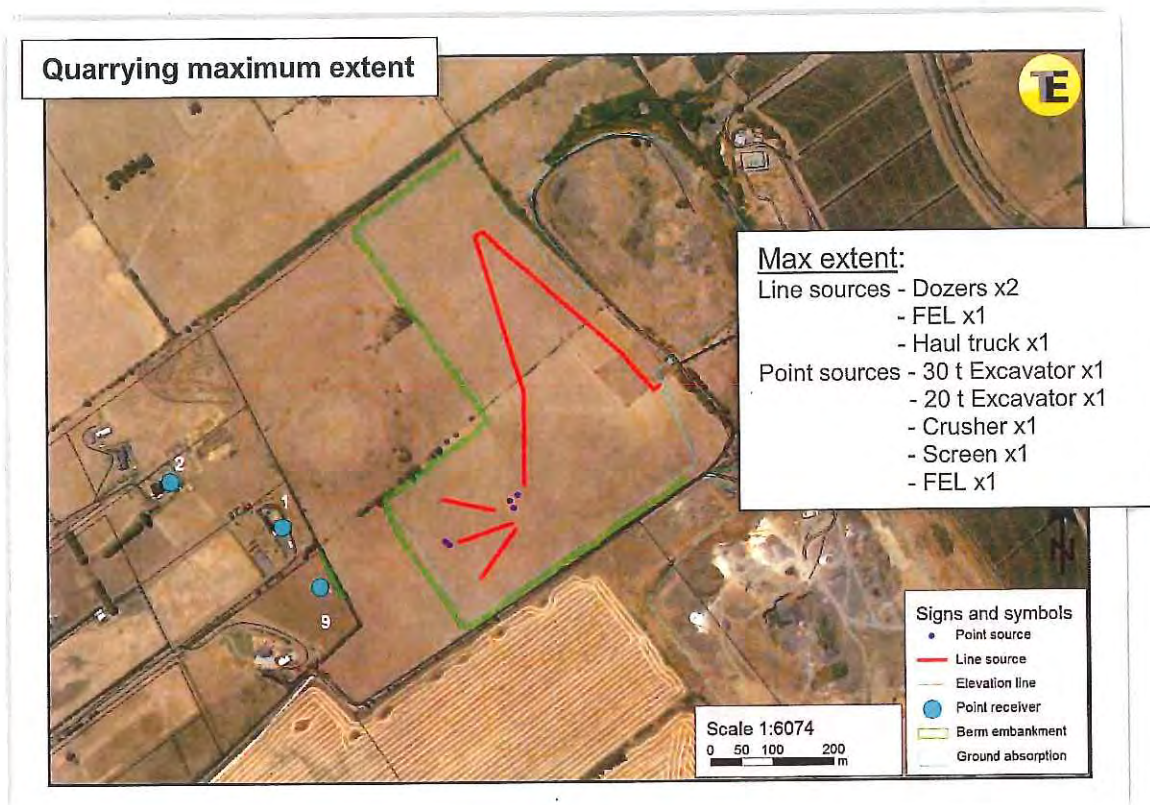












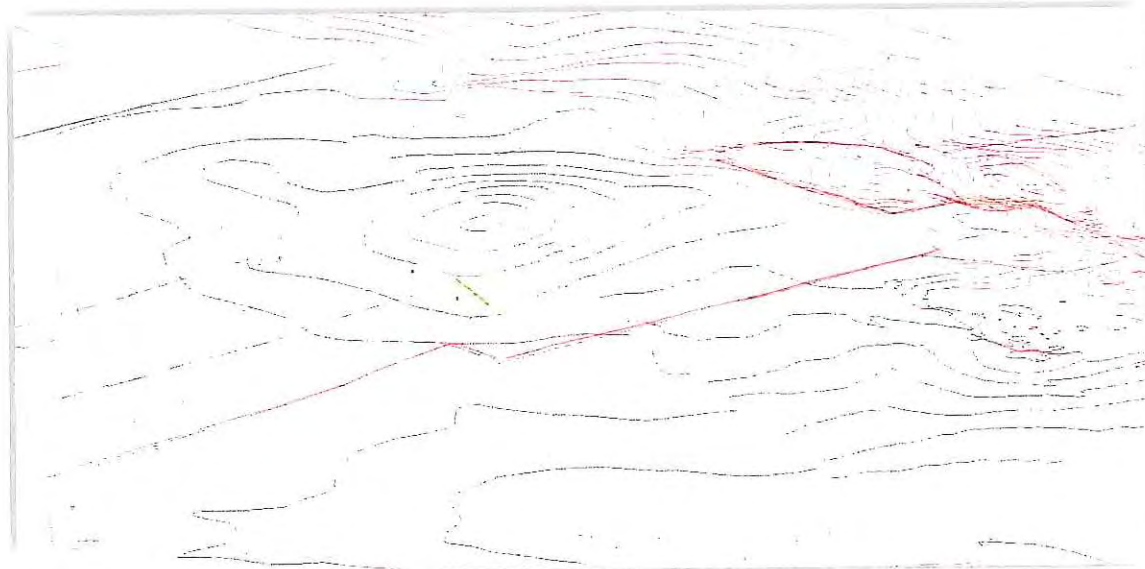
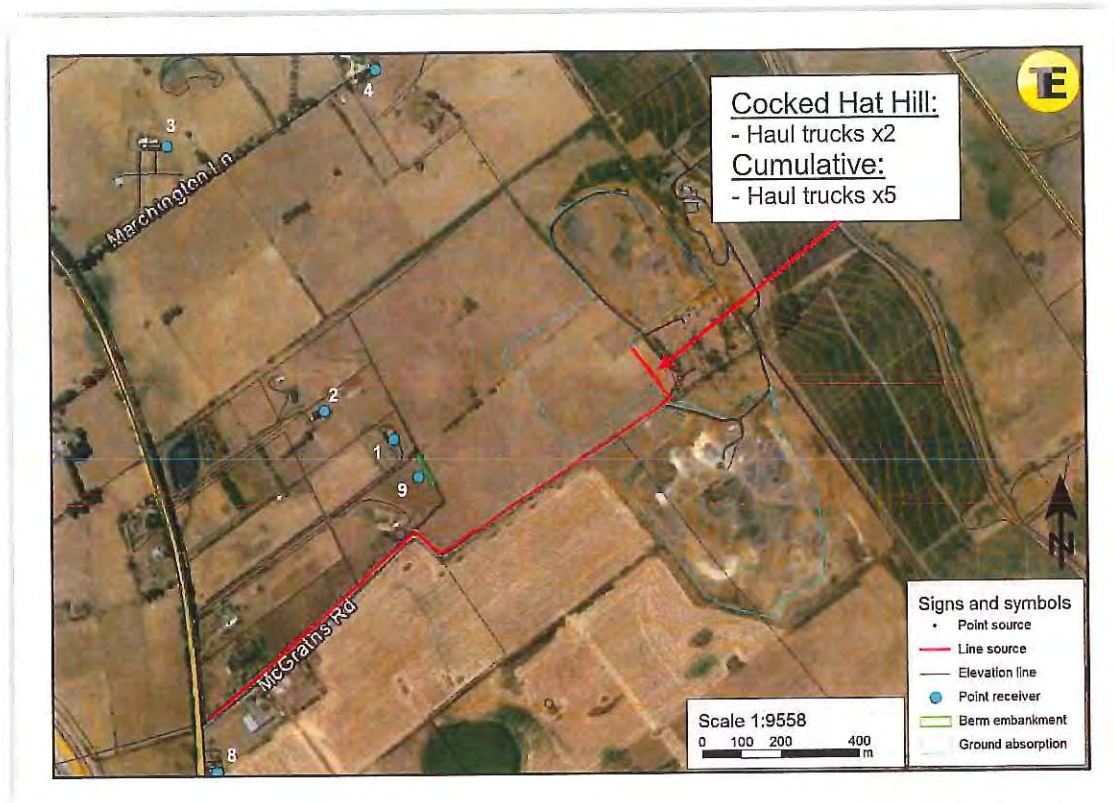


Figure 6 – Model plan view and wire frame model view.





### 3.3.4 Modelling results and discussion

#### 3.3.4.1 Predicted noise emission contours

Using the environmental noise model noise contour maps were generated to assist in the visualisation of noise propagation to the surrounding environment for the following model scenarios:-

- Overburden removal yr 1
- Overburden removal yr 10
- Overburden removal max extent
- Drilling yr 1
- Drilling yr 10
- Drilling max extent
- Quarrying yr 1
- Quarrying yr 10
- Quarrying max extent
- Hauling (Cocked Hat Hill quarry haul trucks).



Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

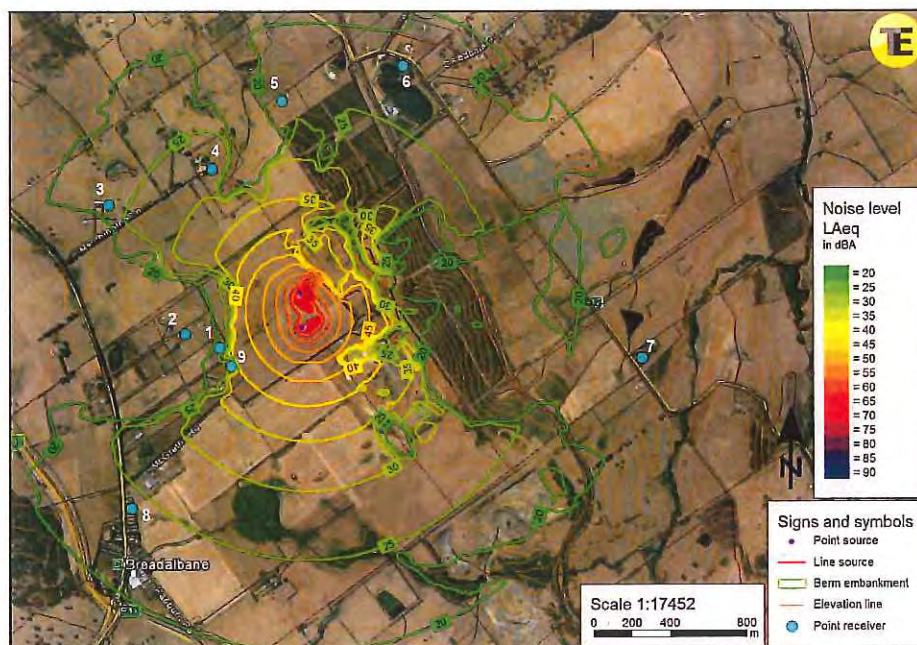


Figure 7 – Predicted noise emission contours, Overburden removal yr 1.





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

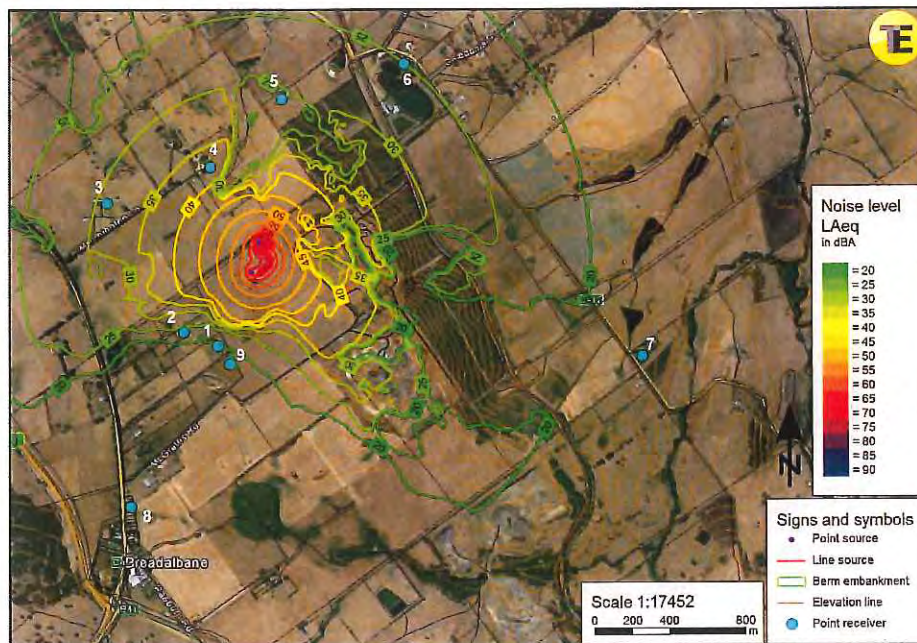


Figure 8 – Predicted noise emission contours, Overburden removal yr 10.



Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

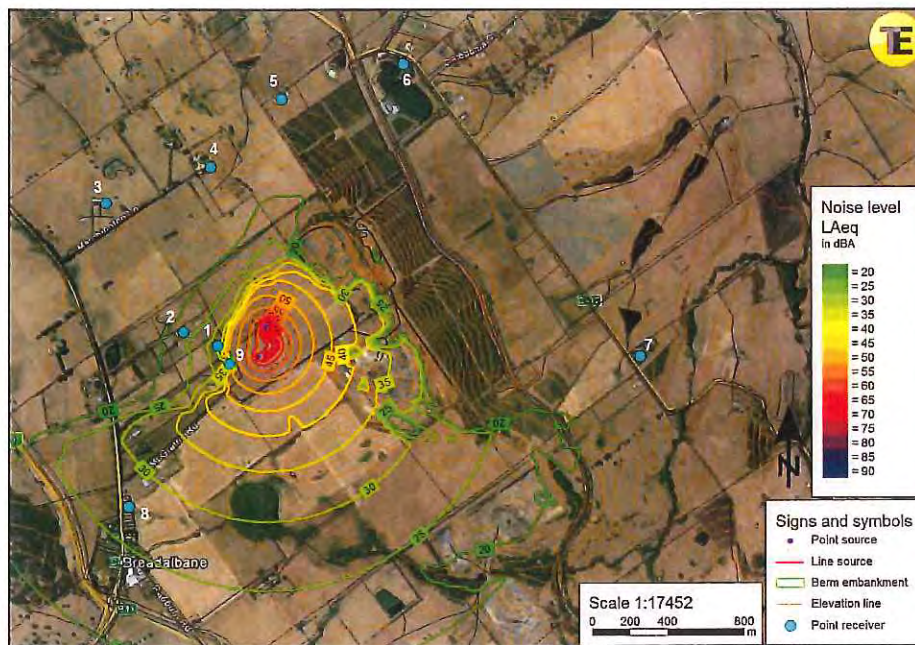


Figure 9 – Predicted noise emission contours, Overburden removal max extent.





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

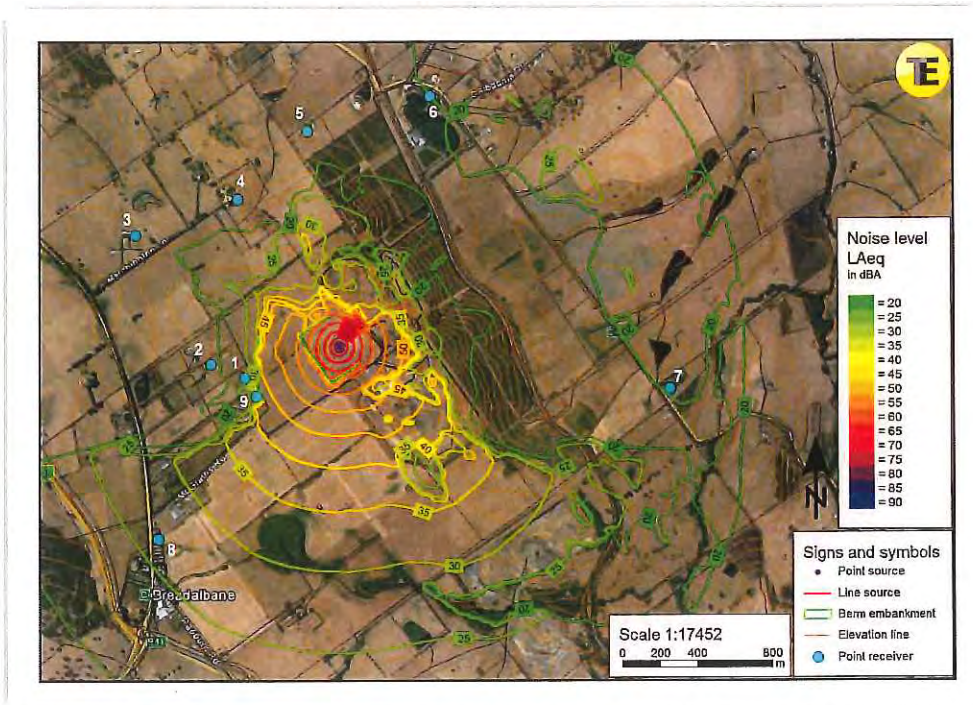


Figure 10 – Predicted noise emission contours Drilling yr 1.



Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

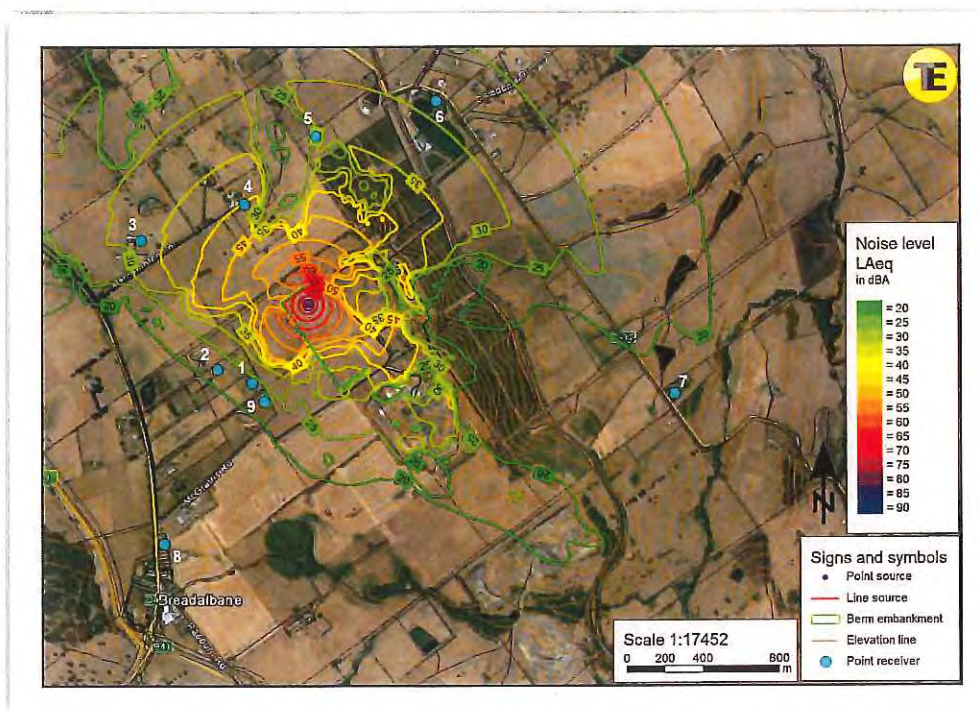


Figure 11 – Predicted noise emission contours, Drilling yr 10.





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

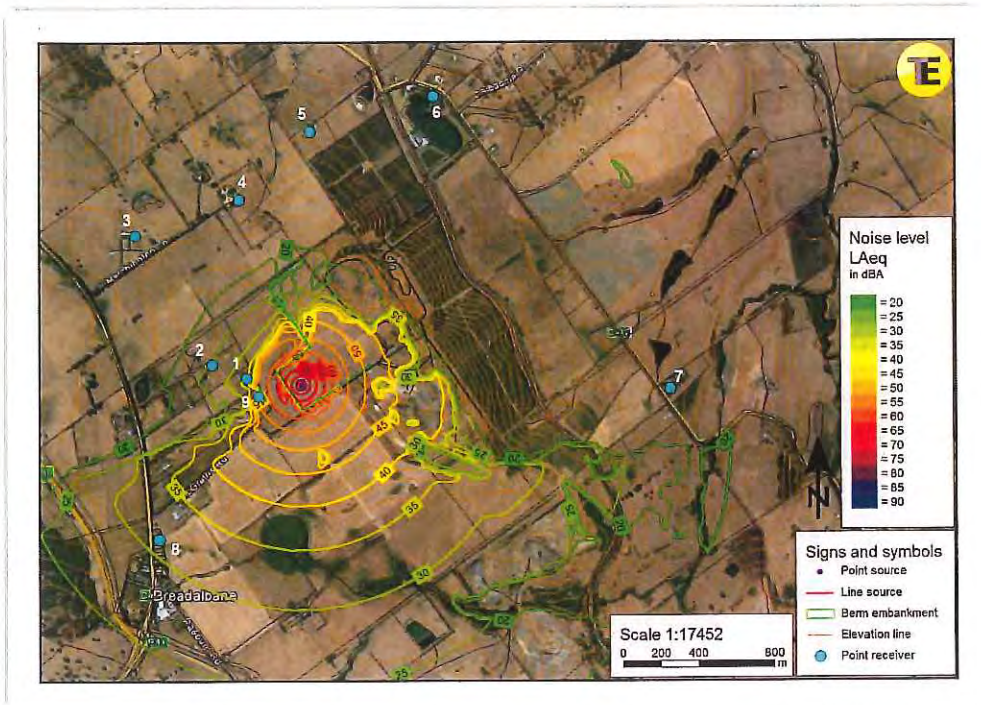


Figure 12 – Predicted noise emission contours, Drilling max extent.



Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

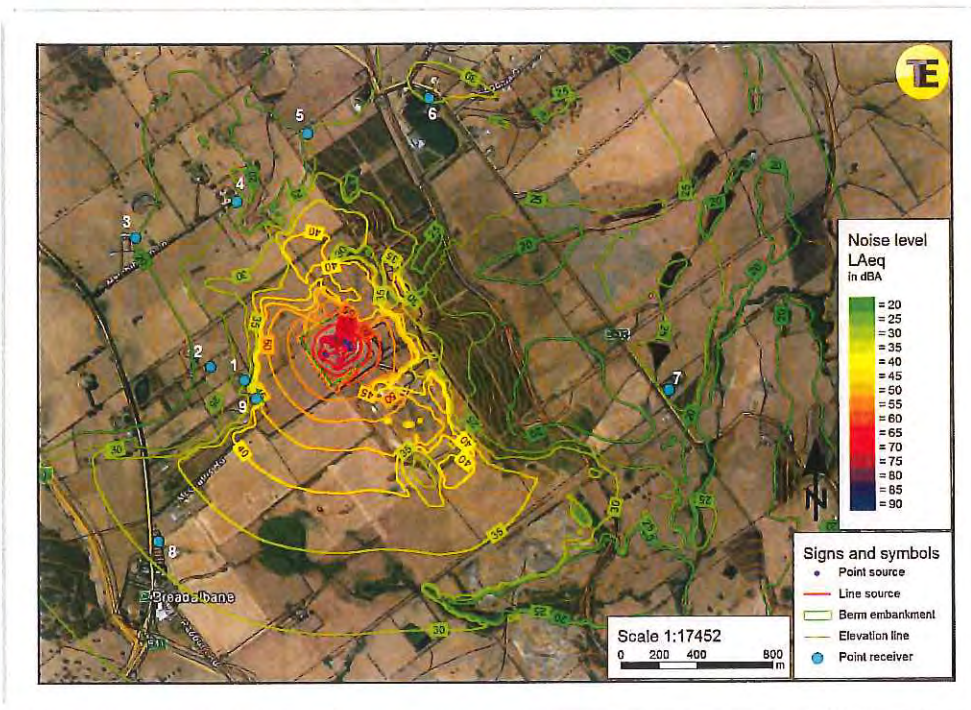


Figure 13 – Predicted noise emission contours, Quarrying yr 1.





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

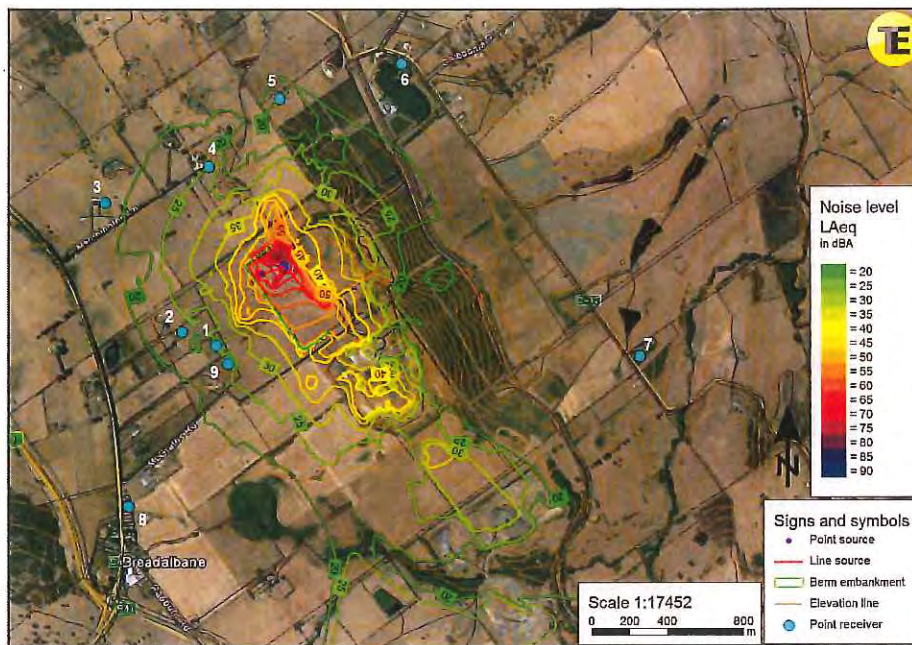


Figure 14 – Predicted noise emission contours, Quarrying yr 10.



Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

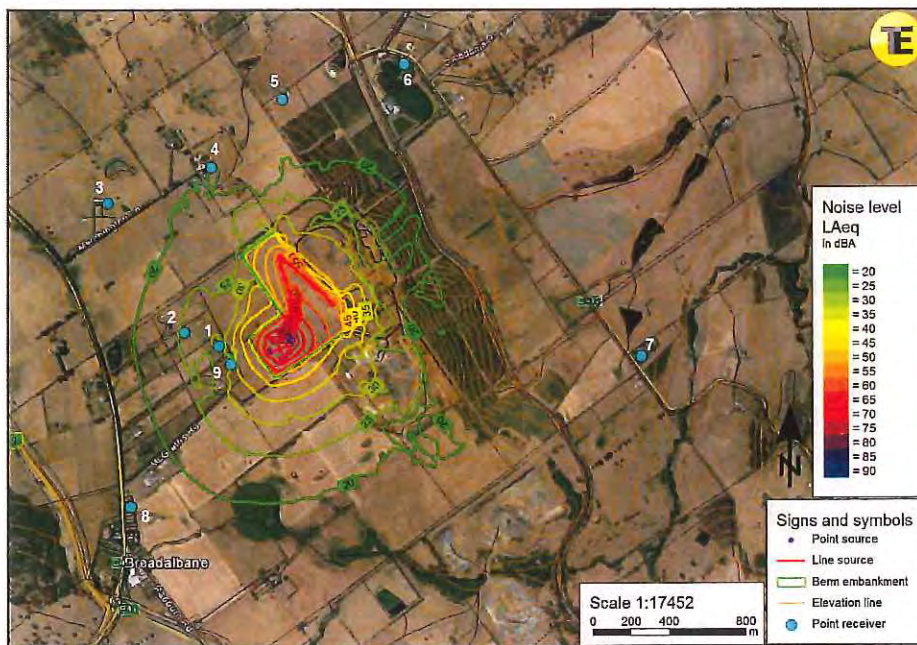


Figure 15 – Predicted noise emission contours, Quarrying max extent.





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise, ground vibration and air blast overpressure assessment.

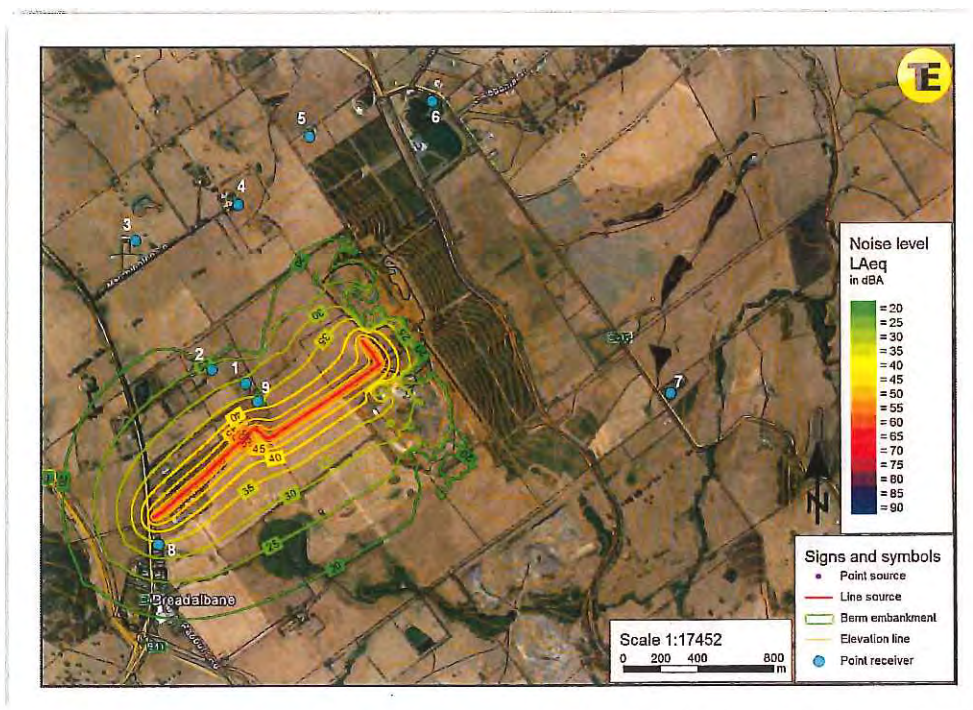


Figure 16 – Predicted noise emission contours, Hauling.



### 3.3.4.2 Predicted noise emission levels

Table 3 presents predicted noise emission levels at the nine receiver locations for each of the nine model scenarios. Where predicted noise levels exceed the relevant noise emission criteria outlined in section 3.2, cells are highlighted. Based on proposed operation times outlined in section 1 overburden removal, drilling and quarrying operations are assessed against the day criteria while hauling is assessed against the evening criteria - hauling activity is proposed to extend into the evening period.

| Predicted noise emission levels (dBA) |                                |       |     |          |       |     |           |       |     |         |
|---------------------------------------|--------------------------------|-------|-----|----------|-------|-----|-----------|-------|-----|---------|
| Receiver                              | Predicted noise emission level |       |     |          |       |     |           |       |     |         |
|                                       | Overburden removal             |       |     | Drilling |       |     | Quarrying |       |     | Hauling |
|                                       | yr 1                           | yr 10 | max | yr 1     | yr 10 | max | yr 1      | yr 10 | max |         |
| 1                                     | 22                             | 20    | 35  | 25       | 24    | 36  | 29        | 25    | 28  | 31      |
| 2                                     | 16                             | 23    | 23  | 19       | 22    | 26  | 22        | 23    | 26  | 26      |
| 3                                     | 24                             | 31    | 8   | 16       | 33    | 10  | 20        | 18    | 15  | 10      |
| 4                                     | 28                             | 38    | 12  | 19       | 40    | 13  | 25        | 25    | 20  | 11      |
| 5                                     | 24                             | 24    | 6   | 17       | 31    | 3   | 25        | 21    | 15  | 8       |
| 6                                     | 22                             | 25    | 8   | 20       | 29    | 7   | 31        | 16    | 12  | 5       |
| 7                                     | 17                             | 17    | 11  | 22       | 18    | 10  | 27        | 9     | 8   | 2       |
| 8                                     | 24                             | 5     | 27  | 26       | 7     | 31  | 31        | 12    | 15  | 34      |
| 9                                     | 27                             | 18    | 38  | 29       | 21    | 40  | 33        | 24    | 30  | 37      |

Exceeds day noise emission criteria. Exceeds evening noise emission criteria.

Table 3 – Predicted noise emission levels.

From the above:-

- Predicted noise levels are all below the relevant noise emission criteria.
- Predicted noise emission levels indicate that noise impact increase for receivers 3, 4, 5 and 6 as the quarry progresses north (yr 10) and increases for receivers 1, 8 and 9 as the quarry progresses west (max extent). For quarry operations, this is negated to some extent with noise impact reducing as quarry depth increases, the result of increased shielding.
- Bunding along the pit edge and along the north-east boundary of the property at 805 Hobart Rd is critical in preventing exceedances of the day noise emission criteria during drilling operations and quarrying during the first year. Bunding along the north-east boundary of the property at 805 Hobart Rd is also critical in preventing exceedances of the day noise emission criteria during overburden removal (yr 1 and max extent).
- Hauling impact is highest for receivers close to the haul road, receivers 1, 8 and 9.

### 3.4 Potential cumulative noise effects

With the Cocked Hat Hill quarry operating adjacent to two existing quarry operations the potential for cumulative noise impacts is considered here from both a quarrying and hauling perspective (all three quarries would utilise the same haul route to access Hobart Rd).





### 3.4.1 Quarrying

Table 4 below present predicted noise emission levels for the Raeburn quarry as presented in the 2010 DPEMP document for the quarry. The predicted levels are for quarrying activity in 20-30 yr stage with levels presented for locations where predicted levels were also generated in this assessment. Predicted levels for the yr 1, yr 10 and max extent operations at the Cocked Hat Hill Quarry are presented along with a summation of levels from the two quarries.

| Potential cumulative noise levels – quarrying (dBA) |                               |                        |       |     |            |       |     |
|-----------------------------------------------------|-------------------------------|------------------------|-------|-----|------------|-------|-----|
| Receiver                                            | Raeburn quarry<br>20 – 30 yrs | Cocked Hat Hill quarry |       |     | Cumulative |       |     |
|                                                     |                               | yr 1                   | yr 10 | max | yr 1       | yr 10 | max |
| 1                                                   | 43                            | 29                     | 25    | 28  | 43         | 43    | 43  |
| 2                                                   | 40                            | 22                     | 23    | 26  | 40         | 40    | 40  |
| 7                                                   | 26                            | 27                     | 9     | 8   | 29         | 26    | 26  |

Table 4 – Predicted quarrying noise levels form Raeburn quarry and Cocked Hat Hill quarry.

From the above:-

- The cumulative effect at the three receiver locations is negligible with the exception of receiver 7 to the east where a 2 dB increase could potentially occur, however, the cumulative impact is below 30 dBA and is highly unlikely to cause environmental nuisance.
- There is some potential for up to a 2 dB increase at some locations (receivers 1, and 9) during overburden removal and drilling operations.

**NB:** Cumulative impact with consideration of McGraths Pit is not possible with predicted and/or measured noise levels at receiver locations from this quarry not available. However, noise impacts from this quarry are likely to be highest to the east given the pit orientation and predicted levels at receivers in this direction from the Cocked Hat Hill quarry are at or below 30 dBA, therefore any cumulative impact is expected to be minimal.

### 3.4.2 Hauling

The hauling environmental noise model scenario for the Cocked Hat Hill quarry was run assuming 5 trucks on the Haul road in a single 10-minute period. This is considered to represent potential truck movements from all three quarries. Predicted results are presented in table 5 below.



| Potential cumulative noise levels – Hauling (dBA) |                         |                    |
|---------------------------------------------------|-------------------------|--------------------|
| Receiver                                          | Cocked Hat Hill Hauling | Cumulative Hauling |
| 1                                                 | 31                      | 35                 |
| 2                                                 | 26                      | 30                 |
| 3                                                 | 10                      | 14                 |
| 4                                                 | 11                      | 15                 |
| 5                                                 | 8                       | 12                 |
| 6                                                 | 5                       | 9                  |
| 7                                                 | 2                       | 6                  |
| 8                                                 | 34                      | 38                 |
| 9                                                 | 37                      | 41                 |

Table 5 – Cumulative predicted noise emission levels from hauling.

From the above:-

- Predicted cumulative noise from hauling by all three quarries results in a 4 dB increase at all receiver locations. The highest level would be at receiver 9, the closest receiver to the haul route.





## 4 Ground vibration and Air blast overpressure

Ground vibration and air blast overpressure predictions are assessed here against the condition provided in the EPN for the adjacent McGraths Pit (EPN No. 8742/3 [r1]). These are in accordance with limits provided in the *Quarry Code of Practice*<sup>[2]</sup>. The condition is provided below for reference.

### B2 Blasting - noise and vibration limits

- 1 Blasting on The Land must be carried out in accordance with blasting best practice environmental management (BPEM) principles, and must be carried out such that, when measured at the curtilage of any residence (or other noise sensitive premises) in other occupation or ownership, airblast overpressure and ground vibration comply with the following:
  - 1.1 for 95% of blasts, airblast overpressure must not exceed 115dB (Lin Peak);
  - 1.2 airblast overpressure must not exceed 120dB (Lin Peak);
  - 1.3 for 95% of blasts ground vibration must not exceed 5mm/sec peak particle velocity; and
  - 1.4 ground vibration must not exceed 10mm/sec peak particle velocity.

Prediction of ground vibration and air blast overpressure was conducted using scaled regression equations developed by the *Office of Surface Mining Reclamation and Enforcement*<sup>[1]</sup> (OSM), a bureau of the United States Department of the Interior.

Predictions are made to residence up to approx. 1 km from the quarry. A typical maximum charge mass/delay of **50 kg** is assumed- this should be sufficient to liberate the type of rock being quarried.

Table 6 below provides the closest distances to receivers from the quarry pit boundary (receiver numbering as per environmental noise assessment) for each stage of the quarry development. Determined from quarry development plans provided in VDC's DA supporting information.

| Minimum distances to receivers (m) |          |     |        |     |        |     |
|------------------------------------|----------|-----|--------|-----|--------|-----|
| Quarry stage                       | Receiver |     |        |     |        |     |
|                                    | 1        | 2   | 3      | 4   | 5      | 9   |
| Yr 1                               | 430      | 540 | > 1000 | 800 | > 1000 | 430 |
| Yr 10                              | 385      | 490 | 850    | 550 | 850    | 400 |
| Max extent                         | 185      | 364 | 780    | 490 | 814    | 176 |

Table 6 – Minimum distances to receivers.

### 4.1 Ground vibration

Prediction of ground vibration was conducted using the following regression equation from OSM with a square root scaled distance:-



$$PPV = k \left( \frac{\sqrt{m}}{D} \right)^a$$

PPV = peak particle velocity (in/s)

k = constant

m = charge mass / delay (lb)

D = distance to receiver (ft)

a = exponent

The constant (k) and exponent (a) used were developed by OSM from quarry production blast data are as follows:-

**Average:** k = 52, a = 1.38

**Upper bound:** k = 138, a = 1.38

The equation above and the constants and exponent are for imperial data and as such all relevant data was first converted to imperial before PPV predictions were made. The subsequent answers were then converted back to metric and are presented in table 5 below.

| Predicted ground vibration (mm/s) PPV for 50 kg charge mass/delay |                     |          |      |        |      |        |       |
|-------------------------------------------------------------------|---------------------|----------|------|--------|------|--------|-------|
| Quarry stage                                                      | Regression constant | Receiver |      |        |      |        |       |
|                                                                   |                     | 1        | 2    | 3      | 4    | 5      | 9     |
| Yr 1                                                              | Average             | 1.53     | 1.11 | < 0.48 | 0.65 | < 0.48 | 1.53  |
|                                                                   | Upper bound         | 4.05     | 2.96 | < 1.26 | 1.72 | < 1.26 | 4.05  |
| Yr 10                                                             | Average             | 1.78     | 1.09 | 0.60   | 1.09 | 0.60   | 1.69  |
|                                                                   | Upper bound         | 4.72     | 2.88 | 1.58   | 2.88 | 1.58   | 4.48  |
| Max extent                                                        | Average             | 4.89     | 1.92 | 0.67   | 1.27 | 0.63   | 5.24  |
|                                                                   | Upper bound         | 12.98    | 5.10 | 1.78   | 3.38 | 1.68   | 13.90 |

exceeds 5 mm/s, exceeds 10 mm/s.

Table 7 – Predicted ground vibration.

From the above:-

- Predicted ground vibration levels are below the 5 mm/s limit at the yr 1 and yr 10 stages of quarry development.
- Predicted levels at the maximum extent using the average OSM regression exceeded 5 mm/s at receiver 9 and at receivers 1,2 and 9 using the upper bound regression. 10 mm/s was also exceeded at receivers 1 and 9 using the upper bound regression.

## 4.2 Air blast overpressure

Air blast overpressure prediction was conducted using the following regression equation from OSM with a cube root scaled distance:-

$$PSI = k \left( \frac{\sqrt[3]{m}}{D} \right)^a$$

PSI = pounds per square inch

k = constant

m = charge mass / delay (lb)

D = distance to receiver (ft)

a = exponent





Subsequent predictions of PSI are converted to dBL via the following equation:-

$$\text{dBL} = 20 \log_{10} \left( \frac{\text{PSI}}{2.9 \times 10^{-9}} \right)$$

These equations are for imperial input data and all relevant data was converted to imperial prior to prediction being made.

The predicted level is calculated from the equations presented above with the OSM constant (k) and exponent (a) for highwall blasting.

$$k=0.162$$

$$a=0.794$$

Table 6 presents the predicted air blast overpressure level with a charge mass/delay of 50 kg.

| Predicted air blast overpressure (dB) for 50 kg charge mass/delay |                     |          |       |       |       |       |       |
|-------------------------------------------------------------------|---------------------|----------|-------|-------|-------|-------|-------|
| Quarry stage                                                      | Regression constant | Receiver |       |       |       |       |       |
|                                                                   |                     | 1        | 2     | 3     | 4     | 5     | 9     |
| Yr 1                                                              | Highwall            | 115.7    | 114.2 | 109.9 | 111.4 | 109.9 | 115.7 |
| Yr 10                                                             | Highwall            | 116.5    | 114.0 | 111.0 | 114.0 | 111.0 | 116.2 |
| Max extent                                                        | Highwall            | 121.5    | 116.9 | 111.6 | 114.8 | 111.3 | 121.9 |

 exceeds 115 dB,  exceeds 120 dB.

Table 8 – Predicted air blast overpressure.

**NB:** The above prediction assumes adequate confinement of the charge mass. Where confinement is not adequate air blast overpressure levels would likely be considerably higher.

From the above:-

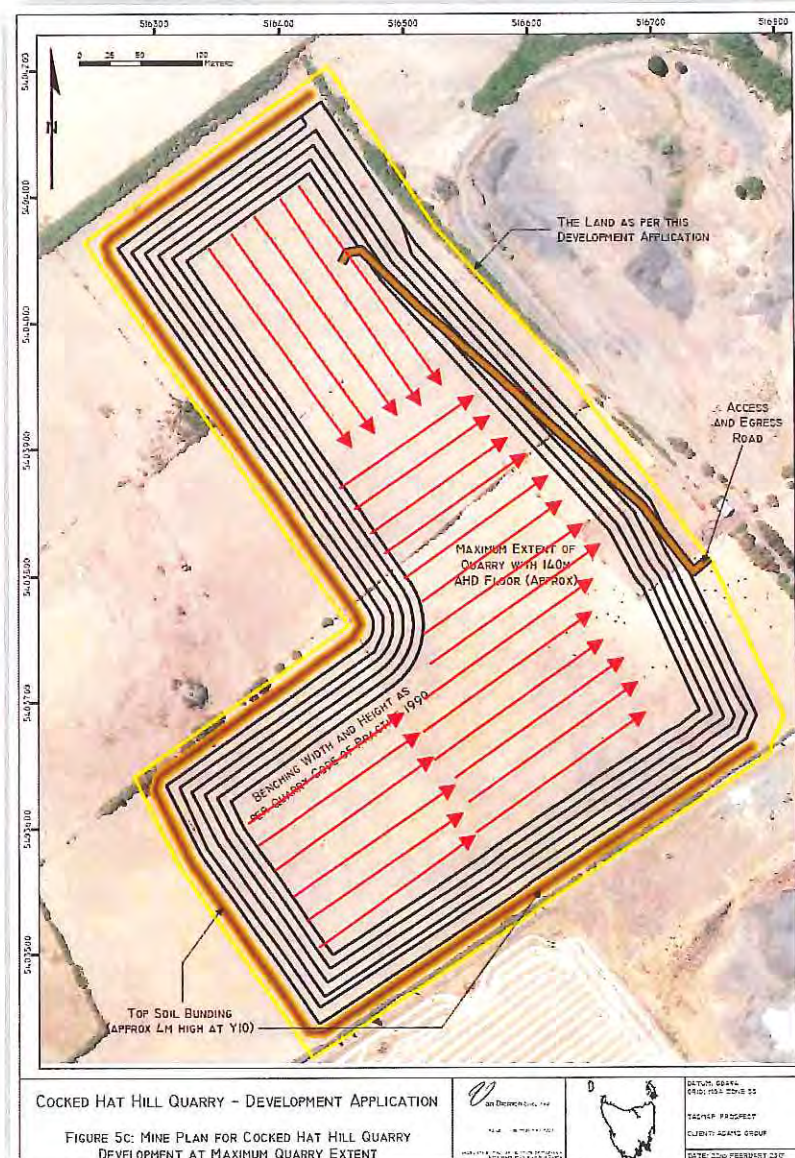
- Predicted air blast overpressure levels exceeded 115 dB at receivers 1 and 9 at all three quarry development stages and at receiver 2 at the maximum extent stage. 120 dB was also exceeded at receivers 1 and 9 at the maximum extent stage of quarry development

### 4.3 Blasting recommendations

Given the predicted exceedances of ground vibration and air blast overpressure criteria presented Tarkarri Engineering provides the following recommendations to minimise the potential ground vibration and air blast overpressure impact from blasting at the proposed Cocked Hat Hill quarry:-

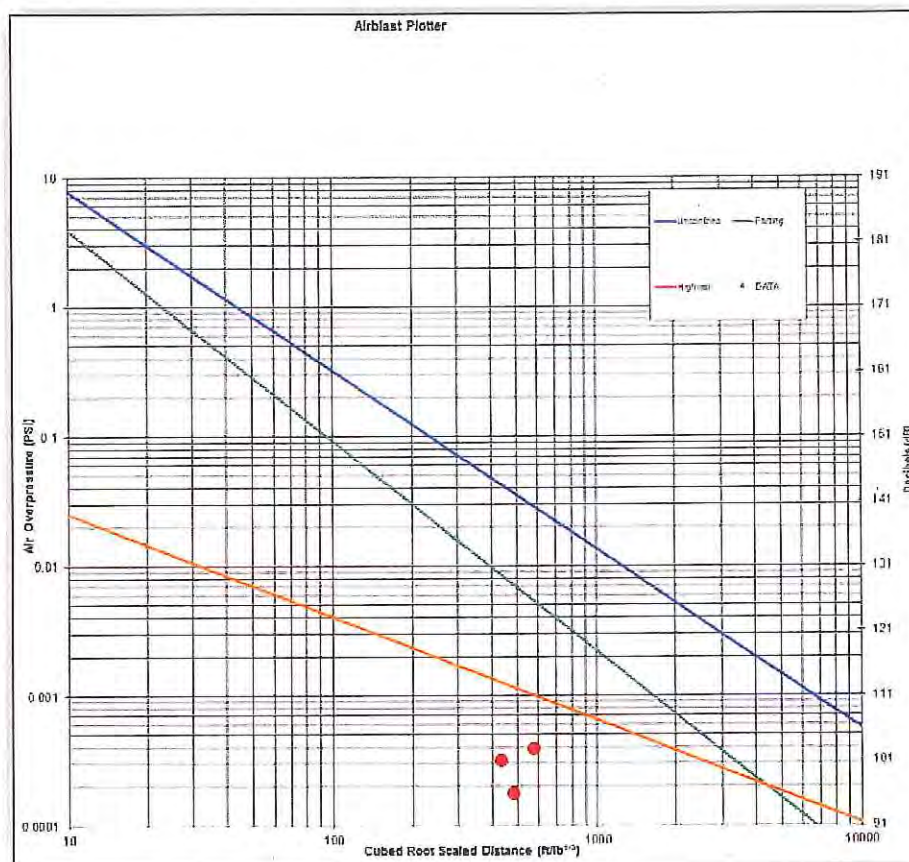
- Utilise a charge mass of 35 kg/delay for initial development blasts.
- Blast design should incorporate a minimum stemming depth of 3 m.
- Increase to 50 kg/delay once highwall blasting is established with blast design to incorporate minimum front row burden of 3 m. Additionally, ensure that blast design allows for the highwall face to be oriented away from critical receiver locations as far as practically possible. This is to take advantage of directivity provided by highwall blasting (over pressure levels can be up to 9 dB lower at a given distance to the rear of a highwall blast as opposed to the same distance from the front) and topographic shielding provided by Cocked Hat Hill. Recommended face orientation across the Cocked Hat Hill quarry pit area is shown below on the maximum quarry extent development plan provided in VDC's DA supporting information.





Results from recent blast monitoring at the adjacent McGraths Pit provide supporting evidence for the above recommendation. Results are plotted below against OSM air blast overpressure regression lines. The results show levels significantly below the OSM Highwall regression line indicating that it's likely that a combination of charge mass confinement, topographic shielding and directivity provided significant attenuation.





- Develop site-specific scaled regressions for the site via spatially varied monitoring of blasting.
- For south-west extent, out to the maximum extent of the quarry, adjust charge mass/delay levels in accordance with results from site-specific scaled regressions once within 400 m of receiver locations (receivers 1 and 9).



## 5 Conclusions

- Tarkarri Engineering was commissioned to undertake an environmental noise, ground vibration and air blast overpressure assessment of operations of a proposed quarry at Cocked Hat Hill, Breadalbane, as part of a DPEMP.
- Conservative noise emission criteria were adopted based on ambient noise data and current EPN noise emission limits applicable to the adjacent McGraths Pit quarry operation, the criteria are as follows:-
  - $L_{Aeq,10min}$  **46 dBA**: Day (0700 to 1800 hrs).
  - $L_{Aeq,10min}$  **40 dBA**: Evening (1800 to 1900 hrs).
- Predicted noise emission levels from operations within the quarry boundary and haulage activity between Hobart Rd and the quarry were below the project noise emission criteria.
- Bunding along the pit edge and north-east boundary of the property at 805 Hobart is critical in providing shielding from noise emissions generated on the mine lease at Cocked Hat Hill, particularly during early development phases.
- Predicted ground vibration and air blast overpressure levels exceed human comfort criteria at critical receiver locations. Recommendations are provided to minimise the potential for nuisance to be generated by blasting with a focus on blast design and orientation, and development of site specific scaled regressions to improve the prediction of ground vibration and air blast overpressure.



Attachment 8 Unanticipated Discovery Plan – Aboriginal Heritage Tasmania

# Unanticipated Discovery Plan<sup>1-382</sup>

## For proponents and consultants dealing with Aboriginal Heritage in Tasmania

This paper provides a Plan that should be followed when dealing with unanticipated discoveries of Aboriginal Cultural Heritage such as sites and objects. The plan provides guidance to project personnel so that they may meet their obligations with respect to Aboriginal heritage in accordance with the *Aboriginal Relics Act 1975* and the *Coroners Act 1995*.

The Unanticipated Discovery Plan is in two sections. The first section primarily explains mitigation strategies that should be employed when any Aboriginal Cultural Heritage sites or items are discovered excluding skeletal remains (burials), while the second process deals specifically with skeletal remains (burials).

### Discovery of Cultural Heritage Items

- Step 1: Any person who believes they have uncovered Aboriginal Cultural Heritage material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.
- Step 2: A temporary 'no-go' or buffer zone of at least 10m x 10m should be implemented to protect the suspected Aboriginal Cultural Heritage site or relics. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected Aboriginal Cultural Heritage relics have been assessed by a recognised Aboriginal Heritage Practitioner.
- Step 3: Aboriginal Heritage Tasmania (AHT) in Hobart (ph 6165 3152) needs to be notified and consulted as soon as possible and informed of the discovery. AHT will then provide further advice in accordance with the *Aboriginal Relics Act 1975*.

### Discovery of Skeletal Material

- Step 1: Call the Police immediately. Under no circumstances should the suspected skeletal remains be touched or disturbed. The area must now be considered a crime scene. It is a criminal offence to interfere with a crime scene.
- Step 2: Any person who believes they have uncovered skeletal material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.
- Step 3: A temporary 'no-go' or buffer zone of at least 50m x 50m should be implemented to protect the suspected skeletal remains. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected skeletal remains have been assessed by the Police and or Coroner.
- Step 4: Should the skeletal remains be determined to be of Aboriginal origin, the Coroner will contact an Aboriginal organisation approved by the Attorney-General, as per the *Coroners Act 1995*.





## Unanticipated Discovery Plan

### **Guide to the most common sites types in Tasmania.**

#### Stone Artefact Scatters

A stone artefact is any stone or rock which has been modified by Aboriginal people. Often this is the result of fracturing or 'flaking' fine grained rocks to produce sharp cutting or scraping implements. The most common stone types utilised by Tasmanian Aboriginal people are silcrete and chert, on account of their availability and excellent tool making properties. However we also find hornfels, chalcedony, spongelite, quartzite and other stone types where locally available.

In Tasmania, stone artefacts are typically recorded as being 'isolated' (i.e. only one) or in a 'scatter' (i.e. two or more within a 50m radius). Stone artefacts are found all over Tasmania, in all landscapes and situations, and are the most basic indicator of Aboriginal occupation.

#### Shell Middens

Middens are occupational deposits created through an accumulation of debris from human activity. Midden sites can range in size from large mounds to small scatters of shell. The most common shellfish species found in middens in Tasmania are abalone, oyster, mussel, warrener and limpet, however they can also contain other debris such as animal bone, charcoal from campfires and discarded tools made from stone, shell or bone. These sites are usually found near waterways and coastal areas.

#### Rockshelters

Caves and rock overhangs which bear signs of human activity are, for the purpose of the Aboriginal Heritage Register (AHR), collectively called occupied rock shelters. Aboriginal people utilised these places for shelter, ceremony and other cultural practices, leaving behind occupational deposits such as middens and hearths, tools, or in some cases, rock markings. Rock shelters are usually found where the geology is conducive to the formation of caves and rock overhangs.

#### Quarries or Stone Procurement Sites

A quarry is a place where material has been extracted from a natural outcrop by Aboriginal people. The two types of quarry recorded on the AHR are stone and ochre; each typically being located wherever suitable ochre for painting and decoration, or stone for tool-making appear. Quarries can be recognised by evidence of human manipulation, and by the debris left behind from processing the material. Quarries can be extensive or discrete, depending on the size and quality of the outcrop, and how often it was utilised and visited.

#### Rock Marking

Rock marking is the term used in Tasmania to define markings on rocks, which are the result of Aboriginal practices. Rock markings come in two forms; engraving and painting. Engravings are made by removing the surface of a rock through pecking, abrading or grinding, whilst paintings are made by adding pigment or ochre to the surface of a rock.

#### Burials

Burial sites are highly sensitive places. They can occur anywhere, and have previously been recorded in sand dunes, shell middens and rock shelters.

Attachment 9    Technical memo – Proposed dwelling at 805 Hobart Road Breadalbane





## Technical Memo

7 May 2017

Van Diemen Consulting Pty Ltd  
PO Box 1  
New Town, TAS 7008

5014a\_AC\_R\_R1  
AJM

Attn: Dr Richard Barnes

Dear Sir,

RE: Cocked Hat Hill quarry environmental noise model contours.

Please find preliminary noise emission contours from selected model scenarios for the Cocked Hat Hill quarry environmental noise assessment.

### 1. INTRODUCTION

Tarkarri Engineering was commissioned by Van Diemen Consulting on behalf of the Mt Oriel quarry to conduct an environmental noise assessment for a proposed new quarry at Cocked Hat Hill.

Provided here are a set of preliminary noise emission contours from an environmental noise model of quarry operations. The contours are from selected model scenarios where noise emission impact is highest at receiver 9 (proposed residence at 805 Hobart Rd).

**NB:** All model scenarios include a 3 m high earth bund along the north-east boundary of the property at 805 Hobart Rd. The bund extends from the northern corner of the property to approx. 35 m past the south-eastern corner of the residential building, resulting a total bund length of approx. 85 m

Noise contours from the following scenarios are presented in figures 1 – 4 with predicted sound pressure levels at receiver 9 presented in table 1:-

- Overburden removal for the maximum western extent of the quarry.
- Drilling (for blasting purposes) for the maximum western extent of the quarry.
- Quarry operations at year 1
- Quarry operations at the maximum western extent of the quarry

The results show noise levels less than  $L_{Aeq}$  45 dBA at receiver 9. The earth berm along the north-east boundary of the property at 805 Hobart Rd is required prevent noise levels exceeding 45 dBA under the following model scenarios:-

- Overburden removal for the maximum western extent of the quarry.
- Drilling (for blasting purposes) for the maximum western extent of the quarry.
- Quarry operations at year 1





Van Diemen Consulting – Mt Oriel quarry environmental noise model contours.

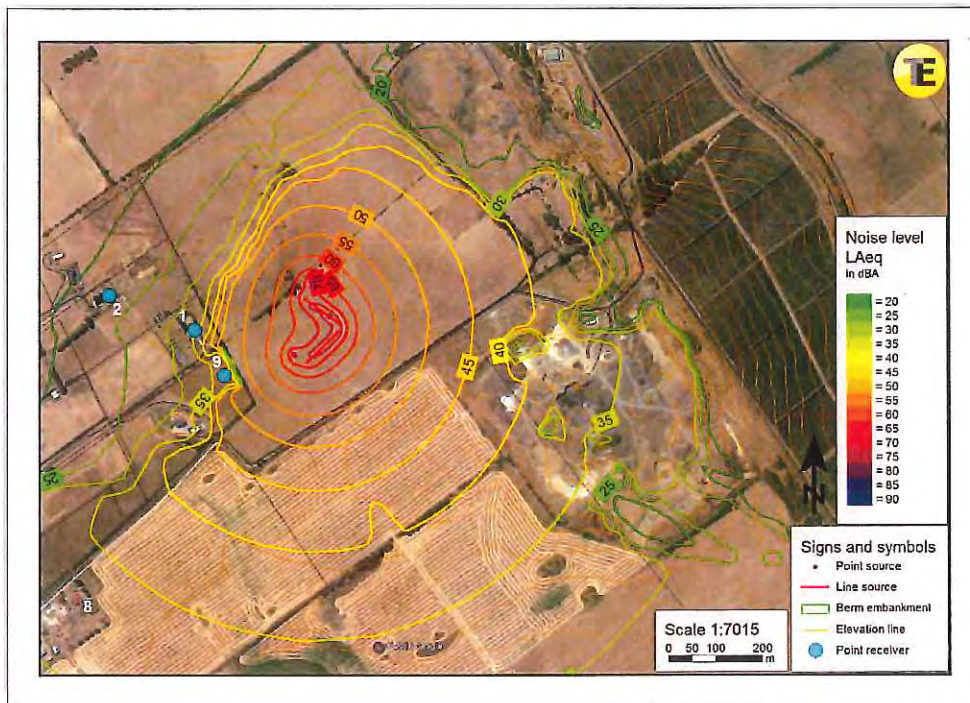


Figure 1 – Predicted noise emission contours, **Overburden removal, max extent.**





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise model contours.

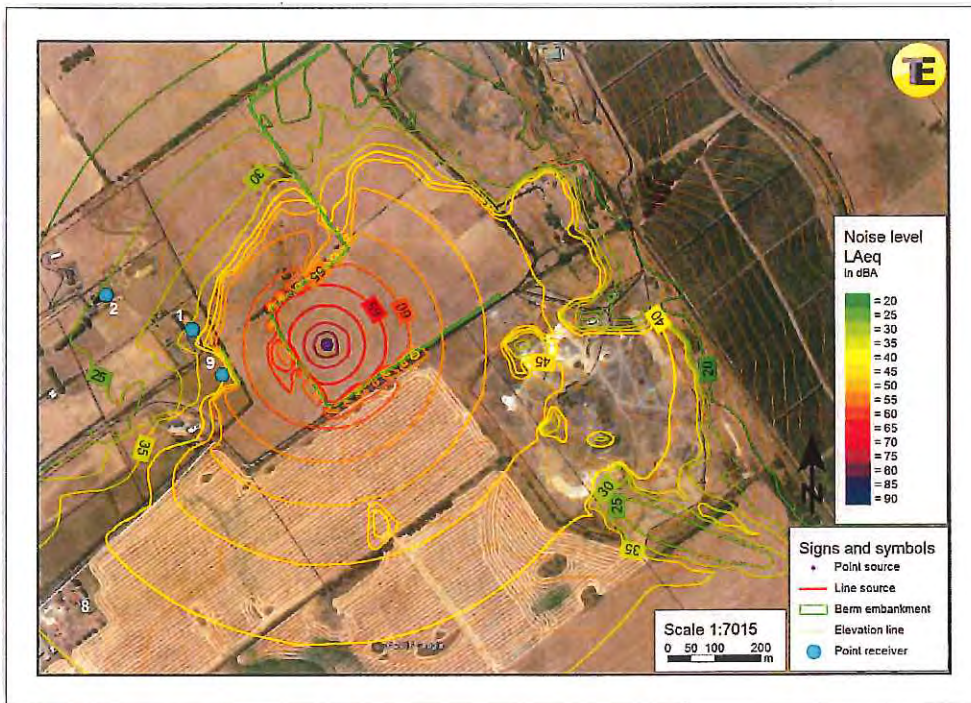


Figure 2 – Predicted noise emission contours, **Drilling, max extent.**



Van Diemen Consulting – Cocked Hat Hill quarry environmental noise model contours.

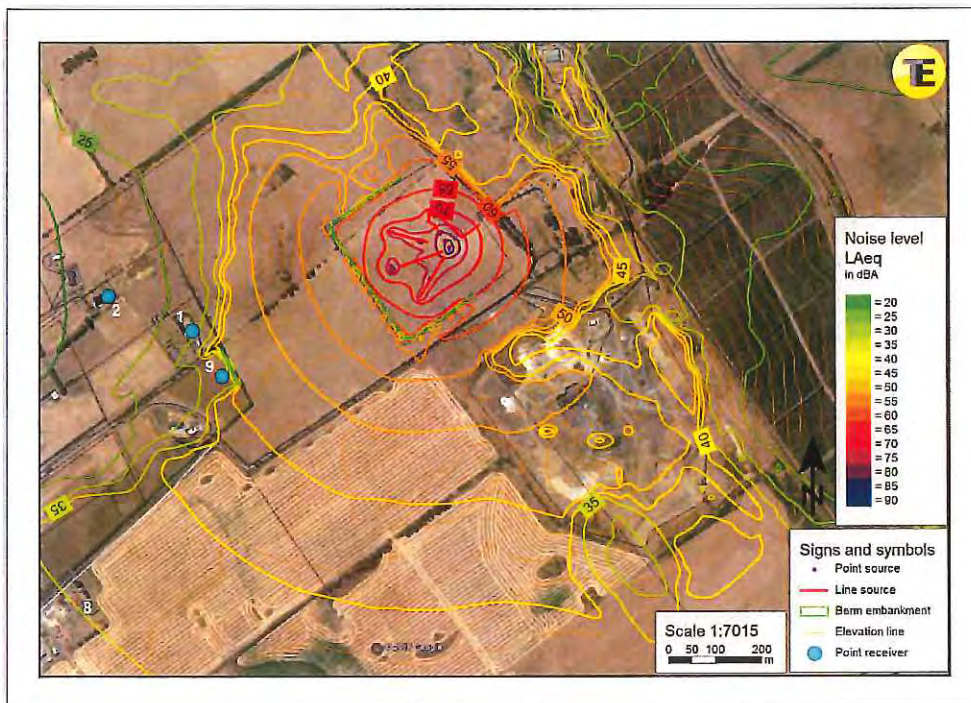


Figure 3 – Predicted noise emission contours, **Quarry operation, year 1.**





Van Diemen Consulting – Cocked Hat Hill quarry environmental noise model contours.

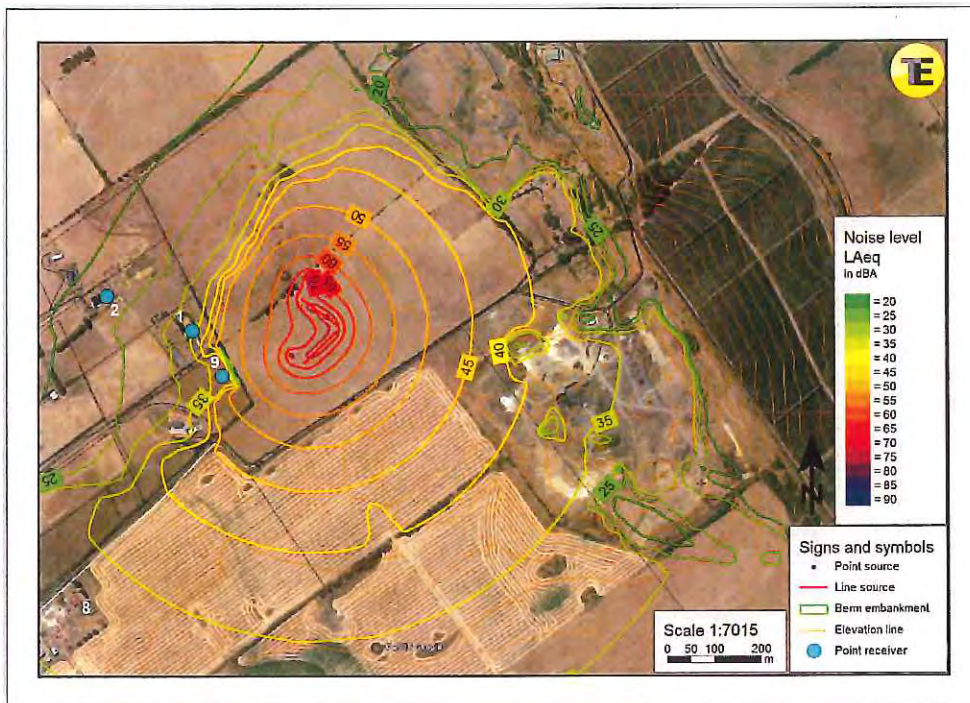


Figure 4 – Predicted noise emission contours, **Quarry operation, max extent.**



| Predicted noise emission levels (dBA) |                           |              |           |     |
|---------------------------------------|---------------------------|--------------|-----------|-----|
| Receiver                              | Overburden removal<br>max | Drilling max | Quarrying |     |
|                                       |                           |              | yr 1      | max |
| 9                                     | 38                        | 40           | 33        | 30  |

Table 1 – Predicted noise emission levels at receiver 9.

I hope this information meets your immediate requirements.

Please contact me directly if you have any questions concerning this work.

Yours faithfully,  
**Tarkarri Engineering Pty Ltd**

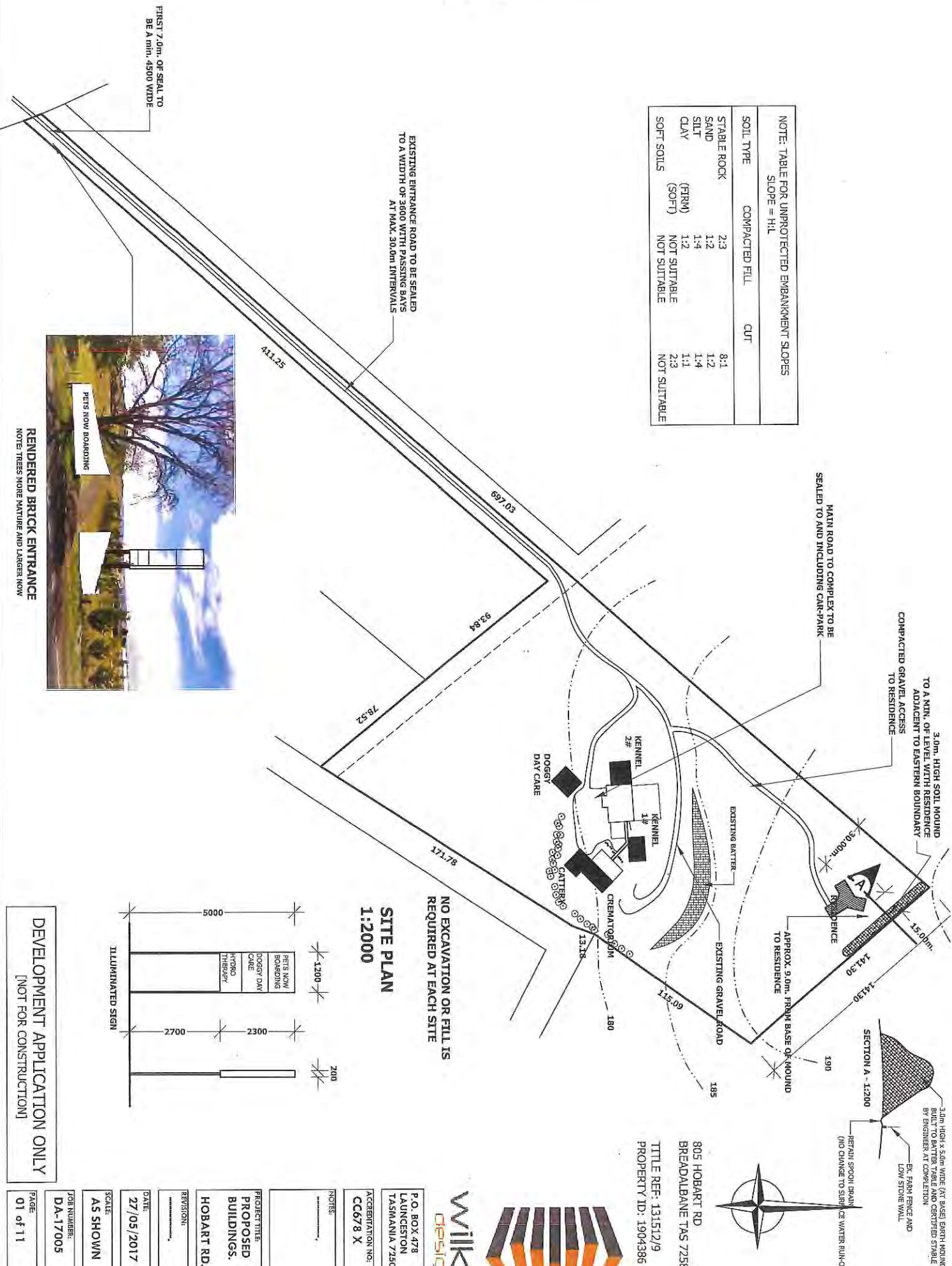
**Dr. Alex McLeod**  
*Principal Consultant*

p. +61 3 6343 2077  
m. +61(0)439 357 297  
email: [alex.mcleod@tarkarri.com](mailto:alex.mcleod@tarkarri.com)



Attachment 10 House location for 805 Hobart Road, Breadalbane

| NOTE: TABLE FOR UNPROTECTED EMBANKMENT SLOPES<br>SLOPE = H:1 |                |              |  |
|--------------------------------------------------------------|----------------|--------------|--|
| SOIL TYPE                                                    | COMPACTED FILL | CUT          |  |
| STABLE ROCK                                                  | 2:3            | 8:1          |  |
| SAND                                                         | 1:2            | 1:2          |  |
| SILT                                                         | 1:4            | 1:4          |  |
| CLAY (FIRM)                                                  | 1:2            | 1:1          |  |
| CLAY (SOFT)                                                  | NOT SUITABLE   | 2:3          |  |
| SOFT SOILS                                                   | NOT SUITABLE   | NOT SUITABLE |  |



DEVELOPMENT APPLICATION ONLY  
[NOT FOR CONSTRUCTION]

PAGE: 01 of 11

DATE: 27/05/2017  
SCALE: AS SHOWN  
JOB NUMBER: DA-17005

REVISION:  
PROJECT TITLE:  
PROPOSED BUILDINGS:  
HOBBART RD.

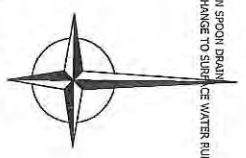
NOTES:  
P.O. BOX 478  
LAUNCESTON  
TASMANIA 7250  
ACCREDITATION NO:  
CC678 X

NO EXCAVATION OR FILL IS  
REQUIRED AT EACH SITE  
SITE PLAN  
1:2000

5000  
1200  
2700  
2300  
200  
ILLUMINATED SIGN

3.0m HIGH x 3.0m WIDE (AT BASE) EARTH MOUND  
BY ENGINEER AT COMPLETION  
EX. FARM FENCE AND  
LOW STONE WALL  
RETAINS SPOON BEAM  
(NO CHANGE TO SURFACE WATER RUN-OFF)

805 HOBART RD  
BREADALBAINE TAS 7258  
TITLE REF: 131512/9  
PROPERTY ID: 1904386



SECTION A - 1:200

APPROX. 9.0m. FROM BASE OF MOUND  
TO RESIDENCE

EXISTING GRAVEL ROAD

EXISTING BATTER

EXISTING GRAVEL ACCESS  
TO RESIDENCE

3.0m. HIGH SOIL MOUND  
TO A MIN. OF LEVEL WITH RESIDENCE  
ADJACENT TO EASTERN BOUNDARY

MAIN ROAD TO COMPLEX TO BE  
SEALED TO AND INCLUDING CAR-PARK

EXISTING ENTRANCE ROAD TO BE SEALED  
TO A WIDTH OF 3600 WITH PASSING BAYS  
AT MAX. 30.0m INTERVALS

FIRST 7.0m. OF SEAL TO  
BE A MIN. 4500 WIDE

RENDERED BRICK ENTRANCE  
NOTE: TREES MORE MATURE AND LARGER NOW

PEIS NOW BOARDING

411.25  
697.03  
93.84  
78.52  
171.78  
13.18  
180  
115.09  
185  
141.30  
141.30  
150m  
15.0m  
30.00m  
150m

A3



Van Diemen Consulting Pty Ltd

PO Box 1

New Town, Tasmania

T: 0438 588 695 E: [rwbarnes73@gmail.com](mailto:rwbarnes73@gmail.com)

This document has been prepared in accordance with the scope of services agreed upon between Van Diemen Consulting (VDC) and the Client.

To the best of VDC's knowledge, the report presented herein represents the Client's intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

No responsibility is accepted for use of any part of this document in any other context or for any other purpose by third parties.

This document does not purport to provide legal advice. Readers should engage professional legal advisers for this purpose.

#### Document Status

| Revision | Author             | Reviewer and Organisation                               | Date      |
|----------|--------------------|---------------------------------------------------------|-----------|
| 1        | R Barnes C McCoull | R Barnes                                                | 30-5-2017 |
| 1        | R Barnes C McCoull | G Adams, The Adams Group (Mt Oriel Breadalbane Pty Ltd) | 01-6-2017 |
| 1        | R Barnes C McCoull | EPA (Damien Blackwell)                                  | 1-7-2017  |
| 2        | R Barnes C McCoull | R Barnes & C McCoull                                    | 15-7-2017 |
| 2        | R Barnes C McCoull | G Adams, The Adams Group (Mt Oriel                      | 18-7-2017 |
| 2        | R Barnes C McCoull | EPA (Damien Blackwell)                                  | 20-7-2017 |
|          |                    |                                                         |           |
|          |                    |                                                         |           |

---

**PERMIT PART B**  
**PERMIT CONDITIONS - ENVIRONMENTAL No. 9656**

---

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity:        **The operation of a quarry (ACTIVITY TYPE: Crushing, grinding, milling or separating into different sizes (rocks, ores or minerals))**  
                     **COCKED HAT HILL QUARRY, MT ORIEL**  
                     **BREADALBANE TAS 7258**

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

Acting under Section 25(5)(a)(i) of the EMPCA, the Board of the Environment Protection Authority has required that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality:                **NORTHERN MIDLANDS**  
Permit Application Reference: **P16-311**  
EPA file reference:        **250835**

Date conditions approved:

07 NOV 2017

Signed:

  
\_\_\_\_\_  
WARREN JONES  
CHAIRPERSON, BOARD OF THE ENVIRONMENT  
PROTECTION AUTHORITY



### DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

### ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

### INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.



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#### *Attachments*

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| Attachment 2: Table of Commitments (modified: 12/10/2017 16:39)..... | 2 pages |

**Schedule 1: Definitions**

In this Permit Part B:-

**Aboriginal Relic** has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

**Activity** means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

**Authorized Officer** means an authorized officer under section 20 of EMPCA.

**Best Practice Environmental Management** or 'BPEM' has the meaning described in Section 4 of EMPCA.

**Blast Management Plan** means the plan titled *Cocked Hat Hill quarry, Breadalbane - Blast Management Plan*, dated 19 December 2016, included as Attachment 4 to the document titled *Cocked Hat Hill quarry, Breadalbane - Development Proposal and Environmental Management Plan*, dated 20 July 2017, or any subsequent amendments of that plan approved in writing by the Director.

**Control Location (Noise)** means a location chosen to represent the general ambient sound without contribution from noise sources at the activity.

**Director** means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf.

**DRP** means Decommissioning and Rehabilitation Plan.

**EMPCA** means the *Environmental Management and Pollution Control Act 1994*.

**Environmental Harm** and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

**Environmental Nuisance** and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

**Environmentally Hazardous Material** means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

**Noise Sensitive Premises** means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

**Person Responsible** is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

**Quarry Code Of Practice** means the document of this title published by the Environment Protection Authority in May 2017, and includes any subsequent versions of this document.

**Stormwater** means water traversing the surface of the land as a result of rainfall.



**Surface soil stockpiles** includes, but is not limited to, earthen embankments and berms.

**Tasmanian Noise Measurement Procedures Manual** means the document titled *Noise Measurement Procedures Manual*, by the Department of Environment, Parks, Heritage and the Arts, dated July 2008, and any amendment to or substitution of this document.

**The Land** means the land on which the activity as defined by the application to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

- 1 CT 144549/1 (which includes the western portion of mining lease 1958P/M) and land within CTs 166270/1 and 166271/1 marked 'easement road with benefiting easement as per folio text for CT 144549/1' shown in Attachment 1; and
- 2 as further delineated at Attachment 1.

**Washdown Guidelines** means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document.

**Works** has the meaning ascribed to it in Part 1(3) of the *Land Use Planning and Approvals Act 1993*.

**Schedule 2: Conditions****Maximum Quantities****Q1 Regulatory limits**

- 1 The activity must not exceed the following limits :
  - 1.1 200,000 cubic metres per year of rocks, ores or minerals processed.

**General****G1 Access to and awareness of conditions and associated documents**

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

**G2 Incident response**

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

**G3 No changes without approval**

- 1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:
  - 1.1 a change to a process used in the course of carrying out the activity; or
  - 1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
  - 1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

**G4 Change of ownership**

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

**G5 Complaints register**

- 1 A public complaints register must be maintained and made available for inspection by an Authorized Officer upon request. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
  - 1.1 the date and time at which the complaint was received;
  - 1.2 contact details for the complainant (where provided);
  - 1.3 the subject-matter of the complaint;



- 1.4 any investigations undertaken with regard to the complaint; and
  - 1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.
- 2 Complaint records must be maintained for a period of at least 3 years.

### **Atmospheric**

#### **A1 Covering of vehicles**

Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land or travel on public roads. Effective control measures may include tarpaulins or load dampening.

#### **A2 Control of dust emissions**

Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land.

#### **A3 Control of dust emissions from plant**

- 1 Dust produced by the operation of all crushing and screening plant must be controlled by the use of one or more of the following methods to the extent necessary to prevent environmental nuisance:
  - 1.1 the installation of fixed water sprays at all fixed crushers and at all points where crushed material changes direction due to belt transfer;
  - 1.2 the installation of dust extraction equipment at all fixed crushers and at all points where crushed material changes direction due to belt transfer, and the incorporation of such equipment with all vibrating screens;
  - 1.3 the enclosure of the crushing and screening plant and the treatment of atmospheric emissions by dust extraction equipment; and
  - 1.4 any other method that has been approved in writing by the Director.

### **Blasting**

#### **B1 Blasting times**

Blasting on The Land must take place only between the hours of 1000 hours and 1600 hours Monday to Friday. Blasting must not take place on Saturdays, Sundays or public holidays unless prior written approval of the Director has been obtained.

#### **B2 Blasting - noise and vibration limits**

- 1 Blasting on The Land must be carried out in accordance with blasting best practice environmental management (BPEM) principles, and must be carried out such that, when measured at the curtilage of any residence (or other noise sensitive premises) in other occupation or ownership, airblast overpressure and ground vibration comply with the following:
  - 1.1 for 95% of blasts, airblast overpressure must not exceed 115dB (Lin Peak);
  - 1.2 airblast overpressure must not exceed 120dB (Lin Peak);
  - 1.3 for 95% of blasts ground vibration must not exceed 5mm/sec peak particle velocity; and
  - 1.4 ground vibration must not exceed 10mm/sec peak particle velocity.



- 2 All measurements of airblast overpressure and peak particle velocity must be carried out in accordance with the methods set down in *Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration*, Australian and New Zealand Environment Council, September 1990.

### **B3 Notification of blasting**

All residents within a 1 km radius of the activity must be notified on each occasion prior to blasting on The Land. This notification must be given at least 24 hours before such blasting is due to occur. In the event that the blast(s) cannot take place at the time specified, the responsible person must advise all those residents within 1 km of the activity of the revised time at which blasting will take place.

### **B4 Blast Management Plan**

Unless otherwise approved in writing by the Director, blasting must be carried out in accordance with the Blast Management Plan.

### **B5 Blast monitoring**

- 1 Unless otherwise approved in writing by the Director, blast monitoring must be undertaken for each blast that occurs on The Land.
- 2 Blast monitoring must be carried out at location(s) agreed in writing by the Director.
- 3 In the event that ground vibration and/or airblast overpressure caused by a blast exceeds a limit imposed by these conditions, the Director must be notified within seven days of the blast, or as soon as is reasonable and practicable.
- 4 Blast monitoring records must be maintained for a period of at least two years and must be made available to an authorized officer upon request.

## **Decommissioning And Rehabilitation**

### **DC1 Notification of cessation**

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

### **DC2 Stockpiling of surface soil and overburden**

Prior to commencement of extractive activities on any portion of The Land, surface soils must be removed in that portion of The Land to be disturbed by the conduct of the activity and stored as surface soil stockpiles for later use in rehabilitation of The Land. Topsoil must be kept separate from other overburden and protected from erosion or other disturbance.

### **DC3 Progressive rehabilitation**

Worked out or disused sections of The Land must be rehabilitated concurrently with extractive activities on other sections of The Land. Progressive rehabilitation must be carried out in accordance with the relevant provisions of the *Quarry Code of Practice*, unless otherwise approved in writing by the Director. The maximum disturbed area of land which may remain, at any time, without rehabilitation is nine hectares.

### **DC4 Temporary suspension of activity**

- 1 Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.
- 2 During temporary suspension of the activity:



- 2.1 The Land must be managed and monitored by the person responsible for the activity to ensure that emissions from The Land do not cause serious environmental harm, material environmental harm or environmental nuisance; and
- 2.2 If required by the Director a Care and Maintenance Plan for the activity must be submitted, by a date specified in writing by the Director, for approval. The person responsible must implement the approved Care and Maintenance Plan, as may be amended from time to time with written approval of the Director.
- 3 Unless otherwise approved in writing by the Director, if the activity on The Land has substantially ceased for 2 years or more, rehabilitation of The Land must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

#### **DC5   DRP Requirements**

Unless otherwise approved in writing by the Director, a draft Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 60 days of the Director being notified of the planned cessation of the activity or by a date specified in writing by the Director. The DRP must be prepared in accordance with guidelines provided by the Director.

#### **DC6   Rehabilitation**

- 1 Unless otherwise approved in writing by the Director, a rehabilitation plan (The Plan) for The Land must be submitted for approval to the Director within 12 months of the date on which these conditions take effect.
- 2 The Plan must be prepared in accordance with any reasonable guidelines provided by the Director.
- 3 Without limitation, The Plan must include details of the following:
  - 3.1 Earthworks to be undertaken including detail on drainage contouring, and seed bed preparation;
  - 3.2 Seed mix and tubestock species to be used, planting density and fertiliser application rate;
  - 3.3 Revegetation maintenance;
  - 3.4 Weed management;
  - 3.5 A table containing all the major commitments made in The Plan; and
  - 3.6 An implementation timetable for key aspects of The Plan.
- 4 The approved Plan, as amended from time to time with the approval of the Director, must be implemented to the satisfaction of the Director.

#### **DC7   Rehabilitation following cessation**

- 1 Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, The Land must be rehabilitated including:
  - 1.1 stabilisation of any land surfaces that may be subject to erosion;
  - 1.2 removal or mitigation of all environmental hazards or land contamination, that might pose an on-going risk of causing environmental harm; and
  - 1.3 decommissioning of any equipment that has not been removed.
- 2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan, as may be amended from time to time with written approval of the Director.

## **Flora And Fauna**

### **FF1 Washdown Guidelines**

Prior to entering the land, machinery must be washed in accordance with the Washdown Guidelines, or any subsequent revisions of that document.

## **Hazardous Substances**

### **H1 Storage and handling of hazardous materials**

1 Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:

- 1.1 stored within impervious bunded areas, spill trays or other containment systems; and
- 1.2 managed to prevent unauthorised discharge, emission or deposition of pollutants:
  - 1.2.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
  - 1.2.2 to groundwater;
  - 1.2.3 to waterways; or
  - 1.2.4 beyond the boundary of The Land.

### **H2 Spill kits**

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations to assist with the containment of spilt environmentally hazardous materials.

### **H3 Handling of hazardous materials - mobile**

- 1 Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant on The Land, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:
  - 1.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
  - 1.2 to groundwater;
  - 1.3 to waterways; or
  - 1.4 beyond the boundary of The Land.
- 2 Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

## **Noise Control**

### **N1 Noise emission limits**

- 1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:
  - 1.1 45 dB(A) between 0700 hours and 1800 hours (Day time); and
  - 1.2 40 dB(A) between 1800 hours and 2200 hours (Evening time); and
  - 1.3 35 dB(A) between 2200 hours and 0700 hours (Night time).
- 2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).



- 3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.
- 4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.
- 5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

#### **N2 Noise complaints**

In the event that a noise complaint is received in relation to the activity, the complaint must be reported to the Director within 24 hours.

#### **N3 Operating hours**

- 1 Unless otherwise approved by the Director:
  - 1.1 Activities associated with the extraction of rock, gravel, sand, clay or minerals, and loading of product, and screening/crushing must not be undertaken outside the hours of 0700 hours to 1900 hours on weekdays and 0800 hours to 1600 hours on Saturdays.
  - 1.2 Light vehicle access is permitted between 0600 hours and 1900 hours weekdays and 0600 hours and 1600 hours on Saturdays.
- 2 Notwithstanding the above paragraph, activities must not be carried out on public holidays that are observed Statewide (Easter Tuesday excepted).

#### **N4 Noise survey requirements**

- 1 Unless otherwise approved by the Director, a noise survey must be carried out:
  - 1.1 within 12 months from the date on which these conditions take effect; and
  - 1.2 within six (6) months of any change to the activity which is likely to substantially alter the character or increase the volume of noise emitted from The Land; and
  - 1.3 at such other times as may reasonably be required by the Director by notice in writing.

#### **N5 Noise survey method and reporting requirements**

- 1 Noise surveys must be undertaken in accordance with a survey method approved in writing by the Director, as may be amended from time to time with written approval of the Director.
- 2 Without limitation, the survey method must address the following:
  - 2.1 measurements must be carried out at day, evening and night times (where applicable) at each location; and
  - 2.2 measurement locations, and the number thereof, must be specified, with one location established as a control location (noise).
- 3 Measurements and data recorded during the survey must include:
  - 3.1 operational status of noise producing equipment and throughput of the activity;
  - 3.2 subjective descriptions of the sound at each location;
  - 3.3 details of meteorological conditions relevant to the propagation of noise;
  - 3.4 the equivalent continuous ( $L_{eq}$ ) and  $L_1$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$  and  $L_{99}$  A-weighted sound pressure levels measured over a period of 10 minutes or an alternative time interval approved by the Director;
  - 3.5 one-third octave spectra over suitably representative periods of not less than 1 minute; and
  - 3.6 narrow-band spectra over suitably representative periods of not less than 1 minute.



- 4 A noise survey report must be forwarded to the Director within 30 days from the date on which the noise survey is completed.
- 5 The noise survey report must include the following:
  - 5.1 the results and interpretation of the measurements required by these conditions;
  - 5.2 a map of the area surrounding the activity with the boundary of The Land, measurement locations, and noise sensitive premises clearly marked on the map;
  - 5.3 any other information that will assist with interpreting the results and whether the activity is in compliance with these conditions and EMPCA; and
  - 5.4 recommendations of appropriate mitigation measures to manage any noise problems identified by the noise survey.

### Operations

#### **OP1 Weed and Disease Management Plan**

- 1 Within three (3) months of the commencement of works on The Land, or by a date otherwise specified in writing by the Director, a Weed and Disease Management Plan (Plan) must be submitted to the Director for approval. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition.
- 2 The Plan must be consistent with the Washdown Guidelines.
- 3 The person responsible must implement and act in accordance with the approved Plan.
- 4 In the event that the Director, by notice in writing to the person responsible, either approves a minor variation to the approved Plan or approves a new Plan in substitution for the Plan originally approved, the person responsible must implement and act in accordance with the varied Plan or the new Plan, as the case may be.

### Stormwater Management

#### **SW1 Perimeter drains or bunds**

- 1 Perimeter cut-off drains, or bunds, must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.
- 2 Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

#### **SW2 Stormwater**

- 1 Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
- 2 Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Land.
- 3 All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.



- 4 Stormwater discharged in accordance with this condition must not be directed to sewer without the approval of the operator of the sewerage system.

**SW3 Design and maintenance of settling ponds**

- 1 Sediment settling ponds must be designed and maintained in accordance with the following requirements:
  - 1.1 ponds must be designed to successfully mitigate reasonably foreseeable sediment loss which would result from a 1 in 20 year storm event;
  - 1.2 discharge from ponds must occur via a stable spillway that is not subject to erosion;
  - 1.3 all pond walls must be stable and treated with topsoil and vegetated or otherwise treated in such a manner as to prevent erosion; and
  - 1.4 sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off The Land by surface run-off.

### Schedule 3: Information

#### Legal Obligations

##### **LO1 EMPCA**

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

##### **LO2 Storage and handling of dangerous goods, explosives and dangerous substances**

- 1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:
  - 1.1 *Work Health and Safety Act 2012* and subordinate regulations;
  - 1.2 *Explosives Act 2012* and subordinate regulations; and
  - 1.3 *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

##### **LO3 Aboriginal relics requirements**

- 1 The *Aboriginal Heritage Act 1975*, provides legislative protection to Aboriginal heritage sites in Tasmania regardless of site type, condition, size or land tenure. Section 14(1) of the Act states that; Except as otherwise provided in this Act, no person shall, otherwise than in accordance with the terms of a permit granted by the Minister on the recommendation of the Director of National Parks and Wildlife:
  - 1.1 destroy, damage, deface, conceal or otherwise interfere with a relic;
  - 1.2 make a copy or replica of a carving or engraving that is a relic by rubbing, tracing, casting or other means that involve direct contact with the carving or engraving;
  - 1.3 remove a relic from the place where it is found or abandoned;
  - 1.4 sell or offer or expose for sale, exchange, or otherwise dispose of a relic or any other object that so nearly resembles a relic as to be likely to deceive or be capable of being mistaken for a relic;
  - 1.5 take a relic, or permit a relic to be taken, out of this State; or
  - 1.6 cause an excavation to be made or any other work to be carried out on Crown land for the purpose of searching for a relic.
- 2 If a relic is suspected and/or identified during works then works must cease immediately and the Tasmanian Aboriginal Land and Sea Council and the Aboriginal Heritage Tasmania be contacted for advice before work can continue. In the event that damage to an Aboriginal heritage site is unavoidable a permit under section 14 of the *Aboriginal Heritage Act 1975* must be applied for. The Minister may refuse an application for a permit, where the characteristics of the relics are considered to warrant their preservation.
- 3 Anyone finding an Aboriginal relic is required under section 10 of the Act to report that finding as soon as practicable to the Director of National Parks and Wildlife or an authorized officer under the *Aboriginal Heritage Act 1975*. It is sufficient to report the finding of a relic to Aboriginal Heritage Tasmania to fulfil the requirements of section 10 of the Act.

##### **LO4 Change of responsibility**

If the person responsible for the activity ceases to be responsible for the activity, they must notify the Director in accordance with Section 45 of the EMPCA.



**Other Information****OI1 Notification of incidents under section 32 of EMPCA**

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning 1800 005 171 (a 24-hour emergency telephone number).

**OI2 Waste management hierarchy**

- 1 Wastes should be managed in accordance with the following hierarchy of waste management:
  - 1.1 waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;
  - 1.2 waste should be re-used or recycled to the maximum extent that is practicable; and
  - 1.3 waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.

**OI3 Commitments**

The person responsible for the activity has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2.



Attachment 1: Attachment 1

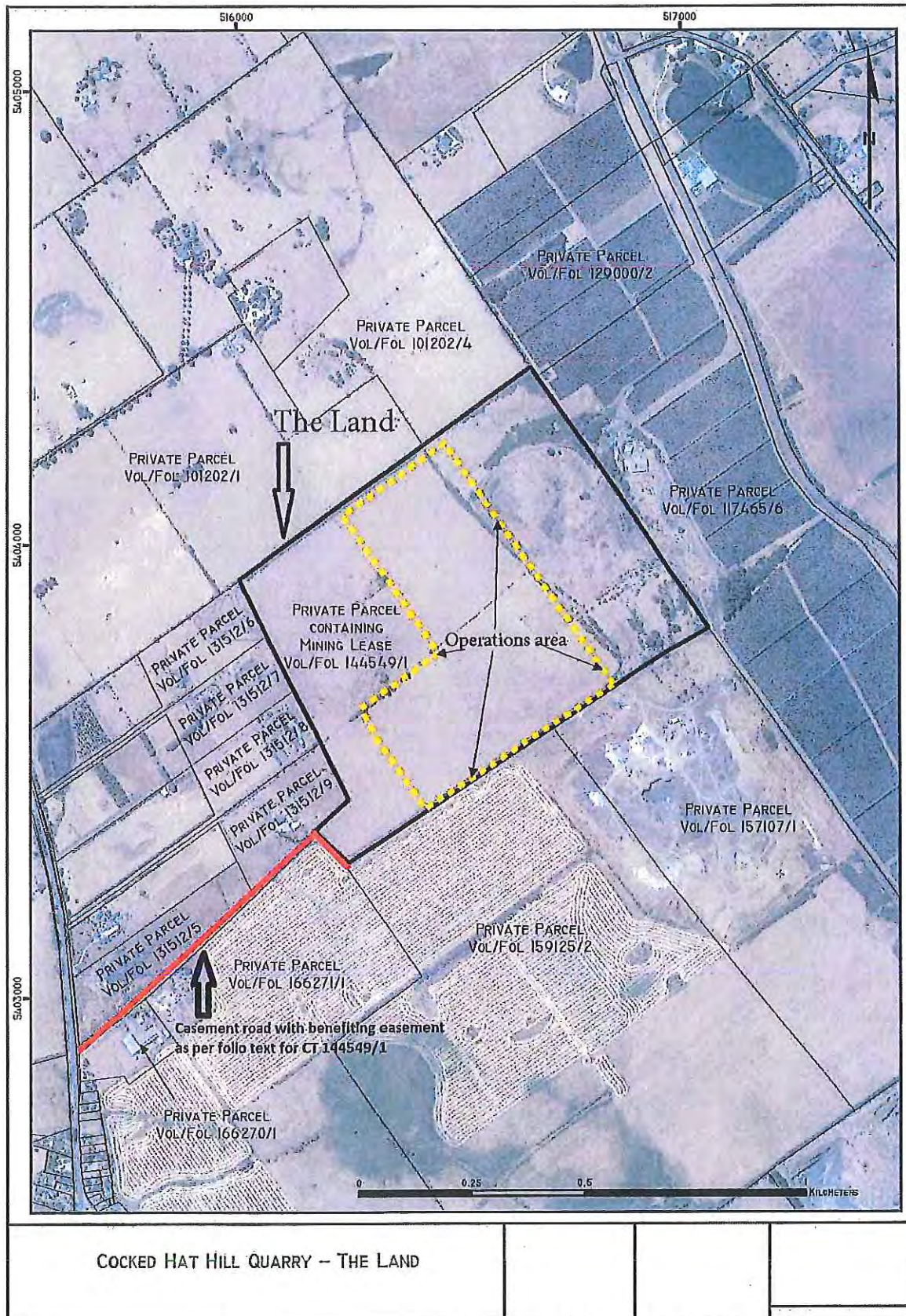




TABLE OF COMMITMENTS BY APPLICANT – MT ORIEL  
BREADALBANE PTY LTD – COCKED HAT HILL QUARRY,  
BREADALBANE

| Commitment type & no. | Detail                                                                                                                                                                                                                                                                                             | When            |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Noise</b>          |                                                                                                                                                                                                                                                                                                    |                 |
| 5                     | Machinery will be well maintained to minimise the risk of generating excessive noise emissions.                                                                                                                                                                                                    | Ongoing.        |
| <b>Blasting</b>       |                                                                                                                                                                                                                                                                                                    |                 |
| 7                     | Utilise a charge mass of 35 kg/delay for initial development blasts.                                                                                                                                                                                                                               | Initial blasts. |
| 8                     | Blast design should incorporate a minimum stemming depth of 3 m.                                                                                                                                                                                                                                   | As required.    |
| 9                     | Increase charge mass to 50 kg/delay once high wall blasting is established with blast design to incorporate minimum front row burden of 3 m. Additionally, ensure that blast design allows the high wall face to be oriented away from critical receiver locations along Hobart Road, Breadalbane. | As required.    |
| 10                    | For the southwest section of the quarry, out to the maximum south-western extent of the quarry, adjust charge mass/delay levels in accordance with results from site-specific scaled regressions once blasting is to occur within 400 m of 803 and 805 Hobart Road, Breadalbane.                   | When necessary. |
| <b>Waste</b>          |                                                                                                                                                                                                                                                                                                    |                 |
| 11                    | No machinery servicing, except for emergency repairs or service requirements, will be conducted within the quarry. Wastes generated from machinery repairs will be disposed of in an appropriate bin located near the site office for future disposal at a permitted refuse disposal site.         | At all times.   |

|                        |                                                                                                                                                                                                                                                                           |               |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 12                     | Waste generated by workers from general refuse (eg lunch wrappers) at the quarry will be collected in waste bins provided on-site for general refuse. These will be emptied at least once per fortnight and the material disposed of at a permitted refuse disposal site. | At all times. |
| <b>Dangerous goods</b> |                                                                                                                                                                                                                                                                           |               |
| 3                      | No chemicals, fuels or oils will be stored on site overnight, and refuelling of quarry equipment will be carried out using a mobile bund.                                                                                                                                 | At all times. |
| <b>Heritage</b>        |                                                                                                                                                                                                                                                                           |               |
| 13                     | A copy of the <i>Unanticipated Discovery Plan</i> will be on hand during ground disturbing works to aid the quarry operator in meeting the requirements under the <i>Aboriginal Heritage Act 1975</i> if Aboriginal heritage is uncovered.                                | Ongoing.      |



17 Aug 2017

Rosemary Jones  
Administration Officer – Development Services  
Northern Midlands Council  
13 Smith Street  
LONGFORD TAS 7301

Dear Rosemary,

**RE: Planning Application P16-311 - Extractive Industry (rock/gravel quarry) (Level 2 Activity) accessed over 827 & 831 Hobart Road., within ANEF contours. - 833 Hobart Road (part of Mining Lease 1958P/M), BREADALBANE**

I refer to the above development application and after review of the proposal and prescribed airspace regulations, provide the following comments:

- The site does lie within the ANEF contours mapped and laid out in the Launceston Airport Masterplan 2015 however the application proposal does not include a habitable building;
- The proposed development will not infringe the Launceston Airport Obstacle Limitation Surfaces, and;
- It seems that the use of the proposal will not unduly attract wildlife which would have an effect on the safety of airport operations.

Therefore: Launceston Airport does not object to the development as proposed.

***N.B.*** Due to the site location in proximity to the Airport Obstacle Limitation Surfaces, it may be necessary for the proponent to contact Launceston Airport when using machinery which has the potential to breach the Obstacle Limitation Surfaces.

If you or the applicant has any questions relating to the above comments, please don't hesitate in contacting me.

Yours sincerely,



Ilya Brucksch-Domanski  
Manager Planning and Development  
**Australia Pacific Airports (Launceston) Pty. Ltd.**

**REFERRAL OF DEVELOPMENT APPLICATION P16-311 TO WORKS DEPARTMENT**

**Property/Subdivision No:** 203300.08

**Date:** 22-Dec-2016

**Applicant:** Mt Oriel Breadalbane Pty Ltd

**Proposal:** Extractive Industry (rock/gravel quarry) (Level 2 Activity) accessed over 827 & 831 Hobart Road., within ANEF contours.

**Location:** 833 Hobart Road (part of Mining Lease 1958P/M), BREADALBANE

W&I referral P16-311, 833 Hobart Road (part of Mining Lease 1958P/M),  
BREADALBANE

No works and infrastructure comments required. The existing access is appropriate and already includes a turning lane

*Jonathan Galbraith (Works Officer)*

*Date: 4/8/17*





1 September 2017

General Manager  
Northern Midlands Council  
PO Box 156,  
Longford 7301

Dear Mr Jennings,

MT ORIEL BREADALBANE PTY LTD, CROOKED HAT HILL QUARRY

We make this representation in relation to the proposed Mr Oriel Crooked Hat Hill Quarry (your ref: P16-311), on behalf of the neighbouring property, quarry operator Stornoway.

The two quarries will share access to Hobart Road via a private road within a right of way. The road is relatively straight for approximately 700m, before a right angled chicane, continuing for another 700m, then dividing to provide connection to the two quarries (north to Mt Oriel, and south to Raeburn). At the 700m mark, the road passes an existing residential property. The majority of the road is constructed as unsealed pavement and the width restricts the ability for trucks to pass each other without utilising one of three passing areas.

Stornoway's Raeburn Quarry currently holds a permit for the production of 210,000m<sup>3</sup> of rock. At the time of issue of the current Raeburn operating permit, Mt Oriel was operating at minimal production (largely dormant). The planning permit was therefore based on the traffic generated by Raeburn Quarry.

Conditions of approval for Raeburn Quarry included the following:

*G10 Access Road*

1. *Dust and noise emissions associated with quarry traffic along the length of the access road must be controlled to the extent necessary to prevent environmental nuisance.*
2. *The access road must be sealed and maintained, to the satisfaction of the Director, at least 100 m either side of the building located at 805 Hobart Road, Breadalbane.*

At the very least, a permit issued allowing the doubling of heavy truck traffic movement should ensure:

- both Quarries contribute to the ongoing maintenance of the road (both sealed and unsealed portions).
- The proponent address the dangers involved with passing oncoming traffic (exacerbated by the presence of TasNetworks poles on the southern shoulder of the road, restricting the ability to pull over in the face of oncoming traffic) by widening the road allow two trucks to pass each other safely.

Yours faithfully

Irene Duckett  
Director  
Planning Tas Pty Ltd

26 August 2017

The General Manager  
Northern Midlands Council  
PO Box 156  
LONGFORD TAS 7301  
General Manager @ council@nmc.tas.gov.au.

Dear Sir,

**Re Mt. Oriel Breadalbane Pty Ltd, Cocked Hat Hill Quarry, Breadalbane**

I would like to make a representation In accordance with s.57(5) of the Land Use Planning and Approvals Act 1993 (LUPAA), regarding the application.

I make this in a personal capacity and request that my name be confidential as I work extensively in the quarry industry and I make this submission because of the possible detrimental public standing effects to the industry.

The proposal is ill considered and the likely environmental impacts are likely to be unacceptable to the nearest residences and exceed prevailing environmental standards in dust, noise and blast vibration. As proposed, the quarry activities (benches) could be within 160m of the closest residence. As such, if the quarry is allowed to proceed as planned, in my experience it will result in complaints from residents and thereby harm the quarry industry generally good standing in the community in this immediate area and indeed in the general community.

**Compliance with DPMP Guidelines**

The DPMP is supposed to have been prepared using both site specific guidelines and also the general guidelines prepared by the EPA.

However there have numerous omissions and it is surprising that the document has been allowed to be displayed by the EPA in its current form, give its non compliance with the EPA guidelines.

Specifically, there has been NO examination of the possible visual impact.

Given the quarry is located on a prominent visual feature - Cocked Hat Hill and the quarry activities will be widely visible, yet this is not mentioned in the DPMP

The guidelines say:



### ***"6.12 Visual impacts***

*Discuss impacts of the proposal on the visual landscape, including:*

- *Assess the capacity of the landscape to absorb any visual changes as a result of the proposal. The assessment should also take account of the appearance of the proposal from significant vantage points. These should include points both inside and outside the site and should include viewpoints likely to be visited by tourists or recreational users. The methodology used and assumptions made in the assessment should be clearly identified.*
- *Presentation of 'artists impressions', photomontages or visual modelling is recommended.*
- *Measures to avoid and mitigate potential adverse visual impacts should be identified, such as minimising vegetation clearance, facility height, size, design, colour, separation and post- construction revegetation.*

The DPEMP contains nothing on visual impacts as it should have, which is a major deficiency, given this is potentially one of the major impacts in the surrounding area of pleasant landscapes and numerous rural residences and tourist vistas.

More specifically, the documentation supporting the application is deficient in many other areas. These include:

#### **Quarry Plans**

These are not detailed and fail to show stages of possible construction, and therefore impacts : ie Year1 outline is shown but then nothing until 10year. Fig B2 refers to Figure 5B which does not agree.

No detail on amount of topsoils/overburden to be removed and bench development

There are no X sections shown which show potential visual impacts.  
Fig B4 shows a X section which has no location

Stages should be clearly shown and then visual, noise/blast modelling correlating to these stages.

Quarry Code of Practice states that best practice is "top down" , with bench being initially developed at the quarry extremities, so these can be progressively rehabilitated to reduce visual impacts. This is also a usual MRT requirement

#### **Truck traffic**

- At a planned quarry production of 200,000 m3 per year the truck movements are understated, as they only quote rates for 20-80,000 tonnes. Cumulative impacts from the other (approved quarries should have been considered.

### Proximity to Houses

- Quarry plans do not show clearly their proximity to the nearest houses. In fact they seem to be specifically drawn to exclude showing residences (refer Figure B - 3B). In fact the nearest house is only 165 m from this bench (see below). Quarry operations in this geological environment (tertiary basalt) this close to houses will result in dust, noise levels and vibration far exceeding prevailing standards and be intolerable to residence. Structural damage may result.
- There are approx 5 houses within 500m of the quarry. Experience with the existing quarries in the area is that houses at 650m are registering blast vibration, both detectable and close to the limits and yet there has been discussion of this information.
- Why would a quarry be proposed so close to houses ?
- 



Figure 1 ; House 165m from quarry extent



### Site geology and blasting effects:

- The basalt deposit near Breadalbane is distributed over about 9 square kilometres and is thought to be a composite body derived from at least two separate lava flows with intervening sedimentary layers. The permeable nature of the jointed basalt allows water to percolate into the underlying sediments and emerge as springs that are evident on the mid-slopes.
- The subsurface geology in the quarry area has not been extensively investigated by deep drilling, but is inherently quite complex. This has implications for quarry design and ground vibration from blasting. This has been demonstrated by blast monitoring and modelling for other quarries in the area.
- There has been no geological exploration by the proponent and therefore site conditions are unknown. Given Cocked Hill is a prominent feature it is quite likely that its solid and competent basalt rock, not fractured.
- There has been no consideration of geology and the fact that the blasting may occur in the same strata (in elevation) as the houses. This is likely to make vibration levels recorded at the houses even worse.
- In a Planning Appeal in 2009, when discussing blast effects from the Stornoway quarry next door on a planned housing subdivision is the following statement " *XX assessed the implications for the Stornoway quarry and found that, (other factors being equal) to stay below the 5mm/s (95%) ground vibration limit, blasting could not be carried out within 800m of houses. To stay below the 115dBL (95%) limit for east facing blasts, blasts could not occur within 830m of houses. If blasting occurred only in a north-west or south-east facing directions houses would need to be at least 400m away*".
- The difference (ie 800 m and 400m) is attributed to blast design and site geology .
- The Noise Consultants (Tarkarri Engineering) made the following statement in their report (p7) ;  
*"Ground vibration and air blast overpressure prediction is typically conducted using site specific scaled regression equations developed from monitored data from multiple blasts measured at multiple locations. Such data is not available and given this Tarkarri Engineering has sourced regression equations developed by the Office of Surface Mining Reclamation and Enforcement[1] in the USA from their extensive data sets"*.
- Blast vibration calculations are therefore theoretical and most likely understate effects. There has been NO consideration of the suitability of the constants used in the calculations. It is ridiculous to use data derived in the USA in unknown geology and location. This indicates the Consultant is either inexperienced or incompetent
- Contrary to what the consultants have stated there is data from other quarries in the immediate area.

- Therefore blast vibration levels are expected to have been significantly underestimated (also see notes above).

### **Quarry Noise**

The DPMP states that "conservative noise emission criteria were adopted based on ambient noise data".

Based on recent assessments on other quarries in the area this statement is incorrect, and in fact the opposite appears to have occurred.

It is noted that :

- sound power levels are on low side for equipment power levels.
- predictions are for neutral weather – rather than worst case;
- predictions seem low for overburden removal with equipment operating on the surface and line of site to receiver 9.
- Assumptions that the bund will provide 17 dB attenuation is high.
- The predictions for quarrying appear to be for equipment at final pit floor level and in close to the benches so greatest barrier effect.

At no stage has the impacts of quarrying on the closest house (165m away) been adequately addressed. It is not possible to meet noise limits that close to houses by quarry operations.

### **Best Practice**

The DPMP states that : "Best practice management is important to the project proponent to minimise the risk of environmental nuisance/harm from the activity".

The guide to best practice management is set out in the Quarry Code of Practice, first published in 1999 by the Department of Environment and Mineral Resources Tas.

The Environment Protection Authority (EPA) has published the 3rd Edition of the Quarry Code of Practice. This replaces the 2nd Edition published in 1999, which the EPA has reviewed to reflect changes since that time.

The purpose of the Quarry Code of Practice is to document acceptable environmental guidelines for quarrying. It comprises elements to guide proposals for use and development of land for extractive purposes as well as ongoing environmental management and final rehabilitation of operating quarries.

Yet the proponent has ignored this document, which has been accepted by the quarry industry as the "best practice guide"



## Visual Impact

The Quarry Code states

### 7.11.1 Principle

The visible intrusion of quarries into the landscape may be out of all proportion to the area they occupy. Any new quarry should be located to manage its visibility from neighbours, roads and vantage points.

Visibility is the cause of much public complaint at many otherwise well managed quarries. It is essential that the visual impact of a proposed quarry be considered in the planning stages.

The EPA guidelines state:

### "6.12 Visual impacts

*Discuss impacts of the proposal on the visual landscape, including:*

- *Assess the capacity of the landscape to absorb any visual changes as a result of the proposal. The assessment should also take account of the appearance of the proposal from significant vantage points. These should include points both inside and outside the site and should include viewpoints likely to be visited by tourists or recreational users. The methodology used and assumptions made in the assessment should be clearly identified.*
- *Presentation of 'artists impressions', photomontages or visual modelling is recommended.*
- *Measures to avoid and mitigate potential adverse visual impacts should be identified, such as minimising vegetation clearance, facility height, size, design, colour, separation and post- construction revegetation.*

As noted previously, the quarry is located on a visually prominent hill with wide visibility from residences in almost all directions, yet there has been no visual impact assessment or even mention in the DPEMP.

Quarry plans indicate a 20m high face will be left facing to the NE. This is exposed to a wide area in Relbia, Youngtown and on a clear day even Launceston

A quarry located in such a prominent place poorly planned and operated will result in widespread public complaints

### Conclusions

This quarry, located in a such a prominent position and located close to houses, is as proposed in the DPEMP not designed according to best practice.

If it is allowed to proceed in its current form it will be detrimental to the entire quarry industry which in recent years has demonstrated, in most locations, it can co-exist with neighbouring residents and land users. The last thing the industry needs is such a poorly planned quarry.

The EPA should require the applicant to withdraw such as inadequate and poorly prepared document and prepare a new document complying with the EPA guidelines

Yours sincerely

A handwritten signature in dark ink, appearing to read 'J.G. Miedecke'. The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

J.G Miedecke

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Tas 7001  
jmp@netspace.net.au



## **DPEMP SUPPLEMENT**

## **COCKED HAT HILL QUARRY, BREADALBANE**



The Development Proposal and Environmental Management Plan (DPEMP) was prepared to support a Development Application by Mt Oriel Breadalbane Pty Ltd for a Planning Permit to establish a hard-rock quarry on the property known as Mt Oriel located at 833 Hobart Road Breadalbane, in the Northern Midlands municipality.

The application sought approval for production and extraction levels of up to 200,000 m<sup>3</sup>/annum.

The quarry operation includes two activities defined within Schedule 2 of the *Environmental Management and Pollution Control Act 1994 (Tas)* (EMPCA) –

- ‘5. Extractive Industries. (a) Quarries: the extraction of any rock or gravel and producing 5 000 cubic metres or more of rock or gravel per year’ [ie. **Maximum 200,000 cubic metres per annum**]; and
- ‘6. Materials Handling. (a) Crushing, Grinding or Milling: processing (by crushing, grinding, milling or separating into different sizes by sieving, air elutriation or in any other manner) of ... (ii) rock, ores or minerals at a rate in excess of 1 000 cubic metres per year’ [ie. **Maximum 200,000 cubic metres per annum**].

Level 2 Activities must be referred by the Planning Authority (in this case, Northern Midlands Council) and to the Environment Protection Authority (the EPA), for assessment under EMPCA.

Council advertised the application for a 28-day period within which anyone could make a representation about the project. When the representation period closed, the Council forwarded all representations to the EPA.

Two public representations were received. These are identified by number only in Tables 1 and 2.

A supplementary report to the DPEMP was requested by the EPA.

Information *required* by the EPA is listed in Table 1. In addition, the EPA has encouraged the proponent to provide comment on the public and agency comments listed in Table 2.



TABLE 1: ADDITIONAL INFORMATION REQUIRED BY THE EPA BOARD

| Representation No. | Comments and issues                                                                                                                                                                                                                                                             | Additional information required                                                                                                                                                                                                                                                                                    | Further Info provided by applicant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2                  | Representor notes the DPEMP refers to 'best practice management' and for quarrying operations equates this to the acceptable standards and management measures contained in the Tasmanian Quarry Code of Practice 2017. Representor states proponent has ignored this document. | The DPEMP contains a number of references to the QCP 1999. Review the DPEMP in terms of the acceptable standards and management measures of the QCP 2017 and provide details of instances where proposed quarry operations do not or are not likely to align with or satisfy the acceptable standards of the code. | <p>The documentation was prepared using the QCP 1999.</p> <p>The QCP 2017 states clearly in its purpose (emphasis added) -</p> <p>'This document is <i>not</i> a Code of Practice for the purposes of Sections 23A(4) and 102(2)(d) of EMPCA, which refer to Codes of Practice made and approved in accordance with EMPCA regulations. Rather, the purpose of this code is to document acceptable environmental guidelines for quarrying, in order to:</p> <ul style="list-style-type: none"> <li>• .....</li> </ul> <p>It also states –</p> <p>'The sections of the code are not in themselves legally enforceable. They are intended to encourage operators to achieve good environmental performance without the need to resort to legislative enforcement mechanisms.'</p> <p>The QCO 2017 provides a definition for Acceptable Standard –</p> <p>'These are commonly agreed standards which will normally ensure that acceptable environmental performance is achieved. Where a specific issue requires attention at a quarry, the acceptable standard may be modified by the approval authority for inclusion in a Permit or Environment Protection Notice.'</p> <p>The environmental management measures proposed for the Cocked Hat Hill Quarry in the DPEMP and development application supporting information are -</p> <ul style="list-style-type: none"> <li>(i) generally consistent with the Acceptable Standards of the QCP 2017; and</li> <li>(ii) where they deviate from an Acceptable Standard there is supporting evidence for the assessment process.</li> </ul> |

## Cocked Hat Hill Quarry, Breadalbane – DPEMP Supplement

|   |                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | Assumption that the bund will provide 17 dB attenuation is high. | <p>EPA Tasmania's Noise Specialist notes the earthen bund is critical for noise attenuation given the close (within 200 m) proximity of drilling and blasting to dwellings on Hobart Rd at 10 years and full extent of mining.</p> <p>Provide further information to clarify/justify the magnitude of the estimate for acoustic attenuation by the proposed earthen bund, including the situation where blast hole drilling occurs at the surface within 200 m of dwellings on Hobart Rd.</p> | <p>Attenuation between noise sources within the proposed Cocked Hat Hill Quarry and the house in questions (803 Hobart Rd) isn't provided by the earth bund alone. There is significant topography between the house and the quarry area providing a second barrier effect. The digital ground model triangulated by the modelling software from contour data for the area generates a topographic feature where the height of the house is at 198 m a.s.l, the corner of the quarry lease closest to the house (i.e. approx. 200 m away) is also at 198 m a.s.l and the slope of Cocked Hat Hill generates a topographic barrier that is at 206 m a.s.l (along the direct line of sight between the house and the corner of the lease).</p> <p>Modelling of drilling noise at this corner location within the lease generates an <math>L_{Aeq}</math> level of 39 dBA and a maximum noise level of 42 dBA. A contour map of <math>L_{Aeq}</math> emissions is provided below for visualisation.</p> <p>Source heights above ground height are as follows:-</p> <ul style="list-style-type: none"> <li>• Engine 2.5 m</li> <li>• Drill noise 0.1 m</li> <li>• Rattling noise 0.2 m</li> </ul> <p><b>NB:</b> it should also be noted that drilling at the current surface would in reality <u>not happen</u> as significant overburden removal would have occurred lowering the ground height in the quarry and increasing the barrier effect from the earth berm.</p> |
|---|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



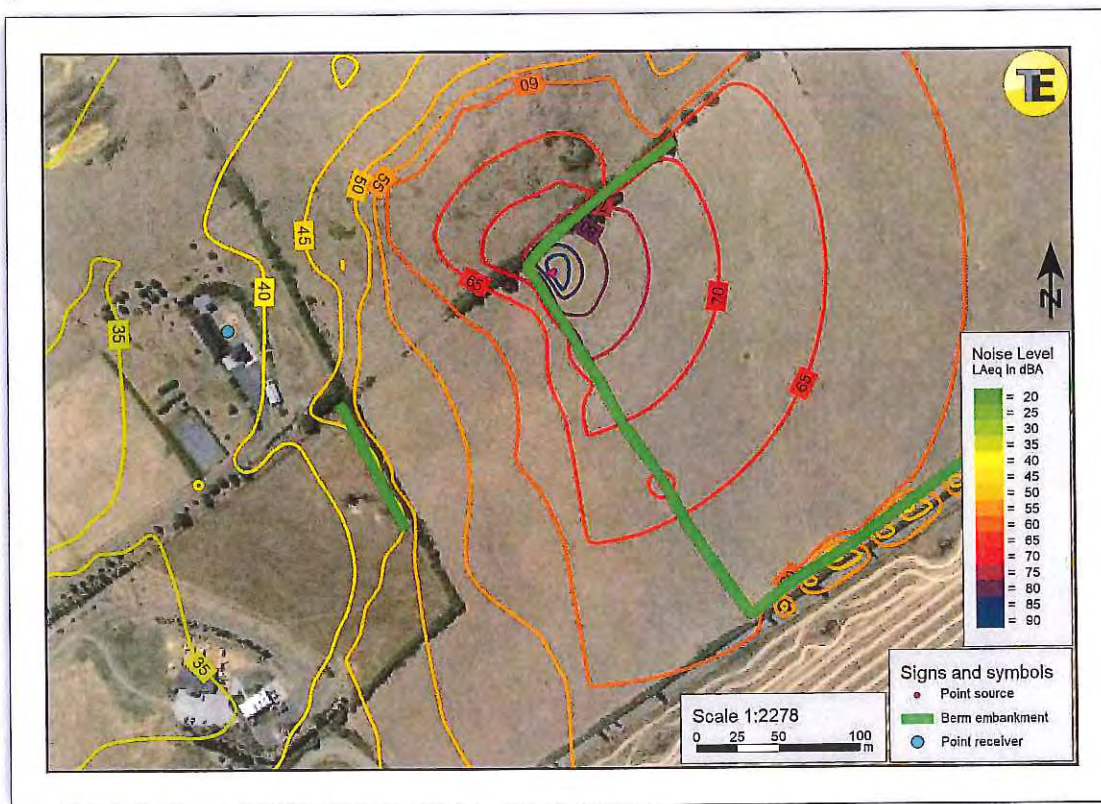


TABLE 2: OTHER MATTERS RAISED DURING THE PUBLIC CONSULTATION PERIOD

| Representation No./ Agency             | Comments and issues                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Further Info Requested by the EPA? | EPA Comments                                                                                                                                                                                                               | Further Info provided by applicant |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Civil Aviation Safety Authority (CASA) | <p>CASA stated it is satisfied the quarry operator intends to implement sufficient risk mitigation procedures to ensure there is no impact on aviation activities. This includes a procedure between the quarry operator itself and the Launceston Tower to ensure no blasting operations occur without receiving a permission to detonate from the Launceston Tower on each occasion.</p> <p>CASA also understands from this proposal that any 'fly rock' will be contained to a maximum height of 40 m above the rock face where the blast has occurred which mitigates any risk to aviation. As such, CASA considers there is no requirement to promulgate airspace over the quarry site.</p> | No                                 | The draft Blast Management Plan (DPEMP, Attachment 4) states a 'letter of agreement will be developed and signed with the Launceston Airport which will outline the way notifications between the parties will be served.' |                                    |
| 1                                      | <p>Representor noted at least one other quarry operator (Stornoway) already uses the road proposed to access the new quarry.</p> <p>Representor stated any permit issued for the activity should ensure:</p> <ul style="list-style-type: none"> <li>Both quarry operators contribute to the ongoing maintenance of the road.</li> <li>The proponent of the new quarry address dangers involved as trucks pass one another by widening the road to allow safe passing of oncoming trucks.</li> </ul>                                                                                                                                                                                              | No                                 | Road maintenance and adjustments fall within the purview of Council.                                                                                                                                                       |                                    |
| 2                                      | <ul style="list-style-type: none"> <li>DPEMP does not contain sufficient detail about stages of extraction.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No                                 | DPEMP contains sufficient information for the Board's assessment.                                                                                                                                                          |                                    |



## Cocked Hat Hill Quarry, Breadalbane – DPEMP Supplement

|                                                                                                                                                          |     |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li>Figure B-2 refers to a 'mine plan in Figure 5B', but the DPEMP does not appear to contain 'Figure 5B'.</li> </ul> | Yes | Provide a copy of the 'mine plan' referred to in Figure B-2.                                         | Figure 5B is provided in the DA information provided to the planning authority.<br>The equivalent in the DPEMP is Figure B-3B.<br>It is important to note that the Mine Plan adopted for this application is that which has been approved by MRT for the Mining Lease.                                                                                                                                 |
| <ul style="list-style-type: none"> <li>There is no information about the likely amounts of soil and overburden removed and bench development.</li> </ul> | No  | DPEMP contains sufficient information for the Board's assessment.                                    |                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>There are no cross-sections included to show potential visual impacts.</li> </ul>                                 | Yes | Provide a representative number of cross-sections to show potential visual impacts.                  | Visual amenity is not an environmental matter and accordingly sits outside the powers afforded to the EPA by s74 of EMPCA.<br>Information of relevance to the Scheme, which formed part of the application, was provided to the planning authority. It was available for public consideration at the Council chambers as per the requirements of the <i>Land Use Planning and Approvals Act 1993</i> . |
| <ul style="list-style-type: none"> <li>Figure B-4 indicates a cross-section without a location.</li> </ul>                                               | Yes | Relate the cross-section illustrated in Figure B-4 to its location on the proposed site.             | Figure B-3B clearly identifies the orientation of the cross-section shown in Figure B-4.<br>The symbology used is consistent with standard engineering/technical drawing practice.                                                                                                                                                                                                                     |
| Representor states quarry plans do not clearly show the proximity of the proposed quarry to nearby sensitive receptors.                                  | No  | Figure D-3A of the DPEMP (p47) illustrates/identifies residences within 1 km of the proposed quarry. |                                                                                                                                                                                                                                                                                                                                                                                                        |

## Cocked Hat Hill Quarry, Breadalbane – DPEMP Supplement

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <p>Representor stated quarry operations within 200m of the closest residence are likely to cause dust emissions above 'prevailing standards'.</p> <p>Representor stated cumulative impacts associated with traffic (e.g. dust) have not been considered.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | No | DPEMP contains sufficient information for the Board's assessment.                                                                                                                                                                                                                                                                                                                                                                                       |  |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No | Cumulative dust impacts related to traffic were considered and included in the DPEMP (Section E.1.3, p64).                                                                                                                                                                                                                                                                                                                                              |  |
|  | <p>Representor stated quarry operations within 200m of the closest residence are likely to cause dust emissions above 'prevailing standards'.</p> <p>Representor stated cumulative impacts associated with traffic (e.g. dust) have not been considered.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | No | DPEMP contains sufficient information for the Board's assessment.                                                                                                                                                                                                                                                                                                                                                                                       |  |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No | Cumulative dust impacts related to traffic were considered and included in the DPEMP (Section E.1.3, p64).                                                                                                                                                                                                                                                                                                                                              |  |
|  | <p>Representor raised a number of points relating to quarry operations and noise, namely:</p> <ul style="list-style-type: none"> <li>• Sound power levels seem on low side for proposed quarry equipment.</li> <li>• Predictions are for neutral weather – rather than worst case.</li> <li>• Predicted noise levels seem low for overburden removal with equipment operating on the surface and line of sight to receiver 9.</li> <li>• Predicted noise levels appear to be for equipment at final pit floor level and located close to the benches to provide greatest barrier effect.</li> <li>• At no stage have the impacts of quarrying at the closest house been adequately addressed.</li> <li>• Representor concludes quarry operations will not be able to meet noise limits within 200m of residences.</li> </ul> | No | Sound power levels quoted in Attachment 7, Table 2 are considered suitable for the purpose of modelling and the Board's assessment.                                                                                                                                                                                                                                                                                                                     |  |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No | Tarkarri Engineering Pty Ltd, engaged by the applicant's consultant to conduct an environmental noise, ground vibration and air blast over pressure assessment for the proposed quarry states:                                                                                                                                                                                                                                                          |  |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No | "Worst case weather conditions with regard to the atmospheric attenuation/amplification during the day are not common and require vector wind speeds of > 3 m/s and this would typically generate high local noise levels (worst case weather under lower wind speeds can only occur after sunset). Predicted noise levels under worst case weather conditions would be no more than 4 dB higher and remain below the project noise emission criteria." |  |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |



## Cocked Hat Hill Quarry, Breadalbane – DPEMP Supplement

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|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                                                                                                                                                                |     | <p>Predicted noise levels for overburden removal are of the order anticipated by EPA. Tasmania's Noise Specialist (noting that model scenarios include a 3m high earthen embankment between the nearest receptors along Hobart Rd and the extractive activity).</p> <p>Model scenarios consider equipment in varying locations at year one, ten and maximum extent, as illustrated in Attachment 7, figures pp 16-21.</p> <p>Measures to address potential noise impacts at the nearest residence were described in the DPEMP, p 71.</p> <p>A condition of permit will be that the extractive activity comply with prescribed noise limits at any noise sensitive premises (in other ownership) during designated day time, evening time and night time periods.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | <p>Representor states:</p> <ul style="list-style-type: none"> <li>Rock may be solid and competent rather than fractured, and suggests blast impacts may be understated as a result.</li> </ul> | Yes | <p>Provide evidence to demonstrate the approach adopted to estimate blast impacts produces realistic results, including at closest sensitive receptors. Evidence may include data from monitored blasts in similar geological settings.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>The prediction of ground vibration is based on scaled regressions developed by the Office of Surface Mining (now the Office of Surface Mining and Reclamation and Enforcement) in the USA, published in 2009. The regression used were developed from data sets for quarry production blasts with prediction for average (Av.) and upper bound (UB.) regressions.</p> <p>Data was provided from the monitoring of two blasts at McGraths Pit, adjacent to the Cocked Hat Hill lease. The measured ground vibrations levels are provided below from to two blast along with AV. and UB. predictions. The results show that the measured ground vibrations levels are within the range of the Av. and UB.</p> |

## Cocked Hat Hill Quarry, Breadalbane – DPMP Supplement

|  |                                                                                                                                                                                                                                                                                                                                                     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                                                                                                                                                                                                                                                                                                                     |    | <p>predictions and that ground vibration levels predicted by the OSM regressions are realistic.</p> <p><u>Blast 1</u><br/>93 kg charge mass:-<br/>Distance 780 m</p> <ul style="list-style-type: none"> <li>• Measured 1.0 mm/s</li> <li>• Predicted Av. 1.0 mm/s</li> <li>• Predicted UB 2.7 mm/s</li> </ul> <p><u>Blast 2</u><br/>50g charge mass:-<br/>Distance 700 m</p> <ul style="list-style-type: none"> <li>• Measured 1.7 mm/s</li> <li>• Predicted Av. 0.8 mm/s</li> <li>• Predicted UB 2 mm/s</li> </ul> <p>Distance 845 m</p> <ul style="list-style-type: none"> <li>• Measured 1.3 mm/s</li> <li>• Predicted Av. 0.6 mm/s</li> <li>• Predicted UB 1.6 mm/s</li> </ul> <p>Discussion of air blast overpressure levels from the McGraths Pit data is provided in Tarkarri Engineering report 5014_AC_R in section 4.3.</p> |
|  | <p>Representor queried the suitability of the constants used to estimate air blast over pressure and ground vibration, given calculations were:</p> <ul style="list-style-type: none"> <li>• Not based on monitored data.</li> <li>• Used regression equations developed by the US Office of Surface Mining Reclamation and Enforcement.</li> </ul> | No | <p>EPA Tasmania's Noise Specialist has checked predictions based on the average conditions suggested in Australian Standard AS2187. Vibration levels estimated using AS2187 were of a similar order to those presented in Attachment 7, Table 7 (predicted ground vibration).</p> <p>Therefore the predictions provided in Attachment 7 are sufficient for assessment purposes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



## Cocked Hat Hill Quarry, Breadalbane – DPEMP Supplement

|  |                                                                                                      |     |                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--|------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Representor notes visual impacts have not been considered, contrary to the DPEMP general guidelines. | Yes | Provide information to demonstrate why the proposal's potential visual impacts have not been considered / included in the DPEMP. | <p>Visual amenity is not an environmental matter and accordingly sits outside the powers afforded to the EPA by s74 of EMPCA.</p> <p>The EPA have noted this in previous decisions, such as for The Gums Quarry proposed by Markarna Grazing Company Pty Ltd (Attachment 1).</p> <p>Information of relevance to the Scheme, which formed part of the application, was provided to the planning authority. It was available for public consideration at the Council chambers as per the requirements of the <i>Land Use Planning and Approvals Act 1993</i>.</p> |
|--|------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## ATTACHMENTS

Attachment S1 Extract of the Environmental Assessment Report Markarna Grazing Company Pty Ltd – Quarry, Whitemark, Flinders Island



**TABLE 2: OTHER MATTERS RAISED DURING THE PUBLIC CONSULTATION PERIOD**

| Representation No./ Agency | Comments and issues                                                                                                                                                                                                                                                                                                                   | Further Info Requested [yes/no] | EPA Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1,3                        | Assertion that the public roads are not suitable for heavy trucks or prolonged use by smaller trucks.<br><br>Suggestion that the size of truck and the number of trucks per day be limited.                                                                                                                                           | No                              | This matter is outside the EPA Board's responsibility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1,2,4,5,7                  | Concerns that large number of trucks using public roads will create a traffic hazard. Two representors identified the "tourist season" as a particular concern. One representor considered such high levels of traffic were inconsistent with the Planning Scheme.<br><br>Suggestion that speed limit for trucks would be appropriate | No                              | This matter is outside the EPA Board's responsibility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1,2,4,5                    | Concerns that traffic along public roads associated with the quarrying operation will create a noise nuisance (or that noise is not discussed) and general loss of amenity for adjacent residences.                                                                                                                                   | Yes                             | It is noted that environmental nuisance directly attributable to traffic movements associated with the proposal can be taken into account by the EPA Board in its determinations.<br><br>Road condition and use will affect the potential for the proposal to cause environmental nuisance. This is a matter which Council may consider during the planning assessment.<br><br>Provide a description of potential transport routes along public roads, residential setbacks along these routes and vehicle movements along these routes during peak production compared with during other periods to assist the EPA Board. Such information would be particularly relevant for hours of operation proposed outside of those specified in the Quarry Code of Practice. |
| 1,2,4, 5,7                 | The visual impact of the existing quarry is noted eg as a "scar on the landscape".<br><br>Concerns raised that the proposal will increase the extent of the visual impact.<br><br>On representor considers Visual impact                                                                                                              | No                              | This matter is outside the EPA Board's responsibility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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This document has been prepared in accordance with the scope of services agreed upon between Van Diemen Consulting (VDC) and the Client.

To the best of VDC's knowledge, the report presented herein represents the Client's intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

No responsibility is accepted for use of any part of this document in any other context or for any other purpose by third parties.

This document does not purport to provide legal advice. Readers should engage professional legal advisers for this purpose.

#### Document Status

| Revision | Author             | Reviewer and Organisation | Date       |
|----------|--------------------|---------------------------|------------|
| 1        | R Barnes C McCoull | RW Barnes, VDC Pty Ltd    | 23-09-2017 |
| 1        | R Barnes C McCoull | G Adams, Adams Group      | 25-09-2017 |
|          |                    |                           |            |
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|          |                    |                           |            |