19 May 2020

640.10090.03750 462-482 Swan St Richmond 20200519.docx

Yarra City Council
PO Box 168
RICHMOND 3121

Attention: Michelle King

Dear Michelle

462-482 Swan Street, Richmond
Development Application Acoustic Review
PLN 20/0006

SLR Consulting Pty Ltd (SLR) has been retained by the City of Yarra to provide a review of the acoustic assessment report prepared to support the application for a commercial development at 462-482 Swan Street, Richmond.

Details of the report are as follows:

- Title: 480 Swan Street Richmond, Town Planning Phase – Acoustic Report
- Reference: A-TR-0001
- Date: 17 April 2020
- Prepared for: Charter Hall
- Prepared by: Floth Pty Ltd

The report has been prepared to support the planning application for the project and addresses noise impacts to and from the development.

1 Background Information

(Sections 1 and 2 of the acoustic report)

The project is a commercial development plus basement carparking. The acoustically significant aspects of the proposal identified in the report are summarised below:

- The proposal includes:
  - Ground floor retail
  - Terraces on levels 1 and 2
  - Offices on levels 1 to 11
- Noise impacts to the subject development are identified as rail, including train horn noise (rail corridor on the southern boundary of the site) and road traffic (Burnley Street to the west and Swan Street to the north). Burnley station is located directly south of the development site.

- The nearest noise sensitive receivers are noted to be opposite the site (the apartment development at 429-437 Swan Street). Sensitive receivers are also noted to be at 12-18 Madden Grove, approximately 65 m south of the development site. These receiver locations are single story dwellings.
- Potential noise impacts from the proposal are identified as noise from roof mounted mechanical plant and equipment, loading bay, carpark and rubbish collection noise and emissions from the retail premises.

SLR Comments: *The acoustically significant aspects of the proposal, noise impacts to and from the development, and the nearest noise sensitive receivers have been identified.*

2 Noise to the subject development

2.1 Rail noise

2.1.1 Design criteria

(Section 4.2 of the report)

Rail noise is proposed to be assessed to internal targets of 60 dBA L_{max} in offices and 70 dBA L_{max} in retail areas. Details of the derivation of the targets are provided in the report, and the target is noted to represent a compromise between the highest and lowest design levels generally used for commercial spaces.

SLR Comments: *Firstly, we note that there are no mandatory criteria or formal guidelines for rail noise ingress to commercial properties in the City of Yarra, so some flexibility is appropriate when considering the targets proposed by acoustically consultants.*

The design targets used by Floth are from our perspective reasonable, and represent an appropriate compromise for commercial spaces. Consideration is often also given to the average rail noise levels at commercial developments (e.g. the $L_{Aeq,1hr}$). This approach would be consistent with the current guidelines for rail noise to residences (e.g. the BADS targets as implemented in Clauses 55 and 58 of the planning scheme) and AS/NZS2107. Average noise targets can be more onerous on rail corridors affected by noise from a number of rail lines.

2.1.2 Quantification of rail noise impacts

(Section 2.1, 3.1 and 5.2 of the report)

There are noted to be approximately 160 passenger trains that stop at Burnley Station per day and an average of 11 trains per hour during business hours.

Measurements of rail noise were conducted at the southern boundary of the subject site from 19 to 26 September 2019. The façade corrected levels are presented in Table 6 of the report. The levels used in the rail noise assessment are reported in Table 14, and include:

- L_{max} = 90 dBA (average of 20 loudest passby events)
- $L_{eq,15hr}$ = 65 dBA
- $L_{eq,1hr}$ = 71 dBA (calculated from the 20 loudest passby events)

SLR Comments: *The measurement location and calculation methodologies are appropriate. The data is clearly documented. From the information provided it is evident that, if the L_{max} targets nominated in the acoustic report are met, appropriate average noise levels should also be achieved in commercial spaces.*

2.1.3 Assessment and advice for rail noise control

(Section 6 and Appendix A of the acoustic report)

A set of marked up plans are provided showing the recommended glazing configurations and their required acoustic ratings. Specifications are also provided for façade walls and the roof.

Glazing to offices exposed to rail noise is required to be not less than 6 mm glass, 12 mm air cavity, 13.5 mm laminated glass and to have an Rw rating of 43 dB.

SLR Comments: *We cannot carry out a full independent assessment of rail noise without the acoustic spectra used by Floth in their calculations. However, our indicative calculations based on a derived rail noise spectrum, indicate that the specified treatments will enable the nominated noise targets to be met.*

2.2 Rail Vibration

2.2.1 Design Criteria

(Section 4.3 of the acoustic report)

Vibration is proposed to be assessed to the targets provided in the British Standard BS 6472 Part 1, 2008. The criteria for offices are double the criteria for dwellings, and are equal to a vibration dose vale (VDV) of 0.4 to 0.8 $m.s^{-1.75}$.

SLR Comments: *The nominated criteria are appropriate.*

2.2.2 Quantification of impacts and assessment

(Section 7 of the acoustic report)

Floth have used the vibration measurements conducted by Acoustic Logic for a previous application for the site. The measurement results are reproduced in Table 15 of the report. The VDV results are in the range 0.11 to 0.56 $m.s^{-1.75}$. The presented levels are below the recommended maximum VDV of 0.8 $m.s^{-1.75}$ for offices.

Floth recommend remeasuring vibration once excavation of the site is complete, because excavation may alter the ground conditions and vibration levels.

SLR Comments: *The proposed approach is appropriate. We recommend that vibration is re-measured following excavation of the site, and that the VDV is measured directly, or that full details of the measurement results and conversion calculation to obtain the VDV is provided at that time (SLR requested this information in relation to the original Acoustic Logic assessment, however it was not provided). The VDV should be measured and/or calculated in accordance with the 2008 British Standard referenced by Floth (the 2015 Acoustic Logic assessment used the 1992 Standard, which referenced different weighting curves).*

2.3 Road Traffic Noise

2.3.1 Design Criteria

(Section 4.1 of the acoustic report)

Road traffic and tram noise is proposed to be assessed to the design sound levels provided in AS/NZS2107:2016. The ranges are provided in Table 8 of the report, and are equal to 40 to 45 dBA for general office spaces. The targets are proposed to be met taking into consideration the combine contributions of road traffic and mechanical plant noise.

SLR Comments: *The nominated criteria are appropriate.*

2.3.2 Quantification of impacts

(Sections 3.1 and 5.1 of the acoustic report)

Measurements of road traffic noise were conducted at the Swan Street boundary of the adjacent site, (immediately to the east pf 462-482 Swan Street), under free field conditions from 19 to 26 September 2019. The levels are presented in Table 5 of the report. The levels used in the traffic noise assessment are reported in Table 13, and include the following:

- $L_{eq,15hr}$ = 64 dBA
- $L_{10,1hr}$ = 72 dBA (loudest hour between 8:30 am and 3:30 pm)

SLR Comments: *The measurement location is reasonable for quantifying road traffic impacts to the site. The means by which the long term averages have been derived is not provided in the report and thee logging data has not been included. This information should ideally be provided for transparency.*

2.3.3 Assessment and advice for noise control

(Section 6 and Appendix A of the acoustic report)

The office levels most exposed to road traffic noise are proposed to be glazed with double glazed units comprising 6 mm float glass, 12 mm air cavity and 10 mm float glass, with an R_w rating of 35 dB.

SLR Comments: *We cannot carry out a full independent assessment of road noise ingress without the acoustic spectra used by Floth in their calculations. However, our indicative calculations based on an expected spectrum for Swan Street, indicates that the specified treatments should enable the nominated noise targets to be met.*

3 Noise from the subject site

3.1 SEPP N-1 assessable noise

(Section 4 of the report)

Mechanical plant noise is proposed to be assessed to SEPP N-1.

SLR Comments: *Agreed. However we note that noise from any deliveries and rubbish collection on private property is also assessable to SEPP N-1.*

3.1.1 SEPP N-1 Noise Limits

(Section 4.4 of the report)

Noise from mechanical plant is proposed to be assessed to SEPP N-1. SEPP N-1 limits have been calculated from the background noise data obtained at location 2 (overlooking the rail corridor) and from land use zoning. The identified limits are equal to the zoning levels and are 55 dBA (day), 49 dBA (evening) and 44 dBA (night).

SLR Comments: *The use of the background noise data obtained at Location 2 is appropriate for setting noise limits at receivers in Madden Grove, and is also conservative (higher background noise levels and noise limits are likely to apply at apartments on the northern side of Swan Street).*

The receiver location for which the zoning levels have been calculated are not shown in the acoustic report. We have calculated zoning levels for 14 Madden Grove and they are slightly higher than Floth's.

Based on the above, Floth's noise limits are appropriately conservative.

3.2 Building services noise

(Section 8 of the report)

The design of building services to meet SEPP N-1 noise limits is proposed to be undertaken during the detailed design phase of the project, with input from the acoustic engineers.

SLR Comments: *The proposed approach to mechanical plant noise is reasonable for the planning stage of the project. The risk of non-compliance is also reasonably low for this project, due to the distances of the nearest noise sensitive receivers from the subject development.*

3.3 Retail tenancy noise emissions

(Sections 4 and 9 of the report)

Music and patron noise from the retail tenancies proposed for the development is proposed to be assessed to SEPP N-2. Noise limits are not provided in the report, and Floth note that an assessment of noise from any retail premises may be required by Council.

SLR Comments: *Music noise is assessable to SEPP N -2. While the policy does not strictly apply to patron noise, it can also be used to assess impacts. Yarra City Council also accepts assessments of patron noise to SEPP N-1 and the background based targets (background + 10 dB for the day and evening periods, and background + 5 dB at night). Where background based targets are used, the lowest representative background level for the proposed period of operation should be used to calculate noise limits (not long term averages).*

The requirement for the future occupants to provide a patron noise assessment is acceptable for this application, given that it is a reasonably low risk site. Negative impacts are unlikely to occur from standard daytime operations.

4 Summary

A review of the acoustic report prepared for the commercial development proposed for 462-482 Swan Street is provided above. The report adequately addresses noise impacts to and from the subject development during the planning stage.

Floth propose that a reassessment of vibration impacts to the subject development be carried out once the site has been excavated. We agree that such an assessment should be conducted, and recommend that the VDV is measured directly, or that full details of the measurement results and conversion calculations used to obtain the VDV is provided at that time.

Regards,

Dianne Williams
Associate – Acoustics

Checked/Authorised by: JA