HERRING STORER ACOUSTICS

SPERA PROPERTY GROUP

144 KEROSENE LANE
BALDIVIS

RYDERWEAR FITNESS GYM
ENVIRONMENTAL ACOUSTIC ASSESSMENT

AUGUST 2026

OUR REFERENCE: 36932-3-26289

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FOR

SPERA PROPERTY GROUP

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1. INTRODUCTION

Herring Storer Acoustics were commissioned by Spera Property Group to undertake an acoustic assessment of noise emissions associated with the proposed Ryderwear Fitness Gym located at 144 Kerosene Lane, Baldivis.

This assessment includes information related to mechanical plant operation, gym operation, car movements, car starts and car door slams.

As the gym would operate 24 hours, seven days a week and it is possible for patrons of the gym to park anywhere within the lot, emissions have been assessed for the most stringent time period.

For information, plans of the proposed development are attached in Appendix A.

2. SUMMARY

Based on information provided, noise received at the neighbouring residences from the development has been determined to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all time periods given the scenarios in Section 5.

3. CRITERIA

The allowable noise level at the surrounding locales is prescribed by the Environmental Protection (Noise) Regulations 1997. Regulations 7 & 8 stipulate maximum allowable external noise levels determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF
Commercial premises	All hours	60	75	80

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.
IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), 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 15 dB when determined for a single representative event;

"modulation" means a variation in the emission of noise that –

(a) is more than 3 dB L_{AFast} or is more than 3 dB L_{AFast} 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_{ASlow} levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS

Where **tonality** is present	Where **modulation** is present	Where **impulsiveness** is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

Where the noise emission is music, then any measured level is adjusted according to Table 3.3 below.

TABLE 3.3 – ADJUSTMENTS TO MEASURED MUSIC NOISE LEVELS

Where **impulsiveness** is not present	Where **impulsiveness** is present
+10 dB(A)	+15 dB(A)

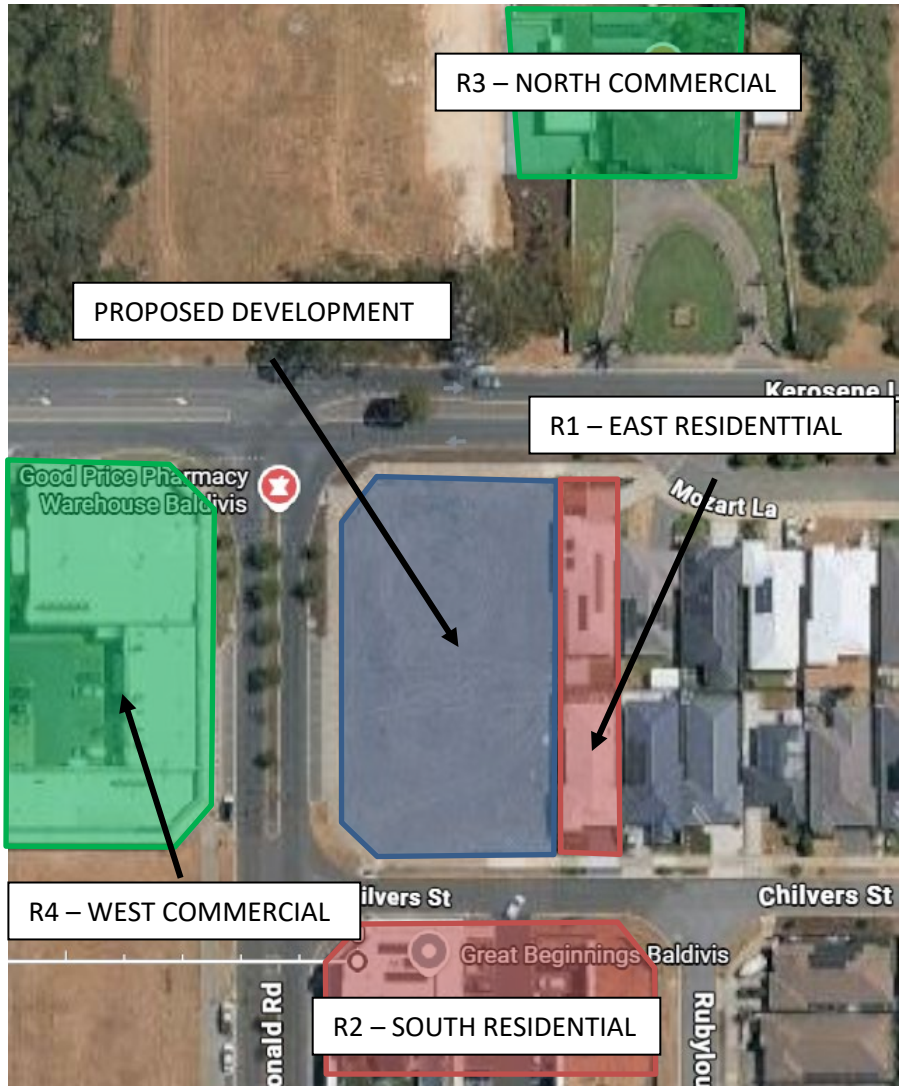


FIGURE 1 – LOCATION PLAN

The development and the neighbouring residences of concern are shown on Figure 1, noting that the undeveloped land has been considered for their appropriate uses. For these residences the Influencing Factor has been determined to be 2 dB from 25% Commercial Area in the Inner Circle and 15% Commercial Are in the Outer Circle. Hence the assigned outdoor noise levels at the neighbouring residence would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises (R1, R2)	0700 - 1900 hours Monday to Saturday	47	57	67
	0900 - 1900 hours Sunday and Public Holidays	42	52	67
	1900 - 2200 hours all days	42	50	57
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	37	47	57
Commercial Premises (R3, R4)	All Hours	60	75	80

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.

4. MODELLING

To assess the noise received at the neighbouring premises from the proposed development, noise modelling was undertaken using the noise modelling program SoundPlan.

Calculations were carried out using the DWER's weather conditions, which relate to worst case noise propagation, as stated in the Department of Environment Regulation *"Draft Guidance on Environmental Noise for Prescribed Premises"*. These conditions include winds blowing from sources to the receiver(s).

Calculations were based on the sound power levels used in the calculations are listed in Table 4.1, as well as plans provided by the client.

TABLE 4.1 – SOUND POWER LEVELS

Item	Sound Power Level, dB(A)
Car Moving in Car Park	79
Car Starting	85
Door Closing	87
Mechanical Plant	1 @ 84
Music	85 Internal

For this assessment, cars moving were modelled moving along their designated area within the carpark and a car slam and start modelled at each bay. Similarly, mechanical plant has been placed on the centre of the roof with no acoustics barriers. For all situations, the highest noise level has been shown to ensure a conservative assessment.

Based on the above, the following noise levels in Table 4.2 have been calculated with applicable adjustments.

TABLE 4.2 – CALCULATED NOISE LEVELS

	Noise Level - dB(A)					
Location	**MECHANICAL PLANT**	**MUSIC**	**CAR MOVEMENTS**	**CAR DOOR SLAMS**	**RESTRICTED PARK CAR DOOR SLAMS**	**CAR ENGINE STARTS**
R1	26 (31)	21 [31]	36	46 {56}	46 {56}	44
R2	32 (37)	27 [37]	48	50 {60}	47 {57}	50
R3	27 (32)	16 [26]	34	38 {48}	38 {48}	38
R4	42 (47)	30 [40]	43	48 {58}	48 {58}	47

Notes: Values in brackets indicate +5 adjustment for tonality.
Values in square brackets indicate +10 adjustment for music.
Values in braces indicate +10 adjustment for impulsivity.

5. ASSESSMENT

5.1 L_{A10} NOISE EMISSIONS – MECHANICAL PLANT

As mechanical plant could operate at all hours of the day, noise needs to comply with the assigned L_{A10} noise level for the night period. Additionally, as mechanical plant can be tonal, a +5 adjustment as shown in Table 4.2 has been applied. Note, this information is only preliminary, based on three units on the rooftop and once mechanical selection and placement is confirmed an additional acoustic assessment is required to ensure compliance.

Table 5.1 summarise the applicable Assigned Noise Levels, assessable noise level emissions and compliance for mechanical plant.

TABLE 5.1 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS – MECHANICAL PLANT

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L_{A10} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	31	Night Period	37	Complies
R2	37			Complies
R3	32	All Hours	60	Complies
R4	47			Complies

5.2 L_{A10} NOISE EMISSIONS – MUSIC

As the gym operates at all hours of the day, noise associated with music from the gym needs to comply with the assigned L_{A10} noise level for the night period. Additionally, the emissions could be perceived as music and as a result a +10 adjustment as shown in Table 4.2 has been applied.

Table 5.2 summarise the applicable Assigned Noise Levels, assessable noise level emissions and compliance for mechanical plant.

TABLE 5.2 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS – MUSIC

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L_{A10} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	31	Night Period	37	Complies
R2	37			Complies
R3	26	All Hours	60	Complies
R4	40			Complies

5.3 L_{A1} NOISE EMISSIONS – CAR MOVEMENTS

Due to their frequency, car movements associated with the development needs to comply with the assigned L_{A1} noise level for the night period, on the basis that the gym is planned to operate 24 hours per day.

Car movements would not contain any annoying characteristics.

Table 5.3 summarise the applicable Assigned Noise Levels, assessable noise level emissions and compliance for the Car Movements.

TABLE 5.3 – ASSESSMENT OF L_{A1} NOISE LEVEL EMISSIONS – CAR MOVEMENTS

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L_{A1} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	36	Night Period	47	Complies
R2	48			Complies
R3	34	All Hours	75	Complies
R4	43			Complies

5.4 L_{AMAX} NOISE EMISSIONS – CAR DOOR SLAMS

Due to their frequency, car door slams associated with the development needs to comply with the assigned L_{AMax} noise level for the night period, on the basis that the gym is planned to operate 24 hours per day.

Noise emissions associated with car door slams have been assumed to contain Impulsive characteristics and as a result a +10 dB adjustment as shown in Table 4.2 has been applied.

Table 5.4 summarise the applicable Assigned Noise Levels, assessable noise level emissions and compliance for the Car Door Slams.

TABLE 5.4 – ASSESSMENT OF L_{AMAX} NOISE LEVEL EMISSIONS – CAR DOOR SLAMS

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L_{AMax} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	56	Night Period	57	Complies
R2	60			+3
R3	48	All Hours	80	Complies
R4	58			Complies

As car door slams will exceed the Regulations during the night time period at R2. It is unlikely that child care is in use during the "night" time period, therefore these car door closes would not affect any receivers there.

For completeness a scenario where the two south most bays were not used "night" time period with the assessment shown in Table 5.5.

TABLE 5.5 – ASSESSMENT OF L_{AMAX} NOISE LEVEL EMISSIONS – CAR DOOR SLAMS

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L_{AMax} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	56	Night Period	57	Complies
R2	57			Complies
R3	48	All Hours	80	Complies
R4	58			Complies

5.5 L_{AMAX} NOISE EMISSIONS – CAR STARTS

Due to their frequency, car starts associated with the development needs to comply with the assigned L_{AMax} noise level for the night period, on the basis that the gym is planned to operate 24 hours per day.

Car starts would not contain any annoying characteristics.

Table 5.6 summarise the applicable Assigned Noise Levels, assessable noise level emissions and compliance for the Car Starts.

TABLE 5.6 – ASSESSMENT OF L_{AMAX} NOISE LEVEL EMISSIONS – CAR STARTS

Receiver	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned L_{AMax} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	44	Night Period	57	Complies
R2	50			Complies
R3	38	All Hours	80	Complies
R4	47			Complies

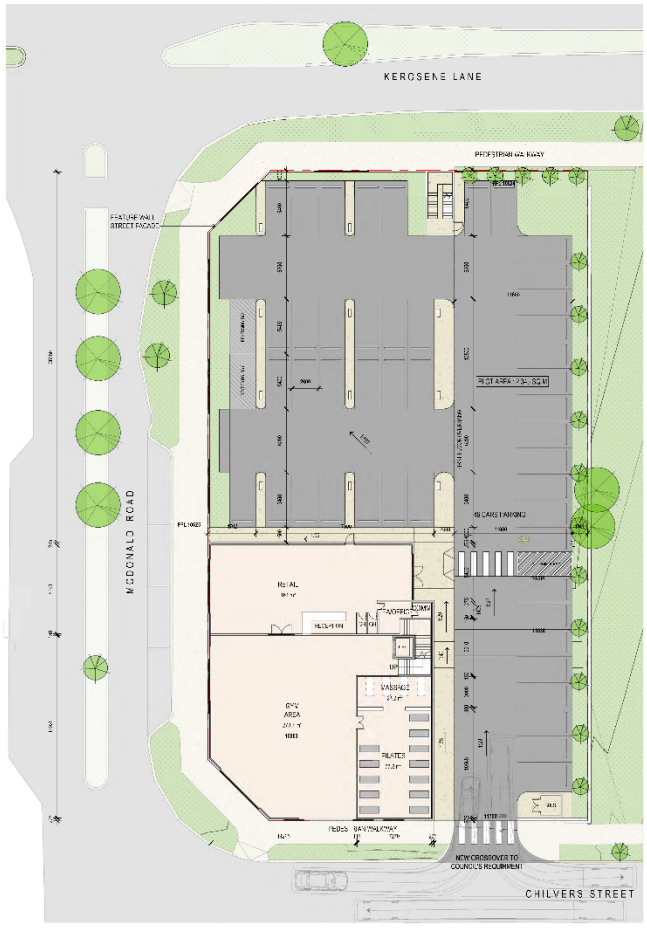
Hence, as can be seen from the above assessments, noise levels associated with the operation of the proposed Ryderwear Fitness gym development have been calculated to comply with the relevant prescribed assigned noise levels at all times, if the two south most carbays are restricted during the "night" time period.

6. CONCLUSION

Based on information provided, noise received at the neighbouring residences from the development has been determined to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all time periods given the assessments in Section 5.

APPENDIX A

DEVELOPMENT PLANS

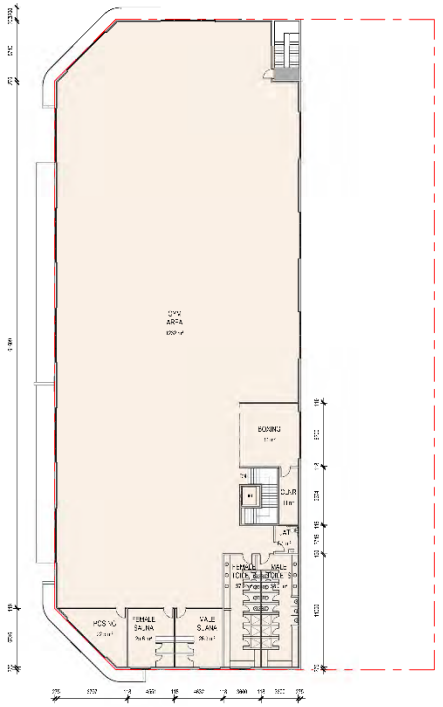


1 SITE PLAN.

NOTE
CONCEPT PLAN ONLY.
SUBJECT TO SURVEY,TRAFFIC, PLANNING, ACOUSTIC, ARBORIST & SITE SERVICES REVIEW.

BOUNDARY DIMENSIONS TAKEN FROM TITLE (TO BE VERIFY).

ALL AREAS MEASURED TO THE OUTSIDE FACE OF EXTERNAL WALLS.



2 LEVEL 1

INTERIM ISSUE ONLY

PROPOSED FLOOR PLANS | SK-03 | 34.26 RYDERWEAR BALDIVIS
MCDONALD ROAD, BALDIVIS WA
Hodge Collard Preston ARCHITECTS