

ENVIRONMENTAL ASSESSMENT REPORT

Gundagai Quarry Expansion

Bangor

DTK Logging Pty Ltd

Board of the Environment Protection Authority

August 2015



Environmental Assessment Report	
Proponent	DTK Logging Pty Ltd
Proposal	Gundagai Quarry Expansion
Location	Bangor
NELMS no.	8959
Permit application no.	DA0074/2015 (Launceston City Council)
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Class of Assessment	2B

Assessment process milestones	
18 September 2013	Notice of Intent submitted
23 October 2013	DPEMP Guidelines issued
29 April 2015	Permit application submitted to Council
30 April 2015	Referral received by Board
9 May 2015	Start of public consultation period
6 June 2015	End of public consultation period
2 July 2015	Supplementary information submitted to Board

Acronyms

ABO	Air blast overpressure
ANZECC	Australian and New Zealand Environment and Conservation Council
a.s.l	Above sea level
AHD	Australian Height Datum
Board	Board of the Environment Protection Authority
DPEMP	Development Proposal and Environmental Management Plan
DPIPWE	Department of Primary Industries, Parks, Water and Environment
EIA	Environmental impact assessment
EMPC Act	<i>Environmental Management and Pollution Control Act 1994</i>
EMPCS	Environmental management and pollution control system
EOP	Environmental Operating Procedure
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
LUPA Act	<i>Land Use Planning and Approvals Act 1993</i>
MRT	Mineral Resources Tasmania
PAF	Potentially acid forming
PCAB	Policy and Conservation Advice Branch
PCE	Permit Conditions Environmental
RMPS	Resource management and planning system
SD	Sustainable development
TSP Act	<i>Threatened Species Protection Act 1995</i>

Report summary

This report provides an environmental assessment of DTK Logging Pty Ltd's proposed Gundagai quarry expansion.

The proposal involves an increase in gravel production from 50,000 to 200,000 cubic metres per annum at an existing quarry, located on Gundagai road, Bangor. The activity will involve the development of two new extraction pits and an increase in blasting, crushing and screening.

This report has been prepared based on information provided by the proponent in the Development Proposal and Environmental Management Plan (DPEMP) and DPEMP Supplement. Relevant government agencies and the public have been consulted and their submissions and comments considered as part of this assessment.

On 30 June 2015, the Board requested that the proponent submit supplementary information to address public and government agency (including DPIPW) comments on the DPEMP and to meet other information requirements. Satisfactory supplementary information was submitted by the proponent on 2 July 2015.

Further details of the assessment process are presented in section 1 of this report. Section 2 describes the statutory objectives and principles underpinning the assessment. Details of the proposal are provided in section 3. Section 4 reviews the need for the proposal and considers the proposal, site and design alternatives. Section 5 summarises the public and agency consultation process and the key issues raised in that process. The detailed evaluation of key issues is in section 6, and other issues are evaluated in section 7 and Appendix 1. The report conclusions are contained in section 8.

Appendix 2 contains details of comments made and issues raised in the consultation process. Appendix 3 contains environmental permit conditions for the proposal. Attachment 2 of the permit conditions contains a table of commitments from the DPEMP.

The environmental permit conditions in Appendix 3 are a new set of operating conditions for the entire, intensified activity that will supersede the existing permit conditions.

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1 Approvals process

A Notice of Intent in relation to the proposal was received by the Board of the Environment Protection Authority (the Board) on 18 September 2013.

An application for a permit under the *Land Use Planning and Approvals Act 1993* (LUPA Act) in relation to the proposal was submitted to Launceston City Council on 29 April 2015.

The proposal is defined as a 'level 2 activity' under clauses 5(a) and 6a(ii), Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPC Act), being a quarry undertaking extraction, crushing and screening of rocks. Section 25(1) of the EMPC Act required Council to refer the application to the Board for assessment under the Act. The application was received by the Board on 30 April 2015.

Note, an application in relation to the proposal (DA0074/2015) was initially submitted to Launceston City Council on 17 February 2015 under the previous Launceston Interim Planning Scheme (2012). On 29 April 2015, the new Launceston Interim Planning Scheme (2015) came into effect. In accordance with section 30M(10) of the LUPA Act, Launceston City Council determined that the application, DA0074/2015, was to be taken to be an application made under the new Launceston Interim Planning Scheme (2015) on the day on which that scheme came into effect. Launceston City Council subsequently referred the application made under the new planning scheme to the Board.

The Board required that information to support the proposal be provided in the form of a Development Proposal and Environmental Management Plan (DPEMP) prepared in accordance with guidelines issued by the Board and Launceston City Council on 23 October 2013.

Several drafts of the DPEMP were submitted to the EPA Division for comment prior to its finalisation and acceptance on behalf of the Board. The final DPEMP was submitted to Council with the permit application. The DPEMP was released for public inspection for a 28-day period commencing on 9 May 2015. Advertisements were placed in *The Examiner* and on the EPA website. The DPEMP was also referred at that time to relevant government agencies for comment. Four (4) public submissions were received.

On 30 June 2015, the Director, EPA acting under delegation from the Board, requested that the proponent submit supplementary information to address public and government agency (including DPIPW) comments on the DPEMP and to meet other information requirements. Supplementary information was submitted by the proponent on 2 July 2015.

2 SD objectives and EIA principles

The proposal must be considered by the Board in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and in the context of the objectives of the Environmental Management and Pollution Control System (EMPCS) (both sets of objectives are specified in Schedule 1 the EMPC Act). The functions of the Board are to administer and enforce the provisions of the Act, and in particular to use its best endeavours to further the RMPS and EMPCS objectives.

The Board must undertake the assessment of the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of the EMPC Act.

3 The proposal

The proposal involves an increase in gravel production from 50,000 to 200,000 cubic metres per annum at an existing hard rock quarry, located on Gundagai road, Bangor, north-west of Lilydale (Figure 1). The activity will involve an expansion of the current pit and development of two new pits to the west (Figure 2), with an associated increase in drilling, blasting, crushing and screening.

The two new areas of extraction will be progressively opened, with all three pits to be connected by internal haul roads, with the potential to operate at the same time.

The proposal includes an alteration to the quarry operating hours from a start time of 0700 hours to 0600 hours Monday to Friday for the loading and transport of product to off-site work areas.

Modification of the water management system, involving the partial infilling of the existing dam and construction of a new dam was approved in 2014 (EPN 9053/1). The design of the new dams largely accounts for the proposed quarry expansion, and therefore will not be directly assessed in this report. They will nevertheless be discussed to provide context around the site wide management of stormwater, which is assessed.

Note, the quarry is located on Gundagai Road. It is referred to as Gundagai Road Pit in Permit PCE 7907 and EPN 9053/1. For consistency with the DPEMP and DPEMP supplement however, the quarry is referred to in this report as Gundagai quarry.

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 2 of the DPEMP.

Table 1: Summary of the proposal's main characteristics

Activity	
Extraction, crushing and screening of up to 200,000 cubic metres of rock per annum.	
Location and planning context	
Location	337 Gundagai Road, Bangor, north-west of Lilydale (Figure 1).
	The Land is defined as the boundary of mining lease 1676P/M (Figures 1 and 2)
Land zoning	Rural Resource (Interim Launceston Planning Scheme 2015)
Land tenure	Private, PID 2215427, Land Tile Reference 139706.
Mining lease	1676P/M
Lease area	13.64 hectares
Bond	The bond was last updated in 2013, and is set as \$11,550. Mineral Resources Tasmania (MRT) indicated that the lease is up for renewal in 2018. A comprehensive review of the bond will be undertaken at this time.
Existing site	
Land Use	The existing quarry is approved to extract and crush up to 50,000 cubic metres of rock per annum. A pine plantation is also located on the mining lease.
Topography	The quarry is located within the Retreat Land System, characterised by low forested hills trending north-north-west.
Geology	Ordovician to Devonian siltstone and sandstone of the Mathinna Beds group. The quarry rock is a hard graywacke with a mineralogical composition of 75% quartz, 5% Feldspar, 5% Opaques and 15% matrix.

Soils	Sandy soils.
Hydrology	<p>The quarry is located within the Pipers River catchment (regional drainage is shown in Figure 2-3 of the DPEMP). A tributary of the Third River runs through the western side of the mining lease (Figure 3).</p> <p>An altered water course runs through the centre of the quarry with an existing on line sediment dam ("upper dam", Figure 3). Approval has been granted for alteration to this dam to create a drainage bypass, and the construction of a new on line sediment dam ("lower dam", Figure 3) approximately 60 metres downstream (EPN 9053/1).</p>
Fauna	There are no records on the mining lease of threatened fauna species listed under the relevant Schedules of the Tasmanian <i>Threatened Species Protection Act 1995</i> (TSP Act) and Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).
Flora	There are no records on the mining lease of threatened flora species listed under the relevant Schedules of the TSP Act and EPBC Act.
Local region	
Climate	<p>Winds are predominantly from the west and north-west (Launceston station, Ti Tree Bend, approximately 20kms south of Bangor).</p> <p>The average annual rainfall is 991.6 mm (Scottsdale-West Minstone road station, 39 year record).</p> <p>The mean maximum and minimum temperature is 17.3 and 7.1 degrees Celsius respectively (Scottsdale-West Minstone road station, 35 year record).</p>
Surrounding land zoning, tenure and uses	<p>The quarry is located adjacent to a Permanent Timber Production Zone (to the north west) managed by Forestry Tasmania, with other adjoining lands being private freehold title (Figure 2-3 of DPEMP).</p> <p>All surrounding land is zoned Rural Resource (Interim Launceston Planning Scheme 2015)</p>
Species of conservation significance	<p>The following threatened fauna species have been recorded from the local area (Figure 4-7-2 of the DPEMP):</p> <ul style="list-style-type: none"> • Wedge-tailed eagle (<i>Aquila audax subsp. fleayi</i>); • Spotted-tailed quoll (<i>Dasyurus maculatus subsp. maculatus</i>); • Tasmanian devil (<i>Sarcophilus harrisi</i>); and • Green and gold frog (<i>Litoria raniformis</i>). <p>The following threatened flora species have been recorded from the local area (Figure 4-7-2 of the DPEMP):</p> <ul style="list-style-type: none"> • Superb greenhood (<i>Pterostylis grandiflora</i>); and • Guinea flower bush pea (<i>Pultenaea mollis</i>).
Proposed infrastructure	
Major equipment	<ul style="list-style-type: none"> • Excavators (Komatsu 30 tonne and 20 tonne); • Crushers (Komatsu BR 380JG and 424 Cummins); • Wheel loader (Komatsu 320); and • Generator infrastructure (Stanford 200 kilowatt generator and Diesel engine - Caterpillar Model: CAT 3306).
Other infrastructure	<ul style="list-style-type: none"> • Car park (6 spaces); • Access road and gate; • Site drainage; and • Automated load dampening facility.
Inputs	
Water	Water for dust suppression.
Energy	Fuel for generator, excavation/haulage equipment, and crushers.

Other materials	Explosives brought onto the site as required.
Wastes and emissions	
Liquid	Stormwater runoff from extraction areas, haulage roads and stockpiles. The site represents low potential for acid rock drainage.
Atmospheric	Dust from internal and external traffic, materials handling and blow-off from stockpiles.
Solid	General refuse including food scraps, paper and packaging.
Controlled wastes	Nil
Noise	Noise from crushing and screening, excavating, vehicle movements on site and going to and from the site, and drilling and blasting (including vibration and air blast overpressure).
Greenhouse gases	Use of machinery and vehicles will consume fossil fuels and cause greenhouse gas emissions. According to the DPEMP, machinery is well maintained ensuring maximum fuel/oil efficiency.
Construction, and operations	
Proposal timetable	<p>According to Figure 4-2-1 of the DPEMP (Figure 3 of this report), the quarry will extend into the northwest and southwest areas of the mining lease at 2020. Note, the DPEMP also indicates that the initial development of the NW extraction pit will be in 3 to 5 years.</p> <p>The new quarry areas will not be opened up for extraction until after the lower sediment dam is constructed and operational.</p> <p>The lower sediment dam will be constructed prior to the existing online sediment dam is bypassed.</p>
Operating hours (ongoing)	<p>Proposed operating hours will be:</p> <ul style="list-style-type: none"> • 0600 hrs to 1900 hrs Monday to Friday; • 0800 hrs to 1600 hrs on Saturday; and • closed on Sunday and public holidays. <p>Blasting will be limited to between 1000 hrs and 1600 hrs Monday to Friday.</p>

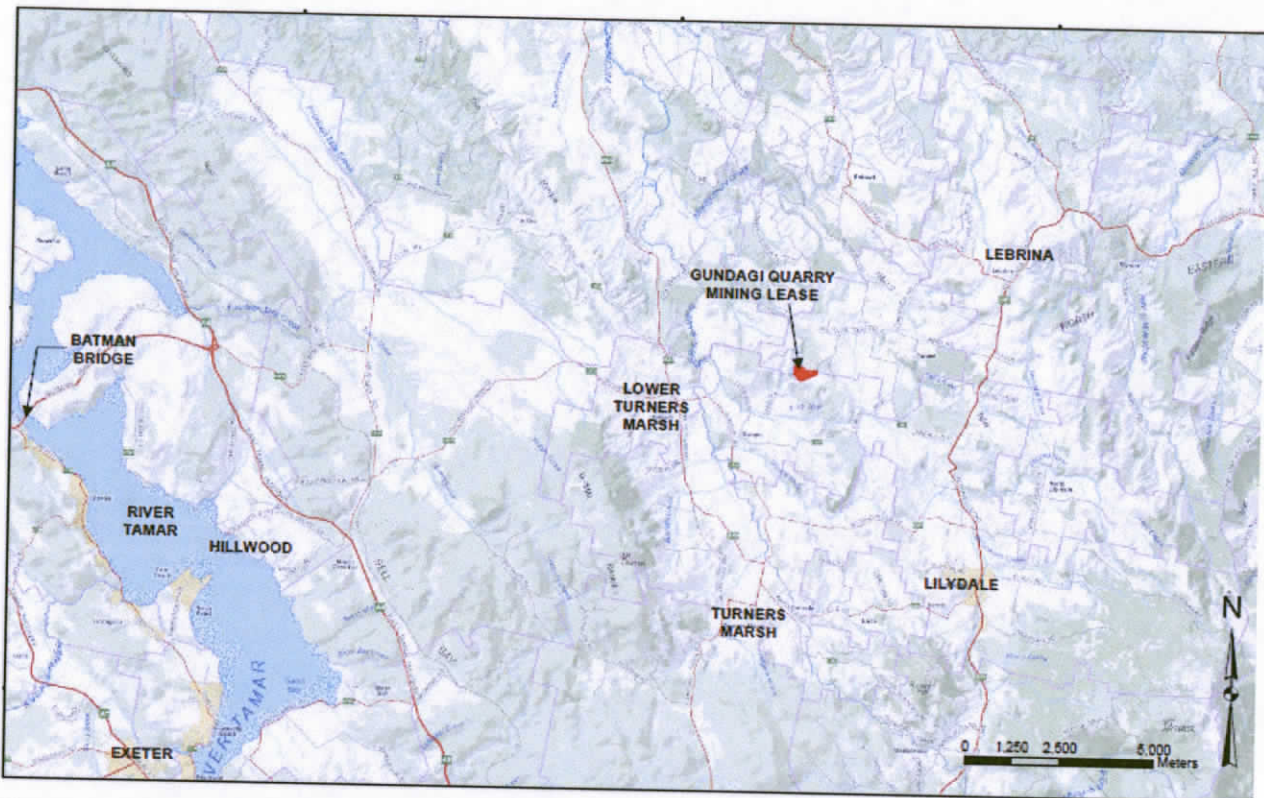


Figure 1: Location of Gundagai quarry mining lease 1676P/M (Figure 1-1 of the DPEMP)

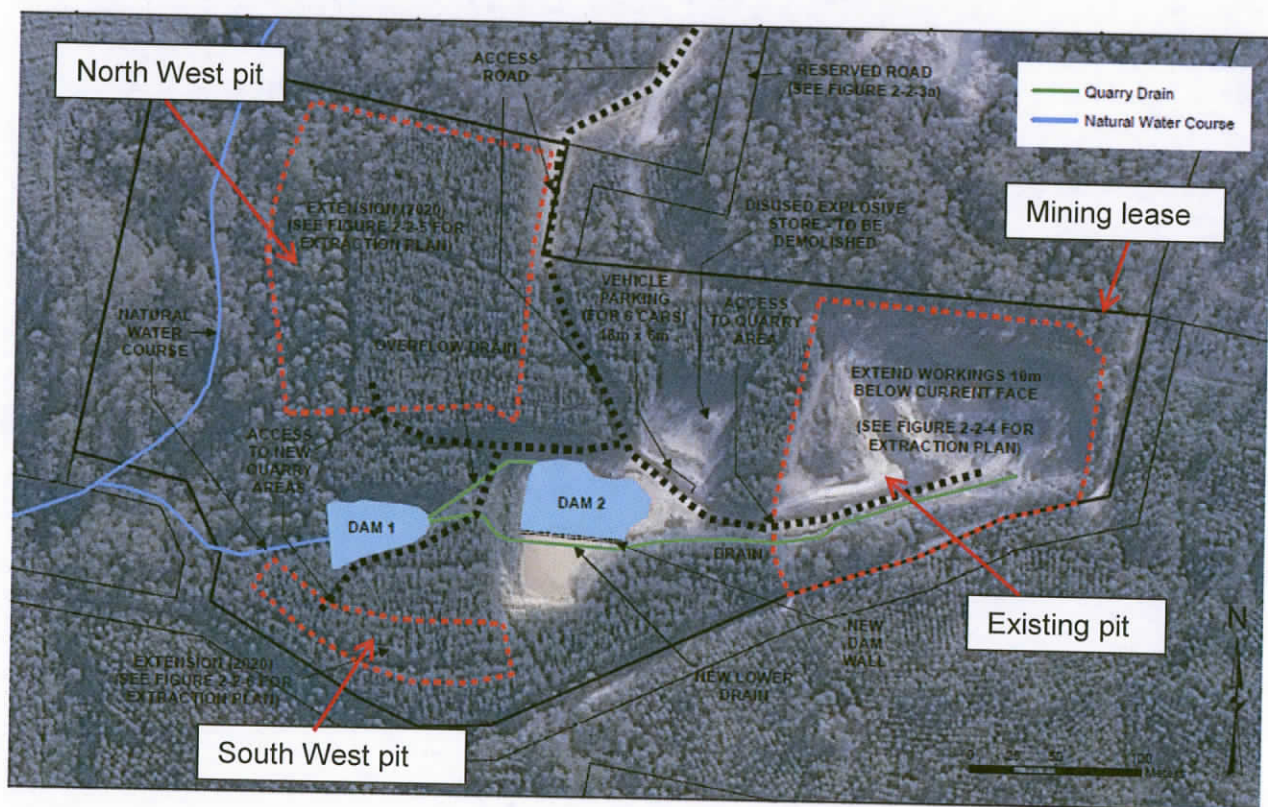


Figure 2: Site plan (Figure 2-2-3b of the DPEMP).

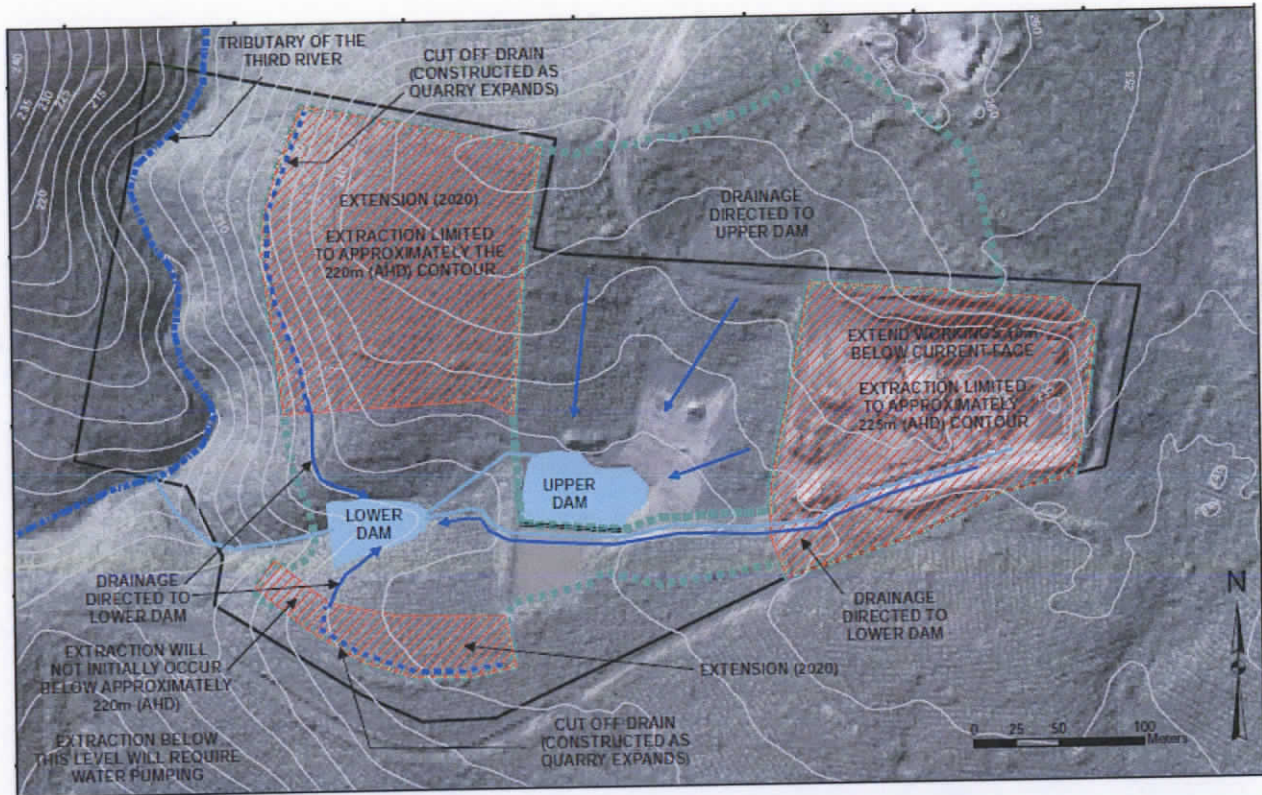


Figure 3: Proposed drainage and extraction plan (Figure 4-2-1 of the DPEMP)

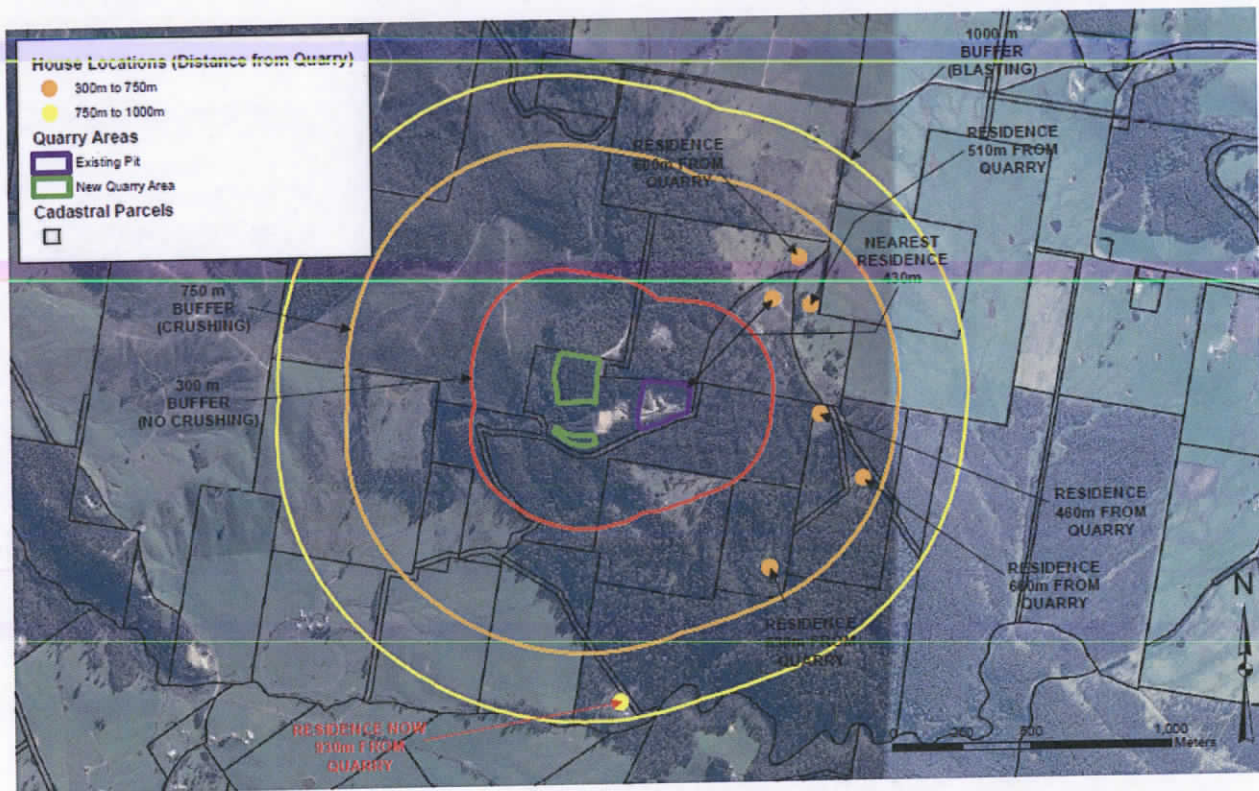


Figure 4: Nearest residences (Figure 4-4-5 of the DPEMP)

4 Need for proposal and alternatives

According to the DPEMP, DTK Logging Pty Ltd has operated a quarry at Gundagai Road for the past fourteen years, providing a large selection of high quality construction materials, contributing significantly to regional development.

The quarry currently employs four staff, consisting of three people full time and one casual position. At the expanded volume at full capacity, the quarry will employ up to 6 people.

5 Public and agency consultation

A summary of the public representations and government agency/body submissions is contained in Appendix 2 of this report.

Four representations were received. The main environmental issues raised in the representations included:

- Storage and handling of environmentally hazardous materials; and
- Traffic noise and assessment.

The DPEMP was referred to a number of government agencies/bodies with an interest in the proposal. Responses were received from the following:

- Mineral Resources Tasmania.

The following Divisions/areas of the Department of Primary Industries, Parks, Water and Environment also provided submissions on the DPEMP:

- Policy and Conservation Advice Branch.

No details were provided in the DPEMP on consultation undertaken by the proponent in relation to the proposed activity.

The DPEMP Supplement prepared by the proponent provides a response to each of the relevant environmental issues raised by the public and government agencies/bodies.

6 Evaluation of key issues

The key environmental issues relevant to the proposal that were identified for detailed evaluation in this report were:

- Noise emissions;
- Blasting (air overpressure and vibration); and
- Stormwater and sediment management.

These issues are discussed in the following subsections.

6.1 Noise emissions

Description

There will be no new noise sources associated with the quarry expansion.

Noise emissions will continue to result from the use of:

- the drill rig;
- primary and secondary crushers; and
- on-site ancillary equipment (e.g. excavators, loader, trucks).

Seven houses are located within 1 km of the expanded quarry operation. The nearest residences are approximately 430 m and 460 m to the north east and east respectively (Figure 4).

The quarry will continue extraction activities within the existing pit, extending workings 10 metres below the current quarry face. It will also expand into two new areas to the west of the existing pit (Figure 2). The distances between the NW extraction area and nearby residences are shown in Figures 5 and 6, and range from 685 m to over 1 km.

The DPEMP indicated that all three areas may be operational at the same time, although the crusher will only be located within the existing pit, or the NW extraction area (Figure 2) once a pit in this area has been established, estimated to be in 3 to 5 years.

Modelling was undertaken in 2010 by VIPAC to predict noise from drilling, crushing and general quarry activities from the existing pit. A follow-up noise survey was undertaken in 2013 (VIPAC) to assess noise levels, including the potential noise impact of crushing in the existing pit during early morning hours (0600 to 0700).

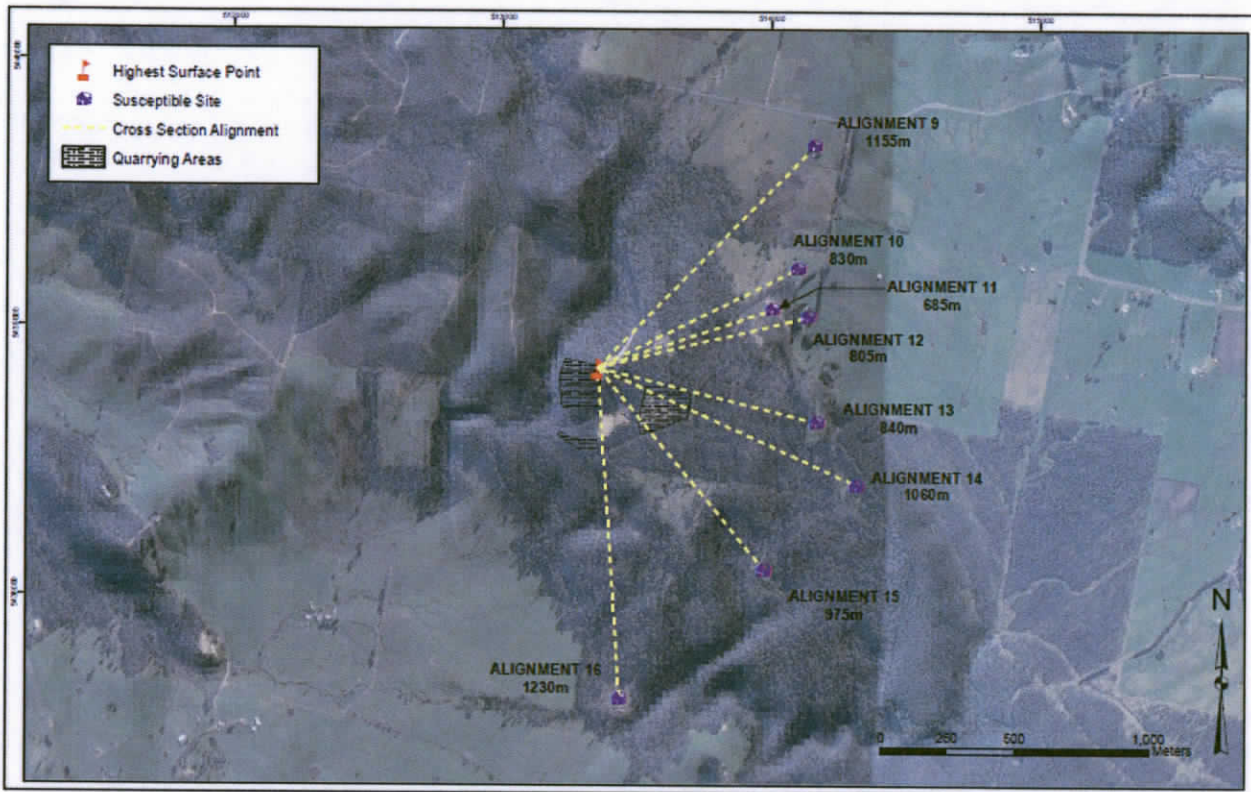


Figure 5 Distance to nearest residences from the topographical high point within the NW extraction area (Figure 4-4-7a of DPEMP)

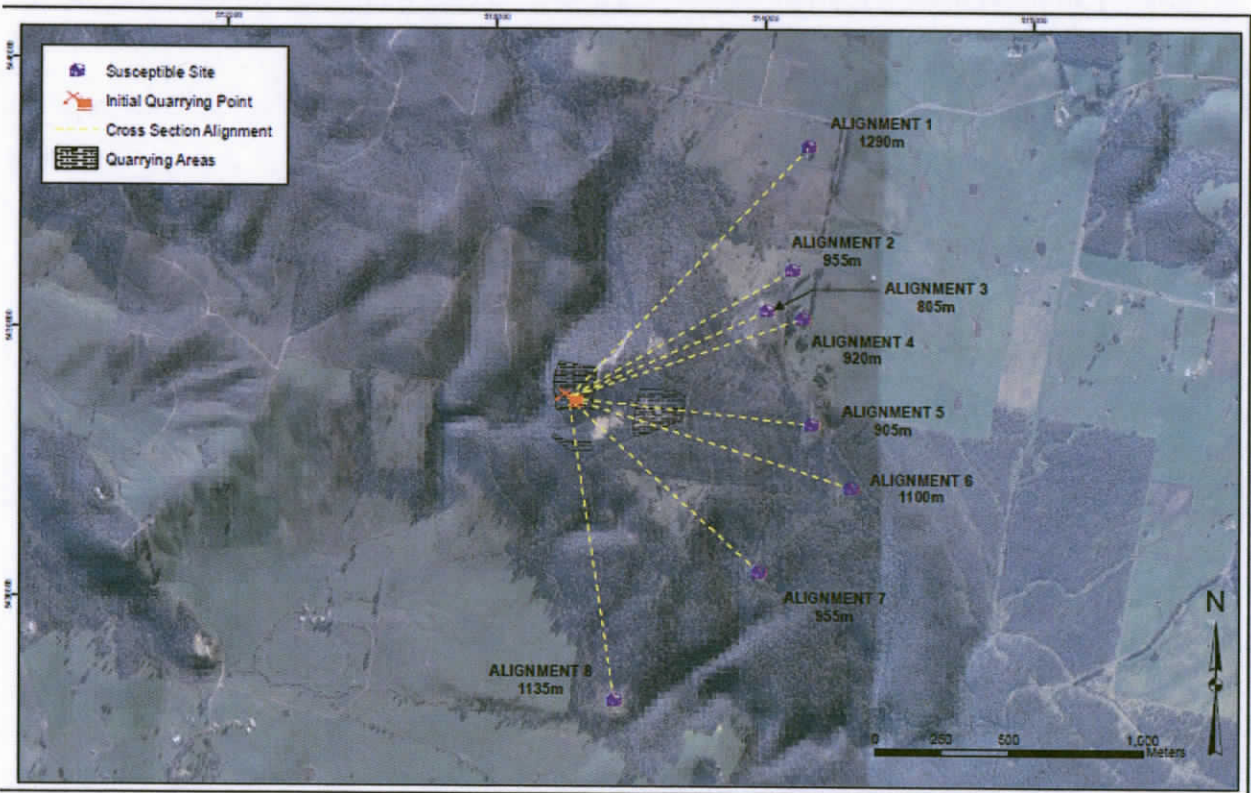


Figure 6 Distance to nearest residences from the initial quarrying location within the NW extraction area (Figure 4-4-6a of DPEMP)

The acoustic modelling report (VIPAC, 2010) and noise survey (VIPAC, 2013) report are contained within Appendix H of the DPEMP.

The key findings of the reports are as follows (note, the second nearest residence located 460 m from the quarry, Figure 4, was used as a monitoring and modelling point):

Truck loading

- General activity within the quarry (truck loading, no crushing) was not audible during night time hours (0600 – 0700 hrs) (2013).
- Based on noise monitoring at the quarry lip, noise generated by truck loading is expected to be well below 35 dB(A) at the residence (2013).

Crushing

- Crushing and screening was predicted to vary between 32.8 and 39.8 dB(A) $L_{Aeq,10min}$, at the residence, depending on the projected depth of the existing pit (Table 10 of Appendix H).
- Crushing and screening noise at the residence was measured to be 35.4 dB(A) $L_{A90,10min}$ in 2013, and 38 dB(A) $L_{A90,10min}$ in 2010 (note, weather conditions during the 2013 survey were not considered to be 'worst case' in terms of noise transmission).

Drilling

- Noise level at the residence from drilling on the upper bench at the western end of the existing pit was predicted to be 54.7 dB(A) $L_{Aeq,10min}$ (2010).
- The western bench was assumed to be the most exposed location from which noise emissions could occur (239 m a.s.l) (2010).
- Predicted noise levels at the residence varied from 40 dB(A) $L_{Aeq,10min}$, drilling at the current depth at the time (230 m a.s.l), to 34.4 dB(A) $L_{Aeq,10min}$, drilling at a projected pit depth of 214 m a.s.l (2010).
- The model assumed 'worst case' weather conditions for noise transmission.
- Measured noise level at the residence from drilling at the current depth in the existing pit at the time (230m a.s.l, 2010) was 38 dB(A) $L_{A90,10min}$.

Note, the VIPAC reports (2010 and 2013) refer to altitude level in metres a.s.l (above sea level). The proponent indicated that this most probably means, above mean sea level. The DPEMP uses the altitude reference AHD (Australian Height Datum, in metres). For consistency, this report will also use the altitude reference AHD. As the AHD reference value is mean sea level for the period 1966-1968, it is assumed that there is minimal difference between the altitude references used in the VIPAC reports and that used in the DPEMP and this report.

According to the DPEMP, the topography between the existing pit and the nearest residences (430 m and 460 m away, Figure 4), is relatively flat, with the existing pit being below the natural surface. Most of the noise from machinery within the existing pit (e.g. the crusher and screening equipment) is currently deflected by the eastern quarry face, which acts as a topographical buffer for the residences to the east.

Noise levels from the new extraction areas

The project specific guidelines issued to the proponent required acoustic modelling be undertaken to predict noise levels from the quarrying activities.

Modelling to predict noise levels from quarrying activities within the NW and SW extraction areas however was not undertaken. The proponent nevertheless used the results of the contour based model provided in the VIPAC report (2010) to estimate noise emissions from drilling at the initial quarrying point in NW quarry area, assuming no topographic shielding (Figure 4-4-8 of the DPEMP).

Noise levels are predicted to be 49.5 dB(A) L_{Aeq} at the nearest residence, 805 m away from the initial quarrying point in the NW quarry area (alignment 3 in Figure 6).

According to the DPEMP, all residences to the east will be topographically shielded from this location (e.g. Figure 7, with all topographical cross sections shown in Figures 4-4-6b to 4-4-6i of the DPEMP).

The proponent considers the effect of the topography will be to reduce the estimated drill rig noise to less than 46 dB(A) at the nearest residence.

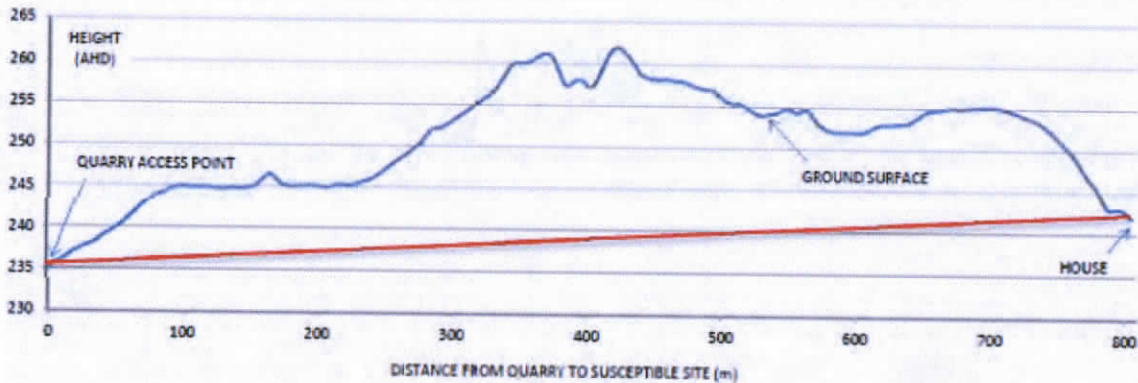


Figure 7 Topography between the initial quarry point in the NW area and the closest residence (alignment 3 in Figure 6) (Figure 4-4-6d of the DPEMP) (X-axis units are AHD metres).

The DPEMP concluded that there is also topographic shielding between the high point in the NW quarry area and the residences to the east, considered a 'worst case' location in terms of height (at approximately 250 m AHD) and distance (685 metres to the nearest residence, alignment 11 in Figure 5). Topographical cross sections are shown in Figures 4-4-7b to 4-4-7i of the DPEMP.

The DPEMP did not provide an estimate of the noise levels at the nearest residence from drilling at this 'worst case' location, stating that the drill rig will not be sited here.

The DPEMP did not provide an estimate of the noise levels from the crusher located within the NW quarry area, noting that drilling is expected to be the most intrusive noise source.

The DPEMP did not provide an estimate of noise levels from the SW quarry area.

Management measures

The following management measures were proposed in the DPEMP:

- *Operating hours will be 0600 to 1900 hrs Monday to Friday, 0800 to 1600 hrs on Saturday; closed on Sunday and public holidays. Notwithstanding these operating hours, blasting will be limited to between 1000 and 1600 hrs Monday to Friday and crushing will not occur between the operating hours of 0600 and 0700 hrs Monday to Friday (commitment 1).*
- *Native vegetation will be retained at the north-eastern corner of the Mining Lease to provide noise attenuation, and also to the west to provide landscape amenity (commitment 12).*
- *A shrouded drill rig will be sourced for the drilling in the quarry. If this is not practicable then shrouding of an existing rig used at the site will be explored. An existing product such as*

Flexshield Sound Stop or a flexible PVC curtain can provide between 10 to 15 dB transmission losses.

Public and agency comment and responses

No comment was received.

Evaluation

The VIPAC noise survey (2013) and modelling (2010) demonstrated that the operation of the crusher from the existing pit is unlikely to exceed 40 dB(A) at the nearest residence, and hence is unlikely to result in a noise nuisance during daytime and early evening hours, i.e. 0700 hrs to 1900 hrs.

If crushing, however, were to occur during early morning (0600 hrs to 0700 hrs), a noise nuisance at nearby residences may be expected. The commitment (commitment 1) to not operate the crusher before 0700 hrs is required, and is reinforced by condition **N1** (operating hours).

Note, the proposal involves a 0600 hrs start time to quarry operations from Monday to Friday (commitment 1) to enable the loading and cartage of product to work areas off-site. The VIPAC noise survey (2013) indicated that on site truck loading is unlikely to cause a noise nuisance during early morning hours (i.e. 0600 hrs to 0700 hrs).

The loading and haulage of product to off-site work areas however is restricted to the quarry's current operating hours (**N1**), in line with the Quarry Code of Practice (1999), due to the potential for early morning noise nuisance to residences from truck movements along the transport route. This is discussed further in Appendix 1, Issue 8, Traffic Impacts.

According to the DPEMP, the crusher may be moved within the existing pit from its location shown in Figure 2-2-4a, as the pit is worked. The crusher will remain within the bounds of the pit however, and therefore any relocation is unlikely to cause a noise nuisance. Note, if there is a change to the activity that may lead to a substantial increase in noise emitted from The Land, conditions **N2** (limits), and **N3** and **N4** (noise survey) will reduce the risk that a noise nuisance will occur.

It is unlikely that the operation of the crusher from the NW extraction area will result in a noise nuisance given the increased distance to the nearest residences, local topography, and strategy to only move the crusher once a pit has been established, after 3 to 5 years. Conditions **N2**, and **N3** and **N4** will nevertheless still apply.

The proposed intensification will result in the crushing of up to 4 times more material. Conditions **N1** to **N4** will ensure that this is unlikely to cause nuisance (see also Appendix 1, Issue 3, Air Emissions).

The proponent also indicated that all three pits may potentially be open at the same time to allow for the sourcing of different rock types. As no new noise sources will be generated, e.g. additional crushing equipment, noise levels are not expected to differ substantially from those modelled, surveyed or discussed in this report.

The noise limits imposed by these conditions (**N2**) remain unchanged from the previous permit (PCE 7907). The evening and night time limits are those typically imposed for quarrying activities. The daytime limit was based on 10 dB(A) above ambient noise levels measured in the absence of the quarry operation, in line with the Quarry Code of Practice (1999).

Commitment 12, to retain native vegetation at the north-eastern corner of the mining lease is supported, although unlikely to provide a significant noise buffer.

The DPEMP indicated that the existing pit will be deepened and progressively quarried towards the western end. Based on the VIPAC modelling report (2010), the proposed pit development would likely necessitate drilling at heights and locations that may result in noise levels exceeding the daytime limit at the nearest residence (46 dB(A), **N2**).

Assuming the same drill rig is used, noise levels may be exceeded by as much as 7 to 8 dB(A) if drilling were to occur on the present surface (e.g. above 240 m AHD, Figure 8), away from the shielding effects of the eastern quarry face.

It is noted that a 'first' bench will also be created at 232 m AHD. Sufficient information has not been provided in the DPEMP to determine whether drilling at this height, particularly away from the eastern quarry face, will comply with the daytime limit.

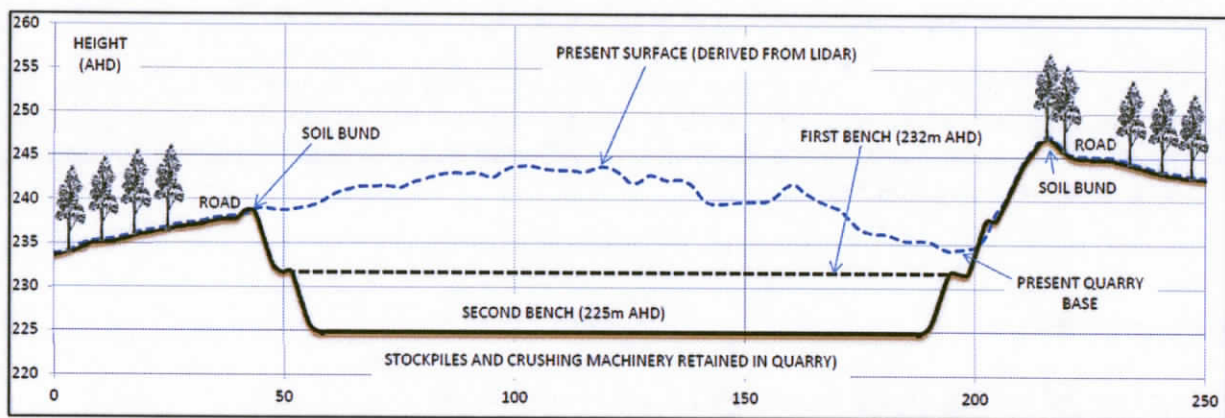


Figure 8 Cross-section of quarry extraction plan for the existing pit (Figure 2-2-4b of the DPEMP).

To reduce the risk that drilling in the existing pit creates a noise nuisance, the proposal to use a shrouded drill rig at the quarry, or similar, is required by condition **N5**. The options proposed in the DPEMP to mitigate drill noise are considered appropriate. A transmission loss of up to 10 to 15 dB is considered possible.

Condition **N3** requires a survey be undertaken to demonstrate compliance with the noise emission limits contained within these conditions when first drilling in the existing pit at an exposed location, i.e. at or above 239 m AHD.

With regard to the NW extraction area, it is agreed that the topography between the initial quarrying point and the nearest residence (805 m away) may reduce the drill rig noise level to below the daytime limit. The modelled noise level of 49.5 dB(A) assumed worst case weather conditions for noise propagation. Assuming a similar drill rig is used, it is unlikely noise levels will exceed this level at the nearest residence.

Worst case weather conditions however, for example downwind propagation or inversion conditions, may also act to significantly reduce the buffering effect of the topography, such that the noise level at the nearest residence may exceed the daytime limit (46 dB(A), **N2**).

Further, as the NW pit is developed north-eastwards (see Figure 9), the drill rig may be positioned closer to the residences than the initial quarrying point.

To reduce the risk that a noise nuisance will occur when drilling on The Land, condition **N5** is to also apply when drilling within the NW or SW areas.

Noise levels from drilling within the SW area are not expected to be significantly different from those from the NW area.

A detailed mining plan for the proposed development was not provided. Indeed, the DPMP supplement indicated that the cross sections provided in the DPMP did not illustrate the final landform (and bench heights), and that this will be subject to further review as the quarry nears exhaustion.

Acknowledging the potential shielding effect of the eastern quarry face of the existing pit, and the potential for bench development in the other areas, if it is suspected that noise mitigation for drilling is not required at some stage in the future, condition **N5** allows for the proponent to present a case to the Director to discontinue drill shrouding or equivalent.

The evaluations contained within this section are largely based on the previous VIPAC studies. It is noted that these studies reported noise levels at a residence 30 m further away than the nearest residence. All being equal, a decrease in 30 metres will lead to an increase of approximately 0.5 dB(A). This increase is regarded as negligible.

Conclusions

The proponent will be required to comply with the following conditions:

- N1 Operating hours**
- N2 Noise emission limits**
- N3 Noise survey requirements**
- N4 Noise survey method and reporting requirements**
- N5 Rock drill noise**

The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (**O11**).

6.2 Blasting (air overpressure and vibration)

Description

According to the DPMP, each blast is likely to produce approximately 20,000 to 25,000 cubic metres of rock. The proposed intensification will therefore result in an increase in blasting frequency from approximately 2 blasts per year up to 8 to 10 blasts per year.

The proponent indicated that blasting may be undertaken in campaigns, with 2 or 3 blasts occurring over a short period (a week or two), in the same or different sections of the quarry.

Blasting within the existing pit occurs predominantly on the western face, southern face and on the quarry floor. Blasts will therefore be orientated eastwards, northwards, or have no orientation (i.e. blasts on the quarry floor, directed upwards).

Modelling was undertaken in 2010 by VIPAC (Appendix H) to predict air blast overpressure (ABO) and ground vibration from blasting within the existing pit. Ground vibration and ABO were also measured during an establishment blast.

The key findings from the VIPAC report (2010) are as follows:

- ABO at the residence 460 m from the quarry was measured at 114.8 dBL, from an establishment blast. This was within 0.2 dB of the recommended ANZECC limit (115 dBL). The modelled ABO for the same blast slightly underestimated the measured value (modelled at 114.1dBL).
- Modelled ABO at the residence 460 m from the quarry was 114.6 dBL, for a face blast.
- Blasting operations are unlikely to generate vibration levels at or above the recommended ANZEC limit of 5 mm/s at any residence.
- The highest predicted ground vibration at the residence was 3.3 mm/s, for a face blast.

Modelling of air blast overpressure and ground vibration at the nearest residence from blasting within the two new extraction areas was not undertaken.

The two new extraction areas are further west and hence, according to the DPMP, not likely to result in any greater blast impact to nearby residences (air blast overpressure/vibration) than currently experienced from the existing pit. The face orientations within the new extraction areas will be such that blasts will be directed away from the nearest residences to the east (Figures 9 & 10). Establishment blasts will be located low in the catchment (initial quarrying location, Figure 9 and 10), providing for topographical buffering.

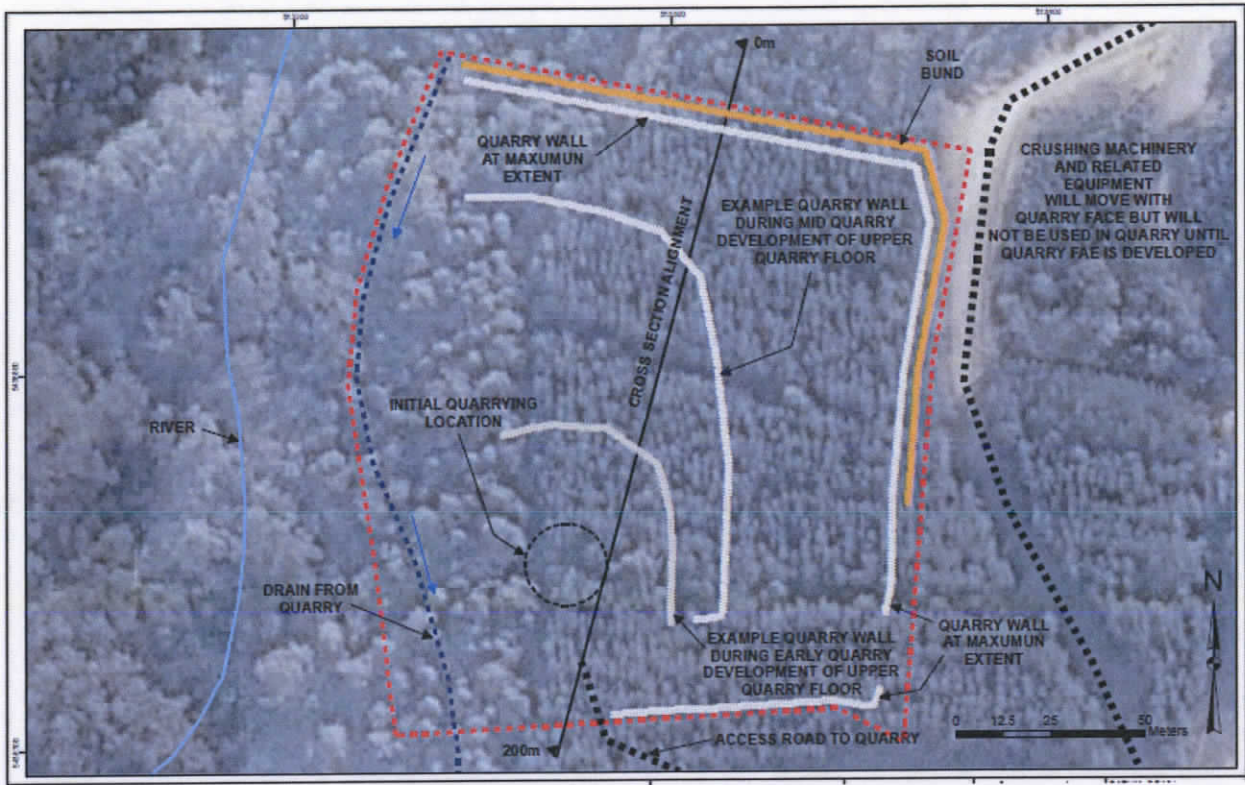


Figure 9 Quarry plan, NW extraction area (Figure 2-2-5a of DPEMP)

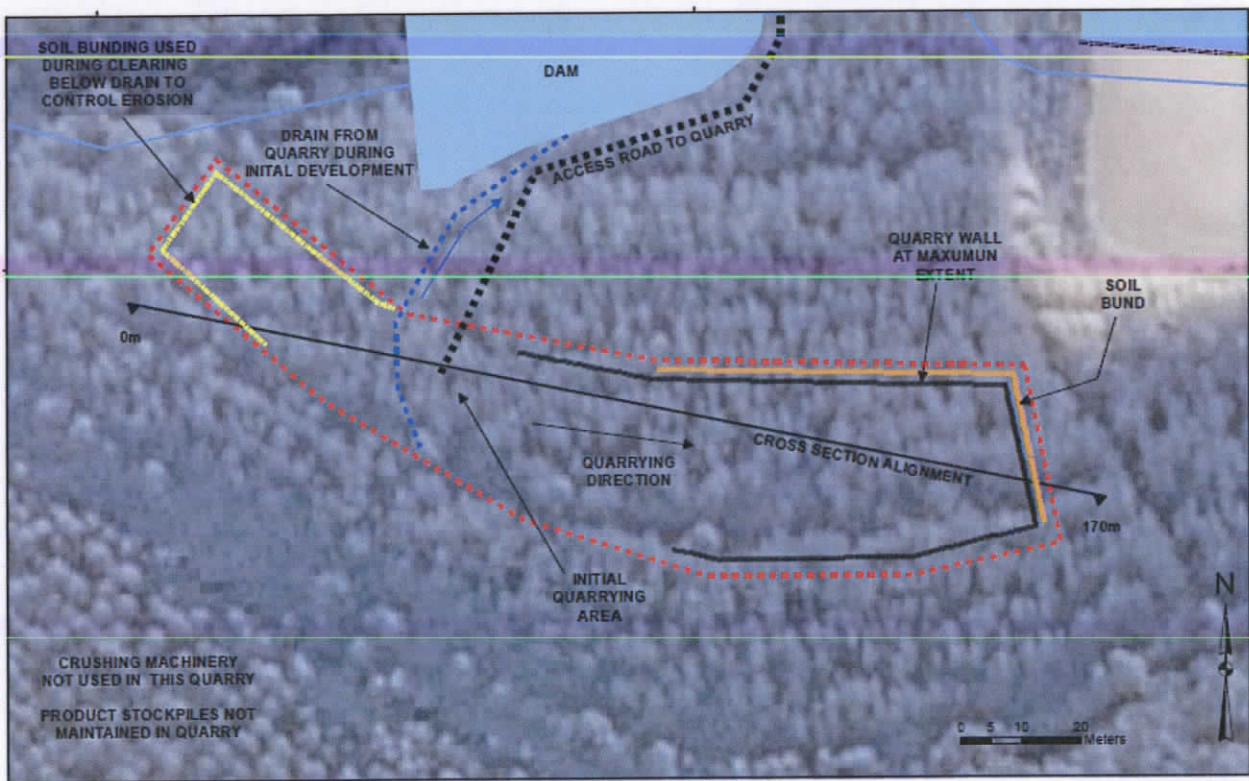


Figure 10 Quarry plan, SW extraction area (Figure 2-2-6a of DPEMP)

Management measures

The following management measures were proposed in the DPEMP:

- *Operating hours will be – 0600 to 1900 hrs Monday to Friday, 0800 to 1600 hrs on Saturday; closed on Sunday and public holidays. Notwithstanding these operating hours, blasting will be limited to between 1000 and 1600 hrs Monday to Friday and crushing will not occur between the operating hours of 0600 and 0700 hrs Monday to Friday (commitment 1).*
- *The Blast Management Plan 2, August 2014 and future iterations of this Plan will continue to be implemented under the expanded quarry activity to mitigate noise nuisance to surrounding landowners (commitment 9).*

Measures to be applied during the preparation of a blast, as outlined in the Blast Management Plan 2, August 2014 (Appendix G), include;

- *All residents within a 1 km radius of a blast will be notified prior to that blast. This notification must be given at least 24 hours before such blasting is due to occur.*
- *The EPA Director will be notified on each occasion prior to blasting at the quarry. Notification will be given as early as possible, but at least 24 hours before blasting is due to occur.*
- *The monitoring of ground vibration and air blast overpressure will be carried out for all quarry blasting at multiple locations by the blast contractor.*

Other mitigation outlined in the DPEMP includes the following:

- *Blasting will be avoided when atmospheric inversions are present and when the prevailing wind direction is from the west; and*
- *Cap the charge mass/delay at 46 kg. Stemming height will be no less than 3 m. For face blasts, burden will be no less than 3 m.*

Public and agency comment and responses

No comment was received.

Evaluation

The commitment (commitment 1) to only undertake blasting between 1000 hrs and 1600 hrs Monday to Friday is supported, and required by condition **B1**. Condition **B2** requires notification of neighbours and the Director prior to blasting, in line with the Blast Management Plan.

The blast modelling undertaken by VIPAC (2010) indicated that the proponent will likely comply with the ANZEC limits on blasting from the existing pit, which permits an exceedance of 115 dB (LinPeak) at any residence for ABO, not more than 5% of the blasts (condition **B3**).

However, it is noted that the modelled ABO, at least for an establishment blast, slightly under estimated that measured, with the ABO levels at the residence 460 m from the quarry close to the ANZECC limit (VIPAC report, 2010). If appropriate blast procedure and practices are not implemented, exceedance of the ABO limit may occur, particularly from operations within the existing pit.

The commitment (commitment 9) to implement a Blast Management Plan (BMP) is supported. Note, the BMP submitted in support of the current proposal (Appendix G) appears to be out of date, with blasts scheduled for January 2014, February 2014 and August 2014.

Condition **B4** will ensure the Blast Management Plan is up to date and describes appropriate blast procedures to ensure ABO and ground vibration are minimised prior to any blasting on The Land.

Condition **B5** will ensure monitoring is undertaken for each blast to demonstrate compliance with the limits contained in these conditions.

The proponent's assertion that blasting undertaken from the two new extraction areas is unlikely to result in any greater impact to residences than that undertaken from the existing pit is supported. The above conditions will nevertheless ensure blasting is appropriately managed and monitored.

Conclusions

The proponent will be required to comply with the following conditions:

- B1 Blast times**
- B2 Notification of blasting**
- B3 Blasting – noise and vibration limits**
- B4 Blast Management Plan**
- B5 Blast monitoring**

The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (**O11**).

6.3 Stormwater and sediment management

Description

The activity will create exposed surfaces that could be vulnerable to erosion and sediment loss during rainfall events.

The nearest water course, a tributary of the Third River, is approximately 50-60 metres west of the proposed quarry extension (Figure 3).

An altered water course, with approval for construction of an online sediment dam and alteration to an existing online dam (reduction in size, EPN 9053/1), runs through the centre of the quarry and feeds into the tributary of the Third River.

Drainage from the existing pit will be directed via a bypass channel into the lower sediment dam as the pit is made deeper. The upper dam will remain to catch and treat stormwater from the north east section of the mining lease (Figure 3).

The lower sediment dam will treat stormwater from the two new extraction areas (Figure 3). Water from the extraction areas will be managed via cut-off drains and soil bunds (see Figures 9 and 10).

According to the DPEMP, the NW pit and first bench of the SW pit (Figure 11), will be developed to 221 m AHD, permitting gravity flow via a drain to the lower sediment dam (maximum water level of the dam is at 216 m AHD, Appendix I).

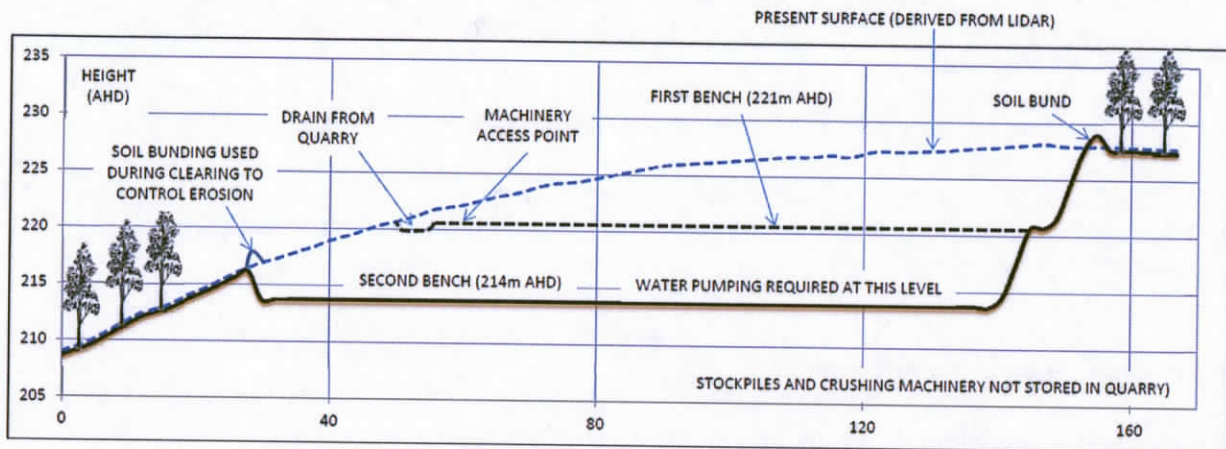


Figure 11 Cross-section of quarry extraction plan for the SW extraction area (Figure 2-2-6b of the DPEMP).

The SW pit however will be developed to a second bench at 214 m AHD, necessitating the pumping of water from the pit once it reaches a depth where water will no longer flow to the lower sediment dam. According to the DPEMP, soil bunding (e.g. as shown in Figure 10), will be used to direct water flow into the drain feeding the dam.

Soil bunding will also be used along the western edge of the SW area to control erosion during initial vegetation clearing below the drain (e.g. Figure 11).

An area in the eastern most section of the mining lease was found to exhibit potentially acid forming (PAF) characteristics. This area has subsequently been rehabilitated. While the DPEMP states there is no specific location record identifying the PAF zone, no further extraction or rehabilitation works are planned in the 'general area', being east of the existing pit.

Under the current proposal, the quarry will expand to the west and south.

A mineralogical analysis of an aggregate sample from the quarry (MRT, 2013), found no evidence of sulphates, sulphides other deleterious components. The mineralogical report noted however that the limonitic quartz veining and jointing is a good indication that the rock is likely to contain some minor pyrite, and that this may be a source of some secondary sulphates and acid drainage, especially where it is exposed (Appendix M).

Management measures

The following management measures were proposed in the DPEMP:

- *If PAF rock is detected in the quarry during works then further petrological testing could be conducted by MRT to confirm this (commitment 2).*
- *The existing and new sediment dams will be cleaned out either on a six monthly basis or at 15% storage volume. The sediment trapped will be reused as a fine material mixed with stockpiled top soil for progressive rehabilitation of used quarry areas (commitment 3).*

- *Monitoring will be undertaken in accordance with EOP Water Sampling 2014 (commitment 16). This includes the following:*
 - *Samples will be collected and tested from the discharge point (overflow) of the lower sediment dam 6 monthly, or if the intervening time between discharge events exceeds 6 months the sample will be collected at the next discharge event. Testing will be undertaken for the following parameters: Total suspended solids, pH and Oil and Grease.*
 - *The sample will be tested in a laboratory accredited by the National Association of Testing Authorities (NATA) for the specified test.*

Other mitigation outlined in the DPEMP includes the following:

- *Future clay seams can be excavated and stored to facilitate the capping of any PAF material encountered.*

Public and agency comment

MRT provided the following comment and request for information:

- Section 2.2.4 discusses the presence of Potentially Acid Forming (PAF) material, somewhere in the eastern section of the pit but the exact location is unknown. It was subsequently buried and capped. Does the proponent know where the PAF burial site is? Have any samples been tested for PAF from the two new proposed extraction sites?

The proponent's response is contained within the DPEMP Supplement and summarised where relevant in this section.

Evaluation

The proposed quarry intensification and expansion will likely result in an increased risk to the receiving environment from sediment-laden stormwater and acid rock drainage. The area of allowable disturbed land open at any one time will increase from 2 ha to 4 ha (see Appendix 1, Issue 7). The progressive clearing of vegetation, up to 4.3 ha, and subsequent development of the NW and SW pits will be undertaken in close proximity to water courses, and there is potential, albeit low, for the exposure of PAF material. The crusher will also be moved to the NW area and crush up to 4 times more rock.

Information on the nature of the aquatic receiving environment was lacking in the DPEMP, although an ecological report submitted in support of the quarry expansion in 2010 (Trawmana Environmental Consultant, 2010), was acknowledged.

This report identified a number of threatened (TSP Act and EPBC Act) aquatic species that may occur in the area, including the giant freshwater crayfish (*Astacopsis gouldi*), which has been recorded within the Pipers river catchment within 5 km of the quarry (Natural Values Atlas).

The report recommended that sediment loss to the aquatic environment be kept to a minimum.

The design of the dam system accounts for the proposed quarry expansion. It was assessed by ACDC and approved by the EPA in 2014 (EPN 9053/1). According to Appendix I of the DPEMP, the existing dam (upper dam in Figure 3) will be reduced to 0.8 ML at full capacity, and the lower dam constructed to 4.47 ML.

The sizing of the sediment ponds was based on a 5-day, 95th-percentile rainfall event and 2-year, 6 hour storm event intensity (Appendix I). The size of the sediment storage zone was based on a 6 monthly clean out.

To ensure the estimated quarry run-off volumes and pond capacity are not exceeded, condition **E1** requires that cut-off drains, or similar such as soil bunding, are established around the perimeter of the disturbance areas.

The commitment (commitment 13) to maintain design pond capacity through periodic clean-out is necessary and required by condition **E2**.

The proposed water management system for the NW pit, and the initial quarrying in the SW pit to 221m AHD (First Bench, Figure 11), allows for the collection, transfer, and treatment of stormwater prior to discharge (reinforced by Condition **E3**).

Quarrying within the SW pit below 220 m AHD however will likely require the pumping of water from the pit to the lower sediment dam. The DPEMP indicated that a similar practice is currently employed for the existing pit, and that this would only be undertaken for extraction purposes.

It was unclear in the DPEMP however, exactly how bunding around the SW extraction area, as shown in Figures 10 and 11, would be able to direct water into the drain with the pit at low levels, (e.g. 214 m AHD), thereby ensuring no overflow.

The DPEMP supplement indicated that the cross sections provided in the DPEMP (e.g. Figure 11) are likely to be subject to further review. As the first bench of the SW pit is unlikely to be fully developed until after 2020, condition **G8** (Environmental Management Plan) will capture any changes to the quarry plan, with subsequent review of the stormwater management system.

Further restrictions at this stage, beyond condition **E3**, are consider unnecessary.

The DPEMP supplement indicated that no samples from the proposed extraction areas have been tested for the presence of PAF material. The supplement further indicated that the proponent has experience with the material being quarried, and can visually identify rock that may be of concern. A number of suitable indicators for PAF, including low pH, were listed.

The commitment 2 however that MRT can undertake further test work if PAF were detected, provides no assurance that such work will be undertaken. MRT is not responsible for determining the geochemical nature of the proponent's quarry.

Further, the DPEMP also stated that petrological testing to ensure compliance with the Department of State Growth's road material standard may also detect locations of PAF. Such testing however would only occur if material were sold to the Department of State Growth, and indeed only if the Department sought testing for assurance purposes.

While it is acknowledged that the quarry represents a low PAF risk, condition **E4** is nevertheless required to ensure appropriate investigations are undertaken by the proponent, should water quality results indicate the potential exposure of PAF material.

Condition **E4** therefore requires that, if the pH of the lower sediment dam, or its discharge, falls below 6.5 pH units, then the proponent is to undertake an investigation into the reasons why this is occurring (see below for monitoring requirements). As very little water quality data exists for the quarry site, with 1 sample taken in 2010 indicating a pH of 7.1, the ANZECC (2000) investigative trigger value for a slightly to moderately disturbed ecosystem was used (**E4**, pH of 6.5).

The proponent indicated in the DPEMP supplement that a pH < 5.0 would help provide an early indication of the presence of PAF material. No basis however was provided for this figure. A pH < 5.0 is considered too low for the protection of the receiving environment.

Nevertheless, as more site-specific data becomes available for the quarry, condition **E4** permits a change to the pH trigger value, should the data support a change.

The proponent acknowledged that future clay seams can be excavated and stored to facilitate the capping of PAF material, if it were encountered. Condition **G9** will ensure that appropriate action is taken to manage any PAF material exposed by the activity.

The DPEMP indicates that no further works are planned in the 'general area' of the rehabilitated PAF zone, to the east of the existing pit. This is required by condition **G6**.

The proposed water quality monitoring program (commitment 16) is considered inadequate, as it may lead to infrequent sampling, and an inability to determine the success, or otherwise, of the water management system, particularly during the initial development of the new quarry areas.

Condition **M1** therefore requires the discharge immediately downstream of the lower sediment dam to be sampled at least every three months. If the dam does not discharge during the three month monitoring period, condition **M1** requires a sample of water to be taken from the sediment dam. This will assist in providing an early detection of any acid rock drainage and a check on the proper functioning of the water management system.

The proposed monitoring parameters are considered to be appropriate, although electrical conductivity (EC) is also required, as it is considered as a key water quality parameter.

Condition **E5** sets a total suspended solids limit of 30 mg/l at the monitoring site when discharging. This figure is in accordance with the Quarry Code of Practice (QCP), and will help ensure the protection of the receiving environment.

Note, after the initial clearance and pit development of the new extraction areas, if the water quality monitoring demonstrates the proper functioning of the water management system, and compliance with the limits contained within these conditions, condition **M1** allows the proponent to submit a case to the Director to alter the monitoring frequency.

Conclusions

The proponent will be required to comply with the following conditions:

- E1 Perimeter drains**
- E2 Maintenance of settling ponds**
- E3 Stormwater**
- E4 Effluent quality investigation trigger level**
- E5 Effluent quality limits**
- G6 Exclusion area**
- G8 Environmental Management Plan and review thereof**
- G9 Management of PAF material**
- M1 Monitoring requirements**
- M2 Dealing with samples obtained for monitoring**

M3 Water quality reporting

The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (O11).

7 Other issues

In addition to the key issues, the following environmental issues are considered relevant to the proposal and have been evaluated in Appendix 1.

1. Threatened flora and fauna
2. Weed and disease management
3. Air emissions
4. Aboriginal heritage
5. Waste management
6. Environmentally hazardous materials
7. Rehabilitation
8. Traffic

8 Report conclusions

This assessment has been based upon the information provided by the proponent in the permit application, DPEMP, DPEMP Supplement and in correspondence and discussion between the EPA Division and the proponent and the proponent's representatives.

This assessment has incorporated specialist advice provided by EPA Division scientific specialists and regulatory staff, other Divisions of DPIPWE and other government agencies.

This assessment has taken into account issues raised in public submissions.

It is concluded that:

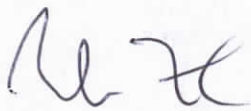
1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal; and
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles.

It is concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 8959 appended to this report are imposed and duly complied with.

The environmental conditions appended to this report are a new set of operating conditions for the entire, intensified activity that will supersede the existing permit conditions (PCE 7907).

Report approval

Environmental Assessment Report and conclusions, including permit conditions, adopted:



Wes Ford

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY
Delegate for the Board of the Environment Protection Authority

Date: 11 August 2015

9 References

ANZECC (2000). *Australian and New Zealand Guidelines for Freshwater and Marine Water Quality*. National Water Quality Management Strategy Paper N0. 4, Volume 1, The Guidelines. Australian and New Zealand Environment and Conservation Council; and Agriculture and Resource Management Council of Australia and New Zealand.

Department of Primary Industries, Water and Environment (1999). *Quarry Code of Practice*.

Trawmana Environmental Consultants (2010). *Development Proposal and Environmental Management Plan Gundagai Quarry, Bardenhagen Quarries*.

Van Diemen Consulting Pty Ltd (2015). *Development Proposal and Environmental Management Plan Gundagai Quarry, Bangor*.

Van Diemen Consulting Pty Ltd (2015). *Gundagai Quarry, Bangor, DPEMP – Supplement*.

VIPAC (2013). Noise monitoring report, Appendix H of the DPEMP.

VIPAC (2010). Environmental noise, ground vibration and air blast overpressure impact Assessment. Gundagai Quarry. VIPAC report 421057-01. Appendix H of the DPEMP.

10 Appendices

- Appendix 1 Assessment of other issues
- Appendix 2 Summary of public and agency submissions
- Appendix 3 Permit conditions

Appendix 1 Assessment of other issues

Issue 1: Threatened flora and fauna
Description of potential impacts
<p>Approximately 1.21 hectares of native forest, <i>Eucalyptus obliqua</i> dry forest (TASVEG code DOB) and <i>E. obliqua</i> wet forest (TASVEG code WOB), and 3.09 hectares of pine plantation will be progressively cleared to establish the new extraction areas and associated haul roads.</p>
<p>Neither native vegetation type is listed as threatened under the <i>Nature Conservation Act 2002</i>.</p>
<p>The mining lease was surveyed for its ecological and natural values in 2010 by Trawmana Environmental Consultants, and again in August and September, 2014, by Van Diemen Consulting Pty Ltd.</p>
<p>According to the DPEMP, the mining lease does not contain any threatened flora species listed under the relevant Schedules of the <i>EPBC Act 1999</i> or TSP Act. The DPEMP further indicates that there will be no significant impact to any threatened fauna listed under the relevant Schedules of the <i>EPBC Act 1999</i> or TSP Act.</p>
<p>A list of threatened flora and fauna species recorded from the surrounding area is contained in Table 1 of this report.</p>
<p>No further information on potential impact to threatened species was provided in the DPEMP.</p>
Management measures proposed in DPEMP
<p>No management measures were proposed.</p>
Public and agency comment
<p>The lack of detail in the DPEMP did not allow PCAB to determine whether or not the quoted survey effort and methodology were appropriate. PCAB was unable to make an assessment of the likely impacts of the proposal on natural values.</p>
<p>PCAB requested further information on the potential for impacts to natural values and, as relevant, measures to mitigate impacts to natural values, with particular consideration to measures which prevent/ minimise downstream impact to aquatic fauna species and roadkill.</p>
<p>The proponent's response is contained within the DPEMP supplement and summarised where relevant in this section.</p>
Evaluation
<p>The information provided in the DPEMP supplement with respect to survey timing and presence of the threatened flora species <i>Pterostylis grandiflora</i> and <i>Pultenaea mollis</i>, is sufficient to determine that there is unlikely to be an impact on these species from the proposed activity.</p>
<p>The DPEMP supplement indicated that there was no evidence of the presence (e.g. scats, dens nests) of threatened fauna species within the pine plantation or native forest areas. This is consistent with the results of the 2010 ecological survey by Trawmana Environmental Consultants.</p>
<p>It is agreed that the proposed quarry expansion will not result in any significant impact to threatened fauna or flora species as a result of land clearing or habitat loss.</p>
<p>The proponent did not address the issue of roadkill in the DPEMP supplement.</p>
<p>PCAB subsequently indicated that the proposal to transport in the early morning, from 0600 hrs, is likely to represent a significant increase in the risk of roadkill to threatened species, i.e. Tasmanian devil and Spotted-tailed quoll, during some parts of the year. This was based on the proposal likely resulting in an increase of more than 10% in traffic movements during night-time hours (i.e. between one hour before dusk and one hour after dawn).</p>

PCAB recommended that the proponent implement management measures to minimise the risk of roadkill, as insufficient information was provided to quantify the risk.

The proponent contends however that there will not be a 10% increase to the existing road usage and considered the mitigation measures recommended by PCAB, as contained within the *Survey guidelines and management advice for development proposals that may impact on the Tasmanian devil, 2015*, document, to be either impracticable or unwarranted.

They did not however specifically address the potential for increased traffic during night-time hours (as defined above) on the quarry access road (see Figure 12, Issue 8).

Notwithstanding, given the lack of evidence of habitat use by threatened species within the mining lease (2010 and 2014 ecological surveys), with no records of occurrence within a kilometre of the quarry (see Figure 4-7-2 of the DPMP), it is considered that the proposal is unlikely to represent a significant increase in the risk of roadkill of threatened species. Furthermore, the nature of the access road is such that trucks are unlikely to travel at high speeds, thus partly mitigating roadkill risk.

Specific restrictions on the operation of the quarry in this matter are therefore not considered necessary. Note, a restriction to the operating hours imposed by condition **N1** in relation to traffic noise nuisance (see Issue 8) will nevertheless assist to reduce the potential for roadkill during night-time hours.

In response to PCAB's request for further information on the potential for impacts and measures to prevent or minimise downstream impact to aquatic fauna species, the DPMP supplement indicated that ACDC in its assessment of the dams included an assessment of giant freshwater crayfish habitat and considered the impact of the dams on the downstream aquatic environment.

ACDC have indicated however that they only assessed dam safety and engineering in respect to the dam works approved under EPN (9053/1), as is generally the case for dams referred to them under section 165F of the *Water Management Act 1999*.

As discussed in Section 6.3, adherence to conditions **E1 to E5**, and **M1** and **G6** should nevertheless ensure there is minimal impact to the downstream environment.

Conclusion

No conditions are required.

Issue 2: Weed and disease management

Description of potential impacts

Ragwort (*Senecio jacobea*), listed as a declared weed on the *Weed Management Act 1999*, was recorded on the mining lease.

The pasture weed, spear thistle (*Cirsium vulgare*), was also recorded on the mining lease.

The following weeds, listed as declared weeds on the *Weed Management Act 1999*, were recorded in the surrounding region:

- ragwort (*Senecio jacobea*);
- spanish heath (*Erica lusitanica*, occurs intermittently along the roadside of South Retreat Road); and
- gorse (*Ulex europaeus*, occurs in the nearby disused Rush Quarry).

There was no visible evidence of *Phytophthora cinnamomi* infection in the mining lease (2014 ecological survey, Van Diemen Consulting Pty Ltd).

According to the DPMP, the quarry area can reasonably be assumed to be *Phytophthora cinnamomi* free.

Management measures proposed in DPEMP
<ul style="list-style-type: none"> Management of weeds already on the site and minimising the risk of introducing new weeds to the site will continue to be managed through the Weed Management Plan (dated July 2014) and all future updates to that plan (commitment 13).
Public and agency comment
PCAB supported the commitment to manage for weeds and disease.
Evaluation
<p>The objectives and management measures described within the Weed and Pathogen Management Plan (WPMP) are considered appropriate.</p> <p>The WPMP will require to be updated to account for the new operational areas created by the construction of the lower sediment dam, and establishment of the NW and SW pits (Condition OP1).</p> <p>Implementation of the updated plan (commitment 13) will reduce the risk of introduction and spread of weeds and disease pathogens (Condition OP1).</p> <p>The undertaking to review the WPMP each year, or as needed (e.g. when a significant infestation of a weed on the site is detected), is supported.</p> <p>Note, the WPMP details vehicle washdown prescriptions that are largely in compliance with the general washdown procedure detailed in the <i>Tasmanian washdown guidelines for weed and disease control</i> (Edition 1 April 2004). The proponent will nevertheless be required to comply with the complete guideline to minimise the weed and disease risk on The Land. Accordingly standard permit condition OP2 (vehicle washdown) is imposed.</p>
Conclusion
<p>The proponent will be required to comply with the following conditions:</p> <p>OP1 Weed and Pathogen Management Plan</p> <p>OP2 Washdown Guidelines</p> <p>The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (O11).</p>

Issue 3: Air emissions
Description of potential impacts
<p>There is potential to generate dust during clearing and preparation of the extraction areas, excavation, handling, screening and crushing of materials, and on-site/off-site haulage.</p> <p>Seven residences are located within 1 km from the quarry, the closest approximately 430 metres to the north east (Figure 4). Dust may become a nuisance for residences unless the activity is appropriately managed.</p> <p>The maximum area open at any one time in the quarry without rehabilitation will be 4 hectares.</p>
Management measures proposed in DPEMP
<ul style="list-style-type: none"> Measures that will be used to suppress dust include the following industry environmental practices for quarries (commitment 5): <ul style="list-style-type: none"> Watering of internal roads as required during dry and windy conditions; Installation of automatic load dampening infrastructure (for load dampening within trucks that exist the quarry); and Minimising the geographic extent of areas of exposed soil. Loads carted from the quarry can be dampened using the quarry installed load dampening infrastructure otherwise the driver may choose to use a tarpaulin or similar to prevent or minimise fugitive emissions from loads being carted from the quarry (commitment 6).

Public and agency comment
No comment was received.
Evaluation
Given the local topography and distance to the closest residences, which will increase when extracting from the NW and SW pits, commitments 5 and 6 are likely to be sufficient to ensure dust emissions from internal roads, material haulage and exposed areas do not cause nuisance. The implementation of these commitments is reinforced by conditions A1 and A2 .
It is noted that several residences are located within the recommended separation distance for crushing (Quarry Code of Practice, 1999).
Given the 4 fold increase in crushing activity, direction of prevailing wind, and proximity to nearby residences, condition A3 is also required for the control of dust emissions from the crushing plant (condition A3).
Conclusion
The proponent will be required to comply with the following conditions:
A1 Covering of vehicles
A2 Control of dust emissions
A3 Control of dust emissions from the plant
The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (O11).

Issue 4: Aboriginal heritage
Description of potential impacts
The development will not impact on any Aboriginal heritage.
Management measures proposed in DPEMP
<ul style="list-style-type: none"> If a relic of Aboriginal or likely Aboriginal origin is suspected and/or identified during works then works must cease immediately, and the Tasmanian Aboriginal Land and Sea Council and Aboriginal Heritage Tasmania contacted for advice before work can continue (commitment 15).
Public and agency comment
No comment was received.
Evaluation
Aboriginal Heritage Tasmania has no objections to the works proceeding.
Commitment 15 is supported.
The proponent should nevertheless be made aware of the <i>Aboriginal Relics Act 1975</i> (LO3).
Conclusion
Any relics discovered should be managed in accordance with the <i>Aboriginal Relics Act 1975</i> (Schedule 3 LO3).
The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (O11).

Issue 5: Waste management
Description of potential impacts
The disposal of solid waste will be in accordance with the Environmental Operating Procedure (EOP) Solid Waste Disposal 2014 (Appendix E).
According to the DPEMP, the quarry has well established and functional waste minimisation and reuse/disposal strategies.
Management measures proposed in the DPEMP
<ul style="list-style-type: none"> The disposal of solid waste will be in accordance with the EOP Solid Waste Disposal 2014 established for the company (commitment 10).
Public and agency comment
No comment was received.
Evaluation
The waste management procedures outlined in the Operational Procedure Solid Waste Disposal 2014 document (Appendix E) are considered to be appropriate.
Adherence to the operational procedures should ensure that there will be no adverse impacts resulting from waste at the quarry site (commitment 10).
Given the nature of the activity and wastes generated, specific conditions in regard to waste management are not required.
Conclusion
The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (O11).

Issue 6: Environmentally hazardous materials
Description of potential impacts
According to the DPEMP supplement, a 400 L capacity fuel tanker will store fuel on site during the day. No fuel or oil will be stored on site overnight.
Refuelling will be carried out using a mobile bund. Two hydrocarbon spill kits are stored at the quarry and staff trained in how to use it in the event of a spillage. Once used, the spill it will be disposed of in accordance with EOP Solid Waste Disposal 2014 (Appendix E).
The only 'chemicals' that would be used in the quarry are those for weed spraying. These will be handled, used and disposed of in accordance with the manufacturer's directions and relevant regulations. Weed spraying will comply with the requirements of the Weed and Pathogen Management Plan for the quarry (Appendix F).
No toilet facilities will be provided at the quarry.
Management measures proposed in the DPEMP
<ul style="list-style-type: none"> No chemicals, fuels or oils are stored on site overnight and refuelling is carried out using a mobile bund (commitment 4). Two hydrocarbon spill kits are stored at the quarry and staff trained in how to use it in the event of a spillage (commitment 7). Scheduled machinery maintenance works (except emergency situations which may be corrected in the quarry using a mobile bund) are to be conducted at the proponent's Lilydale workshop (commitment 11).
Public and agency comment
A representor considered that the DPEMP may be understating the amount of fuel to be stored and handled on site, based on the use of diesel fuel by the heavy machinery, and the proposed intensification. The representor sought further clarification on fuel use and fuel storage requirements on site.

<p>The proponent's response is contained within the DPEMP supplement and summarised where relevant in this section.</p>
<p>Evaluation</p> <p>The commitment not to store fuels or oils on site overnight, with refuelling carried out using a mobile bund (commitment 4), is supported.</p> <p>To ensure fuel, oils and other environmentally hazardous materials are stored and handled appropriately when on site, conditions H1 and H2 are required.</p> <p>Commitment 7, to have spill kits available in the event of spillage, is considered necessary. Condition H3 will ensure spill kits appropriate to the task are available on site.</p> <p>The commitment to undertake maintenance works off site, except in an emergency (commitment 11) is also supported.</p> <p>Adherence to the above conditions and commitments will reduce the risk of inappropriate management of environmentally hazardous materials causing environmental nuisance or harm.</p>
<p>Conclusion</p> <p>The proponent will be required to comply with the following conditions:</p> <p>H1 Storage and handling of hazardous materials</p> <p>H2 Hazardous materials (<250 litres)</p> <p>H3 Spill kits</p> <p>The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (O11).</p>

<p>Issue 7: Rehabilitation</p>
<p>Description of potential impacts</p> <p>A Progressive Rehabilitation Plan has been developed for the quarry (Appendix K) which includes measures and management actions to stabilise the landform prior to revegetation.</p> <p>The maximum area open at any one time in the quarry without rehabilitation is to be 4 hectares.</p> <p>Section 6 of the DPEMP outlines the principles for rehabilitating areas that are no longer being quarried or in active use (e.g. stockpiling areas, haul roads).</p> <p>A Decommissioning and Rehabilitation Plan will be provided to the EPA for closure.</p> <p>Plantation and native forest will be re-established in the mining lease as areas are rehabilitated.</p>
<p>Management measures proposed in DPEMP</p> <ul style="list-style-type: none"> Progressive rehabilitation, based on the Progressive Rehabilitation Plan 2014, will continue at the quarrying operation for those areas that have been quarried and are no longer needed or used for the ongoing operation of the quarry (commitment 17). In the event of permanent closure of the quarry a detailed Decommissioning and Rehabilitation plan will be developed and submitted to the EPA and MRT for approval (commitment 18).
<p>Public and agency comment</p> <p>MRT provided the following comment: Figure 2-2-5b (cross section) indicates faces of up to 15m in height between benches. It is unclear if this is the proposed final landform, in which case a third bench would be more appropriate to minimise the hazard to public safety on closure.</p>

Section 6 has minimal detail about the proposed final land use outcomes at the site. Clarification of what 'semi-native vegetation' may consist of, along with final bench heights is required.

The proponent's response is contained within the DPEMP supplement and summarised where relevant in this section.

Evaluation

The DPEMP supplement indicated that the benches will be reduced in height to comply with the *Quarry Code of Practice 1999* upon closure. The cross sections provided in the DPEMP did not illustrate the final landform. This will be subject to further review as the area being quarried is nearing exhaustion.

Note, Condition **G8** requires an Environmental Management Plan (EMP) for the activity be submitted to the Director at five yearly intervals, which is to include a consideration of the potential changes to the activity. Changes to the quarry plan, as from that shown in the DPEMP, will be captured in any subsequent EMP.

The DPEMP supplement clarified the term 'semi-native vegetation'.

The proposed management measures (commitments 17 and 18) combined with standard conditions (**DC1, DC2, DC3, DC4** and **DC5**) are considered adequate to ensure rehabilitation of the activity, including review of final landform.

Note, condition **DC2** requires that progressive rehabilitation is carried out concurrently with extractive activities, and limits the total area of land disturbance to 4 ha at any one time. This is in keeping with that proposed by the proponent and that indicated by MRT as the revised area of un-rehabilitated ground that will apply to mining lease 1676P/M, once approval has been granted.

Note, the current bond for the activity was last updated in 2013, and is set as \$11,550. MRT indicated that the bond will not be reviewed until the lease is up for renewal in 2018, acknowledging however there will be an increase in area of un-rehabilitated ground.

This is considered acceptable given that the new extraction pits will not initially be developed for another 3 to 5 years, according to the DPEMP.

It is noted a review of the Progressive Rehabilitation Plan 2014 (Appendix K) will be undertaken, as required. This is supported. Condition **DC2** will also ensure that progressive rehabilitation of worked out sections is undertaken concurrently with the extractive activities.

Conclusion

The proponent will be required to comply with the following conditions:

- DC1 Notification of cessation**
- DC2 Progressive rehabilitation**
- DC3 Decommissioning and rehabilitation plan**
- DC4 Implementation of the DRP**
- DC5 Stockpiling of surface soil**
- G8 Environmental Management Plan and review thereof**

The person responsible has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2 of the permit conditions (**O11**).

Issue 8: Traffic

Description of potential impacts

Access to the quarry is via easement no. 14091 to the north of the site, which encompasses an unnamed access road and part of South Retreat Road 6. South Retreat Road 6 connects to South Retreat Road on

Permanent Timber Production Zone land (Figure 12).

The transport route from the quarry then encompasses South Retreat Road, connecting with Bacala Road to the south, Retreat Road to the north and Colgraves Road to the west (Figure 4-13-1 of the DPEMP). Tunnel Road is load limited and not available for heavy haulage.

According to the DPEMP, the increase in production will not result in any increase in peak daily traffic, which will remain at 95 heavy vehicle movements. The Traffic Impact Assessment (appendix D) estimated that 2 trucks per hour would utilise Tunnel Road and 10 Bacala Road during peak periods. This estimate was altered to a peak hourly traffic of 12 trucks per hour on Bacala Road due to the closure of Tunnel Road to heavy vehicles (email correspondence, Appendix D, MIDSON traffic Pty Ltd). MIDSON traffic Pty Ltd considered this increase to be minor, and can readily be absorbed by Bacala Road.

The DPEMP indicated that South Retreat Road was widened and sealed for a section of its length to mitigate dust emissions associated with transport along that section of road.

Colgraves Road and sections of South Retreat Road are gravel. Bacala Road is sealed.

The proponent proposed a 0600 start Monday to Friday in order to commence work at a time that would permit cartage to off-site work areas that is appropriate for the end user.

Management measures proposed in DPEMP

No management measures were proposed.

Public and agency comment

A representor queried the methodology employed with regard to the traffic assessment. In particular the assessment of traffic intensity by way of peak number of traffic movements, and its basis in forming the conclusion that the proposal will not amount to any additional traffic movements.

The representor stated that an increase in production, without any proposal to stockpile, must result in additional traffic activity. They referenced page 14 of Appendix D of the DPEMP, where it is noted that the proposal will result in more frequent peak traffic activity.

The representor further noted that there is no explanation in the DPEMP as to why the number of traffic movements will not exceed the current traffic peak activity.

A representor objected to the increase in heavy vehicle movements, noting that changes to the road alignment have not improved the traffic noise problem, as trucks now travel faster. Note, with regard to road alignment, the representation stated, 'poor alignment of paling track corner'. This was assumed to be the corner at the junction of the Paling Track and Bacala Road.

Another representor noted that a portion of road was sealed under the previous permit to mitigate dust; however trucks using the sealed road now generate more noise due to higher speed.

A representor stated that traffic noise interferes with their cattle breeding program.

Forestry Tasmania provided the following comment:

FT owns the section of South Retreat Road that occurs on Permanent Timber Production Zone (PTPZ) land, but does not have any ownership, obligation or responsibility for the portion of South Retreat Road from the Boundary of the PTPZ to the intersection with Bacala Road.

Forestry Tasmania (FT) indicated that DTK Logging Pty Ltd and the adjacent benefiting landowner share equal responsibility for the maintenance of the quarry access road, including a portion of South Retreat Road 6 that is covered by Easement No 14091. The remaining section of South Retreat Road 6, and the last section of South Retreat Road that is on Permanent Timber Production Zone land is also maintained by DTK Logging Pty Ltd.

FT expects some impact to the road pavements from the additional heavy vehicle movements. FT therefore requires DTK logging Pty Ltd to ensure maintenance of the relevant sections of the road accommodate the increased impact of heavy traffic on the road pavement.

The proponent's response is contained within the DPEMP supplement and summarised where relevant in this section.

Evaluation

It is clear from the DPEMP that the proposed development will result in a 4 fold increase in peak annual traffic from the quarry, required to service the increase in production from 50,000 to 200,000 m³. Indeed, Appendix D of the DPEMP indicates that the increased production will result in more frequent days of daily peaks in traffic.

The DPEMP supplement reiterated that the peak daily traffic movements are governed by the constraints of daily production, and will not change. Note, the potential increase in peak hourly traffic on Bacala Road from 10 to 12 trucks per hour is not related to the proposed intensification of the quarry.

The DPEMP supplement further indicated that the 0600 hrs operational start on Monday to Friday is to enable cartage to works areas off-site that is appropriate for the end user. The proponent contends that it does not automatically mean that there will be an increase in the total number of daily vehicle movements, although they fall short of providing such an assurance.

Two representors were concerned with traffic noise in relation to road improvements and truck speed. It is considered that the effect of road improvements on truck noise, such as road sealing, is likely to negate any minor increase in noise associated with increased speed.

In considering a qualitative estimate of truck noise, the VIPAC noise survey (2013) found that the noise from 13 gravel trucks and 7 log trucks on South Retreat Road (referred to Tunnel Road in the VIPAC noise survey report, Appendix H), was measured to be approximately 53 dB(A) (10 minute equivalent level over a one hour period) at 20 metres from the road.

Twelve truck movements per hour, that expected at peak operations from the quarry alone, would be expected produce an equivalent noise level of approximately 51 dB(A) equivalent at 20 metres from the road, and 48 dB(A) equivalent at 40 metres.

A noise level of 30 dB(A) within a bedroom is regarded as an acceptable maximum level (*Australian Standard AS 2107, Acoustics – Recommended design sound levels and reverberation times for building interiors*). This equates to approximately 45 dB(A) at the outside of the residence.

Given that several residences are sited between 20 and 40 metres of South Retreat and Bacala Roads, early morning truck movements from the quarry, i.e. between 0600 hrs and 0700 hrs, may be expected to cause a noise nuisance during this time. Indeed, the estimated noise level from the quarry's trucks at these residences exceeds the NSW criteria for traffic noise during night-time hours (i.e. between 0600 hrs and 0700 hrs), being a free-field measured noise level at residences of 47.5 dB(A).

Further, it should be noted that heavy vehicles such as gravel trucks can produce a significant amount of low-frequency noise, in addition to high levels of auxiliary noise from exhaust/engine brakes and rattling trailers. The dB(A) levels measured or predicted from heavy vehicle movements may therefore not be truly reflective of the potential for a nuisance to occur, particularly during early morning hours when sleep disturbance may occur.

To reduce the risk of noise nuisance occurring as a result of the quarry's truck movements during early morning hours (i.e. between 0600 hrs and 0700 hrs), condition **N1** will ensure that the current operating hours of the quarry are maintained, in line with the Quarry Code of Practice (1999).

Note, according to the DPEMP, South Retreat Road is fully accessible to trucks (e.g. gravel, timber, sand and livestock) and other vehicles at all hours of the day. While this is evidenced by the recording of 7 log truck movements between 0600 and 0700 hrs on December 2013 (VIPAC noise survey report 2013, Appendix H), the local road usage as outlined in Appendix D suggests that the quarry's truck movements during peak transport would very likely dominate the heavy vehicle usage on the local road network.

It may nevertheless be reasonable for the quarry to operate trucks from 0600 hrs for limited periods if appropriate management practices are adopted, such as driver awareness and community consultation. Condition **N1** therefore allows the proponent to submit a case to the Director to vary the hours to an earlier start of a specific campaign; if the Director is satisfied that appropriate measures are in place to minimize the potential for a noise nuisance to occur.

Issues in relation to road capacity, pavement and junction impacts, and traffic safety, are addressed in the Traffic Impact Assessment (Appendix D) and are not a matter for the EPA.

Further, the issue of traffic noise disrupting the loading of cattle is also not a matter for the EPA.

Conclusion

The proponent will be required to comply with the following conditions:

N1 Operating hours

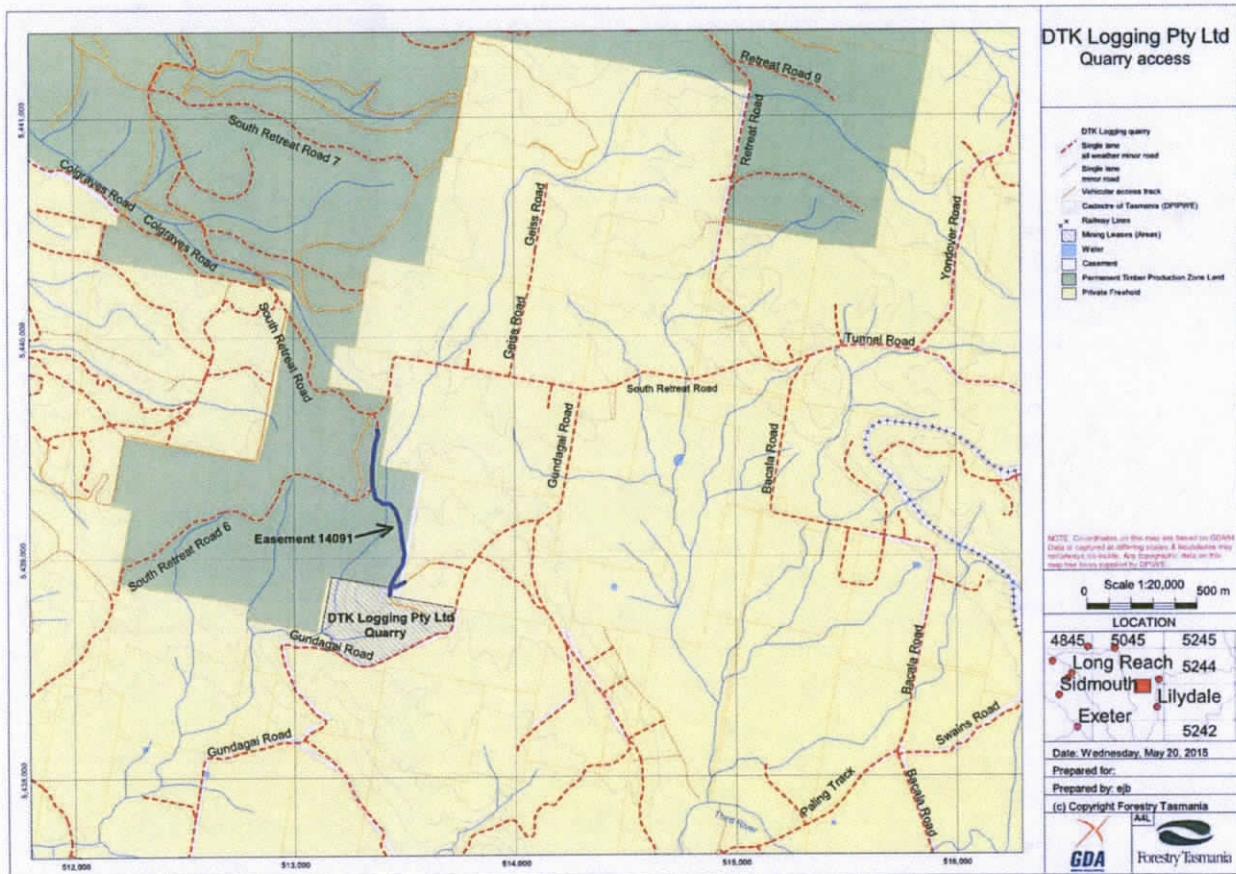


Figure 12 Access Road (Easement 14091) (Figure supplied by Forestry Tasmania)

Appendix 2 Summary of public and agency submissions

In the following tables, DPEMP means the *Gundagai Quarry, Bangor, Development Proposal Environmental Management Plan*, Van Diemen Consulting Pty Ltd, dated 22 April 2015.

A. Public representations

Representation No.	Issue	Comment
Environmental		
4	Storage and handling of dangerous goods	<p>Representor considers that the DPEMP may be understating the amount of fuel likely to be stored and handled on site, based on the intensity of use of proposed operations and the use of diesel fuel by the heavy machinery currently used.</p> <p>The representor seeks further clarification as to the likely fuel use and fuel storage requirements on site, by reference to the machinery to be used and the hourly consumption by those machines.</p>
2, 4	Traffic noise	<p>Representor objects to the increase in heavy vehicle movements, noting that changes to road alignment have not improved the traffic noise problem, as trucks now travel faster.</p> <p>Representor notes that a portion of road was sealed under the previous permit to mitigate dust; however trucks using the sealed road now generate more noise due to higher speed.</p> <p>Representor states that traffic noise interferes with their cattle breeding program.</p>
4	Traffic assessment	<p>Representor queries the methodology employed in regard to the traffic assessment. In particular the assessment of traffic intensity by way of peak number of traffic movements, and its basis in forming the conclusion that the proposal will not amount to any additional traffic movements.</p> <p>The representor states that an increase in production, without any proposal to stockpile, must result in additional traffic activity. The representor references page 14 of Appendix D of the DPEMP, where it is noted that the proposal will result in more frequent peak traffic activity.</p> <p>Representor notes that there is no explanation in the DPEMP as to why the number of traffic movements will not exceed the current traffic peak activity.</p>
Planning		
1	Road ownership	<p>Section 2.1.4 of Appendix D: Traffic Impact Assessment states "South Retreat Road is owned and maintained by Forestry Tasmania."</p> <p>Forestry Tasmania (FT) wish to clarify that FT owns the section of South Retreat Road that occurs on Permanent Timber Production Zone Land (PTPZL), and does not have any ownership, obligation, or responsibility for the portion of South Retreat Road from the boundary of the PTPZL through to the intersection with Bacala Road and Tunnel Road.</p> <p>FT understands that Launceston City Council is the responsible authority for South Retreat Road from a point beginning at 500m from the PTPZL boundary through to Bacala Road.</p> <p>FT is unaware who is the responsible authority for the 500 m</p>

		section from the PTPZL boundary through to Bacala Road, noting it is on a Crown Reserve Road classed as private.
1	Incorrect road nomenclature	Section 4.3.5 of Appendix D: Traffic Impact Assessment states " <i>The access to Bardenhagen Quarry is a gravel road that connects to Colgraves Road at a wide T-junction</i> ". This is incorrect. The access road connects with South Retreat Road 6, which then connects to South Retreat Road on PTPZL land.
1	Road maintenance	By agreement with Forestry Tasmania (FT), DTK Logging Pty Ltd and the adjacent benefiting landowner share equal responsibility for the maintenance of the quarry access road, including a portion of South Retreat Road 6, that is covered by Easement No 14091. The remaining section of South Retreat Road 6, and the last section of South Retreat Road that is on PTPZL is also maintained by DTK Logging Pty Ltd. Forestry Tasmania expects some impact to the road pavements from the additional heavy vehicle movements.
3	Buffer (attenuation) zones	Representor states the quarry expansion will effectively extend the buffer (attenuation) zone over their land, and impinge on their ability to consider future use and or development on their land (e.g. 'visitor accommodation', a discretionary use within the Rural Resource zone). Representor considers that an increase in the buffer (attenuation) zone would reduce the retail value of the land.
4	Land use	Representor states that they are not able to load cattle due to truck traffic, and that truck noise interferes with their cattle breeding program. Representor believes the intensification of use, as proposed, demonstrates an incompatibility with the use of the representor's property for primary production purposes.
4	Traffic safety	Representor notes that Tunnel Road is narrow, with traffic effectively required to travel in single file. Trucks servicing the quarry have been observed queued on the road in single file waiting to access the quarry.
4	Current extraction limit – Council determination	Representor queries whether Council can allow the proposed expansion given lack of information in the DPEMP in relation to compliance with the existing extraction limit.
4	Toilet facilities	Trucks servicing the quarry have been observed to queue for quarry access. As there are no toilet facilities, drivers have been observed urinating at the roadside.
4	Compliance with existing permit	Representor states that they have regularly made dust and noise complaints concerning the operation of the existing quarry. Representor raises the issue of DTK's compliance with the existing permit conditions, including potential exceedance of extraction limit. Given the absence of evidence demonstrating compliance with the existing extraction limit, the representor suggests Council should not exercise its discretion to approve the proposal, or act with extreme caution if approving.

B. Referral agency comments

Agency	Issue	Comment
Policy & Conservation Advice Branch	Survey work	Lack of detail in the DPEMP did not allow PCAB to determine whether or not the quoted survey effort and methodology were appropriate. PCAB is unable to make an assessment of the likely impacts of the proposal on natural values.
Mineral Resources Tasmania	Potentially Acid Forming (PAF)	Section 2.2.4 discusses the presence of PAF material (somewhere in the existing quarry's eastern part), but the exact location is unknown. The area was subsequently rehabilitated.
	Buffer zone	Figure 2-2-3b suggests extraction to the south may encroach on the required 10 m minimum buffer zone between the mining lease boundary and extent of mining.
	Final landform	Figure 2-2-5b (cross section) indicates faces of up to 15m in height between benches. It is unclear if this is the proposed final landform, in which case a third bench would be more appropriate to minimise the hazard to public safety on closure. Section 6 has minimal detail about the proposed final land use outcomes at the site.
	Residence location	Figures 4-4-3, 4-4-4, 4-4-5 suggest there is a building located approximately 300m south of the existing lease boundary. This receptor has not been included in the noise survey.

Appendix 3 Permit Conditions - Environmental

PERMIT PART B
PERMIT CONDITIONS - ENVIRONMENTAL No. 8959

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

Applicant: **D.T.K. LOGGING PTY LTD**
ACN 081 330 547
46 CAMERON ST
LAUNCESTON TAS 7250

Activity: **The operation of quarry, crushing & screening (ACTIVITY TYPE: Crushing, grinding, milling or separating into different sizes (rocks, ores or minerals))**
GUNDAGAI ROAD PIT, GUNDAGAI RD
TUNNEL TAS 7254

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994* under delegation from the Board of the Environment Protection Authority.

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: **LAUNCESTON**
Permit Application Reference: **DA 0074/2015**
EPA file reference: **238499**

Date conditions approved:

11 AUG 2015

Signed:



DIRECTOR, 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

Attachment 1: The Land (modified: 20/07/2015 10:05)..... 1 page
Attachment 2: Commitment Table (modified: 27/07/2015 10:29)..... 2 pages



Schedule 1: Definitions

In this Permit Part B:-

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

AHD means Australian Height Datum

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.

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.

EMP means the *Gundagi Quarry, Bangor, Development Proposal and Environmental Management Plan*, prepared by Van Diemen Consulting Pty Ltd, dated 22 April 2015 and includes supplementary information presented in *Gundagi Quarry, Bangor, DPEMP-Supplement*, prepared by Van Diemen Consulting Pty Ltd, dated 1 July 2015, and includes any amendment to or substitution of these documents, including an EMP Operations, approved in writing by the Director.

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.

Lower Sediment Settling Pond means the lower sediment settling pond as defined at Attachment 1.

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.

PAF means potentially acid forming, defined as material with a NAG pH of less than 4.5 and a Net Acid Producing Potential (NAPP) of greater than or equal to 0kg of H₂SO₄/tonne and also includes UC material.

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.

Tasmanian Noise Measurement Procedures Manual means the Noise Measurement Procedures Manual referred to in regulation 4 of the *Environmental Management and Pollution Control (Miscellaneous Noise) Regulations 2014*.

The Land means the land on which the activity 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 mining lease 1676P/M; and
- 2 as further delineated at Attachment 1.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Weed means a declared weed as defined in the *Weed Management Act 1999*.

Weed And Plant Pathogen Management Plan means the *Gundagi Quarry Weed and Pathogen Management Plan*, prepared by Van Diemen Consulting Pty Ltd, dated July 2014, contained in Appendix F of the *Gundagi Quarry, Bangor, Development Proposal and Environmental Management Plan*, prepared by Van Diemen Consulting Pty Ltd, dated 22 April 2015.

Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits

- 1 The activity must not exceed the following limits (annual fees are derived from these figures):
 - 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 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.

G6 Exclusion area

Unless otherwise approved in writing by the Director, the area to the east of the quarry containing the previously rehabilitated PAF material, as defined at Attachment 1, is not to be disturbed.

G7 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.

G8 Environmental Management Plan and review thereof

- 1 Unless otherwise specified in writing by the Director, an Environmental Management Plan - Operations ('EMP Operations') for the activity must be submitted to the Director by whichever of the following dates occurs first and at five yearly intervals thereafter:
 - 1.1 In the case of the Director having approved a previous Environmental Management Plan, the fifth anniversary of the date of that approval;
 - 1.2 The fifth anniversary of the date on which these conditions take effect; or
 - 1.3 A date specified in writing by the Director.
- 2 The EMP Operations must include a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the EMP Operations.
- 3 The EMP Operations must detail the potential environmental impacts arising from the ongoing operation of the activity over the next 5 years, including a strategic consideration of potential changes to the activity during that period and consideration of opportunities to implement continuous improvement.
- 4 The EMP Operations must separately identify specific commitments, with actions and timeframes, to mitigate or prevent the identified potential environmental impacts. In preparing the EMP Operations the person responsible must take into account the contents of any previous annual environmental reviews including complaints, incidents and monitoring data.
- 5 If the Director issues guidelines for preparation of the EMP Operations, the EMP Operations must address the matters listed in those guidelines.

G9 Management of PAF material

- 1 Unless otherwise approved in writing by the Director, a PAF Management Plan must be submitted to the Director for approval within 60 days of PAF material being found exposed on The Land, or if any investigations required by these conditions indicates the likely presence of PAF material on The Land.
- 2 PAF material on The Land must be managed in accordance with a plan approved in writing by the Director.

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 and 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 Notification of blasting

- 1 All residents within a 1 km radius of a blast must be notified prior to that blast. 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, or as a result of blasting misfires, the responsible person must advise all those residents within 1 km of the activities on the land of the revised time at which blasting will take place.
- 2 The Director must be notified on each occasion prior to blasting on The Land. This notification must be given as early as possible, but at least 24 hours before blasting is due to occur.

B3 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.

B4 Blast Management Plan

- 1 A Blast Management Plan must be submitted to the Director for approval prior to any blasting on The Land. The Blast Management Plan must be in a format approved by the Director and must include, without limitation, the following:
 - 1.1 Location and schedule of blasting, including location and altitude of drilling;
 - 1.2 Potential impacts;
 - 1.3 Details of customer contact liaison officer, blast controller, notification list and Insurance details;
 - 1.4 Preparation and purpose of plan;
 - 1.5 Blasting procedure, types of explosives, initiation systems;
 - 1.6 Storage and handling of dangerous goods;
 - 1.7 Risk assessment and auditing;
 - 1.8 A monitoring program including the frequency and parameters to be measured and a blast monitoring location map;
 - 1.9 Incident reporting.
- 2 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.

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 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 4 hectares.

DC3 Decommissioning and Rehabilitation Plan

- 1 Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) must be submitted to the Director within 30 days of any decision that is likely to give rise to the permanent cessation of the activity.
- 2 The DRP must be prepared in accordance with any reasonable guidelines provided by the Director.

DC4 Implementation of the DRP

Following permanent cessation of the activity, the decommissioning of the activity and the rehabilitation of The Land must be carried out in accordance with the most recent Decommissioning and Rehabilitation Plan (DRP) approved by the Director, as may be amended from time to time with written approval of the Director.

DC5 Stockpiling of surface soil

Prior to the commencement of extractive activities, the surface soils on the area to be disturbed from extraction or development of hardstand zone must be removed and stockpiled for later use in rehabilitation of The Land. The stockpiled surface soil must be kept separate from other overburden and protected from erosion and weed infestation.

Effluent Disposal

E1 Perimeter drains

Perimeter cut-off drains, or similar (e.g. earth bunding), 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 drains or bunded areas 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.

E2 Maintenance of settling ponds

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.

E3 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.

E4 Effluent quality investigation trigger level

- 1 Unless otherwise approved in writing by the Director, in the event that the pH of the water in the lower sediment settling pond, or effluent discharge from the pond, is less than 6.5 pH units, then an investigation into the possible reason(s) for the pH level must be conducted.
 - 1.1 A report summarising the outcomes of all such investigations must be submitted to the Director within 2 months of the date upon receipt of the water quality test results that indicated a pH less than 6.5 pH units.

E5 Effluent quality limits

Unless otherwise approved in writing by the Director, the amount of total suspended solids contained within water discharged from the lower sediment settling pond must not exceed 30 mg/l.

Hazardous Substances**H1 Storage and handling of hazardous materials**

- 1 Unless otherwise approved in writing by the Director, all environmentally hazardous materials, including all chemicals, fuels, and oils, held on The Land in volumes exceeding 250 litres must be stored and handled in accordance with the following:
 - 1.1 Any storage facility must be contained within a spill collection bund with a net capacity of whichever is the greater of the following:
 - 1.1.1 at least 110% of the combined volume of any interconnected vessels within that bund; or
 - 1.1.2 at least 110% of the volume of the largest storage vessel; or
 - 1.1.3 at least 25% of the total volume of all vessels stored in that spill collection bund; or
 - 1.1.4 the capacity of the largest tank plus the output of any firewater system over a twenty minute period.
 - 1.2 All activities that involve a significant risk of spillages, including the loading and unloading of bulk materials, must take place in a bunded containment area or on a transport vehicle loading apron.
 - 1.3 Bunded containment areas and transport vehicle loading aprons must:
 - 1.3.1 be made of materials that are impervious to any environmentally hazardous material stored within the bund;
 - 1.3.2 be graded or drained to a sump to allow recovery of liquids;
 - 1.3.3 be chemically resistant to the chemicals stored or transferred;

- 1.3.4 be designed and managed such that any leakage or spillage is contained within the bunded area (including where such leakage emanates vertically higher than the bund wall);
- 1.3.5 be designed and managed such that the transfer of materials is adequately controlled by valves, pumps and meters and other equipment wherever practical. The equipment must be adequately protected (for example, with bollards) and contained in an area designed to permit recovery of any released chemicals;
- 1.3.6 be designed such that chemicals which may react dangerously if they come into contact have measures in place to prevent mixing; and
- 1.3.7 be managed such that the capacity of the bund is maintained at all times (for example, by regular inspections and removal of obstructions).

H2 Hazardous materials (< 250 litres)

- 1 Unless otherwise approved in writing by the Director, each environmentally hazardous material, including chemicals, fuels and oils, held on The Land in discrete volumes not exceeding 250 litres, but not including discrete volumes of 25 litres or less, must be located within bunded containment areas or spill trays which are designed to contain at least 110% of the volume of the largest container.
- 2 Bunded containment areas and spill trays must be made of materials that are impervious to any environmentally hazardous materials stored within the bund or spill tray.

H3 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.

Monitoring

M1 Monitoring requirements

- 1 Unless otherwise approved in writing by the Director, the effluent discharged from the lower sediment settling pond must be sampled at the outlet of the pond at least once every three months.
 - 1.1 If no effluent discharges from the lower sediment settling pond during the 3 monthly monitoring period, then water within the pond must be sampled at the end of the 3 monthly monitoring period.
- 2 Sampling and testing must be conducted for the substances or measures listed in Column 1 of Table of Monitoring Requirements below using the sampling or testing technique listed in Column 2.
- 3 Exceedences of the effluent quality limits specified in these conditions must be reported to the Director within 24 hours of receipt of laboratory analyses of samples collected in accordance with these conditions.
Table of Monitoring Requirements

Column 1	Column 2
Substance or measure	Sampling or testing technique
pH	Field test
Electrical conductivity	Field test
Total suspended solids	Grab sample and laboratory test

M2 Dealing with samples obtained for monitoring

- 1 Any sample or measurement required to be obtained under these conditions must be taken and processed in accordance with the following:
 - 1.1 Australian Standards, NATA approved methods, the American Public Health Association Standard Methods for the Analysis of Water and Waste Water or other standard(s) approved in writing by the Director;
 - 1.2 measurement equipment must be maintained and operated in accordance with the manufacturer's specifications;
 - 1.3 samples must be tested in a laboratory accredited by the National Association of Testing Authorities (NATA), or a laboratory approved in writing by the Director, for the specified test;
 - 1.4 results of measurements and analysis of samples and details of methods employed in taking measurements and samples must be retained for at least three years after the date of collection; and
 - 1.5 noise measurements must be undertaken in accordance with the Tasmanian Noise Measurement Procedures Manual.

M3 Water quality reporting

- 1 Unless otherwise approved in writing by the Director, an annual Water Quality Monitoring Report must be forwarded to the Director within 30 days of the anniversary date of the issue of these conditions. The report must include the following information:
 - 1.1 sampling and testing methods, including the laboratories at which sample analyses were carried out;
 - 1.2 the date and time at which each sample was taken;
 - 1.3 the location of each sample, ie water within the lower sediment settling pond or discharge at the outlet of the lower sediment settling pond;
 - 1.4 the parameters for which analyses or tests were carried out and the units in which the results are reported;
 - 1.5 the results for all sample analyses and site tests;
 - 1.6 the dates and results of pH and electrical conductivity sample validation testing; and
 - 1.7 a record of the dates when effluent was discharging from the lower sediment settling pond.
- 2 Water quality sample records must be maintained for a period of at least three years and must be made available to an authorized officer upon request.

Noise Control**N1 Operating hours**

- 1 Unless otherwise approved in writing by the Director, activities associated with the extraction of rock, gravel, sand, clay or minerals, and loading and haulage of product from The Land, 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.
- 2 Notwithstanding the above paragraph, activities must not be carried out on public holidays that are observed Statewide (Easter Tuesday excepted).

N2 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 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*, issued by the Director.

N3 Noise survey requirements

- 1 Unless otherwise approved in writing by the Director, a noise survey must be carried out:
 - 1.1 When first drilling in the existing pit (defined at Attachment 1) at a height equal to or higher than 239 m AHD; and
 - 1.2 within six (6) months from the date of any notification under these conditions of a change to the activity which is likely to substantially alter the character or increase the volume of the noise emitted from The Land; and
 - 1.3 At such other times as may be required by the Director.

N4 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.

N5 Rock drill noise

Unless otherwise approved in writing by the Director, when drilling on The Land, a suitably shrouded rock drill, or noise suppression measures appropriate for the rock drill in use, must be used at all times when drilling on The Land.

Operations**OP1 Weed and Pathogen Management Plan**

- 1 Unless otherwise approved in writing by the Director, within three months of the date of issue of these conditions, an updated version of the Weed and Plant Pathogen Management Plan, dated July 2014, must be submitted to the Director for approval.
- 2 Management of weed and plant pathogens must be undertaken in accordance with a Plan approved by the Director.

OP2 Washdown Guidelines

Prior to entering the land, machinery must be washed in accordance with the DPIWE (2004) *Tasmanian Washdown Guidelines for Weed and Disease Control, Machinery, Vehicles & Equipment*, Edition 1, or any subsequent revisions of that document.

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 Relics 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 Relics 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 Relics 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 Commitments

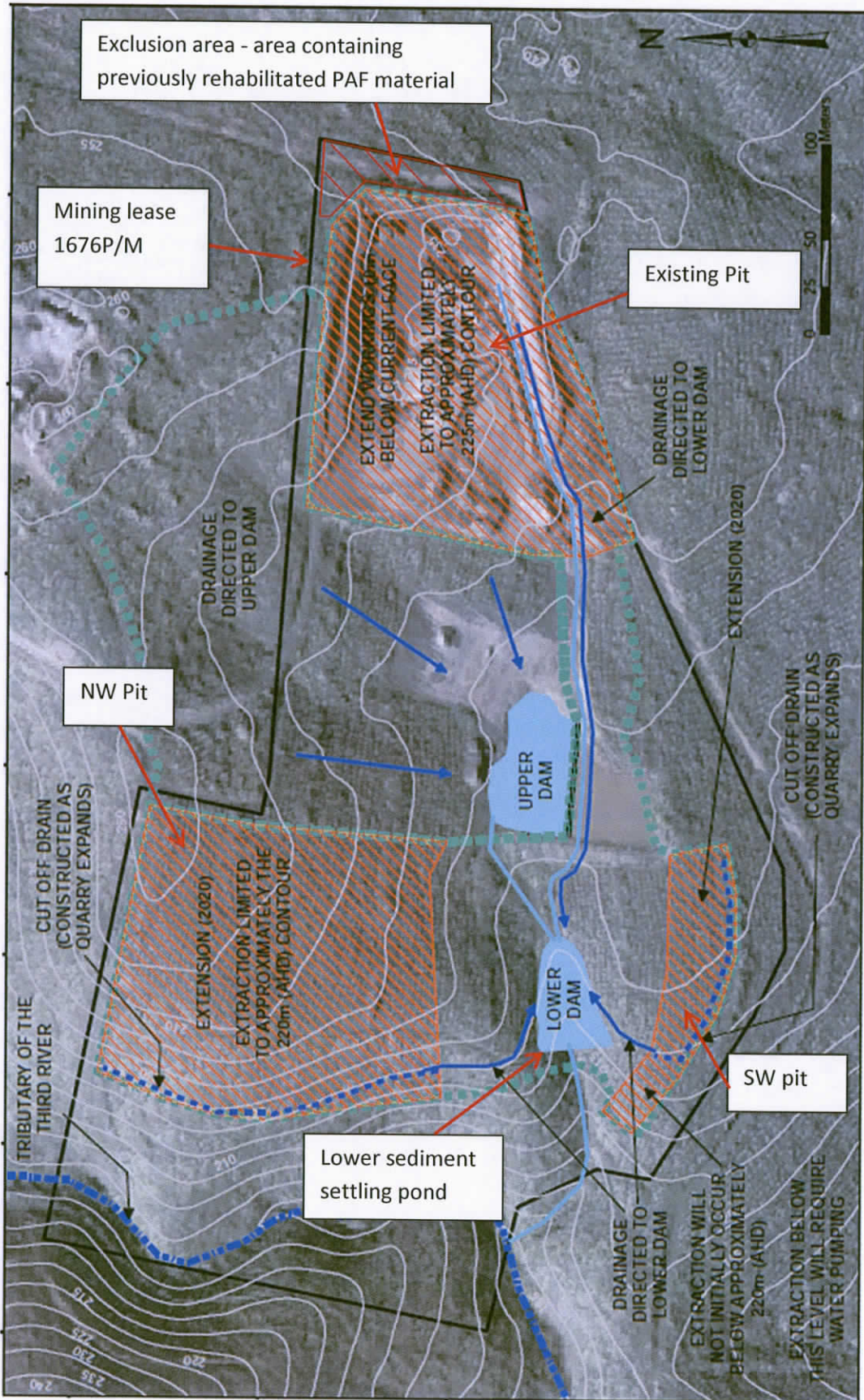
The person responsible for the activity has a general environmental duty to conduct the activity in accordance with the commitments contained in Attachment 2.

OI2 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).

Attachment 1

The Land (defined by the boundary of mining lease 1676P/M)



Attachment 2

Table of commitments

No	Commitment	Timeframe
1	Operating hours will be – 0600 to 1900 hrs Monday to Friday, 0800 to 1600 hrs on Saturday; closed on Sunday and public holidays. Notwithstanding these operating hours, blasting will be limited to between 1000 and 1600 hrs Monday to Friday and crushing will not occur on operating days between 0600 and 0700 hrs Monday to Friday.	Within 1 month of full approval being provided for the quarry expansion
3	The existing and new sediment dams will be cleaned out either on a six monthly basis or at 15% storage volume. The sediment trapped will be reused as a fine material mixed with stockpiled top soil for progressive rehabilitation of used quarry areas.	Already compliant
4	No chemicals, fuels or oils are stored on site overnight and refuelling is carried out using a mobile bund.	Already compliant
5	Measures that will be used to suppress dust include the following industry environmental practices for quarries: <ul style="list-style-type: none"> • Watering of internal roads as required during dry and windy conditions; • Installation of automatic load dampening infrastructure (for load dampening within trucks that exist the quarry); and • Minimising the geographic extent of areas of exposed soil. 	Within 1 month of full approval being provided for the quarry expansion and then ongoing
6	Loads carted from the quarry can be dampened using the quarry installed load dampening infrastructure otherwise the driver may choose to use a tarpaulin or similar to prevent or minimise fugitive emissions from loads being carted from the quarry.	Ongoing
7	Two hydrocarbon spill kits are stored at the quarry and staff trained in how to use it in the event of a spillage.	Ongoing
8	The 'lower' sediment dam will be constructed and 'upper' sediment dam modified in accordance with EPN9053/1 and the Pre-Construction Dam Report.	As per EPN9053/1
9	The <i>Blast Management Plan 2 August 2014</i> and future iterations of this Plan will continue to be implemented	Ongoing under the expanded quarry activity to mitigate noise and nuisance to surrounding landowners.
10	The disposal of solid waste will be in accordance with the Operational Procedure Solid Waste Disposal 2014 established for the	Ongoing

	company.	
11	Scheduled machinery maintenance works (except emergency situations which may be corrected in the quarry using a mobile bund) are to be conducted at the proponent's Lilydale workshop.	Ongoing
12	Native vegetation will be retained at the north-eastern corner of the Mining Lease to provide noise attenuation services and also to the west to provide landscape amenity services.	Ongoing
13	Management of weeds already on the site and minimising the risk of introducing new weeds to the site will continue to be managed through the Weed Management Plan dated July 2014 and all future updates to that plan.	Ongoing
14	Machinery owned and operated by the quarry operator is and will continue to be well maintained which ensures maximum fuel/oil efficiency.	Ongoing
15	If a relic of Aboriginal or likely Aboriginal origin 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.	Ongoing
17	Progressive rehabilitation, based on the Progressive Rehabilitation Plan 2014, will continue at the quarrying operation for those areas that have been quarried and are no longer needed or used for the ongoing operation of the quarry.	Ongoing
18	In the event of permanent closure of the quarry a detailed Decommissioning and Rehabilitation plan will be developed and submitted to the EPA and MRT for approval.	DRP prepared and provided to the EPA Director within 30 days of formal written notice to the EPA of permanent quarry closure.