



259-269 Unley Road

Noise Assessment

24 October 2025
Reference ID: 648-2

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Abbreviations

Assessment	<i>Echo Acoustics - Noise Assessment with Reference ID: 648-2 dated 24 October 2025</i>
Code	<i>Planning and Design Code Version 2025.19 dated 9 October 2025, PlanSA</i>
C_{tr}	Spectrum adaptation
dB	Decibel
dB(A)	An A-weighted Decibel
Development	The proposed development at 259-269 Unley Road, Unley, comprising basement carparking, ground level commercial/retail tenancies and loading/back-of-house areas, level 1 apartment and commercial tenancies, level 2 to 5 apartments, level 3 pool, level 6 and 7 penthouse apartments, and roof plant
External Noise Criteria	The established noise levels used to objectively assess the noise emissions from the development
DO	Desired Outcome of the Code
DTS / DPF	Deemed-to-Satisfy Criteria / Designated Performance Feature of the Code
EP Act	<i>Environment Protection Act 1993</i>
Habitable areas of the Development	The residential apartments in the development
Internal Noise Criteria	The established noise levels used to objectively assess the noise ingress into the habitable areas of the development
L_{Aeq,15min}	The A-weighted equivalent time-averaged noise level over a 15-minute period
LNLC Act	<i>Local Nuisance and Litter Control Act 2016</i>

Noise Emissions	The noise generated from the development to receivers
Noise Ingress	The noise from Unley Road and mixed land uses entering the habitable areas of the development
MBS 010	<i>Ministerial Building Standard MBS 010 – Construction requirements for the control of external sound</i>
Overlay	Noise and Air Emissions Overlay as specified in the Code
PO	Performance Outcome of the Code
Policy	The <i>Environment Protection (Commercial and Industrial Noise) Policy 2023</i>
Receivers	A sensitive receiver where noise impacts are considered. In this instance, the receivers are the closest existing dwellings outside of the development and the Walford School. Noise impacts to the habitable areas of the development are also considered in this assessment
R_w	Weighted sound reduction index - A method of measuring the noise reduction through a material
R_w + C_{tr}	Weighted sound reduction index with spectrum adaptation. The spectrum adaptation is a method of adjusting the noise reduction performance through a material for the influence of low frequency noise (as generated by road traffic)
SAPPA	South Australian Property and Planning Atlas
SEC	Sound Exposure Category
Standard	<i>International Standard ISO 9613-2:2024 Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors</i>

Glossary

A-Weighting	A mathematical adjustment to the measured noise levels to represent the human response to sound. An A-weighted noise level is presented as dB(A)
Ambient Environment	The noise in the surrounding environment excluding noise emissions from the development
Characteristic	A characteristic determined in accordance with the Policy to be fundamental to the nature and impact of the noise. For example, a noise source is deemed to exhibit a characteristic if it produces distinctive tonal, impulsive, low frequency, intermittent or modulating features
Day	A period defined by the Policy as between 7.00am and 10.00pm
Decibel	The logarithmic unit of measurement to define the magnitude of a fluctuating air pressure wave. Used as the unit for sound or noise level
Deemed-to-Satisfy	A standardised suite of measures that satisfy the Performance Requirements of MBS 010
Equivalent Noise Level	The A-weighted noise level which is equivalent to a noise level which varies over time. The descriptor is L_{Aeq} and it is the A-weighted source noise level (continuous) referenced in the Policy. The L_{Aeq} is also referenced as an average noise level for simplicity
Frequency	Represents the number of fluctuating air pressure waves in one second. High frequency sound (high pitch or squeal) will generate many waves and low frequency sound (bass or rumble) will generate a small number of waves. The unit of frequency is Hertz (Hz)
Habitable Room	The same definition as under the Building Code of Australia, being a room used for normal domestic activities. It includes <i>a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods</i>
Indicative Noise Level	The noise level assigned by the Policy at a location to represent an impact on the acoustic amenity at that location. The Indicative Noise Level is adjusted to determine the External Noise Criteria and the Internal Noise Criteria
Night	A period defined by the Policy as between 10.00pm and 7.00am
Noise	An interchangeable term with sound but which is most often described as unwanted sound
Performance Requirements	The level of performance which a Performance Solution must achieve under MBS 010 and which forms the basis for Deemed-to-Satisfy measures
Performance Solution	A solution which enables an expert judgement analysis in the form of a performance based methodology that satisfies the Performance Requirements

Sensitive Receiver	The same meaning as under <i>Part 8 Administrative Terms and Definitions</i> of the Code. Defined as: <i>a. any use for residential purposes or land zoned primarily for residential purposes;</i> <i>b. child care facility;</i> <i>c. educational facility;</i> <i>d. hospital;</i> <i>e. supported accommodation;</i> <i>f. tourist accommodation.</i>
Sound	An activity or operation which generates a fluctuating air pressure wave. The ear drum can perceive both the frequency (pitch) and the magnitude (loudness) of the fluctuations to convert those waves to sound.
Sound Power Level	The amount of sound energy an activity produces for a given operation. The sound power level is a constant value for a given activity. The sound power level is analogous to the power rating on a light globe (which remains constant), whereas the lighting level in a space (sound pressure level in this analogy) will be influenced by the distance from the globe, shielding and different locations within the space.
Sound Pressure Level	The magnitude of sound (or noise) at a position. The sound pressure level can vary according to location relative to the noise source, and operational, meteorological and topographical influences. The terms Sound Pressure Level and Noise Level are used interchangeably in this assessment.

1. Summary

The proposed development at 259-269 Unley Road, Unley, comprises carparking in the basement, commercial/retail tenancies and carparking/loading/back-of-house areas on ground level, apartment and commercial tenancies on level 1, residential apartments on level 2 to 6, a residential amenity area with a pool for the occupants of the apartment on level 3, residential penthouse apartments on level 7, and a plant deck on the roof (the **development**).

The development is located within an Urban Corridor (Main Street) Zone, and Noise and Air Emissions Overlay of the *Planning and Design Code*.

The development interfaces with:

- commercial land uses within the Urban Corridor (Main Street) Zone to the north and south
- existing dwellings within an Established Neighbourhood Zone to the east
- Unley Road, Walford School, and commercial land uses within the Urban Corridor (Main Street) Zone to the west.

The key issues for the development relating to acoustics are as follows:

Noise Emissions

- ensuring the noise from carparking, loading area, waste collection, future retail, and the operation of external mechanical plant and equipment at the development do not unreasonably interfere with the amenity of existing dwellings.

Noise Ingress

- ensuring the external construction of the proposed residential apartments achieves suitable internal acoustic amenity
- ensuring the proposed residential apartments do not unreasonably constrain the operation of existing commercial land uses.

This environmental noise assessment addresses the key issues by:

- determining the external construction requirements for the development to control *noise ingress* from traffic on Unley Road and mixed land uses in accordance with the *Ministerial Building Standard MBS 010 – Construction requirements for the control of external sound*
- predicting the *noise emissions* from the development and the *noise ingress* into the development for comparison against the requirements of the *Planning and Design Code* and the *Environment Protection (Commercial and Industrial Noise) Policy 2023*.

Based on the outcomes of this assessment, recommendations for the external construction of the development in combination with conditions of development approval have been developed to satisfy the relevant *Planning and Design Code* provisions and achieve the following:

- a suitable level of acoustic amenity within the proposed residential apartments
- the development not unreasonably interfering with the amenity of existing dwellings
- the development not unreasonably constraining existing commercial land uses.

2. Introduction

The proposed development at 259-269 Unley Road, Unley, comprises carparking in the basement, commercial/retail tenancies and carparking/loading/back-of-house areas on ground level, apartment and commercial tenancies on level 1, residential apartments on level 2 to 5, residential amenity area with a pool for the occupants of the apartment on level 3, residential penthouse apartments on level 7, and a plant deck on the roof (the **development**).

The development is generally shown in Figure 1.

Figure 1 Development



Source Woods Bagot Project 140697 Drawings for 259-269 Unley Road

The development is located within an Urban Corridor (Main Street) Zone, and Noise and Air Emissions Overlay of the *Planning and Design Code*. The development interfaces with:

- commercial land uses within the Urban Corridor (Main Street) Zone to the north and south
- existing dwellings within an Established Neighbourhood Zone to the east
- Unley Road, Walford School, and commercial land uses within the Urban Corridor (Main Street) Zone to the west.

The locality including the land use zones, the surrounding land uses, and the closest existing dwellings outside of the development and Walford School (the **receivers**), are shown in Figure 2.

Figure 2 Locality



Source Plan SA – SA Property & Planning Atlas (SAPPA) and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

The development is subject to the following noise requirements:

1. *Ministerial Building Standard 010 - Construction requirements for the control of external sound (MBS 010)* that addresses noise ingress into the development from Unley Road and from activity in mixed land use areas (such as the carwash to the immediate north of the development)
2. *Planning and Design Code* provisions that require:
 - the development to not unreasonably impact on the amenity of the receivers
 - the development to protect future occupants from adverse impacts generated by lawfully existing (or lawfully approved) land uses
 - the development to not unreasonably constrain commercial activity.

This environmental noise assessment (the **assessment**) references objective noise criteria provided by the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Policy**) and MBS 010 to satisfy the *Planning and Design Code* provisions.

The assessment ensures the following:

1. the external construction of the proposed residential apartments (the **habitable areas of the development**) achieves suitable internal acoustic amenity from Unley Road and mixed land use areas, and does not unreasonably constrain existing commercial land uses (referred to as **noise ingress** in this assessment)
2. noise from the development does not unreasonably interfere with the acoustic amenity of receivers (referred to as **noise emissions** in this assessment).

The noise ingress component of the development will be based on, amongst other things, in-situ measurements of a carwash facility which exists to the immediate north of the development.

The noise emissions component of the development will consider the known noise generating activities at the development comprising carparking, use of the loading area, and the operation of external mechanical plant and equipment. Consideration of noise emissions from the future retail and commercial tenancies will be the subject of separate future development applications on the basis their exact nature and operational details are not yet known. The future retail and commercial tenancies are therefore not considered further in this assessment.

The use of the pool on Level 3 will be self-regulated in the sense that it will be closer to the habitable areas of the development in comparison to receivers. The use of the pool on Level 3 of the development is therefore not considered further in this assessment.

3. Regulatory Framework

The Planning and Design Code

The development is located within an Urban Corridor (Main Street) Zone, and Noise and Air Emissions Overlay of the *Planning and Design Code Version 2025.19 dated 9 October 2025* (the **Code**). The following provisions of the Code are considered relevant to the development (*emphasis added*).

Noise and Air Emissions Overlay (Part 3 – Overlays)

Desired Outcome DO 1

Community health and amenity is *protected from adverse impacts of noise* and air emissions.

Performance Outcome PO 1.1

Sensitive receivers adjoining high noise and/or air pollution sources are designed and sited to *shield sensitive receivers from the emission source* using measures such as:

- (a) placing buildings containing non-sensitive receivers (such as retail and commercial) between the emission source and sensitive receivers
- (b) within individual buildings, placing rooms more sensitive to air quality and noise impacts (such as living rooms and bedrooms) further away from the emission source
- (c) providing appropriate separation or erecting noise attenuation barriers, provided the requirements for safety, urban design and access can be met
- (d) the use of building design elements such as podiums and jutting, deep or enclosed balconies (including with solid balustrades).

Performance Outcome PO 1.3

Development incorporating a sensitive receiver adjoining high noise and/or air pollution sources locates private open space (including ground level courtyards and balconies), common open space and outdoor play areas within educational establishments and pre-schools *away from the emission source*.

Interface between Land Uses (Part 4 – General Development Policies)

Desired Outcome DO 1

Development is located and designed to *mitigate adverse effects on or from neighbouring and proximate land uses*.

Performance Outcome PO 1.1

Sensitive receivers are *designed and sited to protect residents and occupants from adverse impacts* generated by lawfully existing land uses (or lawfully approved land uses) and land uses desired in the zone.

Performance Outcome PO 1.2

Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or zone primarily intended to accommodate sensitive receivers is *designed to minimise adverse impacts*.

Performance Outcome PO 4.1

Development that emits noise (other than music) *does not unreasonably impact the amenity of sensitive receivers* (or lawfully approved sensitive receivers).

Deemed-to-Satisfy Criteria / Designated Performance Feature DTS / DPF 4.1

Noise that might affect sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria.

Performance Outcome PO 4.2

Areas for the on-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are *designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers* (or lawfully approved sensitive receivers) and zones primarily intended to accommodate sensitive receivers due to noise and vibration by adopting techniques including:

- a) locating openings of buildings and associated services away from the interface with the adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers
- b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers
- c) housing plant and equipment within an enclosed structure or acoustic enclosure
- d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone.

Performance Outcome PO 4.4

External noise into bedrooms is *minimised by separating or shielding* these rooms from service equipment areas and fixed noise sources located on the same or an adjoining allotment.

Ministerial Building Standard 010

Noise Ingress

Ministerial Building Standards are used to assess a development for building consent under the *Planning, Development and Infrastructure Act 2016*. The location of the development in the Noise and Air Emissions Overlay triggers the application of *Ministerial Building Standard 010 - Construction requirements for the control of external sound (MBS 010)*.

MBS 010 provides performance requirements for noise ingress to “prevent loss of amenity of the occupants” of the habitable areas of the development according to the location near a designated road (Unley Road) and in a mixed land use area (such as an Urban Corridor (Main Street) Zone).

The MBS 010 requirements provide a higher level of protection against noise ingress in comparison to standard external building construction methods.

Environment Protection (Commercial and Industrial Noise) Policy 2023

Interface between Land Uses *DTS / DPF 4.1* references the relevant Environment Protection (Noise) Policy criteria. The relevant policy is the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Policy**).

The Policy was developed under the *Environment Protection Act 1993* (the **EP Act**). The EP Act incorporates a requirement to ensure that noise does not unreasonably interfere with the enjoyment of the area.

The legislative noise levels provided by the Policy will provide for the reasonable protection of acoustic amenity and satisfy both the EP Act and interface between land uses *PO 4.1*.

Furthermore, with the intent of the relevant *Desired Outcomes* and *Performance Outcomes* under the Code being aligned with the EP Act and interface between land uses *PO 4.1*, they are also considered to be satisfied through compliance with the Policy.

The Policy provides indicative noise levels that apply for the day (7.00am to 10.00pm) and night (10.00pm to 7.00am the following day). The indicative noise levels vary according to the land use promoted in the zones where the development and receivers are located, and where the noise level is assessed (being inside habitable rooms, or outside at the receivers).

For an existing receiver exposed to a new development, the noise levels that apply are the indicative noise levels minus 5 dB(A). This adjustment accounts for factors including the increased sensitivity of an existing receiver to new activity, and the practical ability to design noise control measures into a new development.

The legislative noise levels provided by the Policy have been used to address both the *noise emissions* from the development and the *noise ingress* into the development.

Noise Emissions

The Policy establishes noise levels that apply at the receivers from noise generated by the development, such as carparking, use of the loading area, and the operation of external mechanical plant and equipment.

Noise Ingress

The Policy acknowledges that new development can occur adjacent existing commercial land uses by allowing that development to incorporate noise ingress design features, such as upgraded external building construction, which achieve internal noise levels that provide adequate internal acoustic amenity for its future occupants.

Where the Policy is achieved, no further action against the existing commercial land uses can be taken under the EP Act.

In this circumstance, other commercial land uses in the area will not be constrained if the habitable areas of the development are adequately designed to achieve the internal noise levels of the Policy.

Local Nuisance and Litter Control Act 2016

Noise Emissions

The *Local Nuisance and Litter Control Act 2016* (the **LNLC Act**) identifies noise that unreasonably interferes with the enjoyment of the area.

The LNLC Act provides an objective approach for waste activities to satisfy the Code, noting that the intent of the LNLC Act and the relevant *Desired Outcomes* and *Performance Outcomes* under the Code are aligned.

4. Criteria

Ministerial Building Standard 010

MBS 010 establishes performance requirements to prevent loss of amenity of the occupants when exposed to road traffic noise and mixed land use areas.

The MBS 010 performance requirements can be achieved by the deemed-to-satisfy provisions which provide sound insulation requirements for floors, external walls, windows, external doors, roof and ceiling constructions, and mechanical ventilation systems.

The deemed-to-satisfy provisions incorporate sound exposure categories (**SECs**) that are assigned based on the road type, the posted speed limit and the separation distance between the road and habitable areas of the development. Minimum sound insulation ratings for each building element are then assigned according to the SEC. The higher the SEC, the higher the degree of sound insulation for each building element.

Based on Unley Road being designated by the South Australian Property and Planning Atlas (**SAPPA**) as a Type-B road with a speed limit of 50-60 km/hour and the Urban Corridor (Main Street) Zone being a mixed land use area, the SEC requirements that apply to the development are shown in Figure 3.

Figure 3 MBS 010 Requirements



Source SAPPA

The MBS 010 requirements that are relevant to the habitable areas of the development are detailed in Table 1 to Table 5 below.

Floors

Floors which are external to the building are to achieve the minimum weighted sound reduction index with spectrum adaptation ($R_W + C_{tr}$) values summarised in Table 1.

Table 1 Minimum Acoustic Rating for Floors

Room	Minimum $R_W + C_{tr}$ for Floors			
	SEC 1	SEC 2	SEC 3	SEC 4
Habitable room	-	45	50	50

External Walls

External walls are to achieve the $R_W + C_{tr}$ values summarised in Table 2.

Table 2 Minimum Acoustic Rating for External Walls

Room	Minimum $R_W + C_{tr}$ for External Walls			
	SEC 1	SEC 2	SEC 3	SEC 4
Habitable room	40	45	50	50

Windows and External Glass Doors

Windows and external glass doors are to achieve the minimum $R_W + C_{tr}$ values as summarised in Table 3. The $R_W + C_{tr}$ value is determined as a function of the glazing to floor area ratio, and the room type.

Table 3 Minimum Acoustic Rating of Windows and External Glass Doors

Room	Area of Window and Glass Door as a Percentage of the Floor Area of the Room	Minimum $R_W + C_{tr}$			
		SEC 1	SEC 2	SEC 3	SEC 4
(a) Bedroom (b) A non-habitable room attached to (a)	Not more than 20%	25	28	30	32
	More than 20% but not more than 40%	28	30	32	34
	More than 40% but not more than 60%	30	32	34	35
	More than 60% but not more than 80%	32	34	35	- ¹
	More than 80%	34	35	- ¹	- ¹
(c) Habitable room other than a bedroom (d) A non-habitable room attached to (c)	Not more than 20%	22	25	28	30
	More than 20% but not more than 40%	25	28	30	32
	More than 40% but not more than 60%	28	30	32	34
	More than 60% but not more than 80%	30	32	34	35
	More than 80%	32	34	35	- ¹

¹ outside the scope of the Deemed-to-Satisfy Provisions

Roof and Ceilings

Roof and ceilings are to achieve the $R_w + C_{tr}$ values summarised in Table 4.

Table 4 Minimum Acoustic Rating for Roof and Ceilings

Room	Minimum $R_w + C_{tr}$ for Roof and Ceilings			
	SEC 1	SEC 2	SEC 3	SEC 4
Bedroom	-	35	40	45
Habitable room	-	-	35	40

Mechanical Ventilation Systems

Mechanical ventilation systems are to achieve the minimum weighted sound reduction index (R_w) values summarised in Table 5.

Table 5 Minimum Acoustic Rating for Mechanical Ventilation Systems

Minimum R_w for Mechanical Ventilation Systems			
SEC 1	SEC 2	SEC 3	SEC 4
25	25	30	35

Noise Emissions

The following Code provisions relate to the (noise emissions) requirements for the development:

- *Interface between land uses PO 4.1* requires that *development that emits noise does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).*
- *Interface between land uses PO 4.2* requires that development be *designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers (or lawfully approved sensitive receivers).*

The Policy has been used to establish the noise emissions criteria for the development to satisfy interface between land uses DTS/DPF 4.1 and *not unreasonably impact the amenity of adjacent sensitive receivers.* In addition, the LNL Act has been used to determine suitable times for the gathering, depositing and collection of waste.

The Policy

The indicative noise levels of the Policy apply to the noise emissions generated by the development when assessed outside at the receivers detailed in Figure 2 (the **external noise criteria**).

The external noise criteria apply to the carparking, use of the loading area, and operation of the associated mechanical plant and equipment.

Table 6 External Noise Criteria

Receivers	External Noise Criteria (dB(A))		
	Day	Night	
	L _{Aeq} , 15minute	L _{Aeq} , 15minute	L _{Aeq} , 15minute
Dwellings in the Established Neighbourhood Zone	50 dB(A)	43 dB(A)	60 dB(A)
Walford School in the Urban Corridor (Main Street) Zone	52 dB(A)	45 dB(A)	-

When predicting noise levels for comparison to the Policy, the predicted noise levels are to be adjusted (increased) where the activities exhibit “annoying” characteristics (dominant tonal, impulsive, low frequency content, intermittency, or modulation characteristics) in comparison to the ambient environment.

The LNLC Act

The LNLC Act declares that the gathering, depositing and collection of waste constitutes local nuisance when it occurs after 7.00pm on any day of the week, or before 9.00am on a Sunday or public holiday or 7.00am on any other day.

Noise Ingress

The following Code provisions relate to the (noise ingress) requirements for the development:

- *Interface between land uses PO 1.1* requires that *sensitive receivers are designed and sited to protect residents and occupants from adverse impacts generated by lawfully existing land uses (or lawfully approved land uses) and land uses desired in the zone*
- *Interface between land uses PO 4.4* requires that *noise into bedrooms is minimised by separating or shielding these rooms from service equipment areas and fixed noise sources.*

The Policy has been used to establish the internal noise levels for the habitable areas of the development to *protect residents and occupants from adverse impacts generated by lawfully existing (or lawfully approved) land uses*, and to satisfy other relevant *Desired Outcomes* and *Performance Outcomes* of the Code.

The Policy

The indicative noise levels of the Policy which apply within the habitable areas of the development when exposed to commercial land uses are detailed in Table 7 (the **internal noise criteria**).

Table 7 Internal Noise Criteria

Internal Noise Levels of the Policy (dB(A))	
Day	Night
L _{Aeq} , 15minute	L _{Aeq} , 15minute
37 dB(A)	35 dB(A)

5. Ministerial Building Standard 010 Assessment

Extent of Recommendations

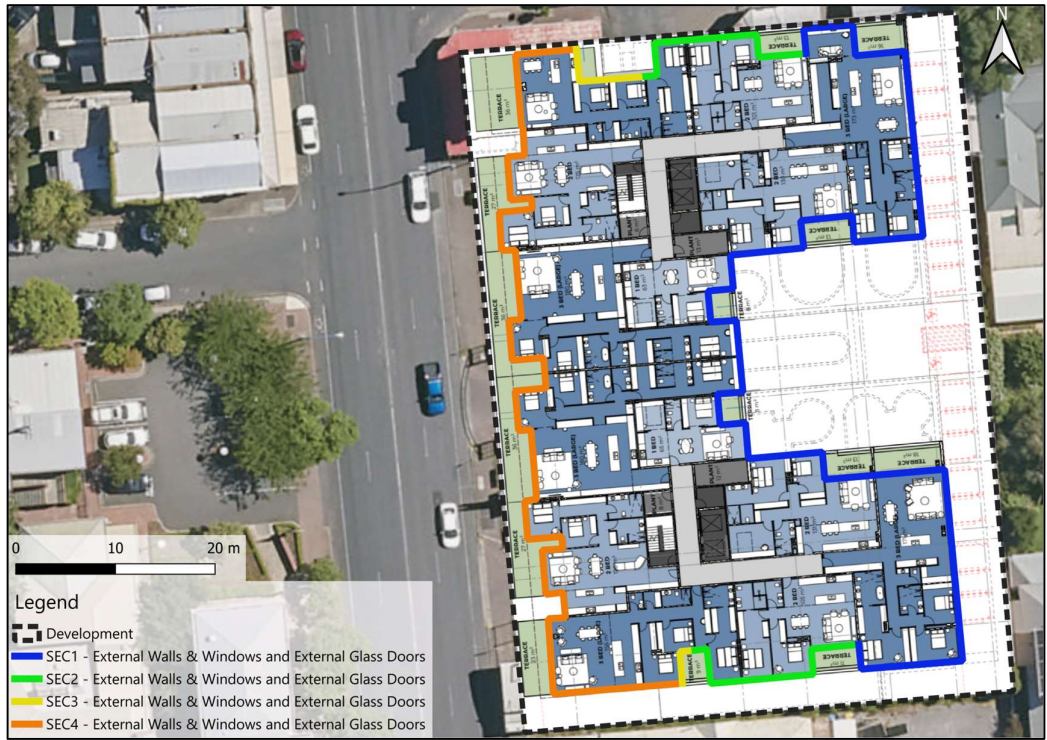
The extent of acoustic treatment required for the habitable areas of the development is shown in Figure 4 to Figure 11. The SEC 1, SEC 2, SEC 3, and SEC 4 treatments as detailed in Tables 1 to 5 (inclusive) should be applied for the extent shown.

Figure 4 Extent of MBS 010 treatment on Level 1



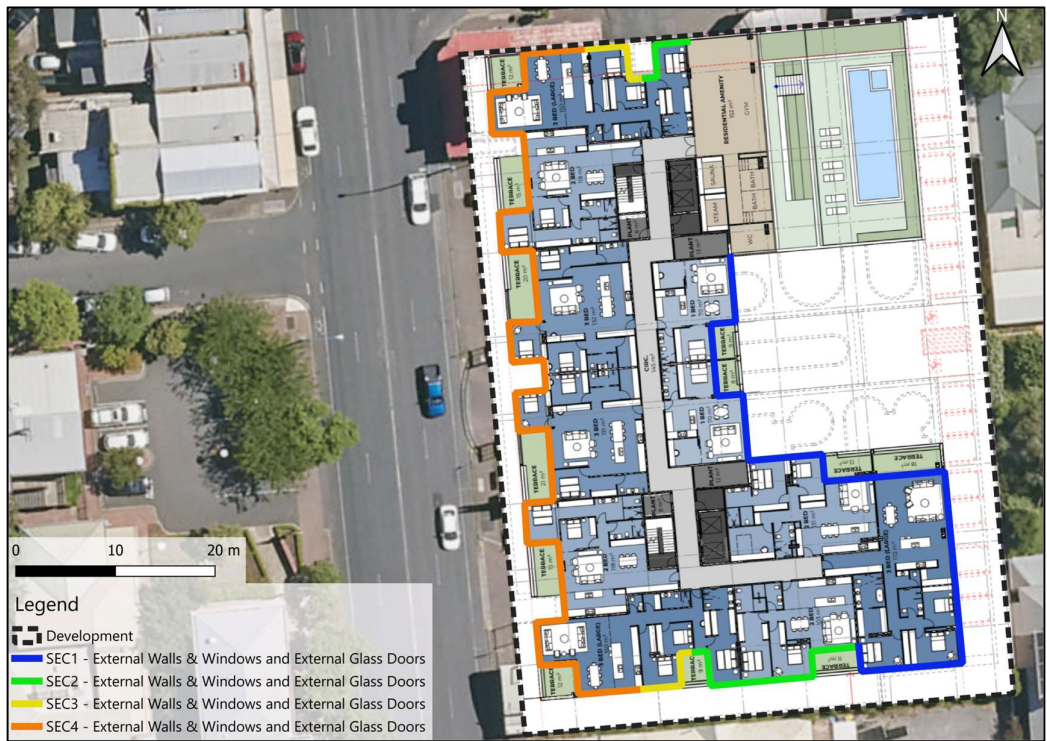
Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 5 Extent of MBS 010 treatment on Level 2



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 6 Extent of MBS 010 treatment on Level 3



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 7 Extent of MBS 010 treatment on Level 4



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 8 Extent of MBS 010 treatment on Level 5



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 9 Extent of MBS 010 treatment on Level 6



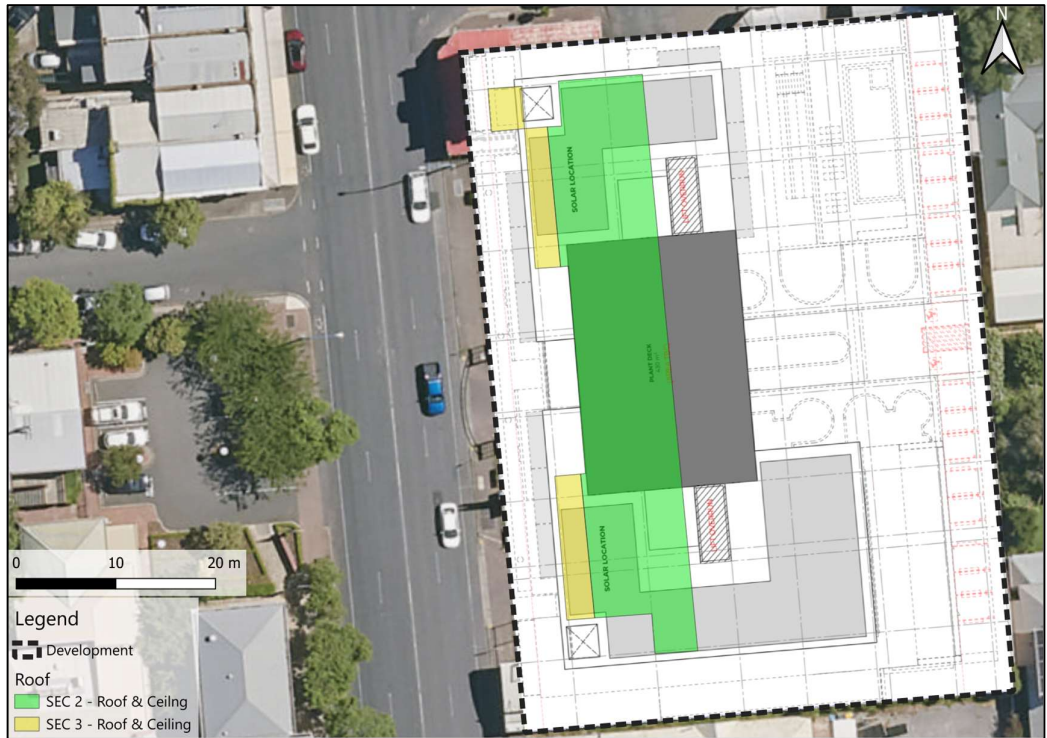
Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 10 Extent of MBS 010 treatment on Level 7



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 11 Extent of MBS 010 treatment for Roof



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Construction Recommendations

Example construction methods to satisfy the MBS 010 requirements are provided below.

Floors

The $R_w + C_{tr}$ values required for floors where exposed to outside (such as on Level 1 above the carpark on ground) are summarised in Table 1 and can be achieved with the construction in Table 8. Alternative floor constructions that have been verified to achieve the required $R_w + C_{tr}$ value can also be used.

Table 8 Recommended Constructions for Floors

Floor Type	Recommended Construction	$R_w + C_{tr}$	Suitable for
Suspended floor between habitable room and outside	Minimum 150mm thick concrete slab	50	SEC 1, SEC 2, SEC 3, and SEC 4

External Walls

The $R_W + C_{tr}$ values required for external walls as summarised in Table 2 can be achieved with the constructions in Table 9. Alternative external wall constructions that have been verified to achieve the required $R_W + C_{tr}$ values can also be used.

Table 9 Recommended Constructions for External Walls

External Wall Type	Recommended Construction	$R_W + C_{tr}$	Suitable for
Concrete Panel	Minimum 150mm thick concrete panel	50	SEC 1, SEC 2, SEC 3, and SEC 4
Steel Frame Wall	External cladding (sheet metal or cement sheet) 1 layer of 16mm thick fire rated plasterboard lining Two rows of steel studwork with 20mm cavity between Insulation infill within both studwork rows 1 layer of 16 mm thick fire rated plasterboard internal lining	50	SEC 1, SEC 2, SEC 3, and SEC 4
	External cladding (sheet metal or cement sheet) 2 layers of 13 mm thick fire rated plasterboard lining Steel studwork Insulation infill within studwork row 2 layers of 13 mm thick fire rated plasterboard internal lining	45	SEC 1, and SEC 2
	External cladding (sheet metal or cement sheet) 1 layer of 13 mm thick fire rated plasterboard lining Steel studwork Insulation infill within studwork row 2 layers of 13 mm thick fire rated plasterboard internal lining	40	SEC 1

Windows and external glass doors

The $R_W + C_{tr}$ values required for windows and external glass doors as summarised in Table 3 can be achieved with the constructions in Table 10 where they incorporate seals fitted to each edge of the openable window or door to restrict air infiltration when closed. Alternative windows and external glass doors that have been verified to achieve the required $R_W + C_{tr}$ values can also be used.

Based on the documented extent of glass, the following $R_W + C_{tr}$ values will typically be required, however this will need to be refined for the final design on a room-by-room basis:

SEC 1 - $R_W + C_{tr}$ 28 to 30

SEC 2 - $R_W + C_{tr}$ 30 to 34

SEC 3 - $R_W + C_{tr}$ 32 to 35

SEC 4 - $R_W + C_{tr}$ 34 to 35 in combination with limitations on the extent of windows.

Table 10 Recommended Constructions for Windows and External Glass Doors

External Wall Type	Recommended Construction	$R_W + C_{tr}$	Suitable for (subject to extent of glass)
Window - Single Glass Pane	3mm thick monolithic glass with sliding opening	22	SEC 1
	3mm thick monolithic glass with hinged or awning type opening only	25	SEC 1, and SEC 2
	6mm thick monolithic or laminated glass with sliding opening	28	SEC 1, SEC 2, and SEC 3
	6mm thick monolithic or laminated glass with awning type opening	30	SEC 1, SEC 2, SEC 3, and SEC 4
	10mm thick monolithic or laminated glass with awning type opening	32	SEC 1, SEC 2, SEC 3, and SEC 4
	10.5mm thick laminated glass with awning type opening	34	SEC 1, SEC 2, SEC 3, and SEC 4
	12.5mm thick laminate glass within awning type opening in combination with limitations on the extent of windows	35	SEC 2, SEC 3, and SEC 4
Door - Single Glass Pane	6mm thick monolithic or laminated glass sliding door	28	SEC 1, SEC 2, and SEC 3
	6mm thick monolithic or laminated glass side-hung door	30	SEC 1, SEC 2, SEC 3, and SEC 4
	10mm thick monolithic or laminated glass sliding door	30	SEC 1, SEC 2, SEC 3, and SEC 4
	10mm thick monolithic or laminated glass side-hung door	32	SEC 1, SEC 2, SEC 3, and SEC 4
	12.5mm thick laminated glass for sliding type openings	34	SEC 1, SEC 2, SEC 3, and SEC 4

Roof and Ceilings

The $R_W + C_{tr}$ values required for external roof and ceilings as summarised in Table 4 can be achieved for habitable rooms with a sheet metal roof above and the ceiling constructions in Table 11.

For all habitable rooms with a sheet metal roof above, the roof space shall also have one of the following types of insulation installed above the ceiling

- a minimum 165mm thick glasswool or rockwool insulation with a minimum density of 7kg/m³
OR
- a minimum of 185mm thick polyester insulation with a minimum density of 11kg/m³.

Alternative roof and ceiling constructions that have been verified to achieve the required $R_W + C_{tr}$ values can also be used.

Table 11 Recommended Constructions for Roof and Ceilings

Roof and Ceiling Type	Recommended Construction	$R_w + C_{tr}$	Suitable for
Ceiling - Single Layer	1 layer of 10mm plasterboard	35	SEC 2 (bedrooms) SEC 3 (habitable rooms other than bedrooms)
	1 layer of 16mm plasterboard	40	SEC 3 (bedrooms) SEC 4 (habitable rooms other than bedrooms)
Ceiling - Dual Layer	2 layers of 13mm fire rated plasterboard	45	SEC 4 (bedrooms)

Mechanical Ventilation Systems

The R_w values required for mechanical ventilation systems as summarised in Table 5 can be achieved with the following options in Table 12.

Table 12 Recommended Constructions for Mechanical Ventilation Systems

Mechanical Ventilation Systems	Recommended Construction	R_w	Suitable for
Natural Ventilation	Natural ventilation may be provided through windows and doors. Mechanical ventilation systems to include a minimum 2.5m length of sheet metal ductwork (with dimensions of 350mm by 350mm) internally lined with 25mm thick insulation (with a density of 32kg/m ³) which incorporates at least one 90-degree bend between outside and inside (such as from range hoods, ventilation or exhaust systems).	25	SEC 1, and SEC 2
	Natural ventilation may be provided through windows and doors. Mechanical ventilation systems to include a minimum 3m length of sheet metal ductwork (with dimensions of 350mm by 350mm) internally lined with 25mm thick insulation (with a density of 32kg/m ³) which incorporates at least one 90-degree bend between outside and inside (such as from range hoods, ventilation or exhaust systems).	30	SEC 3
No Natural Ventilation	Supply/fresh air and relief/exhaust air paths must be fully ducted to allow for windows and external doors to be closed. Mechanical ventilation systems to include a minimum 3.5m length of sheet metal ductwork (with dimensions of 350mm by 350mm) internally lined with 25mm thick insulation (with a density of 32kg/m ³) which incorporates at least one 90-degree bend between outside and inside. The inlet and discharge openings should be positioned as far away as practicable from Unley Road.	40	SEC 4

Penetrations

Penetrations through the building envelope by pipes, ducts, conduits or the like must have the space between the building envelope and the pipes, ducts, conduits or the like sealed airtight with flexible caulking compound or filled with mortar.

6. Noise Emissions Assessment

The noise emissions generated by the development have been assessed to ensure the noise from carparking, use of the loading area, waste collection, and the operation of external mechanical plant and equipment at the development do not unreasonably interfere with the amenity of receivers.

The design of the development has not yet been finalised, as is common at the development application stage, therefore this assessment considers the typical envisaged uses of the development and indicative mechanical plant and equipment selections. These indicative mechanical plant and equipment selections will be updated as the development's design progresses.

Operational Assumptions

The following operational assumptions have been used over each 15-minute period (being the relevant assessment period defined under the Policy) and are the basis for the predicted noise levels in Table 13.

During the day (7.00am to 10.00pm)

- vehicle movements with a sound power level of 81 dB(A) per arrival or departure (manoeuvring into the parking space, opening and closing doors and conversing), comprising 30 cars into or out of the carpark at any time during the day or night
- Continuous operation of rooftop mechanical plant and equipment with a combined sound power level of 94 dB(A) at any time during the day or night
- One medium rigid vehicle delivery in the loading area with a sound power level of 96 dB(A) manoeuvring into or out of the loading area and unloading at any time during the day.

During the night (10.00pm to 7.00am)

- vehicle movements with a sound power level of 81 dB(A) per arrival or departure (manoeuvring into the parking space, opening and closing doors and conversing), comprising 15 cars into or out of the carpark at any time during the day or night
- Continuous operation of rooftop mechanical plant and equipment with a combined sound power level of 94 dB(A) at any time during the day or night.

Noise Control Measures

The following noise control measures are recommended:

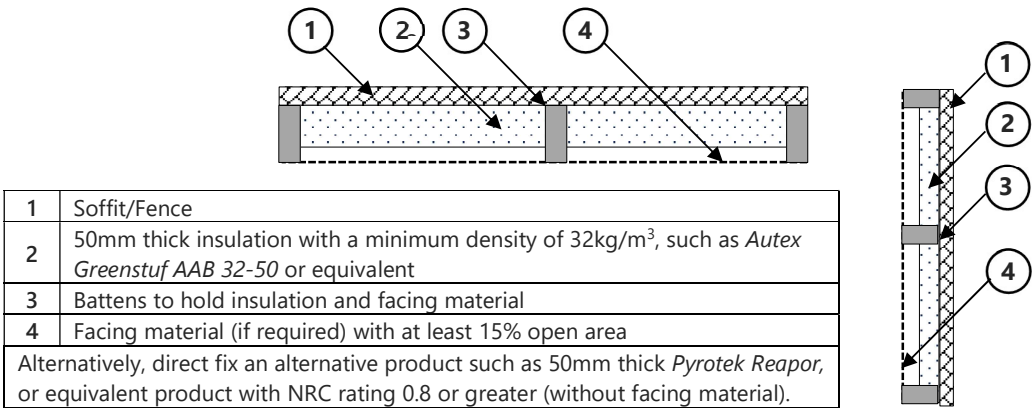
- Construct a fence for the extent shown as **blue** in Figure 12. The fence should be a minimum 3.3m above ground level on both sides of the fence and incorporate acoustically absorptive material with a minimum noise reduction coefficient (**NRC**) rating of 0.8 on the full extent of the development side of the solid fence. The fence may be constructed from:
 - sheet fibre cement sheet (or another suitable material with an equivalent mass per unit area) with all junctions sealed airtight (including at the ground), and 50mm thick insulation (with a minimum density of 32kg/m³) or another proprietary material with an NRC of 0.8 installed in accordance with Figure 13
 - or
 - a proprietary solid fencing material that incorporates acoustically absorptive material on one side of a solid panel, such as the Modularwall "AcoustiSorb75"
- Install acoustic absorption material to the underside of the soffit of the carpark ramp / loading area and carpark for the extent marked as **green** in Figure 12. The absorption material should achieve a minimum noise reduction coefficient (**NRC**) rating of 0.8, such as 50mm thick insulation (with a minimum density of 32kg/m³), or other proprietary material, installed in accordance with Figure 13
- Construct screens with a height equivalent to the adjacent mechanical plant and equipment on the eastern side of the roof mounted mechanical plant. Ensure the screen is constructed from sheet metal (or another suitable material with an equivalent mass per unit area) and all junctions are sealed airtight, including at the roof and between sheets
- Ensure all exhaust fans incorporate attenuators to the discharge side of the fan
- Ensure all supply air fans incorporate attenuators to the inlet side of the fan
- Ensure that all grates, drains, ramps, or similar in the carpark and loading area are well fitted and do not generate excessive noise when driven over

Figure 12 Noise Control Measures



Source SAPPA and Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Figure 13 Acoustic Absorption Material Detail



Future Mechanical Plant and Equipment Design

The mechanical plant and equipment noise will be subject to final selections and design. The noise should therefore be confirmed during the design stage of the project when this aspect is finalised. Based on the assessment to date, a condition relating to the future mechanical plant and equipment design achieving the Policy can be reasonably and practicably complied with subject to suitable placement and noise control measures.

Waste Collection

To ensure consistency with the LNLC Act provisions, it is recommended the hours of private waste collection from the development, and the gathering and depositing of waste into bins and/or compaction activities, occur between 9.00am and 7.00pm on a Sunday or public holiday, and between 7.00am and 7.00pm on all other days.

Fire Pump

The fire pump will be subject to final selections and design. The noise from the fire pump should therefore be confirmed during the design stage of the project when this aspect is finalised. Due to its infrequent operation for maintenance testing only other than in an emergency, the operation of the fire pump does not need to achieve the Policy to not unreasonably interfere with the acoustic amenity of the receivers. Based on the assessment to date, a condition relating to the future fire pump design incorporating all reasonable and practicable noise control measures can be complied with.

Noise Model

The noise from the development has been predicted using the noise calculation method provided by the *International Standard ISO 9613-2:2024 Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors* (the **Standard**) in combination with the operational assumptions and noise control measures detailed above.

When predicting noise levels for comparison with the Policy, the noise levels are to be adjusted (increased) where the activities exhibit “annoying” characteristics (dominant tonal, impulsive, low frequency content, intermittency, or modulation characteristics) in comparison to the surrounding ambient environment.

Unley Road traffic is a dominant feature of the ambient environment. Notwithstanding, an adjustment (increase) of 5 dB(A) has been applied to the predicted noise levels at the receivers to account for a modulating character associated with vehicle movements on site coinciding with extended periods of limited traffic on Unley Road. The results of the noise predictions, which include a 5 dB(A) adjustment (increase), are summarised in Table 13.

Table 13 Predicted Noise Emissions

Receivers	Highest Predicted Noise Emissions (dB(A))			Compliance
	Day	Night		
	L _{Aeq, 15minute}	L _{Aeq, 15minute}	L _{Amax}	
Noise Criteria	50 dB(A)	43 dB(A)	60 dB(A)	
1	46 dB(A)	42 dB(A)	57 dB(A)	Yes
2	44 dB(A)	42 dB(A)	50 dB(A)	Yes
3	47 dB(A)	43 dB(A)	59 dB(A)	Yes
Noise Criteria	52 dB(A)	45 dB(A)	-	
4	45 dB(A)	44 dB(A)	-	Yes

Based on the noise predictions, the external noise criteria will be achieved at the receivers and all other dwellings further away from the development.

7. Noise Ingress Assessment

The noise ingress into the development has been assessed to ensure the habitable areas of the development achieve suitable internal acoustic amenity and the development does not unreasonably constrain the operation of existing commercial land uses.

Site Observations

An inspection of the development site and surrounding area was conducted on 10 October 2025 to understand the ambient environment, and to identify nearby land uses and noise sources that interface with the development. The inspection identified commercial land uses to the north within an Urban Corridor (Main Street) Zone.

During the inspection, it was identified that the regular noise sources from the existing surrounding activities included car washing and general vehicle movements within the dominant influence of Unley Road traffic.

The potential noise impacts to the habitable areas of the development have been determined through the development of a noise model which predicts the noise levels within the development from surrounding commercial land uses. A prediction model has been used as it enables the full capacity operation of the commercial land use to be considered at a range of locations throughout the development site.

Noise Model

Noise levels within the habitable areas of the development have been predicted using the noise calculation method provided by the Standard in combination with:

- the site observations and measurements of surrounding commercial activity comprising the operation of a car wash and cleaning equipment
- the construction methods of the habitable areas of the development required to satisfy the MBS 010 requirements (as outlined in Section 5 of this assessment).

Noise Control Measures

When predicting noise levels for comparison with the Policy, the noise levels are to be adjusted (increased) where the activities exhibit “annoying” characteristics (dominant tonal, impulsive, low frequency content, intermittency, or modulation characteristics) in comparison to the ambient environment.

The operation of the surrounding commercial activity primarily occurs between 8.00am and 5.00pm when there is extensive traffic on Unley Road. As such, based on the observations and measurements, an adjustment for noise characteristics from commercial activity to inside the development is not warranted due to the dominance of traffic on Unley Road in the day time ambient environment.

Based on the noise predictions, the internal noise criteria will be achieved from commercial activity with the external building construction methods required to satisfy MBS 010 requirements as detailed in section 5 of this assessment with a modification to ensure that the construction methods for any habitable room on the northern facade of the development achieves a minimum SEC 2 construction.

8. Proposed Conditions

This assessment has been conducted to objectively consider the noise impacts associated with the proposed development at 259-269 Unley Road, Unley.

The assessment provides recommendations to ensure the following:

1. the external building construction of the residential apartments achieves suitable internal acoustic amenity from Unley Road and mixed land use areas, and do not unreasonably interfere with the operation of existing commercial land uses
2. the noise from the proposed development does not unreasonably interfere with the acoustic amenity of surrounding sensitive receivers.

To satisfy the relevant *Planning and Design Code* provisions, the following draft conditions (or equivalent) could be incorporated to reinforce the outcomes of this assessment:

- Activities at the development except for operation of the fire pump and use of the pool shall achieve the relevant noise levels established by the *Environment Protection (Commercial and Industrial) Noise Policy 2023* (the Policy) at all sensitive receivers at the time of this consent when measured and adjusted in accordance with Part 3 of the Policy
- Implement the noise control measures nominated in the Echo Acoustics *Environmental Noise Assessment* with Reference ID: 648-2, dated 24 October 2025, or those determined by a subsequent report by an acoustic engineer
- Incorporate construction methods that achieve the *Ministerial Building Specification 010 - Construction requirements for the control of external sound*
- Ensure the final mechanical plant and equipment, excluding the fire pump, is designed to achieve the *Environment Protection (Commercial and Industrial Noise) Policy 2023* when assessed in combination with other noise sources at the development
- Ensure the fire pump incorporates all reasonable and practicable noise control measures when accounting for its limited frequency of maintenance operation
- Ensure private waste collection from the development, the gathering and depositing of waste into bins, and/or any compaction is restricted to occur between 9.00am and 7.00pm on a Sunday or public holiday, and between 7.00am and 7.00pm on all other days
- For the purposes of these conditions, reference to an acoustic engineer is defined to be an engineer eligible for the grade of "Member" under the Australian Acoustical Society.

References

Environment Protection Act 1993

Environment Protection (Commercial and Industrial Noise) Policy 2023

Guidelines for the Use of The Environment Protection (Commercial and Industrial Noise) Policy 2023

International Standard ISO 9613-2:2024 Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors

Woods Bagot Project 140697 Drawings for 259-269 Unley Road

Local Nuisance and Litter Control Act 2016

Ministerial Building Standard MBS 010 - Construction requirements for the control of external sound, May 2023

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