



Proposed Child Care Centre
15 Hyacinth Street, Greystanes NSW 2145
Noise Management Plan

REPORT R180318NMP1

Revision 0

Prepared for:

Baini Design

1B Villiers Street

PARRAMATTA NSW 2150

11 February 2019



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15 Hyacinth Street, Greystanes NSW 2145
Noise Management Plan

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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 15 Hyacinth Street, Greystanes 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 "R180318R1 15 Hyacinth St, Greystanes" dated 9 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 15 Hyacinth Street, Greystanes. The project area and its surrounding environment are presented in Figure 2-1 below.

Figure 2-1 Project Area and Surrounding Environment

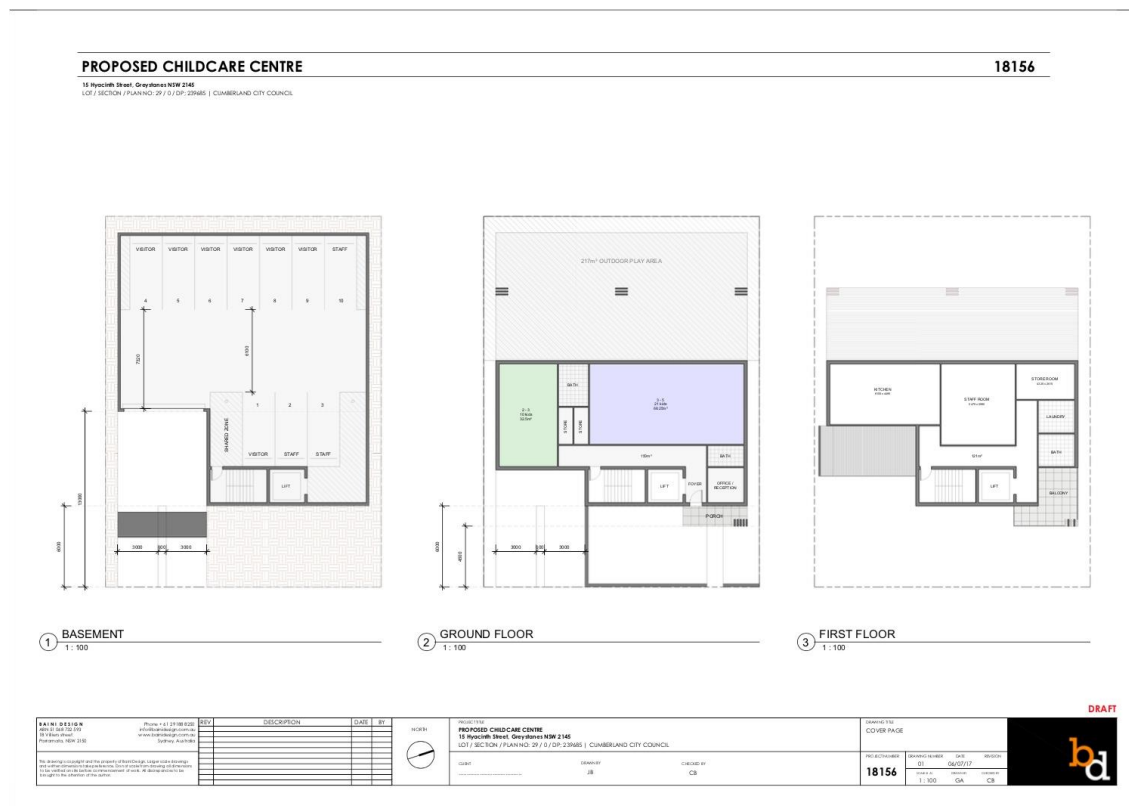


Aerial image courtesy of © 2019 Nearmap



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

Figure 2-2 Floor Plans



3 ASSESSMENT CRITERIA

A comprehensive acoustic assessment has been previously conducted for the proposed development by Rodney Stevens Acoustics Report No. R180318R1 15 Hyacinth St, Greystanes dated 9 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) |
| Residential | Day | 55 | 34 | 49 | 39 |
| School Classroom | When in use | | | | 35 |
| School Play Areas | When in use | | | | 55 |

The limiting criterion for continuous operational noise emissions from the proposed development is **51 dB(A)** for residential receivers during the daytime, **35 dB(A)** for classrooms when in use and **55 dB(A)** for outdoor school play areas when in use.



4 NOISE MANAGEMENT PLAN

One of the most effective measures that should be implemented in conjunction with the physical noise controls is a noise management plan (NMP). The NMP should be incorporated within the child care centre's overall management plan:

- Child to staff ratios are: 2-3 year olds (2 teachers, 1:5 children); 3-6 year olds (2 teachers, 1:10 children).
- 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.

In previous developments of Child Care Centres in NSW, Rodney Stevens Acoustics has adopted the following key aspects with regard to acoustic intrusion to nearby and adjoining residential dwellings:

- It is important to balance the operation of child care facilities with community expectations. To achieve this outcome, many councils consider it necessary to seek appropriate acoustic privacy measures that are compatible with the prevailing character of residential areas. This is the preferred outcome rather than resorting to more extreme noise attenuation walls.
- There is also recognition that the good long-term operation and management of child care facilities can help to ensure development continues to harmoniously co-exist with the surrounding residential amenity.
- The location and design of the centre must consider the projection of noise from various activities to avoid any adverse impacts on the residential amenity of adjoining land.

RSA report R180318R1 15 Hyacinth St, Greystanes dated 9 July 2018 provides a number of mitigation measures that must be implemented in conjunction with this noise management plan.



5 CONCLUSION

Rodney Stevens Acoustics has conducted a noise management plan for the proposed child care centre's site at 15 Hyacinth St, Greystanes NSW. Noise emissions from the outdoor play can be sufficiently mitigated and or controlled with the implementation of recommendations of RSA previous report R180318R1 15 Hyacinth St, Greystanes dated 9 July 2018, its revision (R2) 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). |

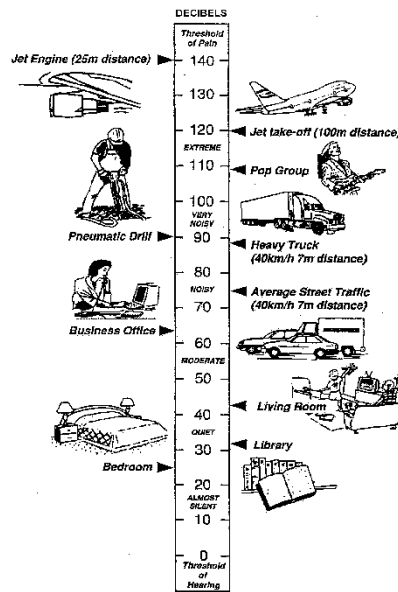


- Cost of mitigation (cost of mitigation versus benefit provided).
- Community views (aesthetic impacts and community wishes).
- Noise levels for affected land uses (existing and future levels, and changes in noise levels).

| | |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 x 10 ⁻⁵ Pa. |



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



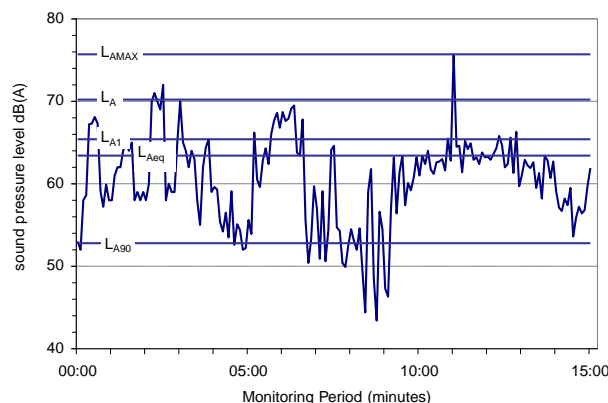
dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

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.