

**Road Traffic Noise Assessment  
Proposed Seniors Housing  
26 Rose Crescent and 69 – 73 Bourke Street, North Parramatta**

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## SECTION 1 INTRODUCTION

A seniors housing, comprising 14 occupancy units in three buildings, is proposed to be built at 26 Rose Crescent and 69 – 73 Bourke Street, North Parramatta, refer to the site location in Figure 1 below and the architectural floor plans in Appendix B. The buildings will have brick masonry for the external walls and metal sheeting for the roof.

The noise from road traffic on James Ruse Drive is the major source of environmental noise affecting the proposed development.

Road traffic noise affecting the proposal was measured at the development site and noise control recommendations to reduce the noise inside the development to comply with Council requirements and Section 2.119 of the State Environment Planning Policy (Transport and Infrastructure) 2021 are detailed in Section 4 of this report. Construction noise is considered in Section 5.



FIGURE 1 – Site Location

## SECTION 2 ROAD TRAFFIC NOISE

### 2.1 Measured Road Traffic Noise Levels

The proposed development will be located at 26 Rose Crescent and 69 – 73 Bourke Street, North Parramatta. Measurements of road traffic noise affecting the proposed development were carried out at and near the proposed development site between Wednesday 16 February and Wednesday 23 February 2022.

The noise measurements were carried out at the following locations, refer to the Site Locations in Figure 1 above:

- ❑ Location 1: long-term noise monitoring location at the height of 2.5 metres above the ground level at 65 Jeffery Avenue, North Parramatta. This location is approximately 18 metres from Bourke Street.
- ❑ Location 2: short-term noise monitoring location at the height of 1.5 metres above the existing ground level, 2 metres from the western boundary and 10 metres from Bourke Street, in-line with the northern façade of the proposed buildings most affected by road traffic noise.
- ❑ Location 3: short-term noise monitoring location at the height of 1.5 metres above the existing ground level, 4 metres from the eastern boundary and 10 metres from Bourke Street, in-line with the northern façade of the proposed buildings most affected by road traffic noise.
- ❑ Location 4: short-term noise monitoring location at the height of 1.5 metres above the existing ground level and approximately 26 metres from Bourke Street.

The results of the noise survey are presented in Appendix A and summarized in TABLES 1 and 2 below. The measured noise levels in TABLES 1 and 2 exclude a façade reflection.

**TABLE 1 – Measured Long-Term Road Traffic Noise**

Location 1: 65 Jeffery Avenue, North Parramatta		
Measurement Period	External Daytime (7am – 10pm) $L_{eq, 15\text{-hour}}$ Noise Level, dB(A)	External Night-time (10pm – 7am) $L_{eq, 9\text{-hour}}$ Noise Level, dB(A)
Wednesday (16/02/22)	57	52
Thursday (17/02/22)	54	53
Friday (18/02/22)	54	54
Saturday (19/02/22)	54	50
Sunday (20/02/22)	55	55
Monday (21/02/22)	55	56
Tuesday (22/02/22)	55	55
Wednesday (23/02/22)	55	-
<b>Overall <math>L_{eq}</math> Noise Level</b>	<b>55</b>	<b>54</b>



**TABLE 2 – Measured Short-Term Road Traffic Noise**

Location, Date & Time	L <sub>eq</sub> Sound Pressure Levels (dB) at Octave Band Centre Frequencies (Hz)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
Location 2: 1.5 m above the ground, 2m from the western boundary and 10 m from Bourke Street (4:45 – 5:00 pm, Wednesday 23/02/22)	65	61	51	49	52	49	46	36	<b>56</b>
Location 3: 1.5 m above the ground, 4m from the eastern boundary and 10 m from Bourke Street (4:45 – 5:00 pm, Wednesday 23/02/22)	65	61	53	53	54	51	46	37	<b>58</b>
Location 4: 1.5 m above the ground, 2m from the western boundary and 26 m from Bourke Street (7:45 – 8:00 pm, Wednesday 16/02/22)	64	59	54	48	47	45	39	30	<b>53</b>



**FIGURE 2 – Noise Monitoring Locations**

The measured road traffic noise level was found to be the same at the short-term noise monitoring location 2 as the level at the long-term noise monitoring location. The measured road traffic noise level was found to be approximately 2 dB higher at the short-term noise monitoring location 3 than the level at the long-term noise monitoring location.

Meteorological conditions during the measurements consisted of clear and cloudy skies and periods of rain and high wind, as shown in Appendix A. Recorded data during the periods of rain/high wind was excluded from the background noise levels. Atmospheric conditions at all other times were ideal for noise monitoring.

## 2.2 Measurement Equipment

The noise level measurements were made with the following equipment meeting all applicable requirements of Australian Standard AS1259 for an integrating-averaging sound level meter, set to Fast Response:

- Svantek 977C Sound Analyser, Type 1 precision environmental sound and vibration analyser, calibrated on 9/03/2021.
- Svantek 971 Sound Analyser, Type 1 precision environmental sound analyser, calibrated on 20/07/2021.
- Infobyte Noise Monitor iM4-102, Type 2 precision environmental noise monitor, calibrated on 31/07/2020.

The measurement system was field calibrated with a Svantek SV-33B acoustic calibrator before the noise survey. A calibration check was performed at the start and end of the noise survey, and the calibration drift was found to be less than 0.5 dB and was therefore acceptable. The SV-33B was calibrated on 9/03/2021.

## 2.3 Noise Level Descriptors

$L_{Aeq}$  noise level descriptor is defined as “the value of the A-weighted sound pressure level of a continuous steady sound that, within the measurement time interval,  $t$ , has the same mean square sound pressure as a sound under consideration whose level varies with time” [AS2107-2016].

The  $L_{Aeq}$  is determined by integrating the sound level over time and studies have shown that human reaction to time-varying noise is quite accurately represented by the  $L_{Aeq}$  level [Marshall Long, “Architectural Acoustics”, 2006].

$L_{eq, 15\text{-hour}}$  noise level is the overall daytime and evening  $L_{Aeq}$  noise level between 7 am and 10 pm and is used to assess road traffic noise inside living areas.

$L_{eq, 9\text{-hour}}$  noise level is the overall night-time  $L_{Aeq}$  noise level between 10 pm and 7 am and is used to assess road traffic noise inside sleeping areas.

## SECTION 3 ROAD TRAFFIC NOISE CRITERIA

The Council requires the proposed development to be designed to meet the requirements of the State Environment Planning Policy (Transport and Infrastructure) 2021 (SEPP 2021) and the NSW Department of Planning for road traffic noise.

### 3.1 Australian Standards AS3671-1989 and AS2107-2016

Australian Standard 3671-1989 “Acoustics – Road traffic noise intrusion – Building siting and construction” recommends the use of AS 2107-2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors” to determine acceptable noise levels indoors for different types of activity. AS 3671 also recommends that the  $L_{eq}$  noise level descriptor be determined over a period of time depending on the type of activity for which the building is designed.

The following design sound levels are recommended for residential buildings near major roads, based on AS3671 and AS2107:

- ❑ Living areas –  $L_{Aeq, (15-hour)}$  (7 am – 10 pm) of 35 to 45 dB(A).
- ❑ Sleeping areas –  $L_{Aeq, (9-hour)}$  (10 pm – 7 am) of 35 to 40 dB(A).

Based on an annual increase of 2% in the road traffic volume, 1 dB is added to the measured levels of noise to account for the increase in road traffic volume over 10 years, as required by AS 3671<sup>1</sup>.

### 3.2 State Environment Planning Policy (Transport and Infrastructure) 2021

#### 2.119 Impact of road noise or vibration on non-road development

(1) *This clause applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW) and that the consent authority considers is likely to be adversely affected by road noise or vibration—*

- (a) *residential accommodation,*
- (b) *a place of public worship,*
- (c) *a hospital,*
- (d) *an educational establishment or centre-based child care facility.*

(2) *Before determining a development application for development to which this section applies, the consent authority must take into consideration any guidelines that are issued by the Secretary for the purposes of this section and published in the Gazette.*

(3) *If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following  $L_{Aeq}$  levels are not exceeded—*

- (a) *in any bedroom in the residential accommodation—35 dB(A) at any time between 10 pm and 7 am,*
- (b) *anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway) —40 dB(A) at any time.*

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<sup>1</sup> AS 3671 states “Traffic flow volume and speed and vehicle mix have a significant effect on traffic noise levels; therefore, measured or predicted exposures must be related to the traffic and propagation conditions which are expected to apply through the reasonable planning horizon (approximately 10 years). In many cases this will mean that traffic flow and vehicle mix conditions used in noise exposure predictions will have to be estimated by growth rates from current conditions, and current measurements will have to be adjusted for changes in traffic flow and mix”.



(4) *In this section, freeway, tollway and transitway have the same meanings as they have in the Roads Act 1993.*

### **3.3 Development Near Rail Corridors and Busy Roads – Interim Guidelines**

The NSW Department of Planning published the “Development Near Rail Corridors and Busy Roads – Interim Guidelines” in 2008. The Guidelines refer to Clause 87 and 102 of the State Environment Planning Policy (Infrastructure) 2007, currently Sections 2.99 and 2.119 of SEPP 2021, for the noise criteria for developments affected by rail and traffic noise.

The Guidelines use the  $L_{Aeq(9h)}$  noise descriptor to assess the noise level between 10 pm and 7 am, and the  $L_{Aeq(15h)}$  noise descriptor to assess the noise level in the daytime between 7 am and 10 pm.

The Guidelines state the following regarding ventilation:

*“if internal noise levels with windows or doors open exceed the criteria by more than 10 dBA, the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia”.*

### **3.4 Required Road Traffic Noise Reduction**

Based on the above noise criteria for the proposed development, the required road traffic noise reduction from outside to inside with the windows/doors closed is summarised in TABLE 3 below.

**TABLE 3 – Required Road Traffic Noise Reduction**

Location	External Noise Level	Indoor Design Sound Level	Required Noise Reduction
Unit 1, Living room	56 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	16 dB
Unit 1, Bedroom 1	55 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	20 dB
Unit 1, Bedroom 2	50 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	15 dB
Unit 2, Living room	59 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	19 dB
Unit 2, Bedroom 1	58 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	23 dB
Unit 2, Bedroom 2	53 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	18 dB
Unit 3, Living room	57 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	17 dB
Unit 3, Bedroom 1	56 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	21 dB
Unit 3, Bedroom 2	51 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	16 dB
Unit 4, Living room	60 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	20 dB
Unit 4, Bedroom 1	59 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	24 dB
Unit 4, Bedroom 2	54 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	19 dB
Units 5 & 7, Living room	58 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	18 dB
Units 5 & 7, Bedroom 1	57 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	22 dB
Unit5, Bedroom 2	52 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	17 dB

**TABLE 3 (Cont.) – Required Road Traffic Noise Reduction**

Location	External Noise Level	Indoor Design Sound Level	Required Noise Reduction
Units 6 & 8, Living room	61 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	21 dB
Units 6 & 8, Bedroom 1	60 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	25 dB
Unit 6, Bedroom 2	55 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	20 dB
Unit 7, Bedroom 2	54 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	19 dB
Unit 8, Bedroom 2	57 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	22 dB
Unit 9, Living room	53 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	13 dB
Unit 9, Bedroom	52 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	17 dB
Unit 10, Living room	56 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	16 dB
Unit 10, Bedroom	55 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	20 dB
Units 11 & 13, Living room	52 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	12 dB
Units 11 & 13, Bedroom	51 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	16 dB
Units 12 & 14, Living room	55 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	40 dB(A) L <sub>eq</sub> , 15-hour Day (7 am – 10 pm)	15 dB
Units 12 & 14, Bedroom	54 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	35 dB(A) L <sub>eq</sub> , 9-hour Night (10 pm – 7 am)	19 dB

### 3.5 Mechanical Ventilation

For natural ventilation, with the windows and external doors open, the level of noise inside the rooms from road traffic should not exceed 10 dB above the internal noise criteria.

The required noise reduction from outside to the inside of the habitable rooms with the windows/doors open is therefore up to 15 dB (equal to the external noise level minus the indoor design sound level with windows/doors open), refer to TABLE 4 below.

Up to 10 dB noise reduction can be achieved with the windows/doors open. An exceedance of up to 2 dB is not significant, and mechanical ventilation is therefore not required where the required noise reduction is up to 12 dB with windows open<sup>2</sup>.

The level of road traffic noise will exceed the noise criteria inside the first-floor bedrooms fronting Bourke Street, with open windows. The windows of the first-floor bedrooms fronting the road can be closed and the side windows can be open to provide ventilation. Mechanical ventilation will therefore not be required to provide ventilation while the windows are closed in the first-floor bedrooms.

The level of road traffic noise will also comply with the noise criteria inside other rooms, with the windows/doors open, and mechanical ventilation will not be required to provide ventilation while the windows and doors are closed in other rooms<sup>3</sup>.

**TABLE 4 – Required Road Traffic Noise Reduction with Windows Open**

Location	External Noise Level	Indoor Design Sound Level ( <i>windows closed</i> )	Indoor Design Sound Level ( <i>windows open</i> )	Required Noise Reduction ( <i>windows open</i> )
Living rooms	52 - 61 dB(A) L <sub>eq</sub> , 15-hour	40 dB(A) L <sub>eq</sub> , 15-hour	50 dB(A) L <sub>eq</sub> , 15-hour	2 - 11 dB
Bedrooms	50 - 60 dB(A) L <sub>eq</sub> , 9-hour	35 dB(A) L <sub>eq</sub> , 9-hour	45 dB(A) L <sub>eq</sub> , 9-hour	5 - 15 dB*

\* The required noise reduction is up to 12 dB for the side windows of the first-floor bedrooms.

<sup>2</sup> An exceedance of up to 2 dB is not significant and is considered 'negligible' in the Noise Policy for Industry published by the NSW Environmental Protection Authority (EPA) [Section 4.2 of the NPI].

<sup>3</sup> The noise emission from any outdoor air-conditioning unit(s) should comply with the requirements of Council and NSW Environment Protection Authority (EPA) and with Clause 45 of the Protection of the Environment Operations (Noise Control) Regulation 2017. The assessment of the noise emission from ventilation plant is not part of road traffic noise assessment in this report.

The EPA's "Noise Guide for Local Government" recommends the Fairair online calculator available at [www.fairair.com.au](http://www.fairair.com.au) to estimate the maximum noise level from an outdoor air-conditioning unit in order not to impact on neighbouring residences [Subsection 3.1, Appendix 3, Noise Guide for Local Government].

## SECTION 4 NOISE CONTROL RECOMMENDATIONS

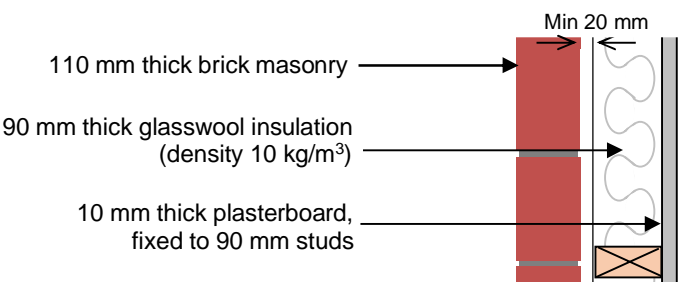
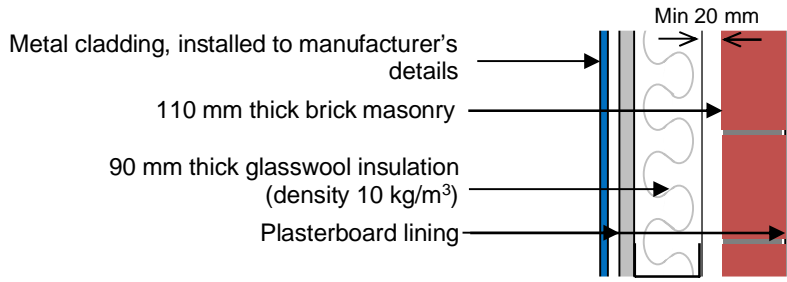
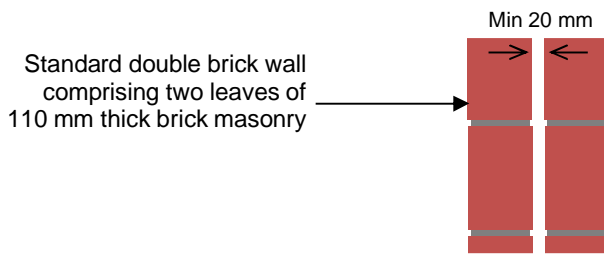
Road traffic noise intrusion into the proposed residential development was assessed based on the noise criteria in Section 3 of this report and the architectural drawings by Barry Rush & Associates Pty Ltd, dated 2/05/2022, refer to the floor plans in Appendix B.

The following recommended constructions will provide the required noise reduction to comply with the noise criteria in Section 3 of this report.

### 4.1 External Walls

Standard double brick, blockwork and standard brick veneer and reverse brick veneer external walls will be acoustically acceptable. Typical standard constructions are shown in TABLE 6 below.

**TABLE 5 – Recommended External Wall Construction Details (Typical)**

Location	Wall Construction
Habitable rooms	 <p>110 mm thick brick masonry</p> <p>90 mm thick glasswool insulation (density 10 kg/m<sup>3</sup>)</p> <p>10 mm thick plasterboard, fixed to 90 mm studs</p> <p>Min 20 mm</p>
	 <p>Metal cladding, installed to manufacturer's details</p> <p>110 mm thick brick masonry</p> <p>90 mm thick glasswool insulation (density 10 kg/m<sup>3</sup>)</p> <p>Plasterboard lining</p> <p>Min 20 mm</p>
	 <p>Standard double brick wall comprising two leaves of 110 mm thick brick masonry</p> <p>Min 20 mm</p>



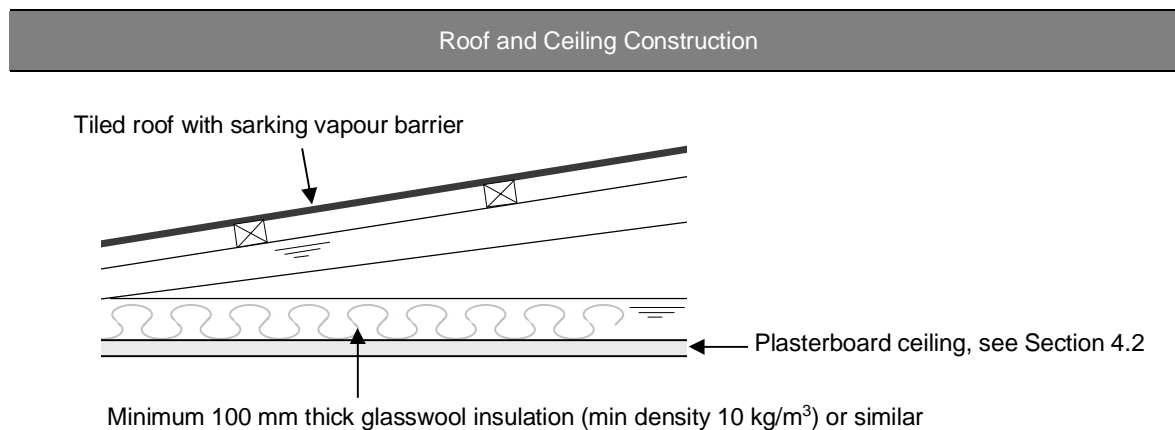
## 4.2 Roof/Ceiling

The roof and ceiling are recommended to be constructed using the following, refer to the detail in TABLE 7 below:

- Metal roofing with a sarking vapour barrier.
- Minimum 100 mm thick glasswool insulation (min density 10 kg/m<sup>3</sup>) or similar<sup>4</sup> installed inside the roof cavity between the ceiling joists or rafters.
- One layer of standard 13 mm thick plasterboard for the ceiling under the roof in the first-floor bedrooms fronting Bourke Street.
- One layer of standard 10 mm thick plasterboard for the ceiling under the roof in other areas.

Ceiling access panels should be equivalent to the ceiling, installed in a steel frame with neoprene rubber or closed-cell foam sealing strip fitted to the perimeter of the panels. Provide sufficient fixings around the perimeter of the access panels to ensure that the rubber/foam seal is compressed around the full perimeter of the panels when closed. An access panel acoustically rated to achieve  $R_w$  30 will also be acoustically acceptable.

**TABLE 6 – Recommended Roof/Ceiling Constructions**



Penetrations in the ceiling under the roof of habitable rooms fronting Bourke Street, such as ventilation openings, should be acoustically treated to maintain the noise reduction of the ceiling using the following:

- An acoustic metal air plenum box or an insulated cushion box installed over the air grilles/diffusers. The plenum/cushion box should be constructed using a minimum of **0.5 mm thick steel**.
- The plenum/cushion box should be internally lined with 50 mm thick glasswool or polyester insulation with a minimum density of 32 kg/m<sup>3</sup> and faced with a minimum of 20% open area perforated steel or foil.

<sup>4</sup> Minimum 100 mm thick glasswool insulation (minimum density 10 kg/m<sup>3</sup>) or similar such as 175 mm thick 'Knauf Earthwool' or 185 mm thick 'CSR Bradford' R3.5 type thermal insulation.

### 4.3 Windows and External Glazed Doors

The recommended glazing assemblies are given in TABLE 8 below and marked up in Appendix B. Alternative glazing assembly may be used provided the  $R_w$  rating and the glass thickness are achieved or exceeded.

**TABLE 7 – Recommended Glazing Constructions**

Unit	Window / Door	Minimum $R_w$	Glazing Construction
2, 4, 6 and 8	First-floor Bedroom 1 front windows	34	Single glazing: 10.38 mm thick laminated glass, fixed or openable with Schlegel Q-Lon acoustic seals OR Double glazing: 6 mm thick glass / 12 mm airgap / 6.5 mm thick Vlam HUSH glass with Schlegel Q-Lon acoustic seals
1 – 8	Living room doors Ground floor Bedroom 1 windows First-floor Bedroom 1 side windows Bedroom 2 side windows	30	Single glazing: 6.38 mm thick laminated glass, fixed or openable with Schlegel Q-Lon acoustic seals
11 – 14	Living and dining room doors Bedroom windows		
9 – 10	Living room and kitchen windows	24	Single glazing: 4 mm thick float glass, fixed or openable with Schlegel Q-Lon acoustic seals
11 – 14	Living and dining room windows		
Above	Other windows	-	Standard window construction

It is recommended that the glazing supplier provide a confirmation, supported by acoustical laboratory test reports, that the glazing will meet the specifications. The design of the glazing assembly including the frames, perimeter seals, and the installation in the building openings should not reduce the  $R_w$  rating of the glazing assembly below the specified values and should be built and acoustically sealed as per the acoustical laboratory test reports. The installation should only be carried out by trained personnel in acoustically sealing the windows and doors. Incorrectly sealed window/door may result in non-compliance at the Occupation Certificate stage.

#### **4.4 Acoustic Privacy**

The sound insulation rating of entry doors, services and walls and floors separating the occupancy units of the proposed development should meet the requirements of Part F5 of the NCC<sup>5</sup>. It is recommended that the constructions to meet Part F5 of the NCC be determined at the Construction Certificate stage once the type of walls and material selection is finalised.

#### **4.5 Floor**

Standard concrete slab floor construction will be acoustically acceptable to reduce road traffic noise<sup>5</sup>.

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<sup>5</sup> This report provides recommendations to reduce external traffic noise and does not consider the sound insulation requirements of Part F5 of the Building Code of Australia (BCA), part of the National Construction Code (NCC). The floors and ceilings are required to be sound insulated to meet the requirements of the BCA and may therefore require a heavier construction than recommended in this report.

## SECTION 5 CONSTRUCTION NOISE

### 5.1 EPA Construction Noise Guideline

The Interim Construction Noise Guideline, published by the NSW Environment Protection Authority (EPA) in 2009, is specifically aimed at managing noise from construction works regulated by EPA. The Guideline is a useful tool for assessing the noise from non-scheduled construction activities.

The Guideline aims to provide guidance on managing construction works to minimise noise and focuses on applying all 'feasible' and 'reasonable' work practices to minimise noise impact.

The Guideline recommends the following standard hours for construction work:

- 7.00 am to 6.00 pm, Monday to Friday
- 8.00 am to 1.00 pm, Saturday
- No work on Sunday or Public Holiday

The Guideline provides 'quantitative' and 'qualitative' assessment methods. A 'quantitative' assessment method is for major construction projects that are licensed by the EPA such as new public infrastructure or major commercial or industrial developments. A 'qualitative' method is used for smaller scale construction or maintenance projects.

While the 'quantitative' method is not strictly applicable to this site, as the proposed development is not scheduled, the 'quantitative' method is used in this report to establish management noise levels at potentially affected residential and commercial receptors and how they are to be applied during normal construction hours.

A Rating Background Level of 49 dB(A) was measured at the adjoining residence, at the long-term noise monitoring location, between Wednesday 16 February and Wednesday 23 February 2022. Based on this level, the recommended noise management levels at the nearby affected residential premises are summarised in TABLE 9 below.

During construction, the Guideline states that the proponent should regularly update the occupants of the nearby premises regarding noise levels and hours of work.

The 'qualitative' assessment method recommends that a Noise Management Plan include the following:

- identification of nearby residences and other sensitive land uses
- description of approved hours of work and what work will be undertaken
- description of what work practices will be applied to minimise noise
- description of the complaints handling process.

### 5.2 Recommendations

The Interim Construction Noise Guideline focuses on achieving desired environmental outcomes – *"there are no prescribed noise controls for construction works. Instead, all feasible and reasonable work practices should be implemented to minimise noise impacts. This approach gives construction site managers and construction workers the greatest flexibility to manage noise"*.

A Construction Noise Management Plan (CNMP) may be prepared at the Construction Certificate stage if required, once the construction programme, proposed work practices, equipment to be used and methodology are determined.

The following work practices are recommended to minimise noise emission:

- ☐ Avoid dropping materials from a height.
- ☐ Avoid metal-to-metal contact on equipment.
- ☐ Avoid the use of radios or stereos outdoors where neighbours can be affected.
- ☐ Avoid shouting outdoors and minimise talking loudly.
- ☐ Avoid slamming vehicle doors.
- ☐ Avoid using jackhammers and other noisy equipment in direct line of sight of the residences.  
Use temporary sound barriers where practicable.
- ☐ Select silenced compressors, silenced jackhammers and damped bits where possible.
- ☐ Engines should be fitted with efficient exhaust silencers.
- ☐ Turn off equipment when not being used.
- ☐ Place as much distance as possible between the plant or equipment and the residences.

**TABLE 8 – Noise Management Levels from Construction Activities**

Time of Day	Management Level $L_{Aeq}$ (15 Min)	How to Apply
<b>Residential Receptor:</b>  <b>Recommended standard hours:</b>  Monday to Friday 7 am to 6 pm  Saturday 8 am to 1 pm  No work on Sundays or public holidays	<b>59 dB(A)*</b> (= 49 + 10)	<p>The noise affected level represents the point above which there may be some community reaction to noise.</p> <ul style="list-style-type: none"> <li>Where the predicted or measured <math>L_{Aeq}</math> (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level.</li> <li>The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.</li> </ul>
	Highly noise affected 75 dB(A)*	<p>The highly noise affected level represents the point above which there may be strong community reaction to noise.</p> <ul style="list-style-type: none"> <li>Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: <ol style="list-style-type: none"> <li>times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences)</li> <li>if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.</li> </ol> </li> </ul>

\* Noise levels apply at the residential property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. Noise levels may be higher at the upper floors of the noise affected residence.



## SECTION 6 CONCLUSION

Road traffic noise affecting the proposed development at 26 Rose Crescent and 69 – 73 Bourke Street, North Parramatta has been assessed.

Provided the noise control recommendations in Section 4 of this report are implemented, road traffic noise inside the development will be reduced to comply with the noise criteria in Section 2.119 of the State Environment Planning Policy (Transport and Infrastructure) 2021.

Report prepared by  
**DK Acoustics Pty Ltd**



**Danny Kastak**, BE, MEngSc., MIEAust., MAAS  
Senior Acoustical Engineer

### MEMBERSHIPS

Member of the Australian Acoustical Society and the Institute of Engineers, Australia and a consulting acoustical engineer since 1997. The work in this report has been performed in accordance with the terms of these memberships.

### QUALIFICATIONS

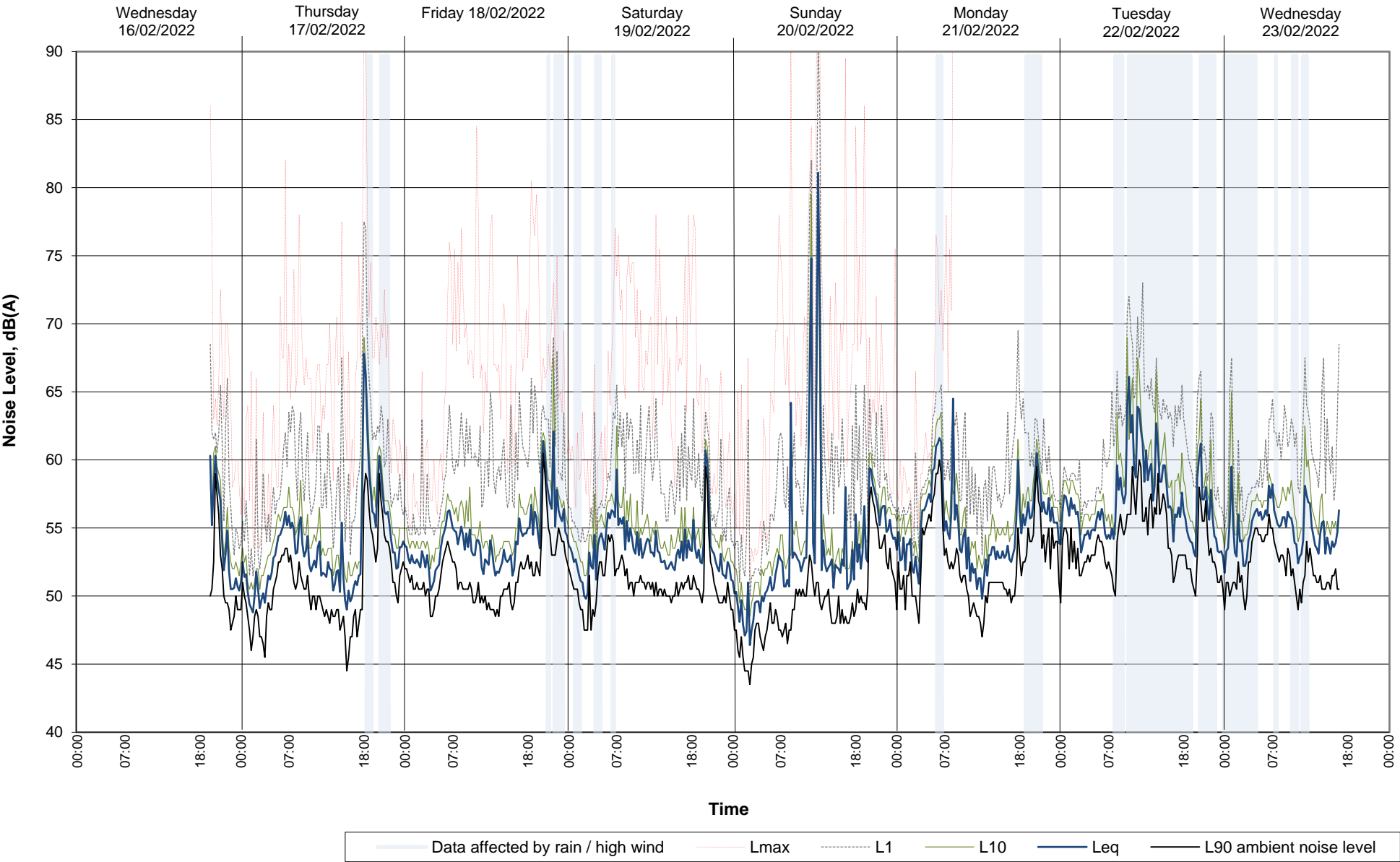
Bachelor of Engineering, The University of New South Wales, 1993.  
Master of Engineering Science, The University of New South Wales, 1996.

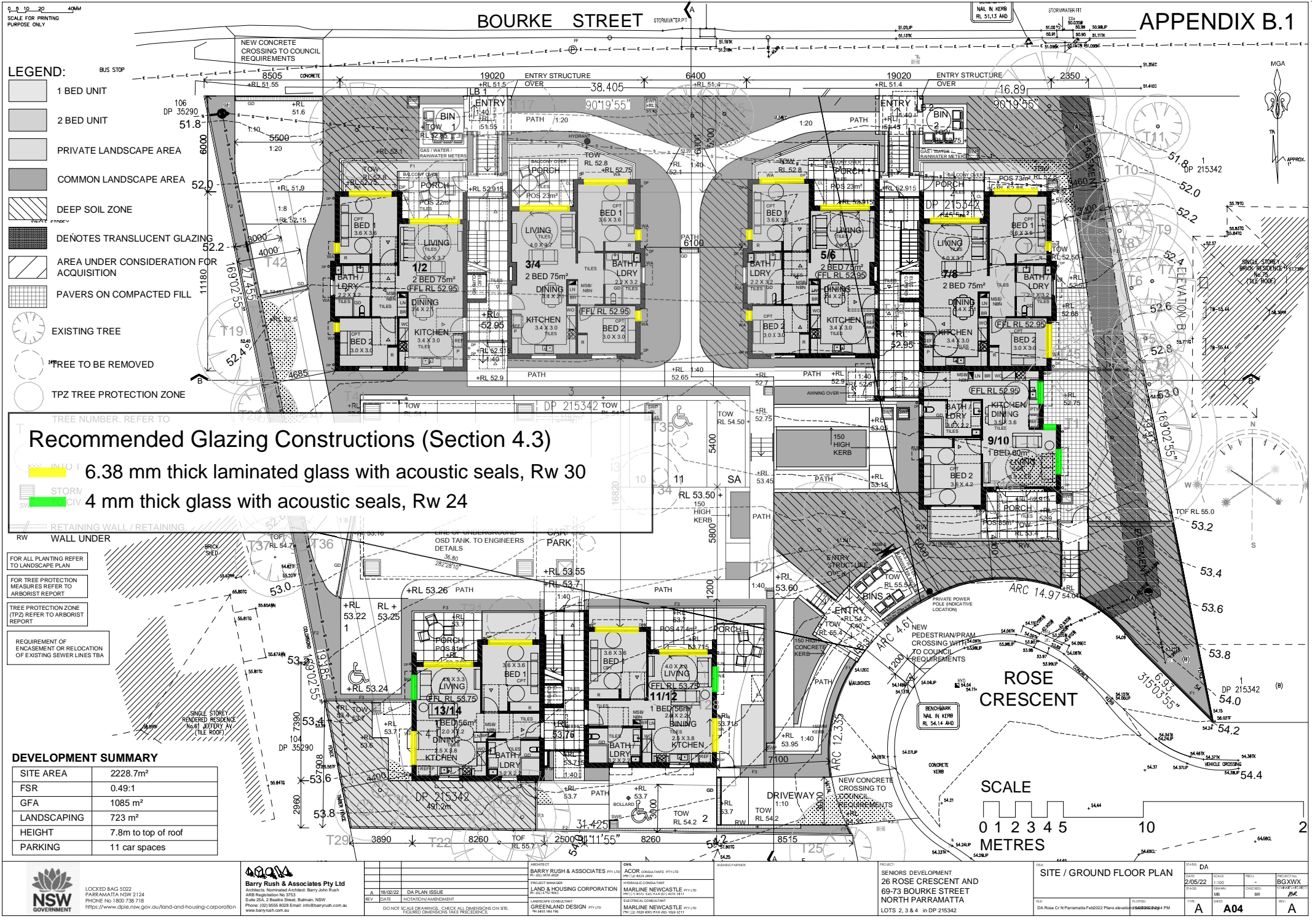
### Attachments:

Appendix A – Ambient noise survey  
Appendix B – Architectural floor plans and recommended glazing constructions

AMBIENT NOISE SURVEY

Noise monitor location: 65 Jeffery Avenue, North Parramatta





- LEGEND:**
- 1 BED UNIT
  - 2 BED UNIT
  - PRIVATE LANDSCAPE AREA
  - COMMON LANDSCAPE AREA
  - DEEP SOIL ZONE
  - DENOTES TRANSLUCENT GLAZING
  - AREA UNDER CONSIDERATION FOR ACQUISITION
  - PAVERS ON COMPACTED FILL
  - EXISTING TREE
  - FREE TO BE REMOVED
  - TPZ TREE PROTECTION ZONE

### Recommended Glazing Constructions (Section 4.3)

- 6.38 mm thick laminated glass with acoustic seals, Rw 30
- 4 mm thick glass with acoustic seals, Rw 24

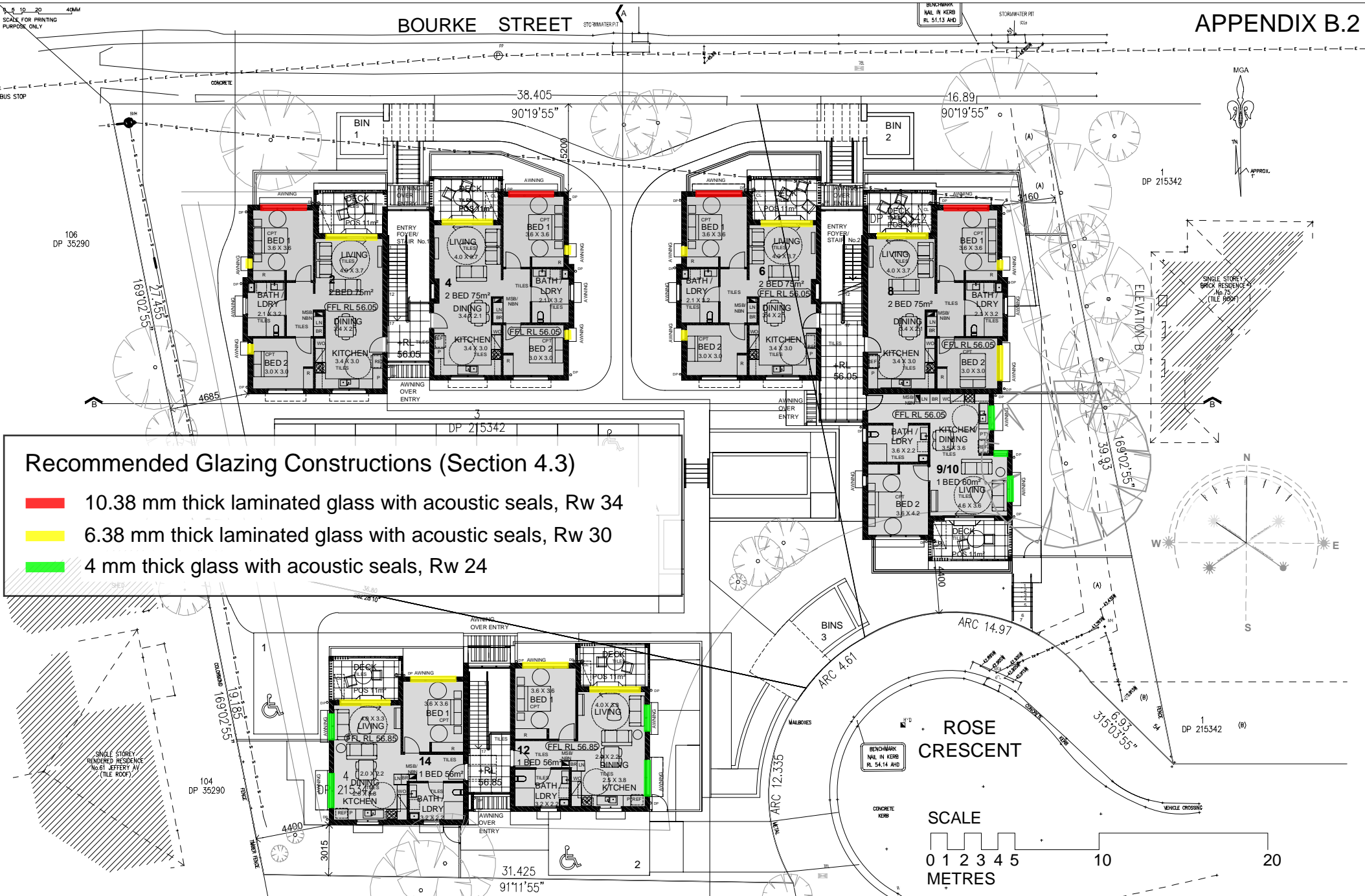
**DEVELOPMENT SUMMARY**

SITE AREA	2228.7m <sup>2</sup>
FSR	0.49:1
GFA	1085 m <sup>2</sup>
LANDSCAPING	723 m <sup>2</sup>
HEIGHT	7.8m to top of roof
PARKING	11 car spaces



BOURKE STREET

APPENDIX B.2



### Recommended Glazing Constructions (Section 4.3)

- 10.38 mm thick laminated glass with acoustic seals, Rw 34
- 6.38 mm thick laminated glass with acoustic seals, Rw 30
- 4 mm thick glass with acoustic seals, Rw 24