



## **Riverlee Corporation**

### Planning Panel C395 (COGG) for quarry emissions Quarry Noise Assessment

November 2019



6 November 2019

Derek Humphries  
C/O Asset 1  
Riverlee Corporation  
Unit 11, 41 Sabre Drive  
PORT MELBOURNE Victoria 3207

Our ref: 12519735-18989  
Your ref:

Dear Derek

**Planning panel C395 (COGG) for quarry dust emissions  
Expert Witness Statement**

Please find attached two documents to be used as my evidence in the City of Greater Geelong (COGG)  
Planning Panel amendment C395:

1. Statement for Expert Witness
2. GHD report adopted as majority portion of statement.

I have made all the enquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

Sincerely  
GHD

A handwritten signature in black ink, appearing to read 'Valeri Lenchine', with a long horizontal stroke extending to the right.

**Valeri Lenchine**  
Technical Director- Noise & Vibration  
+61 3 8687 8649

Attachment 1

## **1 Name and Address**

Dr Valeri Lenchine

c/- GHD 180 Lonsdale St Melbourne

## **2 Qualifications and Experience**

PhD (Mech./Aerospace Eng.- Acoustics and Vibr.), Samara State Aerospace University 1997

MSc. (Mech./Aerospace Eng., High Distinction), Samara State Aerospace University 1993

Member: Australian Acoustical Society, Acoustical Society of America A CV is attached as Appendix A.

Summary of Professional Experience:

- 2018 – current Technical Director, Noise & Vibration, GHD
- 2008 – 2018, Principal Adviser, Noise & Vibration Team Leader, SA Environment Protection Authority
- 2006 – 2008, Senior Consulting Engineer, Acoustics & Vibration, VIPAC Engineers and Scientists
- 2002 – 2005, Senior Research Engineer, Acoustics & Vibration, Samsung Electronics
- 1991 – 2002 Associate Professor (last appointment), Samara State Aerospace University
- 1995 – 2002 Head of Acoustic Measurement Lab.(last appointment), Machine Acoustics Institute

## **3 Areas of Expertise**

I am the Technical Director - Noise and Vibration in GHD's Melbourne office. I have combined consulting, regulatory and industry experience with noise and vibration assessments, modelling, monitoring and mitigation. My previous positions consulting firms, SA and VIC EPA's and my current position with GHD have provided me with over 26 years of experience in the area of acoustics and vibration. I have experience in providing advice to SA Planning Panels for different developments and land rezoning, development of regulatory documents as relevant to noise and vibration assessment.

## **4 Expertise to Prepare Report**

I have been involved in multiple projects involving acoustic and vibration assessments even before my graduation from university in 1993. While in the Public Service at the Environment Protection Authority I led or was involved in development of SA Wind Farms Environmental Noise Guidelines, SA Guidelines on Use of the Environment Protection (Noise) Policy 2007, Evaluation Distances for Effective Air Quality and Noise Management Guidelines. I also have been performing review of Victoria's Environment Protection policies SEPP N-1 and SEPP N-2 and Guidelines on Noise from Industry in Regional Victoria (NIRV) for the EPA Victoria. I have applied these guidelines and many other regulatory documents and

standards for numerous projects including for quarries, mines, industrial facilities and residential developments.

## **5 Facts, matters and Assumptions Relied Upon**

- Review of plans, reports and submissions
- Amendment C395 - Settlement Strategy and Northern & Western Geelong Growth Areas: <https://www.geelongaustralia.com.au/amendments/default.aspx>
- My experience relevant to environmental noise assessment from quarries and industrial sites
- My experience relevant to recommended separation distances for noise impact.

## **6 Documents to be taken into account**

- State Environment Protection Policy (SEPP N-1) (Control of Noise from Commerce, Industry and Trade) No. N-1, Victorian Government Gazette, Special, No S31 1989.
- Traffic Noise Reduction policy, Vic Roads, 2005.
- Noise from Industry in Regional Victoria Guidelines (NIRV), EPA Publication 1411, 2011
- SEPP N-1 and NIRV explanatory Notes, EPA Information Bulletin, Publication 1412, 2011
- Interpretation and application of VicRoads Traffic Noise Reduction Policy 2005, VicRoads 2010.
- Designation of Types of Zones and Reservations in the Metropolitan Region Planning Schemes for the purposes of State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) NO.N-1, EPA, 2000.

## **7 Identity of Persons Undertaking Work**

Valeri Lenchine (self), Barry Cook (GHD Project Manager and reviewer)

## **8 Summary of Opinions**

The substantive portion of my statement is given in the GHD report as Attachment 2.

## **9 Opinion**

My opinions are preliminary and based on information available at this stage.

Attachment 2



## **Riverlee Corporation**

### Planning Panel C395 (COGG) for quarry emissions Quarry Noise Assessment

November 2019

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# 1. Introduction

## 1.1 Project appreciation

GHD have prepared this preliminary noise assessment for Riverlee Corporation outlining the noise amenity assessment for the proposed development at 355 Church St, Fyansford (the site). The proposed development is for residential purposes and therefore requires a change to the land zoning.

Four industrial sites were identified in a desktop assessment focusing on a three kilometre radius from the site. These include the Batesford Quarry, Fyansford Waste Disposal (landfill), Regional Recycle and Perry Recycling/ Perry Demolition. An air quality buffer assessment indicated that the area intended for the residential development lays outside of default air quality buffers. Available regulatory documents do not provide recommendations for buffers from a noise perspective. Buffers for residential developments should be sufficient for existing land uses to meet requirements in relevant policies and guidelines. Available information shows that the Batesford Quarry has substantial remaining business life, with the Framework Plan suggesting a 'long-term' (over fifteen years) timeline. The Framework Plan and the amendment recognise the ongoing extractive operations of Batesford Quarry, maintaining the quarry within a Special Use Zone for the immediate future. The quarry can be considered as the major industrial noise source that may impact on residential receives at the subject area of proposed residential development (site).

## 1.2 Purpose of this report

David King of Kings Lawyers has provided a letter of instructions for preparing an expert witness statement for the C395 Planning Panel hearing. Expert witness statement declarations are made in a covering letter. The following sections (2, 3 and 4) set out my opinion based on a preliminary assessment of noise impact from Batesford Quarry.

The purpose of the preliminary assessment is to consider the impact from the quarry and other noise sources on the area intended for rezoning, with consideration of the Planning Scheme Clause 14.03-1S 'Resource exploration and extraction'. The Framework Plan and the amendment recognise the ongoing extractive operations of Batesford Quarry, maintaining the quarry within a Special Use Zone for the immediate future. The quarry can be considered as the major noise source that may impact on residential receives in the subject area.

The area intended for the residential development is adjacent to the major road of the M1. Typically, noise impact from roads is excluded from relevant noise policies and expected to meet requirements in documents specific to the road traffic.

## 1.3 Scope and limitations

This report has been prepared by GHD for Riverlee Corporation Pty Ltd and may only be used and relied on by Riverlee Corporation Pty Ltd for the purpose agreed between GHD and Riverlee Corporation Pty Ltd. This includes as a witness statement to be filed at the Panel hearing for COGG Amendment C395. GHD otherwise disclaims responsibility to any person other than Riverlee Corporation Pty Ltd arising in connection with this Report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this Report were limited to those specifically detailed in the Report and are subject to the scope limitations set out in the Report.

The opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the date of preparation of the Report. GHD has no responsibility or obligation to update this Report to account for events or changes occurring subsequent to the date that the Report was prepared.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect

GHD has prepared this Report on the basis of information provided by Riverlee Corporation Pty Ltd, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the Report which were caused by errors or omissions in that information.

#### **1.4 Assumptions**

The operating Batesford Quarry does not use equipment which is not typical for quarry operations.

The Batesford Quarry has operating hours as per their website: 7:00 am to 4:30 pm weekdays only.

Noise impact from small industrial operations is assumed to be minor compared to the Batesford Quarry operation.

## 2. Noise from industry operations

Four industrial sites were identified in a desktop assessment focusing on a three kilometre radius from the site. These include the Batesford Quarry, Fyansford Waste Disposal (landfill), Regional Recycle and Perry Recycling/ Perry Demolition.

A separate air quality buffer assessment indicated that the area intended for the residential development lays outside of default air quality buffers. Available regulatory documents do not provide recommendations for buffers from a noise perspective. Buffers for residential developments should be sufficient for existing land uses to meet requirements in relevant policies and guidelines.

It is assumed that Batesford Quarry is the dominant industrial noise source in the area. Fyansford Waste Disposal, Regional Recycle and Perry Recycling/Demolition are separated by more than a one kilometre buffer from the proposed development and possible noise impact from these small industrial operations is assumed to be minor.

### 2.1 Batesford Quarry - Noise Criteria

The site is located approximately 1.3 km from the quarry boundary as shown in Figure 2-1 together with air quality buffers. Current hours of operation of the quarry are 7:00 am to 4.30 pm weekdays only (information from the quarry web site). The quarry is outside of the Major Urban Area (Figure 2-2). This means that noise criteria in the State Environment Protection (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1) are not applicable to noise from the quarry. It should be noted that the subject land itself is within the Major Urban Area where the policy applies.

Noise from industrial sources outside of the SEPP N-1 is expected to meet requirements in Noise from Industry in Regional Victoria Guidelines (NIRV). The guidelines specify noise criteria based on comparison of baseline minimum criteria, planning zones criteria and background-based limits. In the absence of measured background levels, applicable noise limits for the quarry operations are summarised in Table 2-1. The Batesford Quarry is located in Special Use SUZ7 planning zone and it is assumed that the area under consideration (site) will be rezoned to Urban Growth Zone (UGZ) and eventually to one of the available Residential Zones (R#Z). Criterion of 50 dB(A) is applicable to day time operations in the quarry at the boundary of the planning zones. The NIRV has special provisions for "High traffic noise areas" with suggested day time limit of 55 dB(A) and background based limit. NIRV also has a section for "earth resources". It is expected that background levels in the area under consideration may be high due to proximity to the major road. Therefore 50 dB(A) is expected to be a conservative day time limit that may increase substantially after conducting background noise monitoring in the area.

**Table 2-1 NIRV noise limits based on the planning zones**

Operation specifications	Noise criterion, SPL dB(A)
Day	50
Evening	45
Night	40

## 2.2 Preliminary Noise Assessment - Quarry Noise

Details of the quarry operations are unknown at the moment. To achieve the 50 dB(A) criterion, total sound power of sources operated at the southeast boundary of the quarry should not exceed 117 dB(A) for a conservative sound propagation scenario over a fully reflecting surface. This estimate was obtained using the method in ISO 9613-2 *Acoustics- Attenuation of sound during propagation outdoors* which is suitable for generic downwind conditions favourable to the sound propagation from a noise source towards a receiver. This estimate was obtained taking into account distance attenuation and atmospheric absorption at 10 °C and 70% humidity without terrain effects. A more realistic scenario involves mixed ground (ground absorption parameter  $G=0.5$  instead of  $G=0$ ) increasing permissible sound power from the quarry activities up to 126.7 dB(A).

It is expected that the day time limit of 50 dB(A) can be met for conservative operation scenarios like simultaneous operation of a front end loader (Sound Power Levels (SPW) 113 dB(A)), truck (SPW 110 dB(A)) and bulldozer (35 ton, SPW 116 dB(A)) . It is considered that there is an additional attenuation due to the ground absorption for more realistic conditions of the sound propagation as described in the discussion above.

Taking into account the possibility of relatively high background in the area from the M1 freeway, the quarry operations may be eligible for a substantially higher criterion based on the background levels. It will increase the safety margin as this is relevant to assessing noise impact from the quarry. Operations of the quarry are confined to day time only and most likely will meet recommended noise criteria in NIRV. This can be confirmed by detailed assessment of background levels in the area and operational noise



**LEGEND**

- |                 |                            |                            |              |
|-----------------|----------------------------|----------------------------|--------------|
| Site boundary   | Landfill boundary          | Resource recovery boundary | SUZ7         |
| Quarry boundary | Concrete batching boundary | 500 m buffer               | 250 m buffer |



Map Projection: Universal Transverse Mercator  
 Horizontal Datum: Geocentric Datum of Australia 1994  
 Grid: Map Grid Of Australia, Zone 55



**Riverlee Corporation  
 Pty Ltd**

**Planning panel C389 (COGG) for  
 quarry dust emissions**

**Default Buffers**

Project No. **12519735**  
 Revision No. -  
 Date. **30/10/2019**

**FIGURE 2-1**



## **3. Other noise sources**

### **3.1 Other industries**

GHD does not have sufficient detail or information regarding other significant noise sources in the area including the size of operations at the landfill and resource recovery sites to investigate possible noise impact from these operations. Aerial imagery of the sites suggests that these facilities are relatively small, therefore it is not anticipated that impact from the minor noise sources at significant separation distances will be other than negligible. Attended noise monitoring is recommended to identify if these other sources may be audible above traffic noise in the area.

### **3.2 Traffic noise**

The area that is suggested for the residential development (site) is located close to the M1 freeway. The VicRoads Traffic Noise Reduction Policy contains noise criteria for new and upgrade road projects as well as noise mitigation retrofitting requirements for existing freeways and arterial roads.

The trigger level for considering noise attenuation measures in accordance with the Traffic Noise Reduction Policy is 68 dB(A) LA10(18hrs). There is no information of the current traffic noise impact on the adjacent area, therefore it is difficult to tell if any retrofitting program will be expected if residential developments are to be allowed on the site. It should be noted that 68 dB(A) is a high noise level. VicRoads has substantial experience in incorporating noise barriers into freeways design, implementation of these measures can be seen in some parts of the existing M1 freeway. If necessary, noise impact from the highway can be effectively mitigated and relevant planning conditions can stipulate implementation of noise mitigation measures if residential developments are to be allowed on the subject land. Relevant planning conditions at the time of development should provide information that clarifies if noise mitigation measures are necessary for future sensitive land uses.

Noise monitoring of the traffic noise in the area intended for the residential development would also be useful for establishing background based noise limits for the industries in the area.

## 4. Summary

It is expected that both the Batesford Quarry and the M1 freeway may influence noise impact at the site. This preliminary noise impact assessment shows that noise from the Batesford Quarry most likely will meet limits recommended in NIRV. Effective solutions can be engineered to mitigate road traffic noise at any future sensitive receptors down to applicable levels if required. It is recommended to carry out a noise monitoring program to confirm noise limits for industrial noise and assess road traffic impact. A detailed acoustic assessment may be performed to show necessity and extent of noise mitigation measures that may be required to meet applicable noise criteria. Therefore noise mitigation measurements may be stipulated in a planning permit to ensure that acoustic amenity expected at any new residential zones will be acceptable.

GHD

Level 18 180 Lonsdale Street  
Melbourne VIC 3000

T: 61 3 8687 8000 F: 61 3 8687 8111 E: melmail@ghd.com

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26588/[https://projectsportal.ghd.com/sites/pp17\\_04/planningpanelc389cog/ProjectDocs/12519735-Rev-A\\_Quarry\\_Noise\\_Assessmnet.docx](https://projectsportal.ghd.com/sites/pp17_04/planningpanelc389cog/ProjectDocs/12519735-Rev-A_Quarry_Noise_Assessmnet.docx)

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Rev A	V. Lenchine	B. Cook				6/11/2019

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Appendix A



# Curriculum Vitae

## Valeri Lenchine

### Technical Director – Noise & Vibration



**Qualified.** MS, Aerospace & Mechanical Engineering  
PhD, Acoustics & Vibration

**Connected.** Member, Australian Acoustical Society  
Member, Acoustical Society of America

**Relevance to project.** Valeri (Val) Lenchine is the Technical Director- Noise & Vibration, GHD's Melbourne office. Previously he worked as the Principal Noise Adviser and Noise & Vibration Team Leader in SA EPA. He has decades of experience in assessment of different developments and impact from industries, infrastructure, equipment and defence related projects. Valeri managed multiple projects relevant to development of methodologies and regulatory documents applicable to major roads, railways, wind farms and other renewable energy plants, buildings and industries. Results of the projects have been incorporated into planning documents and policies. Valeri has 56 published works and patents in related areas.

Valeri has an expert knowledge in implementation and development of relevant national and international standards and guidelines along with deep understanding of monitoring and compliance checking practices. Auditing of major infrastructure, power and industrial projects is one of his major duties.

## Industrial Noise

**Predicting environmental impact** Industrial noise sources are expected to meet requirements in States' noise policies or conditions stipulated in development approvals or licensees. Valeri was engaged in analysis of predicted noise vibration from different industries including construction phase of projects where applicable.

**Industrial noise assessment** Industries represent significant noise sources. Some of the industries impact on surrounding residential areas. Examples of noise assessment that involved many sources include Adelaide Brighton Cement Plant, Technoport, power stations, mining sites and many others.

## Road & Rail Noise

**Guidelines and road/rail noise monitoring programs** Valeri was charged with task of introducing South Australia's guidelines for assessing noise from rail infrastructure. The Guidelines were introduced in 2013 and have been used for assessing rail projects since then. They are applicable to new and upgraded rail developments and contain recommendations on prediction and compliance checking of rail noise and vibration.

Valeri implemented rail noise monitoring programs in Pt Adelaide, Adelaide CBD and other areas. Valeri also participated in development of DPTI Road Noise Guidelines.

**Major road corridors** Strategic upgrades and new arterial roads projects must demonstrate compliance with applicable criteria. Valeri participated in auditing South Road Superway, Northern Expressway, Gallipoli Underpass and many other infrastructural projects in Adelaide metropolitan area.

Recent experience includes level crossings in Melbourne metropolitan area (Toorak Rd., Cardinia Rd., Mancheser Rd., Maroondah Hwy), M80 redevelopment, Millers Rd (West Gate), NEL proof works and other assessments.

Valeri has extensive experience in implementing VicRoads regulatory documents and practices for assessing new and upgraded roads.

**Transport noise and buildings** Transit oriented developments envisage convenience of quick commuting to different areas. At the same time level of exposures to transport noise and vibration may increase. SA EPA was engaged into introducing additional requirements for buildings located close to transport corridors. It resulted in specification of additional acoustic treatment requirements for building located close to rails and arterial roads.



# Curriculum Vitae

## National and State Regulations

**National Initiatives** SA EPA was involved into national and international programmes. Valeri participated in work of former National Environment Protection and Heritage Council on National Noise Labelling Scheme. His other involvement on national level included National Wind Farm Guidelines, rail noise and wind farm standards.

**State guidelines and legislations.** Valeri lead projects on introduction of 2009 update of SA's Wind Farms Environmental Noise Guidelines and projected 2019 amendment of the mentioned guidelines. Other projects include amendment of SA's Environment Protection (Noise) Policy 2007, review and amendment of Victoria's Environment Protection policies SEPP N-1 and SEPP N-2. Valeri also managed projects on SA's guidelines for assessing noise from rail infrastructure, participated in reviews of guidelines on use of the SA's Noise Policy, Evaluation Distances for Effective Air Quality and Noise Management and Guidelines on Noise from Industry in Regional Victoria (NIRV).

**Planning policies and procedures.** SA EPA got involved in wide range of planning policies and practices as relevant to preventing unacceptable environmental impact. Valeri contributed to strategic 30- year plan for greater Adelaide, development plans for Adelaide CBD and Pt Adelaide Enfield, Moreton Bay (QLD) and other councils' development plans and amendments.

Valeri also was engaged as an acoustic expert witness for assessing development applications referred to SA State Commission Assessment panel and its predecessors.