



Bupa Morphettsville Redevelopment

Environmental Noise Assessment

Reference ID: 774-2
13 March 2026

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Abbreviations

ALA	Assisted Living Apartments
Assessment	Echo Acoustics <i>Environmental Noise Assessment</i> with Reference ID: 774-2, dated 13 March 2026
Code	<i>Planning and Design Code Version 2026.4, 26 February 2026, PlanSA.</i>
Day	A period defined by the Policy as between 7.00am and 10.00pm
dB	Decibel
dB(A)	An A-weighted Decibel
Development	The redevelopment of the existing Bupa Morphettville aged care facility at 29-31 Austral Terrace, Morphettville
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>
Guidelines	<i>Guidelines for the Use of the Environment Protection (Commercial and Industrial Noise) Policy 2023</i>
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>
Night	A period defined by the Policy as between 10.00pm and 7.00am
Noise Criteria	The noise levels established in the assessment so as to not unreasonably impact the amenity of the receivers
NRC	Noise reduction coefficient
PO	Performance Outcome of the Code
Policy	<i>Environment Protection (Commercial and Industrial Noise) Policy 2023</i>
Receivers	Sensitive receivers where noise impacts are considered. In this instance, the receivers are the closest existing dwellings to the development

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 environment in the absence of 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
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

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
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)
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 assessment criterion
Noise	An interchangeable term with sound but which is most often described as unwanted sound
Sensitive Receiver	The same meaning as under Part 8 Administrative Terms and Definitions 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

Summary

The Bupa Aged Care facility at 29-31 Austral Terrace, Morphettville, is proposed to be redeveloped, including demolition of the existing building and grounds, and construction of a new four storey aged care building, and associated car parking and outdoor areas (the **development**).

The development does not fundamentally change the operation of the existing aged care facility, with a loading area on the eastern side of the development site, and outdoor areas on the southwestern side of the development site.

Notwithstanding the similarities between the existing aged care facility and the development, an environmental noise assessment (the **assessment**) has been conducted to consider the noise impacts associated with the development to the surrounding area. The assessment also provides an opportunity to incorporate noise control measures which do not currently exist for the existing facility.

Noise from the development will include deliveries in the loading area, car parking, residents and family socialising outdoors, the operation of mechanical plant and equipment (including emergency generators and fire pumps), and the gathering, depositing and collection of waste.

The assessment predicts the noise from the development based on established inputs from similar facilities and manufacturer's noise data. The predicted noise levels are compared against noise criteria established in accordance with the *Planning and Design Code* and the *Environment Protection (Commercial and Industrial Noise) Policy 2023*, to ensure the acoustic amenity of the existing dwellings is not adversely impacted.

The assessment determines that the noise criteria can be achieved with the following noise control measures:

- Restricting deliveries and associated activity to between 9.00am and 8.00pm on a Sunday, and between 8.00am and 8.00pm on all other days
- Ensuring operational measures are implemented to minimise noise from the delivery bay
- Constructing solid boundary fences in the vicinity of the car park and delivery areas
- Incorporating acoustic absorption to the underside of the assisted living apartment car park roof
- Ensuring car park grates, drains, ramps, or similar are well fixed and do not generate excessive noise when driven over
- Ensuring any alarms, speakers, or the like are inaudible at the closest dwellings
- Ensuring the gathering, depositing and collection of waste occurs in accordance with the *Local Nuisance and Litter Control Act 2016*
- Ensuring mechanical plant and equipment (air conditioning, refrigeration, ventilation, extraction system, generators, fire pumps, or the like) and associated screens and enclosures are designed to achieve the *Environment Protection (Commercial and Industrial Noise) Policy 2023*.

The noise control measures ensure the development has been located and designed to not unreasonably impact the amenity of existing dwellings. In doing so, the development satisfies all the relevant *Planning and Design Code* provisions relating to environmental noise.

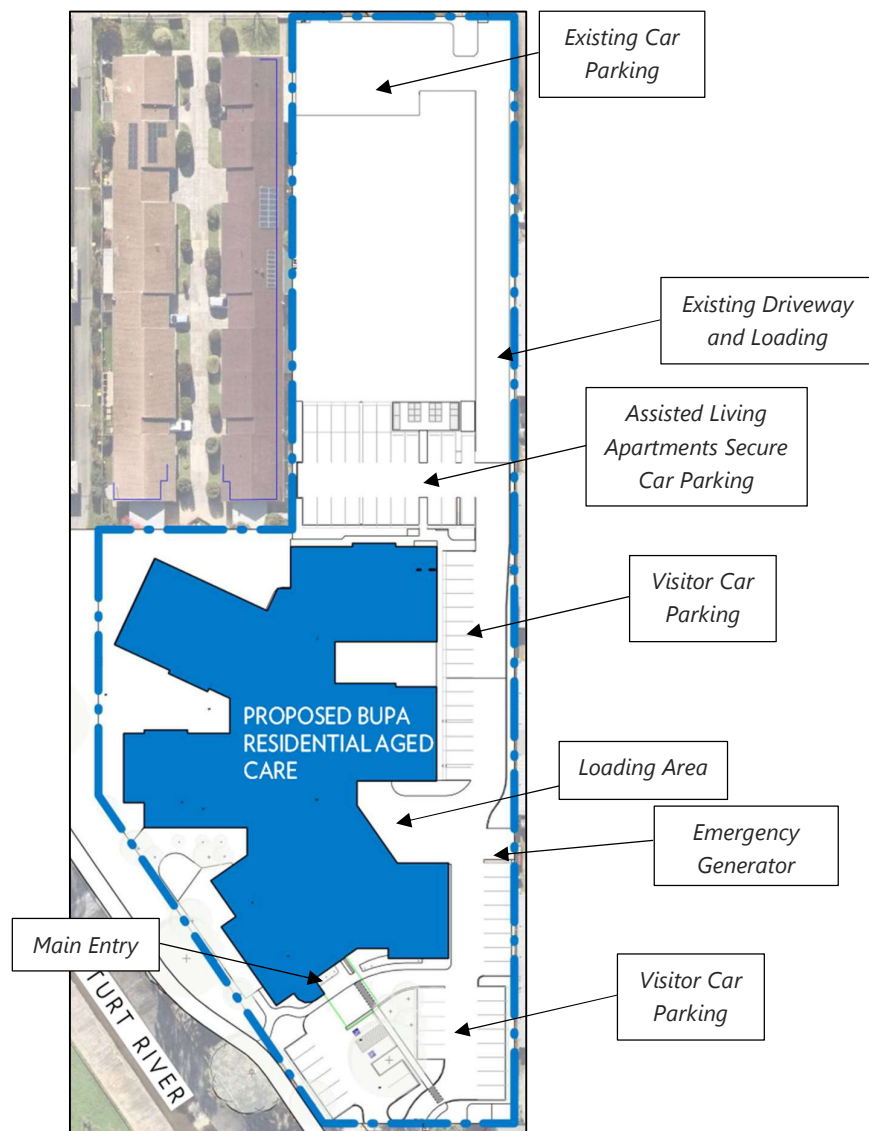
Introduction

The Bupa Aged Care facility at 29-31 Austral Terrace, Morphettville, is proposed to be redeveloped, including demolition of the existing building and grounds, and construction of a new four storey aged care building, and associated car parking and outdoor areas (the **development**).

The development does not fundamentally change the operation of the existing aged care facility, with a loading area on the eastern side of the development site, and outdoor areas on the southwestern side of the development site.

The development layout is shown in Figure 1.

Figure 1 Development Layout



Source: Walter Brook Proposed Location & Site Plan DA02, dated 14 January 2026

Notwithstanding the similarities between the existing aged care facility and the development, an assessment has been conducted to consider the noise impacts associated with the development to the surrounding residential area. The assessment also provides an opportunity to incorporate noise control measures which do not currently exist for the existing facility.

Noise from the development will include deliveries in the loading area, car parking, residents and family socialising outdoors, the operation of mechanical plant and equipment (including emergency generators and fire pumps), and the gathering, depositing and collection of waste.

The assessment predicts the noise from the development based on established inputs from similar facilities and manufacturer's noise data. The predicted noise levels are compared against noise criteria established in accordance with the *Planning and Design Code* and the *Environment Protection (Commercial and Industrial Noise) Policy 2023*, to ensure the acoustic amenity of the existing dwellings (the **receivers**) is not adversely impacted.

The location of the development, the receivers considered in the assessment, and the *Planning and Design Code* zones are shown in Figure 2.

Figure 2 Development Locality



Source Plan SA – SA Property & Planning Atlas

Assessment Criteria

The Planning and Design Code

The development and the receivers identified as 2 to 14 in Figure 2 are in a General Neighbourhood Zone of the *Planning and Design Code Version 2026.4, 26 February 2026* (the **Code**). Receivers 1 and 15 are within the Housing Diversity Neighbourhood Zone of the Code. The following provisions within the Code are considered relevant to the assessment (*emphasis added*).

General Neighbourhood Zone (Part 2 – Zones and Sub Zones)

Desired Outcome DO 1

Low-rise, low and medium-density housing that supports a range of needs and lifestyles located within easy reach of services and facilities. Employment and community service uses contribute to making the neighbourhood a convenient place to live *without compromising residential amenity*.

Performance Outcome PO 1.3

Non-residential development sited and designed to *complement the residential character and amenity of the neighbourhood*.

Performance Outcome PO 1.4

Commercial activities improve community access to services are of a scale and type to *maintain residential amenity*.

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 1.2

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 2.1

Non-residential development *does not unreasonably impact the amenity of sensitive receivers* (or lawfully approved sensitive receivers) or an adjacent zone primarily for sensitive receivers through its hours of operation having regard to:

- a) the nature of the development
- b) measures to mitigate off-site impacts
- c) the extent to which the development is desired in the zone
- d) measures that might be taken in an adjacent zone primarily for sensitive receivers that mitigate adverse impacts without unreasonably compromising the intended use of that land.

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 *affects 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 4.5

Outdoor areas associated with licensed premises (such as beer gardens or dining areas) are *designed and/or sited to not cause unreasonable noise impact on existing adjacent sensitive receivers* (or lawfully approved sensitive receivers).

Environment Protection (Commercial and Industrial Noise) Policy 2023

Interface between land uses DTS / DPF 4.1 requires noise to be assessed against the *relevant Environment Protection (Noise) Policy criteria*. The relevant policy is the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Policy**).

The Policy is an objective instrument under the *Environment Protection Act 1993* (the **EP Act**). The EP Act includes a requirement to ensure that noise does not unreasonably interfere with the enjoyment of an area.

The Policy provides an objective approach to satisfy both the EP Act and interface between land uses PO 4.1. With the intent of the other relevant desired outcomes and performance outcomes of the Code related to environmental noise 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 establishes indicative noise levels that apply at receivers between 7.00am and 10.00pm (the **day**) and between 10.00pm and 7.00am the following day (the **night**).

The indicative noise levels vary according to the principal land uses promoted in the zones where the development and the receivers are located. For the assessment of a new development where no other historical activity has occurred, the indicative noise levels which apply at the receivers are adjusted to reflect the change in amenity from the introduction of entirely new noise sources.

In this circumstance, the Policy indicative noise levels without adjustment are considered to provide the most relevant noise levels to ensure the acoustic amenity of the receivers is not unreasonably impacted from regular day to day activity at the development noting that:

- the development does not introduce any regular day to day activity not already occurring, and does not fundamentally change the existing operations
- the development provides the opportunity to implement operational noise control measures
- the development provides the opportunity to implement built form to provide improved shielding to receivers in comparison to the existing facility.

Furthermore, the Policy and the *Guidelines for the use of the Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Guidelines**) allow for the criteria under the Policy to be increased in special circumstances, such as where an activity occurs for a short duration.

Based on the above, the assessment assigns the following noise levels, when assessed at the receivers identified in Figure 2 to ensure the acoustic amenity of the receivers is not unreasonably impacted (the **noise criteria**):

- An equivalent noise level ($L_{Aeq, 15min}$) of 52 dB(A) during the day for regular day to day activity
- An $L_{Aeq, 15min}$ of 62 dB(A) during the day for one-off events that occur for a short duration, such as for 15 minutes each day
- An $L_{Aeq, 15min}$ of 45 dB(A) during the night.

In addition to the above, emergency plant and equipment, such as generators or fire pumps, which can require continuous operation under load for an extended duration, such as for a period of four hours each month for testing, must take all reasonable and practicable noise control measures to ensure the acoustic amenity of the receivers is not unreasonably impacted. Compliance with an $L_{Aeq, 15min}$ of 52 dB(A) is considered to represent a conservative indication of having implemented all reasonable and practicable measures for emergency plant and equipment.

When predicting noise levels for comparison against the noise criteria, the predicted noise levels are to be adjusted (increased) where the activities exhibit “annoying” characteristics (dominant tonal, impulsive, low frequency content, intermittency¹, or modulation characteristics) in comparison to the ambient environment.

¹ Intermittency is only applicable during the night period

Local Nuisance and Litter Control Act 2016

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 specific 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.

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 / public holiday or 7.00am on any other day.

In addition to the above, the LNLC Act declares that refrigeration equipment fitted on or in a vehicle that is parked and not being operated constitutes local nuisance when it occurs after 8.00pm on any day of the week, or before 9.00am on a Sunday or 8.00am on any other day.

Assessment

Data Inputs

Noise level predictions for activity at the development have been based on established inputs from similar facilities and manufacturer's noise level data.

The established input data includes the noise from patrons socialising (representative of residents and family in outdoor aged care spaces), car parking, and deliveries.

The design of the development has not yet been finalised, as is common at the development application stage, therefore this assessment is based on manufacturer's noise level data for 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 noise levels from the development have been predicted based on the following regular day to day activities occurring over a 15-minute period (being the default assessment period under the Policy):

- 4 passenger vehicle movements in the assisted living apartment (**ALA**) car park and 15 passenger vehicle movements in other car parking areas during any 15-minute period of the day, each with a sound power level of 81 dB(A) per arrival or departure (manoeuvring into the parking space, opening and closing doors and conversing)
- 2 passenger vehicle movements in the ALA car park and 8 passenger vehicle movements in other car parking areas during any 15-minute period of the night, each with a sound power level of 81 dB(A) per arrival or departure (manoeuvring into the parking space, opening and closing doors and conversing)
- 20 residents and/or family socialising in the outdoor areas during any 15-minute period of the day, with a sound power level of 67 dB(A) per person
- Continuous operation of air conditioning, refrigeration and exhaust fans located at roof level during the day and night, with a combined sound power level of 98 dB(A)
- Unloading activity in the loading dock during any 15-minute period of the day, with a sound power level of 88 dB(A)
- A non-refrigerated truck delivery to the loading dock during any 15-minute period of the day, with a sound power level of up to 95 dB(A) manoeuvring into and out of the loading dock
- A refrigerated truck delivery to the loading dock for one 15-minute period of the day, with a sound power level of up to 96 dB(A) manoeuvring into and out of the loading dock and while unloading (refrigeration remaining on during the entire delivery).

The noise has also been predicted for the operation of the following emergency plant and equipment for testing, or during power outages or emergencies:

- a noise attenuated generator with a sound power level of up to 102 dB(A) from the casing and from the exhaust
- a noise attenuated fire pump with a sound power level of up to 87 dB(A) from the casing and from the exhaust.

Noise Control Measures

It is recommended that the development incorporate the following noise control measures:

- Restrict delivery vehicle access to the development, and associated activities to between 9.00am and 8.00pm on a Sunday, and between 8.00am and 8.00pm on all other days
- Ensure non-refrigerated delivery trucks switch off engines during loading and unloading
- Construct boundary fences from a material such as sheet metal (Colorbond or similar) with a base metal thickness of at least 0.42mm, or another material that is acoustically equivalent. The fences shall be constructed as close as practicable to airtight at the ground and at the overlap of the sheets and to the following heights:
 - 3.0m for the extent shown as **red** in Figure 3
 - 2.1m for the extent shown as **blue** in Figure 3
- Incorporate an acoustically absorbent material to the underside of the ALA car park roof for the extent shaded as **purple** in Figure 3. The absorption material should achieve a minimum noise reduction coefficient (**NRC**) rating of 0.8. An example detail is provided in Figure 4.
- Ensure car park grates, drains, ramps, or similar are well fixed and do not generate excessive noise when driven over
- Ensure any alarms, speakers, or the like are inaudible at receivers
- Restrict the times of gathering, depositing and collection of waste to the hours nominated under the *Local Nuisance and Litter Control Act 2016*, being between 9.00am and 7.00pm on a Sunday or public holiday, and between 7.00am and 7.00pm on all other days.

Future Services Design

The mechanical plant and equipment have not yet been finalised, as is common at the planning application stage. The noise from the mechanical plant and equipment should therefore be confirmed to achieve the *Environment Protection (Commercial and Industrial Noise) Policy 2023* during the design stage of the project when this aspect is finalised. The mechanical plant and equipment is likely to require the following noise control measures, subject to detailed design:

- Solid screening around the rooftop mechanical plant and equipment, to the same height as the tallest unit, for the extent shown as **orange** in Figure 3
- The noise attenuated generator located in an enclosure with specifically designed ventilation systems (such as acoustic louvres), acoustic absorption material to walls and underside of the ceiling, and exhaust systems incorporating additional mufflers/attenuation that are orientated away from receivers
- The noise attenuated fire pump located in a room with specifically designed ventilation systems (such as acoustic louvres), and acoustic absorption material to walls and underside of the ceiling.

Figure 3 Noise Control Measures

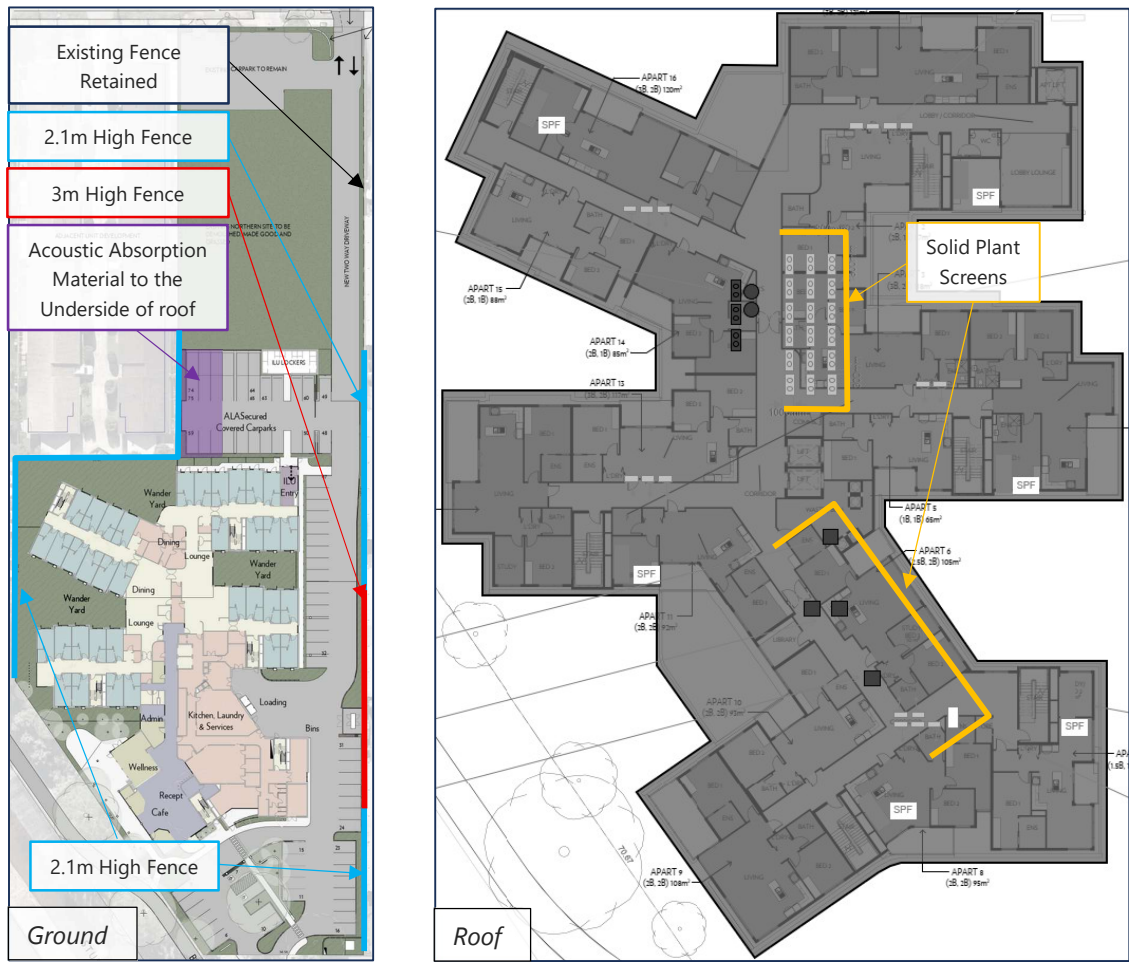
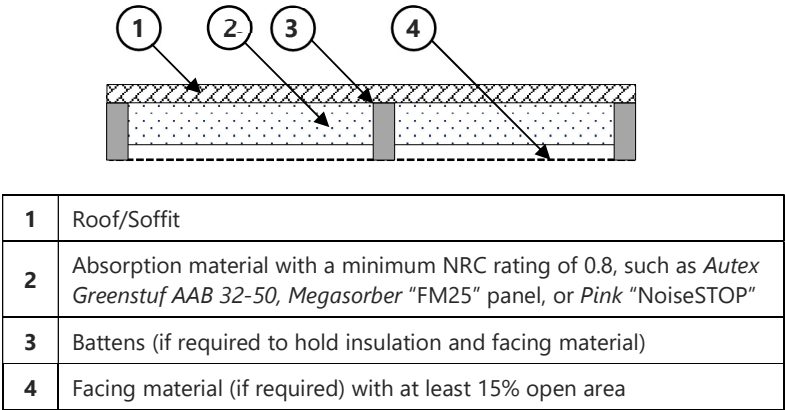


Figure 4 Absorption Detail



Predicted Noise Levels

The noise from the regular day to day activity at 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"* in combination with the noise control measures. The results of the predictions are summarised in Table 1 for the receivers identified in Figure 2.

When predicting noise levels for comparison with the Policy, the noise levels are to be adjusted where the activities exhibit "annoying" characteristics in comparison to the ambient environment.

The noise levels in Table 1 include an adjustment (plus 5 dB(A)) for the noise characteristics associated with delivery vehicles during the day period.

During the night period, minimal external activity will occur, and the continuous operation of mechanical plant is predicted to be the dominant noise source. In these circumstances an adjustment is not applicable.

Table 1 Predicted Noise Levels dB(A)

Receivers	Predicted $L_{Aeq\ 15min}$ (dB(A))			Compliance
	Day		Night	
	Regular Day to Day Activity with a Refrigerated Delivery	Regular Day to Day Activity		
Criteria	62 dB(A)	52 dB(A)	45 dB(A)	
1	52	45	38	Yes
2	57	49	39	Yes
3	60	51	41	Yes
4	58	50	40	Yes
5	60	51	40	Yes
6	59	52	43	Yes
7	56	50	39	Yes
8	56	52	40	Yes
9	49	47	39	Yes
10	49	46	40	Yes
11	47	47	42	Yes
12	45	45	40	Yes
13	49	49	42	Yes
14	50	50	42	Yes
15	50	49	42	Yes

The results in Table 1 demonstrate that the noise criteria are predicted to be achieved at all receivers in this assessment. Where the noise criteria are achieved at these receivers, being the closest existing dwellings to the development, the assessment criteria will be achieved at all other dwellings in the vicinity.

Conclusion

An environmental noise assessment of the redeveloped Bupa Aged Care facility at 29-31 Austral Terrace, Morphettville, has been conducted.

The noise from activity occurring at the development has been predicted to the closest existing dwellings, and compared against noise criteria established in accordance with the *Planning and Design Code* and the *Environment Protection (Commercial and Industrial Noise) Policy 2023*. The assessment ensures that noise from the development will not unreasonably impact the acoustic amenity of nearby existing dwellings.

The noise criteria will be achieved through the following noise control measures:

- Restricting deliveries and associated activity to between 9.00am and 8.00pm on a Sunday, and between 8.00am and 8.00pm on all other days
- Ensuring operational measures are implemented to minimise noise from the delivery bay
- Constructing solid boundary fences in the vicinity of the car park and delivery areas
- Incorporating acoustic absorption to the underside of the assisted living apartment car park roof
- Ensuring car park grates, drains, ramps, or similar are well fixed and do not generate excessive noise when driven over
- Ensuring any alarms, speakers, or the like are inaudible at the closest dwellings
- Ensuring the gathering, depositing and collection of waste occurs in accordance with the *Local Nuisance and Litter Control Act 2016*
- Ensuring mechanical plant and equipment (air conditioning, refrigeration, ventilation, extraction system, generators, fire pumps, or the like) and associated screens and enclosures are designed to achieve the *Environment Protection (Commercial and Industrial Noise) Policy 2023*.

Based on the implementation of the noise control measures, the development has been located and designed to not unreasonably impact the amenity of existing dwellings. In doing so, the development satisfies all the relevant *Planning and Design Code* provisions relating to environmental noise.

References

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"

Planning and Design Code Version 2026.4, 26 February 2026, PlanSA

South Australian Local Nuisance and Litter Control Act 2016

South Australian Environment Protection Act 1993

South Australian Environment Protection (Commercial and Industrial Noise) Policy 2023

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

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