DAY DESIGN PTY LTD
CONSULTING ACOUSTICAL ENGINEERS

SUITE 17, 808 FOREST ROAD, PEAKHURST 2210 ABN 73 107 291 494
P. 02 9046 3800 ACOUSTICS@DAYDESIGN.COM.AU WWW.DAYDESIGN.COM.AU

Environmental Noise Assessment

Proposed Child Care Centre
78 - 80A Benaroon Road, Lakemba, NSW

REPORT NUMBER
7691-1.1R Rev A

DATE ISSUED
30 March 2023

Prepared For:
Mr Ali Taleb
C/- ArtMade Architects
Suite 507, 50 Holt Street
Surry Hills NSW 2010

Attention: Mr Mina Saad

Revision History

Status	Date	Prepared	Checked	Comment
Final	21/12/2022	William Wang	Stephen Gauld	
Rev A	30/03/2023	William Wang	Stephen Gauld	Updated Drawings

Document 7691-1.1R REV A, 33 pages plus attachments

Disclaimer

The work presented in this document was carried out in accordance with the Day Design Pty Ltd Quality Management System. Day Design is certified to ISO9001.

This report has been prepared for the client identified in Section 1.0 only and cannot be relied or used by any third party. Any representation, statement, opinion or advice, expressed or implied in this report is made in good faith but on the basis that Day Design is not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in any respect of any representation, statement, or advice referred to above.

Recommendations made in this report are intended to resolve acoustical problems only. No claims of expertise in other areas are made and no liability is accepted in respect of design or construction for issues falling outside the specialist field of acoustical engineering including but not limited to structural, fire, thermal, architectural buildability, fit for purpose, waterproofing or other aspects of building construction. Supplementary professional advice should be sought in respect of these issues.

The information in this document should not be reproduced, presented or reviewed except in full. Prior to passing onto a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission. The only exception to this is for the Regulatory Authority in its use of this report to make a Determination.

TABLE OF CONTENTS

TABLES

1.0 CONSULTING BRIEF

Day Design Pty Ltd was engaged by Janssen Designs on behalf of Mr Ali Taleb to carry out an acoustic assessment of a proposed Child Care Centre at 78-80A Benaroon Road, Lakemba, NSW.

This commission involves the following:

Scope of Work:

- Inspect the site and environs
- Measure the background noise levels at critical locations and times
- Establish acceptable noise level criteria
- Quantify noise emissions from the proposed Child Care Centre
- Calculate the level of noise emission, taking into account building envelope transmission loss, screen walls and distance attenuation
- Prepare a site plan identifying the development and nearby noise sensitive locations
- Provide recommendations for acoustical treatment (if necessary)
- Prepare an Environmental Noise Assessment Report.

2.0 EXECUTIVE SUMMARY

A new Child Care Centre (The Centre) is proposed to be constructed at 78-80A Benaroon Road, Lakemba, NSW (The Site). The Site is located on land zoned *R3 - Medium Density Residential* under the Canterbury Local Environmental Plan (LEP) 2012.

The Site is bounded by residential premises to the west and south, with Benaroon Road to the east and Pettit Avenue to the north. Residential properties are located on the opposite side of Benaroon Road. Commercial premises are located on the opposite site of Pettit Avenue. The Site and nearby receptors are shown in Figure 1.

The proposal will involve the construction of a new two storey child care centre building. The Centre will comprise of three outdoor play areas, five indoor play areas, a cot room, amenities, a kitchen, staffroom and office with a basement car park with capacity for 13 vehicles.

The Child Care Centre will have a total capacity of 72 children as follows:

- 0-2 year old: 12 Children;
- 2-3 year old: 20 Children;
- 3-5 year old: 40 Children.

The proposed hours of operation for the Centre are:

- Monday – Friday: 7 am to 7 pm.

Nearby premises may be affected by the following noise sources at the Centre:

- Children playing both outside and inside;
- Car park and on-road traffic; and
- Mechanical plant.

Canterbury Bankstown Council requires an acoustic assessment to demonstrate that the noise impact from the Centre will not adversely affect the acoustic amenity of nearby residential premises.

Acceptable noise limits have been derived from the Association of Australasian Acoustical Consultants' (AAAC) '*Guideline for Child Care Centres Acoustic Assessment*' and the Environmental Protection Authority's (EPA) *Road Noise Policy* (RNP).

Calculations show that, provided the recommendations in Section 8.0 are implemented, the levels of noise emission from the Centre and of intrusive noise at the Centre will meet the acoustic requirements established in Section 0, and will therefore be acceptable.

3.0 SITE AND DEVELOPMENT DESCRIPTION

3.1 Site Description

The Centre is proposed to be constructed at 78-80A Benaroon Road, Lakemba (The Site). The Site is located on land zoned *R3 - Medium Density Residential* under the Canterbury Local Environmental Plan (LEP) 2012.

The Site is bounded by residential premises to the west and south, with Benaroon Road to the east and Pettit Avenue to the north. Residential properties are located on the opposite side of Benaroon Road. Commercial premises are located on the opposite site of Pettit Avenue. The Site and nearby receptors are shown in Figure 1.

The nearest noise sensitive receptors to the site are also shown in Figure 1, and are presented below in Table 1.

Table 1 Noise Sensitive Receptors

Receptor and Type	Address	Direction from site
R1 – Residential (Two Storey)	53A Benaroon Road	East
R2a – Residential (Single Storey, Front)	76 Benaroon Road	South
R2b – Residential (Single Storey, Rear)	76 Benaroon Road	South
R3 – Residential (Single Storey)	19 Vivienne Avenue	West
R4 – Residential (Two Storey)	17 Vivienne Avenue	West
R5 – Commercial	80 Benaroon Road	North

As the noise sources on the Site are at varying distances from the receptors, specific distances between each noise source and receptor are used in all calculations. All distances are based upon the architectural drawings prepared by ArtMade Architects for Project Number 23695 dated 28 March 2023, attached as Appendix C.

The first floor level of a two storey residence has been assessed as the point of worst noise impact. We have therefore assessed to these first floor locations.

Figure 1. Site Plan – 78 - 80A Benaroon Road, Lakemba, NSW

3.2 Development Description

The proposal will involve the construction of a new two storey child care centre building. The Centre will comprise of three outdoor play areas, five indoor play areas, a cot room, amenities, a kitchen, staffroom and office with a basement car park with capacity for 13 vehicles.

The proposed layout of the Child Care Centre can be seen in the ArtMade Architects for Project Number 23695 dated 14 December 2022, attached as Appendix C.

The proposed hours of operation for the Centre are:

- Monday – Friday: 7 am to 7 pm.

The Child Care Centre will have a total capacity of 72 children as follows:

- 0-2 year old: 12 Children;
- 2-3 year old: 20 Children;
- 3-5 year old: 40 Children.

4.0 MEASURED NOISE LEVELS

Noise survey instrumentation used in this assessment is listed in Appendix A.

Noise descriptors used in this assessment include:

L_{Aeq} The equivalent continuous noise level is the A weighted sound pressure level, energy averaged over a period of time. Because the decibel scale is a logarithmic ratio the higher noise levels have far more sound energy, and therefore the L_{Aeq} level tends to indicate an average which is strongly influenced by short term, high noise level events. Many studies show that human reaction to level-varying sounds tends to relate closely to the L_{Aeq} noise level.

L_{90} The ambient L_{90} background noise level is a statistical measure of the sound pressure level that is exceeded for 90% of the measuring period (typically 15 minutes).

RBL The Rating Background Level (RBL) is defined by the EPA's Noise Policy for Industry, as the median value of the (lower) tenth percentile of L_{90} ambient background noise levels for day, evening or night periods, measured over a number of days during the proposed days and times of operation.

4.1 Measured Ambient Noise Levels

The background noise level should be measured at a location most representative of the potentially affected receptors, in the absence of any noise sources that may be associated with the proposed development.

As specified in Section 3.1 "Background Noise Monitoring" of the AAAC's *'Guideline for Child Care Centre Acoustic Assessment'*, where a consultant is unable to measure the background noise level at the most affected residential receiver location, the consultant *'shall select another suitable and equivalent location. This measured representative noise environment should be used to establish relevant criteria for all sensitive receivers.'*

It was not considered feasible for Day Design to gain access and measure the background noise levels at all potentially affected receiver locations around the site (*access to all five properties to conduct simultaneous measurements would be required*). During our site inspection it was determined that the potentially *most affected sensitive receiver location* is 'R2' and 'R3' to the south and west of the proposed Centre respectively. Therefore, a suitable and equivalent location - Location 'A' and Location 'B'(see below) were selected to represent *the most affected sensitive receivers*. This measured representative noise environment has been used to establish the relevant criteria for all other sensitive receivers.

Day Design notes that the background noise in the area is mainly influenced by local fauna, road traffic on surrounding local roads and some neighbourhood noises (pets, people talking and occasional yard work).

An environmental noise monitor was placed in the front and rear yard of 78 Benaroon Road, Lakemba, NSW (Location 'A' and Location 'B' respectively), from Friday 2 December to Friday 9 December 2022, to determine the Rating Background Level. The monitor was installed at a height of approximately 1.5 metres above ground level.

The results of the background noise survey at Location 'A' and Location 'B' are shown in the attached Appendix B, and below in Table 2.

Table 2 Ambient Background Levels – Lakemba, NSW

Noise Measurement Location	Time Period	L_{90} Rating Background Level (dBA)	L_{eq} Existing Ambient Level (dBA)
Location 'A'- 78 Benaroon Road, Lakemba (Front Yard)	Shoulder Period (6:30 am to 7 am)	**44**	**-**
	Day (7 am to 6 pm)	**43**	**63**
	Shoulder Period (6 pm to 7 pm)	**42**	**-**
Location 'B'- 78 Benaroon Road, Lakemba (Rear Yard)	Shoulder Period (6:30 am to 7 am)	**41**	**-**
	Day (7 am to 6 pm)	**38**	**58**
	Shoulder Period (6 pm to 7 pm)	**38**	**-**

Meteorological conditions during the measurement surveys typically consisted of overcast and clear skies with temperatures ranging from 0°C to 21°C. Noise level measurements are considered reliable and representative of the background noise levels at all nearby receptor locations.

4.2 Measured Road Traffic Noise Levels

The proposed development is potentially affected by road traffic noise from Benaroon Road which carries low traffic volumes.

The weekday $L_{Aeq,\ 1\ hour}$ traffic noise levels measured at Location 'A' are shown below in Table 3.

Table 3 Measured $L_{Aeq,\ 1\ hour}$ Road Traffic Sound Pressure Levels – Location 'A'

Time	$L_{Aeq,\ 1\ hour}$ Road Traffic Noise (dBA)					
	Friday, 2 December 2022	Monday, 5 December 2022	Tuesday, 6 December 2022	Wednesday, 7 December 2022	Thursday, 8 December 2022	Friday, 9 December 2022
7 – 8 am	-	62	62	62	60	-
8 – 9 am	-	63	61	59	60	-
9 – 10 am	-	64	63	62	59	-
10 – 11 am	-	64	59	61	59	-
11 – 12 pm	78	61	59	67	61	-
12 – 1 pm	61	60	59	76	61	-
1 – 2 pm	61	61	60	70	62	-
2 – 3 pm	61	62	61	61	60	-
3 – 4 pm	64	63	62	62	64	-
4 – 5 pm	61	60	60	60	60	-
5 – 6 pm	61	61	60	61	0	-
6 – 7 pm	59	61	59	58	-	-

Based on the long-term measurements at Location 'A', and the calculation method show in Appendix B, Section B3 of the NSW Road Noise Policy for the 'overall $L_{Aeq,\ (1\ hour)}$', the calculated day time traffic noise level is 62 dBA at Location 'A'. These levels are used in the calculation of traffic noise intrusion for the existing site within Section 7.0 of this report.

5.0 ACOUSTIC CRITERIA

This Section presents the noise guidelines applicable to this proposal and establishes the project noise trigger levels.

5.1 Canterbury Development Control Plan 2012

Canterbury Bankstown Council in its Canterbury Development Control Plan (DCP) 2012 – Part F Section F2, Child Care Centres, Subsection F2.13 outlines objectives and development controls specific for child care centres for visual and acoustic privacy.

F2.13 Visual and Acoustic Privacy

Controls

C1 *Locate sleep rooms and play areas away from undesirable noise sources. The impacts of noise can be further reduced by barriers such as solid fencing and double-glazing.*

C2 *An acoustic report from a suitably qualified acoustic engineer is to be provided with a development application for a new child care centre and is to include measures to minimise noise impacts on neighbouring properties:*

(a) Orientating the child care centre to have regard to neighbouring property layout, including locating playgrounds and playroom windows and doorways away from neighbouring bedrooms;

(b) Using double-glazing where necessary;

(c) Planting hedges along fence lines to create a playground buffer zone; and

(d) Include fencing that minimises noise transmission and loss of privacy (such as lapped and capped timber fencing, cement block, brick).

5.2 NSW Department of Planning and Environment

5.2.1 State Environmental Planning Policy - (Transport and Infrastructure) 2021

The NSW Department of Planning and Environment (DoPE) published the State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021 on 1 March 2022. The SEPP (Transport and Infrastructure) 2021 consolidates the previous SEPP (Educational Establishments and Child Care Facilities) 2017, along with other related SEPPs.

Chapter 3 of the SEPP, 'Educational establishments and child care facilities', aims to establish consistent State-wide assessment requirements and design considerations for educational establishments and early education and care facilities to improve the quality of infrastructure delivered and to minimise impacts on surrounding areas. Section 3.27 of Chapter 3 of the SEPP states the following with regard to Local Council Development Control Plans that contain specific requirements, standards or controls related to Child Care Centres:

> *'3.27: Centre-based child care facility—development control plans*
>
> *(1) A provision of a development control plan that specifies a requirement, standard or control in relation to any of the following matters (including by reference to ages, age ratios, groupings, numbers or the like, of children) does not apply to development for the purpose of a centre-based child care facility—*
>
> *(a) operational or management plans or arrangements (including hours of operation),*
>
> *(b) demonstrated need or demand for child care services,*
>
> *(c) proximity of facility to other early childhood education and care facilities,*
>
> *(d) any matter relating to development for the purpose of a centre-based child care facility contained in:*
>
> *(i) the design principles set out in Part 2 of the Child Care Planning Guideline, or*
>
> *(ii) the matters for consideration set out in Part 3 or the regulatory requirements set out in Part 4 of that Guideline (other than those concerning building height, side and rear setbacks or car parking rates).*
>
> *(2) This section applies regardless of when the development control plan was made."*

5.2.2 NSW DoPE – Child Care Planning Guideline

The NSW DoPE published the Child Care Planning Guideline (CCPG) in August 2017 as a supplement to the SEPP (Educational Establishments and Child Care Facilities) 2017.

The SEPP states that "*a consent authority must take into consideration this Guideline* (CCPG) *when assessing a development application (DA) for a centre-based child care facility.*" The SEPP also determines the Guideline "*will take precedence over a Development Control Plan (DCP), with some exceptions, where the two overlap in relation to a child care facility."*

The Guideline was introduced to *'assist industry to deliver early childhood education facilities that are of the highest standards'* and *'to align NSW planning controls with the National Quality Framework for early education and care, creating more certainty for developers and operators seeking service approval'.*

Section 3, *Matters for Consideration*, Subsection 3.5 Visual and acoustic Privacy, contains the following for consideration:

Objective: To minimise the impact of child care facilities on the acoustic privacy of neighbouring residential developments.

C23

A new development, or development that includes alterations to more than 50 percent of the existing floor area, and is located adjacent to residential accommodation should:

- *provide an acoustic fence along any boundary where the adjoining property contains a residential use. An acoustic fence is one that is a solid, gap free fence*
- *ensure that mechanical plant or equipment is screened by solid, gap free material and constructed to reduce noise levels eg acoustic fence, building or enclosure.*

C24

A suitably qualified acoustic professional should prepare an acoustic report which will cover the following matters:

- *Identify an appropriate noise level for a child care facility located in residential and other zones*
- *Determine an appropriate background noise level for outdoor play area during times they are proposed to be in use*
- *Determine the appropriate height of any acoustic fence to enable the noise criteria to be met.*

Subsection 3.6 Noise and air pollution, contains the following for consideration:

'Considerations

Objective: To ensure that outside levels on the facility are minimized to acceptable levels.

C25

Adopt design solutions to minimise the impacts of noise, such as:

- *creating physical separation between buildings and the noise source*
- *orienting the facility perpendicular to the noise source and where possible buffered by other uses*
- *using landscaping to reduce the perception of noise*
- *limiting the number and size of openings facing noise sources*
- *using double or acoustic glazing, acoustic louvres or enclosed balconies (wintergardens)*
- *using materials with mass and/or sound insulation or absorption properties, such as solid balcony balustrades, external screens and soffits*
- *locating cot rooms, sleeping areas and play areas away from external noise sources.'*

C26

An acoustic report should identify appropriate noise levels for sleeping areas and other non play areas and examine impacts and noise attenuation measures where a child care facility is proposed in any of the following locations:

- *on industrial zoned land*
- *where the ANEF contour is between 20 and 25, consistent with AS2021:2000*
- *along a railway or mass transit corridor, as defined by State Environmental Planning Policy (Infrastructure) 2007*
- *on a major road or busy road*
- *other land that is impacted by substantial external noise.*

5.3 AAAC – Guideline for Child Care Centres Acoustic Assessment

The Association of Australasian Acoustical Consultants (AAAC) first published the *Guideline for Child Care Centre Acoustic Assessment* (Guideline), in May 2008. The guideline was updated in October 2013 and again in September 2020 to assist both AAAC members and local Councils to assess the noise impact from proposed child care centres both accurately and fairly (see www.aaac.org.au).

Section 3 of the September 2020 AAAC Guideline states the following in relation to noise generation from child care centres, while Section 5.0 states the following in relation to noise impact on children:

'3.2 Criteria - Residential Receptors

3.2.1 Outdoor Play Area

The noise impact from children at play in a child care centre differs from the domestic situation in that it is a business carried out for commercial gain, the number of children can be far greater than in a domestic situation and the age range of the children at the centre does not significantly vary over time as it would in a domestic situation. However, the noise from children is vastly different, in both character and duration, from industrial, commercial or even domestic machine noise.

The sound from children at play, in some circumstances, can be pleasant, with noise emission generally only audible during the times the children play outside. Night time, weekend or public holiday activity is not typical and child care centres have considerable social and community benefit.

***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 $L_{eq,15min}$ 45 dB(A) for the assessment of outdoor play is recommended in locations where the background noise level is less than 40 dB(A).*

The assessment location is defined as the most affected point on or within any residential receiver property boundary. Examples of this location may be:

- *1.5 m above ground level;*
- *On a balcony at 1.5 m above floor level;*
- *Outside a window on the ground or higher floors.*

3.2.2 Indoor Play Area, Mechanical Plant, Pick up and Drop off

The cumulative $L_{eq,\ 15\ minute}$ noise emission level resulting from the use and operation of the child care centre, with the exception of noise emission from outdoor play discussed above, shall not exceed the background noise level by more than 5 dB at the assessment location as defined above. This includes the noise emission resulting from:

- *Indoor play;*
- *Mechanical plant;*
- *Drop off and pick up;*
- *Other activities/operations (not including outdoor play).*

3.2.3 Sleep Disturbance

The noise impact of staff arrivals, setup, cleaning or other on-site activities prior to 7 am or during night-time hours should be assessed at nearby residential premises. The L_{Amax} noise level emitted from vehicles arriving and parking, depending on the requirements of the state or territory where the centre is located shall not exceed the background noise level by more than 15 dB outside the nearest habitable room window.

3.3 Commercial Receptors

The cumulative $L_{eq,\ 15\ min}$ noise level emitted from the use and operation of the child care centre shall not exceed 65 dB(A), from all activities (including outdoor play), when assessed at the most affected point on or within any commercial property boundary.'

Section 5 of the AAAC Guideline states the following in relation to external noise impacts on children within Child Care Centres:

'5.0 External Noise Impact on Children

For proposals that are located within 60 metres of an arterial road, railway line, industry or within close proximity to an airport, a noise intrusion assessment should be submitted with the development application.

5.1 Road, Rail Traffic and Industry

The $L_{Aeq,1hr}$ noise level from road traffic, rail or industry at any location within the outdoor play or activity area during the hours when the Centre is operating should not exceed 55 dB(A).

The $L_{Aeq,1hr}$ noise level from road traffic, rail or industry at any location within the indoor activity or sleeping areas of the Centre during the hours when the centre is operating shall be capable (ie with doors and/or windows closed) of achieving 40 dB(A) within indoor activity areas and 35 dB(A) in sleeping areas.'

5.4 NSW Environment Protection Authority – NSW Road Noise Policy

The NSW Road Noise Policy (RNP), in Section 2.3.1, sets out road traffic noise assessment criteria for residential land uses in Table 3. This information is extracted below in Table 4.

Table 4 Road Traffic Noise Assessment Criterion - Residential

Road Category	Type of project/land use	Assessment Criteria – dB(A) Day (7 am – 10 pm)
Local roads	1. Existing residences affected by **additional traffic** on existing local roads generated by land use developments	$L_{Aeq,\ (1\ hour)}$ 55 (external)

5.5 Project Noise Trigger Levels

Based on the measured background noise levels and the relevant planning instruments and legislation, the Project Noise Trigger Levels at each receptor location are as follows:

5.5.1 Residential Receivers –outdoor play all day

For Residential Receptors 'R1' and 'R2a'– based on the measured background noise levels at Location 'A':

- (43 + 5 =) **48 dBA** $L_{eq,\ 15\ minute}$ for outdoor play during the day;
- (43 + 5 =) **48 dBA** $L_{eq,\ 15\ minute}$ for all other noise sources including car park, mechanical plant and indoor play areas;
- (44 + 5 =) **49 dBA** for staff arriving at the Centre during the early morning shoulder period;
- (42 + 5 =) **47 dBA** for activity at the Centre during the early evening shoulder period.

For Residential Receptors 'R2b', 'R3' and 'R4'– based on the measured background noise levels at Location 'B':

- (40 + 5 =) **45 dBA** $L_{eq,\ 15\ minute}$ for outdoor play during the day;
- (38 + 5 =) **43 dBA** $L_{eq,\ 15\ minute}$ for all other noise sources including car park, mechanical plant and indoor play areas;
- (41 + 5 =) **46 dBA** for staff arriving at the Centre during the early morning shoulder period;
- (38 + 5 =) **43 dBA** for activity at the Centre during the early evening shoulder period.

The assessment location is defined as the most affected point on or within any residential receiver property boundary. Examples of this location may be:

- 1.5 m above ground level;
- On a balcony at 1.5 m above floor level;
- Outside a window on the ground or higher floors.

5.5.2 Commercial Receivers

For Commercial Receptors 'R5':

- (65 - 5 + 3 =) **63 dBA** $L_{eq,\ 15\ minute}$ when in use.

5.5.3 Sleep Disturbance

Consideration has been given to sleep disturbance caused by noise generated from staff arriving prior to 7 am, and parking within the basement level car park.

The following criteria is applied at the residential receptors closest to the designated staff parking spaces in the basement level car park, during the early morning shoulder period of 6.30 am to 7 am. Compliance at the most affected receptors will ensure compliance at all other potentially affected receptor locations:

For residential facades– based on the measured background noise levels at Location 'A':

- (44 + 15 =) **59 dBA** L_{Amax} at the closest affected habitable room window of the residential premises between 6.30 am and 7 am.

For residential facades– based on the measured background noise levels at Location 'B':

- (41 + 15 =) **56 dBA** L_{Amax} at the closest affected habitable room window of the residential premises between 6.30 am and 7 am.

5.5.4 On-Road Traffic Noise Criterion

The following criterion will be applied at 1 metre from the most affected residential façades for on – road traffic noise. Compliance at the most affected receptors will ensure compliance at all other potentially affected receptor locations further away from Benaroon Road:

- **55 dBA** (external) $L_{Aeq,\ 1\ hour}$ between 7 am and 6 pm.

5.5.5 Noise Intrusion Criteria

Road Traffic Noise Intrusion - in accordance with the AAAC Guideline:

- Internal traffic levels within sleeping areas (Cot Rooms) of the Centre should not exceed $L_{Aeq,\ 1\ hour}$ 35 dBA during operating hours.
- Internal traffic noise levels within indoor activity areas of the Centre should not exceed $L_{Aeq,\ 1\ hour}$ 40 dBA during operating hours.
- External traffic noise levels in any outdoor play or activity area of the Centre should not exceed $L_{Aeq,\ 1\ hour}$ 55 dBA during operating hours.

6.0 CHILD CARE CENTRE NOISE EMISSION

The main sources of noise from the proposed Centre will be as follows:

- Children playing both outside and inside;
- Mechanical plant; and
- Cars entering and exiting the car parks.

The noise assessment was based on the drawings prepared by ArtMade Architects for Project Number 23695 dated 28 March 2023, attached as Appendix C.

6.1 Indoor and Outdoor Play Areas

The Association of Australasian Acoustic Consultants has presented a range of A-weighted sound power levels per child in Table 1 of its '*Guideline for Child Care Centre Acoustic Assessment*'. The sound power levels for each group are presented in Table 7 and used in this assessment.

The Child Care Centre will have a total capacity of 72 children as follows:

- 0-2 year old: 12 Children;
- 2-3 year old: 20 Children;
- 3-5 year old: 40 Children.

The sound power levels for each group are presented in Table 5 and used in this assessment.

Table 5 $L_{eq,\ 15\ minute}$ Sound Power Levels – Groups of 10 Children at Play

Number and Age of Children	Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)								
	dBA	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
10 children, 0 to 2 years	**78**	54	60	66	72	74	71	67	64
10 children, 2 to 3 years	**85**	61	67	73	79	81	78	74	70
10 children, 3 to 5 years	**87**	64	70	75	81	83	80	76	72

6.2 Car Park Noise Emission

Based on the RTA's 'Guide to Traffic Generating Developments' prediction of 0.8 peak (morning 7 am-9 am) vehicle trips per child for Child Care Centres (Long-day care), we have assumed, as a worst case scenario, a flow of cars equivalent to (72 * 0.8 =) 58 vehicle trips in 1 hour arriving or leaving the Centre in the morning peak. This is equivalent to 14 vehicle trips in a 15-minute period.

For the assessment of sleep disturbance we have assumed four staff members will arrive at the Centre prior to 7 am and park in the basement level car park, shown in the attached Appendix C.

For the assessment of on road traffic noise, based on the RTA's 'Guide to Traffic Generating Developments' prediction of 0.8 morning peak (7 am - 9 am), 0.3 early afternoon peak (2.30 - 4 pm) and 0.7 afternoon peak (4 pm - 6 pm) vehicle trips per child for Child Care Centres (Long-day care), we have assumed, as a worst case scenario, a flow of cars equivalent to 58 vehicle trips in 1 hour arriving or leaving the Centre during any given day.

The Sound Exposure Level[1] (SEL) and $L_{AF,\,max}$ sound power level and spectra of vehicle noise is shown below in Table 6 and is based on previous measurements by Day Design.

Table 6 SEL & $L_{AF,\,max}$ Sound Power Levels - Car Park

Description	Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)								
	dBA	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
SEL of car drive by at approximately 10 km/h	**88**	92	88	84	83	84	79	76	70
SEL level of a car driving on an inclined road at 10 km/h	**85**	91	89	83	81	77	72	70	64
SEL of car drive-by at approximately 50 km/h	**97**	99	97	94	93	95	87	77	70
SEL of car door slam, ignition and drive away	**91**	104	98	89	87	86	83	81	75
L_{Amax} of car entering car park	**92**	98	92	90	88	88	83	80	76
L_{Amax} of car door close	**96**	105	103	95	96	87	83	82	77

[1] *SEL is the total sound energy of a single noise event condensed into a one second duration.*

6.3 Mechanical Plant

The mechanical plant, including air conditioning condensers and kitchen exhaust fan have not been selected at this stage. Therefore, a preliminary noise assessment will be based on typical units for the size of the development.

We have assumed that two large air conditioning condenser units will be located along the northern side of the building, facing towards Petit Avenue, a car park exhaust fan ducted via a riser next to the lift shaft, and the kitchen exhaust fan will be located above the kitchen and exhaust to the roof, as shown in the attached Appendix C.

A schedule of the sound power levels for typical mechanical plant is shown below in Table 7.

Table 7 $L_{eq,\ 15\ minute}$ Sound Power Levels - Mechanical Plant

Description	Sound Power Levels (dB) at Octave Band Centre Frequencies (Hz)								
	dBA	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Car Park Exhaust Fan[2]	**75**	73	72	70	76	70	64	54	46
Small Exhaust Fan (toilet)[3]	**60**	51	47	50	53	59	43	36	31
Hydraulic Lift Motor[4]	**63**	59	61	55	59	58	56	52	48
Medium (double fan) Outdoor Condenser Unit[5]	**69**	55	55	61	67	64	62	59	45
Typical Outdoor Condenser Unit[6]	**75**	80	78	78	74	68	62	54	48
Kitchen Exhaust Fan[7]	**60**	66	60	59	57	54	52	49	46

We recommend a detailed analysis be carried out once the mechanical plant is selected and locations are finalised, prior to the issue of a Construction Certificate.

[2] Spectral sound power level based on Fantech RDE10010DP6/10 – Downflow Discharge Axial Fan.
[3] Spectral sound power level based on Fantech TD-500/150 SIL.
[4] Spectral sound power level based on a residential lift system previously measured by Day Design.
[5] Spectral sound power level based on Daikin RZQ140LV1 outdoor condenser unit.
[6] *Spectral sound power level based on Daiken VRV IV S – RXYMQ8AY1, outdoor condenser unit.*
[7] *Spectral sound power level based on a domestic kitchen exhaust fan previously assessed by Day Design.*

6.4 Predicted Noise Levels

Knowing the sound power level of a noise source (see Tables 5 to 7) the sound pressure level (as measured with a sound level meter) can be calculated at a remote location using suitable formulae to account for distance losses, sound barriers, etc.

Noise emission calculations for the indoor and outdoor play areas, car parks and mechanical plant include reductions provided by the following fence heights and time period correction, where relevant:

- 2.1 metre barrier along the southern, eastern and western perimeter of the ground floor outdoor play area;
- 1.4 metre barrier along the southern sides of the first floor outdoor play area;
- 1.8 metre barrier along the remaining southern and western boundaries of the remaining site and driveway;
- No acoustic barrier is required to the north.

We have assumed that all fences listed above are free of visible air gaps to provide an impervious sound barrier. The location of the assumed barriers are shown in the attached Appendix C.

Where applicable, calculations also include reductions for the acoustic screening provided by the Centre building to the receiver locations.

Based upon a review of World Health Organization (WHO) data for average children heights, the notes to Table 1 of the *AAAC's Guideline* recommends a source height of 1.0 metre above ground level for all children.

Tables 8 to 11 show the predicted noise levels at the residential receivers from the proposed activities, during the early morning and day periods.

6.4.1 Outdoor Play Area Noise Levels

The following formula was used to calculate noise levels at the receiver locations:

$$L_p = L_w + 10\log(n/10) - 20\log(d) - 8 - B$$

Where: L_p = Sound Pressure Level at receiver

L_w = Sound Power Level for group of 10 children

n = number of children

d = distance from children playing to receiver

B = acoustic reduction due to barrier

Based on a either the ground floor or first floor outdoor play area being used at any one time, as detailed below, the predicted worst-case scenario external $L_{eq,\ 15\ minute}$ predicted noise level is shown in Table 8.

The approximate locations of the noise sources (children) used for the assessment of each of the outdoor play areas above are shown in the attached Appendix C. Noise emission has been modeled from each outdoor play area (ground floor level and first floor level play areas) separately. The Plan of Management should include controls to limit either outdoor play area being in use at any one time.

The $L_{eq,\ 15minute}$ noise levels at all receiver locations are calculated to be as shown in Table 8.

Table 8 Predicted $L_{eq,\ 15\ minute}$ Noise Levels - Outdoor Play

Receiver Location	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
R1 – 53A Benaroon Road (FF)			
Ground Floor Outdoor Play Area	43	47	**Yes**
First Floor Outdoor Play Area	36		
R2a – 76 Benaroon Road Front (GF)			
Ground Floor Outdoor Play Area	45	47	**Yes**
First Floor Outdoor Play Area	42		
R2b – 76 Benaroon Road Rear (GF)			
Ground Floor Outdoor Play Area	43	45	**Yes**
First Floor Outdoor Play Area	45		
R3 – 19 Vivienne Avenue (GF)			
Ground Floor Outdoor Play Area	30	45	**Yes**
First Floor Outdoor Play Area	38		
R4 – 17 Vivienne Avenue (FF)			
Ground Floor Outdoor Play Area	32	45	**Yes**
First Floor Outdoor Play Area	43		
R5 – 80 Benaroon Road (FF)			
Ground Floor Outdoor Play Area	58	63	**Yes**
First Floor Outdoor Play Area	59		

The predicted cumulative L_{eq} levels of noise from children playing outdoors are summarised in Table 8 at the receivers. The predicted levels of noise at receiver locations complies with the criteria in Section 5.5.1and 5.5.2 of this report, and is therefore acceptable.

6.4.2 Cumulative Noise Level - Indoor Play Area, Mechanical Plant and Car Park

The predicted worst case cumulative $L_{eq,\ 15minute}$ noise levels at all receiver locations are calculated to be as shown in Table 9. Windows and doors to the indoor play areas are modelled as being closed.

Table 9 Predicted Cumulative $L_{eq,\ 15\ minute}$ Noise Levels – Indoor Play, Mechanical Plant & Car Park

Receiver Location	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
'R1' – 53A Benaroon Road (FF)			
- Indoor play area	21		
- Car park	47		
- Mechanical plant	35		
Cumulative Noise Level	47	47	**Yes**
'R2a' – 76 Benaroon Road Front (GF)			
- Indoor play area	34		
- Car park	47		
- Mechanical plant	35		
Cumulative Noise Level	47	47	**No**
'R2b' – 76 Benaroon Road Rear (GF)			
- Indoor play area	29		
- Car park	28		
- Mechanical plant	35		
Cumulative Noise Level	37	43	**Yes**
'R3' – 19 Vivienne Avenue (GF)			
- Indoor play area	28		
- Car park	< 20		
- Mechanical plant	29		
Cumulative Noise Level	32	43	**Yes**
'R4' – 17 Vivienne Avenue (FF)			
- Indoor play area	27		
- Car park	< 20		
- Mechanical plant	33		
Cumulative Noise Level	34	43	**No**
'R5' – 80 Benaroon Road (FF)			
- Indoor play area	38		
- Car park	< 20		
- Mechanical plant	53		
Cumulative Noise Level	53	63	**No**

The predicted cumulative L_{eq} levels of noise from the Centre are summarised in Table 9 at the receivers. The predicted levels of noise at receiver locations typically complies with the criteria in Section 5.5.1 and 5.5.2 of this report, and is therefore acceptable, provided noise controls as recommended in Section 7 are implemented.

6.4.3 Sleep Disturbance

The external $L_{AF, max}$ noise levels at the potentially most affected residential receiver locations, from the noise associated with staff arriving at the Centre in their vehicle and parking in the basement car park between 6.30 am and 7 am are calculated to be as shown below in Table 10.

Table 10 Predicted $L_{AF, max}$ Noise Levels – Sleep Disturbance

Receiver Location	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
R1 – 53A Benaroon Road	58	59	**Yes**
R2a – 76 Benaroon Road	58	59	**Yes**
R2b – 76 Benaroon Road	45	56	**Yes**
R3 – 19 Vivienne Avenue	29	56	**Yes**
R4 – 17 Vivienne Avenue	28	56	**Yes**

The predicted external levels of noise from staff arriving at the Centre in their vehicle and parking in the basement car park between 6.30 am and 7 am are within the noise criteria in Section 5.5.3, and are therefore acceptable.

6.4.4 On – Road Traffic

The external $L_{eq, 1 hour}$ noise levels at the most affected residential receiver locations from noise associated with on – road traffic throughout the day are calculated to be as shown below in Table 11.

Table 11 Predicted $L_{eq, 1 hour}$ Noise Levels – On – Road Traffic

Receiver Location	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
R1 – 53A Benaroon Road	38	55	**Yes**
R2a – 76 Benaroon Road	43	55	**Yes**
R2b – 76 Benaroon Road	< 20	55	**Yes**
R3 – 19 Vivienne Avenue	< 20	55	**Yes**
R4 – 17 Vivienne Avenue	< 20	55	**Yes**

The predicted external levels of noise from on – road traffic are within the noise criteria in Section 5.5.4 and are therefore acceptable.

7.0 NOISE INTRUSION - ROAD TRAFFIC NOISE

7.1 External Road Traffic Noise Levels – Outdoor Play Areas

The existing external road traffic noise level was measured in the front yard of a residential property, shown as Location 'A' in Figure 1. The area is exposed to traffic noise from Benaroon Road.

The measured $L_{Aeq,\ 1\ hour\ (traffic)}$ noise level at Location 'A' was 62 dBA, as shown in Table 3.

Taking into consideration the recommended 2.1 metre barrier to the ground floor outdoor play area, and the child care centre building acting as an acoustic barrier for the first floor outdoor play area, the level of road traffic noise is predicted to be as shown in Table 12.

Table 12 Calculated $L_{eq,\ 1\ hour}$ Road Traffic Noise Intrusion Levels

Receiver Location	Predicted Noise Level (dBA)	Noise Criterion (dBA)	Compliance (Yes/No)
Ground Floor Outdoor Play Area	49	55	**Yes**
First Floor Outdoor Play Area	41	55	**Yes**

The calculated level complies with the AAAC external noise limit for Child Care Centres of $L_{eq,\ 1\ hour}$ 55 dBA, and is therefore acceptable.

7.2 Road Traffic Noise Intrusion Assessment – Indoor Play & Sleeping Areas

The measured $L_{Aeq,\ 1\ hour\ (traffic)}$ external road traffic noise levels is Location 'A' 62 dBA.

Standard building construction such as concrete block, brick or lightweight stud walls and metal-deck, concrete or ceramic tile roof with plasterboard ceiling, and 5 mm thick standard glazing can achieve a minimum 20 dB reduction with windows and doors closed, which would reduce an outdoor noise level of 62 dBA to 42 dBA for traffic noise inside an indoor play area or sleeping area.

To reduce the level or road traffic noise affecting Playroom 1 to 5, we recommend that minimum glazing thickness of 6.38 mm laminated glass be used.

Standard building construction with 6.38 mm laminated glass for external glazing is sufficient to reduce the level of road traffic noise to inside the child care centre to comply with the AAAC's internal noise limit for Child Care Centres of $L_{Aeq,\ 1\ hour}$ 40 dBA for indoor activity area and $L_{Aeq,\ 1\ hour}$ 35 dBA for sleeping areas.

8.0 RECOMMENDED ACOUSTICAL TREATMENT

8.1 Noise Management Plan

We recommend the Centre's management implement a Noise Management Plan that should include, but not be limited to the following:

8.1.1 General Noise Management Strategies

- Either ground floor outdoor play area or first floor outdoor play area may be used at any one time. For clarification the maximum children playing in the outdoor play area at any one time as follows:
  - 12 x 0-2 year old, and 30 x 2-5 year old children in the ground floor outdoor play area; **or**
  - 40 x 3 – 5 year old children in the first floor outdoor play area.
- Ensuring all staff and parents are provided with a copy of the Centre's Noise Management Plan and its implications for them during their time at the Centre.
- The name and contact details of the Centre's Manager should be clearly displayed at the front of the building to ensure neighbours can contact that person at any time the Centre is operating.
- Ensuring a sufficient number of educators are provided to supervise children's outside play to discourage unnecessarily loud activities.
- Carers/staff should be educated to control the level of their voice while outdoors.
- Facilitating children's small group play when outside, and encouraging educators to engage in children's play and facilitate friendships between children.
- Crying children should be comforted as quickly as possible and moved indoors.
- Windows should be of fixed frame construction or, if operable, be closed during operating hours to reduce external road traffic noise inside the Centre.

8.2 Sound Barrier Walls

The sound barrier walls specified below may be constructed from 3 rail 'solid capped and lapped' timber, 10 mm thick solid polycarbonate (not hollow), 6.38 mm thick laminated glass, Colorbond sheeting or masonry. The construction shall be free of visible air gaps to provide an impervious sound barrier.

If required, where an existing boundary fence is to be maintained (and is of sound construction), and to achieve the required vertical heights recommended in the following sections, a new upper portion of fence should be constructed on top of the existing fence. A transparent material such as 10 mm thick UV resistant polycarbonate (not hollow) may be used, to reach an overall height of 2.1 metres. The constriction shall be free of visible air gaps to provide an impervious sound barrier.

We recommend the following sound barrier walls be constructed:

8.2.1 Outdoor Play Areas

We recommend the following acoustic barriers be constructed around the outdoor play areas:

- 2.1 metre barrier along the southern, eastern and western perimeter of the ground floor outdoor play area;
- 1.4 metre barrier along the southern sides of the first floor outdoor play area;
- 1.8 metre barrier along the remaining southern and western boundaries of the remaining site and driveway;
- No acoustic barrier is required to the north.

8.2.2 Site Boundaries – Sound Barriers

We recommend that a 1.8 metre high sound barrier wall be constructed along the remaining southern and western boundaries of the site, from the car park entrance to the buildings' front set back to Benaroon Road.

We recommend that a 1.2 metre high sound barrier wall be constructed along the shared southern boundary with 76 Benaroon Road, from the buildings' front set back to Benaroon Road.

8.3 Construction Certificate - Mechanical Plant

The specifications for the mechanical plant have not yet been selected for this development. For typical mechanical plant and equipment with sound power levels not exceeding those listed in Table 9, it is reasonable and feasible to acoustically treat the associated plant area (absorptive lining, etc) or equipment itself so that noise will not impact the neighbouring properties.

Once mechanical plant has been selected, a detailed acoustic assessment should be made, prior to the issue of a Construction Certificate. We recommend that the mechanical services engineers select mechanical plant equipment with the lowest sound power levels to reduce the amount of acoustic treatment necessary to achieve the noise criteria at nearby residential receivers.

The cumulative noise emissions from the mechanical plant system, and use of the indoor play areas and car park is not to exceed the Project Noise Trigger Levels specified in Section 4.5.

We offer to provide detailed noise controls when specifications of the mechanical plant equipment have been finalised.

8.4 Construction Disclaimer

Recommendations made in this report are intended to resolve acoustical problems only. We make no claim of expertise in other areas and draw your attention to the possibility that our recommendations may not meet the structural, fire, thermal or other aspects of building construction.

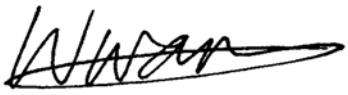
We encourage clients to check with us before using materials or equipment that are alternative to those specified in our Acoustical Report.

The integrity of acoustic structures is very dependent on installation techniques. Therefore the use of contractors that are experienced in acoustic construction is encouraged. Furthermore, two insulation products may have the same thermal R rating but the sound absorption of one may be entirely deficient, therefore the use of materials and equipment that are supported by acoustic laboratory test data is encouraged.

9.0 NOISE IMPACT STATEMENT

Day Design Pty Ltd was engaged by Artmade Architects on behalf of Mr Ali Taleb to carry out an acoustic assessment of a proposed Child Care Centre at 78-80A Benaroon Road, Lakemba, NSW.

Calculations show that, provided the recommendations in Section 8.0 of this report are implemented, the level of noise emission by the proposed Child Care Centre will meet the noise level requirements in the Canterbury Bankstown Council DCP, NSW Department of Planning and Environment's Child Care Planning Guideline and the NSW Environment Protection Authority's Noise Policy for Industry, Noise Guide for Local Government and Road Noise Policy as detailed in Section 5.0 of this report, and be considered acceptable.



William Wang, BE (Mechatronics), MIEAust, MAAS
Senior Acoustical Engineer
for and on behalf of Day Design Pty Ltd

AAAC MEMBERSHIP

Day Design Pty Ltd is a member company of the Association of Australasian Acoustical Consultants, and the work herein reported has been performed in accordance with the terms of membership.

APPENDICES

- Appendix A – Noise Survey Instrumentation
- Appendix B – Ambient Noise Survey
- Appendix C – Architectural Drawings
- AC108-1 to 4 – Glossary of Acoustical Terms

APPENDIX A – NOISE SURVEY INSTRUMENTATION

Noise level measurements and analysis were made with instrumentation as follows in Table A:

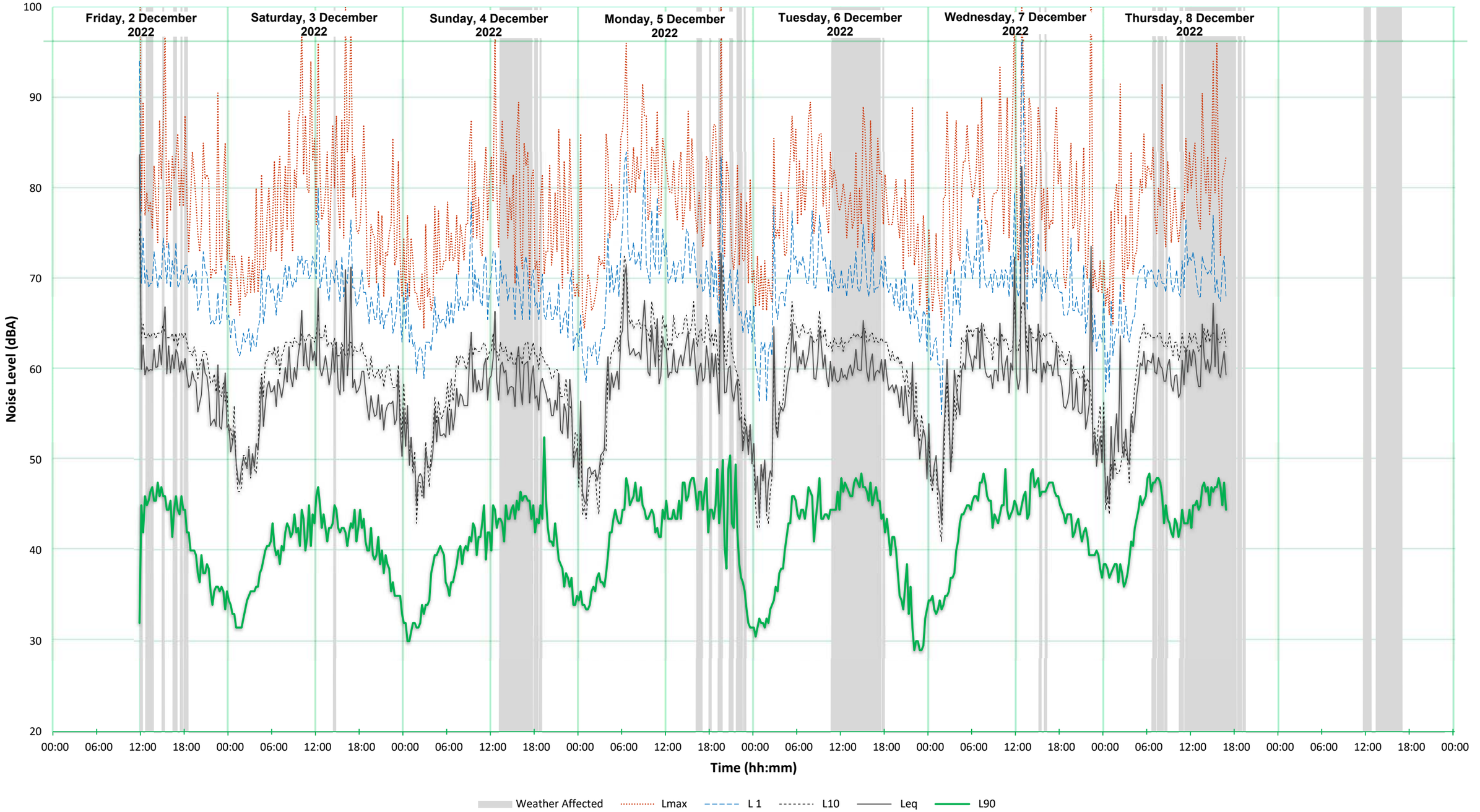
Table A Noise Instrumentation

Description	Model No	Serial No
Infobyte Noise Logger(Type 1) Condenser Microphone 0.5" diameter	iM4 MK 250	107 107
Infobyte Noise Logger(Type 1) Condenser Microphone 0.5" diameter	iM4 MK 250	117 117
Acoustical Calibrator	B&K 4231	2721949

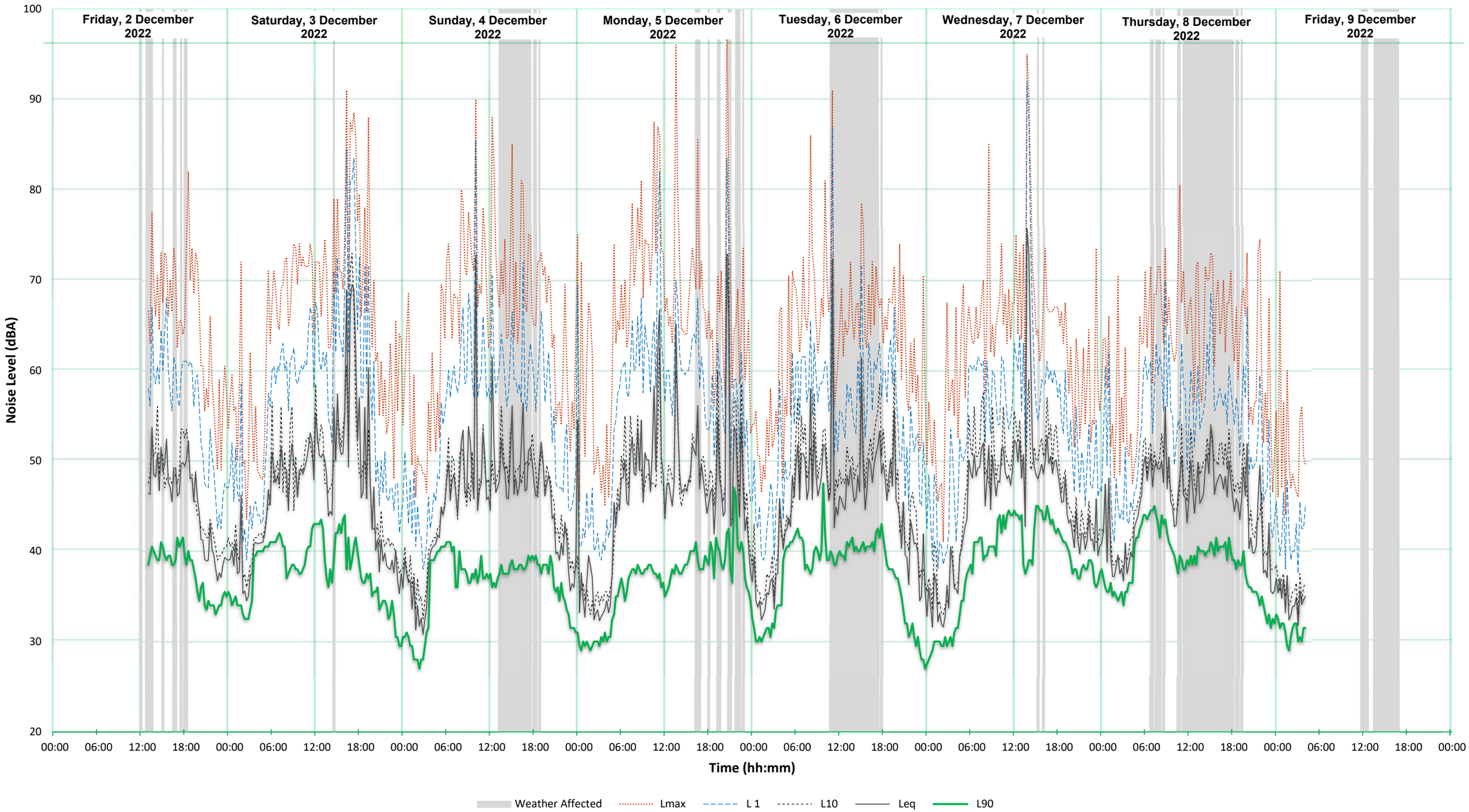
An environmental noise logger is used to continuously monitor ambient noise levels and provide information on the statistical distribution of noise during an extended period of time. The Infobyte Noise Monitor iM4 is a Type 2 precision environmental noise monitor meeting all the applicable requirements of AS1259 for an integrating-averaging sound level meter.

All instrument systems had been laboratory calibrated using instrumentation traceable to Australian National Standards and certified within the last two years thus conforming to Australian Standards. The measurement system was also field calibrated prior to and after noise surveys. Calibration drift was found to be less than 1 dB for long-term measurements. No adjustments for instrument drift during the measurement period were warranted.

Located at 78 Benaroon Road, Lakemba, NSW



Located at 78 Benaroon Road, Lakemba, NSW



ARTISTS IMPRESSION

78-80A BENAROON ROAD
LAKEMBA, NSW 2195

CHILDCARE CENTRE
DEVELOPMENT APPLICATION

ARCHITECTURAL DRAWING LIST - DA			
Sheet Number	Sheet Name	Current Revision	Current Revision Date
DA00.00	COVER PAGE	A	28/03/23
DA02.01	SITE PLAN / DEMOLITION	A	28/03/23
DA03.01	BASEMENT FLOOR PLAN	A	28/03/23
DA03.02	GROUND FLOOR PLAN	A	28/03/23
DA03.03	FIRST FLOOR PLAN	A	28/03/23
DA03.04	AREA CALCULATIONS	A	28/03/23
DA04.01	EXTERNAL ELEVATIONS	A	28/03/23
DA05.01	SECTIONS & EXTERNAL FINISHES	A	28/03/23
DA06.01	SHADOW DIAGRAMS	A	28/03/23
DA06.02	VIEWS FROM SUN	A	28/03/23
DA06.03	OUTDOOR PLAY AREA SOLAR CALCS	A	28/03/23
DA07.01	NOTIFICATION PLANS	A	28/03/23

ISSUE	DATE	DESCRIPTION
A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES
- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects

|516/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

COVER PAGE

ISSUED FOR DEVELOPMENT APPLICATION

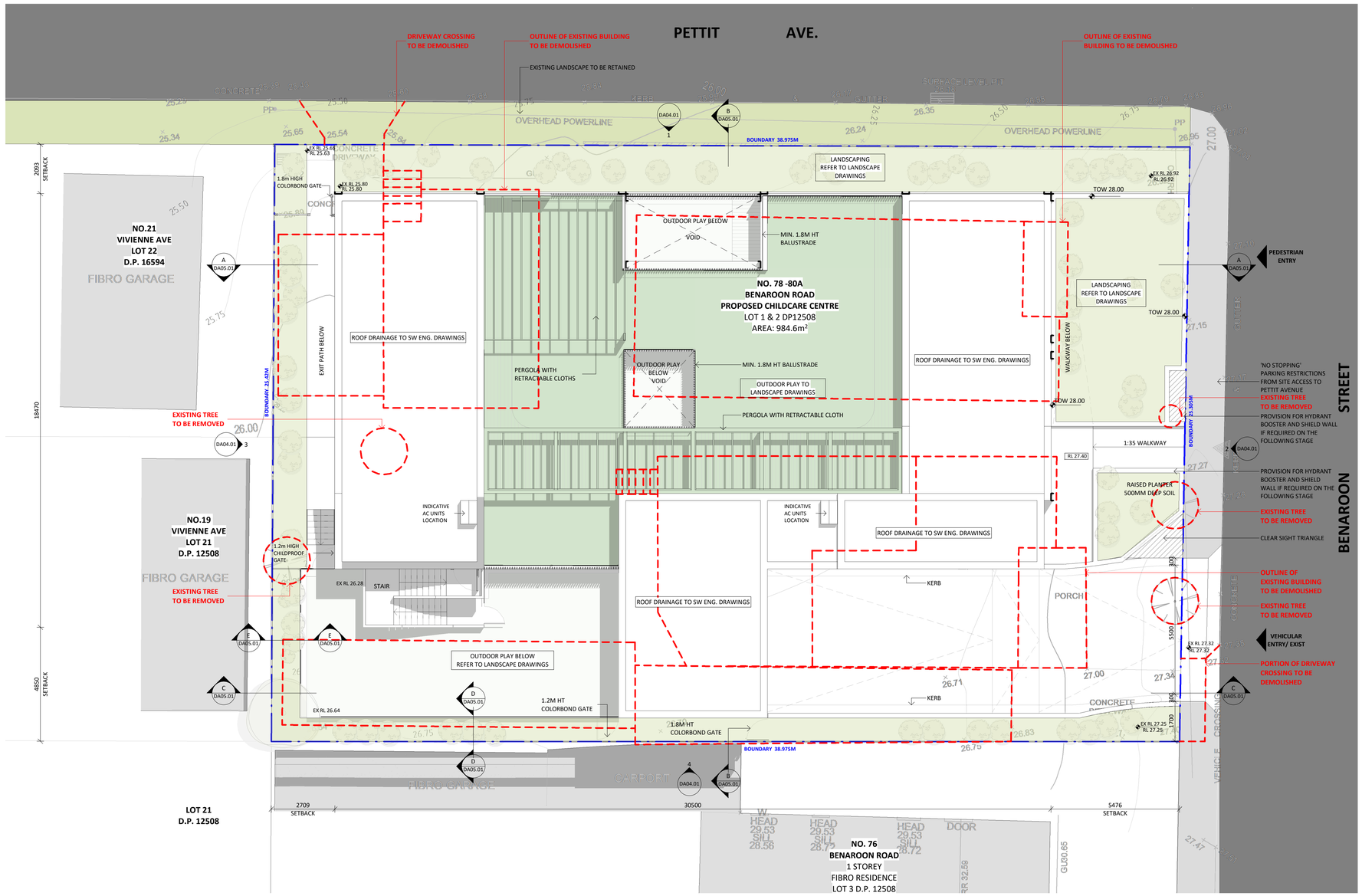
Project number	Sheet No.	Issue	Phase
23695	DA00.00	A	DA

Sheet Size	Scale	L.G.A.
A1		CANTERBURY

Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

NOT FOR CONSTRUCTION

7691-1 Rev A Appendix C



1 SITE PLAN / DEMOLITION
1 : 100

0 1 2 3 4 5
1 : 100

ABBREVIATIONS

ENG.	- ENGINEER
ESL	- EXISTING SLAB LEVEL
EXT	- EXTERIOR
FFL	- FINISH FLOOR LEVEL
F.	- FIXED
FSL	- FINISH SURFACE LEVEL
GL	- GROUND LINE
GLZ	- GLAZING
EX.GL	- EXISTING GROUND LINE
REQ.	- REQUIREMENTS
XX.XX	- PROPOSED LEVEL
XX.XX	- EXISTING LEVEL
XX.XX	- SPOT LEVEL (PLAN)
XX.XX	- SPOT LEVEL (ELEVATION)

LANDSCAPE LEGEND

- EXISTING TREE / TREE TO BE RETAINED
- TREE TO BE REMOVED
- NEW TREE
- LANDSCAPING / BUFFER
- TURF
- EXTERNAL FLOOR FINISH
- LINE OF STRUCTURAL ROOT ZONE (SRZ)
- LINE OF TREE EXCLUSION ZONE (TEZ)
- LINE OF TREE PROTECTION ZONE (TPZ)

NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

GENERAL NOTES

- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O
- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U. N.O
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS4674, FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION
ISSUE	DATE	DESCRIPTION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES
- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

INTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ.VOL	VOL
INT ST 1	12	2.40 m³	5.40 m³
INT ST 2	20	4.00 m³	5.00 m³
INT ST 3	20	4.00 m³	14.50 m³
INT ST 4	10	2.00 m³	3.35 m³
INT ST 5	10	2.00 m³	8.45 m³
TOTAL	72	14.40 m³	36.75 m³

EXTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ.VOL	VOL
EXT ST 1	42	12.60 m³	15.25 m³
EXT ST 2	30	9.00 m³	11.35 m³
TOTAL	72	21.60 m³	26.60 m³

INDOOR PLAYROOM SCHEDULE					
ROOM	AGE	NO. CHLDRN	NO. STAFF	UNENCUMBERED REQ.AREA	UNENCUMBERED AREA
PLAYROOM 1	AGE - 0-2	12	3	39 m²	47.30 m²
PLAYROOM 2	AGE 2-3	20	4	65 m²	70.15 m²
PLAYROOM 3	AGE 3-5	20	2	65 m²	71.55 m²
PLAYROOM 4	AGE 3-5	10	1	32.5 m²	37.05 m²
PLAYROOM 5	AGE 3-5	10	1	32.5 m²	32.95 m²
TOTAL		72	11	234 m²	259.00 m²

OUTDOOR PLAY AREA SCHEDULE				
AREA	AGE	NO. CHLDRN	UNENCUMBERED REQ.AREA	UNENCUMBERED AREA
OUTDOOR PLAY AREA 1	AGE - 2-5	30	210 m²	210.25 m²
OUTDOOR PLAY AREA 2	AGE 0-2	12	84 m²	85.00 m²
OUTDOOR PLAY AREA 3	AGE 3-5	30	210 m²	216.25 m²
TOTAL		72	504 m²	511.45 m²

PARKING SCHEDULE (1 SPACE PER 2 STAFF 7 VISITOR SPACES)	
PARKING	NO. SPACES
ACCESSIBLE	1
STAFF	7
VISITOR	5
TOTAL	13

NOT FOR CONSTRUCTION

CLIENT
MR. MUHAMMAD & ALI TALEB

ARCHITECT
ArtMade Architects
|S16/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

PROJECT
CHILDCARE CENTRE

PROJECT ADDRESS
78-80A BENAROON ROAD, LAKEMBA

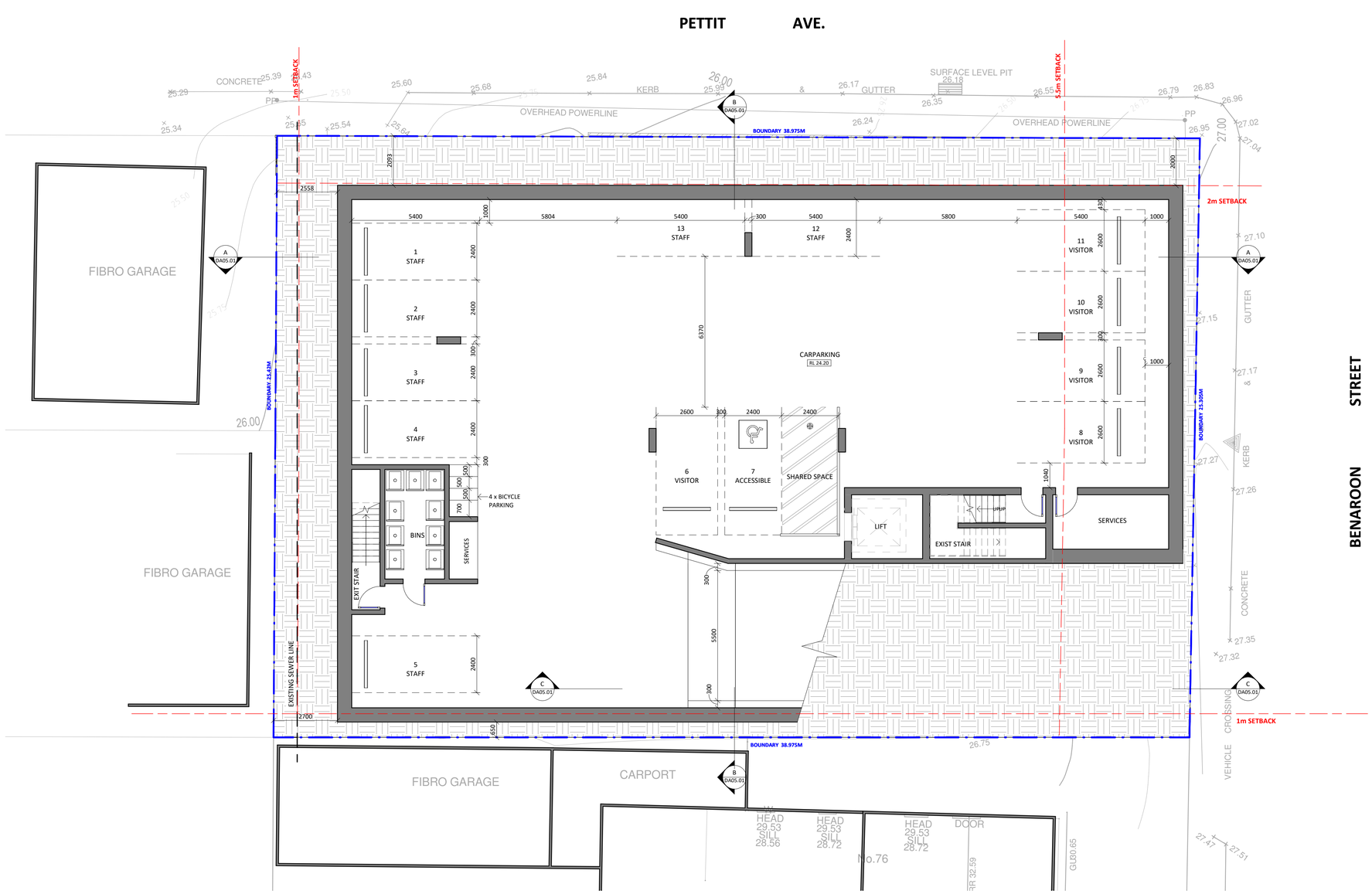
SHEET NAME
SITE PLAN / DEMOLITION

ISSUED FOR DEVELOPMENT APPLICATION

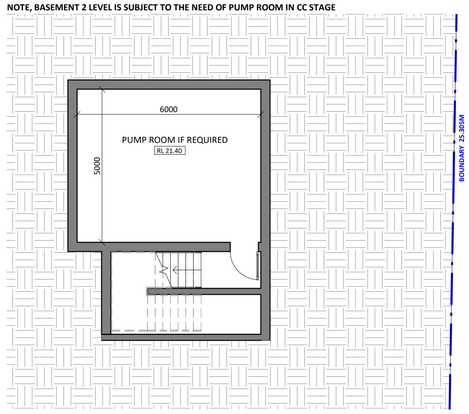
Project number	Sheet No.	Issue	Phase
23695	DA02.01	A	DA

Sheet Size	Scale	L.G.A.
A1	As indicated	CANTERBURY

Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23



1 BASEMENT FLOOR PLAN
1 : 100



NOTE, BASEMENT 2 LEVEL IS SUBJECT TO THE NEED OF PUMP ROOM IN CC STAGE

2 BASEMENT FLOOR LEVEL 2
1 : 100

0 1 2 3 4 5
1 : 100

ABBREVIATIONS

ENG.	- ENGINEER
ESL	- EXISTING SLAB LEVEL
EXT	- EXTERIOR
FFL	- FINISH FLOOR LEVEL
F.	- FIXED
FSL	- FINISH SURFACE LEVEL
GL	- GROUND LINE
GLZ	- GLAZING
EX.GL	- EXISTING GROUND LINE
REQ.	- REQUIREMENTS
XX.XX	- PROPOSED LEVEL
XX.XX	- EXISTING LEVEL
XX.XX	- SPOT LEVEL (PLAN)
XX.XX	- SPOT LEVEL (ELEVATION)

LANDSCAPE LEGEND

- EXISTING TREE / TREE TO BE RETAINED
- TREE TO BE REMOVED
- NEW TREE
- LANDSCAPING / BUFFER
- TURF
- EXTERNAL FLOOR FINISH
- LINE OF STRUCTURAL ROOT ZONE (SRZ)
- LINE OF TREE EXCLUSION ZONE (TEZ)
- LINE OF TREE PROTECTION ZONE (TPZ)

NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

GENERAL NOTES

- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O
- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U. N.O
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS4674, FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

INTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ.VOL	VOL
INT ST 1	12	2.40 m³	5.40 m³
INT ST 2	20	4.00 m³	5.00 m³
INT ST 3	20	4.00 m³	14.50 m³
INT ST 4	10	2.00 m³	3.35 m³
INT ST 5	10	2.00 m³	8.45 m³
TOTAL	72	14.40 m³	36.75 m³

EXTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ.VOL	VOL
EXT ST 1	42	12.60 m³	15.25 m³
EXT ST 2	30	9.00 m³	11.35 m³
TOTAL	72	21.60 m³	26.60 m³

INDOOR PLAYROOM SCHEDULE					
ROOM	AGE	NO. CHLDRN	NO. STAFF	UNENCUMBERED REQ AREA	UNENCUMBERED AREA
PLAYROOM 1	AGE - 0-2	12	3	39 m²	47.30 m²
PLAYROOM 2	AGE 2-3	20	4	65 m²	70.15 m²
PLAYROOM 3	AGE 3-5	20	2	65 m²	71.55 m²
PLAYROOM 4	AGE 3-5	10	1	32.5 m²	37.05 m²
PLAYROOM 5	AGE 3-5	10	1	32.5 m²	32.95 m²
TOTAL		72	11	234 m²	259.00 m²

OUTDOOR PLAY AREA SCHEDULE				
AREA	AGE	NO. CHLDRN	UNENCUMBERED REQ.AREA	UNENCUMBERED AREA
OUTDOOR PLAY AREA 1	AGE - 2-5	30	210 m²	210.25 m²
OUTDOOR PLAY AREA 2	AGE 0-2	12	84 m²	85.00 m²
OUTDOOR PLAY AREA 3	AGE 3-5	30	210 m²	216.25 m²
TOTAL		72	504 m²	511.45 m²

PARKING SCHEDULE (1 SPACE PER 2 STAFF 7 VISITOR SPACES)	
PARKING	NO. SPACES
ACCESSIBLE	1
STAFF	7
VISITOR	5
TOTAL	13

NOT FOR CONSTRUCTION

ISSUE	DATE	DESCRIPTION
A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES

- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects
|S16/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

BASEMENT FLOOR PLAN

ISSUED FOR DEVELOPMENT APPLICATION

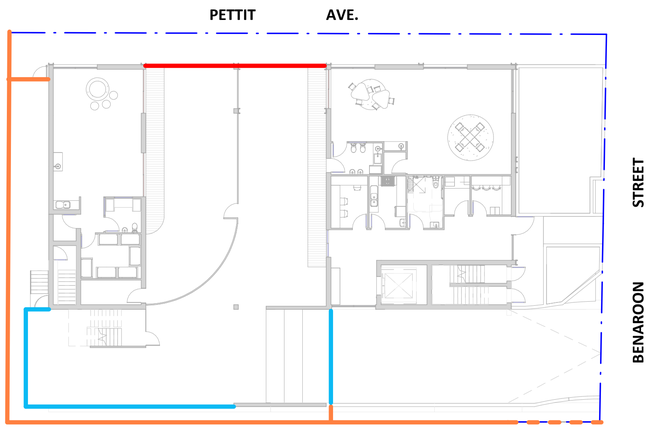
Project number	Sheet No.	Issue	Phase
23695	DA03.01	A	DA

Sheet Size	Scale	L.G.A.
A1	As indicated	CANTERBURY

Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

7691-1 Rev A Appendix C

1 GROUND FLOOR PLAN
1 : 100



2 GROUND FLOOR FENCE / BARRIER DIAGRAM
1 : 200

FENCE / BALUSTRADE LEGEND

- 1.8M HT COLORBOND BOUNDARY FENCE
  REFER TO FENCE DETAILS- TYPE 3 (SHEET NO. A05.01)
- 1.2M HT COLORBOND FENCE
- 2.1M HT ACOUSTIC BARRIER
- 1.8M HT BALUSTRADE / ACOUSTIC BARRIER
  REFER TO FENCE DETAILS- TYPE 1 (SHEET NO.)

NOTE:
- ALL ACOUSTIC BARRIERS IN ACCORDANCE WITH ACOUSTIC REPORT.
- REFER TO SHEET A05.01 FOR FENCE DETAILS.

0 1 2 3 4 5
1 : 100

ABBREVIATIONS

ENG.	- ENGINEER
ESL	- EXISTING SLAB LEVEL
EXT	- EXTERIOR
FFL	- FINISH FLOOR LEVEL
F.	- FIXED
FSL	- FINISH SURFACE LEVEL
GL	- GROUND LINE
GLZ	- GLAZING
EX.GL	- EXISTING GROUND LINE
REQ.	- REQUIREMENTS
XX.XX	- PROPOSED LEVEL
XX.XX	- EXISTING LEVEL
XX.XX	- SPOT LEVEL (PLAN)
XX.XX	- SPOT LEVEL (ELEVATION)

LANDSCAPE LEGEND

- EXISTING TREE / TREE TO BE RETAINED
- TREE TO BE REMOVED
- NEW TREE
- LANDSCAPING / BUFFER
- TURF
- EXTERNAL FLOOR FINISH
- LINE OF STRUCTURAL ROOT ZONE (SRZ)
- LINE OF TREE EXCLUSION ZONE (TEZ)
- LINE OF TREE PROTECTION ZONE (TPZ)

NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

GENERAL NOTES

- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O
- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U. N.O
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS4674, FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

INTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ VOL	VOL
INT ST 1	12	2.40 m³	5.40 m³
INT ST 2	20	4.00 m³	5.00 m³
INT ST 3	20	4.00 m³	14.50 m³
INT ST 4	10	2.00 m³	3.35 m³
INT ST 5	10	2.00 m³	8.45 m³
TOTAL	72	14.40 m³	36.75 m³

EXTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ VOL	VOL
EXT ST 1	42	12.60 m³	15.25 m³
EXT ST 2	30	9.00 m³	11.35 m³
TOTAL	72	21.60 m³	26.60 m³

INDOOR PLAYROOM SCHEDULE					
ROOM	AGE	NO. CHLDRN	NO. STAFF	UNENCUMBERED REQ AREA	UNENCUMBERED AREA
PLAYROOM 1	AGE - 0-2	12	3	39 m²	47.30 m²
PLAYROOM 2	AGE 2-3	20	4	65 m²	70.15 m²
PLAYROOM 3	AGE 3-5	20	2	65 m²	71.55 m²
PLAYROOM 4	AGE 3-5	10	1	32.5 m²	37.05 m²
PLAYROOM 5	AGE 3-5	10	1	32.5 m²	32.95 m²
TOTAL		72	11	234 m²	259.00 m²

OUTDOOR PLAY AREA SCHEDULE				
AREA	AGE	NO. CHLDRN	UNENCUMBERED REQ AREA	UNENCUMBERED AREA
OUTDOOR PLAY AREA 1	AGE - 2-5	30	210 m²	210.25 m²
OUTDOOR PLAY AREA 2	AGE 0-2	12	84 m²	85.00 m²
OUTDOOR PLAY AREA 3	AGE 3-5	30	210 m²	216.25 m²
TOTAL		72	504 m²	511.45 m²

PARKING SCHEDULE (1 SPACE PER 2 STAFF 7 VISITOR SPACES)	
PARKING	NO. SPACES
ACCESSIBLE	1
STAFF	7
VISITOR	5
TOTAL	13

NOT FOR CONSTRUCTION

ISSUE	DATE	DESCRIPTION
A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES
- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects
|S16/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

© COPYRIGHT

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

GROUND FLOOR PLAN

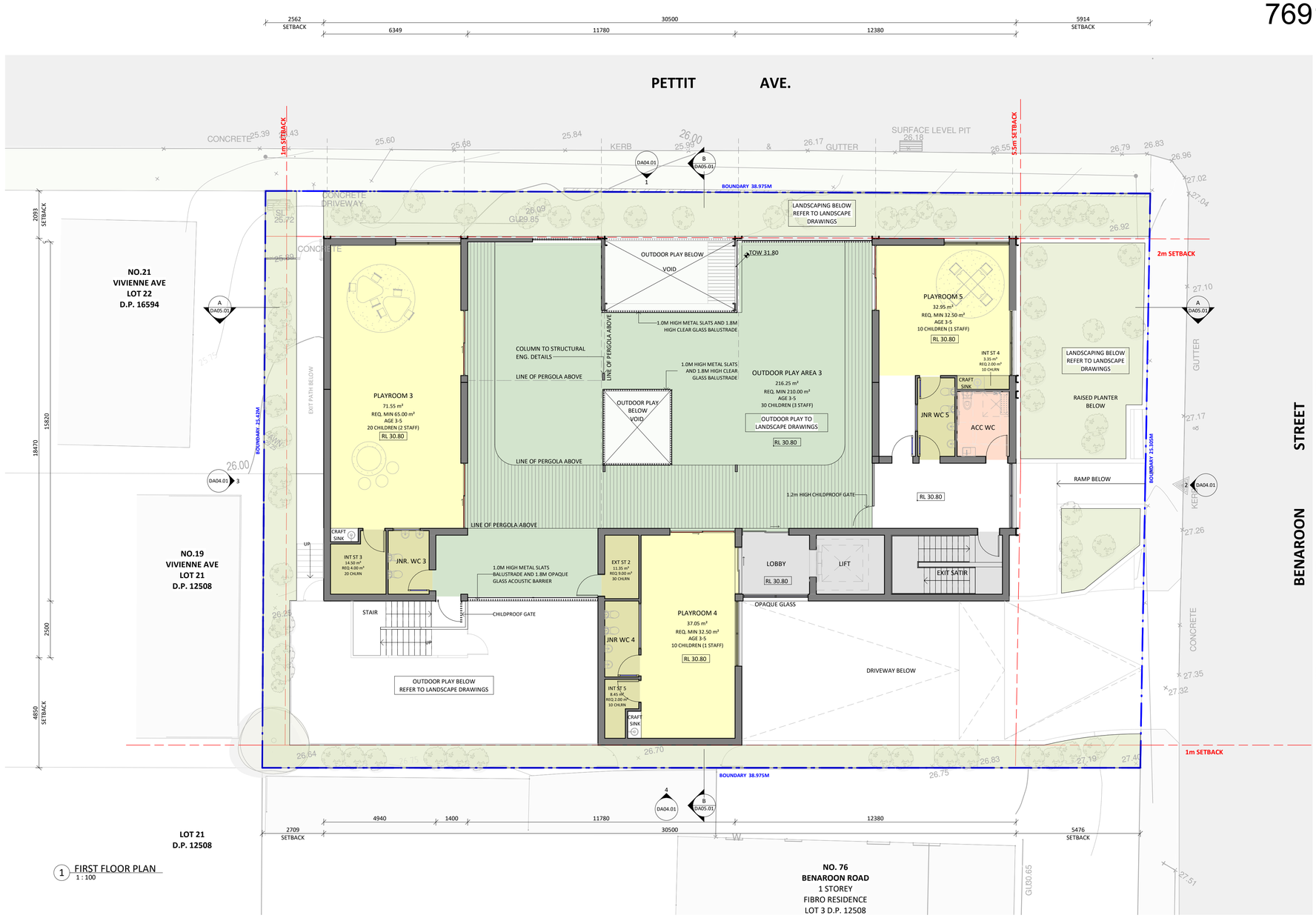
ISSUED FOR DEVELOPMENT APPLICATION

Project number	Sheet No.	Issue	Phase
23695	DA03.02	A	DA

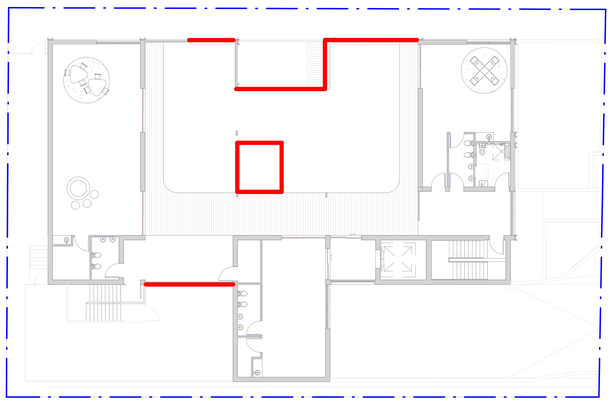
Sheet Size	Scale	L.G.A.
A1	As indicated	CANTERBURY

Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

7691-1 Rev A Appendix C



1 FIRST FLOOR PLAN
1 : 100



2 FIRST FLOOR FENCE / BARRIER DIAGRAM
1 : 200

FENCE / BALUSTRADE LEGEND

- 1.8M HT COLORBOND BOUNDARY FENCE
  REFER TO FENCE DETAILS- TYPE 3 (SHEET NO. A05.01)
- 1.2M HT COLORBOND FENCE
- 2.1M HT ACOUSTIC BARRIER
- 1.8M HT BALUSTRADE / ACOUSTIC BARRIER
  REFER TO FENCE DETAILS- TYPE 1 (SHEET NO.)

NOTE:
- ALL ACOUSTIC BARRIERS IN ACCORDANCE WITH ACOUSTIC REPORT.
- REFER TO SHEET A05.01 FOR FENCE DETAILS.

1 : 100

ABBREVIATIONS

ENG.	- ENGINEER
ESL	- EXISTING SLAB LEVEL
EXT	- EXTERIOR
FFL	- FINISH FLOOR LEVEL
F.	- FIXED
FSL	- FINISH SURFACE LEVEL
GL	- GROUND LINE
GLZ	- GLAZING
EX.GL	- EXISTING GROUND LINE
REQ.	- REQUIREMENTS
XX.XX	- PROPOSED LEVEL
XX.XX	- EXISTING LEVEL
XX.XX	- SPOT LEVEL (PLAN)
XX.XX	- SPOT LEVEL (ELEVATION)

LANDSCAPE LEGEND

- EXISTING TREE / TREE TO BE RETAINED
- TREE TO BE REMOVED
- NEW TREE
- LANDSCAPING / BUFFER
- TURF
- EXTERNAL FLOOR FINISH
- LINE OF STRUCTURAL ROOT ZONE (SRZ)
- LINE OF TREE EXCLUSION ZONE (TEZ)
- LINE OF TREE PROTECTION ZONE (TPZ)

NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

GENERAL NOTES

- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O
- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U. N.O
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS4674, FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION
ISSUE	DATE	DESCRIPTION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

INTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ VOL	VOL
INT ST 1	12	2.40 m³	5.40 m³
INT ST 2	20	4.00 m³	5.00 m³
INT ST 3	20	4.00 m³	14.50 m³
INT ST 4	10	2.00 m³	3.35 m³
INT ST 5	10	2.00 m³	8.45 m³
TOTAL	72	14.40 m³	36.75 m³

EXTERNAL STORAGE SCHEDULE			
NAME	NO. CHLDRN	REQ VOL	VOL
EXT ST 1	42	12.60 m³	15.25 m³
EXT ST 2	30	9.00 m³	11.35 m³
TOTAL	72	21.60 m³	26.60 m³

INDOOR PLAYROOM SCHEDULE					
ROOM	AGE	NO. CHLDRN	NO. STAFF	UNENCUMBERED	
				REQ AREA	AREA
PLAYROOM 1	AGE - 0-2	12	3	39 m²	47.30 m²
PLAYROOM 2	AGE 2-3	20	4	65 m²	70.15 m²
PLAYROOM 3	AGE 3-5	20	2	65 m²	71.55 m²
PLAYROOM 4	AGE 3-5	10	1	32.5 m²	37.05 m²
PLAYROOM 5	AGE 3-5	10	1	32.5 m²	32.95 m²
TOTAL		72	11	234 m²	259.00 m²

OUTDOOR PLAY AREA SCHEDULE				
AREA	AGE	NO. CHLDRN	UNENCUMBERED	
			REQ AREA	AREA
OUTDOOR PLAY AREA 1	AGE - 2-5	30	210 m²	210.25 m²
OUTDOOR PLAY AREA 2	AGE 0-2	12	84 m²	85.00 m²
OUTDOOR PLAY AREA 3	AGE 3-5	30	210 m²	216.25 m²
TOTAL		72	504 m²	511.45 m²

PARKING SCHEDULE (1 SPACE PER 2 STAFF 7 VISITOR SPACES)	
PARKING	NO. SPACES
ACCESSIBLE	1
STAFF	7
VISITOR	5
TOTAL	13

NOTES
- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects
| 516/50 Holt St, Surry Hills NSW 2010
| P: 02 8760 9300 | hello@artmade.com.au | www.artmade.com.au

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

FIRST FLOOR PLAN

ISSUE FOR DEVELOPMENT APPLICATION

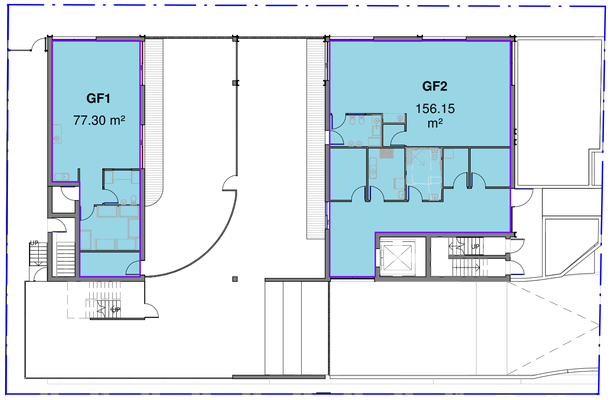
Project number	Sheet No.	Issue	Phase
23695	DA03.03	A	DA

Sheet Size	Scale	L.G.A.
A1	As indicated	CANTERBURY

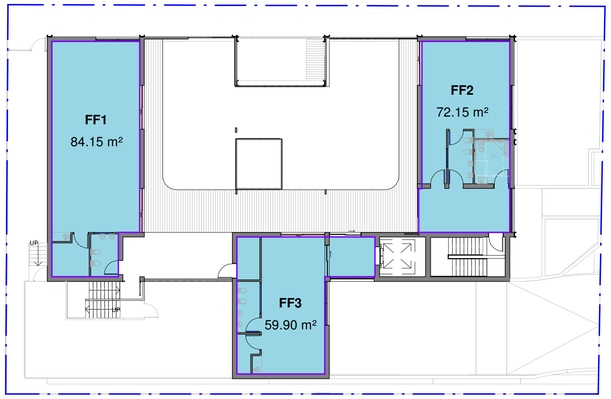
Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

NOT FOR CONSTRUCTION

0 1 2 4 6 8 10
1 : 200



1 GROUND FLOOR LEVEL
1 : 200



2 FIRST FLOOR LEVEL
1 : 200

DCP - GFA (SITE AREA 984.6M²)	
PERMITTED AREA	MIN FSR
492.30 m²	0.5

PROPOSED - GFA			
Name	Level	Area	FSR
FF1	FIRST FLOOR LEVEL	84.15 m²	0.08548
FF2	FIRST FLOOR LEVEL	72.15 m²	0.073304
FF3	FIRST FLOOR LEVEL	59.90 m²	0.060838
GF1	GROUND FLOOR LEVEL	77.30 m²	0.078504
GF2	GROUND FLOOR LEVEL	156.15 m²	0.158584
TOTAL		449.70 m²	0.45671

NOT FOR CONSTRUCTION

ISSUE	DATE	DESCRIPTION
A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES
- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects
|516/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

© COPYRIGHT

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

AREA CALCULATIONS

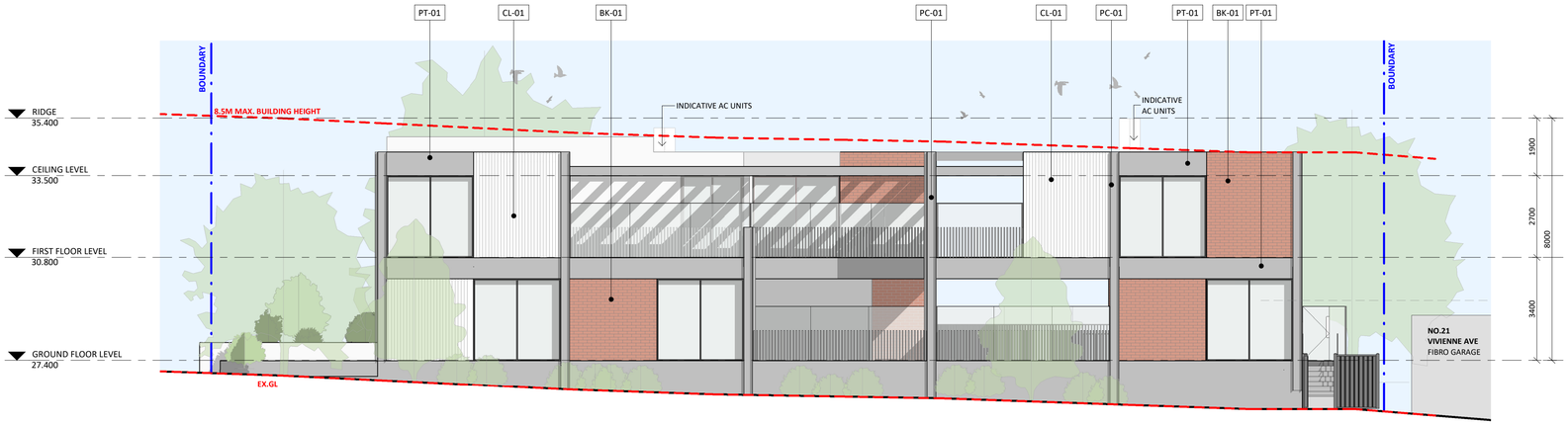
ISSUED FOR DEVELOPMENT APPLICATION

Project number	Sheet No.	Issue	Phase
23695	DA03.04	A	DA

Sheet Size	Scale	L.G.A.
A1	1 : 200	CANTERBURY

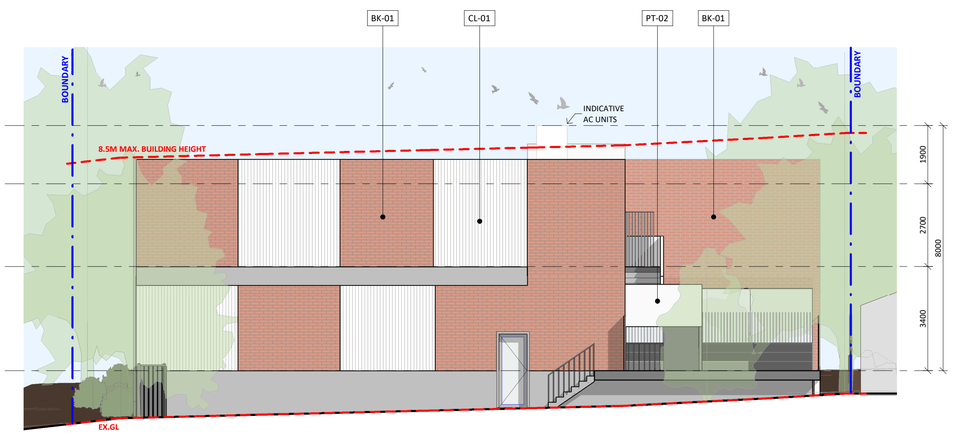
Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

7691-1 Rev A Appendix C

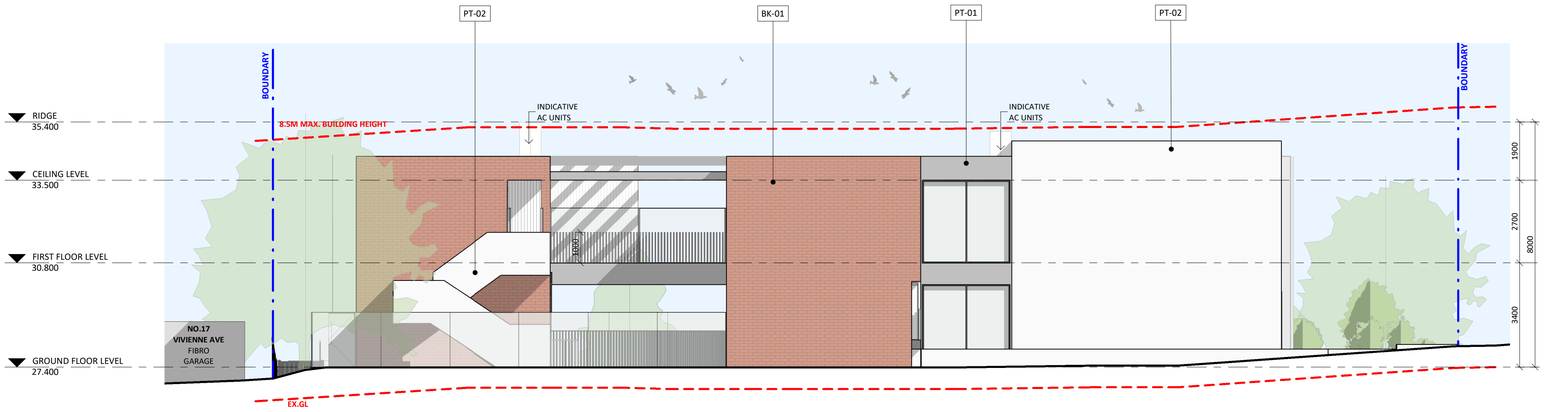


1 NORTH ELEVATION
1 : 100

2 EAST ELEVATION
1 : 100



3 WEST ELEVATION
1 : 100



4 SOUTH ELEVATION
1 : 100

0 1 2 3 4 5
1 : 100

EXTERNAL FINISHES

BK-01	BRICK AUSTRAL BRICK COLOUR: GIPPS OR SIMILAR
CB-01	GARAGE DOOR COLORBOND COLOUR: WOODLAND GREY OR SIMILAR
CB-02	ROOF,GUTTER, DOWNPIPES COLORBOND COLOUR: DUNE OR SIMILAR
CL-01	CLADDING COLOUR: PALE EUCALYPT OR SIMILAR
PT-01	RENDER & PAINT DULUX COLOUR: WOODLAND GREY OR SIMILAR
PT-02	CEMENT RENDER DULUX COLOUR: SHALE GREY OR SIMILAR
PC-01	ALUMINIUM WINDOW, DOOR FRAMES & COLUMNS DURALLOY POWDERCOAT COLOUR: WOODLAND GREY OR SIMILAR
TB-01	TIMBER DECKING INNOWOOD COLOUR: WESTERN RED CEDAR OR SIMILAR

ARTISTS IMPRESSION

ISSUE	DATE	DESCRIPTION
A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES

- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects
|S16/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

EXTERNAL ELEVATIONS

ISSUED FOR DEVELOPMENT APPLICATION

Project number	Sheet No.	Issue	Phase
23695	DA04.01	A	DA

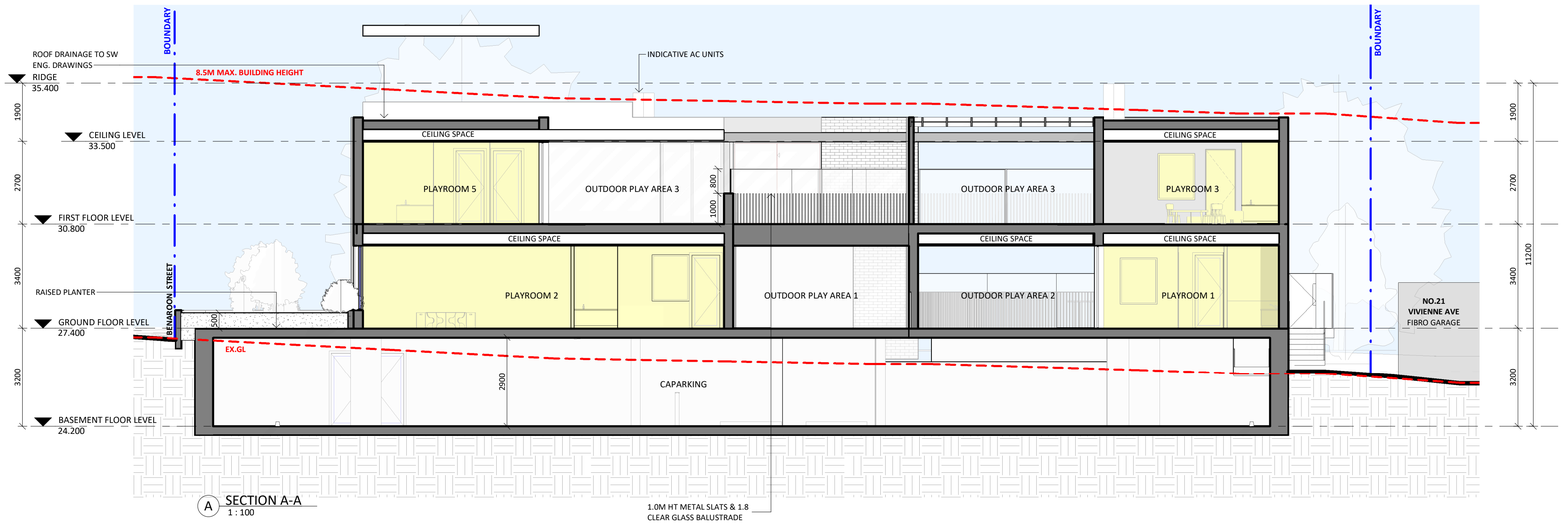
Sheet Size	Scale	L.G.A.
A1	1 : 100	CANTERBURY

Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

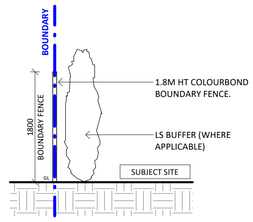
NOT FOR CONSTRUCTION

7691-1 Rev A Appendix C

0 1 2 3 4 5
1 : 100



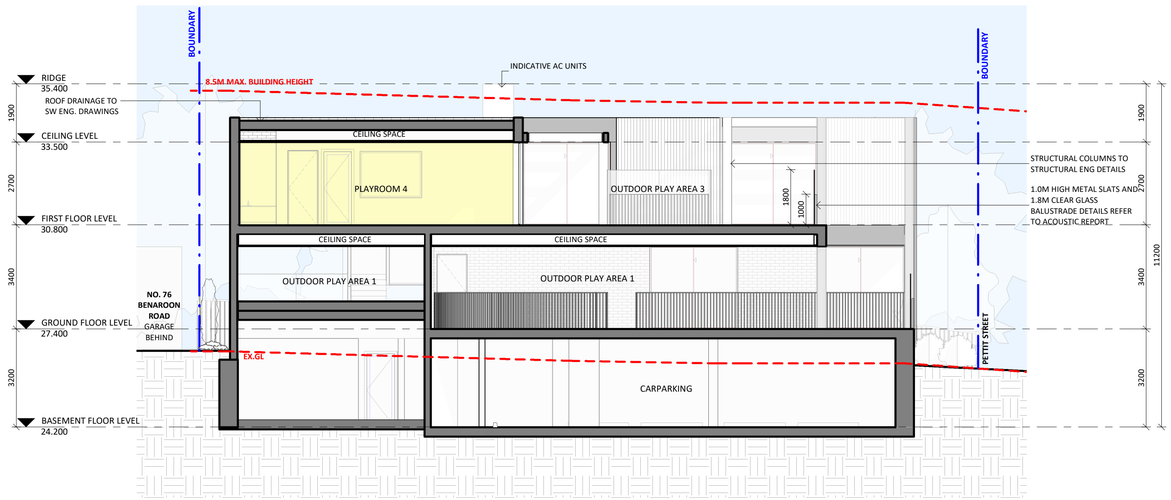
A SECTION A-A
1 : 100



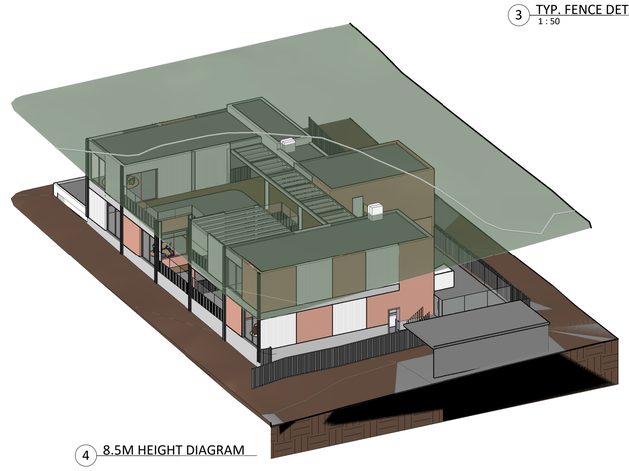
3 TYP. FENCE DETAILS - TYPE 3
1 : 50

EXTERNAL FINISHES

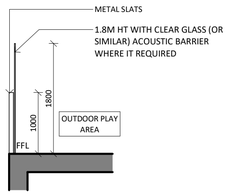
BK-01	BRICK AUSTRAL BRICK COLOUR: GIPPS OR SIMILAR
CB-01	GARAGE DOOR COLORBOND COLOUR: WOODLAND GREY OR SIMILAR
CB-02	ROOF,GUTTER, DOWNPIPES COLORBOND COLOUR: DUNE OR SIMILAR
CL-01	CLADDING COLOUR: PALE EUCALYPT OR SIMILAR
PT-01	RENDER & PAINT DULUX COLOUR: WOODLAND GREY OR SIMILAR
PT-02	CEMENT RENDER DULUX COLOUR: SHALE GREY OR SIMILAR
PC-01	ALUMINIUM WINDOW, DOOR FRAMES & COLUMNS DURALLOY POWDERCOAT COLOUR: WOODLAND GREY OR SIMILAR
TB-01	TIMBER DECKING INNOWOOD COLOUR: WESTERN RED CEDAR OR SIMILAR



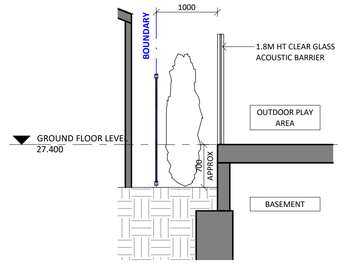
B SECTION B-B
1 : 100



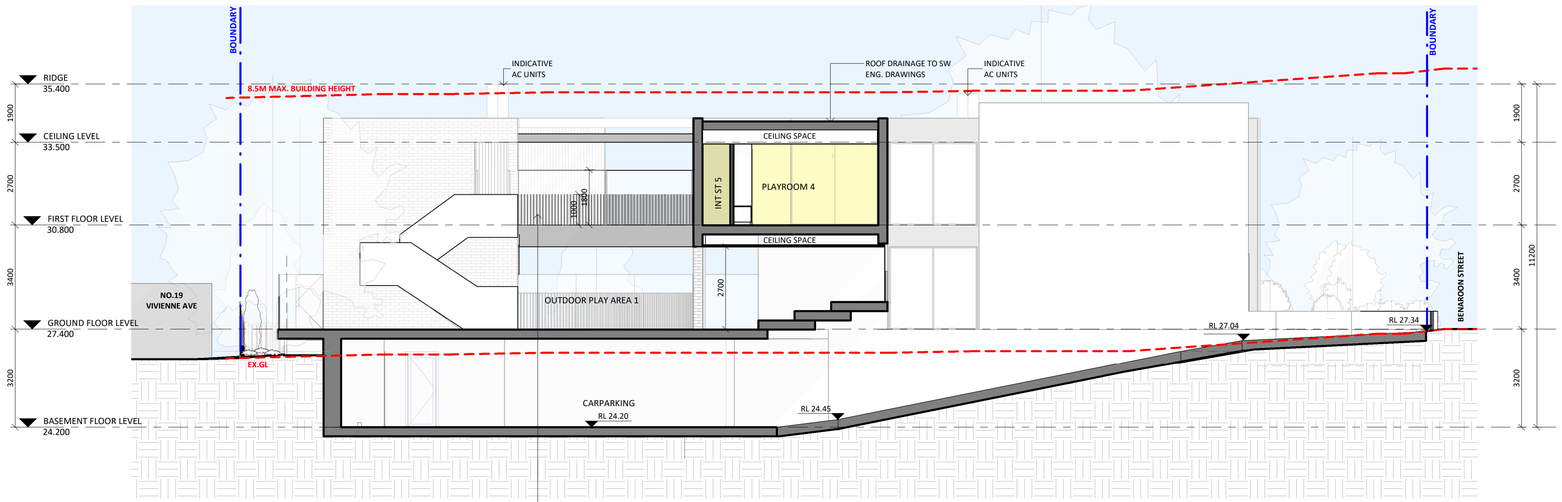
4 8.5M HEIGHT DIAGRAM



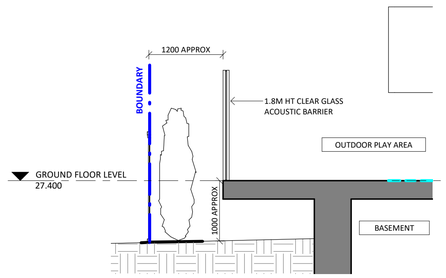
1 TYP. FENCE DETAILS - TYPE 1
1 : 50



D SECTION D-D
1 : 50



C SECTION C-C - DRIVEWAY SECTION
1 : 100



E SECTION E-E
1 : 50

NOT FOR CONSTRUCTION

ISSUE	DATE	DESCRIPTION
A	28/03/23	ISSUED FOR DEVELOPMENT APPLICATION

ASSOCIATED CONSULTANTS

PLANNER	AVENUE TOWN PLANNING
ACCESS	ERGON CONSULTING
ACOUSTIC	DAY DESIGN
WASTE	DICKENS SOLUTIONS
LANDSCAPE	GREENSCAPE
QS	QPC&C
TRAFFIC	STANBURY TRAFFIC
SURVEY	MASRI SURVEY GROUP
STORMWATER	HORIZON ENGINEERS

NOTES
- Any Discrepancies MUST be reported to the Architect.
- All work to Conform to relevant Australian Standards & Codes as applicable.
- This drawing is copyrighted© and must NOT be copied or reused without authority from ArtMade Architects
- Contractors to check all dimensions on site prior to commencing Construction.
- Do not scale from this drawing, use given written dimensions
- Drawing not for construction purposes

CLIENT

MR. MUHAMMAD & ALI TALEB

ARCHITECT

ArtMade Architects
|516/50 Holt St, Surry Hills NSW 2010
|P: 02 8760 9300 |hello@artmade.com.au | www.artmade.com.au

PROJECT

CHILDCARE CENTRE

PROJECT ADDRESS

78-80A BENAROON ROAD, LAKEMBA

SHEET NAME

SECTIONS & EXTERNAL FINISHES

ISSUED FOR DEVELOPMENT APPLICATION

Project number	Sheet No.	Issue	Phase
23695	DA05.01	A	DA

Sheet Size	Scale	L.G.A.
A1	As indicated	CANTERBURY

Drawn By	Checked By	Date
KZ/MS	AS/SS	28/03/23

ACOUSTICAL – Pertaining to the science of sound, including the generation, propagation, effects and control of both noise and vibration.

AMBIENT NOISE – The ambient noise level at a particular location is the overall environmental noise level caused by all noise sources in the area, both near and far, including road traffic, factories, wind in the trees, birds, insects, animals, etc.

AUDIBLE – means that a sound can be heard. However, there are a wide range of audibility grades, varying from "barely audible" to "just audible", "clearly audible" and "prominent". Chapter 83 of the NSW Environment Protection Authority – Environmental Noise Control Manual (1985) states:
"noise from a particular source might be offensive if it is clearly audible, distinct from the prevailing background noise and of a volume or character that a reasonable person would be conscious of the intrusion and find it annoying or disruptive".

It follows that the word "audible" in an environmental noise context means "clearly audible".

BACKGROUND NOISE LEVEL – Silence does not exist in the natural or the built-environment, only varying degrees of noise. The Background Noise Level is the average minimum dBA level of noise measured in the absence of the noise under investigation and any other short-term noises such as those caused by cicadas, lawnmowers, etc. It is quantified by the L_{A90} or the dBA noise level that is exceeded for 90 % of the measurement period (usually 15 minutes).

- **Assessment Background Level (ABL)** is the single figure background level representing each assessment period – day, evening and night (ie three assessment background levels are determined for each 24hr period of the monitoring period). Determination of the assessment background level is by calculating the tenth percentile (the lowest tenth percent value) of the background levels (L_{A90}) for each period (refer: NSW Industrial Noise Policy, 2000).
- **Rating Background Level (RBL)** as specified by the Environment Protection Authority is the overall single figure (L_{A90}) background noise level representing an assessment period (day, evening or night) over a monitoring period of (normally) three to seven days.

  The RBL for an assessment period is the median of the daily lowest tenth percentile of L_{90} background noise levels.

  If the measured background noise level is less than 30 dBA, then the Rating Background Level (RBL) is considered to be 30 dBA.

DECIBEL – The human ear has a vast sound-sensitivity range of over a thousand billion to one. The decibel is a logarithmic unit that allows this same range to be compressed into a somewhat more comprehensible range of 0 to 120 dB. The decibel is ten times the logarithm of the ratio of a sound level to a reference sound level. See also Sound Pressure Level and Sound Power Level.

Decibel noise levels cannot be added arithmetically since they are logarithmic numbers. If one machine is generating a noise level of 50 dBA, and another similar machine is placed beside it, the level will increase to 53 dBA, not 100 dBA. Ten similar machines placed side by side increase the sound level by 10 dBA, and one hundred machines increase the sound level by 20 dBA.

dBA – The human ear is less sensitive to low frequency sound than high frequency sound. We are most sensitive to high frequency sounds, such as a child's scream. Sound level meters have an inbuilt weighting network, termed the dBA scale, that approximates the human loudness response at quiet sound levels (roughly approximates the 40 phon equal loudness contour).

However, the dBA sound level provides a poor indication of loudness for sounds that are dominated by low frequency components (below 250 Hz). If the difference between the "C" weighted and the "A" weighted sound level is 15 dB or more, then the NSW Industrial Noise Policy recommends a 5 dBA penalty be applied to the measured dBA level.

dBC – The dBC scale of a sound level meter is similar to the dBA scale defined above, except that at high sound intensity levels, the human ear frequency response is more linear. The dBC scale approximates the 100 phon equal loudness contour.

EQUIVALENT CONTINUOUS NOISE LEVEL, L_{Aeq} – Many noises, such as road traffic or construction noise, vary continually in level over a period of time. More sophisticated sound level meters have an integrating electronic device inbuilt, which average the A weighted sound pressure levels over a period of time and then display the energy average or L_{Aeq} sound level. Because the decibel scale is a logarithmic ratio the higher noise levels have far more sound energy, and therefore the L_{Aeq} level tends to indicate an average which is strongly influenced by short term, high level noise events. Many studies show that human reaction to level-varying sounds tends to relate closely to the L_{Aeq} noise level.

FREE FIELD – This is a sound field not subject to significant reflection of acoustical energy. A free field over a reflecting plane is usually outdoors with the noise source resting on hard flat ground, and not closer than 6 metres to any large flat object such as a fence or wall; or inside an anechoic chamber.

FREQUENCY – The number of oscillations or cycles of a wave motion per unit time, the SI unit being the Hertz, or one cycle per second.

IMPACT ISOLATION CLASS (IIC) – The American Society for Testing and Materials (ASTM) has specified that the IIC of a floor/ceiling system shall be determined by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The IIC is a number found by fitting a reference curve to the measured octave band levels and then deducting the sound pressure level at 500 Hz from 110 decibels. Thus the higher the IIC, the better the impact sound isolation.

IMPACT SOUND INSULATION ($L_{nT,w}$) – Australian Standard AS ISO 717.2 – 2004 has specified that the Impact Sound Insulation of a floor/ceiling system be quantified by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The Weighted Standardised Impact Sound Pressure Level ($L_{nT,w}$) is the sound pressure level at 500 Hz for a reference curve fitted to the measured octave band levels. Thus the lower $L_{nT,w}$ the better the impact sound insulation.

IMPULSE NOISE – An impulse noise is typified by a sudden rise time and a rapid sound decay, such as a hammer blow, rifle shot or balloon burst.

INTRUSIVE NOISE LEVEL, L_{Aeq} – The level of noise from a factory, place of entertainment, etc. in NSW is assessed on the basis of the average maximum noise level, or the $L_{Aeq\ (15\ min)}$. This is the energy average A weighted noise level measured over any 15 minute period.

LOUDNESS – The degree to which a sound is audible to a listener is termed the loudness. The human ear perceives a 10 dBA noise level increase as a doubling of loudness and a 20 dBA noise increase as a quadrupling of the loudness.

MAXIMUM NOISE LEVEL, L_{Amax} – The rms maximum sound pressure level measured on the "A" scale of a sound level meter during a noise survey is the L_{Amax} noise level. It may be measured using either the Fast or Slow response time of the meter. This should be stated.

NOISE RATING NUMBERS – A set of empirically developed equal loudness curves has been adopted as Australian Standard AS1469-1983. These curves allow the loudness of a noise to be described with a single NR number. The Noise Rating number is that curve which touches the highest level on the measured spectrum of the subject noise. For broadband noise such as fans and engines, the NR number often equals the dBA level minus five.

NOISE – Noise is unwanted sound. Sound is wave motion within matter, be it gaseous, liquid or solid. "Noise includes sound and vibration".

NOISE REDUCTION COEFFICIENT – See: "Sound Absorption Coefficient".

OFFENSIVE NOISE - (Reference: Dictionary of the Protection of the Environment Operations Act 1997). *"Offensive Noise means noise:*

(a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:

(i) is harmful to (or likely to be harmful to) a person who is outside the premise from which it is emitted, or

(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or

(b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances prescribed by the regulations."

PINK NOISE – Pink noise is a broadband noise with an equal amount of energy in each octave or third octave band width. Because of this, Pink Noise has more energy at the lower frequencies than White Noise and is used widely for Sound Transmission Loss testing.

REVERBERATION TIME, T_{60} – The time in seconds, after a sound signal has ceased, for the sound level inside a room to decay by 60 dB. The first 5 dB decay is often ignored, because of fluctuations that occur while reverberant sound conditions are being established in the room. The decay time for the next 30 dB is measured and the result doubled to determine the T_{60}. The Early Decay Time (EDT) is the slope of the decay curve in the first 10 dB normalised to 60 dB.

SOUND ABSORPTION COEFFICIENT, α – α Sound is absorbed in porous materials by the viscous conversion of sound energy to heat energy as the sound waves pass through it. Sound is similarly absorbed by the flexural bending of internally damped panels. The fraction of incident energy that is absorbed is termed the Sound Absorption Coefficient, α. An absorption coefficient of 0.9 indicates that 90 % of the incident sound energy is absorbed. The average α from 250 to 2000 Hz is termed the Noise Reduction Coefficient (NRC).

SOUND ATTENUATION – If an enclosure is placed around a machine, or a silencer is fitted to a duct, the noise emission is reduced or attenuated. An enclosure that attenuates the noise level by 30 dBA, reduces the sound energy by one thousand times.

SOUND EXPOSURE LEVEL (SEL) – The total sound energy of a single noise event condensed into a one second duration or in other words it is an L_{eq} (1 sec).

SOUND PRESSURE LEVEL, L_p – The level of sound measured on a sound level meter and expressed in decibels, dB, dBA, dBC, etc. $L_p = 20 \times \log (P/P_o)$ ... dB

where P is the rms sound pressure in Pascal and P_o is a reference sound pressure of 20 µPa. L_p varies with distance from a noise source.

SOUND POWER LEVEL, L_w – The Sound Power Level of a noise source is an absolute that does not vary with distance or with a different acoustic environment.

$L_w = L_p + 10 \log A$ ... dB, re: 1pW,
where A is the measurement noise-emission area in square metres in a free field.

SOUND TRANSMISSION CLASS (STC) – An internationally standardised method of rating the sound transmission loss of partition walls to indicate the decibels of noise reduction of a human voice from one side to the other. (Refer: Australian Standard AS1276 – 1979)

SOUND TRANSMISSION LOSS – The amount in decibels by which a random sound is reduced as it passes through a sound barrier. A method for the measurement of airborne Sound Transmission Loss of a building partition is given in Australian Standard AS1191 - 2002.

STATISTICAL EXCEEDENCE SOUND LEVELS, L_{A90}, L_{A10}, L_{A1}, etc – Noise which varies in level over a specific period of time (usually 15 minutes) may be quantified in terms of various statistical descriptors:

The L_{A90} is the dBA level exceeded for 90 % of the time. In NSW the L_{A90} is measured over periods of 15 minutes, and is used to describe the average minimum or background noise level.

The L_{A10} is the dBA level that is exceeded for 10 % of the time. In NSW the L_{A10} measured over a period of 10 to 15 minutes. It was until recently used to describe the average maximum noise level, but has largely been replaced by the L_{Aeq} for describing level-varying noise.

The L_{A1} is the dBA level that is exceeded for 1 % of the time. In NSW the L_{A1} may be used for describing short-term noise levels such as could cause sleep arousal during the night.

STEADY NOISE – Noise, which varies in level by 6 dBA or less, over the period of interest with the time-weighting set to "Fast", is considered to be "steady". (Refer AS 1055.1 1997)

WEIGHTED SOUND REDUCTION INDEX, R_w – This is a single number rating of the airborne sound insulation of a wall, partition or ceiling. The sound reduction is normally measured over a frequency range of 100 to 3,150 Hertz and averaged in accordance with ISO standard weighting curves (Refer AS/NZS 1276.1:1999).

Internal partition wall $R_w + C$ ratings are frequency weighted to simulate insulation from human voice noise. The $R_w + C$ is always similar in value to the STC rating value. External walls, doors and windows may be $R_w + C_{tr}$ rated to simulate insulation from road traffic noise. This is normally a lower number than the STC rating value.

WHITE NOISE – White noise is broadband random noise whose spectral density is constant across its entire frequency range. The sound power is the same for equal bandwidths from low to high frequencies. Because the higher frequency octave bands cover a wider spectrum, white noise has more energy at the higher frequencies and sounds like a hiss.