



Proposed Child Care Centre

22 Austral Avenue, Westmead NSW 2145

Noise Management Plan

REPORT R180121NMP1

Revision 1

Prepared for:

Baini Design

1B Villiers Street

PARRAMATTA NSW 2150

1 March 2019



Proposed Child Care Centre
22 Austral Avenue, Westmead NSW 2145
Noise Management Plan

PREPARED BY:

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
R180121NMP1	Revision 0	7 February 2019	Thomas Carney	Desmond Raymond	Rodney Stevens
R180121NMP2	Revision 1	1 March 2019	Thomas Carney	Desmond Raymond	Rodney Stevens



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1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (RSA) has been engaged by Bains Design to prepare a noise management plan for the proposed child care centre located at 22 Austral Avenue, Westmead NSW.

RSA acoustics prepared an acoustical assessment addressing the noise environment of the centre and surrounding area and the potential acoustical impact on nearby residential receivers associated with the proposed development. RSA report "R180121R1 22 Austral Ave, Westmead" dated 12 July 2018 provided recommendations and mitigation measures for the proposed child care centre.

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in Appendix C.

2 PROJECT OVERVIEW

2.1 Project Location

The proposed development is located at 22 Austral Avenue, Westmead. The project area and its surrounding environment are presented in Figure 2-1 below.

Figure 2-1 Project Area and Surrounding Environment



Aerial image courtesy of © 2019 Nearmap



The proposed site layout of the development site is presented in Figure 2-2 to Figure 2-4.

Figure 2-2 Proposed Basement Plan

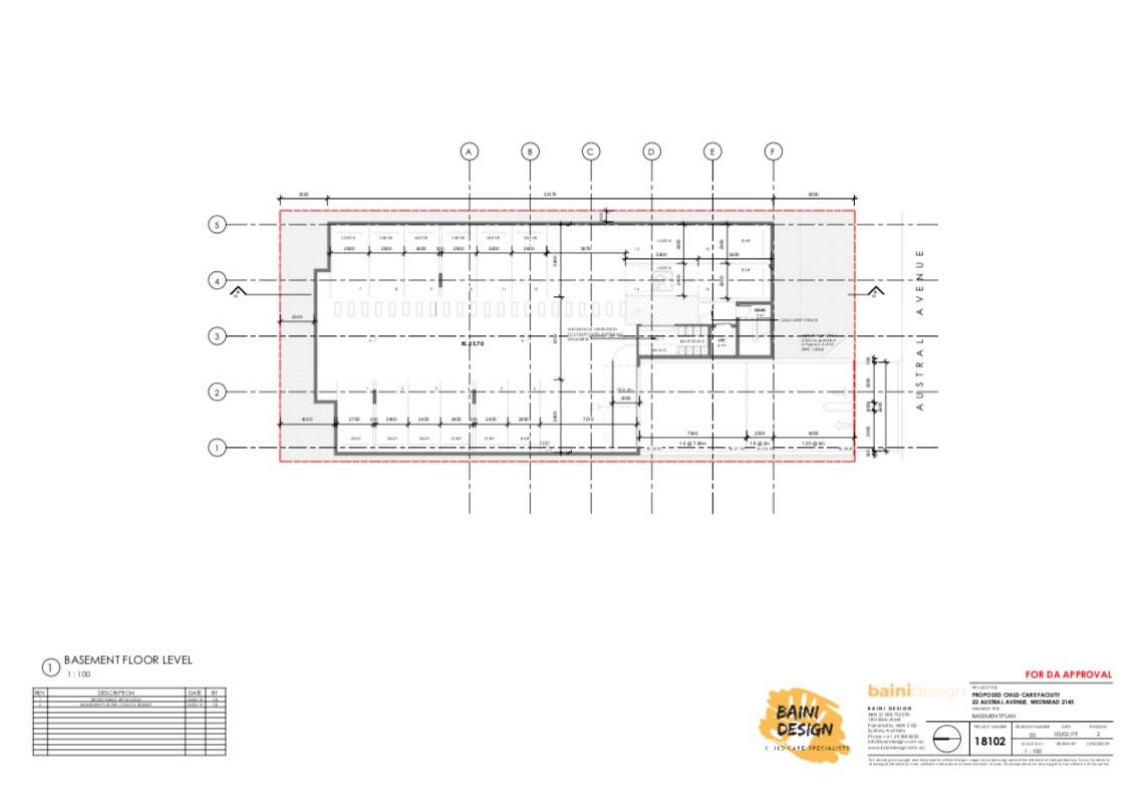


Figure 2-3 Proposed Ground Floor Plan

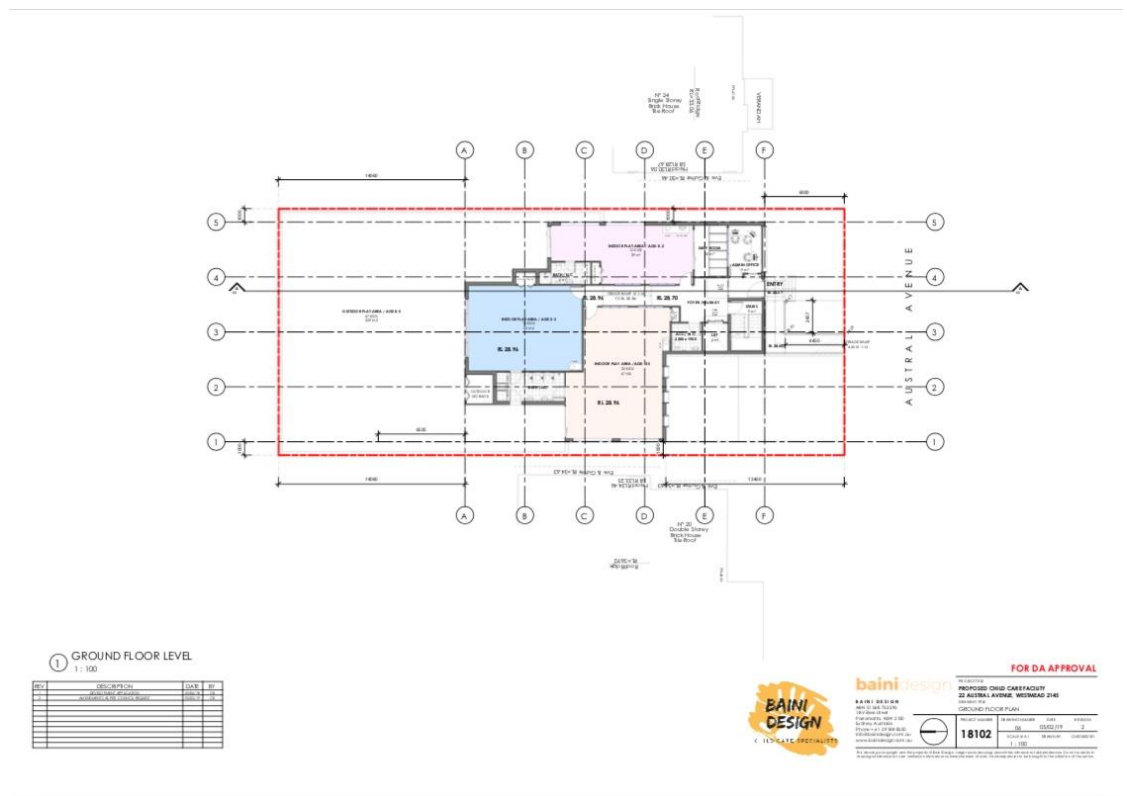
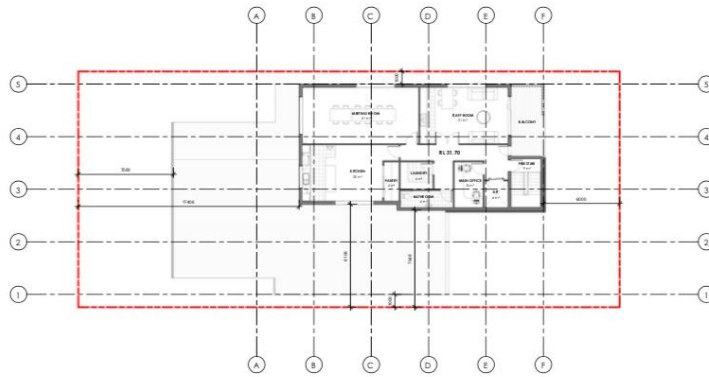




Figure 2-4 Proposed First Floor Plan



① FIRST FLOOR			
1:100			
NO.	DESCRIPTION	DATE	BY

FOR DA APPROVAL

baini design

BAINI DESIGN
CITYPLANNING SPECIALISTS

PROPOSED CHILD CARE CENTRE
22 AUSTRAL AVENUE, WESTMEAD 2145

PROJECT NO. 18102

DATE: 18/07/19

SCALE: 1:100

3 ASSESSMENT CRITERIA

A comprehensive acoustic assessment has been previously conducted for the proposed development by Rodney Stevens Acoustics Report No. R180121R1 22 Austral Ave, Westmead dated 12 July 2018. The report contained the operational noise criteria for the child care centre as:

Table 3-1 Project Specific NPfI Criteria

Assessment Period	ANL LAeq(Period)	Existing Noise Level - dBA		INP Criteria - dBA	
		RBL	LAeq(Period)	Intrusive LAeq(15min)	Amenity LAeq(Period)
Daytime	55	46	54	51	55

The limiting criterion for continuous operational noise emissions from the mechanical plant is **51 dB(A)**.



4 NOISE MANAGEMENT PLAN

One of the most effective measures that must be implemented in conjunction with the physical noise controls is a noise management plan (NMP). The following noise control measures are to be adhered to in order to preserve the acoustic amenity of the nearby sensitive receivers:

- Child to Staff ratios are: 0-2 years 1:4 (2 teachers), 2-3 years 1:5 (3 teachers) & 3-5 years 1:11 (2 teachers)
- A separate daily program for both the warmer and cooler months should be established in order to regulate the total time spent outdoors and indoors.
- A contact phone number for the centre office should be made available to neighbours to facilitate communication and to resolve any neighbourhood issues that may arise due to operation of the child care centre;
- The behaviour of children should be monitored and modified as required by staff during outdoor play;
- Parents and guardians should be informed of the importance of noise minimisation when entering the site, dropping off or picking up children;
- Staff should be educated to control the level of their voice while outside;
- Amplified music should be avoided to meet the noise criteria.
- A system will be put in place where child care staff will actively monitor the children playing outside, any child making excessive noise i.e. crying or screaming will be taken into the child care and once the child has calmed down he/she will be allowed to go to the outdoor area.

RSA report R180121R2, Revision 1, 22 Austral Ave, Westmead dated 7 February 2019 provides a number of mitigation measures that must be implemented in conjunction with this noise management plan.

5 CONCLUSION

Rodney Stevens Acoustics has prepared a noise management plan for the proposed child care centre's site at 22 Austral Ave, Westmead NSW. Noise emissions from the outdoor play can be sufficiently mitigated and or controlled with the implementation of recommendations of RSA previous report R180121R1 22 Austral Ave, Westmead dated 12 July 2018 and the recommendations in this noise management plan.

Approved: -

Rodney Stevens - MAAS



Appendix A – Acoustic Terminology

A-weighted pressure	sound	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz (1000 – 4000 vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement, an electronic ' <i>A-weighting</i> ' frequency filter is applied to the measured sound level <i>dB(A)</i> to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted dB(linear).
Ambient noise		The total noise in a given situation, inclusive of all noise source contributions in the near and far field.
Community annoyance		Includes noise annoyance due to: <ul style="list-style-type: none">▪ character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content)▪ character of the environment (e.g. very quiet suburban, suburban, urban, near industry)▪ miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations)▪ human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).
Compliance		The process of checking that source noise levels meet with the noise limits in a statutory context.
Cumulative noise level		The total level of noise from all sources.
Extraneous noise		Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Feasible and reasonable measures		Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, taking into account the following factors: <ul style="list-style-type: none">▪ Noise mitigation benefits (amount of noise reduction provided, number of people protected).

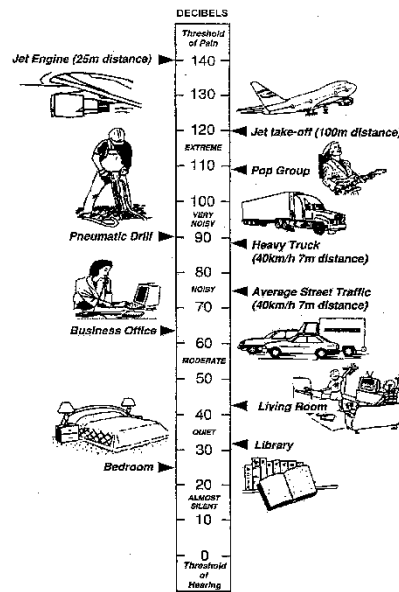


- Cost of mitigation (cost of mitigation versus benefit provided).
- Community views (aesthetic impacts and community wishes).
- Noise levels for affected land uses (existing and future levels, and changes in noise levels).

Impulsiveness	Impulsive noise is noise with a high peak of short duration or a sequence of these peaks. Impulsive noise is also considered annoying.
Low frequency	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
Noise criteria	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
Noise level (goal)	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
Noise limits	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
Performance-based goals	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
Rating Background Level (RBL)	The rating background level is the overall single figure background level representing each day, evening and night time period. The rating background level is the 10 th percentile min L_{A90} noise level measured over all day, evening and night time monitoring periods.
Receptor	The noise-sensitive land use at which noise from a development can be heard.
Sleep disturbance	Awakenings and disturbance of sleep stages.
Sound and decibels (dB)	Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of 2×10^{-5} Pa.



The picture below indicates typical noise levels from common noise sources.



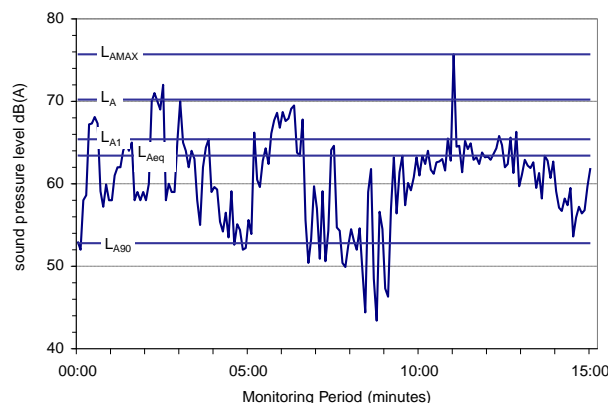
dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

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 $dB(A)$.

Sound Pressure Level (SPL) The level of noise, usually expressed as SPL in $dB(A)$, as measured by a standard sound level meter with a pressure microphone. The sound pressure level in $dB(A)$ gives a close indication of the subjective loudness of the noise.

Statistical noise levels Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:





Key descriptor

- LA_{max} Maximum recorded noise level.
- LA₁ The noise level exceeded for 1% of the 15 minute interval.
- LA₁₀ Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.
- LA_{eq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.
- LA₉₀ Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

Threshold The lowest sound pressure level that produces a detectable response (in an instrument/person).

Tonality Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 dBA penalty is typically applied to noise sources with tonal characteristics.