



Agenda Report for Noting

Meeting Date: 8 July 2021

Item Name	Building Policy and Programs Matters Update
Presenters	Jodie Evans
Purpose of Report	Noting
Item Number	1.10
Confidentiality	Confidential – Draft Advice or Document
Related Decisions	N/A

Recommendation

It is recommended that the Commission resolves to:

1. Approve the designation of this item as Confidential; and
2. Note the update on building policy matters.

Background

The following building issues are raised for the Commission's noting:

- the Minister for Planning and Local Government's position on mandatory accessible housing for South Australia
- recent meetings of the Australian Building Codes Board (ABCB)
- proposal to re-form the Building Fire Safety Committee for out of council areas
- recent update to Ministerial Building Standard (MBS) 002 and preparation of a new Guide for Ministerial Building Standard (MBS) 010
- an update on the Commission Building Technical Panel (BTP)
- proposal for new building reforms to support performance of the development sector.

Discussion

Minister's stance on mandatory accessible housing

At the last building update the Commission were advised that, on 30 April 2021, the Building Ministers' Meeting considered the issue of accessible housing, and agreed to include minimum accessibility provisions for dwellings at the 'silver' level in the NCC 2022.

While collectively the BMM agreed to include these provisions in the NCC, the communiqué noted that 'each state and territory will be free to determine whether and how the new provisions will be applied in their jurisdiction to minimise the regulatory impact on the construction sector'.

[REDACTED]

New Building Fire Safety Committee (BFSC)

It is proposed that the Commission's BFSC is re-established to ensure owners of buildings in the out of council areas of South Australia are maintaining proper levels of fire safety in their buildings. The BFSC membership has been reviewed and members with the appropriate skills and experience that meet the legislative criteria will be recommended for adoption. The Commission will be required to endorse the membership and terms of reference of the BFSC shortly, noting the BFSC's initial inspections are scheduled for the beginning of September 2021.

This initial trip is intended to concentrate on accommodation buildings, including caravan parks that pose the greatest risk if fire safety systems are not maintained. A risk-based approach will be adopted to remediate non-compliant fire safety matters. The BFSC will aim to negotiate appropriate resolutions with building owners that will hopefully minimise the amount of enforcement action required.

Ministerial Building Standards (MBS) update

MBS 002: Due to a level of ambiguity regarding the legislated monitoring requirements for fire alarms, an amendment to *MBS 002 – Maintaining the performance of essential safety provisions* was approved to be published by the Minister on 9 June, following consideration by the Commission on 27 May 2021.

MBS 010: A draft Guide to applying the recently amended *MBS 010 – Construction requirements for the control of external sound* (Standard) has been developed to assist building professionals and relevant authorities to determine whether noise attenuation is required for a particular location and to what degree. The Guide covers the three scenarios of road and rail, mixed land use and aircraft noise as per the Standard, and provides step by step instructions on the process involved, as well as explanation of concepts applicable to noise attenuation, and frequently asked questions.

Additionally, the Guide responds to requests from stakeholders for guidance material on this topic, which has been a consistent theme during the consultation phase and following publication. The Guide will be published shortly once approval process has been determined.

A copy of the draft Guide is attached (Attachment 1).

Building Technical Panel update

The Building Policy and Programs team met recently with Debbie Frisby, Chair, to discuss the operation and remit of the BTP. Issues discussed included further roles the BTP could perform in addition to their Commission delegated statutory opinion and concurrence functions (which have had limited use), including increasing its use as a disability access panel under the *Disability Discrimination Act 1992* (Cth), assisting with the Aluminium Composite Panel (ACP) audit, and to address some of the Building Confidence Report (BCR) issues that have been to the ABCB.

Proposal for new building reforms

Following efforts to support implementation of Phase 3 of the PDI Act and the associated ePlanning system, and resolution of a number of BCR items, it is now considered appropriate to renew efforts for building regulation reform. The following reform directions are proposed, with responsible approving body listed, noting these are in draft form at this stage.

Building Reform – Post PDI Act Implementation				
Objectives:	To improve the performance of the development sector via measures which support's greater levels of NCC compliance, integrity and innovation. To ensure that regulation is commensurate to risk, as driven by building complexity.			
Topic / reform area	Key task	Purpose / notes	Method	Approval body
Complex building definition	Ensure that a definition of 'building complexity' is operational in South Australian planning and development system.	This will provide the regulatory hook for complementary reforms below.	NCC / PDI Act Regulations	ABCB or Minister / Cabinet
Improved design documentation**	Measures to improve the standard of design documentation where possible, with a specific focus on performance solutions.	Will utilise the BCR generated model guidance, and draw on new NCC governing requirements	Regulations / Advisory material	Minister / Cabinet
Building surveyor integrity	Potential updates to AP requirements, including via Regulations and Code of Conduct	Will draw on the 10 model principles set out by the BCR work.	Accredited Professionals Scheme / Regulations	Chief Executive / Minister
Mandatory third party review of documentation**	Develop new framework for mandatory third party review for engineering input.	Designed to address risk and reallocate some risk away from the building certifier.	Regulations	Minister / Cabinet
Mandatory council inspections requirements	Review to determine how councils are performing and to consider future inspection levels.	This will draw on interstate levels and the BCR's recommendations in this area.	Inspection practice directions	Commission

Role of fire authorities in design process	Consider the role of the MFS in building design process	Will draw on BCR work in this area to better delineate the role of fire authorities in approval process.	Regulation	Minister / Cabinet
Support development of National Product Assurance Framework	Continue to support the development of this Framework	Considered highly important to underpin building compliance, owing to risk on product non-compliance.	National framework / Regulations	ABCB / Minister

It is envisaged that these reforms could be completed over the short to medium terms (1 to 3 years). **Consideration will also be given to establishing a registration scheme for engineers.

Attachments:

1. Draft Guide to *MBS 010 – Construction requirements for the control of external sound* #17264722

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Endorsed by: Bradley Slape

Date: 24 June 2021

Applying the MBS 010 – Construction requirements for the control of external sound

Version 1.0 (Draft)

June 2021



Government of South Australia

Attorney-General's Department

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Part 1 – Background

PlanSA - South Australia's new planning system

South Australia has a new, modern planning system which is Australia's first integrated and comprehensive ePlanning platform and online system.

The new planning system is governed by the *Planning, Development and Infrastructure Act 2016* (the Act), which replaced the Development Act 1993 across the State on 19 March 2021. The platform allows you to search property zoning, find the relevant policies that apply to an address and find an accredited professional to assist with development applications, amongst other functions.

PlanSA comprises of multiple online systems, brought together as the new ePlanning platform for South Australia. There are 4 key elements to the platform:

1. PlanSA Portal
2. Planning and Design Code (the Code)
3. Development Application Processing (DAP)
4. SA Property and Planning Atlas (SAPPA)

PlanSA Portal

The PlanSA portal provides the entry point to the new planning system, and can be accessed at www.plan.sa.gov.au. This portal provides access to the main elements of the system – the Code, DAP and SAPPA.

The Planning and Design Code (The Code)

The Code is a statutory instrument under the Act for the purposes of development assessment and related matters within South Australia and is used to:

- Determine the rules and policies that apply to a parcel of land
- Find out the relevant assessment pathways that apply to a particular development.

Development Application Processing (DAP)

The DAP is used to lodge or manage development applications for assessment. The DAP system is used for:

- Lodging development applications online
- Tracking the progress of a lodged development application
- Assessing applications as a relevant authority and providing feedback
- Issuing online decisions and digital notifications.

SA Property and Planning Atlas (SAPPA)

SAPPA is a map based application which displays where the planning zone and subzone boundaries and overlays of the Planning and Design Code apply, and is used for:

- Finding out the zoning for a particular property or area
- Determining the overlays applicable to a property.

The requirement for noise attenuation

Whilst sound is an integral facet of everyday life, it may be regarded as noise when it becomes unpleasant and negatively impacts upon an individual or environment. The impact of noise pollution in urban areas is an ongoing issue as cities continue to expand. New urban design and planning trends have moved towards transit oriented and mixed use developments, with increasing density of residential buildings aligned with major transport routes and public transport systems.

New developments of this kind may create vibrant communities and allow convenient access to public transport, however the proximity of residential accommodation to roads, trains and airports can impinge on livability and comfort in residential accommodation. Therefore building design and construction may need to consider this impact, and to mitigate against potential noise pollution.

With increasing global urbanisation, the World Health Organisation (WHO) has examined this issue and recognise a series of adverse health effects from noise, which they define as 'community noise'. Main sources of community noise include road, rail and air traffic, industries, construction and public works. They describe a number of specific effects which may have negative impacts and these include:

- Interference with communication
- Noise-induced hearing loss
- Sleep disturbance
- Cardiovascular and psycho-physiological effects
- Performance reduction
- Annoyance, and
- Effects on social behaviour.

In 1999, WHO released a set of *Guidelines for Community Noise* as a practical response to this problem and intended for this to be applied globally. The Guidelines recommend that governments protect the population from community noise and consider this as an integral part of environmental protection policies.

WHO recommended that strategic planning for noise management should include the development of legal frameworks which recognise this to be an important public health issue.

Aircraft noise has also been identified as an issue that can impact the occupants of residential buildings and this has led to the development in Australia of the Australian Standard *AS 2021:2015 Acoustics – Aircraft Noise intrusion – Building siting and construction*. This provides guidelines for the Australian context for both commercial and residential buildings.

In South Australia the Ministerial Building Standard, ***MBS 010 - Construction requirements for the control of external sound*** has been developed to ensure that buildings in areas considered to have consequential levels of noise impacts are appropriately addressed at both the planning stage, and in the design and construction stage.

Introduction to the MBS 010 – Construction requirements for the control of external sound

Scope

MBS 010 (the Standard) is published under the Planning, Development and Infrastructure Act 2016, and can be accessed on the PlanSA website at [MBS 010](#)

The Standard contains provisions for reducing the intrusion of unacceptable levels of noise into habitable rooms of residential buildings.

The provisions of the Standard apply to a Class 1, 2 or 3 building, a Class 4 part of a building and Class 9c residential care buildings which include:

- Residential dwellings
- Aged care buildings
- Boarding houses, hostels and short-term holiday accommodation
- Apartment buildings.

The requirements of the Standard are additional to those required by the Building Code and do not override any of the Building Code provisions, noting that the MBS 010 covers façade treatments only.

What has changed?

Previous iterations include Ministers Specification SA78B and the MBS 010 published in July 2020, and included noise attenuation for dwellings in proximity to road and rail, mixed land use areas and entertainment venues.

The current version published in March 2021, has removed the treatment of entertainment venues, and now incorporates noise attenuation for dwellings considered to be located in areas of unacceptable noise exposure from aircraft noise.

Application

The MBS 010 is referred to in conjunction with the Planning & Design Code Overlays which can be found on SAPPA.

The Standard is applied by determining the level of exposure to noise from a designated sound source and then referring to the corresponding Sound Exposure Category (SEC) in the Standard. Deemed to Satisfy (DTS) construction requirements for each SEC are provided. The Standard also includes provision for developing performance solutions where this may be preferred or where a DTS solution is not appropriate.

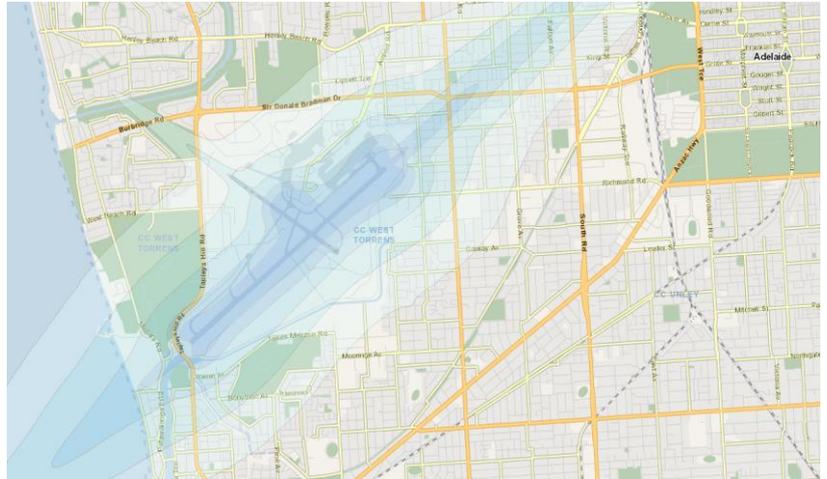
Key concepts for the MBS 010 and noise attenuation

ANEF Australian Noise Exposure Forecast

This is a single number index for predicting the cumulative exposure to aircraft noise in communities near airports, during a specified period of time.

This measure is useful for rating the compatibility of various land uses with respect to aircraft noise, and where found to be equivalent can be combined on a map to form ANEF contours.

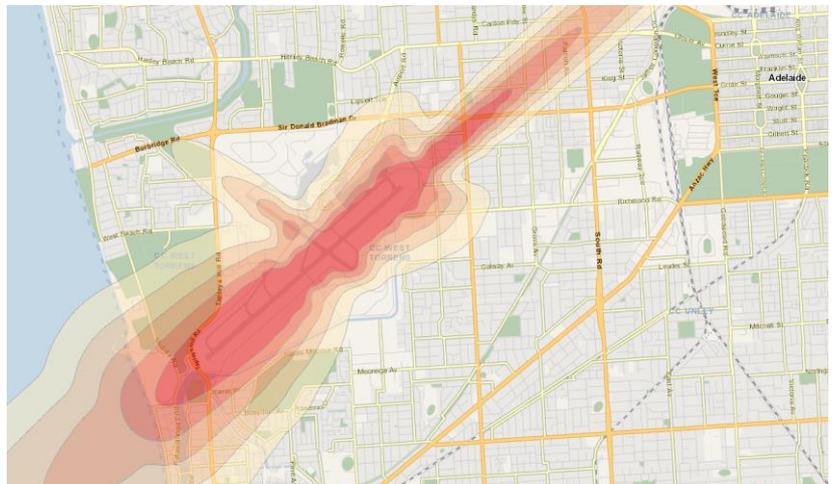
These are represented in SPPA in blue.



ANR Aircraft Noise Reduction

The ANR is the amount of noise reduction required in decibels, in the building façade to produce a compliant noise level indoors.

ANR contours are represented in SPPA as shown in orange.



SEC Sound Exposure Category

The Sound Exposure Category provides the sound insulation requirements for the sound reduction of building elements. These categories are deemed to provide the necessary attenuation to meet the required internal sound levels.

The SEC is derived by various methods which are stated in the MBS 010 and explained in this Guide. This depends upon the type of sound source being examined

dB(A) Decibel

Decibels are used to measure how loud a sound is, or the level of sound pressure.

Separation Distance

The distance from a designated sound source, such as a road or train to the nearest point of the building exposed to this source.

Part 2 – Application for road, rail and mixed land use

Introduction

State Planning Policies introduced in May 2019 set the direction for planning and development in South Australia for the immediate and long term futures, with the intention of enhancing the State’s livability, sustainability and prosperity. In this context, principles of good planning are seen to include development that promotes mixed use neighbourhoods and buildings, and development in proximity to activity centres, public transport nodes and transport corridors.

To protect residents living in close proximity to mixed use areas and transport corridors, it is necessary to mitigate against the impact of noise on residential and habitable buildings. The intention of the Standard is to consider noise, not only in the present but into the future as well.

Under the MBS 010, the performance requirement 2.1 states that the building envelope and any mechanical ventilation system must provide attenuation in order to reduce the intrusion of external airborne sound from a **designated sound source** into habitable rooms to an acceptable indoor sound level. Designated sound sources for this purpose includes noise from road, rail and from mixed land uses.

Table 3.1 of the Standard states the acceptable levels of indoor sound that need to be achieved.

Type of room	Sound source	Internal sound criteria	
		Building design target averaged over the total number of rooms in the building	Maximum allowable for individual rooms in the building
Bedrooms	Road and rail	30 <i>dB(A)</i> _{Leq, night}	35 <i>dB(A)</i> _{Leq,night}
Other <i>habitable rooms</i>	Road and rail	35 <i>dB(A)</i> _{Leq, night}	40 <i>dB(A)</i> _{Leq, night}

Designated sound sources for this purpose are indicated in SAPPA, and shown in the Noise and Air Emissions Overlay and the Designated Road Planning Reference Layer.

The Noise and Air Emissions Overlay provides policy direction and indicates the areas in which mitigation is required to protect development from noise in mixed land use areas.

The Designated Road Polygon Reference Layer in SAPPA indicates roads designated as Type A, Type B or Type R roads.

Type A roads indicate primary freight routes, Type B roads show secondary freight and traffic routes and Type R roads are rural freight routes.

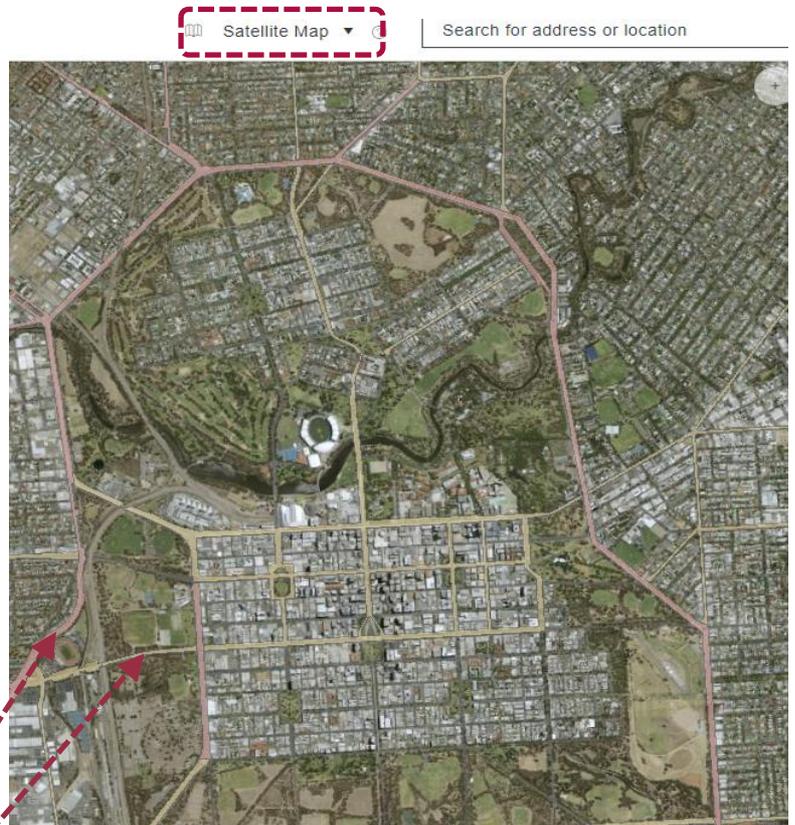
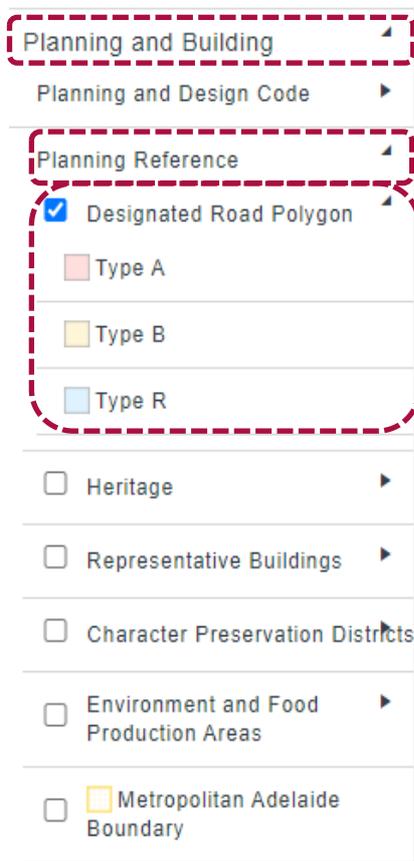
How to apply the MBS 010 for road and rail transport networks

1 Identify if the building will be exposed to a designated road or rail sound source

Search SAPPA by site address <https://sappa.plan.sa.gov.au/>

Select **Layers**

Select **Satellite Map**, and the layers that are shown below.



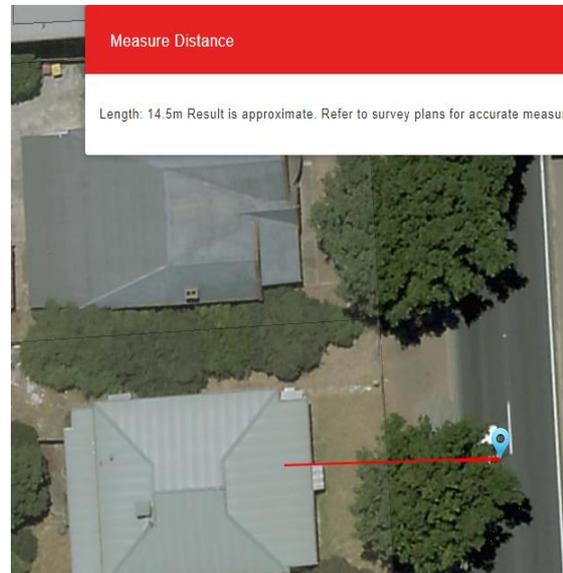
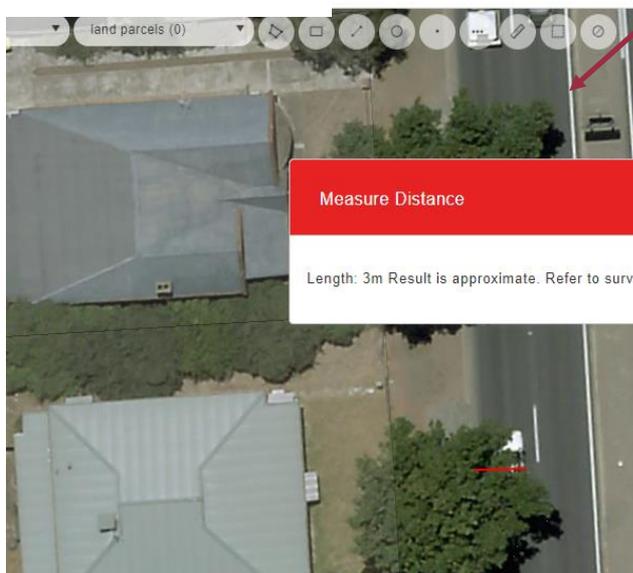
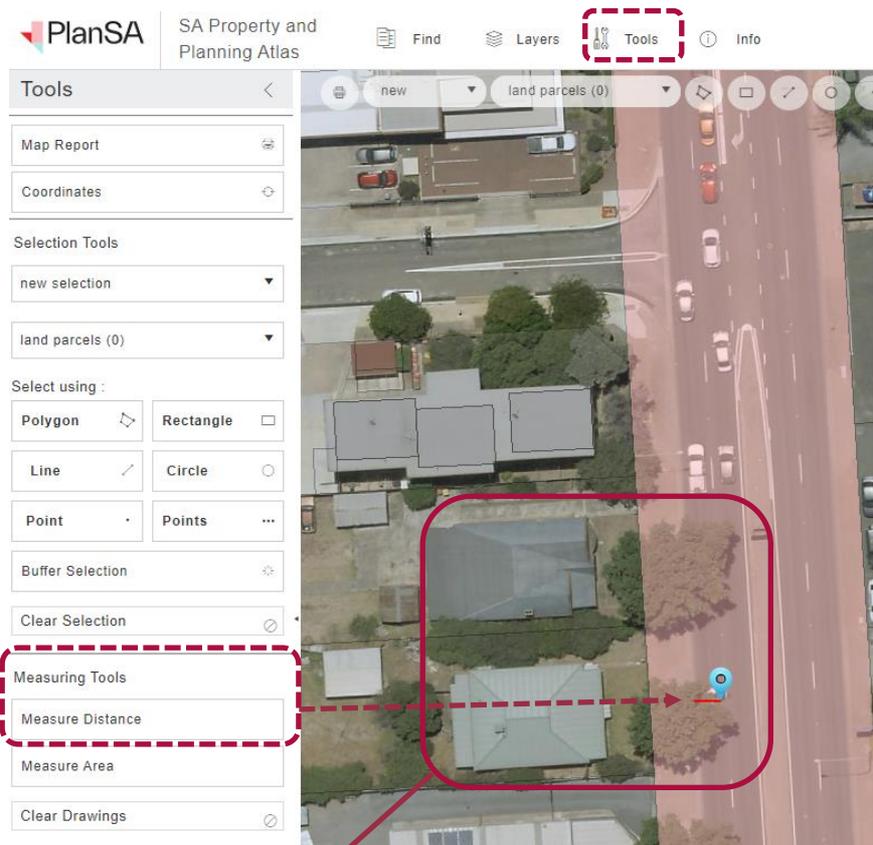
2

Measure the **separation distance** from the designated sound source to the proposed building. The separation distance for Type A, B and R roads is measured from a point 3m inside the road corridor

Use the SAPPA measurement tool to mark a point 3m inside the road corridor.

This gives an approximate measure.

Once a 3m point is marked, use this point to measure to the façade facing the road



3

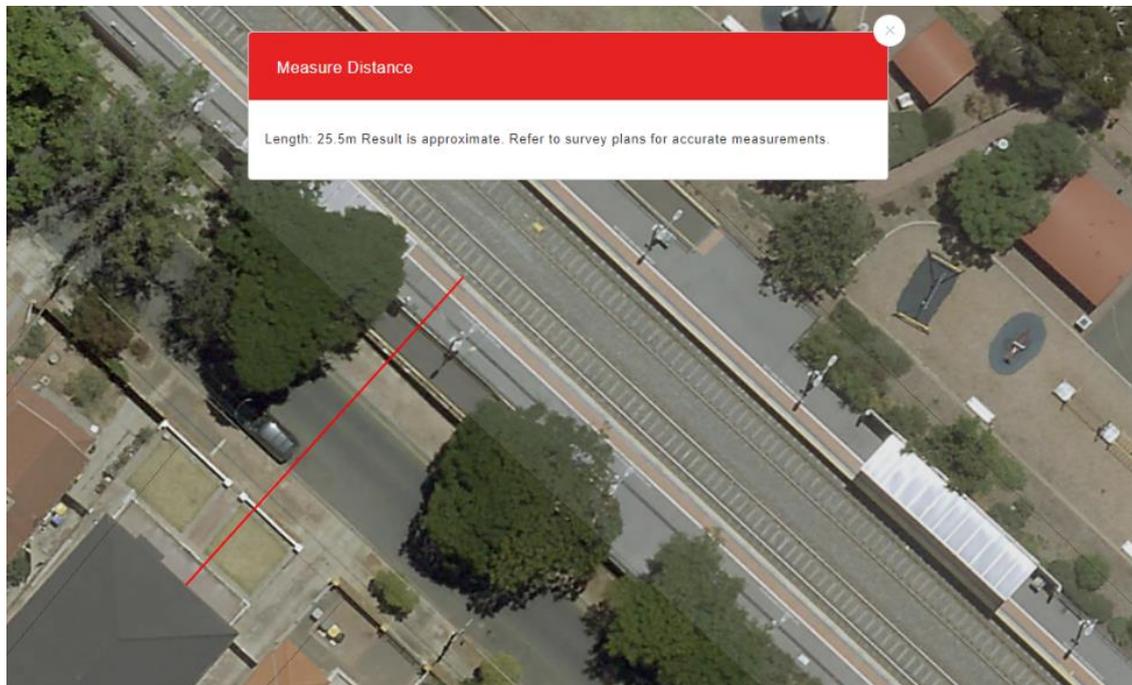
Determine the relevant **Sound Exposure Category** by referring to the relevant table – Table 4.1 or Table 4.2

Table 4.1 Sound exposure category for designated sound sources – Type A and Type B roads

Separation distance* between a building and a Type A Road (metres)			Separation distance* between a building and a Type B Road (metres)			Sound exposure category
Maximum Road Speed limit [km/h]			Maximum Road Speed limit [km/h]			
50–60	70–90	100–110	50–60	70–90	100–110	
60 < 100m	95 < 150m	130 < 200m	35 < 60m	55 < 95m	75 < 130m	1
35 < 60m	45 < 95m	60 < 130m	20 < 35m	30 < 55m	35 < 75m	2
15 < 35m	25 < 45m	35 < 60m	10 < 20m	15 < 30m	20 < 35m	3
less than 15m	10 < 25m	15 < 35m	less than 10m	less than 15m	10 < 20m	4
N/A	less than 10m	less than 15m	N/A	N/A	less than 10m	5

Mapping of rail lines can be found on the street map view on SAPPA.

For tram and train lines, the separation distance is measured from the closest rail line

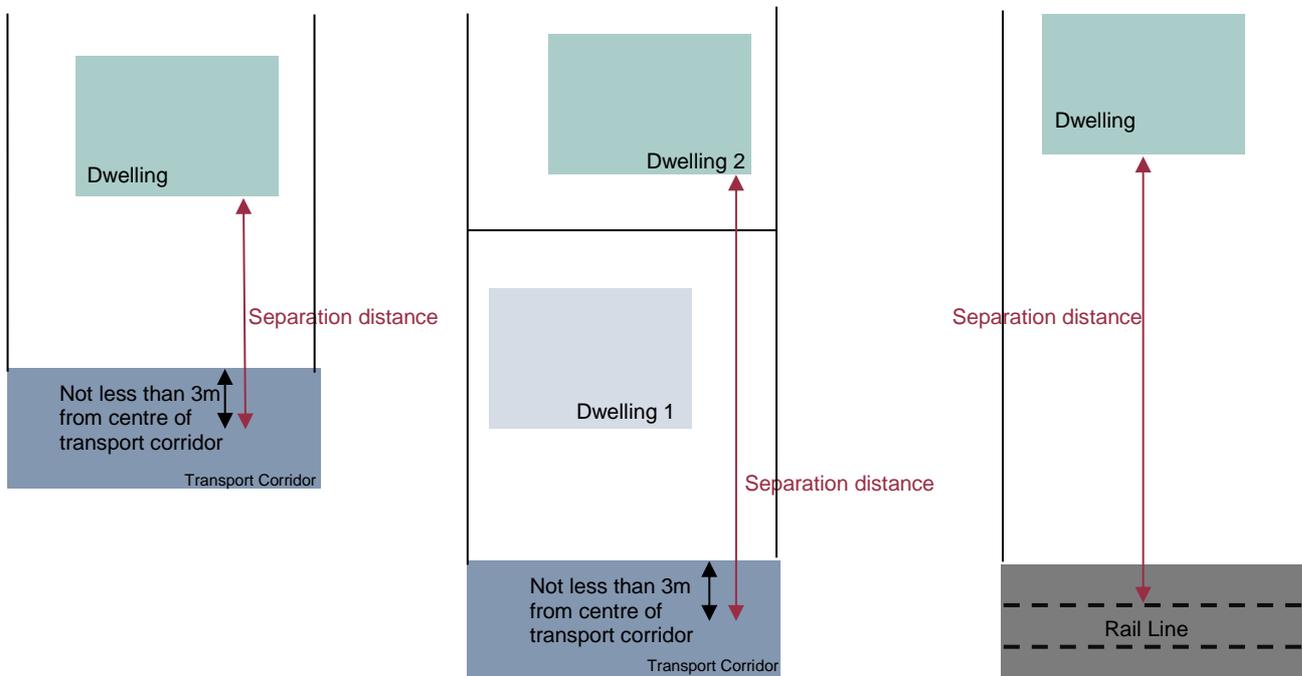


Refer to the relevant table in the MBS 010 to find the Sound Exposure Category.

Table 4.3 – Sound exposure category for designated sound source – rail

<i>Separation distance* between a building and a tram line</i>	<i>Separation distance* between a building and a train line</i>	<i>Sound exposure category</i>
10 < 20m	25 < 50 m	1
less than 10m (see Note 2)	10 < 25 m	2
Not applicable	less than 10 m (see Note 2)	3
Not applicable	Not applicable	4
Not applicable	Not applicable	5

Calculating the separation distance for road and rail noise exposure



4

Determine the relevant construction requirements according to the Sound Exposure Category for the building

Construction for noise attenuation can be achieved via a Deemed to Satisfy or Performance Solution.

Deemed to Satisfy Solution

Refer to the MBS 010:

- Table 4.5 – Acoustic requirements for building elements
- Table 4.6 – Minimum sound insulation requirements for closed windows and external glass doors to habitable rooms
- Section 5 - Acceptable Construction Practices

Performance Solution

Refer to the MBS 010 Appendix A – Performance Solutions Table A1.1

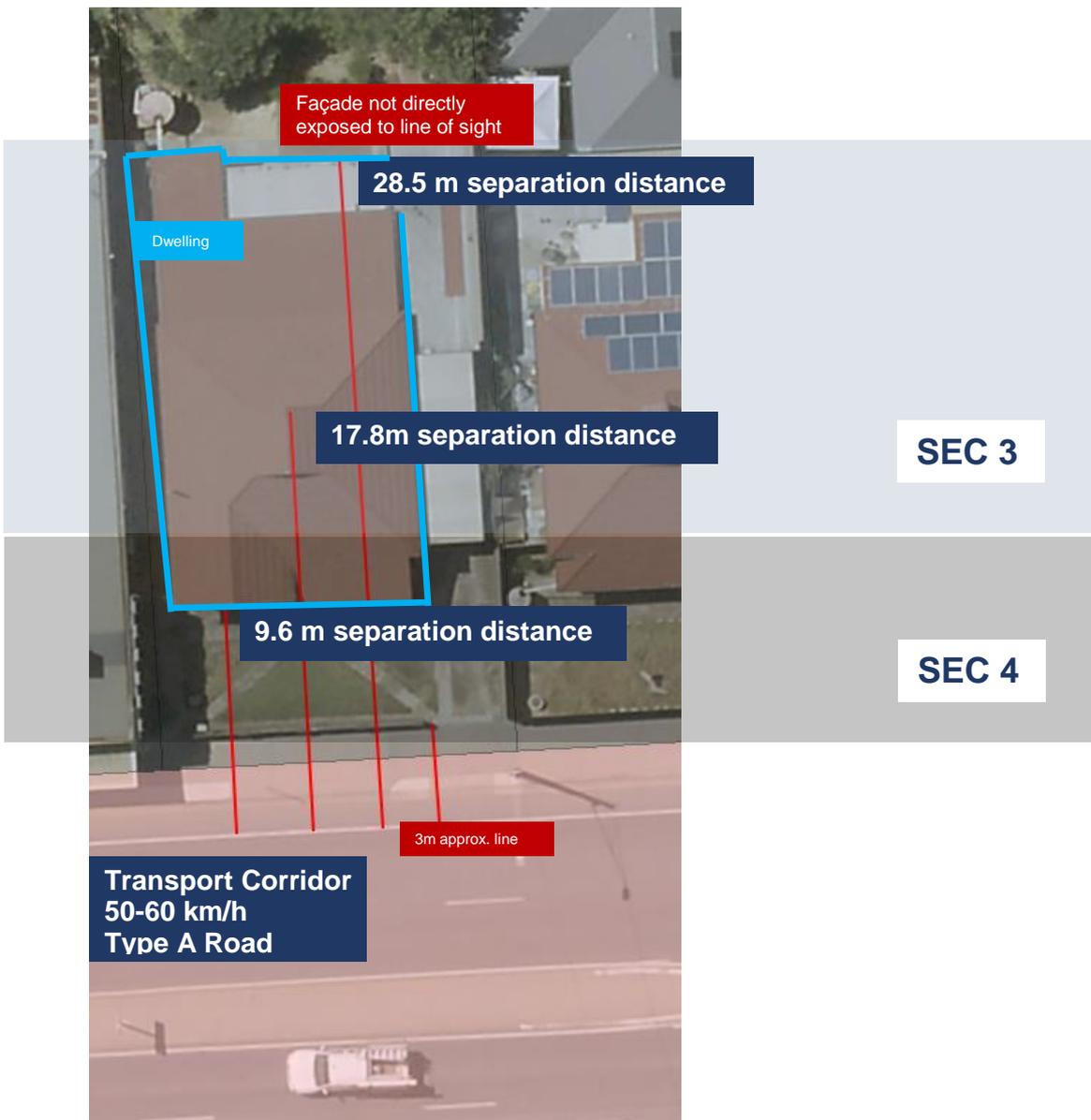
- Table A1.1 is relevant to road and rail noise exposure and allows for flexibility in designing a solution. Table A1.1 is applicable when the sound exposure level at the façade is determined from accurate modelling on the site, in relation to road or rail noise exposure.
- This is an alternative method to determine the SEC, and does not consider the separation distances as applied in the MBS 010. The Deemed to Satisfy provisions in the MBS 010 are still applicable once the SEC has been determined.
- Performance Solutions may require a qualified acoustic consultant or engineer and an acoustic report. The acoustic report can provide site specific information and modelling of the proposed building in relation to sound exposure on the site. This can result in a more accurate Sound Exposure Category, as it is based on the site conditions.
- Site conditions which can be taken into account and impact on noise exposure include shielding from nearby buildings and existing sound 'barriers' which may be present in the local context.
- A Performance Solution must be developed in accordance with the relevant provisions of the Building Code.

The impact of siting

Where the designated sound source is a transport corridor, the most exposed façades are those that have a direct line of sight to the transport corridor.

Façades that are not directly exposed to the designated sound source (generally the façade opposite the most affected façade) are deemed to have a sound exposure category one less than that applying to an adjoining façade which is directly exposed to the designated sound source.

This diagram illustrates in this case, the sound exposure category at the front façade and the lower sound exposure category for parts of the building that are not directly facing the transport corridor, or not directly exposed to the line of sight to the transport corridor.



How to apply the MBS 010 for Mixed Land Use

The following steps demonstrate how to identify the relevant Sound Exposure Category and noise attenuation solution for exposure to noise from mixed land use areas.

1 Identify if the site is in a noise attenuation area exposed to a designated sound source

Noise attenuation areas can be identified by searching for what policies apply (see A below) or by browsing SAPPA (see B on next page)

A – Enquire on PlanSA as to what policies apply to an address

Go To: <https://consult.code.plan.sa.gov.au/home>



What policies apply to an address.
What is the property address?

Property address

 x

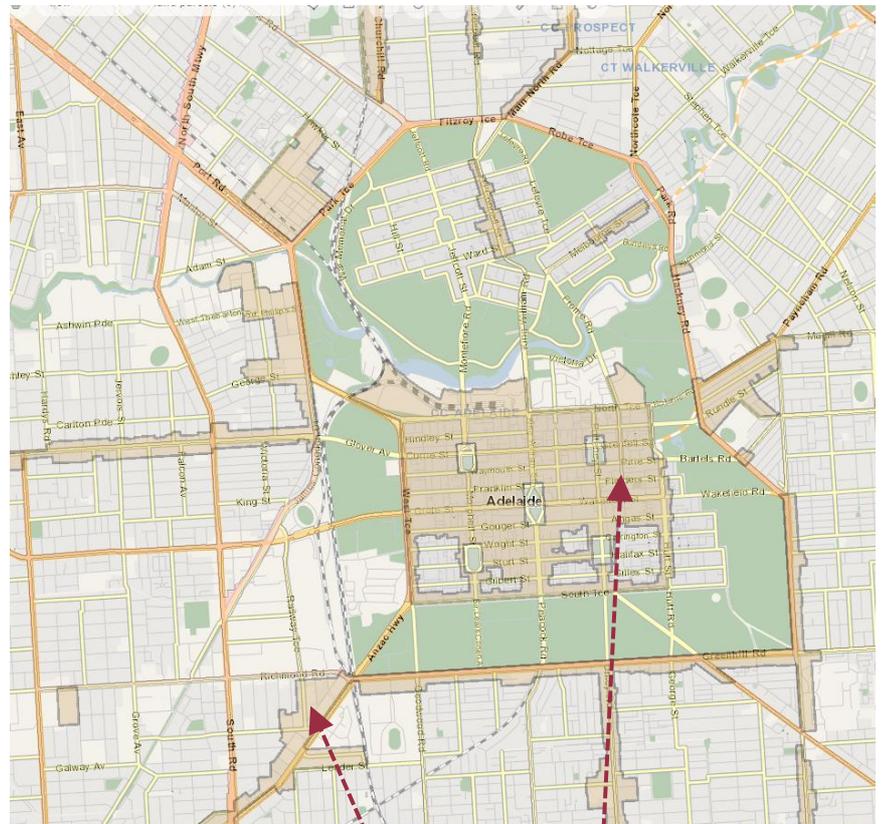
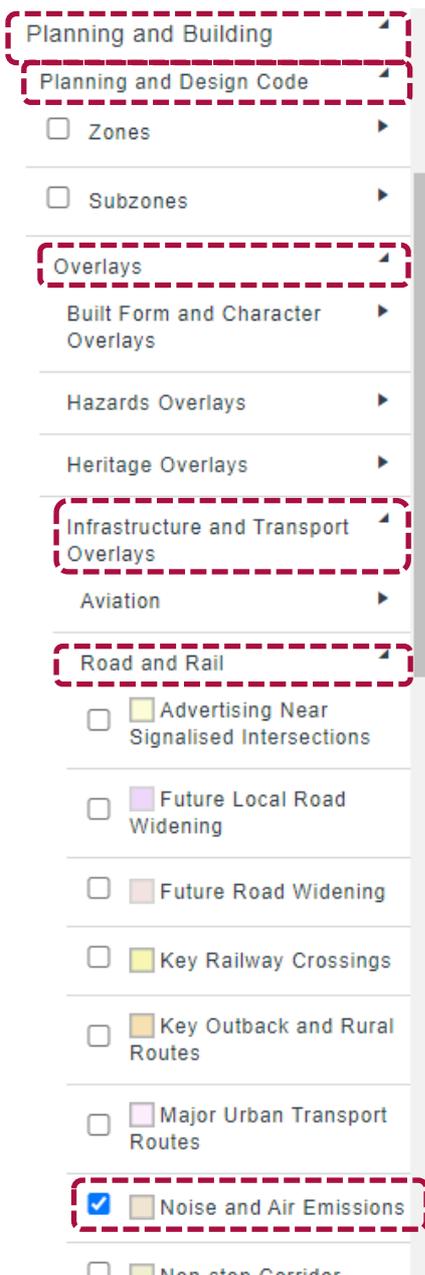
If you don't know the address or no address is found, you can search the [SAPPA tool](#)

- Overlay**
- Airport Building Heights (Regulated) (All structures over 110 metres)
 - Advertising Near Signalised Intersections
 - Affordable Housing
 - Design
 - Future Road Widening
 - Noise and Air Emissions
 - Prescribed Wells Area
 - Regulated Trees
 - Traffic Generating Development

The Noise and Air Emissions Overlay shows the designated areas that require noise attenuation.

B - Browse SAPPA and search by site address <https://sappa.plan.sa.gov.au/>

Enter the address in the search bar, and select the relevant Layers as shown below to identify if the site is in a noise attenuation area



2

Noise and Air Emissions Overlay

If the address is found to be in a noise attenuation area, the following provision applies and determines the Sound Exposure Category

Section 4.3.3 Mixed Land use areas in the MBS 010
 This states that where noise exposure is due to sound arising from activities permitted in mixed land use areas (and not exposed to road, rail or aircraft noise,) the building envelope is to be taken as **Sound Exposure Category 1**, and all building elevations are treated equally.

Refer to Table 4.5 for the Deemed to Satisfy solution for SEC 1.

Part 3 –Application for Aircraft Noise

Introduction

The MBS 010 has now been expanded to address the intrusion of aircraft noise on habitable buildings. In line with this, new Performance Outcomes have been developed within the Planning and Design Code to address development impacted by exposure to aircraft noise.

The Standard provides a methodology by which a building professional, developer or member of the public can ascertain the degree of mitigation required in order to achieve an acceptable level of noise intrusion in areas where the Australian Noise Exposure Forecast (ANEF) has been found to be above ANEF 20. It provides deemed to satisfy construction techniques for new Class 1, 2 or 3 buildings and Class 4 or 9c buildings which are in the lower ranges of noise exposure and also allows for a Performance Solution to be undertaken.

The MBS 010 follows the intent of the Australian Standard AS 2021:2015 and implements the same internal noise level criteria of 50 dB(A) for sleeping areas and 55 dB(A) for other habitable spaces for aircraft noise. As with the AS2021:2015, the trigger for attenuation is the ANEF contour value.

This approach reduces the requirement for relevant authorities to request acoustic reports and for consideration to be given to noise attenuation and its impact on design, project feasibility and costs in the early stages of the planning process.

Mapping on SAPPA

Areas subject to aircraft noise in Metropolitan Adelaide have been mapped in SAPPA and are shown on 2 Layers.

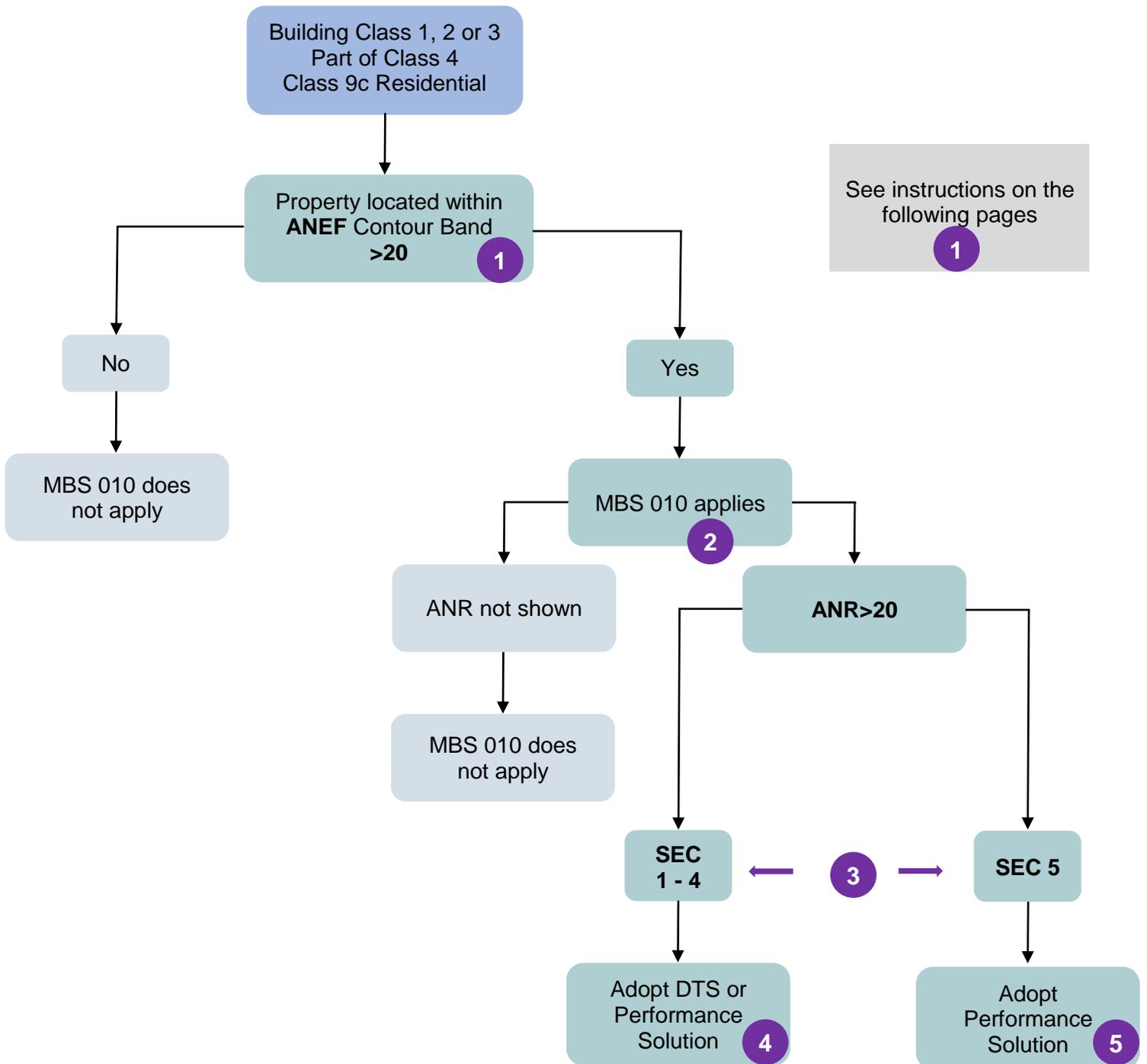
The Aircraft Noise Exposure Overlay shows the ANEF contours for Adelaide Airport, Parafield Airport and the RAAF Base Edinburgh.

A Planning Reference Layer for Aircraft Noise Reduction (ANR) shows the reduction in noise that is required for sites in areas identified in the ANEF contours of ANEF20 and above.

Application

The Flowchart on the following page shows how to apply the MBS 010, and determine a solution where necessary.

FLOWCHART: Application of MBS 010



How to apply the MBS 010 for aircraft noise

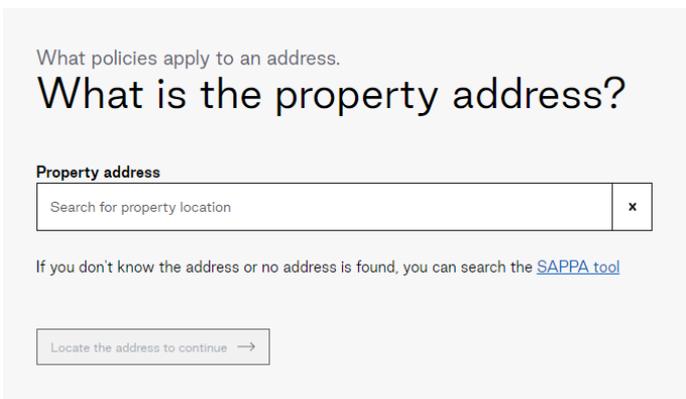
The following steps demonstrate how to identify the relevant Sound Exposure Category and noise attenuation solution for exposure to noise from aircraft for a particular site.

- 1 Determine the **Australian Noise Exposure Forecast (ANEF)** value by referring to the Planning and Design Code

There are 2 ways to identify if the site is in an area impacted by aircraft noise found to be at the ANEF 20 level or higher.

A – Enquire on PlanSA as to what policies apply to an address

Go To: <https://consult.code.plan.sa.gov.au/home>



Property Zone Details

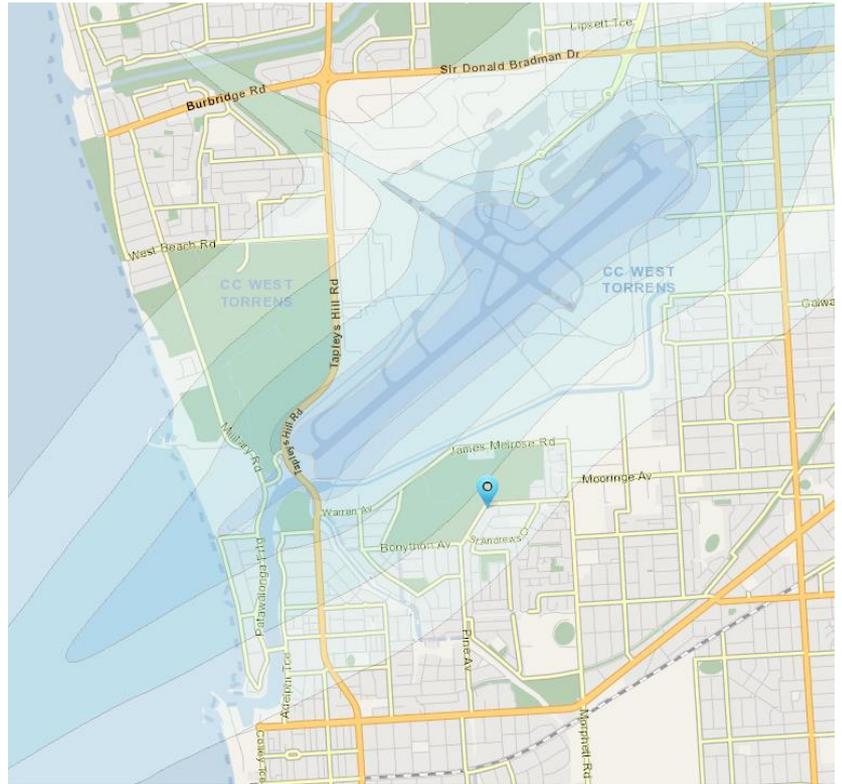
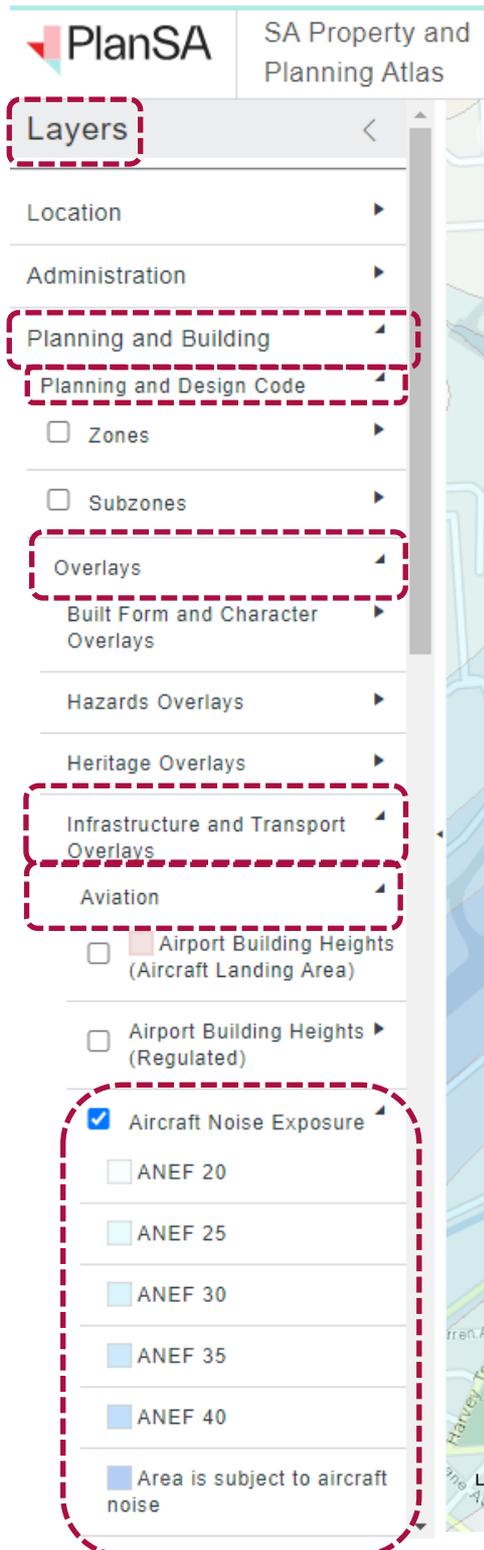
Overlay

- Aircraft Noise Exposure (ANEF 20)
- Airport Building Heights (Regulated) (All structures over 15 metres)
- Affordable Housing
- Building Near Airfields
- Hazards (Flooding – Evidence Required)
- Prescribed Wells Area
- Regulated and Significant Tree
- Stormwater Management
- Urban Tree Canopy

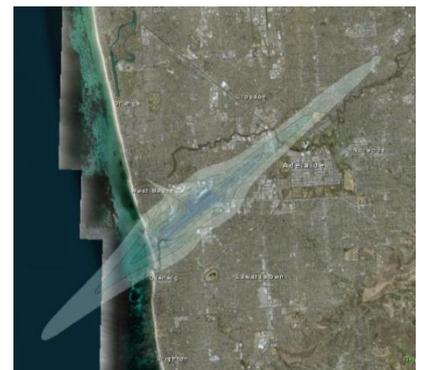
This shows an ANEF value of ANEF 20 which can be confirmed by looking at SAPPA

Or B - Go directly to SAPPA and search by site address <https://sappa.plan.sa.gov.au/>

Enter the address in the search bar, and select the relevant Layers as shown below to identify if the site is in an Aircraft Noise Exposure Overlay



Adelaide Airport
Using Hybrid View in SAPPA

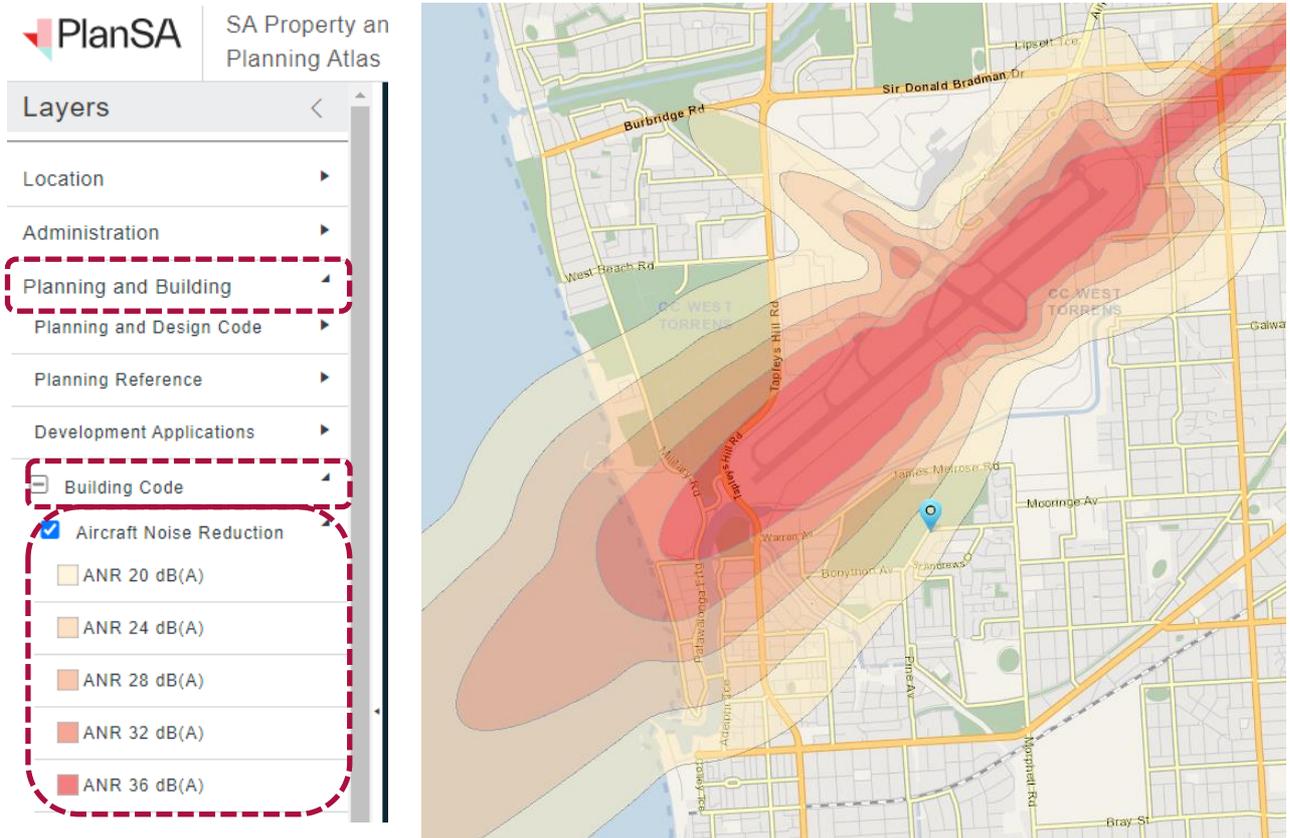


Parafield Airport



RAAF Base Edinburgh

2 Determine the **Aircraft Noise Reduction (ANR)** value by referring to SAPPA and selecting the layers as shown below:



3 Refer to Table 4.4 of the MBS 010 to determine the Sound Exposure Category (SEC) as shown below.

For the example above, it is shown to be ANR 20 and the corresponding Sound Exposure Category is 1

Table 4.4 – Sound Exposure Category for aircraft noise reduction

Applicable Aircraft Noise Reduction [dB(A)]	Sound exposure category
20 < 24	1
24 < 28	2
28 < 32	3
32 < 36	4
> 36	5

The figures in the table are read such that:

ANR 20 to less than 24 is SEC 1,
ANR 24 to less than 28 is SEC 2

And so on.

4 Determine the construction solution for the Sound Exposure Category

Refer to Tables 4.5 and 4.6 in the MBS 010 for the sound insulation requirements that are applicable to the particular Sound Exposure Category.

Section 5 of the MBS 010 lists the acceptable construction practices that are deemed to achieve the levels of sound insulation required by Tables 4.5 and 4.6

Sound exposure category	Sound insulation requirements	
1	External walls	$R_{w} + C_{w} 40$ for all habitable rooms
	Windows and external glass doors	See Table 4.6
	Mechanical ventilation systems	$R_{w} 25$
2	Ground Floor	$R_{w} + C_{w} 45$ for all habitable rooms
	External walls	$R_{w} + C_{w} 45$ for all habitable rooms
	Windows and external glass doors	See Table 4.6
	External doors other than external glass doors	$R_{w} 27$ for all habitable rooms
	Roof and ceilings of bedrooms	$R_{w} + C_{w} 35$
	Mechanical ventilation systems	$R_{w} 25$
3	Ground Floor	$R_{w} + C_{w} 50$ for all habitable rooms
	External walls	$R_{w} + C_{w} 50$ for all habitable rooms
	Windows and external glass doors	See Table 4.6
	External doors, other than external glass doors, to all habitable rooms	$R_{w} 30$
	Roof and Ceilings	$R_{w} + C_{w} 40$ for bedrooms $R_{w} + C_{w} 35$ all other habitable rooms
	Mechanical ventilation systems	$R_{w} 30$
4	Ground Floor	$R_{w} + C_{w} 50$ for all habitable rooms
	External walls	$R_{w} + C_{w} 50$ for all habitable rooms
	Windows and external glass doors	External glass doors are not permitted in bedrooms. For elsewhere see Table 4.6
	External doors other than external glass doors	$R_{w} 30$ to all habitable rooms other than bedrooms
	Roof and Ceilings	$R_{w} + C_{w} 45$ for bedrooms $R_{w} + C_{w} 40$ for all other habitable rooms
	Mechanical ventilation systems	$R_{w} 35$ and complying with Section 5.7
5	Outside the scope of the Deemed-to-Satisfy Provisions.	Assess against the relevant Performance Requirements in Section 2.0

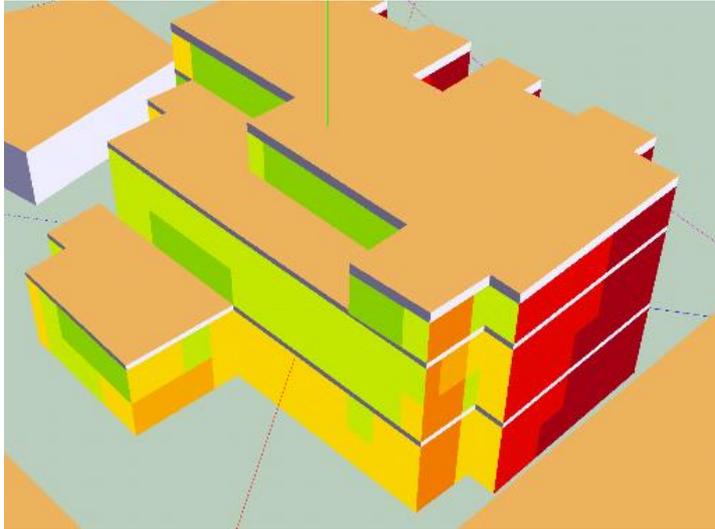
5 Performance Solutions

Refer to the relevant tables in the MBS 010, Appendix A – Performance Solutions Tables A1.2 to A1.4

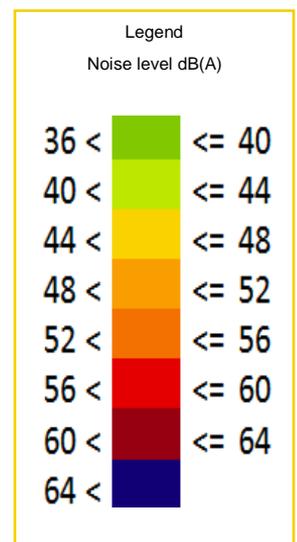
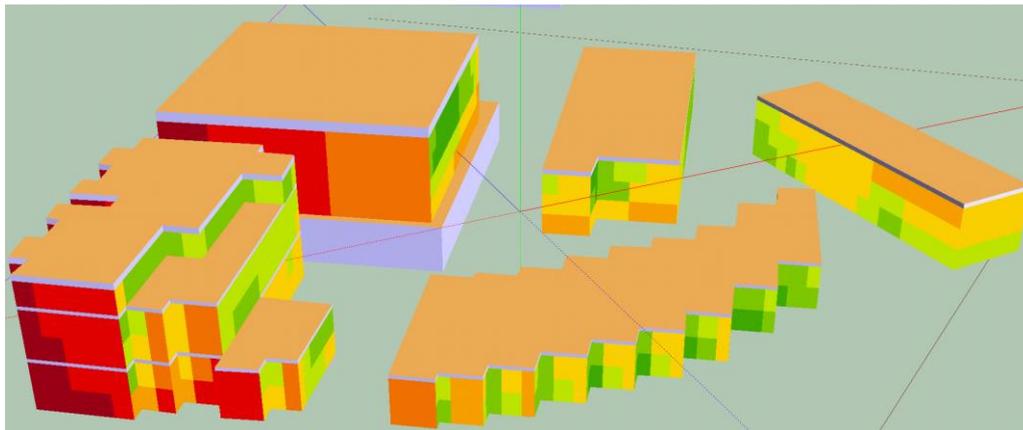
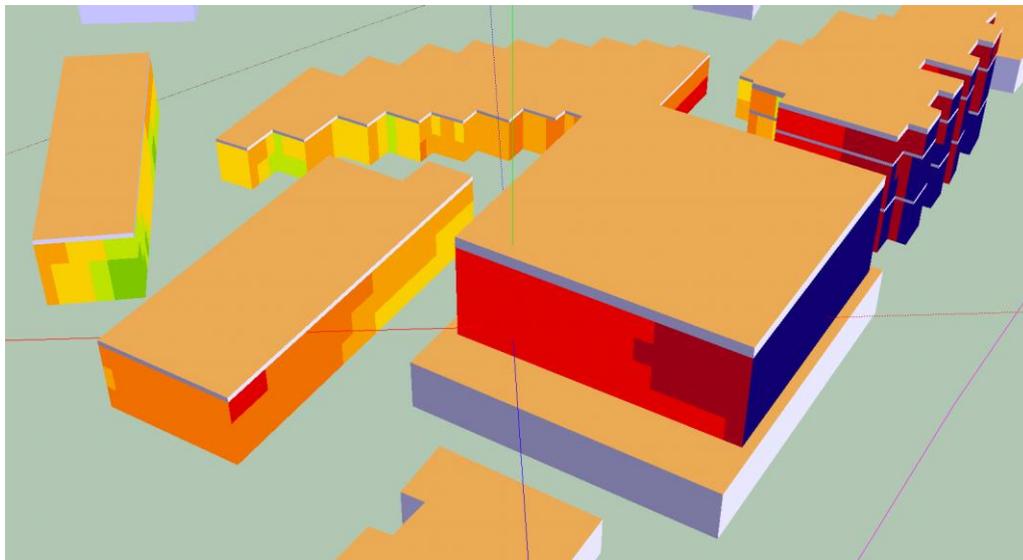
- Tables A1.2 to A1.4 provide information required by an acoustic engineer to develop a Performance Solution and include calibration for road and rail (Table A1.2), and spectral adjustment levels (Table A1.4).
- The solution developed may challenge the DTS provisions in the MBS 010.
- Performance Solutions may require a qualified acoustic engineer or consultant, and an acoustic report. The acoustic report will provide site specific information and realistic modelling of the proposed building in relation to sound exposure for the site. This can impact on the Sound Exposure Category that applies.
- Performance solutions can take into account other factors which impact on noise exposure. This includes shielding from nearby buildings and existing noise ‘barriers’ which may be present in the local context.
- A Performance Solution must be developed in accordance with the relevant provisions of the Building Code.

Part 4 – Noise Attenuation Scenarios

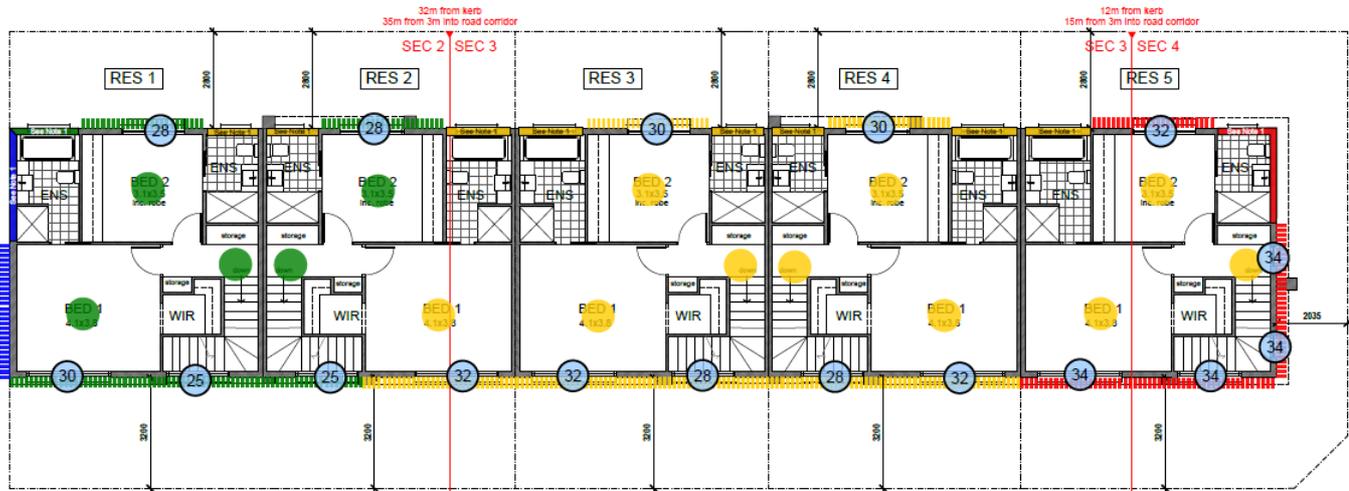
Noise exposure in regard to siting



These images illustrate modelling of a range of buildings and the exposure to noise from a transport corridor. It shows the difference in exposure levels in relation to the position of the elevation to the sound source.



The Plan drawing below illustrates construction elements in regard to sound insulation, for a row of residential dwellings.



Transport Corridor

Acoustic: MBS010 Legend	
	SEC 1 / R_w+C_x 40 External Wall
	SEC 2 / R_w+C_x 45 External Wall
	SEC 3 / R_w+C_x 50 External Wall
	SEC 4 / R_w+C_x 50 External Wall
	R_w+C_x 35 Ceiling & Roof
	R_w+C_x 40 Ceiling & Roof
	R_w+C_x 45 Ceiling & Roof
	Glazing R_w+C_x XX

MBS 010 Section 4.3.6

Non-habitable rooms adjoining habitable rooms

Non-habitable rooms adjoining habitable rooms which are bounded by a part of the building façade exposed to a designated sound source must either:

- Be completely separated from the habitable room with walls and doors having an R_w of not less than 40, and any doors therein having an R_w of not less than 30; or
- Be included in the habitable room and the most stringent sound exposure category resulting from the application of Tables 4.1, 4.2, 4.3 or Table 4.4 must be used.

Non-habitable rooms include:

- walk-in wardrobes
- ensuites and
- enclosed kitchens.

Where these spaces are part of an open plan arrangement with adjoining habitable rooms, such as a bedroom or living/dining areas, they need to be treated as a habitable room.

ANEF and ANR - Location makes a difference

ANEF contours and ANR contours are mapped separately in SAPPA as the ANR contours may vary across a single ANEF contour band. This creates individual results for each location, as this example shows:



This table identifies the SEC for both locations shown here.

Whilst both are located within an ANEF 20 contour, Location 2 has a higher Sound Exposure Category and has different construction requirements to attenuate for noise, as compared to Location 1.

Part 5 – Frequently Asked Questions

1. Why is the MBS 010 applicable to habitable buildings?

Habitable buildings will benefit from a deemed-to-satisfy methodology as these provide appropriate noise attenuation solutions for habitable areas such as living rooms and bedrooms. It provides greater certainty for the building industry and occupants about the performance of dwellings exposed to external noise.

The construction solutions achieve internal noise levels that are deemed to be acceptable, the benefits of which may result in reducing sleep disturbance and general annoyance from noise exposure. The deemed-to-satisfy solutions are considered to be cost-effective and practical, based on current industry practice.

It is important to note that mitigation solutions are designed to mitigate against noise not only for the present time, but for future noise exposure as well and are in a sense 'future proofing' the building against noise exposure. For example, a mixed land use area may change over time in regard to what occurs in that zone.

2. Is it reasonable to request an acoustic report?

By providing the ANEF and ANR contour mapping in SAPPa, this may reduce the need to request an acoustic report in the first instance. Where previously an acoustic report may have been required to ascertain whether a dwelling was in a relevant ANEF band, this can now be found on SAPPa.

Where ANR values are above ANR 20, the MBS 010 provides deemed-to-satisfy solutions. An acoustic report which previously may have provided a solution is not required, if applying the DTS provisions.

An acoustic report may still be required or requested where a Performance Solution is necessary or chosen over the DTS provisions provided in the MBS 010 for the relevant Sound Exposure Categories.

It is also useful to consider the siting of the dwelling when determining whether an acoustic report is required. Acoustic reports can be requested to determine the noise exposure values taking into account specific site conditions. These include other factors which impact on noise exposure, such as shielding from other buildings, changes to noise exposure due to an adjoining building or other adjacent structures. In some cases, this can result in significant cost reductions for noise attenuation mitigation.

3. Why would a design professional or builder want to use the performance solution over a deemed-to-satisfy solution?

The Deemed to Satisfy construction solutions do have tolerances applied. Given this, some 'users' may believe that the construction is too onerous and choose to investigate a performance solution which provides the same outcome for noise attenuation.

Where an acoustic report has been done, modelling of actual noise exposure and site conditions such as shielding, may impact on the level of mitigation required for the dwelling, resulting in a Performance Solution specific to the conditions on site.

4. What is the difference between adjoining and attached rooms?

For the purposes of the MBS 010, adjoining and attached rooms can be seen to be interchangeable terms. They are not treated differently in this case.

5. Are noise mitigation measures necessary for sites which are in an ANEF 20 contour band, but not in a ANR contour band?

Where a site is in an ANEF 20 contour band but not in an ANR contour band, the ANR value can be seen to be less than ANR 20. It is considered that standard dwellings would meet the criteria for sound insulation in these areas, therefore additional noise mitigation measures are not required. And the MBS 010 does not apply (See Flowchart – Application of MBS 010).

6. What is the difference between the indoor noise criteria for road and rail, as compared to those for aircraft noise attenuation?

The internal sound level criteria for road and rail is measured in terms of a continuous level of exposure to noise, known as L_{eq} , as this is appropriate to the type of sound impacting on the building, such as road traffic.

Internal sound level criteria for aircraft noise is measured in terms of what is considered the maximum acceptable level of sound known as L_{max} .

7. Where a dwelling is sited over 2 contours for ANEF or ANR, what value is used for the Sound Exposure Category?

Where it is found that a site is close to a boundary line for the ANEF contour bands or ANR contour bands, and both are indicated, it is necessary to calculate the corresponding Sound Exposure Categories and if these differ, the most stringent of the sound exposure categories apply.

8. When does the AS 2021:2015 apply rather than the MBS010?

The AS 2021:2015 may be referred to by an acoustic consultant in designing a Performance Solution for noise attenuation.

It may also be considered when designing buildings that are outside the scope of the MBS 010.

Part 6 – Further Information

Enquiries

Please contact the Building Policy and Programs team at: [new BP email address](#)

PlanSA Websites

The Code

code.plan.sa.gov.au

PlanSA Website

Plan.sa.gov.au

SAPPA

Sappa.plan.sa.gov.au

Ministerial Building Standards

Plan.sa.gov.au/resources/building/ministerial_building_standards

References

State Planning Policies, May 2019, State Planning Commission

Guidelines for Community Noise, World Health Organisation (WHO), 1999

Australian Standard AS 2021:2015 Acoustics – Aircraft Noise Intrusion – Building siting and construction, Standards Australia

Credits

Front Cover Photo: 'Arrival' Grant Hutchinson / Flickr

Thanks to Resonate Consultants

For more information visit
plan.sa.gov.au

