

Our ref: 36867-2-26274

24 July 2026

Design Synergy

Attention: Garreth Morris

Email: garreth@designsynergy.com.au

Dear Garreth,

**RESIDENTIAL DEVELOPMENT
AIRCRAFT NOISE ASSESSMENT
70 SWAN STREET, GUILDFORD**

As requested, we have undertaken a review of the noise that would be received within the above proposed development from aircraft arriving and departing Perth Airport. Based on the development design provided, we have assessed the construction requirements to achieve acceptable internal noise levels.

CRITERIA

AS2021:2015 "Acoustics – Aircraft Noise Intrusion – Building Siting and Construction" provides guidelines for determining the type of building construction necessary to provide a given noise reduction, given that external windows and doors are closed. Indoor design sound levels for determination of aircraft noise reductions are given as follows:

Residence

Sleeping areas	-	50 dB(A)
Other habitable spaces	-	55 dB(A)
Bathrooms, toilets, laundries	-	60 dB(A)

Note: Habitable areas include kitchens.

The Boeing 737-300 aircraft listed in Table 1 were identified as the loudest aircraft taking off from the North-South runway, with the appropriate maximum noise levels from AS2021:2015 next to them.

TABLE 1 – AIRCRAFT AFFECTING DEVELOPMENT

Aircraft Type	Maximum Noise Level dB(A)
Boeing 737-300	79

ASSESSMENT

Calculations were carried out for internal noise levels based on an external noise level of 79 dB(A), being the worst-case noise level for aircraft flyovers. Calculations were generally in accordance with guidance from AS2021 to determine the noise that would be received within a typical residence, as obtained from the preliminary designs. The development design is attached.

Based on the above noise level, the required R_w ratings for the different building elements to achieve acceptable internal noise level to comply with the above criteria are as per the tables attached. This calculation is based on the element size as per the plans provided.

The information below details the summarised acoustic requirements and a recommended construction to meet these requirements, noting glazing performance ratings are from latest available data and may change with frame type and supplier.

External Walls

"Studio"	Requires R_w 40 dB
Recommended:	6mm Fibre Cement, 90mm Stud with Insulation, 13mm High Density Plasterboard R_w 40 dB
Elsewhere	Requires R_w 37 dB
Recommended:	6mm Fibre Cement, 90mm Stud with Insulation, 10mm Plasterboard R_w 38 dB

Ceilings

Throughout	Requires R_w 37 dB
Recommended:	Standard CustomOrb Roof with Insulation and Anticon, 10mm Plasterboard R_w 41 dB

• Glazing

"Studio"	Requires R_w 35 dB
Recommended:	10mm Monolithic Glass R_w 36 dB
Elsewhere	Requires R_w 27 dB
Recommended:	6mm Monolithic Glass R_w 30 dB

A detailed window schedule has not been provided, and as of such window heights have been assumed as typical, and as performance required is a function of size window sizes can be reduced to require a lower R_w value. This report can be updated once window sizes are finalised.

The following is noted:

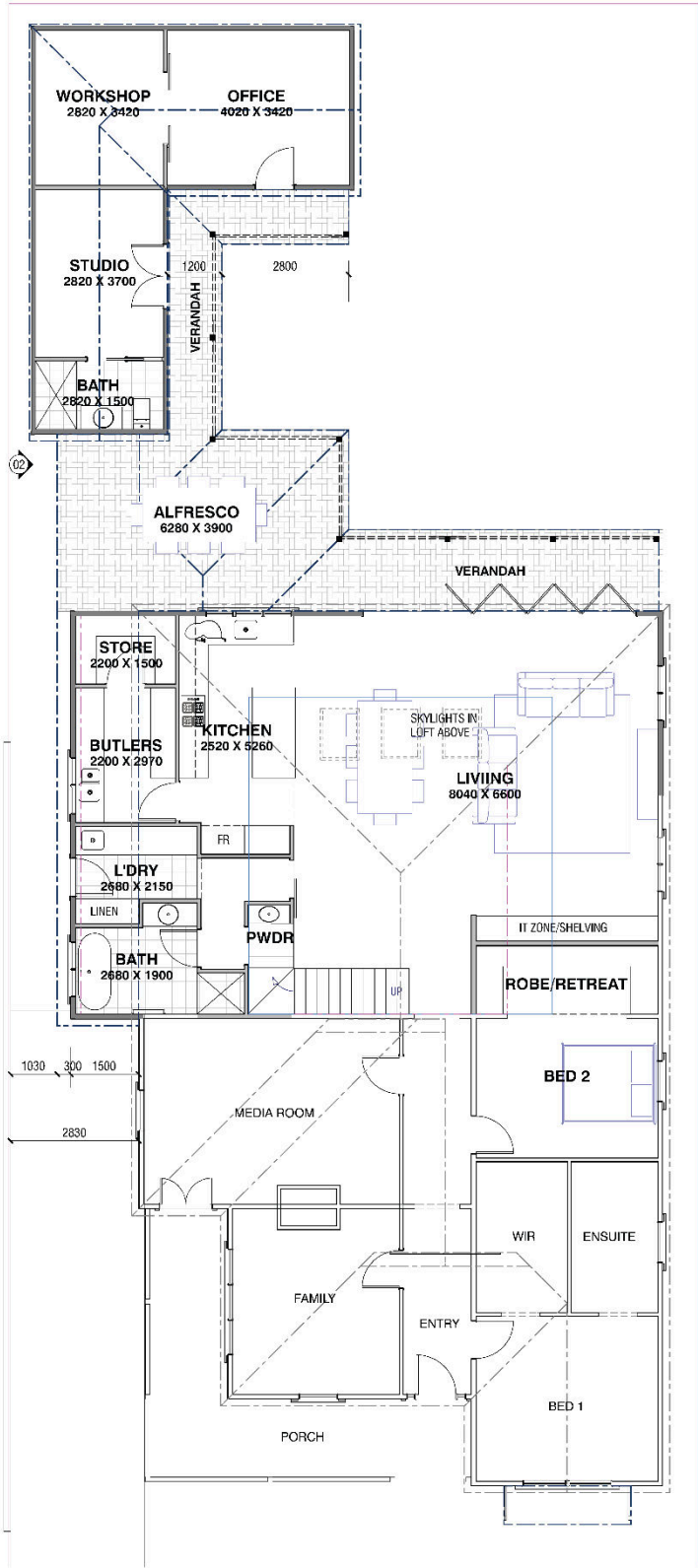
1. Airconditioning must be such that the acoustic performance of the roof/ceiling system is not compromised by penetrations such as ducting inlets and outlets. Acoustically attenuated Cushion-heads and the like over these penetrations are required. Alternatively, split systems with no ductwork are the preferred method.

Yours faithfully,
For **HERRING STORER ACOUSTICS**

Geoff Harris

Att.

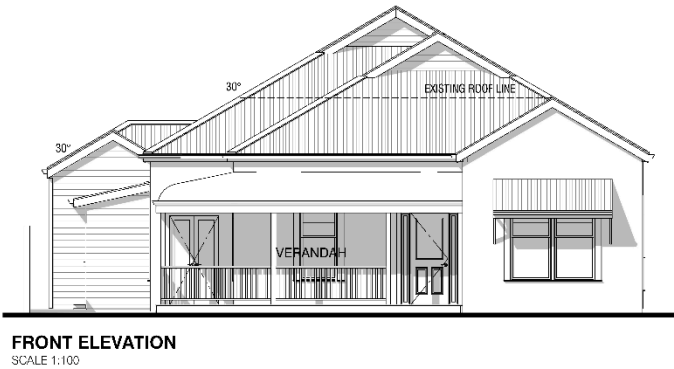
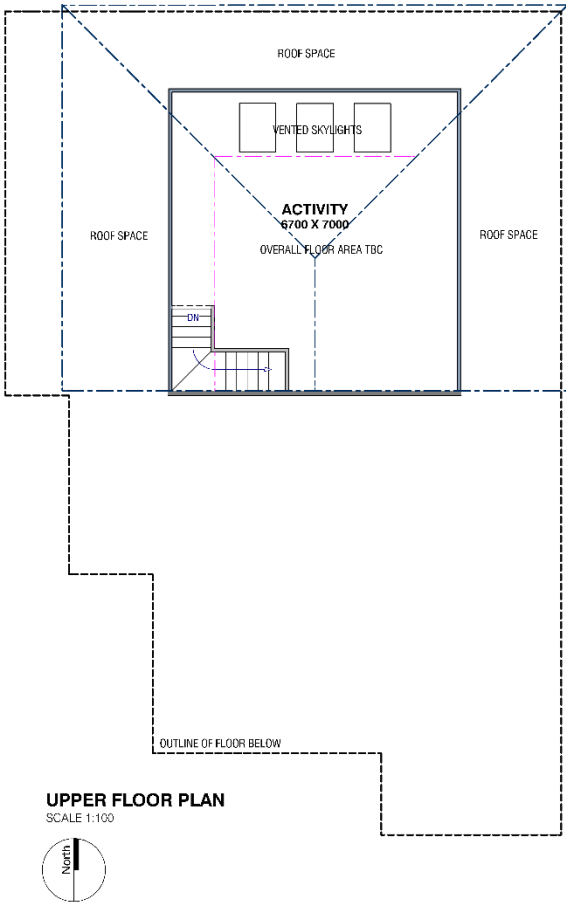
Internal Use	Building Component	Total Area m ²	Ratio Window to Floor	Required R _w
Living – Kitchen	Ceiling	112.5		32
	Windows	28.4	25%	26
	External Walls	22.7		25
Activity	Ceiling	46.9		32
	Windows	2.8	6%	20
	External Walls	62.9		34
Butlers	Ceiling	6.5		32
	Windows	1.5	23%	26
	External Walls	5.6		32
Store	Ceiling	3.3		32
	Windows	0.0	0%	N/A
	External Walls	8.9		37
Laundry	Ceiling	5.7		27
	Windows	2.2	38%	23
	External Walls	5.2		27
Bath	Ceiling	5.1		27
	Windows	3.6	71%	26
	External Walls	4.2		27
Office	Ceiling	13.7		32
	Windows	4.0	29%	27
	External Walls	23.5		35
Workshop	Ceiling	9.6		32
	Windows	4.0	41%	29
	External Walls	15.0		34
Studio	Ceiling	10.4		37
	Windows	6.0	58%	35
	External Walls	17.8		40
Bath	Ceiling	4.2		27
	Windows	1.5	35%	22
	External Walls	14.0		33



GROUND FLOOR PLAN
SCALE 1:100



STAGE	REV.	DESCRIPTION	DATE	ALL DIMENSIONS ON PLAN, BOTH NEW AND EXISTING, ARE TO BE CHECKED ON-SITE PRIOR TO THE COMMENCEMENT OF WORK OR THE PLACING OF ORDERS. ANY DISCREPANCIES ON DRAWINGS MUST BE REPORTED TO THE DESIGNER IMMEDIATELY. THE DESIGNER ACCEPTS NO RESPONSIBILITY FOR EXPENSES OR COSTS INCURRED DUE TO FAILURE TO COMPLY WITH THE ABOVE ITEMS. ALL WORK IS TO COMPLY WITH THE BCA, AUSTRALIAN STANDARDS, LOCAL GOVERNMENT AUTHORITIES, AND GOOD BUILDING PRACTICES. USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED DIMENSIONS. ALL MATERIALS, FIXTURES, FITTINGS, AND BUILDING COMPONENTS ARE TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND DETAILS. ALL WORK IS TO BE CARRIED OUT BY QUALIFIED BUILDING TRADESMEN UNDER THE SUPERVISION OF A QUALIFIED BUILDING SUPERVISOR.	 PO Box 388 Midland 6936 T: 08 9255 2258 M: 0439 111 969 M: 0407 255 221 admin@designsynergy.com.au www.designsynergy.com.au VITRUVIAN ELEMENT PTY LTD c/- Morris Family Trust abn 70 356 286 124	GUY KING 70 SWAN STREET GUILDFORD PROPOSED GROUND FLOOR PLAN		
CO		FOR CLIENT APPROVAL	20/04/26			PROJECT No 11560525 DESIGNED DS CHECKED DS SHEET SIZE A3	DWG No REV A 2.1	
						DATE 20/04/2026		



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				GUY KING 70 SWAN STREET GUILDFORD PROPOSED UPPER FLOOR PLAN PROJECT No: 11560325 <table><tr><td>DESIGNER</td><td>CHECKED</td><td>DATE</td><td>REV</td></tr><tr><td>DS</td><td>DS</td><td></td><td></td></tr><tr><td>SHEET SIZE</td><td>DATE</td><td>SCALE</td><td></td></tr><tr><td>A3</td><td>20/04/2026</td><td>A 2.2</td><td></td></tr></table>				DESIGNER	CHECKED	DATE	REV	DS	DS			SHEET SIZE	DATE	SCALE		A3	20/04/2026	A 2.2	
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DESIGN SYNERGY

**RESIDENTIAL DEVELOPMENT
70 SWAN STREET, GUILDFORD**

SPP 5.4 NOISE MANAGEMENT PLAN

JULY 2026

OUR REFERENCE: 36868-2-26274

DOCUMENT CONTROL PAGE

**SPP 5.4 NOISE MANAGEMENT PLAN
70 SWAN STREET, GUILDFORD**

Job No: 26274

Document Reference: 36868-2-26274

FOR

DESIGN SYNERGY

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This report has been prepared in accordance with the scope of services and on the basis of information and documents provided to Herring Storer Acoustics by the client. To the extent that this report relies on data and measurements taken at or under the times and conditions specified within the report and any findings, conclusions or recommendations only apply to those circumstances and no greater reliance should be assumed. The client acknowledges and agrees that the reports or presentations are provided by Herring Storer Acoustics to assist the client to conduct its own independent assessment.

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1. INTRODUCTION

Herring Storer Acoustics were commissioned by Design Synergy to carry out an acoustic study with regards to traffic related noise for the proposed residential development at 70 Swan Stret, Guildford.

The purpose of the study was to:

- Assess the noise that would be received within the development area from vehicles travelling on Great Eastern Highway (James Street) 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 <i>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</i>	300 metres	Road carriageway edge
Other significant freight/traffic routes <i>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)</i>	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. MEASUREMENTS AND OBSERVATIONS

The noise measurements were conducted on 22 July 2026 for a short term period to determine the L_{A10} noise level during peak hour traffic. 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 NOISE LEVELS

Measurement Location	Measured/Calculated Noise Level, dB(A)		
	L_{A10}	$L_{Aeq, day}$ (6am to 10pm)	$L_{Aeq, night}$ (10pm to 6am)
Great Eastern Highway (James St)	76.5	72.8	65.1

4. MODELLING

To determine the noise levels from traffic on Great Eastern Highway, 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	Great Eastern Highway (Current) 2021	Great Eastern highway (Future) 2046
Traffic Volumes	27,000 vpd	44,320 vpd
Percentage traffic 0600 – 2400 hours (Assumed)	94%	94%
Heavy Vehicles (%) (Assumed)	9.8%	9.8%
Road Surface	Dense Graded Asphalt	Dense Graded Asphalt
Speed (km/hr)	60km/hr	60km/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)	-3.7 dB*

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 highest noise level of 54.2 dB L_{AeqDay} . As a result, no noise amelioration in the form of quiet house design upgrades or notifications on title are required.

It is noted that these requirements pertain to acoustic requirements only, with regard to *State Planning Policy 5.4*, and may be superseded by other requirements (BAL, Thermal, etc).

6. CONCLUSION

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development of 70 Swan Street, Guildford, from vehicles travelling on Great Eastern Highway 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}

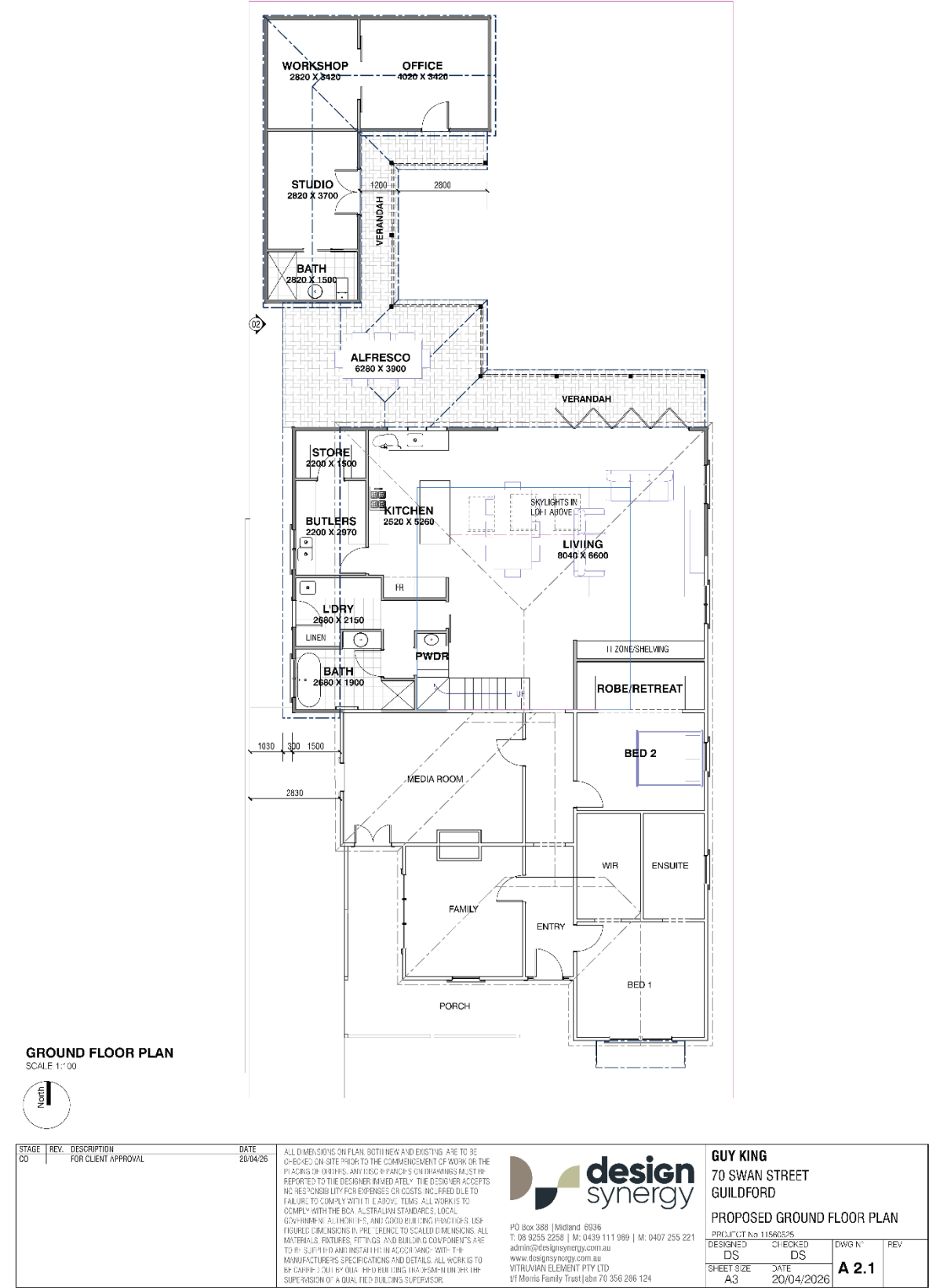
Internal

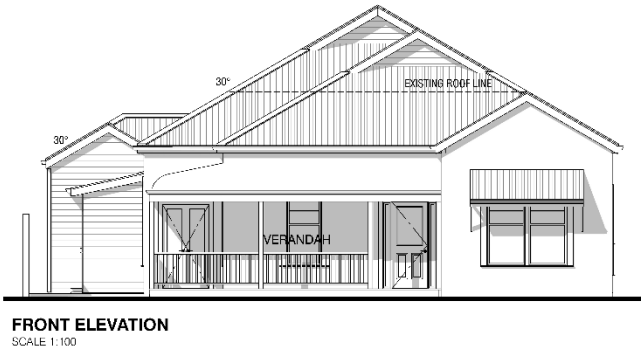
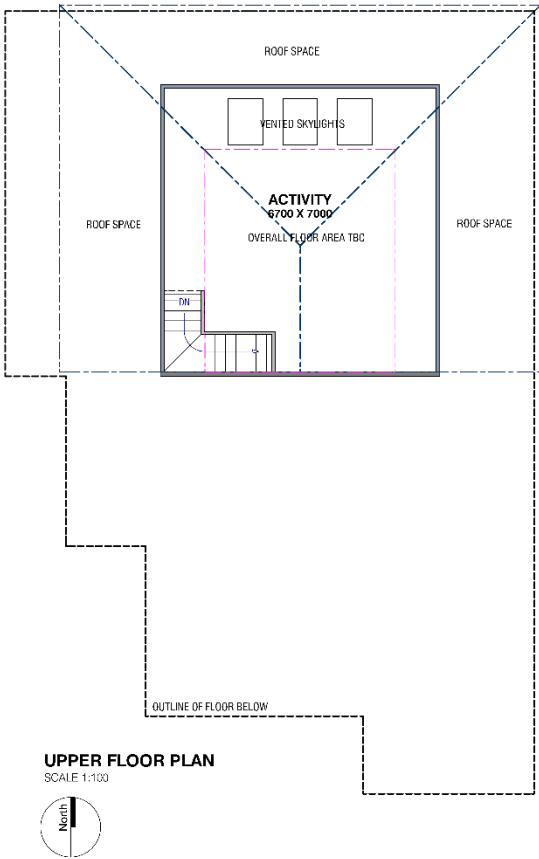
Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

The results of the acoustic assessment indicate that noise received at the development from future traffic, do not exceed external noise level criteria. Therefore, no noise amelioration in the form of quiet house design upgrades or notifications on title are required.

APPENDIX A

Plans





STAGE	REV.	DESCRIPTION	DATE	 PO Box 389 Midland 6936 T: 08 9255 2258 M: 0439 111 989 E: admin@designsynergy.com.au www.designsynergy.com.au VITRUVIAN ELEMENT PTY LTD t/ Morris Family Trust abn 70 356 286 124	GUY KING 70 SWAN STREET GUILDFORD PROPOSED UPPER FLOOR PLAN			
CO		FOR CLIENT APPROVAL	20/04/26		PROJECT No 11560526	DESIGNED DS	CHECKED DS	DWGS No
ALL DIMENSIONS ON PLAN, BOTH NEW AND EXISTING, ARE TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF WORK. OF THE PLACING OF BUILDINGS AND LOTS & PARCELS ON DRAWINGS MUST BE REPORTED TO THE DESIGNER IMMEDIATELY. THE DESIGNER ACCEPTS NO RESPONSIBILITY FOR EXPENSES OR COSTS INCURRED DUE TO FAILURE TO COMPLY WITH THE ABOVE TERMS. ALL WORK IS TO COMPLY WITH THE DECA, AUSTRALIAN STANDARDS, LOCAL GOVERNMENT AUTHORITY'S, AND GOOD BUILDING PRACTICES. UNFIGURED DIMENSIONS IN PREFERENCE TO SCALED DIMENSIONS. ALL MATERIALS, FIXTURES, FITTINGS AND BUILDING COMPONENTS ARE TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND DETAILS. ALL WORK IS TO BE CARRIED OUT BY QUALIFIED BUILDING TRADESMEN UNDER THE SUPERVISION OF A QUALIFIED BUILDING SUPERVISOR.				SHEET SIZE A3 DATE 20/04/2026 A 2.2				

APPENDIX B

MRWA Traffic Flows



SITE 0787

Hourly Volume

James St (H005)

2021/22
Monday to Friday

East of Meadow St (SLK 11.53)

	All Vehicles		
	EB	WB	Both
00:00	37	42	79
01:00	19	15	34
02:00	28	26	54
03:00	42	30	72
04:00	126	87	213
05:00	302	304	606
06:00	589	579	1168
07:00	866	953	1819
08:00	1199	1039	2238
09:00	911	789	1700
10:00	825	798	1623
11:00	884	825	1709
12:00	848	855	1703
13:00	871	842	1713
14:00	986	1011	1997
15:00	1175	1057	2232
16:00	1168	1043	2211
17:00	1040	967	2007
18:00	682	641	1323
19:00	458	444	902
20:00	365	320	685
21:00	262	230	492
22:00	165	128	293
23:00	66	73	139
TOTAL	13914	13098	27012

	Heavy Vehicles			%
	EB	WB	Both	
00:00	5	4	9	11.4
01:00	4	2	6	17.6
02:00	3	4	7	13.0
03:00	4	5	9	12.5
04:00	22	9	31	14.6
05:00	37	38	75	12.4
06:00	71	79	150	12.8
07:00	83	104	187	10.3
08:00	114	111	225	10.1
09:00	106	88	194	11.4
10:00	102	94	196	12.1
11:00	101	84	185	10.8
12:00	91	95	186	10.9
13:00	100	93	193	11.3
14:00	113	97	210	10.5
15:00	119	86	205	9.2
16:00	101	82	183	8.3
17:00	93	48	141	7.0
18:00	52	36	88	6.7
19:00	30	27	57	6.3
20:00	26	21	47	6.9
21:00	16	12	28	5.7
22:00	17	9	26	8.9
23:00	7	6	13	9.4
TOTAL	1417	1234	2651	9.8



Peak Statistics

AM	TIME	08:00	07:45	07:45	08:00	08:30	08:00
	VOL	1199	1067	2252	114	116	225
PM	TIME	16:30	15:15	15:15	14:45	12:45	14:15
	VOL	1176	1063	2237	123	100	215

