Planning and Environment Act 1987

Advisory Committee Report

MCG Quarries - Ombersley Quarry

VCAT Application for Review P281/2015 and Colac Otway Planning Permit Application PP169/2014-1

Front page

9 February 2017

VICTORIA State Government | Planning Panels Victoria

Planning and Environment Act 1987

Advisory Committee Report pursuant to section 151 of the Act

MCG Quarries – Ombersley Quarry Advisory Committee

VCAT Application for Review P281/2015 and Colac Otway Planning Permit Application PP169/2014-1

9 February 2017

Nick Wimbush, Chair

Stephen Hancock, Member

Katherine Navarro, Member

Contents

List of Tables

List of Figures

List of Abbreviations

AAV	Aboriginal Affairs Victoria
Acciona	Acciona Energy Australia Global Pty Ltd
AH Act	*Aboriginal Heritage Act 2006*
AHD	Australian Height Datum
CCMA	Corangamite Catchment Management Authority
CHMP	Cultural Heritage Management Plan
CMA	Catchment Management Authority
dB	Decibel
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DELWP	Department of Environment, Land, Water and Planning
DEPI	Department of Environment and Primary Industries (former)
DSDBI	Department of State Development, Business and Innovation (former)
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EVC	Ecological Vegetation Class
FZ	Farming Zone
GDE	Groundwater Dependent Ecosystems
ha	Hectare
k	Hydraulic conductivity
km^2	square kilometre
LA_{eq}	A weighted, equivalent sound level
L_{eq}	Equivalent continuous noise level
LPPF	Local Planning Policy Framework
m	Metre
mg/L	milligrams per litre
m/d	metres per day
ML	megalitre
ML/a	megalitres per annum
mL	millilitre
m^2/d	square metres per day

m^3/d	cubic metres per day
mm/s	millimetres per second
MRSD Act	*Mineral Resources (Sustainable Development) Act 1990*
MSS	Municipal Strategic Statement
NIRV	EPA Publication 1411 *Noise From Industry in Regional Victoria*
NSW Policy	NSW Road Noise Policy
NVA	Newer Volcanic Aquifer
P&E Act	*Planning and Environment Act 1987*
PPV	Peak Particle Velocity
SOBN	State Observation Bore Network
SPPF	State Planning Policy Framework
SRW	Southern Rural Water
T	transmissivity value
TOR	Terms of Reference
tpa	tonnes per annum
VCAT	Victorian Civil and Administrative Tribunal

Executive summary

(i) Summary

The Applicant, MCG Quarries, proposes to use and develop the subject land at 320 Mooleric Road, Ombersley for stone extraction (a basalt quarry), which is expected to operate for more than 30 years. The subject land is approximately 280 hectares in area and is seven kilometres from Birregurra and 20 kilometres from Colac.

The Work Authority area proposed for quarrying is approximately 64 hectares in the northwest corner of the subject land, and is the subject of a Work Plan under the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act). Ten existing groundwater bores are located on site: one groundwater supply bore, two stock and domestic bores and seven groundwater monitoring bores with the latter three including both deep and shallow aquifer monitoring depths.

The permit application has an extensive and complex planning history. In 2010, planning permit application (PP80/2010-1) for a smaller quarry on the site was lodged with Colac Otway Shire Council. Council determined to issue a permit with conditions. However following an appeal by objectors the Victorian Civil and Administrative Tribunal (VCAT) determined that a permit should not issue, partly due to concerns about ground and surface water, impacts on native fauna and truck noise at a property on Mooleric Road.

The current application (PP169/2014-1) was lodged with Council on 28 August 2014, with some differences in the application. Public notice of the application took place in late 2014 and 32 objections were received. Key issues raised in submissions included groundwater, noise, traffic, dust, flora and fauna, blasting and economic issues. On 17 December 2014, Council refused the application.

The Applicant lodged an application for review of Council's refusal to grant the permit at VCAT. On 26 October 2015, the Minister for Planning 'called in' the matter from VCAT under Clause 58 of Schedule 1 of the *Victorian Civil and Administrative Tribunal Act 1998*. On 18 December 2015, the Minister for Planning appointed an Advisory Committee to consider the matter.

Hearings were held to consider preliminary issues related to a Cultural Heritage Management Plan (CHMP), and then a Merits Hearing for the Quarry.

Having considered significant evidence and submissions, the Committee considers that there are no fundamental impediments to quarrying proceeding provided a number of technical issues are addressed. Accordingly, the Committee considers that a planning permit should issue, subject to conditions.

(ii) Key issues

The Committee's comments on some of the major issues follow.

Groundwater and surface water hydrology

- The Committee notes the concerns of nearby agricultural properties, however finds that there are no compelling reasons why the quarrying operations as proposed, including a

comprehensive groundwater management strategy, cannot co-exist alongside the existing agricultural pursuits. The Committee recommends appropriate conditions to be included in the planning permit.

Traffic and traffic noise

- The Committee has significant concerns about traffic noise generated by quarry traffic on 30 Mooleric Road. However, the Committee is satisfied that there are sufficient technical responses that can be deployed, including additional noise mitigation measures, some of which will require the consent of the owners of 30 Mooleric Road.

Ecology

- The planning permit conditions proposed can manage any significant ecological impacts.

Quarrying and blasting

- The proposed quarry will not cause unacceptable amenity issues for the surrounding landowners.

Aboriginal cultural heritage

- The likelihood of Aboriginal cultural heritage material being discovered at the site is not considered to be high, however the Committee has recommended contingency permit conditions in the event that artefacts or sites are discovered.

Economic and social impact

- Agricultural uses predominate in the area and there is a high dependence on groundwater to supplement stock and domestic supplies. These supplies must be protected and the Committee has recommended a management regime accordingly.

(iii) Response to the Terms of Reference

The Committee's response to the outcomes required in Clause 27 of the Terms of Reference (TOR) is shown in Table 1 below.

Table 1 Reporting requirements in the Terms of Reference

Item	Where in report
An assessment of submissions to the Advisory Committee.	By issue in Chapters 2-5.
Advice on the expected scale and nature of impacts of the proposed quarry on the surrounding agricultural land and activity.	Chapter 2, Groundwater and surface water, Chapter 5 Economic impact, and Chapter 6 Planning assessment.
Advice on the expected scale and nature of impacts on ground water within the local ground water catchment.	Chapter 2 Groundwater and surface water
A recommendation as to whether or not a planning permit should be issued and the reasons for this recommendation.	Chapter 6 Planning assessment
A (without prejudice) draft planning permit including relevant conditions from section 55 referral authorities.	Included in Appendix D.

Advice on any other relevant matters raised in the course of the Advisory Committee hearing.	Issue Chapters 2-5.
A list of persons who made submissions considered by the Advisory Committee.	Included in Appendix B.
A list of persons consulted or heard.	Included in Appendix B.

(iv) Recommendations

Based on the reasons set out in this Report, the Committee recommends that:

1. **The Minister for Planning recommend the Governor in Council issue planning permit PP169/2014-1 for a quarry at 320 Mooleric Road, Ombersley with the conditions shown in Appendix D of this report.**
2. **That the planning permit include conditions relating to groundwater and surface water shown in Appendix D to this report, including:**
    - **The finalisation and implementation of the adaptive groundwater management strategy based upon a calibrated and validated model as a predictive tool to ensure the protection of existing stock and domestic bores within 2 kilometres of the quarry work authority boundaries.**
    - **The continuation of the groundwater bore monitoring program implemented in 2015 for water level and salinity until the quarrying operations are terminated. The extent of parameters and the frequency of monitoring may be varied from time to time but should be specified in the groundwater management strategy.**
    - **A census of all bores within 2 kilometres of the proposed quarry site to collect operational data (as set out in Section 2.2(i) of this report) so that a baseline for any necessary adaptive management actions can be determined.**
    - **Five additional monitoring bores be established outside the quarry works area.**
    - **Groundwater mitigation action be undertaken immediately (see list in Section 2.2(i) of this report) to protect groundwater availability for stock and domestic purposes if the triggers are exceeded.**
    - **The finalisation and implementation of the stormwater management plan.**
3. **That the planning permit include conditions relating to traffic noise and traffic shown in Appendix D to this report, including:**
    - **Finalisation of the acoustic assessment and report**
    - **Sealing of Mooleric Road for road capacity and noise reduction**
    - **Speed control measures on Mooleric Road**
    - **The offer of acoustic shielding to 30 Mooleric Road**
    - **A dilapidation survey of 30 Mooleric Road by agreement**
    - **The upgrade of the Princes Highway and Mooleric Road intersection.**

4. **That the planning permit include conditions relating to Brolga shown in Appendix D to this report.**
5. **That the planning permit include a condition relating to a Golden Sun Moth survey shown in Appendix D to this report.**
6. **The planning permit includes conditions relating to quarry management and blasting shown in Appendix D to this report.**
7. **The planning permit include Aboriginal cultural heritage contingency conditions shown in Appendix D to this report.**

1 Introduction and background

1.1 The proposal

MCG Quarries (the Applicant) proposes to use and develop the subject land at 320 Mooleric Road Ombersley for a basalt quarry. The quarry is expected to operate for more than 30 years. The Work Authority area is approximately 64 hectares, and is the subject of Work Plan No. 1546[1] under the *Mineral Resources (Sustainable Development) Act 1990 (*MRSD Act*)*. The Work Authority area and staging plan are shown in Figure 1.

The proposal, as described in the application material and the Council officer's report, includes the following:[2]

- *The subject land would be used for quarrying of basalt within the Works Area;*
- *The production rate of the quarry is planned to be up to 200,000 tonnes per year although this could be higher depending on demand;*
- *…*
- *There would be a 30 metre buffer, which would include landscaping to provide screening to Mooleric Road, around the periphery of the Works Area;*
- *…*
- *The existing dwelling would be used as a site office and laboratory. It would contain 2 offices, a laboratory, kitchen/lunchroom, staff retreat, laundry, toilet and bathroom. The laboratory would only be used to test the quality of rock being extracted from the Subject Land.*
- *…*
- *Internal site preparations would be followed by 4 extraction phases as follows:*
  - *Stage 1 would involve extraction of the north-western corner and a small central position of the Works Area;*
  - *Stage 2 would involve extraction in the remaining northern portion of the Works Area and water management storage to the south;*
  - *Stage 3 would involve extraction in the south-eastern corner of the Works Area, including a sump in the far south-eastern corner;*
  - *Stage 4 would involve extraction in the remaining southern portion of the Works Area.*
- *At the completion of the quarrying operations, site rehabilitation would occur;*
- *As part of the operations, blasting would occur periodically throughout the year (with a maximum number of 12 blasts per year). The explosives would*

[1] Endorsed on 22 August 2014 under the MRSD Act.

[2] Further detail on the quarrying staging and process is provided in Chapter 5.1.

be brought onto the subject land by blasting specialists, and would not be stored on site.

- *…*[3]

Other relevant aspects of the proposal include:

- At maximum depth the proposed quarrying will extend below the water table variously between 11 and 13 metres. This will require quarry dewatering during extraction
- In addition to dewatering, the quarry will use about 20 megalitres per annum of water of which about 50-60 per cent is for dust suppression on roads and around crushing plant and the rest is used in wetting the final product for transport and sale.

1.2 The site

The site is located at 320 Mooleric Road, Ombersley, 2.7 kilometres north of the intersection of Mooleric Road and Princes Highway. Mt Gellibrand is 4 kilometres to the north-northwest. Birregurra is located 7 kilometres to the south and Colac is 20 kilometres to the south west. The general area is shown in Figure 2.

The total site is approximately 280 hectares, and has a frontage to Mooleric Road of 787 metres and a frontage to Prices Lane (to the east) of 788 metres. The property is currently used for grazing and cropping and contains a dwelling and associated outbuildings set back approximately 200 metres from Mooleric Road.

The quarry site is largely cleared, gently undulating and contains three basalt Stony Rises:

- Stony Rise 1, located in the south-western portion of the Works Area
- Stony Rise 2, located near the existing dwelling
- Stony Rise 3, located towards the north of the Works Area.

There are ten existing groundwater bores on site: one groundwater supply bore, two stock and domestic bores and seven groundwater monitoring bores.

1.3 The applications

(i) The 2010 application

A planning permit application (PP80/2010-1) for a basalt quarry on the site was lodged with Colac Otway Shire Council (Council) in 2010. Key issues and dates, in summary, were:[4]

- Council determined to issue a permit with conditions on 9 March 2011
- Objectors took the application on review to the Victorian Civil and Administrative Tribunal (VCAT)
- VCAT determined that a permit should not issue, finding:[5]
    - The use of the land for a quarry was acceptable in principle
    - The application should be refused due to concerns about ground and surface water, impacts on native fauna and truck noise at 30 Mooleric Road.

---

3 Council submission pp 8-9.

4 Summarised from Council submission, Document 8, para 36 onwards.

5 *Beach & Ors v Colac Otway SC* [2011] VCAT 2086.

NOTE

To reduce the electronic size of this document, Figure 1 has been removed from this version of the report. Contact Planning Panels Victoria to obtain a complete copy of the report.

Figure 1 Application staging plan

NOTE

To reduce the electronic size of this document, Figure 2 has been removed from this version of the report. Contact Planning Panels Victoria to obtain a complete copy of the report.

Figure 2 Site location[6]

(ii) The current application and call in

The current application (PP169/2014-1) was lodged with Council on 28 August 2014. Key differences from the 2010 application include:[7]

- A deeper quarry, which is planned to extract stone from below the water table
- An increase in stone production from 80,000 tonnes per annum (tpa) to a maximum 200,000 tpa
- An increase in blasting from six blasts a year to 12.

Public notice of the application in late 2014 drew 32 objections, with issues raised including:[8]

- Groundwater
- Noise
- Traffic
- Dust
- Flora and fauna
- Blasting
- Economic issues

6 From Mr Rodda Expert Witness Statement Page 8.
7 Summarised from Council submission, Document 8, para 51.
8 Summarised from Council submission, Document 8, para 60.

Council considered the application on 17 December 2014. The officer's report recommended approval with conditions; but Council determined to refuse the application on a range of planning grounds.[9]

The Applicant lodged an application for review of Council's refusal to grant the permit at VCAT. On 26 October 2015, the Minister for Planning 'called in' the matter from VCAT, pursuant to Clause 58 of Schedule 1 of the *Victorian Civil and Administrative Tribunal Act 1998*.

1.4 The Advisory Committee

(i) Appointment and Terms of Reference

Mr Nick Wimbush (Chair), Mr Stephen Hancock and Ms Katherine Navarro were appointed as the Committee by the Minister for Planning on 18 December 2015 under section 151 of the *Planning and Environment Act 1987* (P&E Act).

The Committee's TOR, attached at Appendix A, state at paragraph 4 that the Committee has the following purpose:

> *…to provide all parties to the Victorian Civil and Administrative Tribunal (VCAT) proceeding an opportunity to present submissions, and to provide independent expert advice to the Minister for Planning to inform the determination of the matter by the Governor in Council under clause 58 of Schedule 1 to the Victorian Civil and Administrative Tribunal Act 1998, including:*
>
> - *Any preliminary questions (including the need for any interim order by the Governor in Council); and*
> - *Whether a planning permit should be issued in consideration of planning permit application PP169/2014-1 under the Colac Otway Planning Scheme (the Scheme) and if so, what conditions should be applied.*

At Clause 27 the TOR outline the reporting requirements as follows:

> *The Advisory Committee must produce a written report for the Minister for Planning providing:*
>
> - *An assessment of submissions to the Advisory Committee.*
> - *Advice on the expected scale and nature of impacts of the proposed quarry on the surrounding agricultural land and activity.*
> - *Advice on the expected scale and nature of impacts on ground water within the local ground water catchment.*
> - *A recommendation as to whether or not a planning permit should be issued and the reasons for this recommendation.*
> - *A (without prejudice) draft planning permit including relevant conditions from section 55 referral authorities.*

[9] See Council submission, Document 8, para 76.

- *Advice on any other relevant matters raised in the course of the Advisory Committee hearing.*
- *A list of persons who made submissions considered by the Advisory Committee.*
- *A list of persons consulted or heard.*

(ii) Advisory Committee process

Initiation

On 19 January 2016 the Committee wrote to all parties to VCAT proceeding P281/2015 giving them notice of the Advisory Committee Hearings and an opportunity to present. This included Southern Rural Water (SRW), who advised via e-mail dated 15 February 2016 that they did not wish to participate in the Hearing, and wished to rely on their original responses to the quarry work plan and planning permit application.

Hearings

Hearings were held in two major tranches as shown in Table 2; firstly to consider preliminary issues related to a Cultural Heritage Management Plan (CHMP), and then the substantive merits hearing for the quarry.

Table 2 Advisory Committee hearings

Date	Hearing type	Key issues
19 February 2016	Directions	Preliminary matters related to CHMP
16 March 2016	Merits	Whether a CHMP is required for the proposal
20 September 2016	Directions	Arrangements and preliminary matters for main merits hearing
21, 22, 23 November 2016 2, 6, 12, 14 December 2016	Merits	Hearing of substantive issues

CHMP Merits Hearing

Following the Preliminary Hearing on the CHMP issue, the Committee submitted an interim report on 20 April 2016 to the Minister for Planning seeking orders from the Governor-in-Council.[10] On 19 July 2016, the Governor-in-Council issued a determination under clause 61(1)(b) of Schedule 1 to the *Victorian Civil and Administrative Tribunal Act 1998* that a CHMP was not required.

Substantive Merits Hearing

The substantive Hearing was held in November and December 2016 as shown in Table 1. Parties to the Hearing are shown in Appendix B. This report is the outcome of that Hearing.

[10] *MCG Quarries Ombersley Quarry Interim Report* (ACI) [2016] PPV 41. Parties to that Hearing are listed in that report.

Procedural issues

In addition to the CHMP matters, there were a number of procedural issues raised in the Hearing. These are summarised in Appendix E.

Inspections

The Committee undertook an unaccompanied site inspection of the subject site and surrounds on 29 February 2016 and an accompanied site inspection of the Beach and Collins properties on 24 November 2016.

1.5 Approach in this report

The Committee has structured the report to address the key issues identified in the TOR and submissions, being:

- Groundwater and surface water hydrology
- Traffic and traffic noise
- Ecology
- Other issues
    - Quarrying and blasting
    - Aboriginal cultural heritage
    - Economic and social impacts

Following consideration of these issues the Committee undertakes an assessment against planning policy and the Colac Otway Planning Scheme to determine if a permit should issue.

2 Groundwater and surface water hydrology

2.1 The issue

Groundwater supports the pastoral activity in the general area around the proposed quarry site and has been identified from relatively shallow depths within the fractured volcanic rocks which underlie the subject site. The groundwater quality, measured as total dissolved solids varies from being potable (Total Dissolved Solids <500 milligrams per litre (mg/L)) beneath Mt Gellibrand to the north to be variable (between TDS = 2000 and +3000 mg/L) across the subject site and to the east, west and south.

Some surface runoff is collected in small dams and depressions across the subject site to support stock watering. This water, when it is available, supplements the groundwater pumped by windmills to dams and stock troughs.

These sources of water (groundwater and surface runoff) are extremely important to the viability of agricultural pursuits. The groundwater is particularly valued by farmers during periods of drought or agricultural water stress. Short of costly trucking of water during droughts, there is no alternative source of water with capacity to maintain the water needs of their stock.

The local farming community are concerned that:

- The development of the Ombersley Quarry may impact on the continued availability of groundwater from the existing stock and domestic bore networks and also from a few springs recorded to the south. This is due to its inherent water requirements and the dewatering of the shallow aquifer.
- The proposed quarrying may, during operational periods and post closure, give rise to adverse changes in groundwater salinity such as to render the water resource unusable for stock watering in the longer term.

2.1 Evidence and submissions

(i) Groundwater and surface water submissions

Several submissions from objectors related to groundwater concerns. These included the submissions of Mr and Ms Holt of Turkeith Homestead PL whose property incorporates the area of Mt Gellibrand, which were invaluable to the Committee in providing local data on rainfall and water level fluctuations; as well as in comments on water salinity and the relevance of these to the agricultural practices and potential of the area. They also included valuable references to the soils in the Mt Gellibrand area[11].

Mr Longmore presented a submission on behalf of Mr Malcom Gardiner[12] in which he set out the importance of maintaining the agricultural viability and environment of the area. He described the impacts of the Gerangamete Wellfield to the south of Birregurra. This facility supplements the Barwon Water supply system serving the Greater Geelong reticulation

[11] Leeper, Nicholls and Wadham (1936).
[12] Document 37.

system, and taps Lower Tertiary sand aquifers at depths of more than 300 metres. These lie beneath thick clayey aquicludes, except where they are recharged, at least in part, in the Boundary Creek area on the eastern side of the Barongarook Hills south of Colac. In relation to this latter area, he tabled documentation that suggested that the Gerangamete Wellfield drawdown may have given rise to acidic springs affecting the water quality of local streams and causing some fish deaths.

Mr Longmore agreed that there was no known interconnection between the Gerangamete Wellfield aquifers and the Newer Volcanic aquifers which underlie the subject site and the surrounding area.

Mr Longmore also introduced evidence from Mr Hay, an agricultural economist. In addition to his circulated evidence, Mr Hay tabled a document that assisted the Committee in evaluating the volumetric magnitude of stock water demand based on possible stocking levels on the Beach property immediately to the west of the subject site[13].

Mr Hay indicated that the stock water demand could be up to about 13 megalitres per annum (ML/a) supply for the 810 hectare property. The alternative to groundwater would involve cartage of water at very significant expense.

The Committee notes the value of all these submissions in their deliberations.

The Committee inspected the proposed quarry site and its surrounds on several occasions, both accompanied and unaccompanied, in order to understand the context of the evidence.

(ii) Groundwater availability evidence

A great deal of expert evidence and information was presented to the Committee relating to groundwater and surface water. This is summarised in Table 3 below.

Table 3 Summary of material provided on groundwater and surface water[14]

Who	What	When
Mr Basil Natoli	Core data, photography and rock condition logs (Hearing Document 69).	Correspondence to MCG dated 14 September 2015.
Mr Greg Hoxley	Graphic Bore hole logs, lithological descriptions (Hearing Document 47).	Expert evidence to 2011 VCAT case.
Mr Alexis Valenza	Groundwater levels , depths and flow directions (Hearing Document 45).	Expert evidence to 2011 VCAT case.
Mr John Nolan	Data on hydrological testing, water table levels and elevations plus hydrochemical data and analyses and water management plans.	Expert evidence to this case.

[13] Document 35. The Applicant objected to this material as it had not had time to review it and Mr Hay was supposedly giving evidence on behalf of Mr Gardiner, another party. The material only reinforced the agreed view that protecting domestic and stock water supplies is important.

[14] Noting that the Committee places greater weight on evidence provided directly to this Hearing.

Who	What	When
Associate Professor John Webb	Peer reviews of Groundwater Management Strategy (Hearing Document 12).	27 November 2014 and 7 December 2014.
	Response to submissions (Hearing Document 43).	27 November 2014.
Mr John Nolan	Groundwater level monitoring results 2015 – 2016.	Supplementary evidence to this case provided on 14 October 2016.
Mr Anthony Lane	Pumping Test Analysis, 320 Mooleric Road, Ombersley Victoria (Hearing Document 4).	Expert evidence to this case.
Mr Alan Wade	Review of Groundwater matters plus Supplementary Statement.	Expert evidence to this case.
	Review of Groundwater Matters November 2016 and Response to New Material (Hearing Document 57).	Supplementary evidence to this case.
Mr Chris Smitt	Hydrogeology, catchment health and water quality numerical modelling to determine impacts of groundwater extraction and the role of climate change variability on Australia's groundwater resources and other relevant documents (Hearing Documents 13 - 16, 24, and 56).	Expert evidence to this case.

(iii) Hydrogeological context of the proposed quarry site

The hydrogeology of the area surrounding the proposed quarry site on Mooleric Road is of volcanic rock extruded over the past 2 million or so years across a palaeolithic-topography. This included a lake formed when the palaeo-Barwon River catchment outflow valley to the south was blocked by a number of lava flows deriving from older eruption centres to the west and north west and by late stage uplift of the western extremities of the Otway Ranges. The sediments deposited in the palaeo-lake are known locally as the Hanson Sands and form the base for quarrying in this area.

The present topography of the land around the quarry site is a further consequence of the volcanic activity of the past. Two centres of eruption are identified as significant hills namely:

- Mt Gellibrand about 4 kilometres to the north northwest of the subject site - which has the form identified by geologists who have worked in the area[15] as an ash or scoria cone. This cone has also been a source of some basaltic lava flows that emerged from the lower slopes of Mt Gellibrand to flow, at least in part, to the south sinuously traversing

[15] (Leeper et al (1936); Dahlhaus and others)

the area that is of general interest to the Committee. These lava flows are now represented by slightly elevated land with a few remnant "stoney rise" features.

- Mt Pleasant is located about 4 kilometres to the northeast of the subject site and was observed by the Committee[16] to be a lava dome. It was probably also a source of many lava flows to the south, southwest and southeast. The lack of significant topographic elevation of this eruption centre may simply reflect the lack of any ash or scoria eruptions from this centre or alternatively, that it is likely older than Mt Gellibrand and the higher softer material has been removed away in the millions of years of erosion which followed the eruptions from this centre.

The Committee is aware from its experience that individual lava flows undergo cooling and loss of vapours as they flow and these cause varying viscosity within the flows. These phenomena trigger very complex stress relief mechanisms. In particular, fracturing develops both vertically and sub-horizontally. These can become precipitation sites for secondary minerals of a wide variety which may render them clogged in part or wholly. In addition, the surfaces over which the flows move can be baked and roughly torn up to be incorporated in the later flows. Not uncommonly, soils formed on earlier flows may be baked or otherwise preserved.

On the cessation of individual flow periods deep fracturing occurs as the crystalline mass cools to form rock. In addition, encapsulated lava flow tubes become drained of lava leaving them fragile beneath an extensively rough near solidified surface prone collapse to form surface depressions. In the short or longer term these create un-coordinated surface depressions which form localised sites for water accumulation, infiltration and concentrated weathering giving rise to mineral and rock decomposition to depth.

After the lava extrusions, there is no doubt that the land surface would have been extremely rough as is seen in the "Stoney Rise" areas to the west between Colac and Camperdown. The fact that such land forms are no longer present to the south of Mt Gellibrand, reflects the susceptibility of basaltic lava to decay rapidly after cooling, as it is exposed to chemical, and to lesser degree at least initially, mechanical erosion at the surface. These processes over millions of years deflate the surface profile roughness, and surface undulations gradually in-fill with the clayey weathering products of the rock that are mobilised by the rainfall run off that occurs. This is an ongoing process even now.

It is evident from drilling logs,[17] in Mr Nolan's evidence and in the deep ripping reported by Mr Stewart in his affidavits in the Preliminary Hearing, that deep (up to 2 metres thick) clayey soils do exist across the subject land underlain by boulders and rock massives. These are not apparent upon Mt Gellibrand where the combination of steep slopes creates rainfall runoff sweeping the erosion debris down slope. It leaves behind a residue of iron oxide peds in the soils and reinforcement of the cementing of the vesicular scoria and ash deposit.[18]

16 And by Leeper et al (1936).

17 Presented in Documents 47 and 48.

18 These are noted by Leeper *et al* (1936) to predominate in this area, at least on the upper slopes.

It is the above history that determines the hydrological properties of the volcanic rock environments to the south of Mt Gellibrand. It is to be expected that the hydrological properties will be extremely anisotropic, both within and across individual basalt flows and across flow periods. The affected properties will include: hydraulic conductivity (permeability), specific yield (drainable porosity), rates of recharge (rainfall infiltration to depth). They will also affect the salinity and chemistry generated in the groundwater which comes to saturate the void spaces created in the rock mass over time.

The groundwater stored within the rock mass will then flow through fractures that interconnect within the rock mass. This will occur to the extent that hydraulic gradients (slopes) develop within the mass due to the saturation and water level pressures created by recharge into permeable soils upslope; and discharge at springs where the water table is exposed by erosion of the rock surface layers down gradient.

The salinity and chemical composition of the groundwater within the rock mass will vary from place to place depending on the proportion of low salinity rainfall and runoff which infiltrates into the rock mass with or without suffering salinity increase due to evaporation and transpiration concentration as it passes through the soil. The salinity will then be higher where the soil is clayey and the topographic slopes are low, and lower where the soil is less clayey and more permeable.

(iv) Groundwater availability evidence specifics

The evidence has been subdivided by the Committee into factual data derived from specific evaluation processes and various analyses and interpretations of the factual data.

The factual data includes:

- Early (pre 2015) drilling investigations in the form of core photography, bore logs and bore construction details of MB1-4 on the proposed quarry site (Documents 47, 48 and 69)
- Rock strength evaluation tests relating to bore WTG 56 from the Mt Gellibrand windfarm geotechnical investigation drilling
- Additional drilling done on the proposed quarry site in preparation for the 2015 application and VCAT Hearing set out in "Statement of evidence on groundwater matters" by John Nolan dated 10 August 2015. Data from the 12 hour pumping test (Appendix I in Mr Nolan's report) conducted by Larkin on Bore GMS – 5401 (Appendix I) and groundwater slug tests and analyses (Appendix J) conducted upon MB2, 3, 5, 6, 6S, 7 and 7S.
- Water analyses presented in Appendix H of Mr Nolan's report for all the investigation bores which intersected water on the subject site, including a stock and domestic bore identified as SD1 on the southern boundary. The water salinity variations (recorded as electrical conductivity) shown on Figure 6.1 are accepted as factual data by the Committee.
- Water level monitoring in 15 bores over the period June 2015 to September 2016 are reported in Mr Nolan's Groundwater monitoring addendum to his statement of evidence dated 14 October 2016.

Monitoring bores on site and in the surrounding area are shown in Figures 3 and 4.

The factual data has established to the Committee that, at least within the proposed 64 hectares of the proposed quarry area, the hydrogeology is dominated by a fractured basaltic sequence which has a base on the sediments of the Hanson Sands at an elevation close to 100 metres Australian Height Datum (AHD).

NOTE

To reduce the electronic size of this document, Figure 3 has been removed from this version of the report. Contact Planning Panels Victoria to obtain a complete copy of the report.

Figure 3 Monitoring bores on site[19]

The water table within the fractured basalt falls from an elevation of about 118 metres AHD at the northwest corner of the proposed quarry site (MB3) to about 116 metres AHD at the south east corner. Fluctuations of these water levels have been minor and varied between 0.33 and 0.4 metres over the period June 2015 to September 2016. This decline is part of a

[19] Mr Nolan Expert Witness Statement Page 3.

decline recorded by the State Observation Bore Network (SOBN) which has been more or less continuous since about 2013. Mr Nolan interprets this as being a trend consistent with falling rainfall across that period as indicated by monthly residual mass plots he presents in his 2016 addendum statement of evidence.

NOTE

To reduce the electronic size of this document, Figure 4 has been removed from this version of the report. Contact Planning Panels Victoria to obtain a complete copy of the report.

Figure 4 Bores in the vicinity[20]

The hydrological relationship of the underlying Hanson Sand to the overlying volcanic was not established by any testing nor was its thickness established. The lithology described from cores is of very fine grained sand to black silts and clays. This unit seems unlikely to be a significant aquifer, although it may be a source of upward leakage into the overlying volcanics where permeable fractures persist.

[20] Mr Nolan Expert Witness Statement Page 4.

It is also clear to the Committee from Mr Nolan's 2015 evidence[21], that some outflow occurs from fractured basalts down gradient to the south east to Ricketts Marsh where a small drainage line is incised into the weathered surface of the basalt. This is evidenced by several springs mapped in this area. Similarly, underflow deriving from water table gradients within the basalt are likely to be providing supporting flows to some of the springs mapped to the south and south west where Mooleric Swamp discharges to Birregurra Creek.

With the exception of factual data provided by Ms Holt on rainfall[22], all the groundwater experts who presented to the Committee used the above factual data and analysed it to demonstrate variations which could arise from different approaches. They then considered the consequences of varying assumptions on the reliability of the adaptive groundwater management strategy presented in Mr Nolan's evidence in chief. This strategy is proposed to provide mitigation should unacceptable impacts arise as a consequence of the water demands imposed by quarrying operations and dewatering that takes place where and when the proposed quarry extends below the water table.

In addition, the experts speculated upon a number of hydraulic parameters which were not evaluated by the investigations. Where these values were needed they are based on experience, judgment and such information as is available from relevant literature.

Expert witness conclave

Three of the groundwater experts (Mr Nolan, Mr Wade and Mr Smitt) met as a conclave to determine what they could agree upon in relation to the hydrogeological and groundwater salinity issues in the area[23]. Subsequently, at the request of the Committee, Mr Lane issued a File Note[24] presenting comments on the conclave report. This File Note focused on those issues which were not agreed or where issues had been raised with which he did not agree.

In summary, all the experts agreed upon the Aquifer System as conceptualised by Mr Nolan and the attributes of the aquifer in terms of environmental values. They also agreed that the Newer Volcanic Aquifer (NVA):

- Will behave as an unconfined aquifer in response to dewatering
- Recharge estimates of Mr Nolan are reasonable although other values might apply
- Groundwater management principles are reasonable
- The hydraulic gradient and aquifer thickness across the proposed quarry site are reasonable
- Groundwater monitoring proposals are reasonable but some further monitoring wells should be located down gradient for assessing salinity changes.

Whilst Mr Smitt in his evidence was critical of the type and adequacy of hydrogeological investigation undertaken and in particular the use of slug tests, the major disagreements within the conclave related to the aquifer characteristics, namely the degree to which the aquifer away from the proposed quarry site would react as a semi-confined or unconfined

21 Figure 6.1.
22 Document 34.
23 Document 1 is the Conclave report.
24 Document 42.

aquifer. This issue was at the core of disagreements relating to the reliability of the groundwater model developed for Mr Nolan under his supervision as a basis for predicting the extent of impacts. This disagreement was relevant to the Committee in deciding whether impacts on the continued availability and beneficial use characteristics of groundwater within the NVA for ongoing stock and domestic usage on adjacent properties, and generally in the area, could be managed.

The above hydrological issues were portrayed, particularly by Mr Wade and Mr Smitt, as impacting on the magnitude of water level declines that might occur around the quarry if the quarry uses groundwater for its operations and the quarry is developed below water table. Specifically, Mr Wade and Mr Smitt considered that Mr Nolan's model was based on hydraulic conductivities that should not be considered accurate on the basis of the hydraulic testing that was undertaken on the aquifer.

Mr Wade and Mr Smitt presented various evaluations that indicated the sensitivity of the modelling to the use of a range of different hydraulic parameter values. All of these could be justified theoretically by using different evaluation methodologies which involve aquifer hydraulic condition assumptions (such as semi-confined, leaky confined, etc.) in their determination.

Specifically, Mr Wade argued that the transmissivity (hydraulic conductivity x saturated aquifer thickness) used by Mr Nolan was too low. Consequently the radius of influence of the quarry dewatering could be much greater than that predicted by Mr Nolan's model.

Mr Smitt also considered the impact of modelling drawdowns at various distances away from the quarry edge using different hydraulic conductivity values (1 and 2 metres/day (m/d)) and different periods of modelling (10 and 20 years).[25]

Both Mr Smitt and Mr Wade argued that the specific yield value (drainable porosity) used within the model could be lower by as much as an order of magnitude. If that was so then the magnitude of drawdown could be much greater than predicted by the model. Similarly, they criticised the possible values which should have been used in respect to the recharge (natural rainfall and stream leakage infiltration to the water table) rates that could apply.

Mr Holt made submissions[26] both as a concerned landholder and as a person with a significant general understanding of geology resulting from his career as a professional geotechnical engineer. He stated that the evaluation of likely impacts from a quarry development as proposed should be considered within a larger regional context. He submitted that the groundwater resources of the area were already under stress because of climate change and the stock and domestic water bore extractions already in place. In particular, he understood that Mt Gellibrand, which is largely within his property, is the source of most recharge to the NVA down gradient.

[25] Document 15.

[26] Document 33. Turkeith Homestead is approximately three kilometres north of the subject site.

Ms Holt also pointed out that the rainfall records at Mooleric Station were lower than the rainfall at Birregurra and that significant water level variations occurred in nearby SOBN bores and mostly the trend showed continuous decline.

Mr Holt, along with Mr Wade and Mr Smitt, was critical of Mr Nolan's model. In particular, they were critical of the northern boundary of the model being set as a constant head boundary. This implied that there was a continuous source of recharge across that boundary. Mr Holt contended that this was a serious misrepresentation of reality as that boundary was the other side of the groundwater divide. This was of concern since he believed that any additional groundwater extraction stress would derive from the recharge mound on his property where the groundwater was not only of value for stock watering but also had potential as a source of irrigation water.

Mr Lane, who had the original role of peer reviewer of the onsite pumping test as analysed by Mr Larkin included in Mr Nolan's expert evidence, noted in his evidence[27] that:

> *…while some inadequacies were evident in the test that the test provides accurate data, which is representative of the conditions in the basalt aquifer in the vicinity of the pumped well.*

He noted that the pumping bore did not have observation wells within the cone of influence of the test drawdown and hence no storage function could be determined. Also, no multiple step test was conducted and hence no function for well loss could be determined. Finally he noted that the drawdown and recovery data analysis was done in combination thereby reducing the opportunity to evaluate the aquifer transmissivity separately.

Despite these inadequacies, he was of the opinion that the test results were valuable and that the Transmissivity value (T) of about 9 square metres per day (m^2/d) represents the screened interval of the aquifer. However, since the screened interval in the pumped well represents only a portion of the saturated thickness of the aquifer, the full aquifer transmissivity is likely to be more like 20 m^2/d for design purposes.

In verbal evidence Mr Lane noted that his estimates of the transmissivity were similar to those of Mr Smitt and Mr Wade and that the differences in value of 10 - 25 m^2/d were hardly material as *"…orders of magnitude are the name of the game in basalt aquifers"*.

In his File Note[28], Mr Lane stated in relation to aquifer conditions, that terminology such as "semi confined" and "leaky confined" *"…as used by Smitt and Wade are confusing and may arise from the influence of the interception of underflow and transition to equilibrium or (verbal evidence) the impacts of partial penetration with delayed yield effects during the period of the pumping test".*

The above phenomena, Mr Lane stated, can cause drawdown patterns in pumping wells which suppress late stage rates of change which can suggest higher transmissivities than actually apply. He commented further that, from his knowledge of Mr Nolan's model, the model input is K (sic hydraulic conductivity) not T, as discussed by Mr Smitt and Mr Wade,

[27] Document 4.
[28] Document 42.

and when the variation in the saturated thickness of the NVA is taken into account by the model, the T values applied by Mr Nolan, as compared to those proffered by Mr Smitt and Mr Wade, are not very different.

Mr Lane also commented that lowering the specific yield within the model would increase the drawdown resultant from dewatering or pumping operations but that the increase in drawdown is not proportional to the decline in storage coefficient because storage is subject to logarithmic functions which results in rapidly reducing effects of storage with distance.

Mr Nolan's model included a northern boundary to the north of Mt Gellibrand.[29] This was set deliberately as a constant head boundary, but was located at such a distance from the site of dewatering stress that any drawdown effects likely to be generated at the quarry site would not extend that far. Mr Nolan calculated that there was a natural outflow across the model boundary to the north of 1,115 cubic metres per day (m^3/d) which was reduced by 38 m^3/d after the additional groundwater stress at the quarry was introduced. Therefore, the northern boundary could not artificially impact upon drawdown patterns in the sensitive areas of the model where the predictions of impact could require application of the adaptive management program.

The lateral boundaries of the model were set to the east and west at a distance and in an orientation such that they act as 'no flow' boundaries based on the best estimate of the water table gradients using the regional information presented in Figure 6.1 of Mr Nolan's evidence. This information indicates that groundwater flow lines would run parallel to these boundaries. This fact was not disputed by Mr Smitt or Mr Wade.

The south model boundary is set as a discharge boundary to Birregurra Creek and this was not disputed.

The model was extensively criticised by Mr Wade and Mr Smitt on the basis that they contended that it did not accurately reflect the water tables across the proposed quarry area and that the modelled surface was not accurately calibrated in a transient sense (i.e. reflective of water table variations over time), nor had it been subjected to sensitivity testing. As such they maintained it should not be considered reliable or fit for purpose as a predictive tool.

Reference was made by both Mr Smitt and Mr Wade to various model classifications as set out in the National Water Commission - Guidelines for Groundwater Model Development and Use in Australia[30]. They argued that for the model to be considered acceptable to predict groundwater impacts around the quarry site that it would have to be able to demonstrate that it could meet transient calibration accuracy such as to be considered at least Class 2 in the Guidelines. Their position was that the multiple inaccuracies in the model, as developed by Mr Nolan, was insufficient to qualify as even Class 1.

Mr Nolan acknowledged that there were differences of opinion between competent hydrogeologists as to what hydrological parameter values might be, especially in an

[29] Document 44.
[30] Document 17.

environment where extreme variability is common across small distances. He stated that after the 2011 VCAT hearing he chose deliberately to use the existing pumping test but not to undertake another pumping test with observation bores. Rather, he sought to get a greater spread of data from drilling and slug testing. This was not disputed by either Mr Wade or Mr Smitt; although Mr Smitt expressed a preference for long term pumping tests to evaluate aquifer hydraulic parameters rather than slug tests.

An attached reference in Mr Smitt's evidence in chief[31] considers this matter. It states in the Abstract:

> *The experimental results of this investigation show that even when conditions of non radial flow are present in the vicinity of the borehole, interpretation of slug tests using homogeneous model provided order of magnitude estimates of transmissivity in the crystalline rock terrane under consideration.*

This reference it seems does not support Mr Smitt's expressed concern. Similarly, another attached reference[32] recommends the need for carrying out stepped slug tests involving small head increases. This indeed is what was done in the testing reported by Mr Nolan.

Mr Nolan commented[33] that the climatic data at Mt Gellibrand referred to by Ms Holt was not used because of the relatively short record and the fact that the measuring site was elevated much higher than the site. He also noted that the rainfall data was used largely to assess the magnitude of evaporation values that would apply across the site in respect to pondages. He noted that the use of evapotranspiration values as applied to crops as suggested by Ms Holt would not be appropriate in this instance.

In commenting on his model, Mr Nolan acknowledged that some errors had been made in setting up the water table elevations in the model but that water table gradients across the proposed quarry site were representative. He indicated that the use of the model was to evaluate the magnitude of issues which might need to be addressed within an adaptive management framework he proposed for the area.

In summary, Mr Nolan stated that the impacts of the proposed quarry on the groundwater resources of the area would be a reduction of the groundwater underflow consequent upon the water table gradient by between 60 and 100 ML/a. This volume includes consumptive uses of groundwater for quarrying purposes typically of around 20 ML/a, plus evaporative losses from storages and from the quarry and the subsequent ponds amounting to 80 ML/a maximum. This loss is partly offset by rainfall amounting on average to about 60 ML/a. He recognises that the groundwater extraction rate is dependent upon the rate of quarry depth increase and the area of the quarry below water table at any one time. As a consequence, ignoring seepage recycling, the upper dewatering limit is likely to be between 83 and 123 ML/a. But only when the quarry reaches full depth.

---

31 Allan M Shapiro and Paul A Hsieh: How Good Are Estimates of Transmissivity from. Slug tests in Fractured Rock? - Vol 36, No 1 Groundwater, Jan- Feb 1998

32 PM Quill et al: Validation of Non Darcian Flow Effects in Slug Tests Conducted in Fractured Rock Boreholes, Journal of Hydrology, Elsevier BV, 2013

33 Document 44.

The model indicates that after 10 years of dewatering, the cone of depression may extend out and lower the water table levels up to 2,500 metres from the quarry by less than 0.5 metres, but this should be less to the north which is up gradient. Notably, the model indicates that the extent of the cone of depression varies very little whether the pumping rate is 60 ML/a or 100 ML/a. This is a consequence of the cone reaching an equilibrium based upon the underflow from the north.

Mr Nolan's adaptive management plan recognises that even slight declines in water supply from stock and domestic bores can occur if the water level in the bore declines to reduce the drawdown available at individual bores to meet the operational extraction rates, or if the water level in the bores drops below the pump inlet. To this end he proposes that restorative action should be undertaken should the discharge from any bores within 2 kilometres of the quarry decline by 15 per cent from current discharge rates. The critical bore at risk of discharge impairment is the Beach Bore[34] which is estimated to be 315 metres west of Stage 1 of the quarrying. Drawdowns of between 1.8 and 2.7 metres were indicated by the modelling at this bore. How this decline may be offset or supplemented was not described by Mr Nolan. Rather, it is suggested that it be negotiated with the landowner.

(v) Groundwater quality sensitivity evidence

Groundwater quality evidence was presented in the form of analyses of water samples collected during the pumping test and from all the investigation bores which struck water. These results are included in Mr Nolan's 2015 evidence-in-chief and in the evidence of Mr Wade. Mr Nolan included comments about possible contaminants that can accumulate as a consequence of quarrying operations. These included nitrate and ammonia which can occasionally be released during explosive use and hydrocarbons from diesel fuel spills, lubricants and from unexploded charges. Notably, ammonia and nitrate presence in the NVA can derive from intensive grazing and nitrate is commonly released naturally from remnants within the basalt mineralogy.

In groundwater quality terms, salinity variations which might occur within the groundwater mass due to mixing and/or movement consequent upon quarry dewatering are potentially recognised as serious if they impinge upon the classified beneficial uses of the water including stock and domestic uses or on groundwater dependent ecosystems (GDE). These are issues that take time to develop. Indeed, any contaminant issues will not escape the quarry confines for as long as there is an inward groundwater flow gradient during active dewatering or as the pits backfill to new equilibrium levels post closure of quarry operations.

Mr Nolan recognised the variations in salinity indicated by the analyses of the bores around and on the subject site. Specifically, he noted that the beneficial uses of the water are mostly classified as for stock watering, except to the north around and beneath Mt Gellibrand where the groundwater are known to be below 1,000 milligrams per litre (mg/l) as salinity. Mr Holt acknowledged this, stating that the issue for the farmers in the region was availability of water, not salinity.

[34] Bore No. 1 on Figure 8.1

Mr Nolan stated in his evidence that the variations in groundwater salinity regionally reflect variations in the fracture flow paths feeding into the different bores and into the bores from different levels. Salinity within the aquifer is a consequence of differing recharge events along the flow paths. He noted, in relation to data presented by Mr Wade, that even close to discharge areas salinity could vary widely due to the presence of localised surface depressions which act as points where recharge events and rates may be increased.

These above issues aside, Mr Nolan recognised that there is potential for the groundwater salinity to be increased by evaporation during quarrying and long term when quarrying is complete and the quarried areas remain as pondage exposures of the water table. These pondages may give rise to evaporative concentration of the natural water salinities. When questioned at the Hearing, he agreed with the Committee's suggestion this could be offset if some of the upstream catchment run off were directed through the pondages to offset evaporative losses post closure.

Mr Nolan also noted that during the period of quarrying below the water table, the use of storage ponds for groundwater pumpage in excess of quarry demands would involve some water recycling and further potential for salinity increase. Overall however, he did not see that any changes in the groundwater salinity, either during or post quarrying, would be of such magnitude as to represent a risk to the beneficial use potential of the groundwater. He also did not consider it would impact negatively on the ecosystem viability remnant in the downstream wetlands and creeks.

The adaptive management plan proposed by Mr Nolan sets up triggers for action at an increase in salinity of 15 per cent on the site or an increase of 50 per cent in nitrate concentration. No indication is given as to the means of offsetting these impacts but Mr Nolan indicated that there were many technically feasible approaches available including, if necessary, reducing the extent of groundwater pumping by reducing the depth of quarry rock extractions. This action would reduce the rate of any change and provide opportunity to redress any potentially adverse beneficial use degradation.

Mr Nolan proposed that further monitoring bores be located south of the proposed quarry site both on the southern boundary of the subject site and further down the flow paths towards Mooleric Swamp.

(vi) Surface water management evidence

Evidence on surface water was presented by

- Mr Henty - 10 August 2015 presenting the stormwater management plan
- Mr Craigie - 28 November 2014 a review of the storm water management plan for the VCAT Adjourned Hearing in 2015.

The surface water management plan involves the interception of the natural runoff from the 196.23 hectare catchment which impinges upon the boundaries of the 64 hectare subject site, and its transmission around perimeter bunds in engineered swales to release to the existing drainage environment via the south east corner of the quarry site as the runoff does naturally.

It is also proposed that surface runoff within the quarry works area will be captured for as long as surface runoff remains significant from this area. This water will pass through a suitably sized sedimentation basin before release to the swales.

The design criteria for the swales has been determined based upon the Rainfall data available for Birregurra and Design Rainfall Intensity Charts from the Bureau of Meteorology (BOM) to derive the 1 per cent Average Exceedance Probability flows from the catchments using the Rational Method as set out in Australian Rainfall and Runoff guidelines. The Adams method was used for determining the times for flow concentrations to the critical interception swale points. These approaches are standard surface water hydrology and engineering design practice techniques.

The swale designs include excavation and fill to ensure continuity of down gradient flow across the existing terrain undulations. The swales will be lined using compacted impermeable materials with beached slopes, extending across the full width of the flow cross section so as to minimise infiltration and to prevent erosion of these flow paths during high flow events.

An on-site settlement pond has been designed to receive work area runoff. The design of this dam also takes into account possible sources of contaminants, including runoff from the overburden dumps and from the plant and stockpile areas. The necessary sizing was then evaluated using the MUSIC model. Again, this approach is standard in the industry.

The original report of Mr Henty was peer reviewed by Mr Craigie in 2014, but he did not appear before the Committee. His evidence was generally in support of the approach taken but he noted in respect of stormwater quantity aspects, and particularly peak stormwater discharge rates, that some catchments and site features had been overlooked. These aspects appear to have been picked up by Mr Henty in his 2016 evidence, although he only identified the fact that losses in surface water discharge would be reduced as the quarry becomes the sump for all water moving in the operational quarry area.

It is inherent in this scheme that over time, as the quarry operations move from stage 2 to stage 4 the down gradient runoff will be reduced by about 80 ML/a as the quarry area catchment will then be completely retained within the quarry area. This represents a reduction of about 17 per cent in runoff flow to Mooleric Swamp.

2.2 Discussion

(i) Groundwater availability

The expert evidence of Mr Nolan was closely criticised across a very broad area by expert hydrogeologists Mr Smitt for Colac Otway Shire and by Mr Wade for Mr Beach and allied objectors. Criticism was also levelled by Mr and Ms Holt who have some professional understanding of groundwater issues and significant knowledge of how groundwater serves the agricultural industry locally, especially during periods of drought. Their submissions challenged the extent to which Mr Nolan and others understood sufficiently the regional context of the proposed quarry and the criticality of the finite water resource that groundwater in the NVA represents.

Alternatively, the evidence of Mr Nolan was supported in 2015 by Associate Professor Webb who is a recognised expert, and to the extent of his brief, by Mr Lane who is certainly an expert and who in his File Note[35] addressed a number of relevant issues from the Expert's Conclave. His comments in the latter sought to resolve some of the technical complexity and relevance of the concepts put forward by the various experts which otherwise appeared to be areas of professional conflict.

The Committee has considered the evidence put forward and the submissions. It is of the opinion that the issues related to groundwater availability have been well addressed by the onsite investigations and has made attempts made to gain other information from the general area.

Specifically, it is apparent from the core logs and photos, and from the earlier evidence of Mr Stewart, that the geological sequence of the NVA includes a complex series of lava flows. These include at least one upper flow which is weathered to depth down pre-existing fractures and which is largely above water table. It is covered by a clayey soil layer between 0.5 and 2 metres deep overlying this upper flow which extends in depth to variously between 7.4 and 9.5 metres. This upper flow is thicker to the north east corner of the site and probably derives from Mt Gellibrand. The deeper flows are less weathered and extend down to the top of the Hanson Sands at between 100.7 metres in MB3 and 100.5 metres in MB2. This lower flow may have derived from either Mt Gellibrand or from Mt Pleasant. Indeed at MB2 in the south east corner of the site, even the shallow weathered rock appears different to the shallow weathered rock in the other bores to the north and it may not have derived from Mt Gellibrand. The logs of the bores MB 5-7 which were air drilled, have logs which could support this analysis. Much of this lower flow lies below water table.

By comparison with other quarry sites of which the Committee have knowledge, the extent of the drilling of this site, both for elucidating the geology and rock quality, must be considered thorough and is supportive of a single unconfined fractured rock aquifer likely to exhibit highly variable hydraulic parameters.

The hydrological variations on site are evident not only from the pumping test and the slug test results, but also from qualitative indications of hydraulic properties such as from the air-lifted yields of the bores measured after their construction.

Only one bore (MB6) airlifted a significant yield (5 - 6 Litres per second (L/s)) but the slug tests on this bore indicated a K value of only 1.0 - 1.6 m/d. Notably, the pumped bore (GMS 5401) could have been pumped at near the same rate. This is apparent on the basis of the yield availability using the full available drawdown in the bore, but the K value (transmissivity divided by the likely saturated aquifer thickness) would be only about 1 m/d. This value is in the same range as the results indicated by the slug tests. These range from a low of 0.15 - 3.18 m/d (excluding only the result from MB5, which is clearly an anomalous as the bore exhibited negligible airlifted yield and showed anomalous water level variations and an anomalous displacement on slug introduction (9.623 metres)). These characteristics together can only be interpreted as indicating a very low K value.

[35] Document 42.

The above considerations support the K value used by Mr Nolan as the basis for the model to determine transmissivity from the saturated thickness variations across the model zone which includes the subject site. None of the sensitivity evaluations by Mr Wade or Mr Smitt are considered sufficient to dismiss or significantly alter the hydraulic conductivity (K) value used by Mr Nolan.

Mr Smitt and Mr Wade speculated upon the values relevant for specific yield/storativity of the NVA, arguing that if it were lower, the extent of the cone of drawdown, would be larger than is indicated by the Mr Nolan's model. These arguments are not accepted by the Committee. Firstly, it was accepted by all experts that specific yield is not a sensitive parameter at distance and is especially not so in a complex and non-uniform fractured rock aquifer. The Committee also notes that the value used by Mr Nolan was approved by experts Webb and Lane independently. The Committee considers that the specific yield value of 0.05 is also supported as being conservative based on inspection of the core logs and photography. Finally, the literature cites normally accepted values for specific yield for the NVA as between 0.05 and 0.15.

Mr Wade and Mr Smitt also argued that the number of years modeled by Mr Nolan were insufficient in relation to a possible quarry life of 30 years. The Committee does not accept this argument on the grounds that the rate of quarry development is uncertain under any circumstances and that hydraulic equilibrium will probably establish within 10 years based on underflow and recharge capture. Thus the model time frame should be accepted.

Finally, the Committee is of the opinion, that any model projections of the hydrologically unevaluated areas outside the fairly evaluated area of the subject site is inherently likely to be inaccurate, due to the inherent complexity within the rock mass. Thus the purpose of the modelling was just a further step in the evaluating the possible extent of impacts. Therefore, the magnitude of the issues which need to be addressed by an adaptive management plan having the objective of ensuring that any groundwater impacts on adjacent groundwater dependent systems, including stock water supply maintenance, were acceptable.

The Committee is appreciative of all the expert evidence presented, in that criticisms of Mr Nolan's model was that there was no sensitivity evaluation presented. Certainly this has now been done. The Committee also notes that there were errors in configuring the model, particularly in relation to the placement of the water table elevations correctly across the quarry area. Such errors should not occur when the evidence to the Committee was not limited in editing time. However, the Committee accepts that Mr Nolan's model is the best indication of the magnitude of water table decline which may occur away from the site as it is based conservatively on adequate hydrological evaluations and expertise. This conservatism was demonstrated by Mr Smitt and Mr Wade predictions of drawdown using different hydraulic parameters, as they revealed very similar values to those indicated by Mr Nolan's model.

With respect to Mr Holt's concerns that the Mr Nolan evaluations did not extend sufficiently to include the regional context, the Committee is of the opinion that the model did seek to incorporate the significant elements of the region that could be affected by the quarry operational and dewatering groundwater stresses. In particular, the model sought (on the

basis of such data as was reasonably available) to incorporate the whole of Mt Gellibrand including the underflow to the north; the underflow to the south and the general orientation of groundwater flow lines. Allowance was also made for the variability of recharge across the area. This approach incorporates the existing stock and domestic water bore extractions as if they were naturally part of the groundwater system. The total model area was about 56 km^2 which, when compared with the likely area of sensible impact of about 16 km^2, indicates that the regional resource was recognised in the model.

The Committee is of the opinion that the extremely non-uniform nature of the hydrological environment is likely to render any model at the best imprecise to wildly inaccurate as a predictive tool at distance away from the area of immediate testing no matter how carefully developed. Developing an accurate model will only ever occur when there is a sufficient time based impact monitoring to support model calibration and validation. No such basis presently exists. Thus, the model objective could only ever be a guide to developing an adaptive management plan to ensure that impacts as a result of further groundwater extractions related to quarry development do not unacceptably impact upon the present groundwater users and uses.

The adaptive groundwater management strategy developed by Mr Nolan[36] involves:

- Staging the quarry development through 4 stages (Tables 7.2 and 7.3)
- Minimising groundwater extractions by having the base of quarrying at about 105 metres AHD (i.e. above the upper surface of the Hanson Sands)
- Retaining all groundwater (except for that used in dust suppression or in quarry operational demands) in on-site pondages created initially specifically for that purpose and later in quarried out compartments.

Mr Nolan set out triggers and actions for mitigating adverse impacts occurring within the groundwater management strategy. The actions include the following on-site actions:

- Reducing the depth of excavation and thereby reducing the magnitude of the dewatering pumpage.
- Undertaking specific investigations to determine whether the initiating trigger will actually lead to adverse impacts on groundwater or the downstream environment.
- Agreeing supplementary water supply actions with individual owners of water bores within 2 kilometres of the quarry or where salinity impacts seem likely on Mooleric Swamp, Ricketts Marsh and/or Birregurra Creek.

Specifically these actions will be driven on the basis of operational storage level monitoring triggers or by monitoring bore water level fluctuation or salinity triggers.

The Committee is of the view that the above groundwater management strategy is inadequate in respect to the number of monitoring bores proposed and in the basis for triggering water supply supplementation or maintenance action.

The Committee believes that a condition should be included requiring the operator to develop, calibrate and validate a comprehensive groundwater model to the satisfaction of

[36] In Section 7 of Mr Nolan's evidence in chief as the "Groundwater Management Strategy"

the Responsible Authority and SRW. The purpose of this model is to allow the groundwater extraction impacts to be better evaluated to distance away from the subject site on a predictive basis. From this basis it should possible to analyse variations in water table levels such that the need for actions to mitigate adverse trends during later years and post closure mitigation can be implemented early to avoid any serious disruption of groundwater availability or of stress upon GDEs.

The model should be calibrated against the water level records of as many bores as are found to be reliably representative of the aquifer conditions and salinity. The calibration bores would include the monitoring records of the bores included in the Mr Nolan's 2016 report at Figure 4.1, plus additional bores drilled and available for monitoring of water level and salinity variation as part of the groundwater management strategy. Rainfall records collected on the site and from "Turkeith" to the north should be utilised within the model.

This model should contribute to both water level and salinity movement prediction capability and could be critical in designing and testing post closure management proposals. The model should be developed within three years of the commencement of dewatering. This model should then be updated and revalidated every three years thereafter, with the outputs reported to the Responsible Authority and SRW every two years or more frequently if requested.

The Committee is of the opinion that water supply supplementation to landholders within 2 kilometres of the quarry boundary who are now dependent upon their groundwater bores for stock watering and domestic uses should be based upon water level decline data, not on water supply yield diminution. Water supply compensation should be immediate where the water level in the nearest monitoring bore to the affected water bore falls below the pre-established water table local trend line. This compensation activity should be agreed with the owner and may include:

- Trucking in water as necessary
- Increasing the water bore depth or replacing the bore
- Extending the pump to greater depth in the bore
- Providing a pumped supply from the quarry groundwater storages to the affected property by pipe
- Other agreed actions to satisfy justifiable water demanded during periods of drought.

For such a system to be effective, it will be desirable for there to be a census of all the bores within 2 kilometres of the quarry boundary to determine the following statistics as accurately as possible:

- Surface elevation to AHD at bore measurement datum
- Bore location to Australian Map Grid
- Bore registration number
- Bore depth in metres
- Bore age in years
- Casing depth extension below ground level in metres
- Groundwater inlet depth interval and type in metres of slotted/screened/open hole
- Water level and date
- Pump inlet setting in metres below ground level

- Pump discharge capacity in L/m
- Water level decline over 1 day of normal operational pumping.

(ii) Groundwater quality sensitivity

The evidence on groundwater chemistry is limited to some tables of analyses and discussion of various compounds that might affect the beneficial uses of the water as defined in the *State Environmental Protection Policy - (Groundwaters of Victoria) 1997*. The groundwater is predominantly within Category B with some in Category C.

In terms of the uses in the area surrounding the subject site, the beneficial use of stock water and limited domestic usage are not sensitive to slight variations of salinity and hence such changes as 15 per cent above baseline values should not be a source of problems.

More particularly, the distribution of salinity across the area is naturally complex and indeed did vary within short periods of pumping as different quality waters mix as they flow towards the extraction point via interconnecting flow paths. No mapping of the salinity was undertaken across the region other than to observe that salinity to the north was less than down gradient on the groundwater natural flow path. There is no evidence of salinity increasing in any sort of linear progression down gradient and local salinity anomalies have been identified.

It follows from the natural variability of salinity across the sequence and up gradient from Mooleric Swamp and Rickett's Marsh that groundwater and spring discharges to these areas are likely to naturally exhibit salinity variations. Consequently, ecosystems close to these groundwater discharge areas are likely to be acclimatised to such variations.

The Committee noted on their inspections of the area the extent to which these wetland areas have been modified by drainage lines and possibly clearing to extend their value as grazing areas. These reduce the times for local infiltration which could render the areas boggy for stock.

Mr Nolan commented in his evidence that the springs to Ricketts Marsh were essentially now evident only where the stream had become incised and this seems to have been through natural headward erosion around the springs where the shallow weathering zone within the flows were essentially clays.

The sensitivity of the wetland areas to impacts from the upstream quarrying is likely to relate less to salinity than to rising water table levels. These could result from the balance between groundwater underflow and discharge capacity becoming unbalanced.

The Committee heard evidence from Dr Ian Campbell that it was possible that the Hairy Burrowing Crayfish might like the environment of the wetlands because it needs to live in holes below water table and where the water table is not too deep. Notably, Dr Campbell agreed that the crayfish cannot burrow into rock to get to the water table. Given these habitat requirements the Committee believes that it is reasonable to surmise that the extent of habitats for these creatures would be enhanced if the water table were to rise around the groundwater discharge areas, so long as the soils do not become saturated to the surface. The Hairy Burrowing Crayfish is discussed further in Chapter 4.3.

Whatever happens post closure, the principal objective for down gradient management should be ensuring that salinity in the residual ponds in the quarry does not increase through evaporation to the point GDEs are adversely impacted.

Any such changes consequent upon post quarry closure are likely to take very considerable time to develop due to the mitigating influences of discharge. Thus, the Committee believes that with a calibrated and validated groundwater model in place plus longer term knowledge of the wetlands as determined by such relevant research as may be considered justified by the regulatory authorities, post closure planning can be implemented in time to mitigate adverse impacts should these become evident from model predictions.

In the interim, the groundwater management strategy prepared by Mr Nolan proposes that mitigation be taken should water in the groundwater storages rise in salinity above a trigger level of 15 per cent salinity increase.

The actions which could be triggered by such a salinity rise could involve reducing quarrying to depth and thereby the rate of dewatering required, or the introduction of some low salinity runoff to the ponds. The action would necessarily be agreed with the Responsible Authority and the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).[37]

The Committee is confident that such approaches in management to protect the GDEs in these groundwater discharge areas can be effective so long as competent predictive tools such as a validated groundwater model is available to evaluate the consequences in advance of different approaches.

(iii) Surface water management

The surface water management arrangements proposed were not controversial other than that the loss of some surface water to Mooleric Swamp had not been raised in Mr Henty's written evidence. It was noted that this loss would be potentially in addition to some loss of groundwater discharge as discussed in relation to Groundwater in Discussion (i) and (ii) above.

The Committee recognises that some loss of water to Ricketts Marsh and to Mooleric Swamp is inevitable with the quarry development, but no evidence was presented that such diversions would impact to any significant degree on these downstream environments.

The nature of the catchments which feed surface water to Ricketts Marsh and Mooleric Swamp are distinctly ephemeral and the magnitude of runoff to them will already have been affected by rock ripping, the artificial drains and the planting of improved pastures which have taken place as part of the agricultural practices evident in the area. The swales are likely to convey water around and across the quarry area much more efficiently than currently applies. Hence, the Committee considers water losses to the downstream environment may prove to be less than currently evaluated by Mr Henty.

[37] DEDJTR are responsible for regulating the quarry under the MRSD Act.

2.3 Conclusions

The Committee heard a great deal of expert evidence and submissions on the issue of groundwater availability and equally importantly evidence on salinity and on the sensitivity of the down gradient ecosystems.

The Committee is thoroughly convinced of the value and importance of the groundwater resources in the context of the ongoing agricultural practices in the area.

The Committee concludes that the development of an operational quarry at 320 Mooleric Road will add to the stress already placed on the aquifer system by the existing stock and domestic bores tapping the basalt aquifer sequence which underlies the area. To this extent the issues raised and addressed by the various experts have tested the propositions of the proponents for the quarry. However, the Committee is satisfied that, to the extent possible in this hydrogeological environment, the likelihood and magnitude of impacts which may derive from the quarry development and the situation post closure have been thoroughly evaluated and tested. With a comprehensive water management plan to direct adaptive management of impacts which may become evident over time in the area, the Committee is confident that impacts can be managed effectively and beneficially into the future in respect to the existing farming activities and in environmental preservation.

Indeed, post closure, if rational water management integration is implemented, the properties surrounding the quarry site may find that the security of their local water resources is improved by having access to significant water in storage in the former pits during drought periods.

The Committee concludes that there are no compelling reasons why the quarrying operations as proposed by the proponent, including a comprehensive groundwater management strategy, cannot co-exist alongside the existing agricultural pursuits.

In order for this to happen appropriate conditions are recommended to be included in the Planning Permit and the Committee recommends that these same conditions be included in the extractive industry license issued under the MRSD Act for the Works Authority and in the SRW groundwater extraction licence as appropriate.

2.4 Recommendation

The Committee recommends:

That the planning permit include conditions relating to groundwater and surface water shown in Appendix D to this report including:

- **The finalisation and implementation of the adaptive groundwater management strategy based upon a calibrated and validated model as a predictive tool to ensure the protection of existing stock and domestic bores within 2 kilometres of the quarry work authority boundaries.**
- **The continuation of the groundwater bore monitoring program implemented in 2015 for water level and salinity until the quarrying operations are terminated. The extent of parameters and the frequency of monitoring may be varied from time to time but should be specified within the groundwater management strategy.**

- **A census of all bores within 2 kilometres of the proposed quarry site to collect operational data (as set out in Section 2.2(i) of this report) so that a baseline for any necessary adaptive management actions can be determined.**
- **Five additional monitoring bores be established outside the quarry works area.**
- **Groundwater mitigation action be undertaken immediately (see list in Section 2.2(i) of this report) to protect groundwater availability for stock and domestic purposes if the triggers are exceeded.**
- **The finalisation and implementation of the stormwater management plan.**

3 Traffic and traffic noise

3.1 The issue

The projected volume of heavy vehicle traffic the proposed quarry will generate, and the associated traffic noise, is a significant issue for the Committee. In particular there was general agreement at the Hearing that the potential noise impact on the house at 30 Mooleric Road[38] requires detailed consideration.

The following is a summary of the main issues requiring the Committee to consider and make recommendations on:

- Relevant truck noise level and threshold in a rural setting, which if exceeded will require noise mitigation measures
- Determining the correct number of truck movements or truck pass-bys
- Noise mitigation measures including speed reduction, sealing the road in the vicinity of the house at 30 Mooleric Road, noise barrier and specific glazing and ventilation treatments to the house
- What are the amenity expectations of people residing in the Farming Zone (FZ)
- Enforceability and monitoring compliance with any planning permit conditions, such as preventing queuing of heavy vehicles in Mooleric Road and heavy vehicles travelling at 40km/h past the house at 30 Mooleric Road.

The Committee also considers the permit conditions VicRoads has set out as a referral authority, specifically the timing of the upgrade of the intersection of Princes Highway with Mooleric Road.

Prior to engaging with the key issues, the Committee wishes to comment on the confusion amongst the noise experts around the terms truck 'movements' and 'pass-bys'.

Mr Neil Huybregts, of Marshall Day Acoustics who gave acoustic evidence for the Applicant, originally reported that the peak noise level of trucks based on 20 truck movements or 40 pass-bys, with 1 truck movement equating to 2 truck pass-bys[39]. However, Mr Huybregts revised this proposition further in evidence, stating he was confused by the meaning of the word 'movement' and that his original calculations were correct.

Mr Frank Butera, giving acoustic evidence for Council, acknowledged that he interchanged between the use of the two terms and that could lead to some confusion.

Mr Stephen Hunt, of Cardno gave traffic evidence for the Applicant and confirmed his interpretation that truck movements and pass-bys are the same thing. He noted that an average of 44 truck movements per day on Mooleric Road would consist of 22 truck movements in and 22 trucks movements out.[40]

38 Owned by the Beach family.

39 That is one truck passing by 30 Mooleric Road to the proposed quarry and the same truck laden with supplies passing back by 30 Mooleric Road.

40 At page 24 of his evidence.

The Committee uses the terms 'movement' and 'pass-by' interchangeably in this report. If the terms give rise to differences in evidence this is highlighted by the Committee.

3.2 Evidence and submissions

(i) General summary of submissions

Mr Tweedie SC appeared for a number of objectors, including the owners of 30 Mooleric Road, but primarily made submissions for those owners on this particular issue. Mr Tweedie submitted that the anticipated truck movements is approximately 200 per day, and emphasised this figure was the average and not the maximum. He noted that the original acoustic assessment had been revised to account for the maximum extraction rate of 200,000 tpa for the proposed quarry. Further, the recommendations of the Applicant's acoustic expert in relation to noise mitigation for 30 Mooleric Road was on the basis of 44 truck movements per day, rather than the 100 truck movements that was originally submitted in the planning permit application to Council.

Whilst noting the maximum extraction rate, Mr Tweedie contended this restriction will not necessarily lessen the amenity impacts the Beaches will suffer, as the impacts will fluctuate based on the demand for stone resource. This demand could fluctuate on a daily or even hourly basis depending on the project requirements of the proposed quarry. On that basis, the noise mitigation measures should mitigate peak impacts rather than the average impacts.

Mr Tweedie submitted that a key deficiency in the permit application was the "*failure to realistically resolve the undisputedly severe amenity impacts arising from the noise of truck movements in particular*". Further, the mitigation measures in relation to truck noise are unlawful, inappropriate and should not be used as a basis for planning permit conditions in order to bring those levels to an acceptable level.

Ms Brennan SC represented the Applicant and made submissions on its behalf. The Applicant noted that there were no traffic based objections from relevant referral authorities such as VicRoads and the Council. The Applicant submitted that the worst case scenario of heavy vehicles passing 30 Mooleric Road was approximately 10 truck pass-bys per hour, which is based on the maximum extraction rate of 200,000 tpa. The calculations do not support the proposition that the number or frequency of noise events to affect 30 Mooleric Road will be 220 truck movements per day. If the Committee accepted 220 truck movements per day, using trucks with a 22 tonne capacity, the quarry would produce 630,000 tpa. If 36 tonne trucks were used the quarry would produce in excess of 1 million tpa.[41]

As shown in Mr Hunt's evidence[42], the Applicant proposed the Committee consider an average of 44 truck pass-bys per day, averaging between 4 and 4.9 per hour depending on the hours of operation of the proposed quarry being either 9 or 11 hours per day, with 10

[41] The Applicant later acknowledged that the larger truck is likely to be 32 tonnes and this was used by the noise experts in considering traffic noise.

[42] In Section 6.1.1 at page 24.

pass-bys per hour representing the peak truck movement. Based on Mr Hunt's evidence, the Applicant also submitted truck traffic volume calculations[43]. This compared the possible truck movement variations, according to the different tonnage capacity of the heavy vehicles and the volume of extraction per annum from the proposed quarry.

The Applicant submitted that the planning permit conditions can address traffic related matters, either through a traffic management plan or through other individual issue specific conditions such as speed reduction of the heavy vehicles.

The Applicant proposed further revisions to the without prejudice planning permit conditions discussed at the Hearing.[44]

(ii) Existing and proposed truck noise levels and truck movements along Mooleric Road

Council provided background information in relation to both Mooleric Road and the Princes Highway, noting Mooleric Road is a municipal road under the *Road Management Act 2004*. The first 500 metres of Mooleric Road from its intersection with the Princes Highway is sealed pavement and is approximately 5.0 - 5.5 metres in width. Princes Highway is a Road Zone Category 1 with 2 running lanes. Council also informed the Committee of the current duplication of the Princes Highway between Geelong and Colac, noting the relevant part of the duplication project incorporating works with the Mooleric Road intersection is estimated to be completed in 2019.

Council noted that in the 2011 VCAT decision, the Tribunal did not consider the Mt Gellibrand Wind Farm traffic volumes in detail. Council submitted that it appears the Applicant has sought to assess a combined peak traffic volume from both uses, which amounts to 100 truck movements per day. Council stated that any traffic generated from the quarry should be considered in addition to the traffic generated by the Mt Gellibrand wind farm.

The Applicant relied on traffic evidence from Mr Stephen Hunt, who reported that Mooleric Road currently carries approximately 40 vehicles per day. He advised Mooleric Road is signposted at 80km/h, has 0.9 metre shoulders and 6.5 metre wide carriageway sealed up to just beyond 30 Mooleric Road. Mr Hunt also noted that the dwelling at 30 Mooleric Road was located approximately 420 metres from the intersection with the Princes Highway.[45] The Applicant conceded that 30 Mooleric Road will be impacted by an increase in the existing traffic noise and that truck noise is a significant issue that the Committee has to consider.

General summary of what each expert says

Mr Hunt reported that his assessment was based on a maximum extraction rate of 200,000 tpa, resulting in a projected total of 44 truck movements per day on Mooleric Road. He based this projection on the following factors:

---

43 Document 54.

44 Document 64.

45 Mr Huybregts reported the house at 30 Mooleric Road as being 330m from the intersection.

- 32 tonne loads per truck
- operational period of 5.5 days per week
- operational period of 9 hours a day
- over a 12 month period.

Mr Hunt stated that he expected a typical quarry site to generate 5 truck movements per hour. He combined the projected traffic volume for both the proposed quarry and Mt Gellibrand wind farm to produce a conservative[46] traffic generation of 100 vehicle movements per day on Mooleric Rd, with a combined traffic volume of approximately 16 vehicle movements in the AM and PM peak periods. Mr Hunt confirmed that the Applicant instructed him that 10 truck movements per hour were the peak truck movements the proposed quarry would generate.

As indicated earlier, Mr Huybregts provided acoustic evidence for the Applicant, whilst Mr Butera provided acoustic evidence for Council. The owners of 30 Mooleric Road did not provide acoustic evidence, but sought to rely on a number of aspects of Mr Butera's evidence in support of their submissions.

Mr Butera noted that the EPA Publication 1411 *Noise from Industry in Regional Victoria* (NIRV) dated October 2011 does not apply to vehicles travelling or stationary along Council roads. Mr Butera stated that the relevant VicRoads noise policy does not apply to municipal roads such as Mooleric Road. In its absence, he sought to rely on the NSW Department of Environment, Climate Change and Water *NSW Road Noise Policy* (NSW Policy)[47] which sets out a baseline traffic noise level criteria and requires the noise assessment to be conducted over a one-hour period during the daytime. Under the NSW Policy, as 30 Mooleric Road is an existing residence affected by additional traffic on existing local roads generated by land use developments under Table 3[48], the relevant noise assessment criteria was 55 dB(A) L_{Aeq} (1 hour external) for the daytime period of 7am to 10pm.

Mr Butera indicated the various daytime noise measurements he undertook at 30 Mooleric Road, with the highest average ambient reading recorded as 56 dB(A) L_{eq} (1h). Mr Butera stated that he conducted the relevant acoustic assessment using a 20 tonne Kenworth T404St truck and noted 10 truck movements with 5 in each direction. Mr Butera gave evidence that a 20 tonne truck travelling at 70km/h would record noise levels of 76 dB(A) L_{eq} and 88 dB(A) L_{max}, reducing 2 dB(A) L_{eq} if it travelled at 20km/h.

Mr Butera noted that the proposed quarry expects 44 truck movements per day, averaging 4 per hour over an 11 hour operational day. He highlighted that Mr Hunt predicts the likely operation of the proposed quarry will be conducted over a 9 hour period. Mr Butera stated his belief that up to 4 truck movements per hour (20 tonne trucks at 20 km/h) will not exceed the NSW Policy baseline, but additional truck movements would. If no speed

46 On the high side.
47 Document 19.
48 On page 11.

reduction was provided, up to 3 truck movements per hour travelling at 70 km/h could be permitted in order to avoid exceeding the NSW Policy baseline.[49]

Mr Butera identified 10 truck movements per hour as the expected peak movement would require noise mitigation measures as more than four truck movements per hour would exceed the NSW Policy baseline. Mr Butera predicted 60 dB(A) L_{Aeq} (1 hour) for a 20 tonne truck travelling at 20km/h increasing to 62 dB(A) if it travelled at 70 km/h[50]. Mr Butera noted that 32 tonne trucks are proposed to be used for the quarry travelling at a speed of 40km/h. Mr Butera expected the larger truck to emit a further 5-7dB(A) than the 20 tonne truck, or 79-83 dB(A) L_{eq}. He concluded that the associated noise level for 10 trucks with 32 tonne capacity will be 65-69 dB(A) L_{eq} (1h).[51]

Mr Huybregts assessed the highest average ambient noise level on Mooleric Road to be 57 dB(A) L_{Aeq} (1h), with most noise levels averaging 50 or 52 dB(A) L_{Aeq} (1h). Mr Huybregts confirmed the Applicant instructed him that the number of truck movements per day generated from the proposed quarry was revised down from the original 100 to 44 per day.[52]

Mr Huybregts thus based his evidence on a 200,000 tpa maximum extraction rate, with 44 truck movements per day, operating on average 32 tonnes per truck, with quarry operations 5.5 days per week 52 weeks a year. The assessment included the peak truck movement (and thus noise level) of 10 movements per hour; the same figure used by Mr Hunt and Mr Butera. He disagreed with Mr Butera in relation to reduced noise from reduced truck speed and reported that reductions in truck speed from 95km/hour to 40km/hour will reduce the truck noise levels by 8 dB.

Under cross-examination, Mr Huybregts agreed with Mr Tweedie's proposition that 55 dB(A) L_{eq} is not a design criteria but rather a threshold issue. My Huybregts responded that the proposed noise mitigation measures could reduce the noise levels to low levels that represent community annoyance, but didn't have any figures to demonstrate the acceptable noise level a person should have to experience. Mr Huybregts indicated that he usually looks for at least a 5 dB reduction in any noise mitigation measures.

Mr Tweedie submitted that the Committee should consider the peak impacts of the proposed quarry rather than the average impacts in determining the relevant noise level and any associated noise mitigation measures.

Areas of agreement by acoustic experts at conclave

At the acoustic experts conclave conducted on 18 November 2016, Mr Butera and Mr Huybregts agreed on a number of issues, including:[53]

- There are no relevant noise regulations in Victoria that govern truck noise on public roads from a commercial land use

49 Mr Butera Expert Witness Statement, para 6.3.9.
50 Section 6.3.11 and 6.3.12 of his report.
51 Section 6.3.15 of his report
52 At paragraph 9.2 of his evidence.
53 Document 2.

- The NSW Policy of 55 dB(A) is recommended as the baseline for assessing the off-site truck noise the proposed quarry is expected to generate
- The worst case scenario of truck movements was 10 truck movements per hour or 20 truck pass-bys[54]. However, both Mr Butera and Mr Huybregts later clarified their evidence that 10 truck movements is the same as 10 truck pass-bys
- Truck noise levels exceed the NSW Policy baseline ranging from 7 dB(A) up to 17 dB(A), however noting both experts differed as to the extent of this exceedance
- As the peak truck movement figure chosen exceeds 55 dB(A), noise mitigation is required to reduce the traffic noise level back to the NSW Policy baseline of 55 dB(A) at 30 Mooleric Road
- There are four mitigation measures that will provide adequate noise mitigation (this is covered in further detail in section 3.3 (iii))
- Slowing of trucks will achieve a level of noise mitigation, however the experts differed as to the level of such a reduction ranging from 2-8 dB(A)
- A noise barrier identified by Mr Butera in his report would provide adequate shielding of 30 Mooleric Road, noting that the final form of the barrier will depend on a number of non-acoustic factors including the consent of the property owners
- Acoustic treatment of the 30 Mooleric Road dwelling could also provide a level of noise mitigation, but will depend on a number of factors including the consent of the property owners.

Areas of disagreement by acoustic experts at conclave

Mr Huybregts and Mr Butera disagreed on the following:

- Predicted truck noise levels at 30 Mooleric Road without any noise mitigation measures. Mr Huybregts estimated truck noise levels on average over an hour at 30 Mooleric Road to be 62 dB(A) L_{eq} (1h)[55], whilst Mr Butera reported a range of 68-72 dB(A) L_{eq} (1h).
- Mr Butera found slowing the trucks from 70km/h to 20km/h reduced the noise levels by 2 dB, whereas Mr Huybregts referred to other studies that indicate a reduction in noise levels ranging from 3-5 dB to 8 dB
- Mr Huybregts noted the VicRoads 2005 Noise policy suggests acoustic treatment to dwellings where compliance with the external noise traffic baseline of 63dB(A) L_{A10} (18h) is not practicable
- Mr Huybregts noted the NSW Policy objectives provide that mitigation measures should be sought to comply with the baseline noise level and if such measures are not practical, acoustic treatment to the affected dwelling should be offered
- Mr Butera estimated 4 pass-bys in an hour of a 20 tonne truck travelling at 20km/h would achieve compliance with the NSW Policy baseline
- Whilst there was some confusion in Mr Huybregts' evidence based on the movements/pass-bys issue, he also concluded that 4 pass-bys in an hour would achieve the NSW Policy baseline, but that this is not feasible for quarry operations[56].

54 See earlier comments on this issue.

55 Said by Mr Huygbregts to be conservative on the high side as his assessment was done with larger trucks at a higher speed.

(iii) Noise mitigation measures

In terms of noise mitigation measures available to the Applicant, the acoustic experts agreed on the following options:

- speed restrictions on trucks
- restriction on number of trucks passing 30 Mooleric Road per hour
- a noise barrier along the boundary of 30 Mooleric Road
- acoustic treatment of 30 Mooleric Road

The main area of contention between the acoustic experts was the extent to which the truck noise levels would exceed the NSW Policy baseline if there are no noise mitigation measures at 30 Mooleric Road or only the first two options are required through planning permit conditions.

Speed restriction option

Mr Rodda, in planning evidence for the Applicant, opined that the traffic management plan can manage the speed and conduct of trucks and therefore this could be appropriately covered off in planning permit conditions.

Both acoustic experts agreed that reducing the speed of the trucks would be useful and should be employed as part of any noise mitigation package, however they differed as to the level of noise reduction the speed restriction would achieve. As outlined in the conclave report above, the experts could agree that slowing the trucks would reduce the noise levels in a range between 2-8dB, with Mr Butera at the lower end and Mr Huybregts at the upper.

Mr Huybregts stated that Mr Butera's statement in relation to noise exceedance in the conclave report should be revised back to his earlier reported position of 65-69 dB(A) L_{Aeq} (1h)[57] for a 32 tonne truck completing 10 truck movements, as the 10 movements was confirmed as 10 pass-bys. The Applicant submitted that the acoustic experts' position in relation to the truck noise level without noise mitigation measures can be summarised as either 62 dB(A) L_{Aeq} (1h)or 65 dB(A) L_{Aeq} (1h).

Council relied on Mr Butera's evidence that the proposed noise mitigation measures of Mr Huybregts will not mitigate the truck noise in order to comply with the NSW Policy baseline. Council urged the Committee to be cautious in determining the truck noise levels and appropriate noise mitigation measures. Further, the traffic management plan seeks to control the route, ingress and egress rather than seeking to alter the speed limit along a rural road.

Mr Tweedie submitted that Mr Butera's evidence should be preferred to that of Mr Huybregts. Mr Tweedie raised concerns as to how the Applicant could adequately control the truck speed, even with the proposed planning permit conditions.

---

56 Document 2, page 5, last paragraph.

57 From his evidence at 6.3.15.

For the proposition that the Committee could manage the issue through permit conditions, the Applicant cited the Central Quarries case[58] in which the Tribunal considered imposing 40km/h speed restrictions in order to reduce dust emissions. In particular, at paragraph 38 the Tribunal stated:

> *We note Mr Pollock's view that if the recommended dust control measures and assumptions are not adhered to the dust impacts on the nearby residences would exceed the limits. Accordingly, it is important that all recommendations and assumptions made by Mr Pollock in relation to dust control are incorporated in the Environmental Management Plan and implemented by Central Quarries to the satisfaction of the relevant authorities.*

Further, at paragraph 40 the Tribunal stated:

> *We accept that the failure to comply with these requirements may result in dust emissions reaching unacceptable levels. However, this is an enforcement issue. Our conclusion is based on an expectation that permit conditions and other relevant standards are complied with. If they are not, grounds exist for the cancellation of the permit and prosecution by the authorities.*

The Applicant relied on the Austin case[59], for the proposition that a reduction in truck speed is of benefit to reducing truck noise levels, in particular noting the Tribunal's view at paragraph 110:

> *…If a speed of 80km/h was adopted, the noise level would be approximately 70dB (A). He further advised that if the road was sealed the noise level would only be reduced by approximately 3 to 4 dB (A). His evidence clearly points to controlling traffic speed would be more beneficial in reducing noise levels rather than sealing the road surface.*

Mr Huybregts stated that all references in his report in relation to deceleration/acceleration of trucks are steady speed state of trucks. He drew this conclusion on the basis that the trucks would commence to decelerate at least 100 metres before 30 Mooleric Road and therefore would pass 30 Mooleric Road at a steady speed.

Mr Hunt supported Condition 17[60] of the revised planning permit conditions as appropriate and able to be monitored by the Applicant given the nature of the contract. In addition, Mr Hunt stated that the Applicant can place trip counters on Mooleric Road every 3 months in order to discuss the results with Council at the end of the 12-month reporting period. The trip counter tubes can record up to 8 categories of trucks. Mr Hunt acknowledged that the planning permit condition is more a monitoring than an enforcement mechanism. However, he noted the results can be fed into enforcement as the results can go down to 15 minute intervals and the planning permit condition could be crafted to have it to the satisfaction of the Responsible Authority.

---

58 *Central Quarries Pty Ltd v Mitchell* [2011] VCAT 1753

59 *Austin & Ors v Golden Plains SC (Correction)* [2013] VCAT 804

60 Relating to a reduced speed limit.

Mr Hunt also recommended the use of a smooth asphalt pavement to assist with noise reduction in conjunction with other noise mitigation measures. The Applicant noted that sealing the road could possibly reduce the truck noise level by approximately 3-4 dB(A).

Reducing number of trucks

As earlier discussed, both acoustic experts agreed that restricting the number of trucks passing 30 Mooleric Road would reduce the noise levels, with Mr Butera noting that 4 truck movements per hour would not exceed the NSW Policy baseline.

Noise barrier

The acoustic experts detailed their respective views as to the type and structure of a possible noise barrier, but agreed with Mr Butera's recommendation of a 2.4 metre high section along the front of 30 Mooleric Road with 1.8 metre high returns at the north and south end of the dwelling. The experts identified further work that needs to be undertaken to determine the final form of the noise barrier, to account for factors such as the need for gates, solar access and visual amenity.

Mr Huybregts had previously suggested weatherboard options for the noise barrier, with a solid gate being installed for any requisite gaps in the noise barrier such as the driveway behind the dwelling at 30 Mooleric Road. Mr Huybregts opined that a noise barrier 1.8 metres off the dwelling façade was a good thing, but noted that he was not familiar with the indoor/outdoor use patterns of the dwelling. He recognised that the layout and use of spaces within the dwelling is relevant to consider when determining the extent and length of any possible noise barrier.

Mr Rodda did not support the construction of a noise wall as it is a voluntary requirement. On that basis, it was his view that speed reduction is the true noise mitigation option that could be considered. On balance though, it was his opinion that the traffic impacts generated by the proposed quarry are acceptable.

Mr Tweedie highlighted the relevant sections in the NSW Policy[61] that discuss people's reaction to noise and enhanced sensitivity when people are not used to particular noise sources. Mr Tweedie expressed concerns at a freeway style built noise barrier that was proposed to be constructed and whether it could work on account of any necessary gaps in order to access the property from Mooleric Road. The legality of whether this requirement can be imposed on 30 Mooleric Road through planning permit conditions is considered in section 3.3.

Other acoustic treatments to 30 Mooleric Road

The acoustic experts identified further assessments that need to be undertaken in relation to any additional acoustic treatments for 30 Mooleric Road other than the noise barrier. This may include upgraded glazing and improved ventilation so the windows at the dwelling can remain closed if the owners required them to remain closed due to noise. Mr Huybregts

[61] For example 5.1 and 5.2.

acknowledged he had not been inside the dwelling and that any noise mitigation measures are better closer to the source than the receiver.

The Applicant acknowledged that whilst there are a number of options available to minimise the impacts of the heavy vehicles passing 30 Mooleric Road, it noted that some of the options require the co-operation of the Beaches. Mr Tweedie submitted that 30 Mooleric Road should not have to bear the burden of accepting noise mitigation measures, especially where they are as significant as the impacts they seek to mitigate.

(iv) Amenity in the Farming Zone

As Mr Butera reported, 30 Mooleric Road has four windows to habitable rooms that run along the west elevation, and consequently face Mooleric Road, as well as two windows and an entrance door to the South elevation.

Mr Tweedie contended that two of the four options for noise mitigation place an inappropriate burden on and adversely impact 30 Mooleric Road. Mr Tweedie emphasised the rural setting of the property and noted that it was not a "metropolitan freeway". Mr Tweedie raised concerns as to the viability of any private contract between the Applicant and any sub-contractor drivers of heavy vehicles to control amenity impacts and the ability for any meaningful enforcement in the event that conditions are breached. He submitted the end result will make 30 Mooleric Road an unreasonable place to live.

Council expressed concern as to the visual impact of any noise barriers placed alongside 30 Mooleric Road, particularly in light of its remote, rural landscape. Council also queried the interaction of stock and heavy vehicles on Mooleric Road. Council made detailed submissions in relation to the amenity considerations in the Farming Zone (FZ) and its application in balancing the impacts of the proposed quarry on 30 Mooleric Road. Council noted clause 13.04-1 of the Colac Otway Planning Scheme sets out the policy in relation to noise abatement in controlling the impacts of noise on the amenity of sensitive land uses without prejudicing development.

Council highlighted cases that considered an acceptable level of amenity in the FZ, noting that the zone does not condone an 'open slather' approach to noise impacts. In summary, Council submitted that:

- *amenity impacts from as of right agriculture and rural industries qualify the level of amenity to be expected; and*
- *the juxtaposition of a purely industrial use in the agricultural area requires a different approach, where the balance between facilitating the use and the protection of amenity is not skewed in favour of the use*[62].

Council invited the Committee to assess the level of amenity the dwelling at 30 Mooleric Road could expect in the FZ and requested this be made prior to any recommendation in regard to the net community benefit analysis. Council took the Committee through Amendment VC103 to the VPP, which raises landscape character and other amenity factors. In support of this proposition, Council relied on Mr Butera's observation and the O'Shea

[62] [156] of Council submissions

case[63], in which noise barriers in rural locations were not recommended. In that case, the Tribunal found:

> *59 The visual impact of the structures would be out of character with the normal Low Density Residential Zone and only come about because of this type of conflict. Whilst the applicant was at pains through its acoustic consultant to demonstrate that the SEPP N1 could be complied with, the measures proposed to achieve this were extreme in the least.*
>
> *60 There was a difference in opinion between the two acoustic engineers about the ability of the site to meet relevant N-1 tests and these could be explained due to different approaches taken. I have no doubt that if necessary the premises could be made to meet N-1, although I have some difficulty understanding how this situation will be monitored properly given the council officers say there is no problem. Once again I am not sure what the officers noticed on their investigation but I consider there is some noise issue and I do not believe it is conducive to the amenity of the Low Density zone.*
>
> *61 The placement of a 3.6 metre high acoustic barrier around the perimeter of the dog compound is not a sensitive treatment in a Low Density Residential zone. Mr Dolly's evidence was that the acoustic barrier may have to be raised in height further if post construction tests indicate there is non compliance with N-1. I am concerned about the lack of certainty about the final product. I do not think it is good enough to leave any uncertainty about this issue to future self testing, particularly given the difference of professional and personal views about noise from the dog barking. It appears to me to be a reaction to an obvious amenity issue created by dog barking.*
>
> *62 Furthermore there was not enough information about the new pool building to satisfy me that the applicant could demonstrate there will be no adverse amenity impacts. The acoustic report from Mr Dolly was virtually silent on this issue.*

Council highlighted another case in which a 40 metre long and at least 4 metre high noise barrier along an affected property did not support an orderly planning outcome as such a response did not address all of the sources of noise in that permit application[64]. In concluding on this issue, Council suggested the Committee recommend that the truck movements be re-routed, use quieter trucks or consider an alternate location of the proposed quarry.

Mr Rodda gave evidence that one of the key purposes of the FZ is that it elevates agriculture above the amenity of dwellings. Mr Rodda recognised that the amenity of 30 Mooleric Road will be impacted, noting that in the medium to long term the property will remain a sensitive use. Mr Rodda briefly discussed the guidance the FZ purposes and guidelines can provide to the Committee with respect to dwellings in the FZ and impacts from non-agricultural uses in

63 *O'Shea v Nillumbik SC* [2006] VCAT 1023.

64 [177] of Council submissions

this zone, noting that agricultural uses are the baseline in which to consider amenity impacts of the proposed quarry in the FZ. Mr Rodda did not have a particular view as to whether a dwelling sits higher than a proposed quarry in the FZ, when discussing whether a proposed quarry is a non-agricultural use in the FZ.

Mr Rodda agreed with Council that the truck movements represent the greatest impact on 30 Mooleric Road and assumed that a reduction in the speed of the trucks will have a corresponding reduction in noise. On that basis, Mr Rodda queried whether a noise barrier would be required in the planning permit conditions and stated that the amenity of 30 Mooleric Road would not be unreasonable.

Mr Huybregts made a distinction between the existing and individual activity in a rural setting, noting that it applies to situational change. The Applicant submitted that reasonable amenity expectations in the FZ do not equate to residential amenity expectations. The Applicant highlighted various VCAT cases in which the Tribunal considered different non-agricultural uses that could exist and were allowed as a discretionary use in the FZ. In particular, the Applicant noted the Holcim quarry case[65] in which the Tribunal stated:

> *…Rural areas can be quiet; however it is not the purpose of such areas to provide for superior quality residential amenity…We must balance this expectation against the support for the exploitation of the resource under planning policy*[66].

The Applicant also relied on the Aerolite case[67] to support the proposition that:

> *Farming, including farming of land in farming zones, has to be regarded as robust rather than as a quiet rural (sic) or retreat. It is for this reason that such zoning is frequently thought to be suitable for quarrying activities. Of course, quarrying can only take place where the resource to be won is available. Some quarries are or have been in urban areas but quarrying is, generally speaking, more comfortably accommodated in farming areas like this one*[68].

Therefore, the Applicant contended that the only amenity issue the Committee has to consider relates to truck noise generated by the proposed quarry affecting one residential dwelling in a FZ. Further, the acoustic experts have identified a range of options which can minimise any adverse truck noise impacts, two of which cannot be imposed on the owners of 30 Mooleric Road. On that basis, the Applicant submitted that the Committee should balance the application of the competing relevant planning policies and less weight should be given to the level of amenity impacts that may result to one residential dwelling in the FZ.

65 *Holcim (Aust) Pty Ltd v Indigo SC and Ors* [2012] VCAT 640
66 [114] of that case
67 *Aerolite Quarries Pty Ltd v Greater Geelong CC* [2014] VCAT 1611
68 [51] of that case

(v) Enforceability of planning permit conditions

The Applicant proposed to limit the number of truck movements per hour in order to minimise the impacts on 30 Mooleric Road so that there is a maximum of five laden trucks leaving the site per hour (10 truck movements or pass-bys) during quarry operations. Mr Rodda opined that the revised planning permit conditions as described can be enforced, but acknowledged that it is a measure of control which may be difficult to achieve. Mr Rodda was also of the view that it was reasonable to believe the behaviour of the truck drivers can be effectively managed through the proposed planning permit condition.

Mr Huybregt gave evidence that whilst residents should not be forced to adopt noise mitigation measures on their property, it was not usual to have a planning permit condition that requires noise mitigation or nothing. He emphasised that the acoustic solutions need to be considered and different preferences accounted for.

In answering questions from the Committee, Mr Huybregts stated he knew of one proposal in Tasmania where no engine brakes and a speed reduction of 40km/h was required. Mr Huybregts was of the view that it is extremely unusual for the amenity impacts to be restricted to just one dwelling. He restated his belief that the mitigation measures can achieve the relevant noise reduction.

The Applicant stated that articulating the speed reduction in the manner it proposes in the revised planning permit conditions is appropriate and will result in the speed being effectively controlled. Further, the revised planning permit condition provides greater specificity than in other quarry cases. In addition to the previously mentioned Austin and Central Quarries cases, the Applicant relied on the Sanders case[69] for the proposition that a planning permit condition to reduce truck noise and control engine braking through a traffic management plan is not novel. The Tribunal found:

> *Having regard to the conditions restricting the hours of truck movements and the requirements for a management plan to confirm those hours and to control engine braking and truck speeds, we are satisfied that an appropriate balance can be achieved*[70].

The Applicant contended that whilst the owners of 30 Mooleric Road could elect not to agree to two of the four noise mitigation measures, the Committee needs to consider the owner's ability to mitigate the impact it experiences. In the absence of such an agreement, the Applicant relies on Mr Huybregts' evidence that speed reduction alone could achieve the NSW Policy baseline without the need for a noise barrier.[71]

Mr Tweedie submitted that whilst the Committee could impose a limit on truck movements, he contended that such a planning permit condition would be unrealistic and/or unworkable. Further, if the Committee was satisfied there were amenity impacts arising from the proposed quarry, it needed to determine whether those impacts can be addressed in planning permit conditions which require use of another party's land other than the

69 *Sanders v Corangamite Shire Council & Cobden Lime Pty Ltd* [2001] VCAT 1451

70 [27] of that case

71 Up to 8dB.

Applicant's. It was not up to the objectors to identify alternative benchmarks or preferred mitigation measures. Mr Tweedie set out his concerns as to how such compliance could be appropriately expressed in a planning permit condition in order to ensure any adverse impacts are sufficiently mitigated. Mr Tweedie relied on the Supreme Court Seventh Day Adventist case[72] for the proposition that the cure of a noise barrier on 30 Mooleric Road has significant impacts and that any planning permit condition requiring the construction of it or other noise mitigation measures would be unlawful. He also relied on the Seventh Day Adventist case to support the proposition that the planning permit conditions could not give valid effect to a private agreement and was otherwise unenforceable.

In relation to Condition 35[73], Mr Tweedie noted that it doesn't attach to a person, rather it is a private agreement between the resident and operator and he expressed concerns as to what happens if the Applicant does not implement the matters that have been agreed to.

(vi) Other traffic issues

VicRoads was a referral authority for the permit application and set out conditions it required to be placed on any permit that issued, specifically in relation to the timing of upgrading the intersection of Princes Highway and Mooleric Road. Mr Hunt agreed that the timing and upgrade of the intersection works to Mooleric Road should be conducted prior to sale of product commencing. He acknowledged that Acciona may seek to liaise with the Applicant to discuss any efficiencies that can be gained in relation to works they are required to undertake to Mooleric Road.

Council confirmed the relevant conditions its Infrastructure Department would seek to have included if a permit was to issue, which relate to pavement analysis, road upgrade and access routes are already noted in the revised planning permit conditions.

In relation to the issue of preventing queuing of trucks on Princes Highway and/or Mooleric Road, Mr Tweedie expressed concerns that the Applicant could not control the queuing of heavy vehicles prior to 7am and suggested these heavy vehicles may queue on the Princes Highway whilst waiting for the curfew time to pass. Therefore, any planning permit condition should clearly require that trucks are not permitted to arrive at the proposed quarry using Mooleric Road before 7:15am.

3.3 Discussion

(i) The policy framework

The Committee acknowledges and agrees with the acoustic experts that the existing noise level baseline mirrors, or is below, that of the NSW Policy baseline. It was common ground that 30 Mooleric Road was a noise sensitive receptor for the purposes of any noise assessments, as well as the fact that the proposed quarry will generate traffic noise levels that will impact 30 Mooleric Road. The questions in relation to that issue are what the truck noise levels would be without any noise mitigation measures, as well as the extent to which

[72] *Casey City Council v Seventh Day Adventist Church (Victorian Conference) Ltd* [2010] VSC 625

[73] Noise mitigation being offered to the owners of 30 Mooleric Road.

the agreed upon noise mitigation measures can mitigate that truck noise level. This issue will be considered further in the next section.

The Committee accepts the agreed position of the acoustic experts that the NSW Policy baseline of 55 dB(A) L_{Aeq}(1h) is the appropriate level to consider. As indicated in the acoustic experts' report, the NSW Policy is not a mandatory threshold, but one which indicates a threshold at which noise mitigation measures should be identified and implemented. It was not clear to the Committee whether such policy has been used and adopted in other Victorian cases that have previously considered similar quarry permit applications. It is clear it has no force in law in Victoria.

The Committee notes that the acoustic experts formed the view that the VicRoads noise policy cannot apply to a rural Municipal Road as the proposed quarry does not meet the definitions set out in that policy. VicRoads did not make any submissions on this point to the Committee and Council did not object to its use. The Committee reluctantly accepts the use of the NSW Policy, but notes that it is another jurisdiction's policy, is discretionary and it does identify the relevant VicRoads noise policy in its appendices.

In any event, the Committee accepts that both of the acoustic experts have agreed to and recommended the use of the NSW Policy in determining the truck noise levels and any associated noise mitigation measures. On that basis, the Committee is of the view the relevant tuck noise level threshold is 55 dB(A) L_{Aeq}(1h).

(ii) Matters to be decided

Amenity in the Farming Zone

Traffic and noise that may unreasonably impact on the amenity of agricultural land was a ground in Council's refusal of 17 December 2014. The Committee is cognisant that the increase in heavy vehicle traffic to and from the proposed quarry, even with a reduced maximum extraction rate compared to the original application, will have a significant impact on 30 Mooleric Road for decades. The Committee accepts that Mooleric Road is a small municipal road which services a relatively quiet agricultural area; albeit that this will change when the Mt Gellibrand Wind Farm is constructed. That construction activity will be temporary, whereas the ongoing operation of the quarry, even with a reduced maximum extraction rate, will generate consistent and regular heavy vehicle movements for significant periods of time.

The Committee notes that in late 2014 alternative access further to the east and exiting onto the Princes Highway through the VicRoads parcel of land was considered, however this was not adopted[74].

The Committee notes that in the 2011 VCAT case the Tribunal had concerns in relation to the truck noise that will impact on 30 Mooleric Road. The Committee considers that the level of amenity must be 'reasonable', which in a FZ needs to take into account the primary purpose of the land for agriculture and other productive purposes.

[74] Document 7.

Given it is common ground that 30 Mooleric Road is a sensitive receptor, the Committee is of the view that the conservative approach should be taken in estimating the number of truck movements per hour in order to determine what, if any, noise mitigation measures are required.

The proposed quarry is a discretionary use in the FZ and there will be an increase in truck noise generated by quarry product transport which will continue for a period expected to be up to 30 years of active operation. The dwelling at 30 Mooleric Road exists within a farming activity context but will bear the brunt of increased noise from quarry traffic.

The Committee notes that quarries have periods of intense activity to fill large contracts, which can be offset by periods of limited or no activity. The dwelling at 30 Mooleric Road may be exposed to possibly significant periods of time where there are 10 truck movements per hour up to 11 hours per day for the 30 year life of the quarry.

In discussing balancing competing planning policies, in the Austin case the Tribunal stated at [113]:

> *…We are cognisant also of the fact that their dwelling is located in a Farming Zone, and as was submitted and recognised by all parties, subject to general farming activity that generate noise and dust, sometimes at odd hours of the day and night. That said, the Allworthy property is deserving of a level or reasonable amenity and there is a difference between limited intervals of amenity impact from grazing and cropping activities and those from regular and prolonged activity. We thus agree with the Council that it is appropriate to take steps to ensure a reasonable level of amenity.*

At [115], the Tribunal went onto say that:

> *We concur with the evidence that a limit on speed of heavy vehicles will be more effective, having the benefit of limiting raised dust, road noise and engine accelerating noise. We will therefore include a condition requiring all traffic associated with the broiler farm to travel along Windermere Road at no more than 40 kph without requiring the road*.

The Rolfe case[75] supports the general proposition that extractive industries are a discretionary use in the FZ and are typically located in rural areas where offsite impacts can be minimised. Further, extractive industries fit within the FZ regime as working agricultural zones and therefore any resulting impacts on amenity needs to be balanced in light of this, rather than treating it as being the equivalent of a Rural Living Zone. The Gibson case[76] adopted the views expressed in Rolfe with respect to the context of the site in the Moyne Planning Scheme. The Committee accepts that such principles should apply in considering the amenity impacts of 30 Mooleric Road.

Clause 52.09 of the Planning Scheme requires the Committee to consider the effect of vehicular traffic and noise, amongst others, on the amenity of the surrounding area. The

[75] *Rolfe v Surf Coast SC* [2008] VCAT 349.
[76] *Gibson v Moyne SC* [2014] VCAT 916

objective set out in clause 13.04-1 of the Planning Scheme is designed to assist the control of noise effects on sensitive land uses. The strategy of this clause is to:

> *Ensure that development is not prejudiced and community amenity is not reduced by noise emissions, using a range of building design, urban design and land use separation techniques as appropriate to the land use functions and character of the area.*

Truck movements

Despite some confusion on this issue, the Committee considers that eventual agreement on the truck movements associated with the quarry was achieved. This is as summarised in Mr Hunt's evidence:[77]

- Maximum 200,000 tpa quarry production
- 5.5 days per week (approximately 287 days in total/year) quarry operation
- Assuming a 32 tonne truck, an average of 22 loaded trucks a day (44 truck movements).

The Committee notes that over an 11 hour day (as per the draft permit conditions) this equates to two loaded trucks an hour (four truck movements an hour). In anticipation of smaller trucks and/or peak activity the Applicant is seeking a maximum of five loaded truck per hour departing the site (10 truck movements) via permit condition.

The Committee considers it is clear that both acoustic experts are in agreement that the peak truck movements of 10 per hour will exceed the NSW Policy threshold without any mitigation.

Noise mitigation

The next issue the Committee needs to consider is whether the agreed noise mitigation measures can reduce truck noise levels and are sufficient for the proposed quarry to comply with the NSW Policy baseline.

The Committee notes Mr Butera's position that the proposed speed reduction would reduce noise emissions, conservatively, by 2 dB(A), whereas Mr Huybregt's investigations[78] indicate a level of noise reduction ranging from 3-5 dB to 8 dB. With this context, the Committee accepts the acoustic experts agreed position that the traffic noise generated by the proposed quarry is likely to be in the range 62 - 69 dB(A) L_{Aeq} (1h) when passing 30 Mooleric Road.

The Committee accepts that sealing the road surface with a low noise pavement should provide further noise mitigation of possibly 3-4 dB(A).

The Committee is unable to make a finding as to which acoustic expert's evidence should be preferred. Both experts gave differing accounts of studies and assessments undertaken that do not provide sufficient certainty to definitively prefer one over the other.

Given this, if we take the mid-point of the speed reduction driven noise level reduction put forward by the two experts (5 dB), this coupled with a low noise pavement adjacent to 30

[77] At page 24.
[78] Table in Document 2.

Mooleric Road should reduce the noise level by 8-9 dB. Under Mr Huybregt's predictions, this would achieve the NSW Policy levels without further mitigation, but not so for the upper end of Mr Butera's range.

Both experts agreed that reducing the number of trucks passing by 30 Mooleric Road would result in a further reduction of truck noise levels, but that is not proposed in the application before us.

The four agreed mitigation measures that would be possible shown in the noise conclave report are:

- Speed restriction on the trucks
- A restriction on the number of trucks passing the dwelling per hour
- A noise barrier
- Acoustic treatment of the dwelling.

A low noise pavement was also suggested by Mr Hunt. The question for the Committee is are all these required, and if so can they be imposed via permit condition?

The Tribunal has addressed uncertainty around permit conditions relevant to this application in cases including Gibson[79] and Riethof[80]. The former case addressed the lack of certainty of the efficacy of conditions, whilst the latter discussed avoiding the need for too much additional assessment via permit conditions.

In relation to truck movement, truck speed and road pavement conditions, the Committee does not consider the above cases raise any particular issues of concern for this application. The Committee considers that there is sufficient assessment and understanding as to the likely noise impacts of the heavy vehicle traffic on 30 Mooleric Road.

In principle, the Committee considers that given the increase in heavy vehicle traffic and resulting increase in noise levels, all available measures that can be reasonably imposed on the Applicant should be embraced to minimise the amenity impacts to 30 Mooleric Road. The Committee thus recommends that truck speed reductions, truck movement limits and low noise pavement be required through permit conditions.

In relation to whether permit conditions can be imposed to force mitigation measures on the Applicant in relation to 30 Mooleric Road, the Committee is cognisant of the Seventh Day Adventist case in which the Supreme Court held that the Tribunal erred in granting a permit with a condition requiring the permit holder to undertake works on land of another that is beyond the control of the permit holder[81]. The Committee cannot, and does not, seek to recommend such a planning permit condition in this application.

---

79 The Tribunal was not persuaded that the suite of permit conditions requiring compliance with the NIRV criteria and works drawn from acoustic expert's assessment had fully addressed the noise impacts appropriately (at [83]). The Tribunal concluded that there were uncertainties in relation to noise and considered a proposed 5 metre high acoustic bund, of 32 metres base width, was 'problematic (at [82].

80 *Riethof v Yarra Ranges SC [2015] VCAT* 117, at [53], the Tribunal considered that there were too many elements of the proposal that required a further detailed response and assessment before impacts could be properly and fully understood.

81 [10] Seventh Day Adventist Case.

The threshold issue is whether a planning permit should issue if the owners of 30 Mooleric Road refuse to accept any mitigation measures on their land. This is a challenging question that places the onus of decision making on an objector, rather than the Responsible Authority. The Committee does not consider that planning is meant to work in this manner.

The Committee does not consider the permit outcome should be contingent on the acceptance of a reasonable offer of mitigation. This is particularly the case where the Applicant is seeking to comply with a threshold noise level, which in itself is not mandatory.

The Committee visited 30 Mooleric Road, which included an internal inspection of the dwelling, as well as meeting generations of the Beach family in the process. The Committee is acutely aware of the difficulty and stress that this proposal has placed upon that family. However, the Committee has the unenviable task in forming its recommendations to balance the broader benefits of the quarry proposal in the context of the impacts on the dwelling at 30 Mooleric Road.

Based on the evidence from the Applicant, the Committee considers there is a reasonable prospect that the NSW Policy levels can be met without a barrier or acoustic treatment of the dwelling if the other mandatory requirements, secured via permit condition, are met. Having said this, the Committee considers acoustic treatment of the dwelling at 30 Mooleric Road and/or a noise barrier should be offered to the Beaches and that this offer be made via permit condition.

An acoustic barrier at 30 Mooleric Road is, in the Committee's view, a measure of last resort, primarily due to its amenity impacts. Other acoustic measures, such as double glazing and associated ventilation improvements, to the dwelling at 30 Mooleric Road should be considered first, carried out on a voluntary basis and at no cost to the owners of 30 Mooleric Road. To that end, the Committee recommends that the planning permit conditions require any further acoustic assessments or reports that need to be undertaken for monitoring purposes actively liaise with the Beaches to identify suitable noise mitigation measures that can be applied to their dwelling as opposed to the installation of a noise barrier. Additional noise mitigation measures identified must be agreed by the Beaches and provided for at the sole cost of the Applicant.

Whilst not a topic of discussion in the Hearing, the Committee also recommends that, with the agreement of the Beaches, a dilapidation survey of the dwelling at 30 Mooleric Road be undertaken to monitor if there are any significant issues arising from the heavy vehicle vibration.

On balance, the Committee considers a planning permit should issue with such conditions to mitigate the noise impact as is possible via compliance with the proposed planning permit conditions.

The Committee want to add a further comment in relation to speed restrictions on Mooleric Road. To provide further certainty, the Committee recommends Council consider revising the speed limit to 40km/h for the relevant section of Mooleric Road as a further support to the planning permit condition. The Committee recognises that it cannot require Council to make this change, however it notes that such a change is within Council's power as both the Responsible and Co-ordinating Road Authority under the *Road Management Act 2004*.

Council could also install no standing signs along the same length of Mooleric Road in order to further deter and prevent any possible queuing of heavy vehicles associated with the proposed quarry.

3.4 Conclusion

The Committee is of the view that:

- The existing traffic noise levels passing 30 Mooleric Road are currently below the NSW Policy baseline.
- The proposed quarry will generate traffic noise levels that will impact 30 Mooleric Road.
- The NSW Policy baseline is accepted by the acoustic experts as a useful tool in identifying and determining traffic noise emissions and relevant associated noise mitigation measures.
- More than 4 truck pass-bys per hour will result in the NSW Policy noise baseline being exceeded.
- There are five possible noise mitigation measures available that can reduce the truck noise levels in order to comply with the NSW Policy baseline.
- Whilst 30 Mooleric Road is a dwelling in the FZ it still has certain amenity expectations that cannot be disregarded and must be balanced against recommending the proposed quarry be permitted.
- The Committee cannot require the owners of 30 Mooleric Road to construct a noise barrier on their property or have other noise mitigation measures provided to their property.
- The noise mitigation measures consisting of truck speed reduction, restricting the number of truck movements and sealing the road with low noise pavement passing 30 Mooleric Road should help to achieve compliance with the NSW Policy baseline, but acoustic shielding of the dwelling at 30 Mooleric Road will achieve a superior noise outcome.
- The revised planning permit conditions sufficiently balance the operational requirements of the proposed quarry and the Applicant's revised position put to the Committee with the amenity requirements of 30 Mooleric Road.
- A dilapidation survey should be undertaken of the dwelling at 30 Mooleric Road, with the agreement of the owners, to monitor any effects of heavy vehicle movements.

3.5 Recommendation

The Committee recommends:

That the planning permit include conditions relating to traffic noise and traffic shown in Appendix D to this report including:

- **Finalisation of the acoustic assessment and report**
- **Sealing of Mooleric Road for road capacity and noise reduction**
- **Speed control measures on Mooleric Road**
- **The offer of acoustic shielding to 30 Mooleric Road**
- **A dilapidation survey of 30 Mooleric Road by agreement**
- **The upgrade of the Princes Highway and Mooleric Road intersection.**

4 Ecology

4.1 The issues

The Applicant submitted the following based on ecological studies:[82]

- *That the subject site, and broader surrounds are substantially degraded as a result of agricultural modification and practices, and that drains and dams are in poor condition due to agricultural practices;*
- *Consequently, the subject site is of very low ecological value and supports poor quality habitat;*
- *…..*

In general terms the Committee concurs, this is a highly modified agricultural landscape with limited remnant ecological value on site. A number of species and habitats were investigated by the Applicant and raised by objectors. These are addressed individually below.

The Committee notes the evidence of Mr Venosta in relation to the Growling Grass Frog, Striped Legless Lizard and Fat-tailed Dunnart that there is a low likelihood of these species being present on site given its highly disturbed nature and lack of suitable habitat.[83] The Committee notes there was no serious challenge to his evidence on these species and does not consider them further.

A number of parties suggested that a permit should not issue due to the application of the 'precautionary principle'. The Committee notes and accepts the submissions of the Applicant on this point.[84] In essence the Committee considers the case for 'serious or irreversible environmental damage' and 'scientific uncertainty' as to the damage is not made out.

4.2 Brolga

(i) Evidence and submissions

Mr Mark Venosta gave evidence on behalf of Applicant in relation to Brolga. His assessment and results are contained in the expert witness report of 9 August 2015 including the conservation status of the species.[85] In summary he concluded that:[86]

- the site itself has no specific record of Brolga use and lacks Brolga habitat
- Brolga may forage or move through the site on occasion
- there are breeding and incidental records within 10 kilometres of the site
- the quarry development presents a low risk to Brolga.

82 Document 66, para 73.
83 Mr Venosta, EWS, page 14, 17-18.
84 Document 66, paras 38-43.
85 Listed as threatened under the *Flora and Fauna Guarantee Act 1988* and vulnerable on DELWP's Advisory List.
86 Mr Venosta, EWS, page 16.

He noted that there is a Brolga breeding record approximately 750 metres to the north east of the site and that it is difficult to draw conclusions on potential impact as knowledge of blasting effects on the species is poorly understood. He did draw on his experience with other species and blasting at a quarry in Point Wilson to note that he considers the impact likely to be low.[87]

Objectors suggested that the above site may be a wetland sourced from the water table of the area, but this was rejected categorically by Mr Nolan in his evidence in chief where he noted that the water table likely in the area (as measured at local bores) was 10 – 11 metres below ground surface. He suggested that the site was simply a depression which gathered local runoff.

Council submitted that the Applicant basically has the same position on Brolga as it had for the 2010 application in front of VCAT; and that the Tribunal was concerned about impacts on Brolga in that matter.[88]

In their initial response to the application dated 5 December 2014, DELWP (then the DEPI) did not object to the application and provided suggested conditions relating to monitoring, reporting and responding to any effects on Brolga during blasting. Mr Brooks from DELWP confirmed this position in the Committee Hearing. Mr Venosta supported the conditions put forward.

(ii) Discussion and conclusions

The Committee is satisfied on the evidence and from inspections that the site itself has limited habitat value for Brolga and is not recorded as a breeding or flocking site. The potential impact of concern is blasting disturbing breeding Brolga at the wetland approximately 750m to the north east.

The Committee notes the research undertaken at the Point Wilson quarry in relation to blasting effects on other species. Whilst the species surveyed in that case did not include Brolga, the overall limited impact on bird populations in that report gives the Committee some confidence that Mr Venosta's overall conclusion of 'low risk to Brolga' is reasonable.

As Mr Venosta records, the breeding patterns of Brolga are variable within a range and dependent on water in the landscape and growth in aquatic vegetation. The Committee also notes his evidence that the most vulnerable period is the 30 day incubation period, which if monitoring records a breeding pair, could be used to influence the timing of any blasting. Either way the Committee is satisfied on the material before it that:

- The risk to Brolga that may be breeding in the wetland to the north east is low
- The threat to the broader Brolga population is even lower
- The approach suggested in conditions by DELWP of monitor, report, respond is a reasonable approach to managing any residual risk.

87 Mr Venosta, EWS, page 26.
88 Document 8, para 198.

The Committee considers the threat to Brolga from the proposal is significantly less than broader threats in the landscape such as habitat loss from agriculture and predation.

(iii) Recommendation

The Committee recommends:

That the planning permit include conditions relating to Brolga as shown in Appendix D to this report.

4.3 Freshwater crayfish

(i) Evidence and submissions

In his evidence for Beach et. al. Dr Campbell identified that there are Hairy Burrowing Crayfish[89] in the area and that they are sensitive to groundwater changes. Dr Campbell incorrectly suggested that the species *Engaeus sericata*, which may be the species present, is listed as vulnerable in the Advisory list to the *Flora and Fauna Guarantee Act 1988*. This was corrected at the Hearing.

Mr Venosta undertook surveys of the subject site for Crayfish and in his supplementary witness statement of 14 October 2016 he stated that no Crayfish burrows were detected, and given the land use on the site that their presence is unlikely.

Mr Venosta and Dr Campbell in their agreed statement noted:

- …
- *Groundwater draw down may impact surrounding ephemeral wetlands, like Ricketts Marsh and Mooleric Swamp which are areas likely to support suitable crayfish habitat.*
- …
- *Survey undertaken for crayfish onsite is inadequate. If groundwater influence extends to other suitable crayfish habitat further investigation/survey would be warranted if significant impacts are likely.*

And in the points of clarification:

- …
- *We require advice from groundwater expert on the extent of cone of groundwater draw down. This will be needed before agreement is reached on level of offsite impact to wetlands which may provide suitable crayfish habitat.*
- …

The Applicant submitted on the Crayfish:[90]

- *The species is not a protected species and sits outside the legislative regime such that there are no legal requirements in respect of the species and no mechanism for determining or implementing offsets*

89 Genus *Engaeus*, the species in the area is not known.

90 Document 66, para 87 on.

- *Dr Campbell agreed that the species is widespread in Victoria*
- *There is no evidence of the actual presence of the species. Dr Campbell did not identify the species itself, despite his observations of crayfish burrows in the road reserve and at other locations south of the subject site*
- *…*

The Applicant in submissions concluded:

> *The fate of a possible, but not confirmed species in Mooleric Swamp which is widespread across the State and enjoys no statutory protection cannot be determinative of this permit application.*

(ii) Discussion and conclusion

Given the agreed position that the species *Engaeus seraticus* no longer has any particular conservation status, and noting that the presence of the species in the vicinity of the site has not been determined, the Committee does not consider that the Hairy Burrowing Crayfish is an impediment to quarrying proceeding.

The Committee addressed the broader groundwater issue below in Chapter 4.5. No specific recommendation is made in relation to the Hairy Burrowing Crayfish.

4.4 Golden Sun Moth

(i) Evidence and submissions

In his evidence for Beach et. al. Dr Campbell disagreed with Mr Venosta that there was not suitable habit for the Golden Sun Moth[91] in the subject area. He suggested there was likely to be suitable habitat and that:[92]

> *I would have expected that the proponents would have at least conducted a survey to establish whether the species is present on the quarry site and the northern buffer zone and especially the contiguous tussock grass areas to the north of the site.*

Mr Venosta prepared a supplementary witness report dated October 2016 and reiterated that, whilst he thought it likely the Golden Sun Moth occurs within 300 metres to the north, he thought it unlikely that it occurs on site. He nevertheless agreed that a survey was warranted of the area of rocky outcrop west of the house.

He and Dr Campbell met prior to the Hearing and agreed in relation to the Golden Sun Moth:

- *GSM survey is required to establish presence/absence on the subject land and in the road reserve north of the subject site. Survey should follow DoEE survey guidelines. If detected, submit referral and follow subsequent process of offsetting any losses.*

---

91 Critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), critically endangered under the *Flora and Fauna Guarantee Act 1988* and listed as threatened under the DELWP Advisory List.

92 Dr Campbell, EWS, page 5.

- *Area to the north (wind farm and road reserve) is potential GSM habitat as is the rocky rise adjacent to Mooleric Road within the subject site.*
- *…*
- *Site appears to have low ecological value pending GSM survey results.*
- *…*

Objectors were critical that the presence or absence of the Golden Sun Moth had not been confirmed during development of the application.[93]

Draft planning permit conditions were proposed to require both a survey for the Moth and a referral to the Commonwealth Government if the species is detected.

(ii) Discussion and conclusion

The Committee agrees with objectors that it is not helpful that the potential presence of a nationally endangered species on the project site has not been identified until the eleventh hour.

The Committee notes the expert agreement that the likely remnant habitat for the Golden Sun Moth on site is limited to the rocky rise adjacent to the Mooleric Road reserve and areas off site to the north. Given this the Committee is satisfied that if the Golden Sun Moth is discovered, there is opportunity to either avoid its habitat or provide offsets as necessary.

The Committee recommends that a survey be required by condition to determine if the species is present. If the Golden Sun Moth is found on site, a referral to the Commonwealth will be required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Committee has not supported a permit condition for the Commonwealth referral for the reason that the referral is required under the EPBC Act.

(iii) Recommendation

The Committee recommends:

That the planning permit include a condition relating to a Golden Sun Moth survey shown in Appendix D to this report.

4.5 Offsite ecological impacts

(i) Evidence and submissions

A number of the objecting parties submitted that the impact on off-site wetlands (Mooleric Swamp, Ricketts Marsh and the Birregurra Creek) would be significant based on reduced groundwater and surface water flows and that the impacts:

- May be such that the Application should be refused
- May impact on EPBC values.

[93] For example Beach et. al. in Document 27, para 55.

(ii) Discussion and conclusions

The Committee has addressed at length its considerations on groundwater and surface water in Chapter 2. These conclusions include additional bores and monitoring. Coupled with the existing triggers in 7.9.2 in the Groundwater Management Strategy, the Committee is satisfied that impacts on the downstream wetlands should not be significant.

In addition, the Committee observes this is not a pristine environment. Groundwater (via pumping for agriculture and cut-off drains) and surface water (via dams and wetland drainage) is in a highly modified state after more than 150 years of intervention post European settlement. Mooleric Swamp itself for example is primarily farmland.

By the very nature of use and development of the land, the natural environment is highly modified and what remains has had to adapt to very significant changes in the water cycle; changes both in the long term and in seasonal or drought cycle timeframes. This is not to suggest there are no ecological values remnant, but rather to suggest that it is not reasonable to consider the wetland environments such as Mooleric Swamp and Ricketts Marsh as pristine, static and not subject to change.

Even without the proposed quarry it is likely that groundwater levels for example will be in long term decline due to increasing use and a drying landscape.

The objectors rightly pointed out that it is up to the Applicant to identify potential impacts and propose appropriate management, not the objectors. In this case, for off-site groundwater dependent ecosystems the Applicant is relying on a groundwater management and response approach that the Committee considers in principle is appropriate. That is, the proposed quarry should not result in significant changes to water level off-site at discharge points, which in turn should protect such ecological values that remain. If monitoring detects greater than predicted changes in water level then a response will be needed as outlined in Chapter 2.

In relation to the suggested EPBC values that may exist in nearby wetlands, whether they be species or listed communities, the Committee notes that they have statutory protection outside the considerations of this planning permit. This Committee is not undertaking a bilateral assessment under the EPBC Act, and if any such values exist, which the Committee is not convinced of, then relevant approvals will still need to be obtained.

5 Other issues

5.1 Quarrying and blasting

(i) The issue and submissions

Quarrying and blasting operations along Mooleric Road would be a new industry and one which has generated concerns within the surrounding community. These relate to:

- dust
- vibration damage to existing housing and heritage buildings over 2 kilometres north northwest
- noise.

Mr Collins, who with his wife runs a cattery business located about 2 kilometres south southeast of the subject site, made a submission expressing their concerns that the *"peaceful retreat they have created for pet cats on holidays from away home"* as a commercial enterprise could be adversely affected by dust and explosive vibrations from the quarry.

Mr Holt of Turkeith Homestead Pty Ltd[94] also raised the issue of silicosis risk associated with quarry dust as a matter of concern.

In addition to the above concerns, Acciona Energy Australia Global Pty Ltd (Acciona), who are developing the Mt Gellibrand Wind Farm and will be a significant user of Mooleric Road, raised a number of concerns:

- *The quarry activities have the potential to impact the structural integrity of wind turbine towers .....during construction and curing of concrete foundations.*
- *Blasting activity and associated fly rock has the potential to cause damage of injury to wind turbines, operational buildings and on site staff and need to be carefully managed through monitoring, management and rectification works if required.*
- *Blast extractions in the vicinity of Mooleric Road should be prohibited so that there is no restriction on Mooleric Road on any regular occasion.*
- *The owner and operator of the quarry should be responsible for road upgrades commensurate with the proposed and likely heavy vehicle traffic generated by the quarry regardless of any requirements in the Mt Gellibrand Wind Farm Permit.*

(ii) Evidence

Evidence on the proposed quarrying development and operations was presented by Mr Nolan in his evidence in chief at Section 7.

[94] Document 33.

This evidence was based on the Work Plan endorsed under the *Mineral Resources (Sustainable Development) Act 1990* for the Work Authority area 1546 at 320 Mooleric Road as prepared for MCG Quarries by Bell Cochrane(2014). Bell Cochrane also confirmed the quality of the rock based upon bulk samples submitted to them by the property owner Mr Stewart in 2011.[95]

The proposal sets out a staged approach to quarrying a resource estimated to be about 20 million tonnes. This will be achieved by quarrying the basalt rock to a floor level not extending below 105 metres AHD at an annual rate of extraction not exceeding 200,000 tpa.

At 105 metres AHD the proposed quarrying will extend below the water table variously between 11 and 13 metres. The proposed quarry Works Authority area location and the staged development are set out in Document 53.

The proposed quarry operations will commence with overburden stripping across Stage 1 to create material for the construction of perimeter bunds and surface water swales, settlement facilities and the on-site sedimentation basin. Thereafter, Stage 1 will be extended out and to depth progressively from the north west corner of the subject site across the northern portion of the site.

Some limited excavation will occur in the southern half of the subject site but only to create a storage for groundwater pumpage in excess of the consumptive demands of the operation.

Stage 2 will involve expanding the northern area of excavation to depth progressively until all of the northern portion, excepting for the crushing and stockpile areas, will have been worked out creating a large area for subsequent use in groundwater management.

Stages 3 and 4 will be largely in the southern half of the subject site and will take out the former excess groundwater storage basin. This function will now be taken up in the worked out northern pit, which will no longer be subject to dewatering pumpage.

On completion of the quarry operations, the former perimeter bunds will be re-excavated and used to re-soil the former works area and the worked out pits will be left to be backfilled by natural groundwater inflow.

Operational water uses involve about 20ML/a of which about 50-60 per cent is for dust suppression on roads and around crushing plant and possibly pug mill operations and in product loading areas. The rest is used in wetting the final product for transport and sale.

Export of product from the site will take place between 7.15am and 6.00pm Monday to Friday and between 7.00am and 1.00pm on Saturday by truck. All trucks will have covered loads.

In respect to blasting, Mr Moore of Terrock presented a comprehensive document which indicated that blasting at the quarry site is likely to be undertaken about once per month. He advised that this would involve a period of temporary closure of Mooleric Road but that this would mostly be for less than 1 hour. HIs evidence covered both the implications of ground vibration and air blast.

[95] Document 69.

Mr Moore's evidence was based upon broad experience including at the Ondit Quarry to the west near the north end of Lake Colac. He presented the empirical formula used for modelling ground vibration. This includes a constant which is derived based upon local experience. This constant has to be established by some monitored test blasts at the Ombersley quarry at an early date.

Based on his present experience, Mr Moore's calculations of blasting a 14 metre high face should not give rise to exceedance of regulatory guidelines for ground vibration or air blast at any nearby houses as they were too distant. Similarly, he was of the opinion that ground vibrations would not give rise to any damage to heritage buildings, since these too were too far removed. In particular, the heritage buildings on Turkeith (Mooleric Woolshed) mentioned in the submission by Ms Holt, is over 2.3 kilometres from the proposed quarry boundary. Mr Moore noted however that some of the stock and domestic bores in the area are closer and that, subject to the stability of their construction, they could suffer damage due to casing collapse, or as a consequence of rocks falling down hole to jam or block pumps and other operating equipment within the bores.

Mr Moore discussed the issues giving rise to fly rock being generated, noting that the risks associated with fly rock were capable of mitigation by the application of minimum distances for safety for personnel and for plant and equipment both in front of the face being blasted and behind the face. Further, modification could be achieved by extending the stemming in the holes; by increasing or decreasing the blast hole density and explosive loading and by varying microsecond delay sequencing.

Mr Moore also specifically addressed Acciona's concerns and cited several sources to support his contention that there will be no impact so long as blasting is not undertaken within 48 hours of a concrete pour at the nearest site which is 540 metres from the edge of the quarry (1,000 metres from the first blast site in Stage 1). He noted that once constructed, the turbine towers are very robust structures and that the likely ground stresses created at distance by blasting are likely to be well within the design criteria of these structures since they must be constructed to withstand earthquake ground accelerations. Earthquake ground accelerations are very much higher than can be generated by the stresses deriving from the monthly blasting at the proposed quarry.

(iii) Discussion

The justification for quarrying the basalt on this site is in the opinion of the Committee well established by the data provided by Bell Cochrane on the rock characteristics as a construction material. Equally, the proposed staging of the quarry excavations and the layout of facilities is appropriately conceived as a means of spreading the effects around the site over time. The use of compacted, vegetated berms surrounding the site should markedly lessen the visual impact of the operations from the road and from Princes Highway ensure that in the future after closure the site can be rehabilitated as a through flow lake system of a type which can be acceptable in this environment. Such systems already exist nearby (for example Lakes Colac to the west, Murdeduke to the north and Modewarre to the east).

Operationally, the Committee is informed that the rock to be quarried is a basalt which, while it will generate dust during quarrying, blasting and crushing, is comprised of higher density silicate minerals not silica *per se.* The dust then deriving from the proposed quarry operations are less inclined to carry significant distances and are not of the nature which could give rise to issues of silicosis to the knowledge of the Committee. In addition, for reasons of occupational safety, the Applicant plans to use water extensively to suppress dust. It follows that dust issues should not be significantly greater than those related to agricultural activities such as ploughing, seeding, ripping and harvesting.

The evidence of Mr Moore was closely examined, mainly in relation to the potential for the traffic on Mooleric Road to be disrupted during blasting, but was otherwise accepted as being expert and comprehensive. On this basis, the Committee considers that Mr Moore's assurances that neither the ground vibrations or air blast, generated on average once per month, are likely to be of such force so as to cause damage other than momentary disturbance to the residents living or operating in land adjacent to the proposed quarry. The Committee however notes that there is potential for damage to nearby bores where these are either uncased of have corroded or significantly weakened casing.

The risks of damage consequent upon blasting at the proposed quarry will be better understood after the proponent has undertaken a census of the surrounding stock and domestic bores (see Section 2.2(i)) and after the initial monitored blasts are performed. The latter will verify or establish an appropriate local constant for the 'Scaled Distance Site Law Model' used in designing an optimal blasting pattern and controls for this site. This modelling needs to take into account the risks and sensitivities which exist including any impacts upon nearby Acciona wind turbine sites. It would seem desirable that these sites should be monitored as part of the initial blasting to ensure that any impacts are not of such order that modification of the blasting pattern is desirable.

On the evidence presented by Mr Moore, the likelihood of significant disturbance to the cattery to the south southeast by ground vibration seems small, but it is noted by the Committee that for a 14 metre face, the worst case peak particle velocity (PPV mm/s) at 2 kilometres would be within the threshold of human perception (0.5 mm/s).

Mr Moore advised the Committee that ground vibration transmission is variable subject to ground conditions such as weathering, the depth to the basalt below the surface and saturation levels, amongst other things.

The Committee does not know what sensitivity profile applies to cats and no evidence was presented on this. The Committee acknowledges Mr Collins' submission that the cats do not reside there on a long-term basis and so would not be conditioned to such intermittent noises resulting from blasting. To resolve this issue, it is desirable for the test blasting to be monitored at the cattery to record and identify both ground vibration and animal behaviour. Dependant on the results, if it is necessary the blasting plan could be modified to offset any short term unacceptable disturbance. Alternatively, some other accommodation might be agreed between the Applicant and the cattery management. It is also noted that the cattery already has another quarry to the east - the Armytage Quarry (about 4 kilometres) which the Committee understands has not been found to be a problem to date.

Concerns about dust generation by the surrounding landholders is understandable but the Committee believes that given the distances and wind directions likely that the application of standard dust suppression practices at the proposed quarry site is likely to be such that the quarry area is no more a source of nuisance dust than the many other dust generating activities in the area.

(iv) Conclusions

The Committee concludes that the proposed quarry as proposed and outlined in Mr Nolan's evidence in chief can be operated and not cause unacceptable amenity issues for the surrounding land owners albeit as is discussed elsewhere, traffic on Mooleric road will be significantly increased.

(v) Recommendation

The Committee recommends:

The planning permit includes conditions relating to quarry management and blasting as shown in Appendix D to this report.

5.2 Aboriginal cultural heritage

(i) The issue

In the event a planning permit is issued, what, if any, contingency conditions should be inserted into the planning permit to ensure Aboriginal cultural heritage is protected.

(ii) Submissions

Mr Tweedie submitted that in the absence of a voluntary or mandatory CHMP being prepared, the 'contingency conditions' proposed by Ms Oona Nicolson of Ecology and Heritage Partners in her evidence to the CHMP Hearing were inadequate.

In her report, Ms Nicolson stated her preference for a voluntary CHMP[96] and in the absence of such, a number of contingency conditions. The Applicant urged the Committee to adopt the contingency conditions recommended by Ms Nicolson.

(iii) Discussion and conclusions

The process leading to Governor-in-Council issuing orders that a mandatory CHMP is not required is outlined in Chapter 1.4.

The Committee is aware that there are three archaeologically sensitive landforms contained within the subject site, namely the three stony rises, but accepts the Aboriginal cultural heritage assessment already undertaken for this permit application which advises that:

> *…the likelihood of Aboriginal cultural heritage material being discovered at these locations is not considered to be high…If a voluntary CHMP is not prepared for the activity then…contingency conditions should be implemented.*

[96] Ms Nicolson, Expert Witness Statement, Section 2.1.

On that basis, the Committee recommends that relevant permit conditions be applied in case Aboriginal cultural heritage material or sites are discovered in the stony rises or elsewhere on the subject site; noting that such sites or artefacts are still protected under the *Aboriginal Heritage Act 2006*.

The Committee is satisfied that the proposed contingency conditions as shown in Appendix D are appropriate in specifying steps to be taken to firstly have appropriate experts in Aboriginal cultural heritage on site during works on sensitive areas; and secondly having procedures in place to respond if any sites or artefacts are discovered.

(iv) Recommendation

The Committee recommends:

The planning permit include Aboriginal cultural heritage contingency conditions as shown in Appendix D to this report.

5.3 Economic and social impact

(i) The issue and submissions

A number of submissions went to the issue of the economic and social impacts of the proposed quarry in an environment where agriculture has long been the common land use. In particular, Ms Holt submitted that there has not been a *'social impact statement'* done and that this was a flaw. She submitted:[97]

> *…Mooleric Road landowners and surrounding farms are a community. We know and chat to our neighbours, help each other out, daily we are our own neighbourhood watch and we care about each other. MCG Quarries are not interested in their neighbours nor the area they are going to impact on. They are only interested in themselves defined by the 2 kilometre reference zone and their own outcomes – financial return.*

Ms Holt highlighted that the proposed quarry applications over a number of years *'…has left the community mentally, emotionally, physically and financially stressed'*.[98] She identified a number of specific concerns related to traffic, water and blasting and these issues are addressed elsewhere in this report.

The Beaches and other objectors, whilst acknowledging that the Applicant does not need to prove the need for the quarry product, submitted that need is a relevant consideration in balancing whether a permit should issue. They stated:[99]

> *In this case, the site represents an exploitable resource of unidentified quality and public value. The issues that could arise for the natural environment, and for surrounding landowners whose families have been farming the land for in some cases more than 100 years, are considerable, and they have not been*

97 Agriculture Statement, 21 October 2016, page 17.
98 Agriculture Statement, 21 October 2016, page 17.
99 Document 27, para 26.

properly identified and accounted for. The degree of modification to the environment that is required, the level of impact on surrounding land, and the present risks of environmental damage that would flow from the grant of a permit outweigh the economic benefit to be gained from the extraction of rock.

Mr Hay was called to give evidence by Mr Gardiner on the economic importance of groundwater in the area for stock and domestic water. As a principle, this issue was not in dispute.

The Applicant submitted that there are no economic or social issues (including technical issues with a social impact such as traffic) that cannot be addressed by the appropriate inclusion of planning permit conditions.

(ii) Discussion and conclusion

The Committee has undertaken a detailed assessment against planning controls in Chapter 6, many of which have an economic and social element.

The Committee accepts that the agricultural uses predominant in the area have significant social, economic and even historical values to the community. Any substantial threat to the continuation of such uses should be resisted, and could, for example, result in a permit not being issued for a particular proposal.

The Committee considers in this case there are two primary economic considerations:

- The direct loss of agricultural land. This in the Committee's view is not significant (approximately 64 hectares) and not addressed further.
- Widespread impacts on agriculture due to loss or reduction in water supply.

In regard to the latter, the Committee accepts that this is a critical issue. The Committee's concluded view as outlined in Chapter 2 is that it can be managed satisfactorily, but its importance as an issue and to the future of agriculture in this area must not be underestimated.

This is also to be balanced against the difficulty in locating and successfully extracting limited stone resources, but the Committee's considers these outcomes are not mutually exclusive in this case.

The issues raised by Ms Holt are more problematic. Community division over proposals in rural and regional areas arguably have a much greater social impact than in metropolitan areas due to the smaller communities with consequently greater reliance and interdependence for everything from firefighting to sporting clubs.

There is no easy answer to this particular issue, but the Committee is bound to consider the proposal against the requirements of the planning scheme and not try and 'pick a winner' that will somehow make the most people or the apparently most deserving people happy. Whichever outcome is achieved will make someone unhappy, but the Committee must be convinced that the residual concerns can be adequately managed via management responses and planning permit conditions. The Committee does not make any specific recommendations on this issue.

6 Planning permit assessment

6.1 Background

The details of the permit triggers and planning scheme controls are discussed below. There are no overlay controls for the application.

The planning permit interacts closely with the MRSD Act as outlined in Chapter 1.1, and approval of this permit may trigger reconsideration of elements of the endorsed Work Plan under that Act.

If the proposal proceeds as per the planning permit application, a ground water extraction licence will also be required for any increase above the existing 20 ML/a allowed on the property.

6.2 Permit triggers and decision guidelines

(i) Zone

The proposal requires a planning permit under the FZ in the Colac Otway Planning Scheme as shown in Table 4.

Table 4 FZ permit triggers

Clause	Permit Trigger
Clause 35.07-1 Farming zone (Use)	Stone extraction is a Section 2 'Permit required' use as it is not specifically included in Section 1 or 3.
Clause 35.07-4 Farming Zone (Building and works)	The categories of exemption are not relevant so a permit for buildings and works is required.
Clause 35.07-4 Farming Zone (Earthworks)	As the proposal will change the rate of water discharge from the site a permit for earthworks is required.

The FZ decision guidelines are shown in Table 5.

Table 5 FZ decision guidelines

Sub heading	Decision guidelines
General	- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies. - Any Regional Catchment Strategy and associated plan applying to the land. - The capability of the land to accommodate the proposed use or development, including the disposal of effluent. - How the use or development relates to sustainable land

	management. - Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses. - How the use and development makes use of existing infrastructure and services.
Agricultural issues and the impacts from non-agricultural uses	- Whether the use or development will support and enhance agricultural production. - Whether the use or development will adversely affect soil quality or permanently remove land from agricultural production. - The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses. - The capacity of the site to sustain the agricultural use. - The agricultural qualities of the land, such as soil quality, access to water and access to rural infrastructure. - Any integrated land management plan prepared for the site.
Dwelling issues	- Whether the dwelling will result in the loss or fragmentation of productive agricultural land. - Whether the dwelling will be adversely affected by agricultural activities on adjacent and nearby land due to dust, noise, odour, use of chemicals and farm machinery, traffic and hours of operation. - Whether the dwelling will adversely affect the operation and expansion of adjoining and nearby agricultural uses. - The potential for the proposal to lead to a concentration or proliferation of dwellings in the area and the impact of this on the use of the land for agriculture.
Environmental issues	- The impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality. - The impact of the use or development on the flora and fauna on the site and its surrounds. - The need to protect and enhance the biodiversity of the area, including the retention of vegetation and faunal habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridgelines, property boundaries and saline discharge and recharge area. - The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.
Design and siting issues	- The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land. - The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads,

	vistas and water features and the measures to be undertaken to minimise any adverse impacts. - The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance. - The location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities. - Whether the use and development will require traffic management measures.

(ii) Particular provisions

The proposal requires a planning permit under the particular provisions shown in Table 6.

Table 6 Particular provision permit triggers

Clause	Permit Trigger
Clause 52.08 Earth and Energy Resources Industry	A permit is required for Stone extraction unless an Environment Effects Statement has been prepared which is not relevant in this case.
Clause 52.09 Stone extraction and extractive industry interest area	A permit is required for Stone extraction unless the exemption in Clause 52.08 applies; which it does not in this case.

The decision guidelines for Clause 52.09 are shown in Table 7.

Table 7 Particular provisions decision guidelines

Clause	Decision guidelines
Clause 52.09	Before deciding on an application, in addition to the decision guidelines in Clause 65, responsible authority must consider, as appropriate: - The effect of the proposed stone extraction on any native flora and fauna on and near the land. - The impact of the stone extraction operations on sites of cultural and historic significance, including any effects on Aboriginal places. - The effect of the stone extraction operation on the natural and cultural landscape of the surrounding land and the locality generally. - The ability of the stone extraction operation to contain any resultant industrial emissions within the boundaries of the subject land in accordance with the Regulations associated with the Mineral Resources (Sustainable Development) Act 1990 and other relevant regulations.

- The effect of vehicular traffic, noise, blasting, dust and vibration on the amenity of the surrounding area.
- The ability to rehabilitate the affected land to a form or for a use which is compatible with the natural systems or visual appearance of the surrounding area.
- The ability to rehabilitate the land so it can be used for a purpose or purposes beneficial to the community.
- The effect of the proposed stone extraction on groundwater and quality and the impact on any affected water uses.
- The impact of the proposed stone extraction on surface drainage and surface water quality.
- Any proposed provisions, conditions or requirements in a work plan that has received statutory endorsement issued under the Mineral Resources (Sustainable Development) Act 1990.

(iii) General provisions

The general decision guidelines in Clause 65 also apply to consideration of the planning permit application.

6.3 Policy assessment

(i) State Planning Policy Framework (SPPF)

A number of parties to the Hearing drew the Committee's attention to relevant sections of the SPPF in the Colac Otway Planning Scheme. These include the following.

Clause 10.04 Integrated decision making – this clause states includes *"…responsible authorities should endeavour to…balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations".*

Clause 11.07 Geelong (G21) regional growth – the clause has the following relevant sub-clauses.

Clause 11.07-4 Environmental assets has the objective *"To protect, restore and enhance the region's unique environment"* with strategies including to "*Protect restore and enhance the quality of land…waterways, biodiversity and soils."*

Clause 11.07-5 Agricultural productivity has the objective *"To secure food, water and energy resources"*. Strategies include:

- …
- *Support a productive, robust and self sustaining region…while protecting and enhancing farming and natural assets.*
- *Protect critical agricultural land, energy and earth resources required to support a growing population by focussing development to existing township areas and directing growth to towns which provide rural services.*
- …

Clause 11.07-6 Sustainable communities has the objective *"To allow communities to live, work and participate locally"*. Strategies include:

- *Support industries that utilise skills within the region.*
- *Support increased employment diversity.*
- *Support new businesses that provide employment and innovation opportunities in identified employment nodes across the region.*
- *…*

Clause 11.07-7 A diversified economy has the objective "*To build the region's economy*". Strategies include to "*Support diversity in the region's economy that builds on its competitive strengths, including tourism and agricultural land resources and economic, social and natural assets*".

Clause 12 Environmental and landscape values – in the introduction the clause includes *"Planning should help to protect the health of ecological systems and the biodiversity they support (including ecosystems, habitats, species and genetic diversity) and conserve areas with identified environmental and landscape values*." The following sub-clauses are relevant.

Clause 12.01-1 Protection of biodiversity clause aims *"To assist the protection and conservation of Victoria's biodiversity, including important habitat for Victoria's flora and fauna and other strategically valuable biodiversity sites"*.

Clause 12.04-2 Landscapes has the objective *"To protect landscapes and significant open spaces that contribute to character, identity and sustainable environments"*.

Clause 13 Environmental risks identifies state policies that relate to *"…protection of air quality and noise, water quality, and applies relevant State Environment Protection Policies"*. It includes the following sub-clauses.

Clause 13.03-3 Salinity has the objective *"To minimise the impact of salinity and rising watertables on land uses, buildings and infrastructure in rural and urban areas and areas of environmental significance and reduce salt loads in rivers"*.

Clause 13.04-1 Noise abatement includes the objective "*To assist the control of noise effects on sensitive land uses by ensuring that development is not prejudiced and community amenity is not reduced by noise emissions…"*.

Clause 13.04-2 Air quality seeks *"To assist the protection and improvement of air quality"*.

Clause 14 Natural resource management includes the introduction "*Planning is to assist in the conservation and wise use of natural resources including energy, water, land, stone and minerals to support both environmental quality and sustainable development"*. Relevant sub-clauses include the following.

Clause 14.01-1 Protection of agricultural land seeks to protect productive farmland which is of strategic significance. Relevant strategies include:

- *Ensure that the State's agricultural base is protected from the unplanned loss of productive agricultural land due to permanent changes of land use.*
- *Take into consideration regional, state and local, issues and characteristics in the assessment of agricultural quality and productivity.*
- *Permanent removal of productive agricultural land from the State's agricultural base must not be undertaken without consideration of its*

economic importance for the agricultural production and processing sectors.

- *In considering a proposal to subdivide or develop agricultural land, the following factors must be considered:*
  - *The desirability and impacts of removing the land from primary production, given its agricultural productivity.*
  - *The impacts of the proposed subdivision or development on the continuation of primary production on adjacent land, with particular regard to land values and to the viability of infrastructure for such production.*
  - *The compatibility between the proposed or likely development and the existing uses of the surrounding land.*
  - *Assessment of the land capability.*

Planning and responsible authorities are explicitly required to consider the benefits of a proposal against offsite impacts on soil or water quality.

Clause 14.01-2 Sustainable agricultural land use has the objective *"To encourage sustainable agricultural land use"*.

Clause 14.02-1 Catchment planning and management seeks "T*o assist the protection and, where possible, restoration of catchments, waterways, water bodies, groundwater…."*.

Clause 14.02-2 Water quality seeks to protect water quality. Relevant strategies include:

- *Ensure that land use activities potentially discharging contaminated runoff or wastes to waterways are sited and managed to minimise such discharges and to protect the quality of surface water and groundwater resources, rivers, streams, wetlands, estuaries and marine environments.*
- *Discourage incompatible land use activities in areas subject to flooding, severe soil degradation, groundwater salinity or geotechnical hazards where the land cannot be sustainably managed to ensure minimum impact on downstream water quality or flow volumes.*
- *Prevent the establishment of incompatible land uses in aquifer recharge or saline discharge areas and in potable water catchments.*

Clause 14.03 Resource exploration and extraction relates to extractive industries. It seeks to encourage exploration and extraction of natural resources in accordance with acceptable environmental standards. Relevant strategies include:

- *Protect the opportunity for exploration and extraction of natural resources where this is consistent with overall planning considerations and application of acceptable environmental practice.*
- *Provide for the long term protection of natural resources in Victoria.*
- *Recognise the possible need to provide infrastructure for the exploration and extraction of natural resources.*
- *Planning schemes must not impose conditions on the use or development of land that is inconsistent with the Mineral Resources (Sustainable Development) Act 1990, the Greenhouse Gas Sequestration Act (2008), the Geothermal Energy Resources Act (2005), or the Petroleum Act (1998).*

- *Planning permit applications should clearly define buffer areas appropriate to the nature of the proposed extractive uses, which are to be owned or controlled by the proponent of an extractive industry.*

The clause addresses buffer areas between extractive activities and sensitive land use.

Clause 15.03-2 Aboriginal cultural heritage is focused on ensuring "*the protection and conservation of places of Aboriginal cultural heritage significance".*

Clause 17 Economic development includes that *"…planning is to provide for a strong and innovative economy…and planning is to contribute to the economic well-being of communities and the State as a whole by supporting… economic growth and development by providing land, facilitating decisions, and resolving land use conflicts…"*.

(ii) Local Planning Policy Framework (LPPF)

Relevant sections of the LPPF were also considered in the Hearing. These include the following clauses from the Municipal Strategic Statement (MSS).

Clause 21.01 Municipal profile includes:

> *…the Shire includes some of the most scenic and environmentally sensitive land in Victoria and provides diverse employment opportunities through a range of primary industries, tourism and commercial and community services.*

Clause 21.02-2 Land use vision in relation to agriculture, states that *"…high quality agricultural land will be protected and grazing and cropping farming practices are the preferred land uses in areas designated as 'farmland of strategic significance'"*. Council's Strategic Framework Plan at **Clause 21.02** does not identify the subject land as an area of Farmland of Strategic Significance.

In relation to environmental features, **Clause 21.02-2** states that:

- *Significant rural and coastal landscapes will be preserved and protected.*
- *Key natural assets such as declared water supply catchments…rivers and watercourses, lakes and major geological features will be protected from inappropriate land use and development.*
- *Development will respond to environmental risks such as bushfire, flooding, landslip, erosion and salinity.*

Clause 21.04-1 Catchment management has strategies including *"Consider land capability in the assessment of use and development proposals"* and *"Encourage land management practices and land use activities that are sustainable and can protect the environment"*.

Clause 21.04-2 Water has objectives to *"…protect water catchments"* and *"…retain and improve water quality and water yield"*. Relevant strategies include:

- *Ensure water quality standards and impact on water yields are considered in the assessment of planning permit applications.*
- *Ensure that the maintenance in natural condition of watercourses is considered in the assessment of use and development proposals.*

Clause 21.05-1 Agriculture states that agriculture is a key economic contributor to the Shire, and emphasises that protection of agricultural industries is critical to the economic and social wellbeing of the Shire. It notes:

> *It is anticipated that the need to protect arable land within the Shire will intensify as the Shire's significant landscapes continue to attract those seeking a rural/coastal lifestyle, and farmers seeking to relocate and/or diversify their business, and as farming land in other areas of the State becomes increasingly vulnerable to harsher climactic conditions.*
>
> *Future land use planning should prevent these trends from prevailing and enable opportunities for expansion of the medium to large farms, which is of greater net community benefit.*

Relevant objectives of clause 21.05-1 include:

- *To facilitate the growth of key primary industries and a range of developments to add to the economic base of the Shire.*
- *To maintain the viability of large-scale agriculture and the retention of areas of farmland of strategic significance and other high quality agricultural land for agricultural use.*
- *To protect rural land for agricultural production and timber harvesting activities.*
- *…*
- *To ensure that incompatible land uses (including dwellings) do not negatively impact on the ability to farm.*

Relevant strategies include:

- *Support development which will provide economic and social benefits while not adversely affecting farmland of strategic significance, water catchments, timber production and environmental and landscape attributes.*
- *Ensure that existing dairying and other agricultural producers are protected from encroachment by conflicting development such as hobby farms.*
- *Apply a strict interpretation of the Farming Zone provisions to ensure incompatible land uses (including dwellings) do not negatively impact on the ability to farm.*
- *Protect farmland of strategic significance and other high quality agricultural land for sustainable agriculture use and development.*
- *Protect the environmental significance of key sites while allowing limited diversification into new agricultural uses.*
- *…*
- *Encourage land management practices that are sustainable and protect the environment.*

(iii) Other relevant policies and strategies

Rural Land Strategy (2007)

This Strategy identifies the most significant industries in the Shire as agriculture and forestry, and that agriculture is one of the greatest economic contributors to the Shire. The subject land is identified as within an area of 'medium' significance in the Strategy.

The Strategy notes that the diversity of land uses resulting from change in rural land use may bring conflict between agriculture and land uses. The Strategy is referenced in the MSS, particularly in Clause 21.05.

G21 Regional Growth Plan (2013)

The Plan is to manage growth and land use pressures in the region to 2050, noting *significant earth resources*. Significant earth resources are mapped in Map 5 of the plan and the subject site is not identified in this category. The Plan notes the draft G21 Economic Development Strategy identifies several foundation strengths including eco-tourism, renewable energy research, agriculture (including dairy, grazing and cropping), forestry and food production.

6.4 Authority comments

(i) Section 55 referral

Under Clause 52.09-4 of the Colac Otway Planning Scheme, if a Work Plan has been referred to the planning scheme Clause 66 referral authorities under the MRSD Act, then referral of the planning permit application under s55 of the P&E Act is not required except for the Roads Corporation (VicRoads).

VicRoads did not object to the application but requested conditions be placed on the permit relating to the Mooleric Road/Princes Highway intersection and a works agreement. These conditions were not controversial and have been included with minor modifications in the permit conditions in Appendix D.

(ii) Section 52 referrals

Council referred the Application to a number of agencies under the general notice provisions of s52 of the P&E Act as follows.

Environment Protection Authority (EPA)

The EPA did not object to the Application but suggested permit conditions related to fill, landfill and noise. These were uncontroversial and are included in Appendix D.

Department of Environment and Primary Industries (DEPI)

DEPI (now DELWP) did not object to the Application but raised the issue of the Brolga wetland to the north east and suggested permit conditions to address their concerns. This issue is discussed in Chapter 4.2 and permit conditions are included in Appendix D.

Corangamite Catchment Management Authority (CCMA)

The CCMA raised a number of issues around likely approvals needed independent of the planning permit for Works on Waterways but did not object to the issuing of the permit or suggest and permit conditions.

Southern Rural Water (SRW)

SRW raised a number of issues in relation to groundwater extraction and suggested a number of conditions on the planning permit. They noted any use of groundwater or groundwater dewatering above the existing 20 megalitres would require a license from SRW under the Water Act 1989 and "…*strongly recommended that the proponent resolves water licensing requirements with SRW as a matter of priority*".

In their submission[100], DELWP for the Minister noted that some of the suggested SRW permit conditions may be more appropriate as notes.

The issues around groundwater are discussed at length in Chapter 2 and permit conditions included in Appendix D.

Department of State Development, Business and Innovation (DSDBI)

DSDBI (the earth resources regulation function now in DEDJTR) did not object to the Application and noted that a draft Work Plan had been endorsed and given to referral authorities under s77TE of the MRSD Act.

Aboriginal Affairs Victoria (AAV)

AAV (now Aboriginal Victoria) provided comments in relation to a CHMP. Aboriginal cultural heritage issues are addressed in Chapter 5.2, Appendix E and the Committee's report of April 2016.

6.5 Discussion and conclusion

The policy environment for the application is complex and the primary task of the Committee is to balance the various competing policies in coming to a conclusion as to whether to recommend to the Minister for Planning that a permit should issue. Before commenting on the policy mix the Committee notes that it is not starting with a 'blank canvas'.

The following extract is provided from the Council officer report of the Planning Committee Agenda of 17 December 2014:[101]

> *In the previous VCAT decision, the Tribunal Members concluded that "the proposed use of the land is acceptable in principle. However, we are not satisfied that the design of the quarry has satisfactorily addressed or responded to the land's circumstances."*

100 Document 6.
101 At page 53.

> *This VCAT decision is a material consideration that must be taken into account when assessing the current proposal. Given the findings of the Tribunal Members, it is considered that the current proposal is acceptable in principle and not inconsistent with the overarching policy directions contained within the Colac Otway Planning Scheme, provided the amenity and environmental impacts of the proposal can be appropriately managed and the site is rehabilitated in an appropriate manner.*
>
> *It is considered of particular importance, in the event a Notice of Decision to Grant a Permit is issued, that appropriate conditions are included to protect the local environment, and the amenity and resources of local residents.*

The Committee concurs in principle with the general approach and findings above. In relation to policy, the Committee is clear that support for, and protection of, agricultural production in the Shire is a very significant policy direction in both State and local planning policy.

This does not mean that an application for stone extraction, which has its own support in planning policy and is a limited resource itself, cannot occur on agricultural land, but rather that the impacts on agricultural land must be able to be managed to an acceptable level.

As mentioned in earlier Chapters of this report the Committee is satisfied that the 64 hectares of the quarry application area is not a significant loss of agricultural land in the context of the surrounding area and the Shire.

The remaining issue then is whether residual impacts can be satisfactorily addressed via planning permit conditions. For most issues, the Committee is satisfied that they can be managed through permit conditions and standard good operating practise. The two determining issues that the Committee considers the application turns on are:

- Groundwater impacts
- Traffic noise impacts on 30 Mooleric Road.

These issues are discussed in detail in Chapters 2 and 3 and the analysis is not repeated here. The Committee concludes that these impacts can be satisfactorily managed through conditions on the planning permit; noting that for traffic noise this may require agreement of the landowners of 30 Mooleric Road.

The Committee is satisfied that following a review of the assessment in this report and the relevant decision guidelines in Tables 5 and 7 above, Clause 65 of the planning scheme and the objectives of the P&E Act, that a permit with conditions should issue.

6.6 Recommendation

The Committee recommends:

The Minister for Planning recommend the Governor in Council issue planning permit PP169/2014-1 for a quarry at 320 Mooleric Road, Ombersley with the conditions as shown in Appendix D of this report.

Appendix A Terms of Reference

NOTE

To reduce the electronic size of this document, Appendix A has been removed from this version of the report. Contact Planning Panels Victoria to obtain a complete copy of the report.

Appendix B Parties to the Hearing

Party	Represented by
Minister for Planning	Bart Gane, DELWP
Department of Environment Land Water and Planning (DELWP) – Planning and Approvals	Geoff Brooks
Colac Otway Shire Council	Barnaby McIlrath who called expert evidence in the following: - Chris Smitt (EHS Support) in Groundwater Hydrology - Frank Butera (ARUP) in Acoustics
Harold, Barbara, Geoffrey and Rodney Beach Mooleric Pastoral Pty Ltd Nigel, Tanya and Jorda Burnett Malcolm and Joyce Walters Russell and Rosemary Young	Nick Tweedie SC and Daniel Robinson of Counsel instructed by Rhodie Anderson of Rigby Cooke and calling expert evidence in the following: - Dr Ian Campbell (Rhithroecology) in Invertebrates - Alan Wade (Aquade) in Groundwater
Turkeith Homestead and Turkeith Mt Gellibrand	Tim and Mary Ann Holt
Jayne and Daryl Collins	Daryl Collins
Malcolm Gardiner	Neil Longmore of Neil Longmore Planning Lawyers and calling expert evidence in the following: - Peter Hay (Hay Property Group) in Stock and domestic water valuation
MCG Quarries Pty Ltd	Susan Brennan SC and Nicola Collingwood of Counsel instructed by Dale Cliff of Mills Oakley and calling expert evidence in the following: - Alan Richards (Terrock) in Blasting - Mark Venosta (Biosis) in Ecology - Stephen Hunt (Cardno) in Traffic - Andrew Rodda (Contour) in Planning - Neil Huybregts (Marshall Day) in Acoustics - John Nolan (Nolan Consulting) in Groundwater Hydrology - Ed Henty (Cardno) in Stormwater - Anthony Lane (Cardno) in Groundwater

Appendix C Document list

No.	Date	Description	Presented by
1	21/11/16	Joint Expert Statement – Groundwater	Ms Brennan for MCG Quarries
2	21/11/16	Joint Expert Statement – Acoustics	Ms Brennan for MCG Quarries
3	21/11/16	Joint Expert Statement – Ecology	Ms Brennan for MCG Quarries
4	21/11/16	Correspondence/Evidence Statement Mr Lane, Without legal privilege stamp	Ms Brennan for MCG Quarries
5	21/11/16	Draft Without Prejudice Planning Permit Conditions	Ms Brennan for MCG Quarries
6	21/11/16	Submission on behalf of Minister for Planning as RA	Mr Gane from DELWP
7	21/11/16	Submission from DELWP Barwon South West	Mr Brooks for DELWP
8	21/11/16	Submission	Mr McIlwrath for Colac-Otway Shire
9	21/11/16	Folder of attachments	Mr McIlwrath for Colac-Otway Shire
10	21/11/16	Extracts from Mineral Resources (Sustainable Development) Act	Mr McIlwrath for Colac-Otway Shire
11	21/11/16	Tract Consultants Documents and e-mails to Council 21 October 2014	Mr McIlwrath for Colac-Otway Shire
12	21/11/16	Peer reviews of Groundwater Management Strategy (Webb 27 November and 7 December 2014) and Stormwater Management Plan (Craigie 28 November 2014)	Mr McIlwrath for Colac-Otway Shire
13	21/11/16	Mr Smitt Overheads	Mr McIlwrath for Colac-Otway Shire
14	21/11/16	Correction of work authority area on Figure 8.1	Ms Brennan for MCG Quarries
15	21/11/16	Summary Analytical Solutions drawdown table prepared by Mr Nolan	Ms Brennan for MCG Quarries
16	21/11/16	Groundwater baseflow calculations prepared by Mr Nolan	Ms Brennan for MCG Quarries
17	21/11/16	Extract from National Water Commission modelling guidelines	Ms Brennan for MCG Quarries
18	22/11/16	Extract from Amendment C67 Panel Report	Mr McIlwrath for

No.	Date	Description	Presented by
			Colac-Otway Shire
19	22/11/16	NSW Traffic Noise Policy	Ms Brennan for MCG Quarries
20	22/11/16	Mr Wade Overheads	Mr Tweedie for Beach et. al.
21	22/11/16	Mr Butera Overheads	Mr McIlwrath for Colac-Otway Shire
22	22/11/16	Analytical Solutions drawdown table prepared by Mr Wade	Mr Tweedie for Beach et. al.
23	22/11/16	Baseline Groundwater Flow 'Sanity Check' prepared by Mr Wade	Mr Tweedie for Beach et. al.
24	22/11/16	Correspondence from Mr Smitt to Maddocks regarding Document 14	Mr McIlwrath for Colac-Otway Shire
25	23/11/16	Map of Hairy Burrowing Crayfish locations	Mr Tweedie for Beach et. al.
26	23/11/16	Listing order for ephemeral wetlands under EPBC Act	Mr Tweedie for Beach et. al.
27	23/11/16	Submissions	Mr Tweedie for Beach et. al.
28	23/11/16	2 x A3 plans showing objector properties	Mr Tweedie for Beach et. al.
29	23/11/16	*Norville Nominees Pty Ltd v Strathbogie SC* [2007] VCAT 2389	Mr Tweedie for Beach et. al.
30	23/11/16	*Malcolm McClure Pty Ltd V Greater Bendigo CC* [2004] VCAT 1005	Mr Tweedie for Beach et. al.
31	23/11/16	*Clayton Sands Pty Ltd v Kingston CC* [2007] VCAT 766	Mr Tweedie for Beach et. al.
32	23/11/16	*Gibson v Moyne SC* [2014] VCAT 916	Mr Tweedie for Beach et. al.
33	23/11/16	Submission/Evidence	Mr Holt
34	23/11/16	Submission	Ms Holt
35	23/11/16	Beach Family Farm Financial Analysis	Mr Longmore for Mr Gardiner
36	23/11/16	Letter of Instruction from Mr Longmore to Mr Peter Hay	Mr Longmore for Mr Gardiner
37	23/11/16	Submissions and Attachment	Mr Longmore for Mr Gardiner
38	2/12/16	Geology map, Barwon Water brochure on water	Mr Longmore for

No.	Date	Description	Presented by
		efficiency grants, Environmental strategy for Araluen Elms	Mr Gardiner
39	2/12/16	Submission	Mr Collins
40	2/12/16	Instructions to A. Lane dated 21 November 2016	Ms Brennan for MCG Quarries
41	2/12/16	Legend to Pt 38 Geology Map	Mr Longmore for Mr Gardiner
42	2/12/16	File note from Mr Lane dated 25 November 2016	Circulated via e-mail for MCG Quarries
43	2/12/16	Assoc. Prof. Webb response to submissions dated 27 November 2014	Ms Brennan for MCG Quarries
44	2/12/16	Mr Nolan Overheads	Ms Brennan for MCG Quarries
45	2/12/16	Groundwater expert evidence of Mr Valenza to VCAT 11 August 2011	Ms Brennan for MCG Quarries
46	2/12/16	Extract from Groundwater Flow Systems prepared by Dahlhaus et. al. dated 22 May 2002	Ms Brennan for MCG Quarries
47	2/12/16	Groundwater expert evidence of Mr Hoxley to VCAT 15 August 2011	Ms Brennan for MCG Quarries
48	2/12/16	Borehole WTG 56 Log from Mt Gellibrand Windfarm	Ms Brennan for MCG Quarries
49	2/12/16	Extract from Corangamite CMA Issues Paper on Barwon River environmental flows dated August 2005	Ms Brennan for MCG Quarries
50	2/12/16	'Calculating Transmissivity' worksheet	Mr Tweedie for Beach et. al.
51	2/12/16	Stream Water Level in Birregurra Creek and Ricketts Marsh table	Mr McIlwrath for Colac-Otway Shire
52	6/12/16	Mr Henty Overheads	Ms Brennan for MCG Quarries
53	6/12/16	Set of A3 Plans including staging plan	Ms Brennan for MCG Quarries
54	6/12/16	Truck Traffic Volume Table prepared by Mr Hunt	Ms Brennan for MCG Quarries
55	12/12/16	Correspondence dated 7 December 2016 regarding Mr Huybregts' report	Ms Brennan for MCG Quarries
56	12/12/16	Mr Smitt's comments on Lane table (Document 42)	Mr McIlwrath for Colac-Otway Shire

No.	Date	Description	Presented by
57	12/12/16	Mr Wade's comments on Lane table (Document 42) – note only Chapter 4 and Appendix B accepted by AC	Mr Tweedie for Beach et. al.
58	12/12/16	Anthony Lane chronology of instructions	Ms Brennan for MCG Quarries
59	12/12/16	Proposal for expert advice and evidence from Mr Lane to MCG Quarries dated 22 April 2015 (without quote)	Ms Brennan for MCG Quarries
60	12/12/16	Mr Huybregts Overheads	Ms Brennan for MCG Quarries
61	12/12/16	Mr Venosta Overheads (note slides 21 onwards not accepted by AC)	Ms Brennan for MCG Quarries
62	12/12/16	Appendix from Responses of birds to quarry blasting and local aircraft disturbance paper	Ms Brennan for MCG Quarries
63	12/12/16	Not used	
64	14/12/16	Revised draft planning permit conditions	Ms Brennan for MCG Quarries
65	14/12/16	Submissions on validity of planning permit conditions	Mr Tweedie for Beach et. al.
66	14/12/16	Main submission	Ms Brennan for MCG Quarries
67	14/12/16	Folder of Authorities	Ms Brennan for MCG Quarries
68	14/12/16	Photos (3) around Mooleric Swamp and Ricketts Marsh	Ms Brennan for MCG Quarries
69	14/12/16	Bell Cochrane Report on Stewart Property Ombersley – Basalt Source Rock Quality	Ms Brennan for MCG Quarries
70	14/12/16	Submission in reply	Mr and Ms Holt
71	14/12/16	Submission in reply	Mr Tweedie for Beach et. al.
72	14/12/16	Diagram – The Nolan Method	Mr Tweedie for Beach et. al.
73	14/12/16	Submission in reply	Mr Longmore for Mr Gardiner
74	14/12/16	Council permit conditions markup	Mr McIlwrath for Colac-Otway Shire
75	14/12/16	Example weighbridge dockets	Ms Brennan for MCG Quarries
76	14/12/16	Package of authorities	Mr Tweedie for Beach et. al.

Appendix D Recommended planning permit conditions

Planning Permit PP169/2014-1 for the Use and Development of Land for Stone Extraction at 320 Mooleric Road, Ombersley:

Amended Plans

1. Prior to commencement of the use and/or development hereby permitted, amended plans and reports to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved the plans and reports will be endorsed and will then form part of the permit. The plans must be drawn to scale with dimensions and three copies of all documents must be provided. The plans and reports must be generally in accordance with the plans submitted with the application, but modified to show/include:

    a) Locations, elevations and a colours/materials/finishes schedule of all proposed buildings, fences, and fixed plant and equipment.

    b) Details of any signage proposed.

    c) A 50m buffer to Victorian Aboriginal Heritage Registered Site VAHR 7621-0373 as generally shown on the Development Plan Drawing NS 1428 dated 16 September 2015.

    d) The relocation of the southern boundary of the work authority area to the south by approximately 15m so as to include all buffer vegetation and the quarry access arrangements.

    e) The inclusion of swale drains along the eastern and southern boundaries to reflect the requirements of the Storm Water Management Plan prepared by Cardno Consultants Pty Ltd referred to at Condition 13.

Endorsed Plans

2. The use and development as shown on the endorsed plans must not be altered without the written consent of the Responsible Authority.

3. The use and development must at all times be in accordance with the endorsed plans, and the Work Authority, including the endorsed Work Plan, issued pursuant to the Mineral Resources (Sustainable Development) Act 1990.

Staging

4. The use must proceed in the order of the stages as shown on the endorsed plans unless otherwise agreed in writing by the Responsible Authority.

Title Consolidation

5. Prior to the commencement of the use and/or development hereby permitted, Lot 1 on TP372519Q (Vol. 10991 Fol. 356) and Lot 2 on TP372519Q (Vol. 10991 Fol. 355) must either be consolidated into one parcel or the owner of the land must enter into an Agreement with the Responsible Authority pursuant to Section 173 of the Planning and Environment Act 1987 to ensure that either lot cannot be disposed of separately during the life of the quarry operations and/or permit.

Any Section 173 agreement must be in a form to the satisfaction of the Responsible Authority, and the applicant must be responsible for the expense of the preparation and registration of the agreement, including the Responsible Authority's reasonable costs and expenses (including legal expenses) incidental to the preparation, registration and enforcement of the agreement.

The agreement must contain covenants to be registered on the relevant titles of the property so as to run with the land. The agreement will be registered on Title in accordance with Section 181 of the Planning and Environment Act 1987.

Hours of operation

6. The use hereby permitted must operate only between the hours of:

a) 7am to 6pm, from Monday to Friday (however no truck is to enter the site prior to 7.15am)

b) 7am to 1pm on Saturdays (however no truck is to enter the site prior to 7.15am)

No operation is permitted on Sundays or Public Holidays.

Construction Hours

7. Unless with the prior written consent of the Responsible Authority, construction works (including the construction of access ways and other preparatory works that do not form part of the extractive process) on the site must only occur between the following times:

a) 7am to 6pm, from Monday to Friday

b) 7am to 1pm on Saturdays

No construction is permitted on Sundays or Public Holidays.

Output

8. The total output from the quarry must not exceed 200,000 tonnes per annum.

Groundwater Management Strategy

9. Prior to commencement of the use and/or development hereby permitted, a revised Groundwater Management Strategy to the satisfaction of the Responsible Authority on the advice of Southern Rural Water, must be submitted to and approved by the Responsible Authority. When approved, the Groundwater Management Strategy will be endorsed and will form part of the permit. The Groundwater Management Strategy must be generally in accordance with the 'Groundwater Management Strategy' contained within the Statement of Evidence on Groundwater Matters prepared by Nolan Consulting and dated 10 August 2015 but modified to include the following requirements:

Groundwater model

a) Within three years of commencement of dewatering the development of a calibrated and validated groundwater model to be used as a predictive tool for the implementation of monitoring and response in the groundwater management strategy.

Additional bore monitoring

b) Establishment and quarterly level and water quality monitoring of a total of 5 (five) new groundwater monitoring bores in approximate locations:

I. Bore A - south of site and in northern segment of Mooleric swamp (on roadside reserve or on private property).
II. Bore B - 150m north of the northwest corner of the Work Authority boundary
III. Bore C - 150m north of the northeast corner of the Work Authority boundary
IV. Bore D - 200m south of the southeast corner of the Work Authority boundary
V. Bore E - 200m south of the southwest corner of the Work Authority boundary.

Bore census

c) The census of private bores (Table 7-4) within 2km be modified to include:

I. Surface elevation to AHD at bore measurement datum
II. Bore location to Australian Map Grid
III. ore registration number
IV. Bore depth in metres
V. Bore age in years
VI. Casing depth extension below ground level in metres
VII. Groundwater inlet depth interval and type in metres of slotted or screened casing or open hole
VIII. Water level and date
IX. Pump inlet setting in metres below ground level
X. Pump discharge capacity in L/m
XI. Water level decline over 1 day of normal operational pumping.

Groundwater triggers

d) If the water level in any monitoring or bore identified in the census declines by 2m or more than the natural trend (based on a review of SOBN trends) or if the pump yield capacity declines by 15% then mitigation measures be offered within 24 hours of the detection of the trigger breach to protect stock and domestic water supply including as necessary:

- **I.** Trucking in water
- **II.** Increasing the water bore depth or replacing the bore
- **III.** Extending the pump to greater depth in the bore
- **IV.** Providing a pumped supply from the quarry groundwater storages to the affected property by pipe
- **V.** Other agreed actions with the landowner to satisfy justifiable water demand.

Pollution control

e) Pollution control measures to ensure there is no polluted seepage from the work site into the groundwater.

10. The triggers set out in the endorsed Groundwater Management Strategy must be adhered to at all times to the satisfaction of the Responsible Authority.

11. All mitigation measures must be undertaken in accordance with the details in the endorsed 'Groundwater Management Strategy' to the satisfaction of the Responsible Authority.

12. Groundwater monitoring, reporting and review must be forwarded to Southern Rural Water annually.

Stormwater Management

13. Prior to commencement of the use and/or development hereby permitted, a 'Stormwater Management Plan' to the satisfaction of the Responsible Authority on the advice of Southern Rural Water, must be submitted to and approved by the Responsible Authority. When approved the report will be endorsed and will form part of the permit. The Stormwater Management Plan must be generally in accordance with the 'Stormwater Management Plan, MCG Quarry – 320 Mooleric Road, CG140148 prepared by Cardno dated 10 August 2015 but modified to include:

a) Any changes required to the Development Plan and Rehabilitation Plan required under Condition 1 to this permit.

b) Pollution control measures to ensure there is no polluted seepage from the work site into surface waters.

c) Channel sizes/depths and levee heights must respond to controls imposed by existing inlet and outlet drainage inverts and flood levels, or otherwise with the written consent of the Responsible authority.

d) The recommendations by Australian Runoff and Rainfall (ARR) current at the date of this permit must be used for estimation of peak drainage flows in final channel and levee design.

e) The proposed water dam shown within WA 1546 in the southeast corner must be adequately quarantined against interception of external catchment runoff at all times.

14. Sediment runoff from the site must be retained on site during and after operations. Controls, particularly on steep slopes, must be in accordance with the Environment Protection Authority (EPA) recommendations detailed in the 'Construction Techniques for Sediment Pollution Control' No. 275, May 1991. Sediment control structures such as sediment basin, sediment fences and sediments traps must be installed prior to the commencement of operations and maintained post development to the satisfaction of the Responsible Authority.

Environmental Management Plan

15. Prior to the commencement of each stage of the extraction, an Environmental Management Plan for each stage to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the Environmental Management Plan(s) will be endorsed and will then form part of the permit. The Environmental Management Plan(s) must include:

a) Overall environmental objectives for the operation of the use and techniques for their achievement.

b) Procedures to ensure that no significant adverse environmental impacts occur as a result of the development and use.

c) Identification of possible risks of operational failure and response measures to be implemented, including, but not limited to, the following:

- **I.** Erosion Control
- **II.** Flora and Fauna Protection, including management of weeds
- **III.** Air Quality
- **IV.** Noise and Vibration
- **V.** Land and Groundwater Contamination Management
- **VI.** Waste Management and Minimisation
- **VII.** Storage and Handling of Fuels and Chemicals
- **VIII.** Neighbourhood Management and Communication, including detail of how any complaints will be assessed and addressed, having regard to issues such as the impact/severity, frequency and duration of any alleged incident

d) Day to day management requirements for the use.

e) An annual review or audit to the satisfaction of the Responsible Authority, with any consequential changes to the Environmental Management Plan submitted to the Responsible Authority for endorsement.

Traffic Assessment and Design

16. Prior to commencement of the use and/or development, a Traffic Assessment and Pavement Report to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. The Traffic Assessment and Pavement Reports must include:

a) An analysis of the existing road conditions and pavement analysis.

b) Quantified detail of the site establishment and ongoing operational traffic requirements.

c) An investigation and identification of pavement composites to reduce noise emissions.

17. The pavement investigation carried out to inform the pavement analysis must be carried out in the presence of a suitably qualified Council officer, to the satisfaction of the Responsible Authority.

18. Prior to commencement of the use and/or development, a Road Improvement Design to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. The Road Improvement Design must refer to the findings of the Traffic Assessment and Pavement Report, and when approved will be endorsed and will then form part of the permit. The Road Improvement Design must include the following specifications:

a) The road from the intersection with the Princes Highway to a point 5m beyond the northern most site access must be designed to a 100km/h standard and a 6.5-7.0m sealed width plus 0.9m shoulders.

b) The use of noise reducing pavement composites to the satisfaction of the Responsible Authority.

c) The design must include any necessary drainage improvements.

19. Prior to commencement of the use and/or development, and with the agreement of the owner of the dwelling at 30 Mooleric Road, a pre-conditions survey (dilapidation report) of the dwelling at 30 Mooleric Road must be undertaken to the satisfaction of the Responsible Authority. Any further surveys must be undertaken with the approval of, and to the satisfaction of, the Responsible Authority:

a) At intervals not exceeding five years

b) At the request of the owner of 30 Mooleric Road.

20. Any restitution works identified in the survey in Condition 19 must be carried out at the cost of the Applicant to the satisfaction of the Responsible Authority.

21. Prior to the commencement of commercial quarry sales, the upgrades to Mooleric Road (as specified within the endorsed Road Improvement Design) must be constructed and completed to the satisfaction of the Responsible Authority (the upgrades to Mooleric Road may be constructed and completed with rock from the quarry).

22. Prior to the commencement of commercial quarry sales, the areas set aside for the parking of vehicles within the subject site as shown on the endorsed plans must be:

a) Constructed;

b) Properly formed to such levels that they can be used in accordance with the plans;

c) Surfaced with an all-weather surface; and

d) Drained to the satisfaction of the Responsible Authority.

The areas set aside for the parking of vehicles may be constructed with rock from the quarry.

Traffic Management Plan

23. Prior to commencement of the use and/or development, a Traffic Management Plan to the satisfaction of the Responsible Authority must be submitted to, and approved by, the Responsible Authority, which includes the following:

a) The objectives for traffic management; particularly relating to speed control, such as travelling at a speed not exceeding 40 km/hour on Mooleric Road, truck movements on Mooleric Road and operating hours.

b) Identify measures to ensure the traffic specifications set out in Conditions 26-33 below are complied with.

c) Signage including for speed control and safety.

d) A program for ensuring that all trucks attending the site are maintained according to the manufacturer's specifications / recommendations.

e) An induction and training program for all truck drivers attending site to ensure traffic management objectives are understood and achieved.

f) Measures to ensure quarry trucks do not deposit unreasonable mud or soil on the road surface.

g) Measures to ensure truck loads are covered to minimise dust escape.

h) Measures to monitor dust levels from the Mooleric Road verges and trigger levels that require water sprays be used to suppress dust on those verges.

24. The operator must provide to all truck drivers attending the site a copy of the Traffic Management Plan referred to at Condition 23.

25. The operator must provide to any party who purchases or transports rock from the quarry a copy of the Traffic Management Plan referred to at Condition 23.

Traffic Specifications

26. The operator must ensure that trucks attending the site do not travel at a speed exceeding 40km per hour on Mooleric Road.

27. No more than 5 trucks may enter and leave the site per hour.

28. Trucks are not permitted to enter or leave the site before 7:15am.

29. All heavy vehicles associated with construction and extraction works must access the quarry site via that section of Mooleric Road between the site access and Princes Highway unless otherwise approved in writing by the Responsible Authority.

30. The loading and unloading of vehicles and delivery of goods to and from the site associated with the permitted use and development must at all times occur within the work authority boundary.

31. Trucks exiting the site must have the load covered to limit dust or stone coming off the load whilst travelling on public roads, to the satisfaction of the Responsible Authority.

32. The operator must include as a term of any contract for the purchase or transport of rock from the quarry a requirement that trucks must not travel at a speed exceeding 40km per hour on Mooleric Road.

33. The operator must keep a register of truck drivers accessing the site and each truck driver must sign the register to certify that they have read the Traffic Management Plan, with a particular reference to the requirement to travel at 40km/hour, and agree to comply with it.

Traffic Monitoring

34. The operator shall conduct quarterly tube testing of truck speeds and quantities outside the dwelling at 30 Mooleric Road for a period of one year from commencement of commercial quarry sales, to the satisfaction of the Responsible Authority.

35. At the conclusion of the annual tube testing period the operator must provide to the Responsible Authority a copy of the testing results, together with a report from a suitably qualified traffic engineer which confirms the results of the

testing, to the satisfaction of the Responsible Authority.

36. The Responsible Authority may, at any time after the cessation of the test period (1 year) request the operator to provide further tube testing over the course of one week, to confirm that trucks are traveling at a speed no greater than 40km/h.

Noise

37. Prior to the commencement of the use and/or development, an Acoustic Report/Noise Impact Assessment to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved the Acoustic Report/Noise Assessment Report will form part of the permit. The Acoustic Report/Noise Impact Assessment must be generally in accordance with the 'Noise Impact Assessment' submitted as part of the application (completed by Marshall Day and dated 15 August 2015).

38. The noise mitigation measures set out in the approved Noise Impact Assessment must be implemented/constructed prior to the commencement of the permitted use, at no cost to the affected landowner at 30 Mooleric Road or the Responsible Authority, unless the consent of the affected landowner to such works is withheld, or if an alternative measure is agreed in writing with the affected landowner and Responsible Authority.

39. All vehicles and mobile equipment operation on-site must be fitted with broadband smart beepers that adjust beeper levels in accordance with the ambient noise environment, to the satisfaction of the Responsible Authority.

40. All hydraulic rock drilling must utilise localised acoustic shielding where necessary, to the satisfaction of the Responsible Authority.

41. Any rock breaker/rock hammer used on the land must utilise best available noise reducing technology, to the satisfaction of the Responsible Authority.

42. No broadcast or loudspeaker system, telephone ringer or other external alarm may operate on the site except for a warning alarm for blasting, or as mandated by WorkSafe or any other regulation, to the satisfaction of the Responsible Authority.

Blasting

43. Prior to the commencement of the use and/or development, an 'Effects of Blasting' report to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved the 'Effects of Blasting' report will be endorsed and will form part of the permit. The 'Effects of Blasting' report must be generally in accordance with the 'Effects of Blasting, Revision 2' report prepared by Terrock dated 10 August 2015 and modified to show:

a) Monitoring of the initial blast testing at 4570 Princes Highway.

44. Blasting must occur no more than twelve (12) times per annum and must only be undertaken between the following times:

a) 10.00am – 3.00pm Monday to Friday (not including public holidays)

An exception will be allowed when, for unforeseen circumstances, explosives must be detonated prior to blasting finishing on the nominated day.

45. Blasting must not occur at the quarry for a period of 48 hours after foundations have been poured for the construction/erection of wind turbines at the Mt Gellibrand Wind Farm, subject to written notice of the pouring of the foundations being provided by the wind farm operators.

46. Rock drills and rock hammers/rock breakers must only be used between the hours of 8am and 5pm Monday to Friday, with the exception of Public Holidays when no blasting is permitted.

47. Blasting must only occur within the boundaries of the proposed extraction area. No exclusion zones are permitted to overlap onto adjoining private land.

48. Blasts within 160m of Mooleric Road must face towards the east (away from the road).

49. If a blast is within 100m of Mooleric Road, traffic along Mooleric Road must be stopped during the period of pit clearance until the 'all clear' is given.

50. The minimum stemming height must be increased to a maximum of 5m where blasting is within 30m of Mooleric Road.

51. All blasting impacts at the nearest dwellings as measured in accordance with Condition 54 must comply with the following standards:

a) Ground Vibration
- **I.** <5mm/s for 95% of blasts in a 12 month period,
- **II.** 10mm/s for all blasts

b) Air Vibration
- **I.** <115dBL for 95% of blasts in a 12 month period
- **II.** 120 dBL for all blasts

52. All blasting impacts at any wind turbines within 1km of the boundary of the Works Authority area as measured in accordance with Condition 54 must comply with Australian Standard AS2187.2-2006.

53. Flyrock must not leave the boundary of the site at any time.

54. Air and ground vibration monitoring must be undertaken at the intersection of Darcy's Lane and Mooleric Road to determine by extrapolation the vibration levels at the nearest dwellings and at all wind turbines within 1km of the boundary of the Works Authority Area. The measured vibration levels must be reported to the Responsible Authority every six (6) months and must be available for viewing by the Responsible Authority when requested.

55. Should it be found that the air and/or ground vibration levels exceed the standard allowed under Conditions 51 or 52 of this permit, the Responsible Authority must be notified as soon as possible and all blasting must cease until a further 'Effects of Blasting' report, which identifies why the standards were breached and how future blasting will prevent further breaches, is submitted to and approved by the Responsible Authority. Any subsequent blasting must accord with the amended report.

Notice of Blasting

56. The quarry operator must give written notification of any proposed explosives blast to the satisfaction of the Responsible Authority to:

a) All landowners and occupiers of directly adjoining land, and any other occupiers within 2km, at least three business days before each scheduled blast.

b) The owner/operator of the Mt Gellibrand wind farm (allowed by planning permit PL-SP/05/0257) at least seven days before each scheduled blast until the construction of all wind turbines within 2km of the Work Plan Area has been completed, and thereafter at least three business days before each scheduled blast.

c) Powercor at least three business days before each scheduled blast.

The written notice must contain direct contact details for the responsible site manager and information regarding any road closure. An exception will be made when, for unforeseen circumstances, explosives must be detonated prior to blasting finishing on the nominated day.

57. Prior to the first explosives blast taking place each year, the bores within 2km of the Works Authority Area must be inspected and the condition recorded, if a written request from the relevant property owner(s) is submitted to the permit holder at least 24 hours before the blast event. The recorded bores must be re-inspected within a week of the blast taking place and, in the event the bore has been damaged by the blast, the bore must be repaired or replaced to the satisfaction of the Responsible Authority. An inspection is not required if access to a property is not allowed by the landowner.

Dust Management Plan

58. Prior to the commencement of the use and/or development, a Dust Management Plan to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will then form part of the permit. The plan must include:

a) Details as to how dust will be managed on site.

b) Measures to demonstrate how activities that generate dust will be sited away from the Brolga breeding wetland 750 metres to the north-east of the quarry.

c) Establishment of bunding/overburden and maintenance of a buffer zone between active quarrying activities and the site boundary.

d) Details about when quarrying activities will cease on site due to weather conditions that could result in visible dust being discharged beyond the boundaries of the site.

e) Details about how dust will be monitored, including compliance with the State Environmental Protection Policy (Air Quality Management) 2001.

f) Contingency measures to deal with any elevated dust conditions.

59. Any failure to meet the standards of the State Environmental Management Policy (Air Quality Management) must immediately be brought to the attention of the Environment Protection Authority and actions specified by that Authority to bring the use into compliance must be carried out to the satisfaction of the Responsible Authority.

60. No chemical dust suppressant may be used on the site without the prior written permission of the Responsible Authority.

Landscape Plan

61. Prior to the commencement of the use and/or development, a landscape plan to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will then form part of the permit. The plan must be drawn to an appropriate scale with dimensions and three copies must be provided. The plan must show:

a) Creation of a vegetative screen along the frontage to Mooleric Road.

b) Landscaping to the full extent of the boundary of the Work Authority Area buffer (with the exception of gaps for vehicle access, drainage, etc.), including a combination of lower and upper canopy higher planting

c) A section drawing of the indicative buffer treatment, similar to that provided in the plans submitted with the application but modified as appropriate to indicate how the plantings will obscure views into the Works Authority Area from outside the site.

d) Planting schedule of all proposed trees, shrubs and ground covers, including botanical names, common names, sizes at maturity, and quantities of each plant, including the early planting of the vegetative screen along the frontage to Mooleric Road. Plant species should be EVC appropriate indigenous species.

e) A management plan or working plan for the ongoing viability of the vegetation planted as part of this landscape plan.

62. The existing row of planting within the site generally located between the property frontage and the buildings must be retained until the later stages of the quarry are commenced.

63. Prior to commencement of the use, or by such later date as is approved by the Responsible Authority in writing, the landscaping works shown on the endorsed plans must be completed to the satisfaction of the Responsible Authority.

64. The landscaping must thereafter be maintained to the satisfaction of the Responsible Authority, including that any dead, diseased or damaged plants are to be replaced, until such time that the subject site operates under the Rehabilitation Plan.

Cultural Heritage Management

65. Prior to the commencement of use and/or development, a suitably qualified and experienced Cultural Heritage Advisor must be engaged to be present during the removal of the three (3) Stony Rises, as identified on Map 3A *Inspection Results - Landforms and Sensitivity* within the submitted 'Cultural Heritage Due Diligence Assessment Report' by Ecology and Heritage Partners dated 27 May 2014. The Advisor is to ensure that any Aboriginal cultural heritage material within these three areas can be identified and, should any Aboriginal cultural heritage material be found, the actions identified under Condition 66 of this permit must be followed.

66. Should any Aboriginal cultural heritage be discovered during any works undertaken as part of the planning permit, the following must occur:

a) The person in charge or the site manager of the activity within the Works Authority area must be notified immediately.

b) The person in charge or the site manager of the activity must suspend all activity and works at the location of the discovery and within 20m of the extent of the Aboriginal cultural heritage.

c) Within a period of two business days, the person in charge or site manager must engage an appropriately qualified and experienced Cultural Heritage Advisor and inform them of the discovery.

d) The Cultural Heritage Advisor must be engaged to assess the discovered Aboriginal cultural heritage, record, catalogue and analyse the cultural heritage material and complete new site cards for the discovered Aboriginal cultural heritage.

e) The Cultural Heritage Advisor must notify the Office of Aboriginal Affairs Victoria (OAAV) of the discovery by lodging either a new or updated Victorian Aboriginal Heritage Register (VAHR) site record card within a timely manner.

f) If ongoing impacts to the Aboriginal cultural heritage site cannot be avoided, the proponent must apply for a Cultural Heritage Permit (CHP) under the Aboriginal Heritage Act 2006.

g) Work in the excluded area must not recommence until any conditions stipulated in the CHP have been complied with and any ongoing works must comply with the CHP.

Notwithstanding the above, every effort must be made to avoid or minimise harm to Aboriginal cultural heritage.

Services

67. Any buildings that are constructed on the site and have toilet facilities must be connected to reticulated sewerage, if available. If reticulated sewerage is not available, all wastewater must be treated and retained within the lot in accordance with the State Environment Protection Policy (Waters of Victoria) and Code of Practice – Onsite Wastewater Management under the Environment Protection Act 1970.

Rehabilitation Plan

68. Prior to commencement of the use and/or development, a Rehabilitation Plan (including section detail and staging) and accompanying Rehabilitation Report for the entire quarry site, to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the Rehabilitation Plan and Report will be endorsed and will form part of the permit. The Rehabilitation Plan and accompanying Rehabilitation Report must be generally in accordance with the Rehabilitation Plan submitted as part of the endorsed Work Plan (Tenement No. WA1546), to the satisfaction of the Responsible Authority, but modified to detail:

a) The objectives of the rehabilitation approach and the desired end land use(s) including how these uses will be achieved.

b) How the site will be made safe.

c) Planting schedule of all proposed trees, shrubs and ground covers, including botanical names, common names, sizes at maturity, and quantities of each plant. Plant species must be native to the local area.

d) Information about how the Rehabilitation Plan has been designed to encourage the formation of wetland habitat for native fauna.

69. Prior to the commencement of each stage of the rehabilitation of the site, a detailed Rehabilitation Plan for that stage, in general accordance with the overall Rehabilitation Plan endorsed under Condition 68 of this permit but having regard to operational experience and any changes in standards and techniques that may have occurred, must be submitted to and approved by the Responsible Authority. The rehabilitation works and plantings must be implemented in accordance with the approved rehabilitation plan for that stage of rehabilitation.

General

70. All external lighting must be fitted with suitable baffles or otherwise directed to prevent the emission of light outside the perimeter of the subject land to the satisfaction of the Responsible Authority.

71. Areas of the site occupied by the use and development hereby permitted must be maintained in a clean and tidy manner to the satisfaction of the Responsible Authority.

72. The use and development hereby permitted must be managed so that the amenity of the area is not detrimentally affected, through the:

a) Transport of materials, goods or commodities to or from the land;

b) Appearance of any building, works or materials;

c) Emission of noise, artificial light, vibration, smell, fumes, smoke,

d) Vapour, steam, soot, ash, dust, waste water, waste products, grit or oil; or

e) Presence of vermin and use of chemicals to eradicate pest animals and plants.

73. No materials, other than materials required to facilitate the quarrying activities approved by this permit or agricultural activities, are to be brought to or stored at that part of the site used or developed for extractive industry without the prior written consent of the Responsible Authority.

Consultative Committee

74. Prior to commencement of the use and/or development, a Quarry Consultative Committee must be established to consider all matters raised by representatives which reasonably pertain to the impact of the quarry operations. The Quarry Consultative Committee shall comprise, to the satisfaction of the Responsible Authority:

a) A convenor and one other person nominated by and representing the Responsible Authority.

b) Two representatives of the permit holder.

c) A representative of the Department of the Environment, Land, Water and Planning.

d) A representative of Southern Rural Water.

e) A representative of the Department of Economic Development, Jobs, Transport and Resources.

f) Two representatives of local residents/landowners

g) Other relevant representatives if deemed appropriate by the Responsible Authority.

Meetings of the Consultative Committee will be convened at least twice a year by the Responsible Authority. The permit holder must have regard to the recommendations of the Consultative Committee, to the satisfaction of the Responsible Authority.

The reasonable costs of the Consultative Committee must be borne by the permit holder, to the satisfaction of the Responsible Authority.

EPA conditions

75. Any fill material brought onto the proposed stone extraction site must meet the specifications contained in EPA publication IWRG621, *Soil Hazard Categorisation and Management 2009* or as amended.

76. Noise emitted from the premises must not exceed the recommended levels as set out in *Noise from Industry in Regional Victoria* (NIRV; EPA Publication 1411, 2011) or as amended.

77. No part of the quarry site may be used for landfill.

Ecology

78. Lights should be kept as close to the ground as practicable.

79. All artificial lighting should be designed and sited so that light spill to ecologically sensitive areas does not occur and all stationary light sources should be shielded so that they are not visible from any important habitats off-site.

80. Quarry activities that might involve vehicle or machinery lights should not be undertaken during the hours of darkness where there is potential for light spill to the north-east of the proposed quarry boundary.

81. The quarry operator must undertake a Brolga monitoring program on all quarry blasting days in two Brolga nesting seasons (July-October) when the identified Brolga breeding site located approximately 750m north-east of the quarry site boundary is in use by Brolga, to the satisfaction of the Responsible Authority on the advice of the Department of Environment, Land, Water and Planning. If, after two or more consecutive years of monitoring, it is found that the Brolga are unaffected by the blast vibration, the quarry operator may cease the Brolga monitoring program.

A report of this monitoring program must be provided to the Responsible Authority and the Department of Environment, Land, Water and Planning within 3 months of the end of each breeding season.

82. In the event the report documents that nesting appears to be significantly disturbed, or the nesting fails as a result of quarry blasting activity, the quarry operator must undertake a program of habitat restoration work, in an agreed timeframe, at a Brolga breeding site to be determined to the satisfaction of the Responsible Authority on the advice of the Department of Environment, Land, Water and Planning.

83. If the Mt Gellibrand Wind Farm is constructed all Brolga monitoring required by the Department of Environment, Land, Water and Planning and conducted in accordance with this permit should be, to the extent reasonably practicable to the satisfaction of the Responsible Authority, coordinated with any Brolga monitoring required to be undertaken by the Mt Gellibrand Wind Farm operator, particularly as it relates to the occupation of the known breeding site 750m to the north-east of the site within the Mt Gellibrand Wind Farm site.

Any surveys for Brolga should be undertaken in consultation with DELWP as to their design and method of implementation.

84. Before the commencement of construction, a targeted species survey of identified habitat for the Golden Sun Moth must be undertaken in accordance with the survey guidelines published by the Commonwealth Department of Energy and Environment.

VicRoads

85. Before the use and/or development approved by this permit commences, except to the extent required to provide rock for the purposes of the road works the subject of this condition, the following road works at the Princes Highway/Mooleric Rd intersection must be completed, to the satisfaction of, and at no cost to, VicRoads:

a) Right Turn Lane.

b) Left Turn Lane/Deceleration Lane.

86. Prior to the commencement of use and/or development, the applicant must enter into a works agreement with VicRoads confirming the following processes:

a) Construction design plans approval processes.

b) Construction works specification and tender approval processes.

c) Fees and associated services obligations.

d) Field surveillance methods and cost recovery processes.

Expiry

87. This permit will expire if one of the following circumstances applies:

a) The development and/or use has not commenced within two years of the date of this permit, or

b) The use is discontinued for a period of two years, or

c) The Work Authority for the use issued under the provisions of the Mineral Resources (Sustainable Development) Act 1990 is cancelled in accordance with Section 77O of that Act.

The Responsible Authority may extend the periods referred to in a) and b) if a request is made in writing before the permit expires or within six (6) months afterwards.

Notes

1. This permit does not authorise the commencement of any building works. Prior to commencement of the development, it will be necessary to apply for and obtain building approval for proposed works.

2. In the event that any changes to the design of the dams or the onsite groundwater management are required, a reassessment of the overall groundwater management strategy at the quarry and the submission of a revised Groundwater Management Strategy to the Responsible Authority will be required.

3. Any approval given by Southern Rural Water does not preclude the need to obtain other relevant Authority approval.

4. The use or extraction of groundwater or surface water for quarry operation including groundwater dewatering or irrigation must be licensed in accordance with Section 51 of the Water Act 1989.

5. All waste water must be treated and retained within the lot in accordance with the State Environment Protection Policy (Waters of Victoria) under the Environment Protection Act 1970.

6. All environmental weeds as outlined in 'Environmental Weeds of the Colac Otway Shire' brochure must be controlled on the property at all times and prevented from spreading to neighbouring land to the satisfaction of the Responsible Authority.

7. If the Golden Sun Moth is detected, a referral must be submitted under the Environment Protection and Biodiversity Conservation Act 1999 and any required offsets must be secured before construction commences in areas of the site which comprise identified Golden Sun Moth habitat.

8. No advertising signs may be erected, painted, or displayed on the subject land without a permit first being obtained from the Responsible Authority, unless the signage is exempt from the requirement for a permit under the provisions of the Colac Otway Planning Scheme.

Appendix E Procedural issues

A number of procedural issues were considered by the Committee during the course of the Hearing. The main ones are outlined below.

(i) Aboriginal cultural heritage

The issue of whether a mandatory CHMP was required was addressed in the Committee's interim report of 20 April 2016 and subsequent orders from the Governor-in-Council.

In the main merits Hearing, Mr Tweedie, for the main objectors' group, sought to make submissions in relation to whether the Committee could or should recommend a voluntary CHMP to the Governor-in-Council. In particular, Mr Tweedie suggested that a planning permit condition be inserted that a voluntary CHMP be prepared and approved under s45 of the *Aboriginal Heritage Act 2006* (the AH Act).

The Committee heard submissions from parties on whether this issue had been considered and determined under the above interim report the Committee.

The Committee determined that the Governor-in-Council order states no mandatory CHMP is required. Therefore, as the Applicant has previously stated it would not seek to undertake a voluntary CHMP, the Committee determined no further submissions needed to be heard in relation to a voluntary CHMP.

The Committee considered that any effort to make a voluntary instrument mandatory would be legally problematic, due to the very definition of a voluntary CHMP under the AH Act.

On that basis, the Committee directed parties to limit themselves to submissions as to any contingency conditions that it should consider if it was minded to recommend a planning permit be issued.

(ii) Standing

In its closing submissions, the Applicant submitted that Mr Gardiner was not an affected person as he lived remotely from the subject site and hadn't demonstrated how he would suffer material detriment arising from the proposal.

Mr Longmore, appearing on behalf of Mr Gardiner, sought to make a number of submissions and cross-examine witnesses on matters that did not appear to the Committee to be directly relevant to Mr Gardiner. The Committee agrees in principle with the Applicant's submission that whilst the TOR sought to broadly identify the issues for the Committee to consider, there were a number of matters Mr Gardiner sought to raise that the Committee considers do not go to the merits of this particular proposal, as opposed to broader landscape concerns about water management.

In any case the point is moot - the Committee was required under its TOR to consider all the "submissions and objections" made to the application and it has done so.

(iii) Admission of expert evidence

Due to the long gestation of the substantive merits Hearing, the submission of expert evidence was challenging for parties and the Committee. The original expert statements

were submitted in late 2015 prior to the scheduled VCAT Hearing and these were the primary witness statements relied upon in this Hearing.

Additional material was allowed to be introduced into the process throughout 2016 by this Committee, notably the statement of Mr Hay, a response to Mr Campbell's work by Mr Venosta and additional groundwater monitoring data from Mr Nolan.

During the Committee's main Hearing in late 2016, various parties attempted to introduce additional expert material in support of their respective cases, notably Mr Venosta, Mr Wade and Mr Lane.

This material was vehemently objected to by parties at different points in the proceedings. The Committee took submissions and made a number of rulings and directions about the admissibility of such additional expert material, whilst seeking to balance the duty to inform itself with the duty to provide natural justice to the parties within the framework of efficiently managing the Hearing.

The Committee does not intend to make a line by line analysis of the individual instances. The Committee notes that it considers its final position on the issues in dispute, as well as the procedural issues and rulings, have not prejudiced its overall findings and recommendations.