

15 September 2020

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Yarra City Council
PO Box 168
RICHMOND 3121

Attention: Amy Hodgen

Dear Amy

Artisan Precinct, Alphington Stage 3A Development Application Acoustic Review PLN 19/0841

SLR Consulting Pty Ltd (SLR) has been retained by the City of Yarra to provide a review of the acoustic assessment report for the mixed use development proposed for Artisan Precinct, Alphington Stage 3A .

Details of the report are as follows.

- Title: Artisan West, Alphington, Acoustic Assessment
- Reference: 20191002.1
- Date: 25 November 2019
- Prepared by: Acoustic Logic Consultancy (ALC)

The report has been prepared to address noise impacts to and from the proposal.

1 Background Information

(Sections 1 and 2 of the acoustic report)

The project is a mixed use development on the Alphington Paper Mill site. The site and surrounding uses are indicated in Figure 1 of the report. Acoustically significant aspect of the project are summarised below:

- The proposal includes:
 - Two levels of basement carparking
 - Up to twelve levels of apartments
 - Residential tenancies on all levels
- The main source of noise to the subject site is identified as road traffic from the Chandler Highway.

SLR Comments: *The proposal and main potential noise impact has generally been identified.*

The project includes several outdoor areas including a ground level central courtyard and a roof deck. Potential noise impacts from people using the ground level courtyard are not discussed in the report, however SLR agrees that these are likely to be manageable given that the space resembles a park area, and is not obviously designed for group functions. There is a roof top garden on Level 10 (Chandler Highway side of the building), which does include provision for larger gatherings. Noise from this space is considered in the report.

We note that the development site is also in close proximity to the Artisan East food and drinks precinct (the nearest apartments are 20 m from the closest tenancy).

2 Road Traffic Noise

2.1 Noise Criteria

(Section 5.1 of the report)

Road traffic noise is proposed to be assessed to the AS/NZS2107:2016 design ranges in general accordance with the criteria provided in the Arup acoustic report for the Alphington Paper Mill Development Plan (Arup report 'Amcor Site, Alphington, Preliminary Acoustic Assessment', dated 21 August 2015).

The design targets nominated in Table 5 of the report are:

- 35 to 45 dBA Leq,1hr during the day and evening in all habitable rooms, and
- 30 to 40 dBA Leq,1h at night in bedrooms

SLR Comments: ALC does not nominate which part of the AS/NZS2107 ranges they propose to meet and in the absence of this information we assume that the upper end of the nominated ranges will be met during the relevant periods. i.e. up to 45 dBA Leq,1h during the day and evening periods, and up to 40 dBA Leq,1 hr in bedrooms at night.

Additionally, the report does not define how the hourly road traffic noise levels are to be determined. That is, whether the targets are to be met by all hours of the day or night periods (i.e. effectively a limit on the loudest hours), or by the average of hourly levels. This information should be provided for transparency and to remove ambiguity about how road traffic noise should be assessed post construction.

The proposed hourly targets are consistent with those recommended by SLR for the loudest hour of the day and night periods.

Targets for day and night average road traffic noise levels are not provided in the report. SLR recommend that the day and night average levels are at least 5 dB lower than the loudest hour targets. That is, 40 dBA Leq,16h in all habitable rooms and 35 dBA Leq,8h in bedrooms. Our recommended day and night average targets are in line with those provided in Standard D16 of the Yarra Planning Scheme, and are within the AS/NZS 2107 ranges. The targets are not inconsistent with those nominated in the Amcor Site Development Plan acoustic report prepared by Arup ('Amcor Site, Alphington, Preliminary Acoustic Assessment', 21 August 2015), which nominates the AS/NZS2107:2000 recommended ranges as the relevant indoor criteria for road traffic noise

2.2 Noise Measurements

(Sections 2, 4 & Appendix 2 of the report)

Unattended monitoring of traffic noise was conducted on the western boundary of the subject site overlooking the Chandler Highway (microphone 3 m high), 23 to 29 August 2019. The logger location is shown in Figure 1 and Figure 4 and graphical data for the logging period is provided in Appendix 2.

The single hour logger data is provided in Table 3, as 68 dBA Leq,1h for the day /evening period, and 67 dBA Leq,1hr for the night period.

Additionally, a series of attended measurements were conducted at nearby locations (microphone not elevated) between the hours of 8 am and 8:30 am on two weekday mornings. The measurements results (adjusted to remove façade reflection) ranged from 66 to 68 dBA Leq.

SLR Comments: *The logging location is appropriate, being generally in line with the development building façade. The traffic noise data was obtained approximately 1 month after the completion of the new Chandler Highway bridge. The data is therefore representative of the new road conditions (which includes widening of the highway), however it is unclear whether the traffic flows during the logging period are representative of future conditions.*

The issue of monitoring under potentially non-representative conditions (newly opened road after a long period of disruption) could have been addressed by counting traffic numbers during the monitoring period, and comparing these with the projected traffic flow. The measured noise levels could be adjusted taking this information into consideration. From our understanding traffic counts were not conducted by ALC, however the information may be available, and could potentially be used to determine whether further adjustments to the measured levels are appropriate.

The 1hr logging data presented in Table 3 is not the loudest hour of the monitoring for the day period. Levels appeared to have exceeded 68 dBA Leq,1hr on Wednesday between 2 pm and 3 pm and on Thursday between 7 am and 8 am. The 2 pm to 3 pm exceedance may have been due to extraneous noise, however the graphical data for the 7 am to 8 pm level is consistent with typical road traffic noise. We recommend that ALC clarify the basis for their determination of the hourly data, and confirm that the noise targets are proposed to be met by the loudest hour of road traffic noise. This information should be provided in the report in order to prevent ambiguity in the future.

The day and night average levels are not presented in the report. From the graphical data provided we would expect the Leq,16 hr to be 2-3 decibels lower than the reported daytime level of 68 dBA and the Leq,8 hr to be at least 5 dB lower than the reported night level of 67 dBA, i.e. in the order of 65-66 Leq,16h and 62 Leq,8hr.

We note that the Leq,16h and Leq,8h noise levels would be considerably lower than the levels measured by Renzo Tonin & Associates for Precinct 2A prior to the Chandler Highway upgrade works (site immediately north of the development site). RTA's levels for two different locations along the Chandler Highway were 71 and 74 dBA Leq, 16h (daytime average levels) and 67 and 71 dBA Leq,8h (night time average levels).

RTA's modelling, which takes into consideration the existing and proposed road conditions and traffic flow, predicts full day and night average noise levels of 71 dBA Leq,16h and 67 dBA Leq,8h (adjusted by SLR by -3 dB to obtain free field levels) at the western façade of the development, in locations comparable to the development proposed for Artisan West. These levels are effectively 5 dB higher than the numbers used by ALC.

In summary, we are concerned that the monitoring undertaken by ALC may not have captured worst case noise impacts from the Chandler Highway road traffic because it was carried out soon after a long period of road disruption.

2.3 Traffic Noise Assessment

(Section 6 of the acoustic report)

An explicit assessment of road traffic noise is not presented.

SLR Comments: *An actual assessment of road traffic noise is not provided in the report, and it is unclear how the upgrades proposed have been determined. This information should be provided for transparency. If the measured noise levels are used across the entire façade, this should be stated. Likewise, if a noise model has been prepared, or calculations carried out to predict noise to the façade, details of the methodology adopted should be provided.*

2.4 Recommendations for noise control

(Section 6 and Appendix 1 of the acoustic report)

Advice for facade upgrade treatments to control road traffic noise is provided in Section 6 and Appendix 3 of the report.

Level 1 apartments overlooking Chandler Highway are required to have as a minimum, 10.38 mm thick laminated glass to living rooms and 12.76 mm thick laminated glass to bedrooms or wintergarden arrangements. Double glazed options are also provided. Minimum acoustic ratings are provided for all systems.

The roof and external walls are proposed to be masonry and are noted not to require upgrade for acoustics. The report notes that if lightweight walls are specified, the walls are to be designed to meet the internal road traffic targets.

Ventilation pathways are noted to require treatments to ensure that the nominated design criteria are met.

SLR Comments: *Our indicative calculations using a generic road traffic spectrum suggest that ALC's design noise targets will be met with the proposed glazing, provided that acoustic (Rw) ratings nominated in the report are met, and provided that road traffic noise does not increase from the levels presented in the report.*

We note, however, that the glazing treatments to this development are considerably less than those proposed for Precinct 2A, where apartment living and bedrooms are proposed to have acoustic double glazing with nominal 100 mm deep cavities. The discrepancy between the treatments is due to a combination of the less onerous targets adopted by ALC and the lower assumed road traffic noise levels.

3 SEPP N-1 Noise Limits

(Sections 4.4 and 5.2 of the acoustic report)

SEPP N-1 noise limits are calculated from background noise measurements conducted in March 2017 at Location 1, which is north east of the subject site.

SLR Comments: *The background noise monitoring location and results look reasonable. Our calculations of SEPP N-1 noise limits agree with ALC's.*

4 Noise from the Subject Development

4.1 Rooftop Communal Terraces

(Section 7 of the report)

Noise from rooftop communal terraces is proposed to be controlled by limiting use to the hours of 7 am to 10 pm. Additionally it is recommended that the facility be managed by the Body Corporate to minimise nuisance.

Structureborne noise from the roof terrace (noise produced by impacts to the floor, including footfall and furniture movement) is proposed to be controlled via compliance with Part 5 of the BCA. Concept advice for treatments is provided in the report (acoustic underlay below tiles and 75 mm thick fibrous insulation to ceiling cavity).

SLR Comments: *The proposed management control should be adequate, particularly given that the most impacted apartments will also have glazing upgrades to assist in the control of road traffic noise.*

The conceptual advice for controlling structureborne sound is generally reasonable, however we note that meeting the standards specified in the BCA does not ensure a good amenity outcome, as the standard is quite low (i.e. if the ALC advice is followed the outcome will be better than BCA minimum standard).

4.2 Carpark and Carpark Entrance Gate

(Section 9 of the report)

The report includes a discussion of noise targets and general recommendations for controlling noise from the carpark entrance gate. The guidelines include:

- The requirement for an imperforate door
- Door to be vibration isolated from the building structure
- Door to be quiet in operation
- Equipment not to rattle
- Motor to be fitted with a soft start/stop mechanism
- Door not to contact the floor slab on closing.

SLR Comments: *While the report includes a discussion of targets, specific targets for noise from operation of the door are not actually nominated. However, on this project, there would appear to be little risk of nuisance noise from the carpark door and carpark if the guidelines provided in the report are followed. Consequently, explicit nomination of noise targets has not been raised as an issue requiring attention in this review.*

4.3 Project Mechanical Plant and Equipment

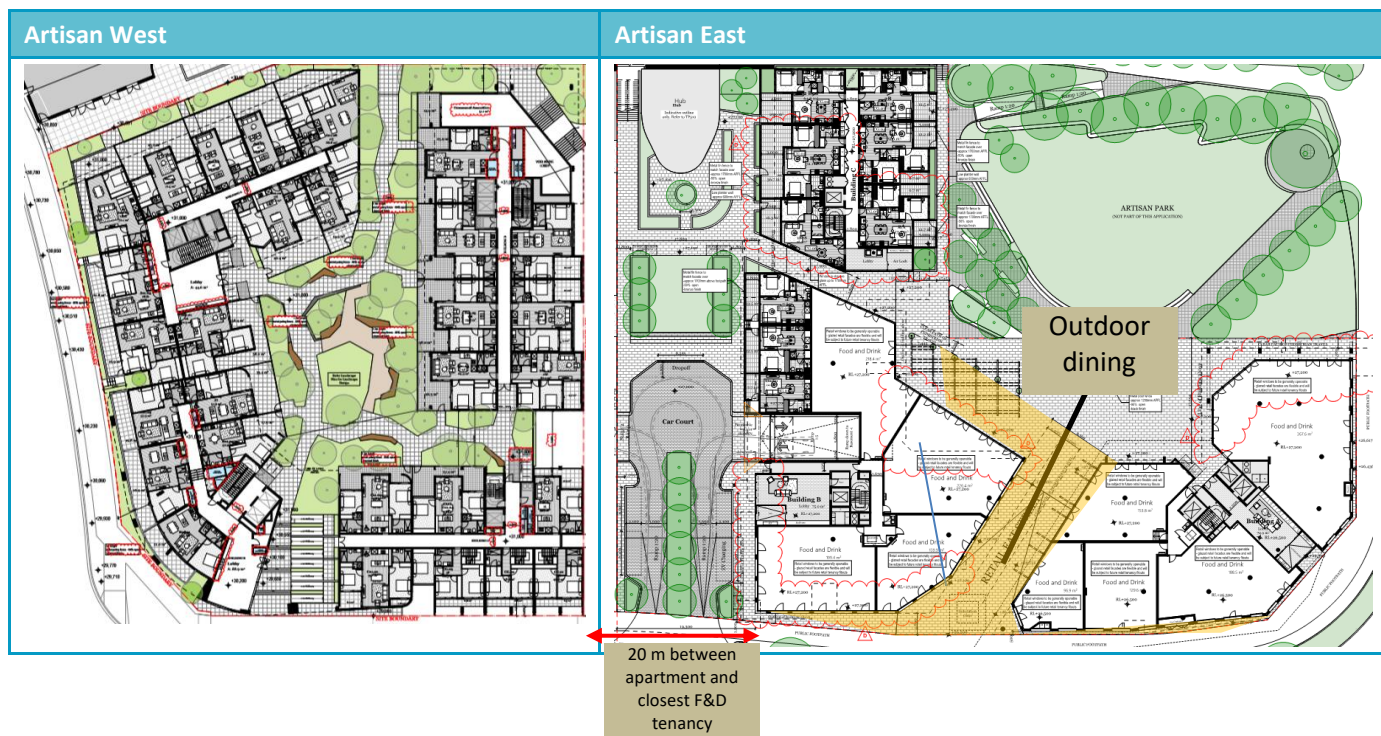
(Section 8 of the report)

Noise from mechanical plant and equipment associated with the residential development is proposed to be assessed to SEPP N-1 and the EPA Noise Control Guidelines (as appropriate). A full assessment is not included in the report due to the unavailability of equipment details and layouts. ALC state that noise from the equipment is to be reviewed by a suitably qualified acoustical consultant to ensure that compliance with the relevant criteria is achieved.

SLR Comments: It is reasonable to conduct the assessment of noise from mechanical plant during the detailed design phase. The report includes the requirement for a review and therefore addresses our concerns on this matter.

5 Other Matters – Artisan East Outdoor Patron Areas

The Artisan East development includes a number of food and drink tenancies with outdoor patron areas, and many apartments within that development required façade upgrade treatments to address patron noise. However, from our review of the Artisan East drawings, it does not appear that any apartments within the Artisan West development will have a line of sight to the outdoor patron areas. Refer to plans below showing outdoor dining locations). This fact, combined with the restrictions on the outdoor patron areas themselves (day and evening operation only), suggests that an assessment of patron noise from Artisan East to Artisan West is not necessary.



6 Summary

SLR has conducted a review of the acoustic report prepared for the Artisan West Apartments, Alphington. The matters we recommend are addressed in further detail all pertain to traffic noise.

Road traffic noise appears to have been assessed to the upper end of the AS2107:2016 ranges, being 45 dBA Leq,1hr in living rooms and 40 dBA Leq,1hr in bedrooms. SLR also recommend that the day and night average levels are at least 5 dB lower than the loudest hour targets. That is, 40 dBA Leq,16h in all habitable rooms and 35 dBA Leq,8h in bedrooms. Our recommended day and night average targets are in line with those provided in Standard D16 of the Yarra Planning Scheme, and are within the AS/NZS 2107 ranges. They are therefore also consistent with the Amcor Site Development Plan acoustic report prepared by Arup. The average noise targets are in our opinion important for this site due to the potential for traffic noise levels to be consistently high throughout the day.

Our specific questions in regard to the provided assessment are summarised below:

- The means by which the hourly traffic noise levels are to be determined is not stated in the report. The targets should be met by all hours of road traffic noise, excluding periods where extraneous noise is responsible for elevated levels (e.g. road works or unsuitable weather). The report should state this clearly to avoid ambiguity in the future.
- The provided Leq,1h level does not appear to align with the loudest hour of road traffic noise for the day period. ALC should provide the basis for their identification of the noise level and if the loudest measured hour is not presented, provide the basis for excluding it.
- Road traffic noise monitoring was undertaken shortly after the Chandler Highway bridge reopened, and SLR are concerned that vehicle numbers may have been below the projected traffic flow. The higher measured and predicted levels used in the RTA acoustic report prepared for Precinct 2A also suggest that the levels used by ALC may be too low. If vehicle numbers during the monitoring period can be sourced, this information should be used to determine whether the data obtained by ALC is representative of future use. If the information cannot be sourced, we would recommend that the logging be repeated after the COVID-19 shutdowns are over and traffic flows more closely resemble the projected numbers.

The combination of the less onerous design noise targets adopted by ALC and lower road traffic noise levels has resulted in recommendations for façade upgrade treatments that are substantially lower than those provided for Precinct 2A, which is also subject to noise from the Chandler Highway.

Regards,



Dianne Williams
Associate – Acoustics

Reviewed by JA