

**WHITEHORSE PLANNING SCHEME  
AMENDMENT C230WHSE  
490-500 BURWOOD HIGHWAY, VERMONT  
SOUTH  
EXPERT EVIDENCE - ACOUSTICS**

**Instructed by:**

Norton Rose Fulbright  
on behalf of Dandenong Views Pty Ltd

SLR Ref: 640.30634-R01  
23 January 2023

**SLR** 

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## BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Norton Rose Fulbright (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

## DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
640.30634-R01-v1.0	23 January 2023	Jim Antonopoulos	DW	JA

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## 1 Introduction

1. My name is Jim Antonopoulos and I am an acoustical consultant employed by SLR Consulting Australia Pty Ltd at Level 11, 176 Wellington Parade, East Melbourne, Victoria. I have previously worked for Graeme E. Harding & Associates (1996 to 2003) and Heggies Pty Ltd (2003 to 2010). SLR Consulting Australia Pty Ltd acquired Heggies Pty Ltd in 2010.
2. My academic qualifications include a Bachelor of Applied Science (Applied Physics) and I am a Member of the Australian Acoustical Society (M.A.A.S). I am a Technical Director grade consultant within my organisation and am the manager of the SLR Victorian acoustics and vibration team. A short CV is provided in **Appendix A**.
3. I have worked as an acoustical consultant in Melbourne since 1996. My areas of expertise include building and environmental acoustics. I have provided numerous acoustical assessments for development applications for residential, commercial and industrial developments throughout Melbourne and Victoria, and have been heavily involved in numerous VCAT and planning panel hearings for such matters over the last 10 years. I also regularly review development applications (for residential, mixed use or commercial buildings) on behalf of Council bodies.
4. With regard to the matter, I have:
  - Reviewed the provided material.
  - Considered Victorian planning provisions and legislation relating to noise.
  - Reviewed the proposal to rezone the land from the perspective of noise related issues.
  - Undertaken a brief site inspection on 20 January 2023.
  - Prepared this statement of evidence addressing the planning related noise issues and providing my opinion and recommendations in relation to the proposal.
  - My works did not include detailed investigations of the sources of noise around the site, nor did I determine formal EPA noise limits with long term monitoring, but I have provided what I consider is a reasonable identification of the risks and an appropriate approach going forward.
5. I have received and prepared this Statement with reference to the Planning Panels Victoria *Practice Note 1 – Expert evidence*.
6. I have no prior private or business relationship with Dandenong Views Pty Ltd (the proponent).
7. Having completed my investigations, I believe I have made all necessary enquiries and that no matters of significance, which I understand to be relevant to this matter, have been withheld from the Tribunal.

## 2 Instructions and Supplied Information

8. My instructions were provided by Norton Rose Fulbright in their briefing letters dated 12 and 18 January 2023. The instructions were to:
  - (1) Review the briefing materials provided to you in this matter;
  - (2) Consider the appropriateness of the proposed Amendment, having regard to relevant acoustic considerations;
  - (3) Prepare an expert witness statement explaining your conclusions, and the reasoning and analysis by which you have reached such conclusions; and

(4) *Appear before the Panel to give independent expert evidence in this matter.*

9. Documents I have been provided with are listed in **Appendix B**. These are primarily the exhibited documents. Documents relevant to my work and which were primarily used in my work were:

- Explanatory Report - Amendment C230 (Exhibited Documents)
- Planning Report - 500 Burwood Highway (Tract, April 2022)
- EPA Referral Response (EPA Victoria, 4 July 2022)

10. Additional referenced material includes:

- Victorian noise legislation referenced is listed in **Table 1**.
- Online traffic data available from <https://discover.data.vic.gov.au/dataset/traffic-volume>

### 3 Abbreviations

11. The following abbreviations are used in this report.

**Table 1 Abbreviations**

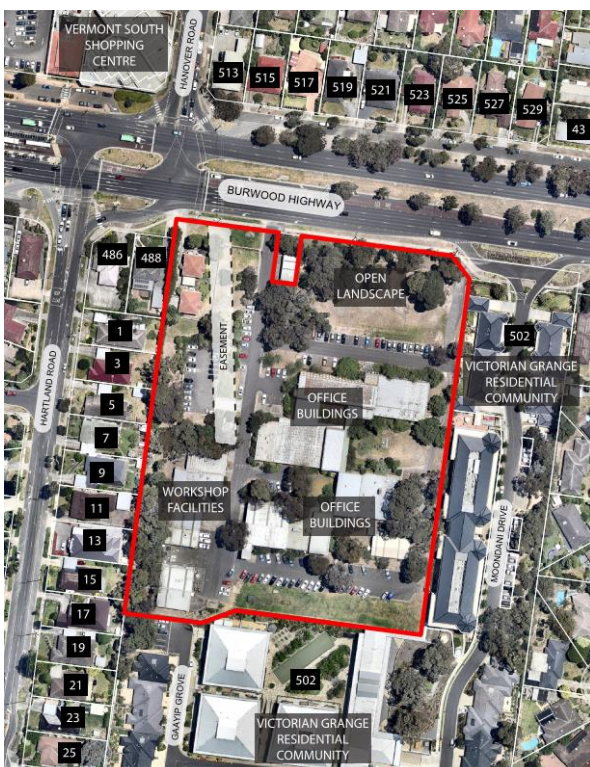
Abbreviation	Definition
dB	Decibel – the unit of measure for sound levels
dBA	A-weighted decibel. A-weighting is a frequency weighting applied to measurement instruments that represents the human ears’ response to sound across the audible spectrum
Leq or LAeq	Equivalent continuous sound pressure level, can be considered as a type of average noise level over a specific period. The ‘A’ depicts an A-weighted noise level, but this can also be identified in the unit used (ie dBA).
Lmax or LAmax	The maximum noise level, being the highest instantaneous sound pressure level that occurs over a particular period. The ‘A’ depicts an A-weighted noise level, but this can also be identified in the unit used (ie dBA).
L90 or LA90	Sound pressure level that is exceeded for 90 per cent of the measured time interval. Can be considered as an average of the minimum noise levels over a particular period, ie the background noise level. The ‘A’ depicts an A-weighted noise level, but this can also be identified in the unit used (ie dBA).
LOCT10	Linear sound pressure level for a specified octave band that is exceeded for 10 per cent of the time interval considered. Can be considered as an average of the highest noise levels over a particular period. Used for night period music noise assessments.
LOCT90	Linear sound pressure level for a specified octave band that is exceeded for 90 per cent of the time interval considered. Can be considered as an average of the minimum noise level over a particular period, ie the background noise level.
SEPP N-1	State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) – No. N-1. Superseded with the Noise Protocol
SEPP N-2	State Environment Protection Policy (Control of Music Noise from Public Premises) – No. N-2. Superseded with the Noise Protocol
Noise Protocol	Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues (EPA Publication 1826)
Regulations	Environment Protection Regulations 2021

Abbreviation	Definition
The Act	Environment Protection Act 2017
ERS	Environmental Reference Standards (Environment Protection Act 2017)
EPA Publication 1254	EPA publication 1254 Noise Control Guidelines
EPA Publication 1996	Noise Guidelines: Assessing Low Frequency Noise

## 4 Proposal and Background Information

12. The proposal is to amend the City of Whitehorse Planning Scheme so as to allow for residential development on the subject Site being across three lots:
  - 490-500 Burwood Highway, Vermont South;
  - Flat 1/490-500 Burwood Highway, Vermont South;
  - Flat 2/490-500 Burwood Highway, Vermont South.
13. The planning scheme amendment seeks to rezone the land from Transport Zone - Schedule 4 (TRZ4) to Residential Growth Zone (RGZ) and to apply a Design and Development Overlay (DDO).
14. The Site interfaces Burwood Highway along the north, and residential uses to the east, west and southern boundaries. The east and west interface is to the Victorian Grange Residential Community.
15. A tram substation is located along the northern boundary of the site.
16. Vermont South Shopping Centre is diagonally across from the site to the north west (other side of Burwood Highway).

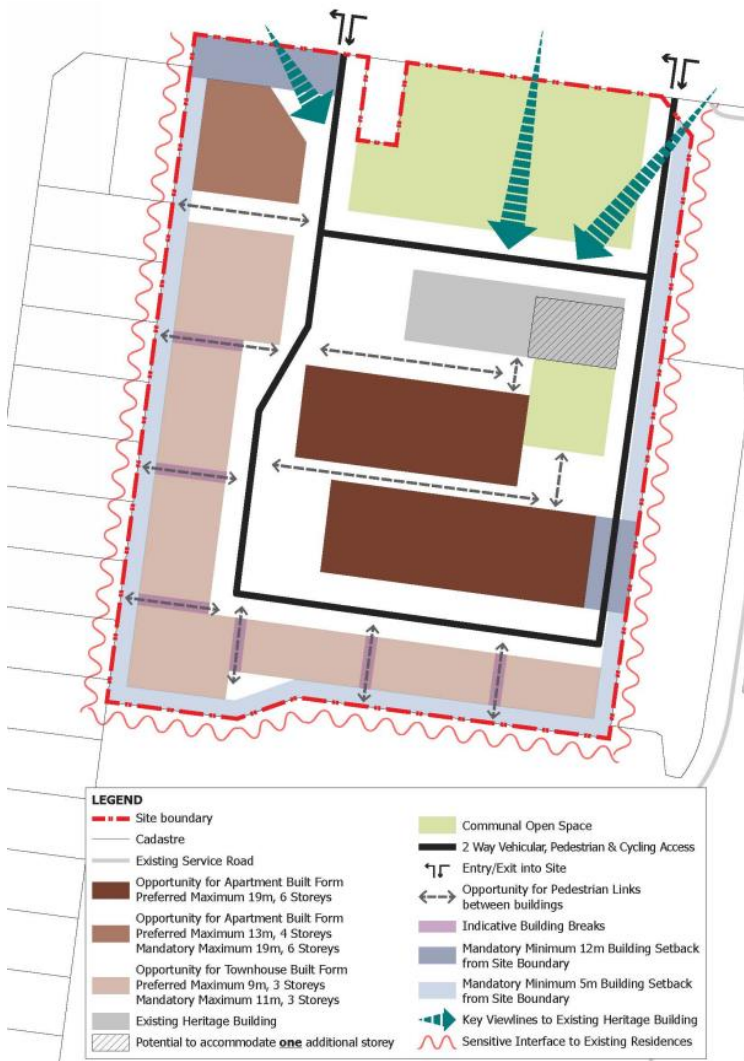
**Figure 1 Aerial of site and surrounds (Source: Tract Planning Report)**





17. A concept plan is included in the proposed Schedule 6 to Clause 43.02 Design and Development Overlay (DDO6), which shows a mix of apartment (up to 6 storey) and 3 storey townhouse development for the site. Access to and from the site would be from Burwood Highway directly.

Figure 2 Site Concept Plan (Source: DDO6)



## 5 Potential Noise Issues

18. Noise issues usually considered in planning related matters include:

- Infrastructure (road traffic, rail, aircraft etc.) noise to a development.
- Industrial and commercial noise to a development.
- Noise from mechanical plant and equipment associated with the development potentially impacting existing uses, or the future dwellings themselves.

19. I undertook a site inspection on Friday 20 January 2023 between 3 pm and 4 pm (note only around the periphery of the site, I did not obtain access onto the site itself). It was clear from my inspection that the

main noise issue associated with redevelopment of the site is that of traffic noise from Burwood Highway impacting the northern interface of the Site.

20. The other noted noise source was the substation along the north boundary. The substation emitted typical transformer noise which was audible mainly near the western side vent grilles. Refer to further discussion below in my preliminary assessment.
21. I further observe that the Site interfaces the Victorian Grange Residential Community along the east and south and while these are predominantly residential type uses, they would have some associated noise sources. Comment on this has been provided below in my preliminary assessment.
22. Vermont South Shopping Centre is located diagonally opposite the site, on the other side of Burwood Highway, and includes a strip of shops fronting Burwood Highway. There would be some noise potentially associated with these commercial uses and I have also provided comment on this below in my preliminary assessment.

## 6 Noise Legislation and Planning Provisions

23. EPA Victoria provided a submission in relation to the proposal in their letter of 4 July 2022.
24. EPA's comments relating to noise have been extracted and provided below.

*On 10 June 2022, VC216 was introduced in the Victorian Planning Provisions (VPP). VC216 changes the VPP and all planning schemes in Victoria by making changes to the Planning Policy Framework to support Environmentally Sustainable Development. This includes:*

- *amending clause 13.05-1S from (Noise abatement) to (Noise management), to include a new strategy on minimising noise impact and add policy documents on key design responses to avoid noise exposure impacts...*

*... EPA notes that the site abuts Burwood Highway to the north (zoned Transport Zone 2 (TRZ2) – Principal Road Network). As such, Council may wish to consider these policy and legislative updates when proceeding with the proposed Amendment to ensure that appropriate steps are taken to minimise the risk of harm from pollution, including both noise and poor air quality.*

### **Summary and Recommendations**

*Council may wish to consider the noise and air quality impacts on the proposed residential redevelopment from Burwood Highway and ensure that clauses 13.05-1S and 13.06-1S [Air Quality Management] are met, as well as obligations under the GED.*

25. Excerpts from Clause 13.05-1S are reproduced below.

#### **Objective**

*To assist the management of noise effects on sensitive land uses.*

#### **Strategy**

*Ensure that development is not prejudiced and community amenity and human health is not adversely impacted by noise emissions. Minimise the impact on human health from noise exposure to occupants of sensitive land uses (residential use, child care centre, school, education centre, residential aged care centre or hospital) near the transport system and other noise emission sources through suitable building siting and design (including orientation and internal layout), urban design and land use separation techniques as appropriate to the land use functions and character of the area.*

#### **Policy guidelines**



Consider as relevant:

- *The noise requirements in accordance with the Environment Protection Regulations under the Environment Protection Act 2017.*

### **Policy documents**

Consider as relevant:

- *Environment Protection Regulations under the Environment Protection Act 2017*
- *Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues (Publication 1826, Environment Protection Authority, May 2021)*
- *Environment Reference Standard (Gazette No. S 245, 26 May 2021)*
- *Passenger Rail Infrastructure Noise Policy (Victorian Government, 2013)*
- *VicTrack Rail Development Interface Guidelines (VicTrack, 2019)*

26. With consideration to the EPA referral and Clause 13.05-1S, I provide the following further comments in relation to applicable legislation and design requirements.

## **6.1 Environment Reference Standard**

27. Clause 13.05-1S and EPA legislation do not provide direct guidance on traffic noise to residential or similar developments. The EPA legislation focuses on external noise and amenity, and in relation to traffic noise, the only potential guidance is via reference to the Environmental Reference Standard (ERS). The guide to the ERS states that: *The ERS is relevant for activities that are not directly regulated but may interact with the ambient sound environment. This can be either by directly emitting noise or increasing sound sources in the environment indirectly such as by increased traffic movements.*

28. Normally, the ERS objectives would be applied to the noise generator in a development application. In the instance of a residential development however, the objectives can be considered in terms of reverse amenity to the future dwellings from the existing noise environment.

29. The ERS provides noise objectives for sensitive uses. The decibel objectives provided in the ERS are not noise limits or design criteria (Reference: Note Clause 9 of the ERS). The Guide to the ERS clarifies rather that the Objectives can be used to assess the risk of harm associated with a proposal (Reference: Section 5.4.1 c of the Guide to the ERS).

30. The ERS noise objectives for a Residential Growth Zone (referred to as Category III land) are:

- 50  $L_{Aeq,16h}$  (whole day/evening average noise level 6 am to 10 pm).
- 40  $L_{Aeq,8h}$  (whole night average noise level 10 pm to 6am).

31. The ERS objectives are long term (16 h and 8 hour) averages, and are external noise levels.

32. In relation to the subject Site, I would expect that all dwellings that have any sort of interface / exposure to Burwood Highway (even set back significantly on the site) would have external noise levels that would exceed the ERS objectives. Only dwellings with high levels of shielding (ie facing south, or with other buildings in between them and the road) would potentially achieve the objectives.

33. The objectives do not distinguish between a dwelling located in the middle of a residential area and one located on a busy road. Nearly every residential dwelling in Melbourne located on a moderately busy road, or near a busy road, would be exposed to noise levels higher than the ERS objectives.

34. Meeting the external ERS objectives is highly impractical and restrictive for any development such as this, and especially for any multi storey development. Reverting to appropriate internal design targets, as has typically been applied to multi storey developments along busy roads, is the normal approach in these situations.

## 6.2 Planning Scheme Guidance

35. The Planning Scheme Clause 55.07-6 *Apartment Developments* and Clause 58.04-3 *Amenity Impacts* and the applicable Planning Practice Note 83 (PPN83) provide specific guidance on control of noise impacts to within new developments near major roads or commercial and industrial uses. These clauses are typically considered during the planning permit stage.
36. The guidance and requirements are provided in Standard B40 of Clause 55.07-6 and B16 of Clause 58.04-3, which are identical. These are reproduced below:

### **Standard B40 (B16)**

*Noise sources, such as mechanical plants should not be located near bedrooms of immediately adjacent existing dwellings.*

*The layout of new dwellings and buildings should minimise noise transmission within the site. Noise sensitive rooms (such as living areas and bedrooms) should be located to avoid noise impacts from mechanical plants, lifts, building services, non-residential uses, car parking, communal areas and other dwellings.*

*New dwellings should be designed and constructed to include acoustic attenuation measures to reduce noise levels from off-site noise sources. Buildings within a noise influence area specified in Table D3 (D6) should be designed and constructed to achieve the following noise levels:*

- *Not greater than 35dB(A) for bedrooms, assessed as an LAeq,8h from 10pm to 6am.*
- *Not greater than 40dB(A) for living areas, assessed LAeq,16h from 6am to 10pm.*

*Buildings, or part of a building screened from a noise source by an existing solid structure, or the natural topography of the land, do not need to meet the specified noise level requirements.*

*Noise levels should be assessed in unfurnished rooms with a finished floor and the windows closed.*

**Table D3 (D6) Noise influence area**

<b>Noise Source</b>	<b>Noise influence area</b>
<b>Zone Interface</b>	
<b>Industry</b>	<i>300 meters from the industrial 1, 2 and 3 zone boundary</i>
<b>Roads</b>	
<i>Freeways, tollways and other roads carrying 40,000 Annual Average Daily Traffic Volume</i>	<i>300 metres from the nearest trafficable lane</i>
<b>Railways</b>	
<i>Railways servicing passengers in Victoria</i>	<i>80 metres from the centre of the nearest track</i>
<i>Railways servicing freight outside Metropolitan Melbourne</i>	<i>80 metres from the centre of the nearest track</i>
<i>Railway servicing freight in Metropolitan Melbourne</i>	<i>135 metres from the centre of the nearest track</i>

NOTE: The noise influence area should be measured from the closest part of the building to the noise source

37. As can be observed above, the application of the Standard D40/D16 design criteria is based on triggering of Noise influence area interface requirements. In the case of the subject Site, it is located adjacent to Burwood Highway, which based on the latest available Victorian government website information, carries approximately 57,000 vehicles per day. This clearly triggers the 'Roads' category as it exceeds the 40,000 vehicles per day and is within the 300 m buffer zone.
38. As part of any future approvals in relation to the development it will be necessary to consider traffic noise impacts on the site to address the above.

### 6.3 Environment Protection Act 2017

39. The above planning provisions generally provide some guidance on appropriate internal amenity targets for some source of noise. Due consideration should also be given to the relevant EPA noise legislation.
40. The facility, although residential in nature, would have some sources of noise that would be assessable under EPA noise legislation. These sources will need to be designed to comply with all mandatory legislation, as is required for any new use.
41. Any existing commercial or industrial operations in the area would also be required to comply with the noise legislation at the new use.
42. A summary of the new noise legislation, which came into effect in July 2021, is provided below.
43. The Environment Protection Act 2017 (EP Act 2017) commenced on 1 July 2021. The legislation changed Victoria's focus for environment protection and human health to a prevention-based approach, underpinned by the general environmental duty (GED), lifting the focus from compliance with a particular standard, to risk-minimisation.
44. Subordinate legislation – the Environment Protection Regulations (Regulations) and Environment Reference Standard (ERS) – were also released to support the new environment protection laws.
45. The Regulations incorporate the *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues*, Publication 1826.4 (the Noise Protocol). This document effectively replaces the previous State Environment Protection Policy No. N-1 (Control of Noise from Commerce, Industry and Trade, SEPP N-1), State Environment Protection Policy no. N-2 (Control of Music Noise from Public Premises, SEPP N-2) and the Noise from Industry in Regional Victoria (NIRV). The Noise Protocol provides prescriptive methodology and noise assessment targets for the typical noise sources associated with the commercial premises i.e., mechanical plant and equipment, music noise, general commercial activities etc.
46. Other guidance documents have also been issued by EPA including Publication 1996 *Noise guideline: assessing low frequency noise* 2021 that should be further considered in some circumstances.

## 7 Preliminary Review of Impacts

### Traffic Noise

47. Noise from traffic impact along the northern interface of the site will require consideration as Standard D40 and D16 are formally triggered by the road which carries over 40,000 vehicles per day.
48. As part of my site inspection I undertook a brief set of noise measurements along the northern boundary of the site. Traffic noise levels were approximately 63 dBA Leq at this location (between 3.30 and 3.45 pm), which is a moderate level of traffic noise. It is expected noise levels could be slightly higher during the

morning and evening peak periods. To determine the necessary measurement parameters for Standard D40 and D16 requires a minimum of 24 hours of traffic noise measurements.

49. Given my preliminary noise measurement data, and the fact that there will be further setbacks to all proposed dwellings on the site, I expect appropriate building design and glazing can readily be implemented that would achieve the internal noise objectives in Standard D40 and D16.

### Substation Noise

50. Under the Planning provisions, Standard D40 and D16 can also be applied to commercial and industrial noise, albeit the trigger is based on Industrial Zoning being within 300 m of the subject Site. This does not occur, however, the D40 and D16 are triggered in any case by the main noise source in the area, being traffic noise.
51. The noise from the substation is substantially lower and more localised than the traffic noise from Burwood Highway. During my inspection, I observed the substation emitted typical transformer noise, primarily from the ventilation grilles. I measured approximate 55 dBA at 3 m from the western side grille (refer to image below), which appeared to be the noisiest part of the substation.

**Figure 3 Substation – western side ventilation grilles**



52. The measured noise level is clearly below the traffic level, and there is no doubt that if the nearest dwellings are design to address traffic noise, they will also address internal noise levels for the substation (with reference to achieving the Standard D40/D16 requirements).
53. A further consideration needs to be made; that of the status of compliance of the substation relative to the normal EPA industrial / commercial noise provisions.
54. The Substation operator is required to comply with the Environment Protection Act 2017 and specifically the *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues*, Publication 1826.4 (the Noise Protocol). Consideration of low frequency noise may also be relevant as per EPA Publication 1996.
55. The onus of compliance (and associated General Environmental Duty) is usually on the operator of the noise source, however, it is appropriate to consider the risks potentially imposed on a commercial operator due to the encroachment of a new sensitive residential use.
56. I have undertaken a preliminary review of the status of the substation relative to the Noise Protocol noise limits. To undertake this I have:



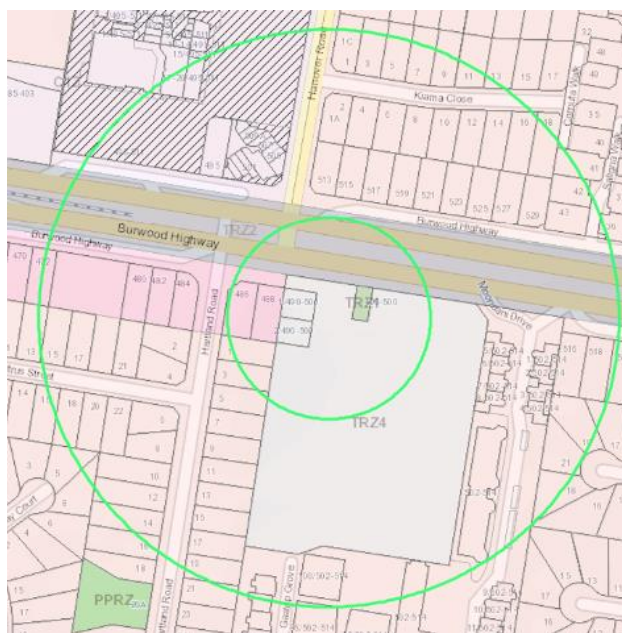
- Considered my measured noise level from the transformer, being 55 dBA at 3 m.
- Considered the approximate location of residential development reflected in the preliminary concept plans in the Planning Report. From review of the concept drawings, the north-west corner proposed apartment building would be in the order of 19-20 m from the substation grilles. I note that this is only what appears to be the closest part of the building (i.e. not necessarily dwellings).

Figure 4 Excerpt from Site Concept Plan (Source: Tract Planning Report Fig. 47)



- Determined the 'zoning levels' for the nearest potential location of a residential use at the facility relative to the substation. This assumed the proposed future zoning of the site. My determined zoning levels for day, evening and night were as follows, as per the procedure in the Noise Protocol:
  - Day (7 am to 6 pm Monday to Sat): 54 dBA
  - Evening (6 pm to 10 pm Sat, 7 am to 10 pm Sunday): 48 dBA
  - Night (10 pm to 7 am): 43 dBA

Figure 5 Zoning Circles used for Zoning Level Calculations (Vicmap)



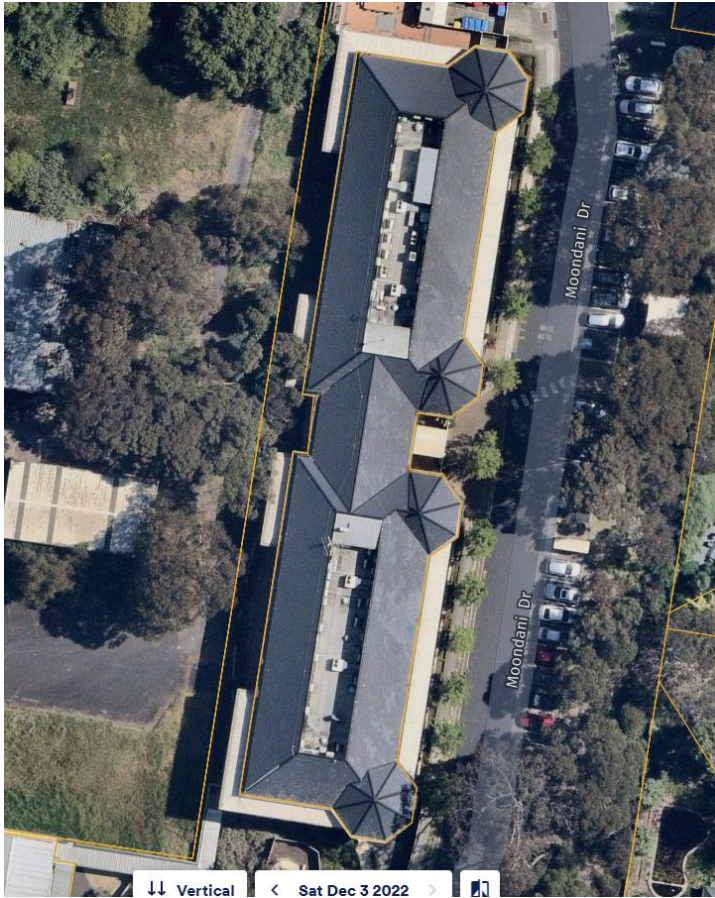
57. I note that the above zoning levels can be adopted as noise limits but formal determination of noise limits requires long term (1 week) noise logging on the site, which has not been undertaken. Given the proximity of the northern interface of the site to Burwood Highway, there is a very high likelihood that the site would be subject to 'high' background levels, and that would result in elevated noise limits. My day period survey suggested that would be the case. I would not be surprised if final noise limits were at least 2 to 3 dBA higher than the zoning levels, and I think it would be reasonable to allow at least 2 dBA to account for this.
58. Based on the above, I summarise my preliminary assessment as follows:
- Measured noise level at 3 m: 55 dB
  - Noise level, corrected to 19 m: 39 dBA
  - Noise Protocol Character correction: +2 to +5 dB
  - Likely final effective noise level 41 to 44 dBA
  - Expected Noise Limit - Day / Evening / Night 56 dBA / 50 dBA / 45 dBA
59. I note that the transformer noise would likely attract a 2 to 5 dBA character penalty under the Noise Protocol, so this has been included above.
60. The preliminary assessment shows that the substation would readily comply during day and evening operations.
61. During the night, there is marginal compliance. I would suggest this poses a small risk given there are some unknowns (e.g. exact noise limits have not been established, some noise could come out of other areas of the substation enclosure and further contribute, the transformer could operate at higher or lower load etc.). Conversely, it can be expected that transformer noise levels would vary with load; if the transformer services the tram network, there may be reduced loads during the night.
62. The above provides a preliminary risk assessment of this issue, which suggests a low risk of non compliance during the night. Further investigation of noise emissions and formal determination of the noise limits, is likely necessary to more accurately evaluate the potential for substation noise impacts to the proposed development. Note there would be many and varied design approaches available for addressing the transformer noise in the unlikely event it is found to be excessive, such as acoustic treatments to the buildings or substation itself, or other noise mitigation measures.

### Victoria Grange Residential Community

63. The Victorian Grange Residential Community facilities which are located along the east and south interface of the Site are predominantly residential type uses.
64. These facilities would have their own mechanical plant, air conditioning and the like, which would service their own residential community.
65. Noise from these sources would be expected to meet appropriate noise amenity within their own facility and existing neighbouring residential uses.
66. Review of aerial photography shows some mechanical plant on the roof of the buildings along the east in particular. These appear to be in a recessed roof zone, so would be somewhat shielded from the proposed development at the subject Site. There would also be typically a 25 m buffer distances available from these sources to the proposed use based on my review of the concept proposal.



**Figure 6 Victorian Grange Residential Community – east of subject Site (Source: Nearmaps)**



67. The plant equipment would likely have highest loads (and associated noise levels) during the day.
68. Overall, I expect the above represents a low risk of noise impact, however, some consideration is still necessary. I would recommend noise from these sources be further investigated and considered during development of the site.

#### **Vermont South Shopping Centre**

69. Vermont South Shopping Centre is located diagonally opposite the site, on the other side of Burwood Highway, and includes a strip of shops fronting Burwood Highway, the closest being in the order of 80-90 m from the proposed nearest buildings on the subject Site. The main shopping centre building is more than 130 m from the subject Site.
70. There would be some noise associated with these commercial uses – mechanical plant and equipment, commercial vehicles on site and the like. Given the relatively large available buffer distance between the Site and the main areas of the Shopping Centre, and the high background noise in the area due to Burwood Highway, this is unlikely to be a risk for any development on the site. It is further noted that the Shopping Centre is already in closer proximity to existing residential uses to the east and south.
71. I don't anticipate impacts from the Vermont South Shopping Centre would require any specific further consideration.

## 8 Summary and Conclusions

72. From my review of the material and from my own inspection undertaken on the site on 20 January 2023, it was identified that traffic noise from Burwood Highway was the dominant source of noise in the area, and this was reflected in the EPA referral.
73. Clause 55.07-6 *Apartment Developments* and Clause 58.04-3 *Amenity Impacts* provide direct guidance on design objectives that can be readily applied to the development, specifically for road traffic noise. The nominated design criteria (40 dBA to during the day, 35 dBA to bedrooms during the night) provide an appropriate level of amenity protection for the purposes of planning and should be implemented and designed for at the development.
74. Other sources of potential noise impact to the site are from the existing tram substation near the northern boundary of the site, and from mechanical plant and activities from Victoria Grange Residential Community (particularly to the east). These would potentially provide some localised noise at the nearest interface of the proposed use, but these should be able to be addressed with noise management measures at the development or at the source. As such, some consideration of these sources will be required in the future, but is not expected to be restrictive to the change of land use proposed.
75. In conclusion, I do not see any acoustical related reasons that would make the site unsuitable for residential type use. The vast majority of the site would be exposed to minimal noise impacts and appropriate consideration and response to the identified potential noise sources can be implemented as part of future applications.
76. I have made all the inquiries 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.

Prepared by:



Jim Antonopoulos BAppSc MAAS

Technical Director – Acoustics

# Appendix A

Short CV – Jim Antonopoulos

# CURRICULUM VITAE



## JIM ANTONOPOULOS

### TECHNICAL DIRECTOR

Acoustics, Asia Pacific

## QUALIFICATIONS

BAppSc (Physics) 1996

Royal Melbourne Institute of Technology (RMIT)

## EXPERTISE

- Architectural and Building Acoustics
- Mechanical Services Noise Control Design
- Environmental Noise Assessment
- Sound Power Measurement, Sound and Impact Insulation Testing
- Expert Testimony at VCAT
- Noise Modelling
- Vibration Measurement and Assessment

Jim Antonopoulos has over 20 years' experience in acoustical consulting and has specialist expertise in building and architectural acoustics, and in environmental noise prediction and assessment. He has managed major residential, educational and commercial development projects and also undertaken environmental assessments for large industrial, transportation, mining and infrastructure projects.

Jim regularly provides expert evidence at VCAT and Panel Hearings on a range of acoustical matters, including major rezoning and planning applications, and also provides regular advice to councils.

Jim has also provided acoustic training to council planners and engineering students at Victoria University of Technology

## PROJECTS

### Transportation

- Deer Park Bypass Noise Barrier Design
- Calder Highway, Eastern Freeway Extension and South Eastern Freeway Noise Monitoring
- Mitcham Frankston Motorway Tender Design
- Brisbane North-South Bypass Tunnel EIS
- Craigieburn Station noise and vibration assessment
- Beenleigh Gold Coast Rail Corridor upgrade

<p><b>Building</b></p>	<ul style="list-style-type: none"> <li>• St Kilda Station Redevelopment (Residential and Commercial Development)</li> <li>• Highpoint Residential Development</li> <li>• Central Equity residential development projects throughout Melbourne (20+ developments)</li> <li>• Tarrawarra Museum of Art</li> <li>• IBM office fitout (Southbank)</li> <li>• Gungahlin College (ACT)</li> <li>• Suncorp residential development (Brisbane)</li> </ul>
<p><b>Mechanical Services Design</b></p>	<ul style="list-style-type: none"> <li>• David Jones Foodstore (St Kilda Station Redevelopment)</li> <li>• Central Equity Projects</li> <li>• Myer Chadstone</li> <li>• Draeger office and warehouse development</li> </ul>
<p><b>Industrial</b></p>	<ul style="list-style-type: none"> <li>• SPI Powernet Terminal Stations (Richmond, Geelong, Redcliffs)</li> <li>• Cranbourne Terminal Station</li> <li>• Peerless Laverton and Braybrook Plants</li> <li>• South Pacific Tyres (Campbellfield)</li> <li>• Yallourn Power Station</li> <li>• Stramit facility relocation study (Dandenong) Moorabool Water Treatment Plant</li> </ul>
<p><b>Planning and Legal Representation</b></p>	<ul style="list-style-type: none"> <li>• Newport Village Blackshaws Road - Rezoning, Master Planning, Planning Panel and VCAT testimony</li> <li>• Ballarat and Mortlake Saleyards – Environmental Noise Impact Assessment, Planning Panel presentation (Ballarat)</li> <li>• City of Yarra – Expert Peer Review services and VCAT representation on various planning related matters (2012-current)</li> <li>• Kensington K1 and K2 – Rezoning noise assessment</li> <li>• Donald Mineral Sands Mining Project – Preparation of Noise Impact Assessment for EIS</li> <li>• Black Rock Biosolids Treatment Facility – Environmental Noise Impact Assessment</li> <li>• Mt Atkinson &amp; Tarneit Planes PSP Planning Scheme Amendment C162 – Planning Panel Hearing Acoustic Evidence</li> <li>• 56-74 Station St Nunawading, Whitehorse Planning Scheme Amendment C155 - Planning Panel Hearing Acoustic Evidence</li> </ul>
<p><b>MEMBERSHIPS</b></p>	<p>Member of Australian Acoustical Society MAAS</p>

# Appendix B

## Provided Documents

### Exhibited Documents

No	Document	Date
1.	<i>Explanatory Report - Amendment C230</i>	
2.	<i>Instruction Sheet - Amendment C230</i>	
3.	<i>Clause 21.06 Housing</i>	
4.	<i>Clause 22.03 Residential Development</i>	
5.	<i>Clause 32.07 Residential Growth Zone</i>	
6.	<i>Schedule 3 - Residential Growth Zone</i>	
7.	<i>Clause 42.02 Vegetation Protection Overlay</i>	
8.	<i>Schedule 5 - Vegetation Protection Overlay</i>	
9.	<i>Clause 42.03 Significant Landscape Overlay</i>	
10.	<i>Schedule 10 - Significant Landscape Overlay</i>	
11.	<i>Clause 43.01 Heritage Overlay</i>	
12.	<i>Clause 43.02 Design and Development Overlay</i>	
13.	<i>Schedule 6 - Design and Development Overlay</i>	
14.	<i>Clause 45.03 Environmental Audit Overlay</i>	
15.	<i>Schedule - Heritage Overlay</i>	
16.	<i>Planning Scheme Amendment Report prepared by Tract Consultants</i>	April 2022
17.	<i>Traffic Engineering Assessment prepared by Traffix Group</i>	October 2021
18.	<i>Arborist Report prepared by Paul Jameson (Bluegum Reports)</i>	August 2021
19.	<i>Statement of Tree Significance – 490-500 Burwood Highway, Vermont South</i>	September 2021
20.	<i>Conservation Management Plan prepared by Bryce Raworth</i>	February 2021
21.	<i>Heritage Statement of Significance (Whitehorse Planning Scheme)</i>	
22.	<i>Heritage Citation (Whitehorse Planning Scheme)</i>	
23.	<i>Whitehorse C230whse 001ddoMap06 Exhibition (480 KB) (pdf)</i>	



No	Document	Date
24.	<i>Whitehorse C230whse 002eaoMap06 Exhibition</i>	
25.	<i>Whitehorse C230whse 003znMap06 Exhibition</i>	
26.	<i>Whitehorse C230whse 004sloMap06 Exhibition</i>	
27.	<i>Whitehorse C230whse 005vpoMap06 Exhibition</i>	

#### Further Materials (Not Exhibited)

No	Document	Date
<b>Background Documents</b>		
28.	Certificate of Title – 490-500 Burwood Highway, Vermont South	
29.	<i>Boundary Re-establishment, Feature and Level Plan</i> prepared by Bosco Jonson	June 2017
30.	<i>Community Facilities and Open Space Technical Advice Note</i> prepared by Public Places	16 November 2020
31.	<i>Stormwater Management Plan</i> prepared by Cardno	October 2021
32.	<i>Concept Plan</i> prepared by Tract	October 2021
<b>Council Report – consideration of seeking authorisation for the Amendment</b>		
33.	Council Meeting Agenda and Minutes	13 December 2021
<b>Public Exhibition submissions</b>		
34.	Consolidated Submissions received during Public Exhibition	July 2022
35.	Consolidated Table of Submissions received in Exhibition prepared by Tract	July 2022
36.	Submissions Location Map prepared by Tract	July 2022

#### Panel Directions

No	Document	Date
37.	Panel Directions and Timetable	7 November 2022

EPA Victoria Referral Response

4 July 2022

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