Acoustic Assessment – 42A Kookaburra Parade Woodberry, NSW

Prepared for

Atwea College C/O Barr Planning

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Document Details

Acoustic Assessment – 42A kookaburra Parade Woodberry, NSW

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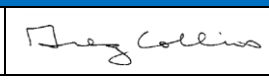
2224632_241203	0	03 December 2024	Gregory Collins-MAAS	

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1. Introduction

1.1 Background

RAPT Consulting has been engaged to undertake an environmental noise assessment to inform a Development Application (DA) at Lot 110 DP614046, 42A Kookaburra Parade, Woodberry.

The proposed development is for the change of use from an existing community facility to a school. The existing building on the site will be repurposed for use as general learning areas (GLAs) to accommodate 90 students and will utilise existing car parking on the site to support the projected parking requirements. The development may involve internal alterations to make the building fit for purpose for the intended use.

The site has an area of approximately 3,900m2 and is zoned R1 General Residential.

The project site and surrounding area is shown in Figure 1-1.

Figure 1-1 Site and Surrounding Area

The ground floor plan is shown in Figure 1-2.

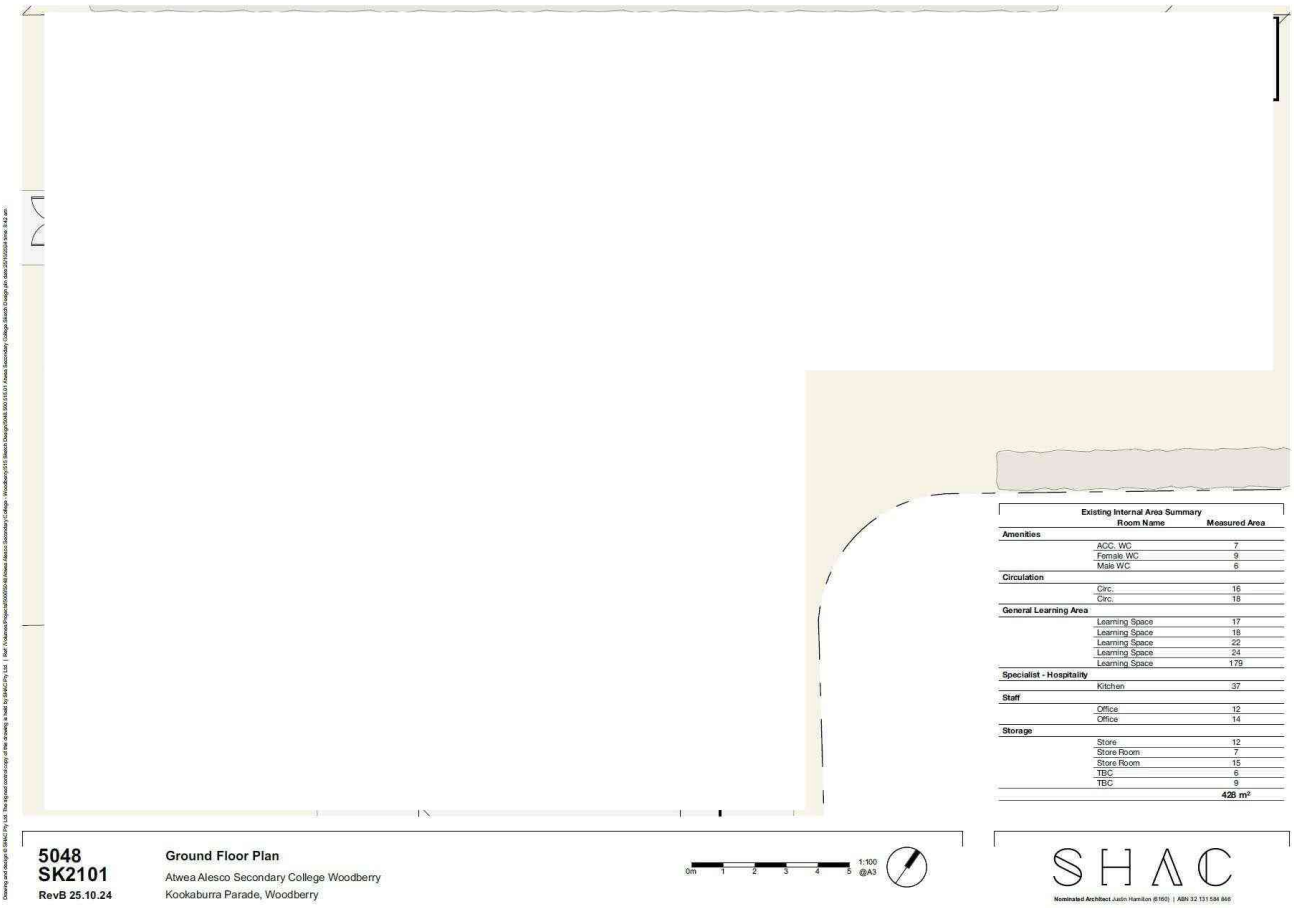


Figure 1-2 Ground Floor Plan (Source: Barr Planning)

1.2 Assessment Objectives

The purpose of this acoustic assessment considers onsite noise generation and to provide input regarding acoustic issues to consider where they may occur.

The outcomes of this assessment include recommendations for potential noise mitigation and management measures designed to achieve an acceptable noise amenity for residential (dwelling) occupants and other sensitive receivers surrounding the proposal site where applicable.

1.3 Scope

The acoustic assessment scope of work included:

- Initial desk top review to identify noise sensitive receptors from aerial photography
- Undertake noise measurements to determine ambient and background noise levels
- Noise data was assessed and filtered to remove invalid data due to extraneous noise or adverse weather conditions
- Project noise trigger levels were established for the development with consideration to the AAAC Guideline for Child Care Centre Acoustic Assessment, and NSW publication Noise Policy for Industry (NPfI)
- Calculations were undertaken to ascertain the noise contribution to the overall ambient noise environment and assess against established project noise trigger levels.
- assessment of potential noise impacts associated with operation aspects of the project
- provide recommendations for feasible and reasonable noise mitigation and management measures, where noise objectives may be exceeded.

1.4 Relevant Guidelines

The relevant policies and guidelines for noise assessments in NSW that have been considered during the preparation of this assessment include:

- Noise Policy for Industry (NPfI) (NSW EPA, 2017)
- Association of Australian Acoustic Consultants (AAAC) Guideline for Child Care Centre Acoustic Assessment, (Version 3.0 2020)
- AS 1055.1 Acoustics – Description and measurement of environmental noise.

1.5 Limitations

The purpose of the report is to provide an independent acoustic assessment for the proposal.

It is not the intention of the assessment to cover every element of the acoustic environment, but rather to conduct the assessment with consideration to the prescribed work scope.

The findings of the noise assessment represent the findings apparent at the date and time of the assessment undertaken. It is the nature of environmental assessments that all variations in environmental conditions cannot be assessed and all uncertainty concerning the conditions of the ambient environment cannot be eliminated. Professional judgement must be exercised in the investigation and interpretation of observations.

In conducting this assessment and preparing the report, current guidelines for acoustics, noise and vibration were referred to. This work has been conducted in good faith with RAPT Consulting's understanding of the client's brief and the generally accepted consulting practice.

No other warranty, expressed or implied, is made as to the information and professional advice included in this report. It is not intended for other parties or other uses.

2. Existing Environment

2.1 Background and Ambient Noise

To establish background and ambient noise levels, noise monitoring was undertaken by RAPT Consulting from 6 November to 12 November 2024 at the southern portion of the college adjacent to nearest receptors located 44 Kookaburra Parade.

Site observations noted the location was considered indicative of the local ambient noise environment and also presented as secure location whereby minimising the risk of theft or vandalism to the monitoring equipment. Additionally, it is considered as an acceptable location for determination of the background noise with consideration to the NSW Environment Protection Authority's (EPA's) – Noise Policy for Industry (NPfI). During site visits it was noted that existing road traffic, distant road traffic and natural wildlife primarily described the ambient noise environment and is indicative of a sub-urban noise environment.

The monitoring locations are shown in Figures 2-1 – 2-2.

Figure 2-1 Noise Monitoring Location

Figure 2-2 Noise Monitoring Location

Monitoring was undertaken using a RION NL-43 noise logger with Type 2 Precision. These loggers are capable of measuring continuous sound pressure levels and are able to record L_{Amin}, L_{A90}, L_{A10}, L_{Amax} and L_{Aeq} noise descriptors. The instrument was programmed to accumulate environmental noise data continuously over sampling periods of 15 minutes for the entire monitoring period.

The noise surveys were conducted with consideration to the procedures described in Australian Standard AS 1055:2018, “Acoustics – Description and Measurement of Environmental Noise” and the NSW Noise Policy for Industry (NPfI). Calibration was checked

before and after each measurement and no significant drift occurred. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics – Sound level meters – Specifications.

The L_{A90} descriptor is used to measure the background noise level. This descriptor represents the noise level that is exceeded for 90 percent of the time over a relevant period of measurement. In line with the procedures described in the EPA's NPfI, the assessment background level (ABL) is established by determining the lowest tenth-percentile level of the L_{A90} noise data acquired over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night-time assessment periods is based on the median of individual ABL's determined over the entire monitoring duration. The RBL is representative of the average minimum background sound level, or simply the background level.

The L_{Aeq} is the equivalent continuous noise level which would have the same total acoustic energy over the measurement period as the varying noise actually measured, so it is in effect an energy average.

Logged data was reviewed and filtered to exclude any extraneous data during the monitoring period. Weather information for the unattended noise logging was obtained from the Bureau of Meteorology Maitland all weather station for the monitoring period and any data adversely affected by rain, wind (more than 5 m/s as per NPfI) were discarded.

The RBL and ambient LAeq levels are provided in Table 2-1 below.

Table 2-1 Background and Ambient Noise Monitoring Results

Location	Rating background level, L_{A90}, dB(A)			Ambient noise levels, L_{Aeq} dB(A)		
	Day[1]	Evening[1]	Night[1]	Day[1]	Evening[1]	Night[1]
42A Kookaburra Parade	37	37	32	53	46	47

Note 1 Day: 7:00 to 18:00 Monday to Saturday and 8:00 to 18:00 Sundays & Public Holidays ,Evening: 18:00 to 22:00 Monday to Sunday & Public Holidays , Night: 22:00 to 7:00 Monday to Saturday and 22:00 to 8:00 Sundays & Public Holidays

3. Noise Objectives

3.1 AAAC Child Care Guideline

We note that the EPA Noise Policy for Industry noise trigger levels are not strictly applicable to school developments. They are primarily intended to assess noise emissions from industrial/commercial developments.

The NPfI is not intended to be applicable to schools, and there are no criteria specifically relating to noise emissions from primary and secondary schools. Some noise emissions will be consistent with those from industrial or commercial premises. These include external mechanical plant and activity-related noise generated during the use of such spaces as the hall, music facilities and performance spaces and industrial technology workshops. It is therefore reasonable and appropriate to consider these sources of noise in the context of the NPfI.

Noise from school children engaged in outdoor activities cannot be assessed in the same manner as noise generated by the use of learning facilities such as classrooms, technology workshops, gymnasium and hall. The EPA's NPfI has previously been referred to for the assessment of such classroom and activity noise emissions (and noise from mechanical plant) however, the policy does not present appropriate criteria for the assessment of noise from outdoor areas.

A guideline for the assessment of noise from childcare centres has been prepared by the Association of Australasian Acoustical Consultants (AAAC). The document, *AAAC Guideline for Child Care Centre Acoustic Assessment*, *2020*, provides criteria for the assessment of noise associated with outdoor play. The guideline has been placed before the Land and Environment Court during matters involving Child Care Centre applications.

Base Criteria – With the development of child care centres in residential areas, the background noise level within these areas can at certain times, be low. Thus, a base criterion of a contributed Leq,15min 45 dB(A) for the assessment of outdoor play is recommended in locations where the background noise level is less than 40 dB(A).

Background Greater Than 40 dB(A) – The contributed Leq,15min noise level emitted from an outdoor play and internal activity areas shall not exceed the background noise level by more than 5 or 10 dB at the assessment location, depending on the usage of the outdoor play area. AAAC members regard that a total time limit of approximately 2 hours outdoor play per morning and afternoon period should allow an emergence above the background of 10 dB (ie background +10 dB if outdoor play is limited to 2 hours in the morning and 2 hours in the afternoon).

Up to 4 hours (total) per day – If outdoor play is limited to no more than 2 hours in the morning and 2 hours in the afternoon, the contributed Leq,15 minute noise level emitted from the outdoor play shall not exceed the background noise level by more than 10 dB at the assessment location.

More than 4 hours (total) per day – If outdoor play is not limited to no more than 2 hours in the morning and 2 hours in the afternoon, the contributed Leq,15 minute noise level emitted from the outdoor play area shall not exceed the background noise level by more than 5 dB at the assessment location.

In the absence of any quantitative criterion for assessment of noise emissions from outdoor play, the 45 dB(A) Leq(15min) criterion will be applied as a 'yardstick' for noise from outdoor activities at the proposed school expansion.

3.2 Operational Noise – NSW Noise Policy for Industry

The NPfI doesn't contain specific procedures for the assessment of noise emissions from schools, particularly for outdoor play areas. However, it is also provided as a guide for determining potential noise impacts and applicable criteria such as school pick up and drop off.

The NPfI provides guidance on the assessment of operational noise impacts associated with the projects operation. The NPfI assessment procedure has two components:

- Controlling intrusive noise impacts in the short-term for residences
- Maintaining noise level amenity for residences and other land uses.

Project Intrusiveness Noise Levels

According to the NPfI, the intrusiveness of a noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the $L_{Aeq,15min}$ descriptor) does not exceed the background noise level measured in the absence of the source by more than 5 dB(A). The project intrusiveness noise level, which is only applicable to residential receivers, is determined as follows:

$L_{Aeq,15minute}$ Intrusiveness noise level = Rating Background Level ('RBL') plus 5 dB(A)

Based on the measured and adopted noise levels outlined in Table 2-2, The intrusiveness noise levels for residential receivers are provided in Table 3-1.

Table 3-1 Intrusiveness Noise Levels

Period	RBL. L_{A90}, dB(A)	Intrusiveness noise level (RBL + 5), dB(A)
Day	37	42
Evening	37	42
Night	32	37

Amenity Noise Levels

The project amenity noise levels for different time periods of day are determined with consideration to Section 2.4 of the NPfI. The NPfI recommends amenity noise levels ($L_{Aeq,period}$) for various receivers including residential, commercial, industrial receivers and sensitive receivers such as schools, hotels, hospitals, churches and parks. These "recommended" amenity noise levels represent the objective for total industrial noise experienced at a receiver location. However, when assessing a single industrial development and its impact on an area, "project" amenity noise levels apply.

The NPfI recommended amenity noise levels are shown in Table 3-2 below.

Table 3-2 NPfI Recommended Amenity Noise Levels

Type of Receiver	Noise Amenity Area	Time of Day[2, 3]	Recommended amenity noise level, LAeq, dB(A)[4, 5]
Residential	Rural	Day	50
		Evening	45
		Night	40
	Suburban	Day	55
		Evening	45
		Night	40
	Urban	Day	60
		Evening	50
		Night	45
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks	See column 4	See column 4	5 dB(A) above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day
School classroom (internal)	All	Noisiest 1-hour period when in use	35[6]
Hospital ward	All		
- Internal		Noisiest 1-hour	35
- External		Noisiest 1-hour	50
Place of worship (internal)	All	When in use	40
Passive recreation (e.g. national park)	All	When in use	50
Active recreation (e.g. school playground, golf course)	All	When in use	55
Commercial premises	All	When in use	65
Industrial premises	All	When in use	70
Industrial interface (applicable only to residential noise amenity areas)	All	When in use	Add 5 dB(A) to recommended noise amenity area

Note 2 Daytime 7.00 am to 6.00 pm; Evening 6.00 pm to 10.00 pm; Night-time 10.00 pm to 7.00 am.
Note 3 On Sundays and Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am.
Note 4 The LAeq index corresponds to the level of noise equivalent to the energy average of noise levels occurring over a measurement period.
Note 5 The recommended amenity noise levels refer only to noise from industrial sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated
Note 6 In the case where existing schools are affected by noise from existing industrial noise sources, the acceptable LAeq noise level may be increased to 40 dB LAeq(1hr)

To ensure that the total industrial noise level (existing plus new) remain within the recommended amenity noise levels for an area, the project amenity noise level that applies for each new industrial noise source is determined as follows:

Project amenity noise level = Recommended amenity noise level (Table 3-2 3-2) – 5dB(A)

Additionally, given that the intrusiveness noise level is based on a 15-minute assessment period and the project amenity noise level is based on day, evening and night assessment periods, the NPfI provides the following guidance on adjusting the $L_{Aeq,(period)}$ level to a representative $L_{Aeq,15minute}$ level in order to standardise the time periods.

$L_{Aeq(15minute)} = L_{Aeq(period)} + 3dB(A)$

The project amenity noise levels ($L_{Aeq,15min}$) for sub-urban residences and other receptors applied for this project are shown in Table 3-3.

Table 3-3 Project Amenity Noise Levels

Type of Receiver	Noise Amenity Area	Time of Day	Recommended Noise Level, dB(A)	
			$L_{Aeq,\ Period}$	$L_{Aeq,\ 15min}$
Residence	Sub-Urban	Day	55 – 5 = 50	50 + 3 = **53**
		Evening	45 – 5 = 40	40 + 3 = **43**
		Night	40 – 5 = 35	35 + 3 = **38**
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks	All	Day	60 – 5 = 55	55 + 3 = **58**
		Evening	50 – 5 = 45	45 + 3 = **48**
		Night	45 – 5 = 40	40 + 3 = **43**
Places of Worship (internal)	All	When in Use	40 – 5 = 35	35 + 3 = **38**
Commercial Premises	All	When in use	65 – 5 = 60	60 + 3 = **63**
Industrial premises	All	When in use	70 – 5 = 65	65 + 3 = **68**

Project Noise Trigger Levels

The project noise trigger level is the lower of the intrusiveness and the amenity noise levels. Provided in Table 3-4 are the established project noise trigger levels for the assessment locations within the study area. While it is understood the school only operates during daytime hours,

Table 3-4 3-11 presents the project noise trigger levels for the day, evening, and night-time periods.

Table 3-4 Project Noise Trigger Levels

Type of receiver	Assessment period	Intrusiveness noise levels, $L_{Aeq,15min}$, dB(A)	Amenity noise levels, $L_{Aeq,15min}$, dB(A)	Project noise trigger levels, $L_{Aeq,15min}$, dB(A)
Residential Sub-Urban	Day	42	53	**42 (Outdoor Play 45)**
	Evening	42	43	**42**
	Night	37	38	**37**
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks	Day	-	58	**58**
	Evening	-	48	**48**
	Night	-	43	**43**
Places of Worship (External)[7]	When in use	-	48	**48**
Commercial premises	When in use	-	63	**63**
Industrial Premises	When in use	-	68	**68**

Note 7 Conversion of trigger levels from internal to external for places of worship assumes a 10dB(A) loss from outside to inside through an open window Section 2.6 NPfI.

4. Assessment of Potential Impacts

4.1 Operational Noise

Acoustic modelling was undertaken using SoftNoise "Predictor" to predict the effects of noise. Predictor is a computer program for the calculation, assessment and prognosis of noise propagation. Predictor calculates environmental noise propagation according to ISO 9613-2, "Acoustics – Attenuation of sound during propagation outdoors". The method predicts the sound pressure level under meteorological conditions favourable to propagation from sources of known sound emission. These conditions are for downwind propagation or equivalently under a well-developed moderate ground based temperature inversion. Terrain topography, ground absorption, atmospheric absorption and relevant shielding objects are taken into account in the calculations.

Other key assumptions and inputs in the model include:

- topographical information was obtained from NSW Government Spatial Services
- all cleared areas were modelled considering a conservative ground factor of 0.0 to account for reflective surfaces
- all residential receivers were modelled at 1.5 metres above the ground surface

The proposed development is for a change of use from a community facility to a school with a maximum onsite capacity of 90 students. The school will also accommodate up to 10 FTE (full time equivalent) staff. No physical alterations are proposed as part of the development, with the existing building being used to accommodate school operations.

The school will operate from Monday to Friday, between the hours of 7:00am and 5:00pm, with normal teaching hours from Monday to Friday, between the 9:00am and 3:00pm. Alesco Secondary School standard operations do not involve school bells to signify changing of classes, and no amplified PA system or school bell system is proposed during school hours.

The existing building will accommodate a range of formal and informal learning areas and will accommodate sunlight and natural ventilation. Turfed passive outdoor recreation areas will be provided adjacent to the existing building. It is noted that the site will be located in close proximity to Woodberry oval, skatepark and cricket ground which will provide additional open space and recreational opportunities, as required.

School Pick Up / Drop Off

The school will have the capacity for 90 students and up to 10 FTE staff. While this will be a secondary school, based on the RMS (formally the RTA) 'Guide to Traffic Generating Developments' a prediction of 1.4 peak vehicle trips per child across 2 hours during peak operating times of 7:00 to 9:00am for pre-schools as per Table 3.6 of the guide has been conservatively used as a guide for school pick up / drop off for this assessment. This has been converted to a 15-minute trip rate which is shown in Table 4-1.

Table 4-1 15-minute Operational Traffic Volume

Time of Day	Peak Vehicle Trips/Child	Total Trips for 100 Children in Period	Trips as a 15-minute rate
7:00-9:00am	1.4	140	18

Onsite pick up / drop off noise modelling assumptions include a car with a 10km/hr sound power level of 81dB(A) and a sound power level of a car door opening and closing of 78dB(A) which has been sourced from RAPT consultings' internal sound level database.

Waste Management

The site is serviced by JR Richardson Waste Management and the onsite 1,500L bulk waste bin will be emptied weekly, or otherwise as required on a scheduled basis outside of morning drop off and pick up, with waste collection occurring from the existing car park as per the existing waste collection strategy. Waste management vehicles generally range from 85 to 100 dB(A) depending on operations. One waste management vehicle has been modelling in a 15 minute period with sound power level of 100 dB(A) for conservatism.

Outdoor Noise

It is understood the school will have turfed passive outdoor recreation areas provided adjacent to the existing building dedicated areas which will be used for organised class activities as well as informal play during recess and lunch breaks.

For prediction of noise emissions from outdoor activities, students are assumed to be evenly distributed across the entire dedicated outdoor areas.

Student outdoor noise in the form of human normal to raised voice consistent with passive play has been sourced from RAPT Consulting's database and has been assessed with a sound power level of 70 SWL dB(A). The school has a capacity of 90 students. Student noise has been assumed to be operating from the outdoor areas in the form of 45 persons conversing in normal to raised voice cumulatively in the outdoor areas 15 persons in the eastern area and 30 in the western area. It has been assumed that 50% of persons are conversing at any one time as not all persons will be speaking simultaneously.

Mechanical Plant

During site visits it was noted that outdoor condenser units exist on the east and west sides of the existing building. These are small single fan condenser units and have been assessed at a sound power level of 65 SWL dB(A)

To simulate a reasonable worst-case scenario, received noise produced by anticipated activities of outdoor students, staff parking, indoor hall and mechanical plant have been simulated. Table 4-2 shows the results of the modelling. Any predicted exceedances are shown in RED in table 4-7.

Table 4-2 Predicted Operational Noise Results dB(A) Leq(15min)

Receiver	Outdoor Play	Staff Carpark Pickup / Dropoff	Waste Collection	HVAC	NPfI Project Noise Trigger Level Day	AAAC Outdoor Play Noise Goal
R1	46	26	32	26	42	45
R2	43	34	41	8	42	45
R3	43	24	31	16	42	45
R4	43	27	34	15	42	45
R5	43	29	35	23	42	45
R6	43	29	35	25	42	45
R7	37	36	42	4	42	45
R8	39	36	42	19	42	45
R9	46	39	45	25	63	-

The results of the operational assessment are also shown in Figures 4-1 – 4-4.

Figure 4-1 School Pick Up / Drop Off Leq(15min)

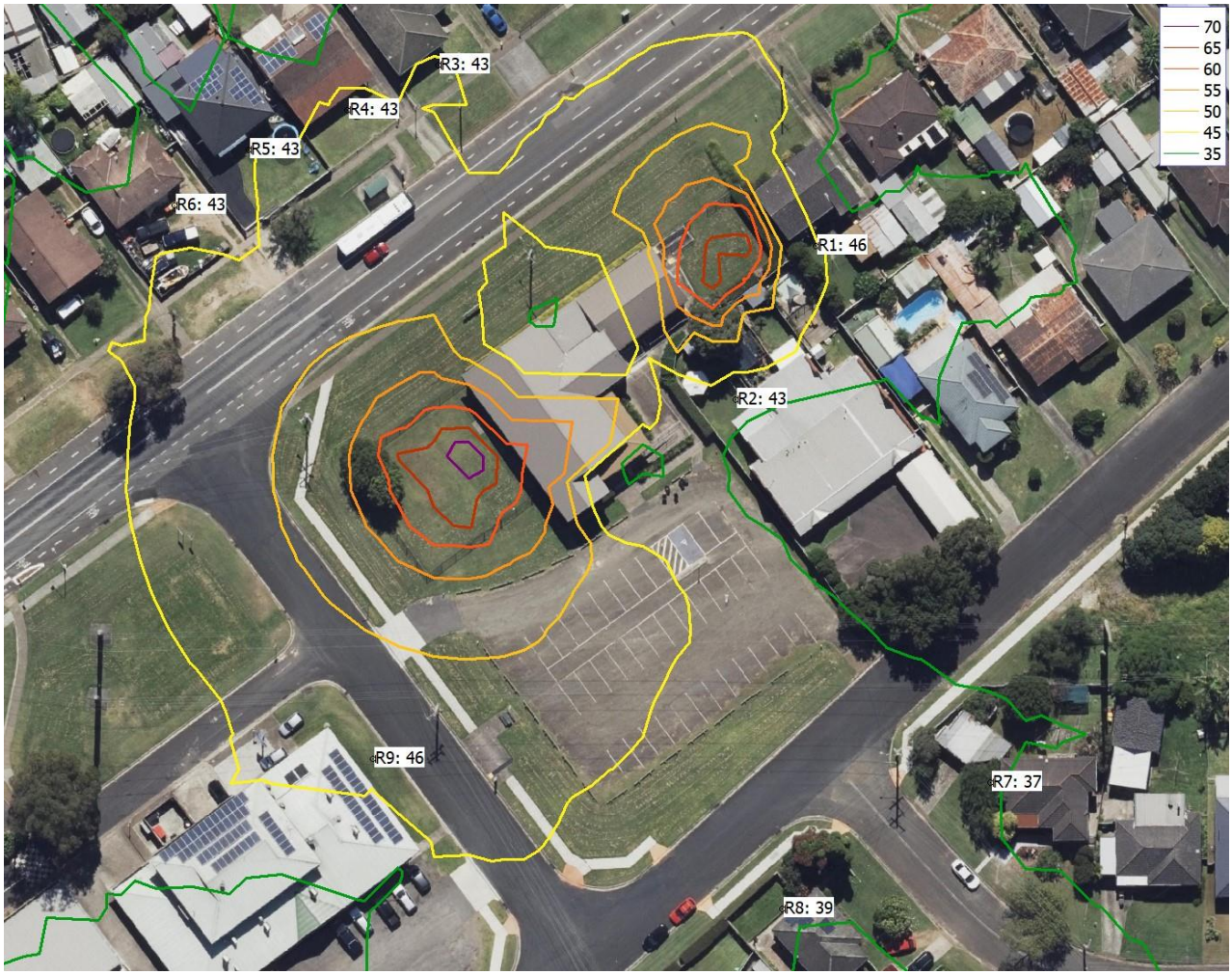


Figure 4-2 Outdoor Activity dB(A) Leq(15min)

Figure 4-3 Waste Collection dB(A) Leq(15min)

Figure 4-4 HVAC dB(A) Leq(15min)

Discussion

The results of the assessment indicate compliance with project noise trigger levels can be achieved in all situations with the exception of a predicted exceedance of 1 dB(A) for daytime outside activities at R1. This result is considered a reasonable worst-case scenario. Noise level differences of less than 2 dB(A) is widely considered imperceptible to the human ear. In this reasonable worst case scenario a 1 dB(A) exceedance would be imperceptible to the human ear. It would be expected that any excessive noise could be easily managed by staff and ability to achieve outdoor noise goals should be easily achieved.

Additionally, the acoustic assessment has assumed an onsite population of 90 students on site at a given time. It is noted that due to nature and needs of students at Alesco Secondary College, daily student attendance is usually 60-70% of the school enrolment. As such, the acoustic assessment presents a reasonable worst case scenario and the likely noise levels from outdoor play areas are expected to be below 45(A) during operation.

The noise levels generated during outdoor play periods will vary according to the following factors:

- The number of students in the area – students will be spread around the outdoor play areas
- The level of noise made by each student – this is obviously different from individual to individual, and various factors such as age, personality, mood, activity and countless other factors will play a part. The louder events are not capable of being sustained over an extended period, and
- The location of the students relevant to the residences – as the distance between the source and the receiver increases, the noise level at the receiver will decrease.

In general, the impact of outdoor activity noise from schools is considered to be sufficiently mitigated by the site zoning and the limited periods of outdoor recreational activities, that is during recess and lunch breaks and for a short time before school, occurring from Monday to Friday during the 40-week school year, and, as such, does not typically warrant quantitative assessment.

Schools traditionally form an essential part of all residential communities. Noise emissions from students engaged in active outdoor play are unlikely to achieve a “background + 5 or 10dBA” criterion at the site boundary. This is common across all educational facilities, particularly if the students are located near the boundary, and is often the case, in close proximity to residences. Additionally it is understood there is a minimum of one playground teacher per recess event to monitor children’s activities and behaviours including any excessive noise.

It is recommended that management of noise, particularly any excessive noise generated by children be included in any site management plan.

- Site Management Plan to be prepared to include noise management provisions, including management of noise from student outdoor activities
- Staff to supervise students during recess and lunch break, and promptly intervene to address noisy or disruptive activity (if required)

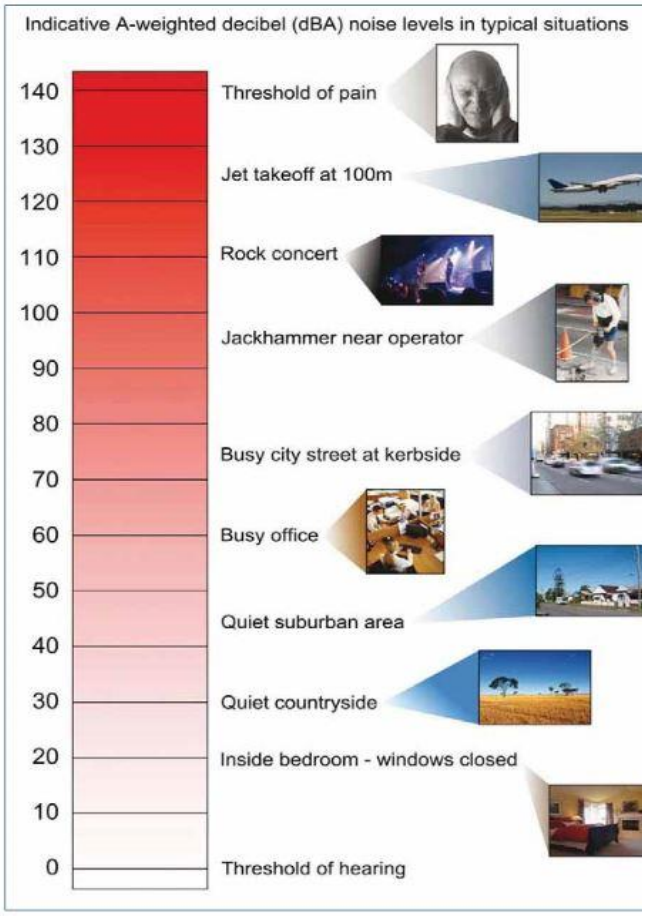
5. Conclusion

This acoustic assessment has been undertaken to inform a Development Application at Lot 110 DP614046, 42A Kookaburra Parade, Woodberry. The proposed development is for the change of use from an existing community facility to a school

The results of calculations of operational noise sources were compared with design goals for environmental noise. The results of the assessment indicate project noise trigger levels can be achieved by the development.

Reasonable worst case scenario noise from outdoor activities held on the site are expected to generally achieve the project noise 'guideline'. it is recommended operation of outdoor areas be managed to minimise noise emissions to nearby residences.

Glossary of Acoustic Terms

Term	Definition
dB	Decibel is the unit used for expressing the sound pressure level (SPL) or power level (SWL) in acoustics. The picture below indicates typical noise levels from common noise sources. 
dB(A)	Frequency weighting filter used to measure 'A-weighted' sound pressure levels, which conforms approximately to the human ear response, as our hearing is less sensitive at very low and very high frequencies.
$L_{Aeq(period)}$	Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.
$L_{A10(period)}$	The sound pressure level that is exceeded for 10% of the measurement period.
$L_{A90(period)}$	The sound pressure level that is exceeded for 90% of the measurement period.
L_{Amax}	The maximum sound level recorded during the measurement period.
Noise sensitive receiver	An area or place potentially affected by noise which includes:

	A residential dwelling. An educational institution, library, childcare centre or kindergarten. A hospital, surgery or other medical institution. An active (e.g. sports field, golf course) or passive (e.g. national park) recreational area. Commercial or industrial premises. A place of worship.
Rating Background Level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period.
Feasible and Reasonable (Noise Policy for Industry Definition)	**Feasible** mitigation measure is a noise mitigation measure that can be engineered and is practical to build and/or implement, given project constraints such as safety, maintenance and reliability requirements. Selecting **Reasonable** measures from those that are feasible involves judging whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the mitigation measure. To make a judgement, consider the following: Noise impacts Noise mitigation benefits Cost effectiveness of noise mitigation Community views.
Sound power level (SWL)	The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in dB(A).
DnT,w	Weighted Standardised Level Difference A single number rating of the sound level difference between two rooms. DnT,w is typically used to measure the on-site sound insulation performance of a building element such as a wall, floor or ceiling
Dw	Weighted Sound Level Difference A single number rating of the sound level difference between two rooms. Dw is typically used to measure the on-site sound insulation performance of a building element such as a wall, floor or ceiling
Impact sound	Sound produced by an object impacting directly on a building structure, such as footfall noise or chairs scrapping on a floor
L'nT,w	Weighted, Standardised Impact Sound Pressure Level A single number rating of the impact sound insulation of a floor/ceiling when impacted on by a standard 'tapper' machine. L'nT,w is measured on site. The lower the L'nT,w, the better the acoustic performance.
Lw (or SWL)	Sound Power Level. The level of total sound power radiated by a sound source.
Masking Noise	Intentional background noise that is not disturbing, but due to its presence causes other unwanted noises to be less intelligible, noticeable and distracting.

NRC	Noise Reduction Coefficient A single number rating between 0 and 1 of the ability of a material to absorb sound. It is the average of the absorption coefficients in the 250-2000Hz octave bands rounded to the nearest 0.05. The larger the number, the more absorptive the material.
Octave Band	Octave Band A range of frequencies where the highest frequency included is twice the lowest frequency. Octave bands are referred to by their logarithmic centre frequencies, these being 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, and 16 kHz for the audible range of sound.
Room Criterion (RC)	The Room Criteria (RC) Method is a HVAC related background noise acceptability rating method. The RC method is a family of criterion curves (specifying sound levels by octave bands) intended to establish HVAC system design goals and a rating procedure.
RT or T60	Reverberation Time The time (in seconds) taken for the sound pressure level generated by a particular noise incident to decay by 60 decibels following the conclusion of the noise event (hence T60 abbreviation). Reverberation Time is used for assessing the acoustic qualities of a space, describing how quickly sound decays within a space. The reverberation time is related to the room volume and total absorption.
Rw	Weighted Sound Reduction Index A single number rating of the sound insulation performance of a specific building element. Rw is measured in a laboratory. Rw is commonly used by manufacturers to describe the sound insulation performance of building elements such as plasterboard and concrete.
Speech transmission	(STI) is a measure for the transmission quality of speech with respect to intelligibility. A value of 0 indicates completely unintelligible speech while a value of 1 indicates perfectly intelligible speech.