

MAARCH

**DUNCAN STREET NURSING HOME
VICTORIA PARK**

**DEVELOPMENT APPLICATION
ACOUSTIC REPORT**

OCTOBER 2020

OUR REFERENCE: 26347-1-19277-02

DOCUMENT CONTROL PAGE

DA ACOUSTIC REPORT
DUNCAN STREET NURSING HOME
VICTORIA PARK

Job No: 19277-02

Document Reference : 26347-1-19277-02

FOR

MAARCH

DOCUMENT INFORMATION

Author:	George Watts	Checked by:	Tim Reynolds
Date of Issue :	7 October 2020		

REVISION HISTORY

Revision	Description	Date	Author	Checked

DOCUMENT DISTRIBUTION

Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	1	Maarch Attn: Mark Aronson Email: mark@maarch.net.au		✓

CONTENTS

1.0	INTRODUCTION	1
2.0	PROPOSED DEVELOPMENT	1
3.0	CRITERIA	1
3.1	NCC Provisions	1
3.2	Environmental Protection (Noise) Regulations 1997	2
3.3	Noise Ingress	4
4.0	BCA REQUIREMENTS	5
5.0	NOISE INGRESS	5
5.1	Noise Source Identification	5
5.2	Measurements	5
6.0	NOISE FROM DEVELOPMENT	6
6.1	Mechanical Services	6
6.2	Mechanical Services – Preliminary Assessment	7
6.3	Carpark Noise Sources	7

APPENDICIES

A	Development Application Plans
B	Preliminary Mechanical Services Drawings and Selections

1.0 INTRODUCTION

Herring Storer Acoustics was commissioned by Maarch, to conduct a preliminary review of the proposed development at 16, 18 and 20 Duncan Street, Victoria Park.

The development is a 4 floor (with basement) nursing home.

This report has been based on the Development Application drawings provided.

2.0 PROPOSED DEVELOPMENT

The proposed development site is located at 16, 18 and 20 Duncan Street, Victoria Park, on the corner of Shepparton Road and Duncan Street, Victoria Park.

The development consists of 4 floors of aged care units with a basement.

The following summarises the development:

Basement Level

Parking.
Laundry and Waste Services

Ground Floor

Resident Bedsits.
Kitchen.
Café.
Administration areas.

First - Third Floors

Resident Bedsits.
Sitting Areas.
Balcony Areas.
Dining/Activity area.

Fourth Floor (Rooftop)

Roof Garden.
Mechanical Plant Deck.

3.0 CRITERIA

3.1 NCC PROVISIONS

Construction of the residential sections of the development (aged care units) are required to meet Part F5 of the Building Code of Australia, with these areas being classified as "Class 9C".

The following is a summary of the requirements that need to be met for the Class 9C aged care facility within the development :

Walls

$R_w \geq 45$ dB between rooms.

$R_w \geq 45$ dB between rooms, kitchen, bathroom, sanitary compartment (not being an associated ensuite), laundry plant room or utilities room.

Walls separating rooms from a kitchen or laundry must contain a discontinuous construction.

Floors

$R_w \geq 45$ dB between rooms.

Soil and Waste Pipes

A duct, soil, waste or water supply pipe that passes through more than one sole occupancy unit must be separated from the rooms of the sole occupancy unit with a construction that is not less than $R_w + C_{tr}$ of:

- 40 if the adjacent room is a habitable room (other than a kitchen); and
- 25 if the adjacent room is a kitchen or non-habitable room.

3.2 ENVIRONMENTAL PROTECTION (NOISE) REGULATIONS 1997

The *Environmental Protection (Noise) Regulations 1997* stipulate the allowable noise levels at any noise sensitive premises from other premises. The allowable or assigned noise levels for noise sensitive premises are determined by the calculation of an influencing factor, which is added to the baseline criteria set out in Table 1 of the Regulations. The baseline assigned noise levels are listed in Table 3.1. For commercial premises, the allowable or assigned noise levels are the same for all hours of the day. Table 3.1 also lists the assigned noise levels for commercial premises.

TABLE 3.1 – ASSIGNED NOISE LEVELS

Premises Noise	Receiving	Time of Day	Assigned Level (dB)		
			L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises within 15 metres of a dwelling		0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
		0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
		1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF
		2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
 The L_{A1} noise level is the noise that is exceeded for 1% of the time.
 The L_{Amax} noise level is the maximum noise level recorded.

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9.

“impulsiveness” means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax Slow}$ is more than 15dB when determined for a single representative event;

“modulation” means a variation in the emission of noise that –

- (a) is more than 3dB $L_{A Fast}$ or is more than 3dB $L_{A Fast}$ in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

“tonality” means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A Slow}$ levels.

Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

From a review of the development, the influencing factor for this development would be 8 dB, based on the following :

Major Roads within inner circle;	
Shepperton Road	+ 6 dB
Commercial Premises with inner circle	
30%	+ 1.5 dB
Commercial Premises with outer circle	
10%	+ .5 dB
Total IF	+ 8 dB

Hence the influencing factor would be + 8 dB and the assigned noise levels would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise sensitive premises within 15 metres of a dwelling	0700 - 1900 hours Monday to Saturday	53	63	73
	0900 - 1900 hours Sunday and Public Holidays	48	58	73
	1900 - 2200 hours all days	48	58	63
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	43	53	63

Note: L_{A10} is the noise level exceeded for 10% of the time.
 L_{A1} is the noise level exceeded for 1% of the time.
 L_{Amax} is the maximum noise level.

We note that noise emissions from the premises need to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This primarily consists of mechanical services associated with the development.

A preliminary assessment of noise level impacts has been undertaken for the nearest noise sensitive premises, for locations as shown in Figure 3.1 below.

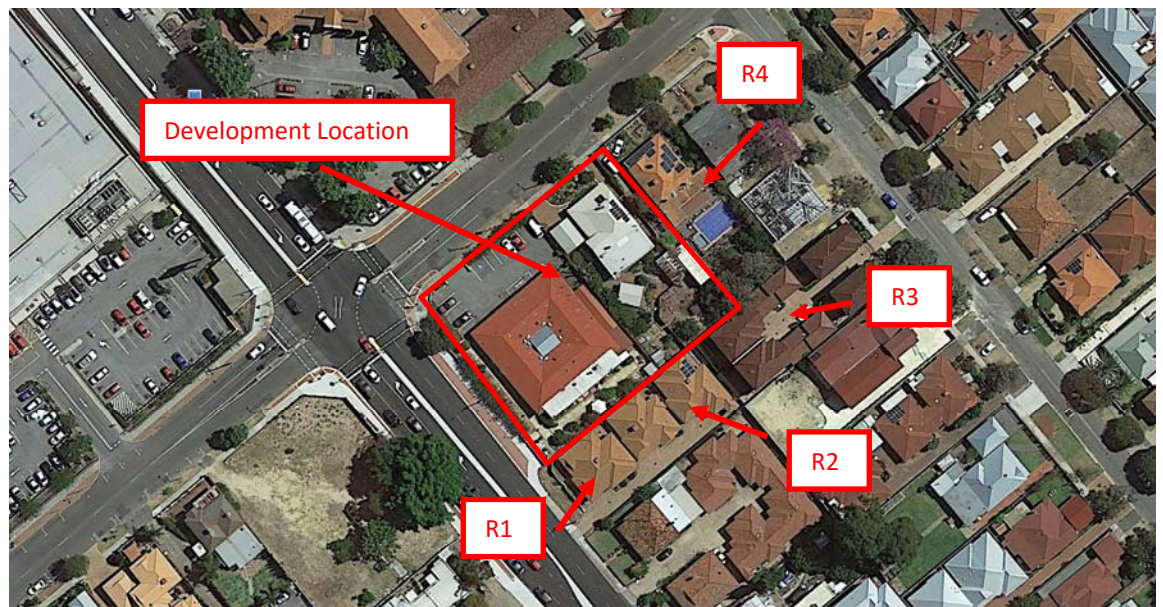


FIGURE 3.1 – NEAREST NOISE SENSITIVE PREMISES

3.3 NOISE INGRESS

Inbound Noise Levels

Traffic noise impact for the proposed development will need to be assessed in accordance with WAPC State Planning Policy 5.4.

The aim of the planning policy is to design the residential building façade to achieve the following internal sound levels :

- L_{eq} 35 dB(A) in sleeping areas (bedrooms); and
- L_{eq} 40 dB(A) in living/work areas and other habitable rooms.

4.0 BCA REQUIREMENTS

The proposed development will be constructed to comply with the requirements of Part F5 of the NCC.

5.0 NOISE INGRESS

5.1 NOISE SOURCE IDENTIFICATION

Noise levels were recorded during peak hour traffic conditions to ascertain the critical noise level for the design of the development.

Traffic noise is considered to be the significant noise source in terms of noise impact.

A preliminary façade assessment is being undertaken however, based on previous work in this area the ability to meet the relevant criteria for traffic noise ingress is not considered to be onerous.

5.2 MEASUREMENTS

Noise level measurements were recorded at the proposed development site on the 16th October 2019 at approximately 4:30pm, which was considered to be representative of peak hour traffic conditions on the surrounding road network.

No other noise sources – other than traffic – was evident such that they require consideration in a noise ingress assessment.

The measured traffic noise levels, including octave band data, are listed below in Table 5.2.1.

Table 5.2.1 – Measured L_{A10} Noise level Data

Noise Source	Octave Band Centre Frequency (Hz) / Noise Level dB								
	63	125	250	500	1K	2K	4K	8K	dB(A)
Shepperton Road	78	75	70	67	67	65	56	48	71

The noise levels recorded were typical of the area, being noise associated with peak hour traffic.

Based on the measured noise levels, the traffic noise during peak hour dictates the acoustic design of the façade.

The criteria used for noise ingress, in accordance with WAPC State Planning Policy 5.4 is:

Bedrooms	-	L _{Aeq} of 35 dB(A)
Living and work spaces	-	L _{Aeq} of 40 dB(A)

A more detailed assessment of façade requirements would be undertaken during the design development phase of the project.

6.0 NOISE FROM DEVELOPMENT

The main source of noise from the proposed development will be from mechanical services consisting of air-conditioning plant and perhaps carpark ventilation fans. Noise received at neighbouring premises, and premises within the development, from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

6.1 MECHANICAL SERVICES

The main source of noise from the proposed development will be from mechanical services consisting of car-park ventilation fans and air-conditioning plant. Noise received at residence (neighbours and residence within the development) from these items need to comply with the assigned noise levels as determined under the *Environmental Protection (Noise) Regulations 1997*.

As the mechanical services could operate during the night, noise emissions from the development needs to comply with the assigned L_{A10} night period noise level of 43 dB(A) at residential premises. Potentially, noise emissions from mechanical services could be tonal, in which case an +5 dB(A) penalty for a tonal component could be applied to the resultant noise levels. Therefore, the design level at the neighbouring residential premises would be 38 L_{A10} dB.

6.1.1 Air Conditioning

The air conditioning for the aged care units are proposed to be located in plantrooms on the roof of the building.

Once the design of the system is finalised, an acoustic assessment will be carried out of noise emissions from the mechanical plant and any noise amelioration required will be incorporated into the design to ensure compliance with the *Environmental Protection (Noise) Regulations 1997*. However, we believe that compliance would be easily achieved and any noise mitigation would be minimal, with the proposed location of mechanical plant.

6.1.2 Car Park Exhaust Fan

Noise emissions from carpark exhaust fans, will also need to comply with the Regulatory requirements. From previous projects, we believe that with careful fan selection and the incorporation of either 1D or 2D unpodded silencers, compliance with the *Environmental Protection (Noise) Regulations 1997* is normally achieved.

An assessment of noise emissions will be carried out once equipment has been selected and submitted for approval.

6.2 MECHANICAL SERVICES – PRELIMINARY ASSESSMENT

A preliminary assessment of mechanical services noise levels has been based on the indicative selections and design provided for the development (attached in Appendix B).

It is noted that this is a preliminary assessment only, as detailed design work will be undertaken once the development has attained approval.

Calculations, based on the preliminary selections, were undertaken at the locations identified in Figure 3.1, with the results as shown in Table 6.2.1 below.

At each identified location, noise levels have been determined at all points, however only the highest noise level for each premises have been presented below for clarity of reporting.

TABLE 6.2.1 – CALCULATED NOISE LEVELS

Location	Noise Level, L_{A10} dB
R1	38
R2	36
R3	34
R4	32

With the inclusion of a + 5 dB adjustment for tonal characteristics, the assessable noise levels are as listed in Table 6.2.

TABLE 6.2 – ASSESSABLE NOISE LEVELS

Location	Noise Level, L_{A10} dB
R1	43
R2	41
R3	39
R4	37

As can be seen from the above table, noise levels are calculated to be in compliance with the most stringent Assigned Noise Level (the night period level of 43 dB L_{A10} for all locations).

It is noted that the above assessment is based on tentative selections and no diversity in equipment operating (i.e. all condensers operating and no accounting for lower running speeds/noise levels during the night period attributable to cooler conditions). Hence, these calculations are considered conservative and may over-estimate the noise impact at neighbours.

6.3 CARPARK NOISE SOURCES

The basement carpark is understood to be open to one side.

Typical use of the carpark is not considered likely to impact the adjacent neighbouring noise sensitive premises, given the stipulated Assigned Noise Levels at the neighbouring premises – which would be the pertinent noise level to assess potential noise impacts against.

Calculations based on typical movements within the basement have been undertaken for the location considered to be most impacted by the basement carpark design (being “R2” as identified in Figure 3.1 above).

Based on typical noise levels associated with car parks, and the amount of free area designated in the dividing wall, noise levels have been calculated based on the following :

Noise levels associated with car starts, car door closure and car movements have been considered. Car starts and car doors are considered against the L_{Amax} Assigned Noise Level with car movements compared against the L_{A1} assigned noise levels. Car starts have been modelled utilised a sound power level of 85 dB(A), with car door closures at 87 dB(A). Car movements have been calculated as a line source at a sound power level of 81 dB(A)/m.

The following noise levels at "R2" have been calculated at an L_{A1} of 38 dB(A) and an L_{Amax} (associated with door closures) of 50 dB(A) based on the 'worst case' carpark location.

Accounting for car door closure emissions potentially containing impulsive characteristics, this translates to an assessable L_{A1} noise level of 38 dB(A) and an L_{Amax} noise level of 60 dB(A).

Hence, calculated noise levels associated with the basement level carpark at the most impacted noise sensitive premises are compliant with the applicable assigned noise level of 53 dB L_{A1} and 63 dB L_{Amax} .

It is noted that the above preliminary assessment is based upon a conservative assessment as the actual openings (location/spacing etc) will be determined during the design development phase of the project, with the above calculations being based upon 'worst case' options for both.



MAARCH

**NURSING HOME DEVELOPMENT
16-20 DUNCAN STREET, VICTORIA PARK**

SPP 5.4 NOISE MANAGEMENT PLAN

NOVEMBER 2020

OUR REFERENCE: 26893-1-19277



DOCUMENT CONTROL PAGE

**SPP 5.4 NOISE MANAGEMENT PLAN
16-20 DUNCAN STREET, VICTORIA PARK**

Job No: 19277

Document Reference: 26893-1-19277

FOR

MAARCH

DOCUMENT INFORMATION				
Author:	Geoffrey Harris	Checked By:	George Watts	
Date of Issue :	23 November 2020			
REVISION HISTORY				
Revision	Description	Date	Author	Checked
DOCUMENT DISTRIBUTION				
Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	1	MAARCH Attn: Mark Aronson Email: mark@maarch.net.au		✓

CONTENTS

1.	INTRODUCTION	1
2.	ACOUSTIC CRITERIA	1
2.1	Noise	1
3.	MODELLING	4
4.	MODELLING	4
5.	TRAFFIC NOISE ASSESSMENT	5
6.	CONCLUSION	6

APPENDICES

A	Site Layout – Master Plan
B	Calculated Noise Levels and Required R_w and C_{tr} Ratings
C	MRWA Traffic Flows

1. INTRODUCTION

Herring Storer Acoustics were commissioned by MAARCH to carry out an acoustic study with regards to traffic related noise for the proposed residential development at 16-20 Duncan Street, Victoria Park.

The purpose of the study was to:

- Assess the noise that would be received within the development area from vehicles travelling on Shepperton Road for future traffic volumes.
- Compare the results with accepted criteria and if exceedances exist, develop the framework for the management of noise.

A plan is attached in Appendix A.

2. ACOUSTIC CRITERIA

2.1 NOISE

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 "Road and Rail Noise". The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)

When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

- a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;*
- b) New or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1, 2 and 3**); or*
- c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.*

Policy trigger distances (Section 4.1.2)

Table 1 identifies the State's transport corridors and the trigger distances to which the policy applies.

*The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.*

*Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent."*

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

Table 2 sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

In the application of the noise targets the objective is to achieve:

- indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	New/Upgrade	Noise Targets		
		Outdoor		Indoor
		Day ($L_{Aeq}(\text{Day})$ dB) (6 am-10 pm)	Night ($L_{Aeq}(\text{Night})$ dB) (10 pm-6 am)	(L_{Aeq} dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	L_{Aeq} (Day) 40(Living and work areas) L_{Aeq} (Night) 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

Notes:

- The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.
- The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.

Noise Exposure Forecast (Section 6.2)

When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:

- no further measures is required;
- noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or
- noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan.”

3. MODELLING

Noise measurements were conducted on 16 October 2020 for a short term period during peak hour to determine the L_{A10} noise level. Utilising this measurement, reference to the DEFRA publication has been sought and the difference between the $L_{A10,18hr}$ and the $L_{Aeq,8hr}$ and the $L_{Aeq,16hr}$ has been calculated. The results of the measurement and the determination of the $L_{Aeq(Day)}$ and $L_{Aeq(Night)}$ are shown in Table 3.1.

Noise measurements were conducted with a Larson Davis 831 Sound Level Meter. The Sound Level Meter was calibrated prior to and after use with a Bruel and Kjaer 4230 Calibrator. All equipment used is currently NATA laboratory calibrated. Calibration certificates are available on request.

TABLE 3.1 : SUMMARY OF MEASURED NOISE LEVELS

Measurement Location	Measured/Calculated Noise Level, dB(A)		
	L_{A10}	$L_{Aeq, day}$ (6am to 10pm)	$L_{Aeq, night}$ (10pm to 6am)
16 Duncan Street	71.3	68.6	60.4

4. MODELLING

To determine the noise levels from traffic on Shepperton Road, acoustic modelling was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN)¹ algorithms.

The input data for the model included:

- Plans supplied by client (Shown in Appendix A);
- Traffic data as per Table 4.1 (And Sourced in Appendix B);
- Adjustments as listed in Table 4.2.

TABLE 4.1 - NOISE MODELLING INPUT DATA

Parameter	Shepperton Road (Current) 2018	Shepperton (Future) 2040
Traffic Volumes	28140 vpd	43500 vpd
Percentage traffic 0600 – 2400 hours (Assumed)	94%	94%
Heavy Vehicles (%) (Assumed)	4%	4%
Speed (km/hr)	60 km/hr	60 km/hr

TABLE 4.2 – ADJUSTMENTS FOR NOISE MODELLING

Description	Value
Façade Reflection Adjustment	+2.5 dB
Conversion from L_{A10} (18 hour) to L_{Aeq} (16 hour) (Day)	-2.7 dB*

* Based on DEFRA Calculation

¹ Calculation of Road Traffic Noise UK Department of Transport 1987

5. TRAFFIC NOISE ASSESSMENT

Using the data contained in Tables 4.1 and 4.2, noise modelling was conducted and the requirements of the development are detailed in Appendix Table 5.1.

It is noted that all requirements pertain to only acoustic advice in regards to *State Planning Policy 5.4* and may be superseded by other requirements (BAL, Thermal, etc).

TABLE 5.1 – QUIET HOUSE DESIGN REQUIREMENTS

Quiet House Design Requirements		
Item	Requirements	
Walls	$R_w + C_{tr}$ 50dB	
External Doors	Individual external door requirements to meet specifications as shown on plans in Appendix A and listed in the table of Appendix B.	
Windows	Ground Floor*	
	Office and Staff Rooms:	$R_w + C_{tr}$ 31-36 dB
	Kitchen:	$R_w + C_{tr}$ 26-31 dB
	Café:	$R_w + C_{tr}$ 25 dB
	All other windows:	$R_w + C_{tr}$ 23 dB
	First Floor	
	Room 15:	$R_w + C_{tr}$ 25 dB
	Room 16:	$R_w + C_{tr}$ 26 dB
	Room 17:	$R_w + C_{tr}$ 27 dB
	Room 18:	$R_w + C_{tr}$ 28 dB
	Room 19:	$R_w + C_{tr}$ 29 dB
	Rooms 24-33:	$R_w + C_{tr}$ 37 dB
	Rooms 34/35:	$R_w + C_{tr}$ 29 dB
	Activity/Dining Room:	$R_w + C_{tr}$ 36 dB
	Second Floor	
	Room 54:	$R_w + C_{tr}$ 25 dB
	Room 55:	$R_w + C_{tr}$ 26 dB
	Room 56:	$R_w + C_{tr}$ 27 dB
	Room 57:	$R_w + C_{tr}$ 28 dB
Room 58:	$R_w + C_{tr}$ 29 dB	
Rooms 63-70:	$R_w + C_{tr}$ 37 dB	
Activity/Dining Room:	$R_w + C_{tr}$ 36 dB	
Third Floor		
Room 89:	$R_w + C_{tr}$ 25 dB	
Room 90:	$R_w + C_{tr}$ 26 dB	
Room 91:	$R_w + C_{tr}$ 27 dB	
Room 92:	$R_w + C_{tr}$ 28 dB	
Room 93:	$R_w + C_{tr}$ 29 dB	
Rooms 98-104:	$R_w + C_{tr}$ 37 dB	
Activity/Dining Room:	$R_w + C_{tr}$ 36 dB	
Mechanical Ventilation	Mechanical ventilation to not compromise the performance of any of the façade elements.	
Notification on Title	Required	
Roofs and Ceilings of Highest Floors	$R_w + C_{tr}$ 40 dB	
Outdoor Living Area	External noise level at outdoor "Courtyard" is $L_{Aeq(Day)}$ less than 55 dB(A) as a result, this development meets the criteria.	

* Whilst SPP5.4 does not cover non bedroom/living areas, these ground floor 'commercial' type spaces have been assessed against the appropriate indoor noise level within AS2107:20

6. CONCLUSION

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development of 16-20 Duncan Street, Victoria Park, from vehicles travelling on Shepperton Road has been undertaken.

In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

External

Day	55 dB(A) L_{Aeq}
Night	50 dB(A) L_{Aeq}

Internal

Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

The results of the acoustic assessment indicate that noise received at the development from future traffic, exceed external noise level criteria. Therefore, noise amelioration in the form of quiet house design shown in Table 5.1 is required.

Additionally, notifications on the title for the development would be required.



Hourly Volume

Shepperton Rd (H001)

2018/19
Monday to Friday

South of Duncan St (SLK 2.35)

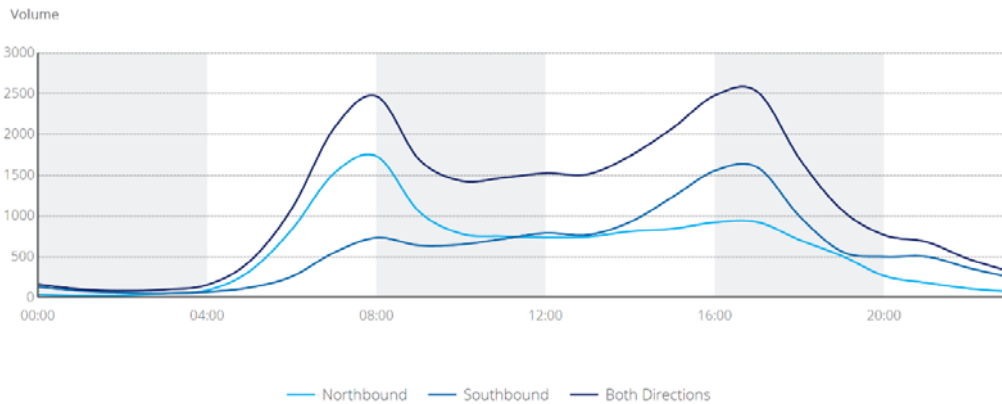
	All Vehicles			Both
	NB	SB	Both	
00:00	32	129	161	
01:00	20	81	101	
02:00	24	58	82	
03:00	47	49	96	
04:00	71	68	139	
05:00	321	120	441	
06:00	835	257	1092	
07:00	1526	552	2078	
08:00	1735	733	2468	
09:00	1058	639	1697	
10:00	783	650	1433	
11:00	751	720	1471	
12:00	736	790	1526	
13:00	745	769	1514	
14:00	812	928	1740	
15:00	843	1235	2078	
16:00	922	1557	2479	
17:00	926	1598	2524	
18:00	795	995	1790	
19:00	510	563	1073	
20:00	265	501	766	
21:00	180	501	681	
22:00	109	361	470	
23:00	69	245	314	
TOTAL	14041	14099	28140	



Peak Statistics

AM	TIME	07:45	11:45	07:45
	VOL	1837	770	2556
PM	TIME	16:15	16:45	16:30
	VOL	962	1659	2598

Information Not Available





Hourly Volume

Shepperton Rd (H001)

2018/19
Monday to Sunday

South of Duncan St (SLK 2.35)

	All Vehicles			Both
	NB	SB	Both	
00:00	30	121	151	
01:00	18	75	93	
02:00	23	55	78	
03:00	44	46	90	
04:00	81	63	144	
05:00	301	113	414	
06:00	782	240	1022	
07:00	1428	517	1945	
08:00	1624	686	2310	
09:00	990	598	1588	
10:00	733	609	1342	
11:00	703	674	1377	
12:00	689	740	1429	
13:00	698	720	1418	
14:00	760	869	1629	
15:00	789	1156	1945	
16:00	863	1457	2320	
17:00	867	1496	2363	
18:00	659	931	1590	
19:00	477	527	1004	
20:00	248	469	717	
21:00	168	469	637	
22:00	102	337	439	
23:00	65	229	294	
TOTAL	13142	13197	26339	



Peak Statistics

AM	TIME	07:45	11:45	07:45
	VOL	1719	771	2392
PM	TIME	16:15	16:45	16:45
	VOL	901	1552	2431

Information Not Available

