

GARY BATT AND ASSOCIATE ARCHITECTS

**55 KISHORN ROAD
MOUNT PLEASANT**

SPP 5.4 NOISE MANAGEMENT PLAN

JANUARY 2025

OUR REFERENCE: 32139-3-24027

DOCUMENT CONTROL PAGE

SPP 5.4 NOISE MANAGEMENT PLAN
55 KISHORN ROAD
MOUNT PLEASANT

Job No: 24027

Document Reference: 32139-3-24027

FOR

GARY BATT AND ASSOCIATE ARCHITECTS

DOCUMENT INFORMATION				
Author:	Ashwin Sharma	Checked By:	George Watts	
Date of Issue:	23 January 2024			
REVISION HISTORY				
Revision	Description	Date	Author	Checked
1	Updated Plans	24/01/2024	AS	GH
3	Updated Plans	13/1/2025	1GW	
DOCUMENT DISTRIBUTION				
Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	3	Gary Batt and Associate Architects Attn: Gary Batt Email: gary@garybatt.com.au		✓

CONTENTS

1.	INTRODUCTION	1
2.	SUMMARY	1
3.	ACOUSTIC CRITERIA	1
3.1	Noise	1
4.	ACOUSTIC ENVIRONMENT	4
5.	MODELLING	5
6.	TRAFFIC NOISE ASSESSMENT	5
7.	CONCLUSION	6

APPENDICES

A	Plans
B	Glazing Requirements
C	Main Roads Traffic Flow Data

1. INTRODUCTION

Herring Storer Acoustics were commissioned through Gary Batt and Associate Architects to carry out an acoustic study with regards to traffic related noise for the proposed development at 55 Kishorn Road, Mount Pleasant.

The purpose of the study was to:

- Assess the noise that would be received within the development area from vehicles travelling on Canning Highway 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.

It is noted that whilst this study references *State Planning Policy 5.4* as the criteria, some parts of the assessment have not been conducted under strict accordance with the policy, although a conservative approach where possible has been utilised. The intent of this preliminary assessment is to inform of general acoustic requirements as well as garner development approval.

The location of the development is such that an assessment in accordance with SPP 5.4 is required – hence, this work is intended to inform the development application process to ensure that internal noise levels within the development attain a satisfactory, industry standard, level.

2. SUMMARY

The noise measurements and modelling for the development location indicates that an upgrade to façade construction – primarily glazing – is recommended to be included during the design development phase of the project.

These recommendations will ensure that the internal noise environment within the development meets the recommended noise levels consistent with residential premises.

Recommended glazing upgrades are listed in Appendix B of this report. It is noted that the required upgrades are such that it is considered likely that other requirements will dictate the glazing selections (energy efficiency, thermal etc).

3. ACOUSTIC CRITERIA

3.1 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 $\geq 23,000$ 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	$L_{Aeq}(\text{Day})$ 40(Living and work areas) $L_{Aeq}(\text{Night})$ 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 are 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."*

4. **ACOUSTIC ENVIRONMENT**

The noise measurements were conducted at 12:00 PM on the 20th November 2023 for a short term period to determine the L_{A10} noise level traffic for approximately 15 minutes. This time period has been identified as peak traffic period for the road to ensure of a conservative measurement. Traffic volume details for this road section are included in Appendix C.

Utilising this measurement, reference to the DEFRA publication (*Method for Converting the UK Road Traffic Noise $L_{A10,18h}$ to the EU Noise Indices for Road Noise Mapping*, ref: st/05/91/AGG04442) 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 location of the measurements is shown in Appendix A.

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 4.1: 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)
Canning Highway, Mount Pleasant	75.6	72.7	64.3

5. MODELLING

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

The input data for the model included:

- Topographical and cadastral data supplied by client (Shown in Appendix A).
- Traffic data as per Table 5.1 (Obtained from MRWA Traffic Map, Attached in Appendix C).
- Adjustments as listed in Table 5.2.

TABLE 5.1 - NOISE MODELLING INPUT DATA

Parameter	Canning Highway (Current) 2023*	Canning Highway (Future) 2043*
Traffic Volumes	51,380 vpd	76,350 vpd
Percentage traffic 0600 – 2400 hours (Assumed)	94%	94%
Heavy Vehicles (%) (Assumed)	6.3%	6.3%
Speed (km/hr)	60km/hr	60km/hr
Road Surface	Asphalt**	Asphalt**

*Future extrapolated road traffic figures based on the MRWA Traffic counts (attached in Appendix C)

**Assumed

TABLE 5.2 – ADJUSTMENTS FOR NOISE MODELLING

Description	Value
Façade Reflection Adjustment	+2.5 dB
Conversion from L _{A10} (18 hour) to L _{Aeq} (16 hour) (Day) Canning Highway	-2.9 dB

6. TRAFFIC NOISE ASSESSMENT

Using the data contained in Tables 4.1, 5.1 and 5.2, modelling was carried out under existing conditions for calibration. The Sound Plan model for the site has been set up for the 2043 scenario as defined in Table 5.1. The following assumptions have been made:

- 18-hour traffic count will be 94% of daily figures.
- Traffic figures used are MRWA Traffic Counts (Attached in Appendix C)
- Noise model calibrated to measured noise level as per Table 4.1
- The same diurnal relationship will exist in the future between the L_{A10} (18 hour) and the L_{Aeq} parameters; and
- 2.5 dB(A) has been added to the results for façade reflection.

The noise requirements based on the above have been listed in Appendix B.

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).

¹ Calculation of Road Traffic Noise UK Department of Transport 1987

7. CONCLUSION

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development of 55 Kishorn Road, Mount Pleasant from vehicles travelling on Canning 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) $L_{Aeq(day)}$

It is noted that walls of the development would be required to be constructed of either masonry or tilt up concrete panel. If a lightweight construction or similar is desirable, investigation into constructions that would meet the requirement of State Planning Policy 5.4 would have to be undertaken.

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 listed in Appendix B, as well as notifications on the title is required.

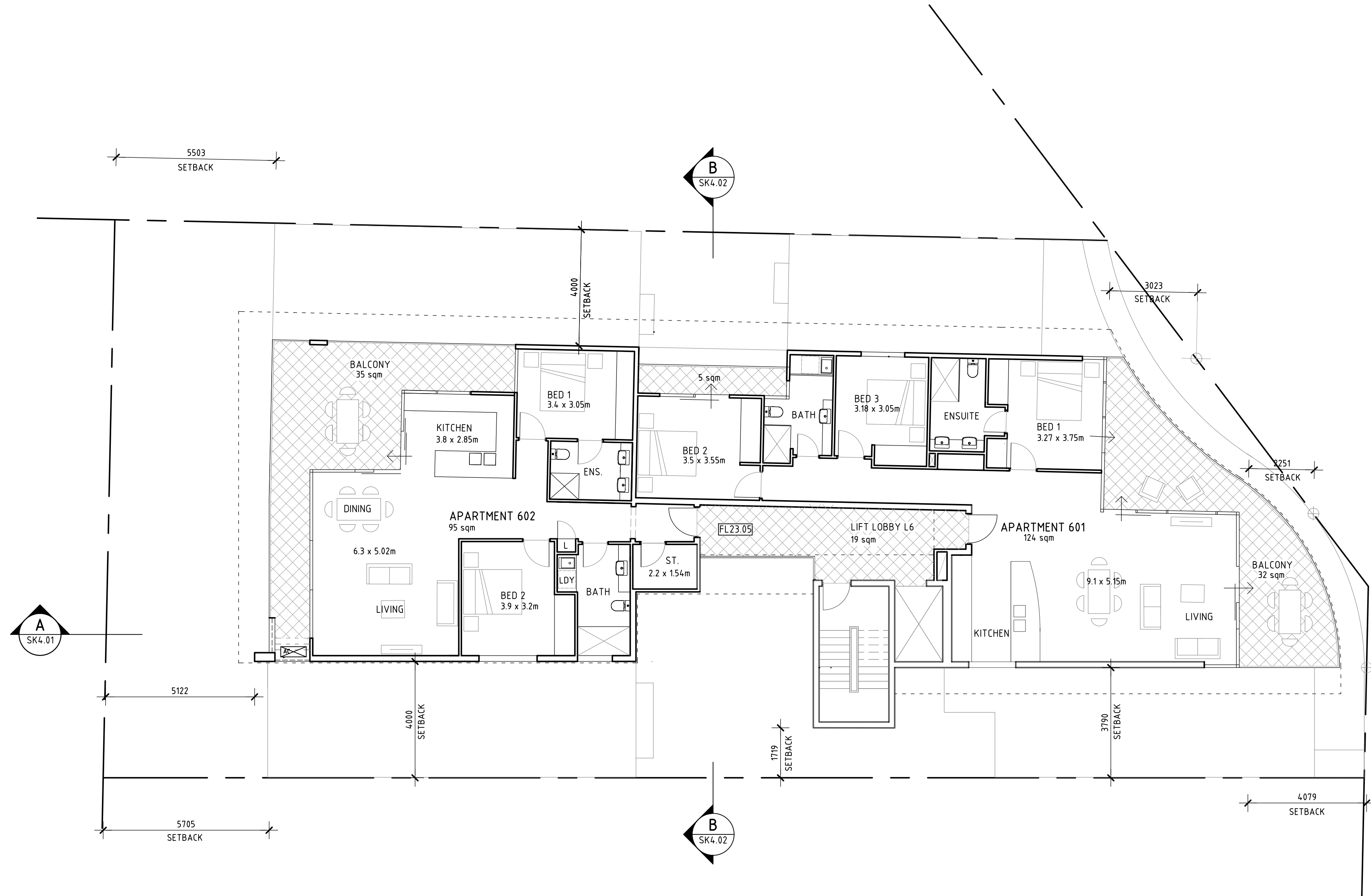
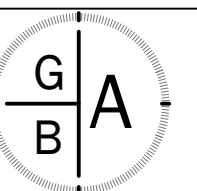
It is noted that due to the development's proximity to both Canning Highway, specialised glazing is likely to be required for windows at the façades.

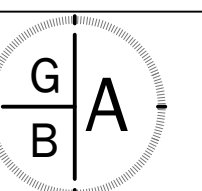
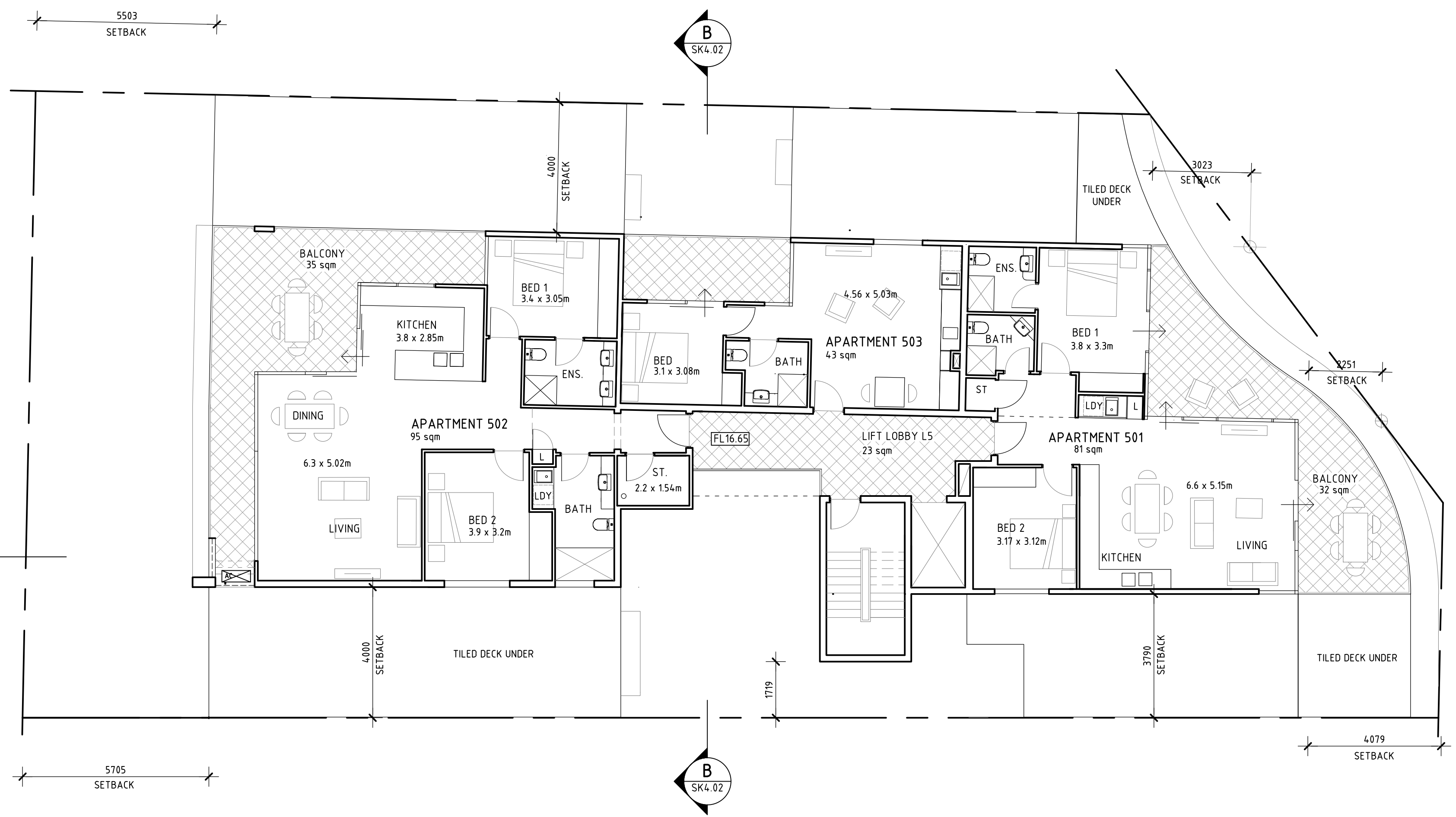
Upgraded construction in the form of a Quiet House Design Package will also likely need to be implemented for walls and ceilings.

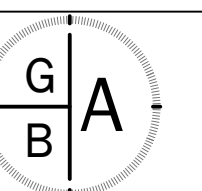
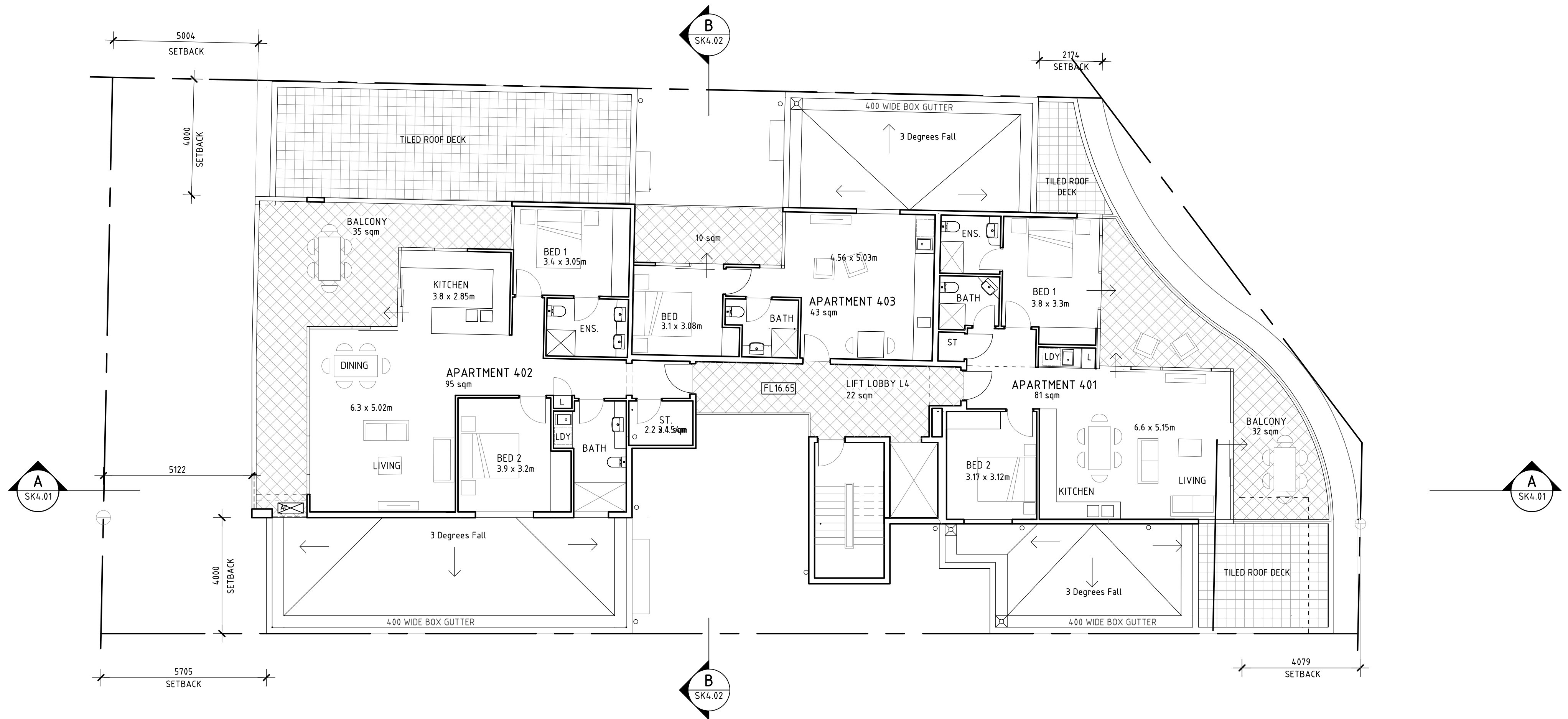
Herring Storer Acoustics recommends the findings of this preliminary assessment are reviewed once detailed designed is finalised to provide a more accurate assessment – this would include finalised window sizes, façade constructions and the like to be accounted for.

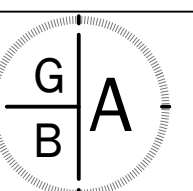
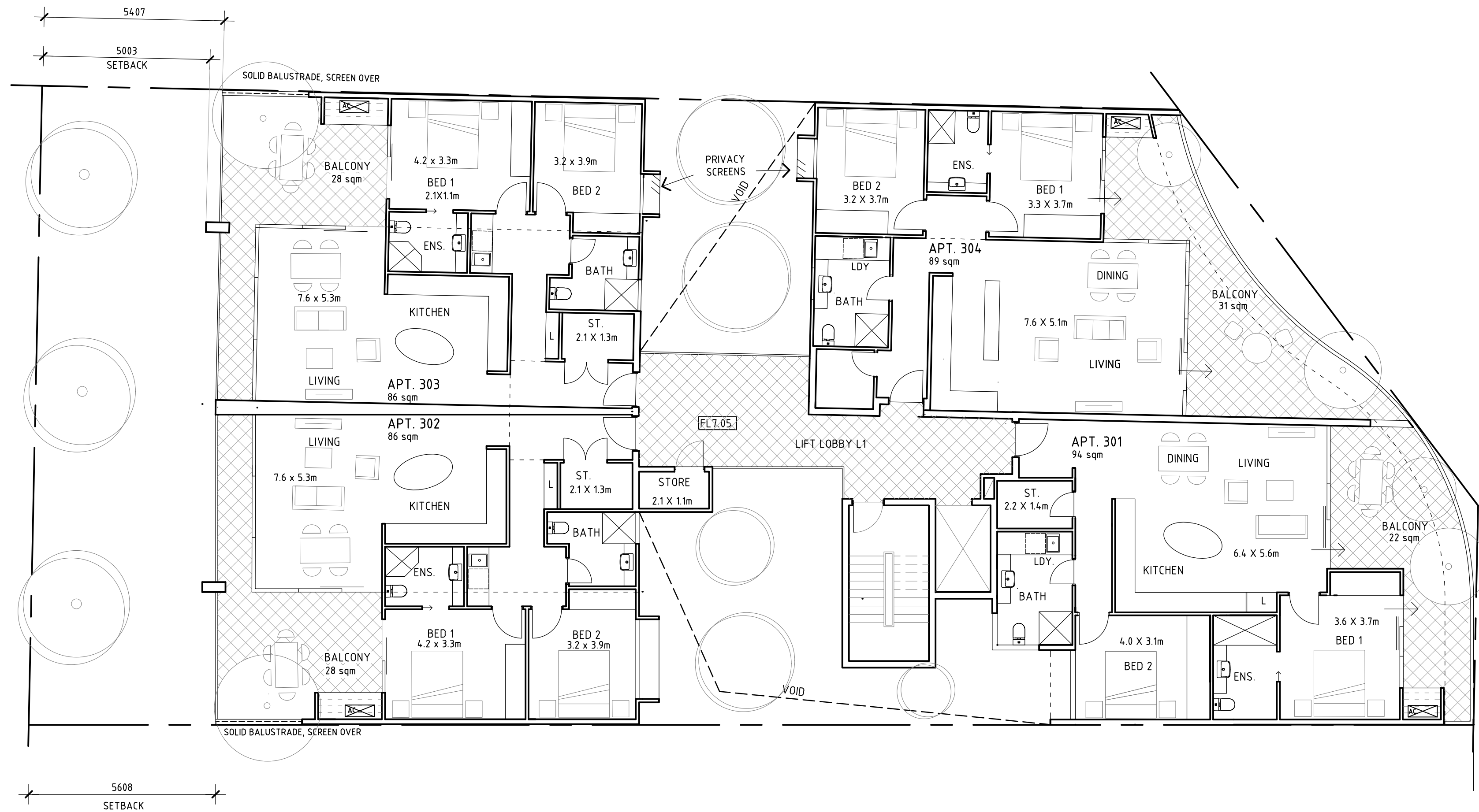
APPENDIX A

PLANS









5503
SETBACK

B
SK4.02

SOLID BALUSTRADE, SCREEN OVER

PRIVACY
SCREENS

FL10.25

VOID

B
SK4.02

5118

A
SK4.01

A
SK4.01

5705
SETBACK

SOLID BALUSTRADE, SCREEN OVER

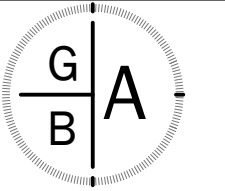
APARTMENTS - 55 KISHORN RD, MT. PLEASANT

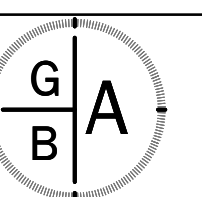
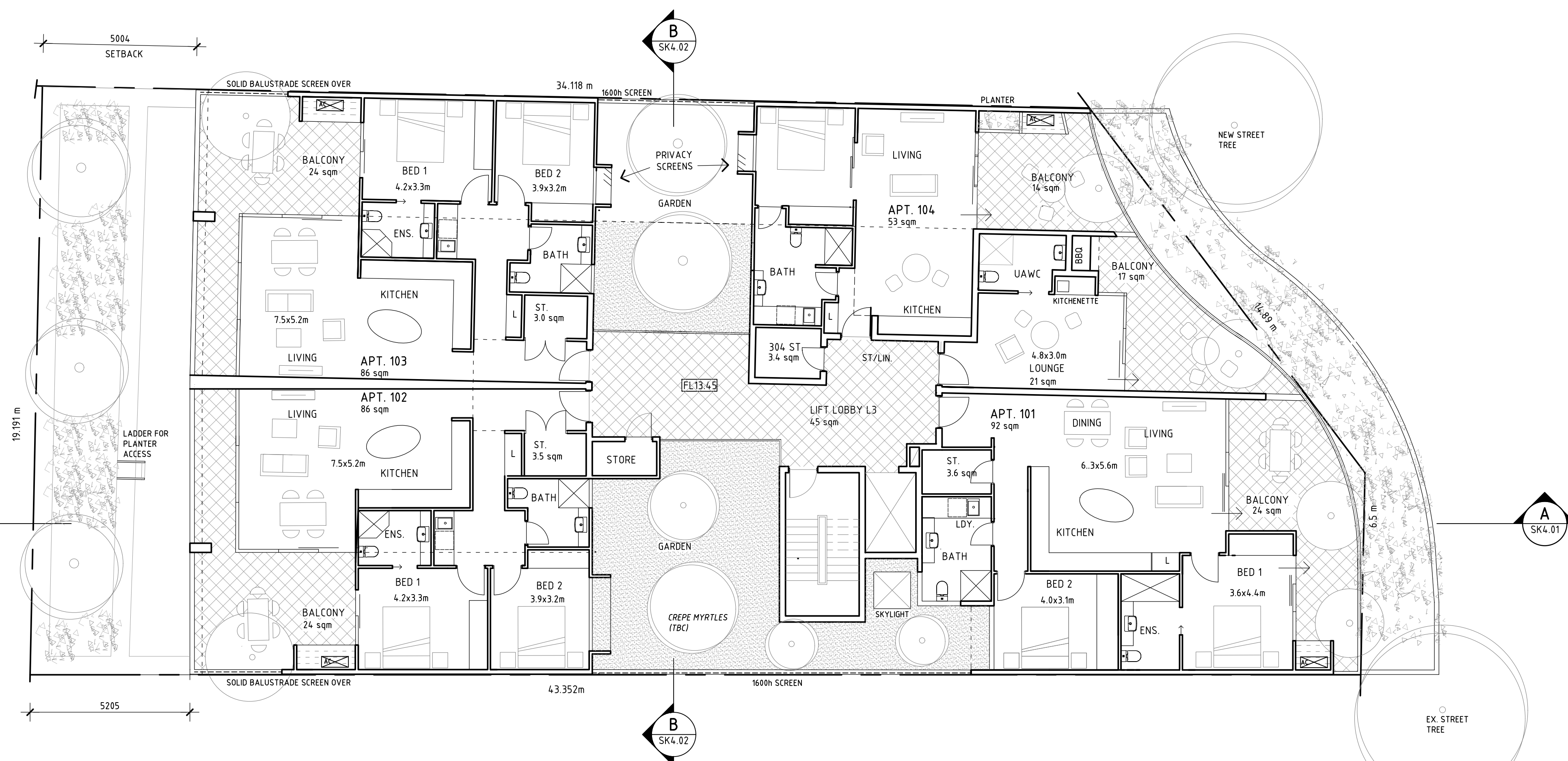
SECOND FLOOR PLAN



SK2.02
1:100 @ A2
January 2025

GARY BATT
ASSOCIATES
ARCHITECTS





APPENDIX B

GLAZING REQUIREMENTS

PROPOSED DEVELOPMENT

Facade	Calculated Noise Levels and Required R_w and C_{tr} Ratings					
	Proposed Development		Window to Room Area Ratio 0.4		Window to Room Area Ratio 0.6	
	Floor	Level dB(A)	Bedroom $R_w + C_{tr}$	Living Room $R_w + C_{tr}$	Bedroom $R_w + C_{tr}$	Living Room $R_w + C_{tr}$
East	F 1	57	28	23	30	25
	F 2	59	30	25	32	27
	F 3	61	32	27	34	29
	F 4	63	34	29	35	30
	F 5	64	35	30	36	31
	F 6	65	36	31	37	32
North	F 1	55	25	23	27	23
	F 2	59	29	24	31	26
	F 3	63	33	28	35	30
	F 4	65	36	31	37	32
	F 5	66	37	32	39	34
	F 6	67	38	33	40	35
South	F 1	44	23	23	23	23
	F 2	47	23	23	23	23
	F 3	50	23	23	23	23
	F 4	50	23	23	23	23
	F 5	52	23	23	24	23
	F 6	55	26	23	27	23
West	F 1	53	24	23	25	23
	F 2	56	27	23	28	23
	F 3	61	31	26	33	28
	F 4	64	35	30	37	32
	F 5	66	37	32	38	33
	F 6	67	38	33	39	34

Notes: The required R_w rating can be reduced by reducing the area of glazing.
 Requirements pertain to only acoustic advice in regard to *State Planning Policy 5.4* and may be superseded by other requirements (BAL, Thermal, etc).

APPENDIX C

MRWA TRAFFIC FLOW DATA



Hourly Volume

Canning Hwy (H013)

2020/21
Monday to Friday

East of Sleat Rd (SLK 6.41)

	All Vehicles			Heavy Vehicles				
	EB	WB	Both	EB	WB	Both		%
00:00	68	77	145	3	4	7		4.8
01:00	44	37	81	3	2	5		6.2
02:00	32	33	65	4	2	6		9.2
03:00	41	27	68	2	4	6		8.8
04:00	103	86	189	5	6	11		5.8
05:00	395	274	669	43	17	60		9.0
06:00	1114	895	2009	105	111	216		10.8
07:00	2493	1317	3810	142	122	264		6.9
08:00	2423	1485	3908	134	113	247		6.3
09:00	1746	1438	3184	126	130	256		8.0
10:00	1534	1339	2873	119	109	228		7.9
11:00	1661	1459	3120	130	114	244		7.8
12:00	1689	1482	3171	131	103	234		7.4
13:00	1605	1462	3067	111	117	228		7.4
14:00	1747	1589	3336	127	103	230		6.9
15:00	1921	1747	3668	124	110	234		6.4
16:00	1837	1819	3656	103	92	195		5.3
17:00	1859	1766	3625	71	89	160		4.4
18:00	1432	1500	2932	41	64	105		3.6
19:00	940	921	1861	29	26	55		3.0
20:00	769	671	1440	25	28	53		3.7
21:00	642	593	1235	17	14	31		2.5
22:00	406	409	815	13	12	25		3.1
23:00	247	214	461	5	9	14		3.0
TOTAL	26748	22640	49388	1613	1501	3114		6.3



Peak Statistics

AM	TIME	07:15	07:30	07:30	07:30	06:30	06:45
	VOL	2645	1550	4175	152	143	269
PM	TIME	14:45	16:15	16:30	14:30	13:00	12:30
	VOL	1941	1824	3722	131	117	240

Volume

