NOISE & VIBRATION CONSULTANTS

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Noise Impact Assessment

Proposed Child Care Centre

Reference:
25002_30_Marskell_Circuit_Mudgee_Rep01_RevB_NIA.docx

Document Register

Report prepared for:
Younan Group Co Pty Ltd
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Date	Revision	Author	Reviewed	AAAS Membership Number (MAAS)	Signature
08/03/2025	A – Draft	M. Bechara	M. Bechara	1417	
24/03/2025	B	M. Bechara	M. Bechara	1417	

All information provided in this report relates to acoustics only. Further consultation may be required with other disciplines (eg. fire, mechanical, hydraulic, etc.) prior to implementing any recommendations contained within this report.

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1. Introduction

Noise and Vibration Consultants was engaged by Younan Group Co Pty Ltd to prepare an environmental noise assessment for a proposed child care centre located at 30 Marskell Circuit, Mudgee. To facilitate the noise assessment, noise monitoring was conducted to determine the existing ambient noise levels in the vicinity of the proposed development, and to establish the criteria for onsite activities to nearby sensitive receivers.

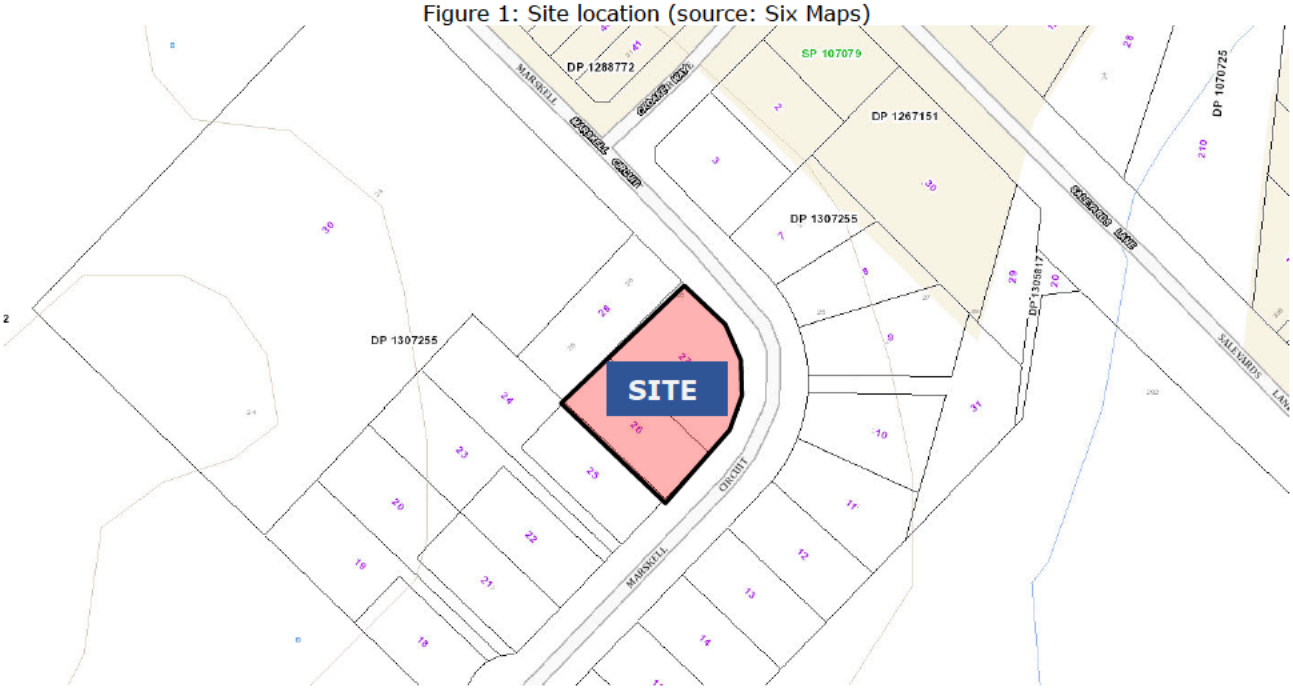
2. Proposal and Site Description

The site is described as 30 Marskell Circuit, Mudgee (Lot 26 and 27 on DP1307255) as shown in Figure 1. The site is currently located on a corner block of a new residential subdivision area. The acoustic environment consists of children playing (from another nearby childcare) and local traffic noise.

The proposal seeks the following:

- 3 indoor play areas, kitchen, kids toilet, staff toilet, staff room, office, foyer, store rooms, cot, nappy, and outdoor play area..
- On grade parking with a total of 18 spaces.
- A total of 72 children consisting of twelve 0-2 year olds, thirty 2-3 year olds and thirty 3-5 year olds.

Figure 1: Site location (source: Six Maps)

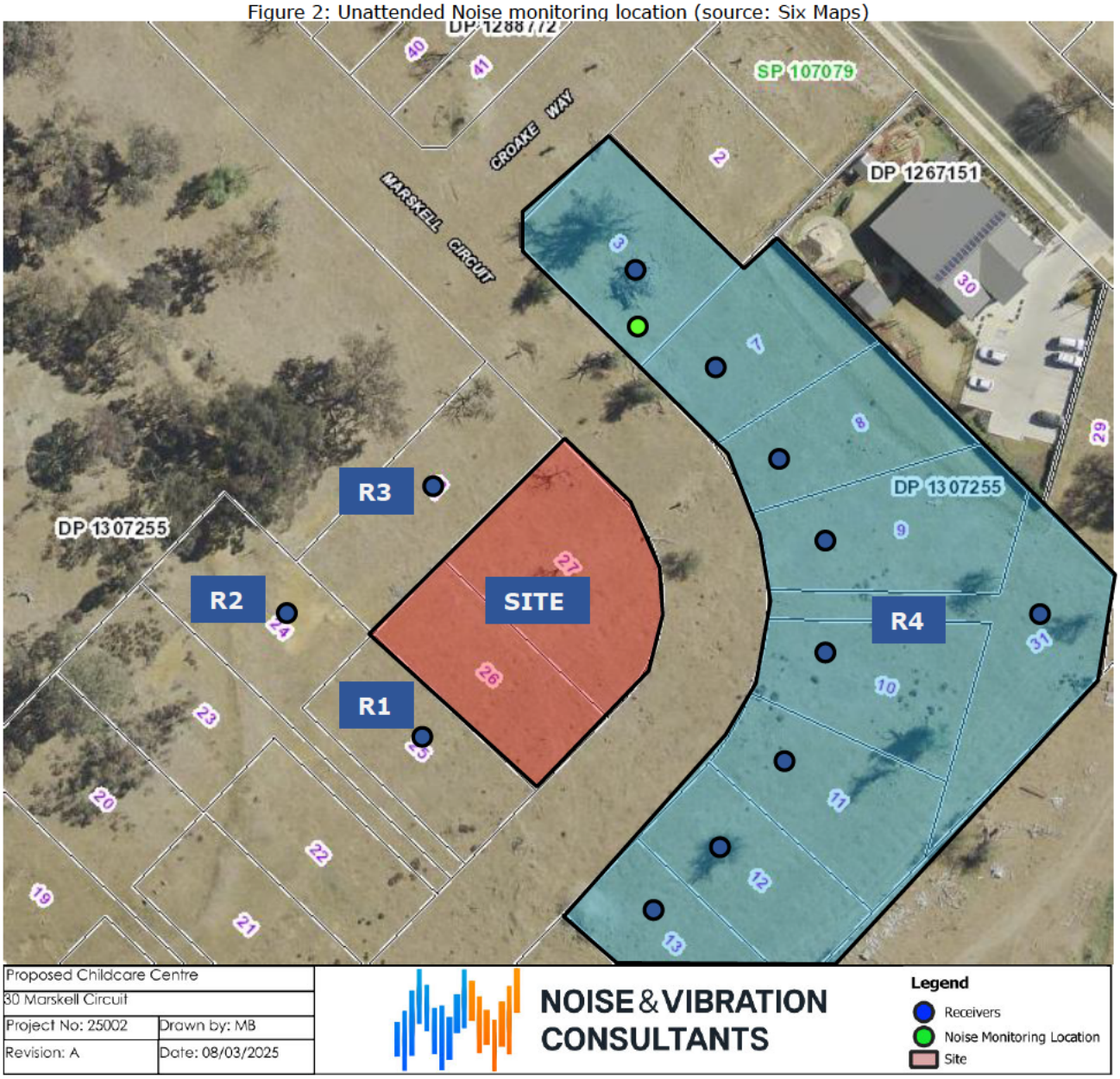


3. Receivers and Noise Monitoring Location

An environmental noise monitor was placed at 5A Croake Way, Mudgee to measure existing ambient background noise levels. The noise monitor was located in a free field position with the microphone approximately 1.4 metres above ground level. This location was chosen as considered to be representative of the acoustic environment of the nearest sensitive receivers in accordance with the Noise Policy for Industry (NPfI) (NSW EPA 2017). The noise monitor was set to record noise levels in "A" weighting, Fast response with 15 minute statistical intervals between 22nd and 29th February, 2025.

For the unattended noise monitoring location refer to M1 in Figure 2.

Figure 2: Unattended Noise monitoring location (source: Six Maps)



The nearest sensitive receivers are identified in Table 1.

Table 1: Receiver locations

Receiver ID	Receiver Address	Receiver Zone	Approximate Distance from Site
R1	32 Marskell Circuit, Mudgee	R1 – General Residential	Adjacent boundary
R2	34 Marskell Circuit, Mudgee	R1 – General Residential	Adjacent boundary
R3	26 Marskell Circuit, Mudgee	R1 – General Residential	Adjacent boundary
R4	5A Croake Way and 23-37 Marskell Circuit Mudgee	R1 – General Residential	18m (boundary to boundary)

Vacant residential lots are assumed to have single storey dwellings based on nearby constructed residential properties.

4. Existing Ambient Noise Levels

The following tables present the measured ambient noise levels from the unattended noise survey and meteorological conditions. Any periods of inclement weather or extraneous noise are omitted from the measured data prior to determining the overall results.

4.1 Meteorological conditions

Meteorological observations during the unattended noise monitoring survey were obtained from Bureau of Meteorology website as shown in Table 2 below.

Table 2: Meteorological conditions – Mudgee NSW

Day	Date	Rainfall (mm)	Wind			
			9am		3pm	
			Direction	Speed (km/h)	Direction	Speed (km/h)
Saturday	22/02/2025	0	ENE	2	ENE	11
Sunday	23/02/2025	0	SE	6	WSW	24
Monday	24/02/2025	0	-	Calm	WSW	13
Tuesday	25/02/2025	0	SE	15	ESE	9
Wednesday	26/02/2025	0	SSE	9	WSW	6
Thursday	27/02/2025	0	S	6	W	11
Friday	28/02/2025	0	-	Calm	WNW	28
Saturday	01/03/2025	0	SE	7	-	-

4.2 Background noise levels

The measured road traffic noise levels at the monitoring location are as follows;

Table 3: Measured ambient background noise levels

Day	Date	Rating Background Level (RBL)		
		Day	Evening	Night
Saturday	22/02/2025	x	43.9	47.8
Sunday	23/02/2025	29.9	32.0	47.7
Monday	24/02/2025	35.4	42.5	36.5
Tuesday	25/02/2025	41.0	43.0	46.2
Wednesday	26/02/2025	35.9	37.7	48.3
Thursday	27/02/2025	34.8	39.4	43.8
Friday	28/02/2025	36.2	32.5	48.1
Overall RBL		36	39	48*

Review of the noise monitoring chart reveals that the night period was affected by extraneous noise (predominantly insect noise) . However, the proposal does not seek to operate during the night period. Refer to the appendix for noise monitoring charts of the measured noise levels.

5. Noise Criteria

To determine the appropriate noise criteria to be applied, a review of the Mid-Western Regional Development Control Plan (DCP), the DPIE Child Care Guideline and the AAAC Child Care Centre Guideline was conducted.

5.1 Relevant Policies and Guidelines

5.1.1 Mid-Western Regional DCP 2013

A review of the DCP was conducted and no specific acoustic criteria for child care centres is contained within the document

5.1.2 NSW Child Care Planning Guideline

Section 3.5 of the NSW Child Care Planning Guideline (DPIE 2021) states the following requirements;

> *"C23*
> *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 areas 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."*

5.1.3 AAAC Guideline for Child Care Centre Acoustic Assessment

The Association of Australasian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment states the following requirements for child care centres.

> *"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 Leq,15min 45 dB(A) for the assessment of outdoor play is recommended in locations where the background noise level is less than 40 dB(A).*
>
> *Background Greater Than 40 dB(A) – The contributed Leq,15min noise level emitted from an outdoor play and internal activity areas shall not exceed the background noise level by more than 5 or 10 dB at the assessment location, depending on the usage of the outdoor play area.*

AAAC members regard that a total time limit of approximately 2 hours outdoor play per morning and afternoon period should allow an emergence above the background of 10 dB (ie background +10 dB if outdoor play is limited to 2 hours in the morning and 2 hours in the afternoon).

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

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

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."

5.1.4 NSW Road Noise Policy 2011

The NSW Road Noise Policy (DECCW 2011) outlines the criteria for any increase in the total traffic noise level at the location due to a proposed project or traffic generating development. As Marskell Circuit is a local road the following criteria applies:

Table 4: Road Noise Policy 2011 Criteria

Road Category	Type of project/land use	Assessment Criteria– dBA	
		Day (7am to 10pm)	Night (10pm to 7am)
Local Road	Existing residences affected by additional traffic on existing local roads generated by land use developments	LAeq, (1 hour) 55	LAeq, (1 hour) 50

When the existing traffic noise levels already exceeds the LAeq 1 hour noise limits, the development should not increase the existing traffic noise levels by more than 2dB(A) as stated in Section 3.4 of the NSW Road Noise Policy 2011.

5.2 Project Specific Criteria

The project specific criteria based on the unattended noise monitoring (Section 4.2) is presented in Table 5.

Table 5: Project specific criteria

Time Period	Outdoor Play Criteria L_{eq} dB(A)	Indoor Play Criteria
Day 7am to 6pm	46	41
Evening 6pm to 10pm	N/A	N/A
Night 10pm to 7am	N/A	N/A

The evening and night time criteria are not specified as the development is not proposed to be operating during these periods.

6. Environmental Noise Assessment

6.1 Itemised noise sources and assumptions

Noise levels for children playing, mechanical plant, car movements and van deliveries were obtained from the *Association of Australasian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment Version 3.0*. Sound power levels for itemised noise sources are provided in Table 6.

Table 6: Itemised noise source

Description	Sound Power Level L_w
12 Children aged 0-2 years	79
30 Children aged 2-3 years	90 (87 for half children playing outdoors)
30 Children aged 3 to 6 years	92 (89 for half children playing outdoors)
Car (passby, door closure, car start)	81
Delivery van	86
Medium (double fan) condenser	70
Small exhaust fan (toilet, garbage)	60
Small kitchen exhaust fan	70

Delivery vans were based on 1 vehicle movement in a 15 minute period and car drop offs/pick ups were based on 6 movements in a 15 minute period.

Mechanical plant selection was not known at the time of assessment. Therefore typical mechanical plant equipment was assumed in accordance with the *Association of Australasian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment Version 3.0.*

All receivers were assumed to be single storey, as this is characteristic of the area. Additionally, no information was available at the time of assessment regarding neighbouring vacant lots.

6.2 Predicted noise impacts

The predicted noise impacts at the sensitive receiver locations from outdoor play, mechanical plant and vehicle movements are presented in Table 7. The results includes cumulative noise impacts from all itemised noise sources occurring simultaneously, acoustic barrier screening, distance attenuation and reduced kids playing at one time.

Table 7: Predicted noise impacts– outdoor play, mechanical plant and vehicle movements

Receiver	Predicted noise impact $L_{eq\ 15min}$ dB(A)	Criteria $L_{eq\ 15min}$ dB(A)	Complies Yes/No
R1	46	46	Yes
R2	45	46	Yes
R3	46	46	Yes
R4	45	46	Yes

Onsite activities during outdoor play times are predicted to comply with the assessment criteria on the condition the recommendations in Section 8 are implemented.

The predicted noise impacts at the sensitive receiver locations from indoor play, mechanical plant and vehicle movements are presented in Table 8. The results include cumulative noise impacts from all itemised noise sources occurring simultaneously, acoustic barrier screening, distance attenuation and transmission loss from the façade.

Table 8: Predicted noise impacts– indoor play, mechanical plant and vehicle movements

Receiver	Predicted noise impact $L_{eq\ 15min}$ dB(A)	Criteria $L_{eq\ 15min}$ dB(A)	Complies Yes/No
R1	40	41	Yes
R2	40	41	Yes
R3	40	41	Yes
R4	41	41	Yes

Onsite activities during indoor play times are predicted to comply with the assessment criteria on the condition the recommendations in Section 8 are implemented.

7. Road Traffic Noise

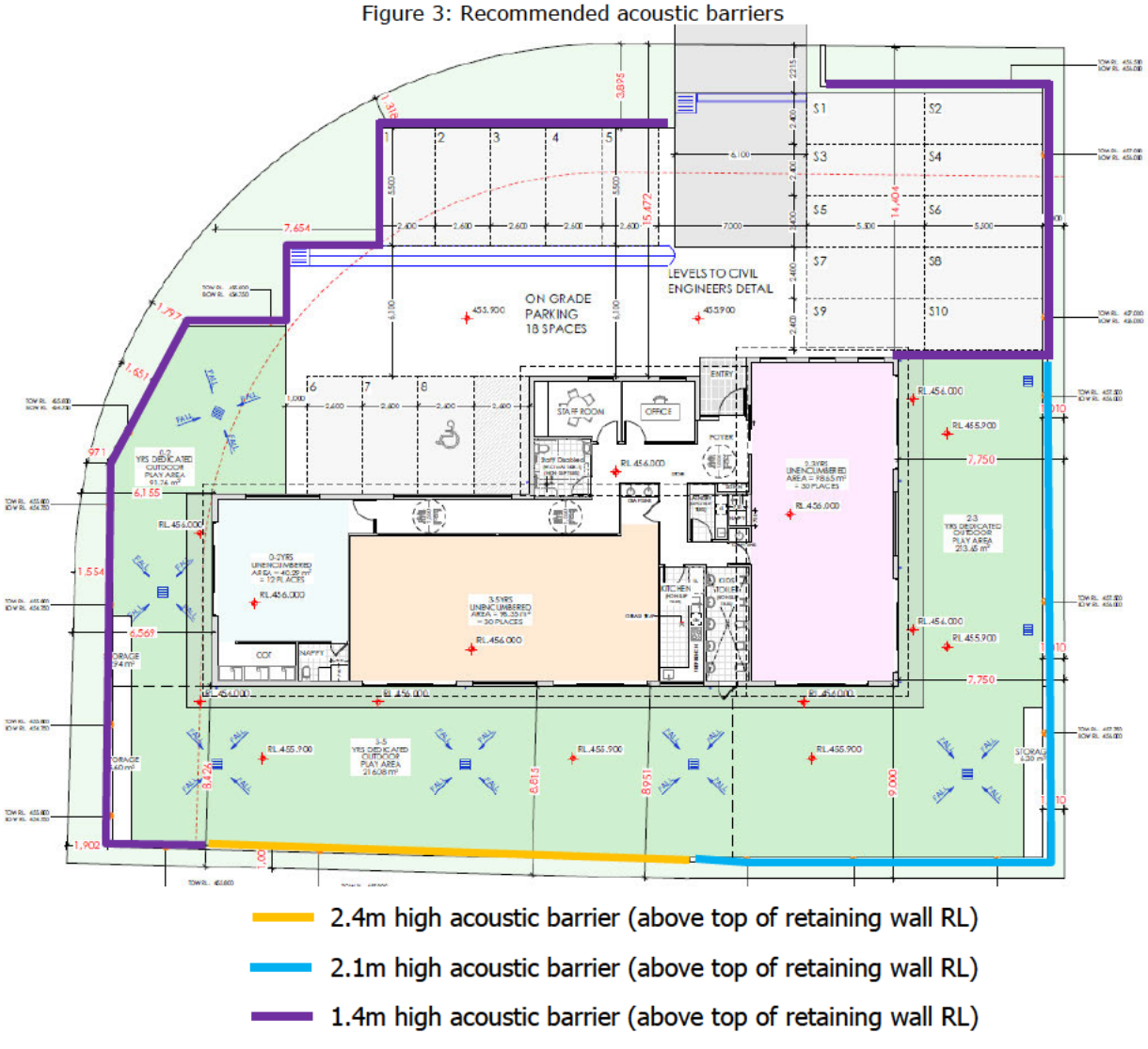
The proposal is predicted to generate a maximum of 216 car movements per day. Based on TfNSW guidelines for regional daily traffic movements per residential dwelling/lot, Marskell Circuit is predicted to generate a maximum of 150 vehicles per day. Based on a total of 366 vehicles movements per day, the predicted traffic impacts at residences on Marskell Circuit is predicted to be $L_{eq\ 1\ hour}$ 41dB(A), which is within the limits as outlined in Section 5.1.4.

8. Recommendations

Based on the predicted noise levels, noise impacts at the residential receiver locations are predicted to comply with the assessment criteria on the condition the following acoustic treatments and management controls are implemented:

- The maximum number of children playing outdoors simultaneously shall be limited to the following:
  - 0-2 years: 12 children
  - 2-3 years: 15 children
  - 3-6 years: 15 children
- Total outdoor playtime shall be limited to a maximum of 4 hours (2 hours in the morning and 2 hours in the afternoon)
- Mechanical plant selection was not known at the time of assessment. An assessment shall be conducted prior to construction certification once plant selection is known to confirm noise levels will be within the criteria.
- Acoustic barriers shall be constructed to the height and extent shown in Figure 3. The acoustic barrier should be constructed using either 16mm marine ply, masonry, 16mm thick lapped timber (minimum 40% overlap), 9mm fibre cement sheet, Hebel, Perspex, plywood, or other materials with a minimum surface density of 9kg/m^2. The barrier shall be maintained to be free of holes and gaps

Figure 3: Recommended acoustic barriers

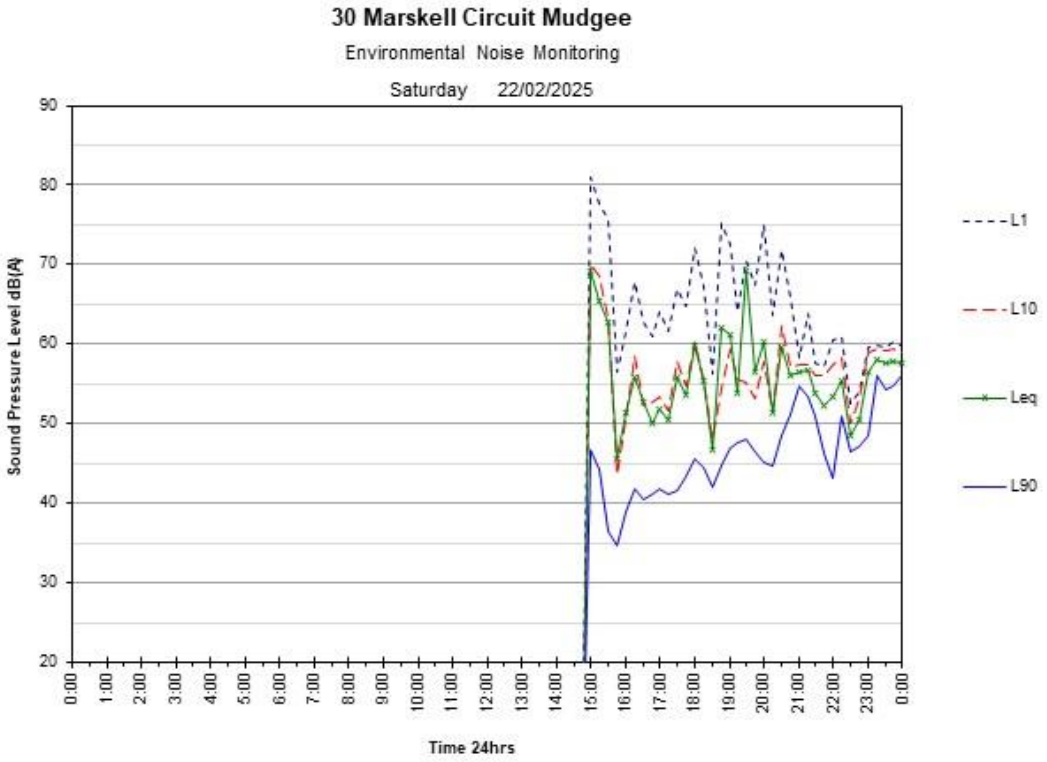


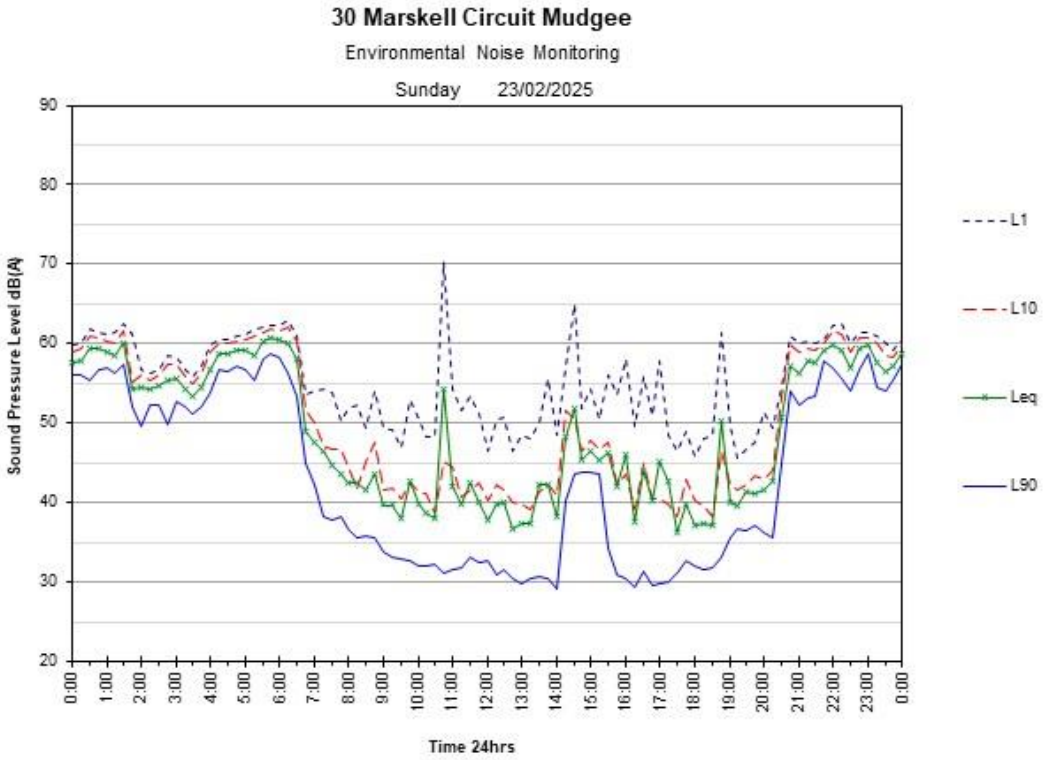
9. Conclusion

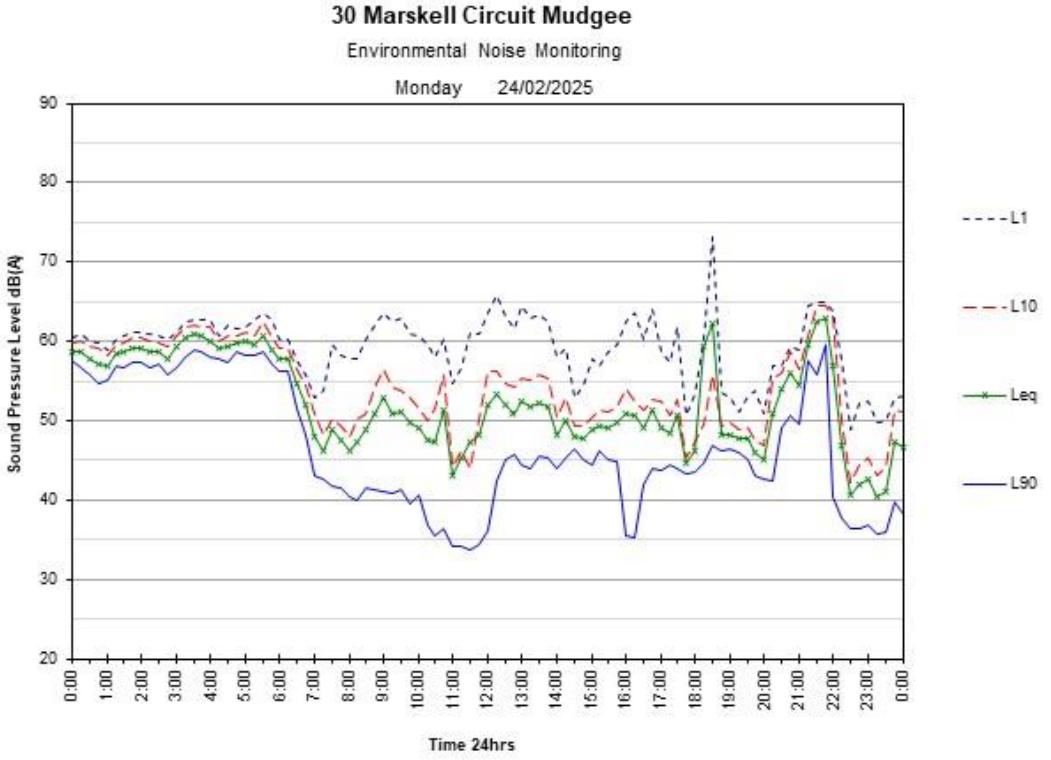
An environmental noise assessment was conducted for the proposed child care centre located at 30 Marskell Circuit, Mudgee. Compliance is predicted with the assessment criteria on the condition the acoustic treatments and management controls in Section 8 are implemented.

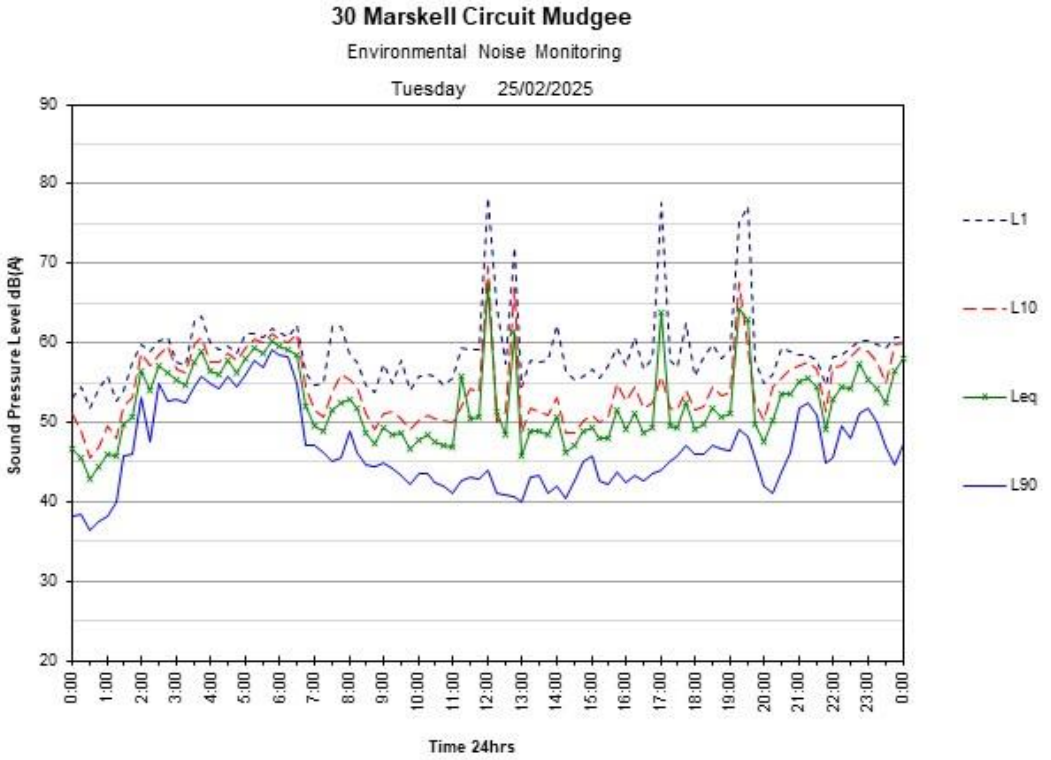
10. Appendices

10.1 Noise Monitoring Charts






30 Marskell Circuit Mudgee
Environmental Noise Monitoring
Monday 24/02/2025
Sound Pressure Level dB(A)
90
80
70
60
50
40
30
20
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
0:00
Time 24hrs
L1
L10
Leq
L90


30 Marskell Circuit Mudgee
Environmental Noise Monitoring
Tuesday 25/02/2025
Sound Pressure Level dB(A)
90
80
70
60
50
40
30
20
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
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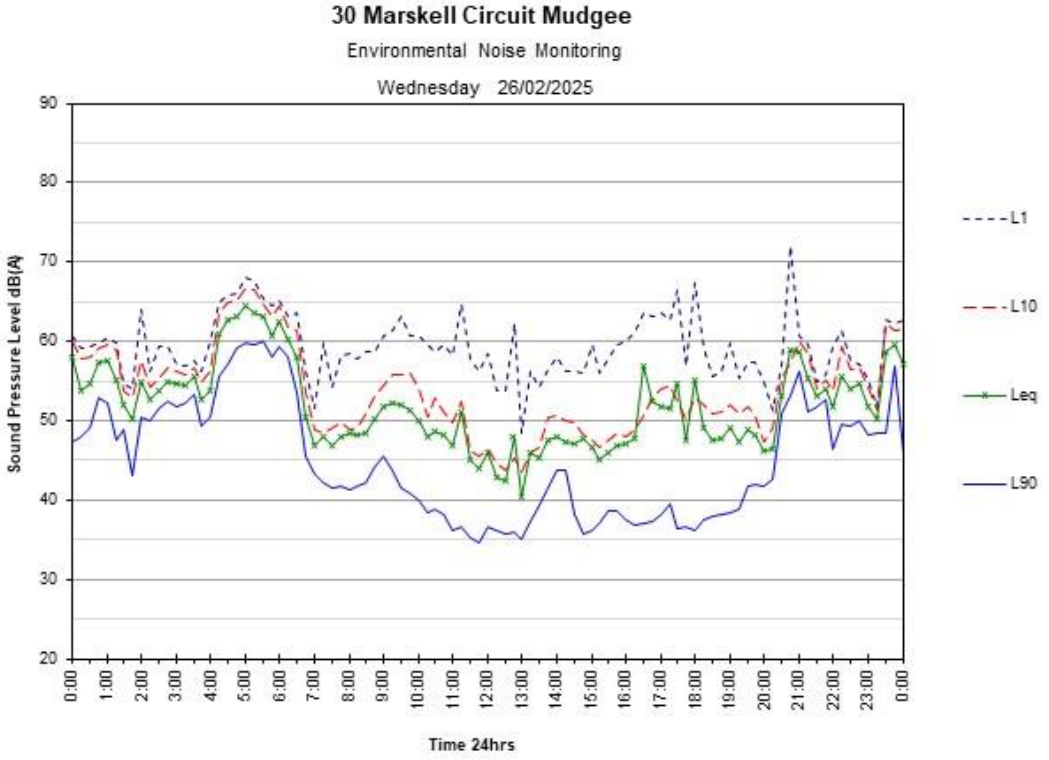
Time 24hrs
L1
L10
Leq
L90


30 Marskell Circuit Mudgee
Environmental Noise Monitoring
Wednesday 26/02/2025
Sound Pressure Level dB(A)
90
80
70
60
50
40
30
20
0:00
1:00
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3:00
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5:00
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Time 24hrs
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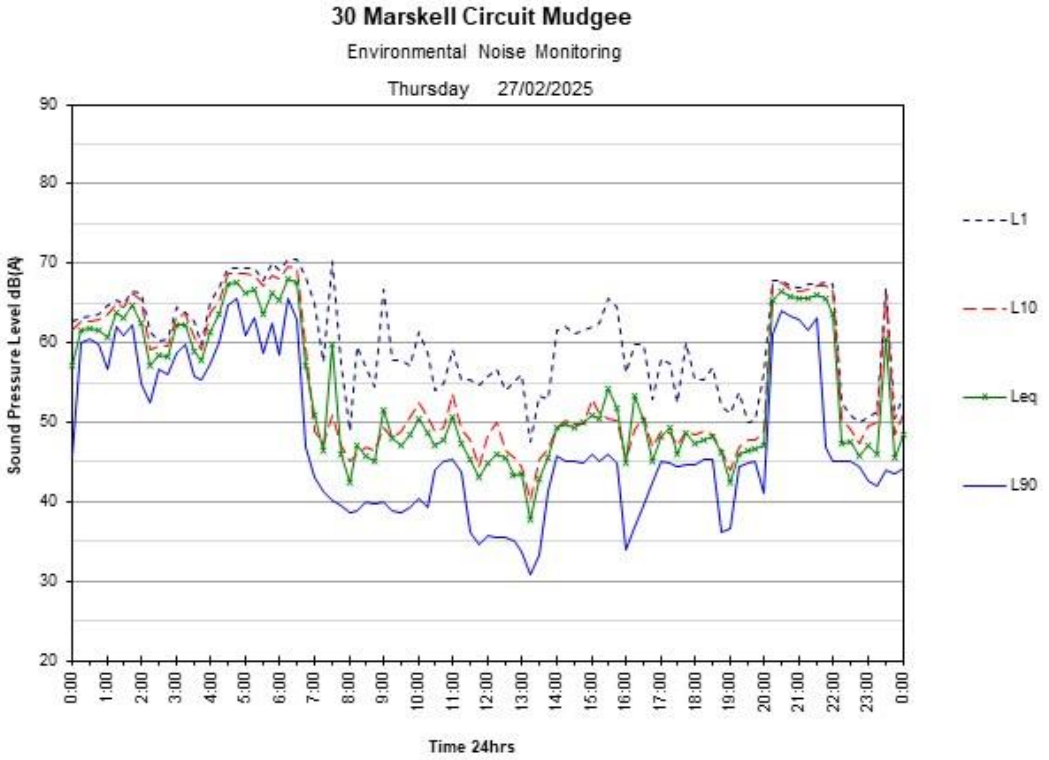
Leq
L90


30 Marskell Circuit Mudgee
Environmental Noise Monitoring
Thursday 27/02/2025
Sound Pressure Level dB(A)
90
80
70
60
50
40
30
20
0:00
1:00
2:00
3:00
4:00
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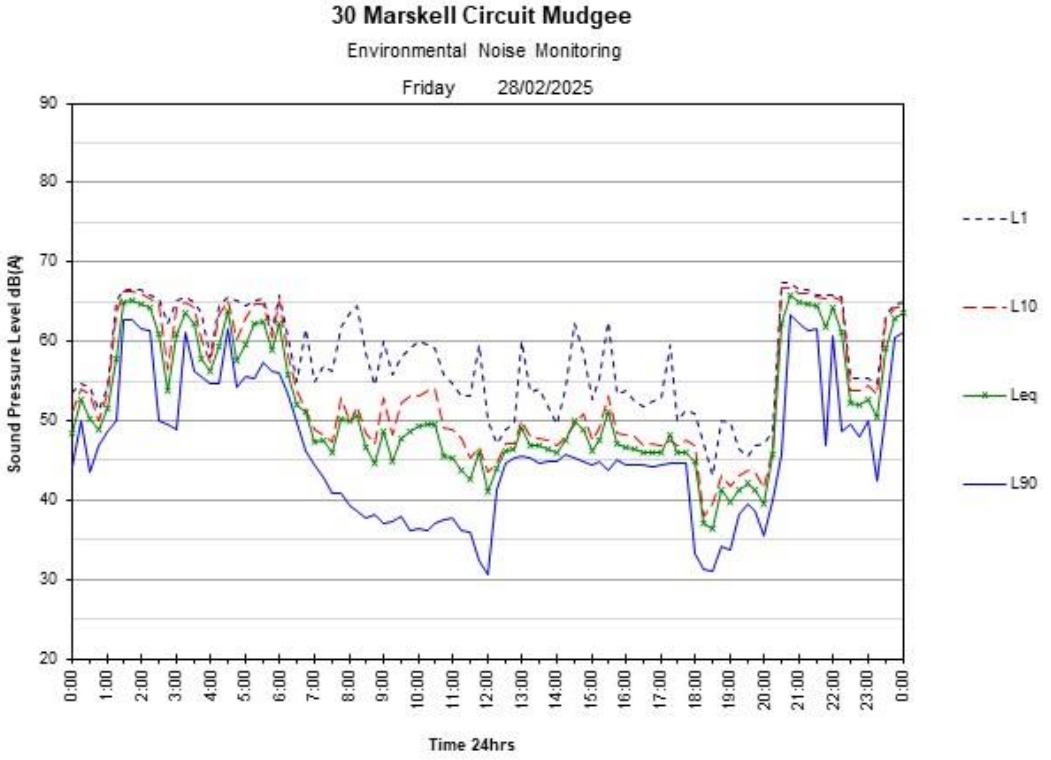
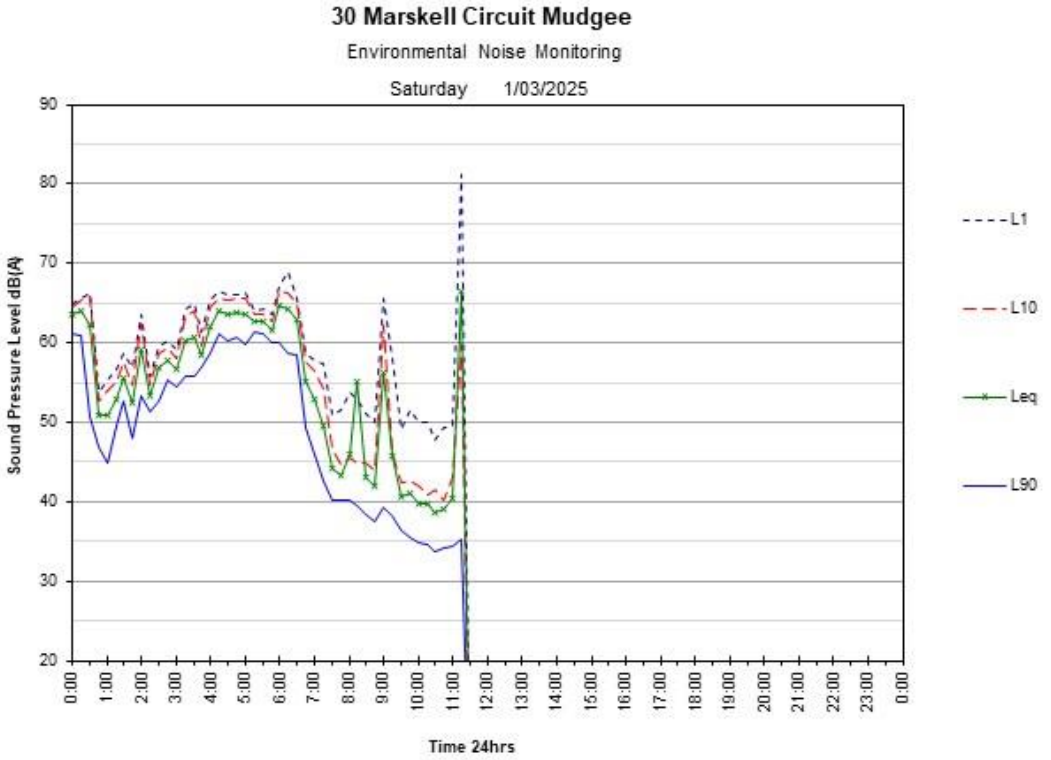
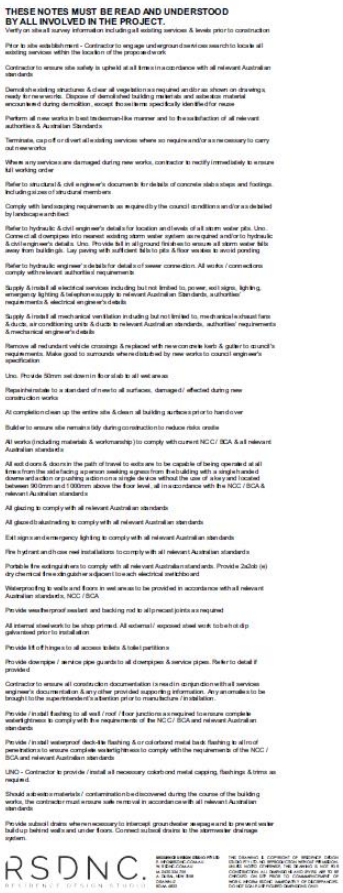

30 Marskell Circuit Mudgee
Environmental Noise Monitoring
Friday 28/02/2025
Sound Pressure Level dB(A)
Time 24hrs
L1
L10
Leq
L90


30 Marskell Circuit Mudgee
Environmental Noise Monitoring
Saturday 1/03/2025
Sound Pressure Level dB(A)
Time 24hrs
L1
L10
Leq
L90

10.2 Development Plans



THESE NOTES MUST BE READ AND UNDERSTOOD BY ALL INVOLVED IN THE PROJECT.

Verify on site all survey information including all existing services & levels prior to construction

Prior to site establishment - Contractor to engage underground services search to locate all existing services within the location of the proposed work

Contractor to ensure site safety is upheld at all times in accordance with all relevant Australian standards

Demolish existing structures & clear all vegetation as required and/or as shown on drawings, ready for new works. Dispose of demolished building materials and asbestos material encountered during demolition, except those items specifically identified for reuse

Perform all new works in best tradesman-like manner and to the satisfaction of all relevant authorities & Australian Standards

Terminate, cap off or divert all existing services where so require and/or as necessary to carry out new works

Where any services are damaged during new works, contractor to rectify immediately to ensure full working order

Refer to structural & civil engineer's documents for details of concrete slabs steps and footings. Including all sizes of structural members

Comply with landscaping requirements as required by the council conditions and/or as detailed by landscape architect

Refer to hydraulic & civil engineer's details for location and levels of all storm water pits. Uno. Connect all downpipes into nearest existing storm water system as required and/or to hydraulic & civil engineer's details. Uno. Provide fall in all ground finishes to ensure all storm water falls away from buildings. Lay paving with sufficient falls to pits & floor wastes to avoid ponding

Refer to hydraulic engineer's details for details of sewer connection. All works / connections comply with relevant authorities' requirements

Supply & install all electrical services including but not limited to, power, exit signs, lighting, emergency lighting & telephone supply to relevant Australian Standards, authorities' requirements & electrical engineer's details

Supply & install all mechanical ventilation including but not limited to, mechanical exhaust fans & ducts, air conditioning units & ducts to relevant Australian standards, authorities' requirements & mechanical engineer's details

Remove all redundant vehicle crossings & replaced with new concrete kerb & gutter to council's requirements. Make good to surrounds where disturbed by new works to council engineer's specification

Uno. Provide 50mm set down in floor slab to all wet areas

Reinstate/make to a standard of new to all surfaces, damaged / effected during new construction works

At completion clean up the entire site & clean all building surfaces prior to hand over

Builder to ensure site remains tidy during construction to reduce risks onsite

All works (including materials & workmanship) to comply with current NCC / BCA & all relevant Australian standards

All exit doors & doors in the path of travel to exits are to be capable of being operated at all times from the side facing a person seeking egress from the building with a single-handed downward action or pushing action on a single device without the use of a key and located between 900mm and 1100mm above the floor level, all in accordance with the NCC / BCA & relevant Australian standards

All glazing to comply with all relevant Australian standards

All glazed balustrading to comply with all relevant Australian standards

Exit signs and emergency lighting to comply with all relevant Australian standards

Fire hydrant and hose reel installations to comply with all relevant Australian standards

Portable fire extinguishers to comply with all relevant Australian standards. Provide 2x2kb (e) dry chemical fire extinguisher adjacent to each electrical switchboard

Waterproofing to walls and floors in wet areas to be provided in accordance with all relevant Australian standards, NCC / BCA

Provide weatherproof sealant and backing rod to all proposed joints as required

All internal steelwork to be shop primed. All external / exposed steel work to be hot dip galvanised prior to installation

Provide lift off hinges to all access toilets & toilet partitions

Provide downpipe / service pipe guards to all downpipes & service pipes. Refer to detail if provided

Contractor to ensure all construction documentation is read in conjunction with all services engineer's documentation & any other provided supporting information. Any anomalies to be brought to the superintendent's attention prior to manufacture / installation

Provide / install flashing to all wall / roof / floor junctions as required to ensure complete watertightness to comply with the requirements of the NCC / BCA and relevant Australian standards

Provide / install waterproof deck-tite flashing & or colorbond metal back flashing to all roof penetrations to ensure complete watertightness to comply with the requirements of the NCC / BCA and relevant Australian standards

UNO - Contractor to provide / install all necessary colorbond metal capping, flashings & trims as required.

Should asbestos materials / contamination be discovered during the course of the building works, the contractor must ensure safe removal in accordance with all relevant Australian standards

Provide subsoil drains where necessary to intercept groundwater seepage and to prevent water build up behind walls and under floors. Connect subsoil drains to the stormwater drainage system.

RSDNC.

Proposed Early Learning Centre

30 Marskell Circuit, Mudgee NSW 2850

NOTE REV DATE

SCALE

STATUS

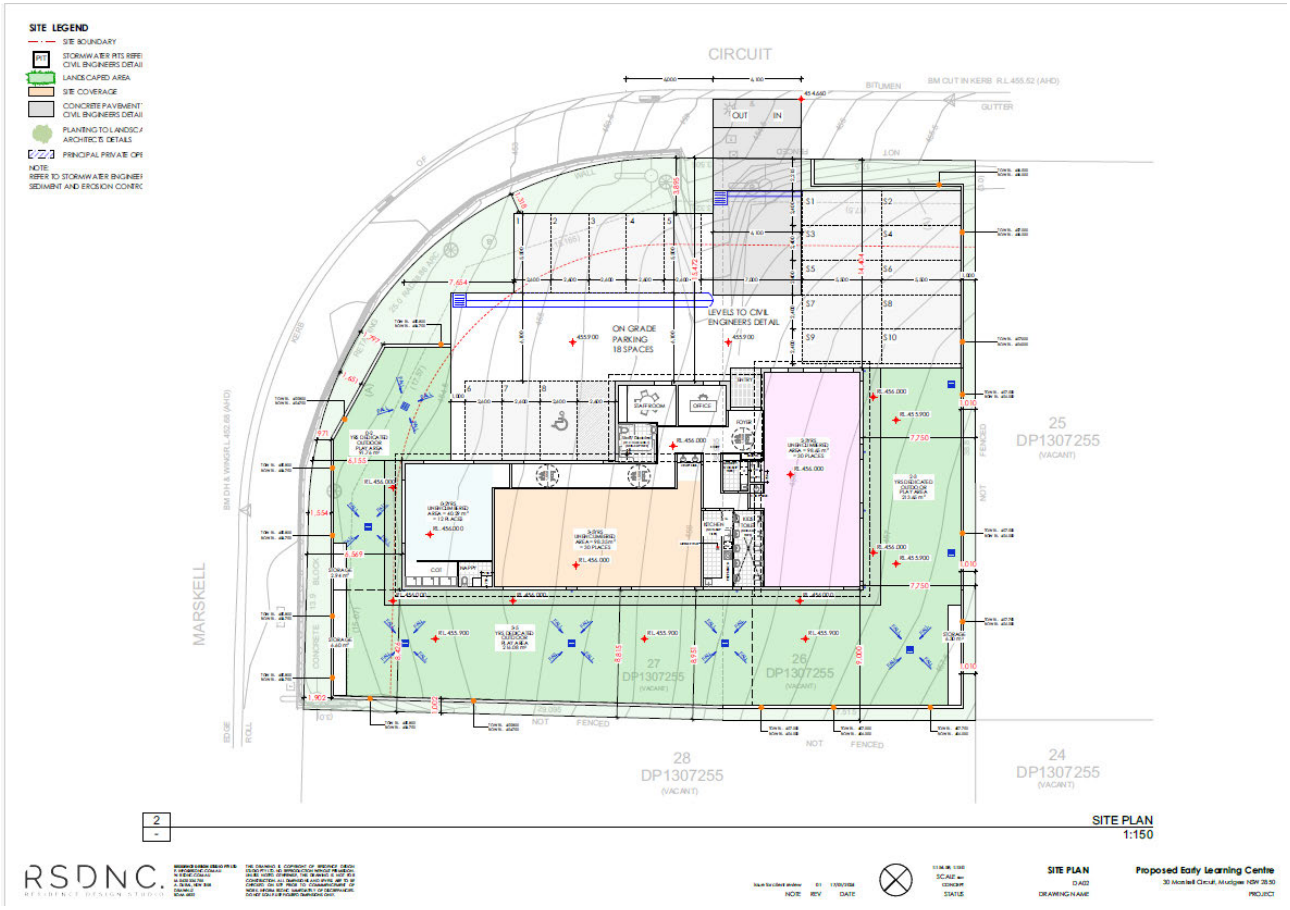
COVER PAGE

DRAWING NAME

Proposed Early Learning Centre

30 Marskell Circuit, Mudgee NSW 2850

PROJECT

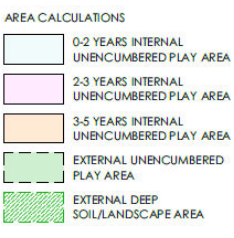


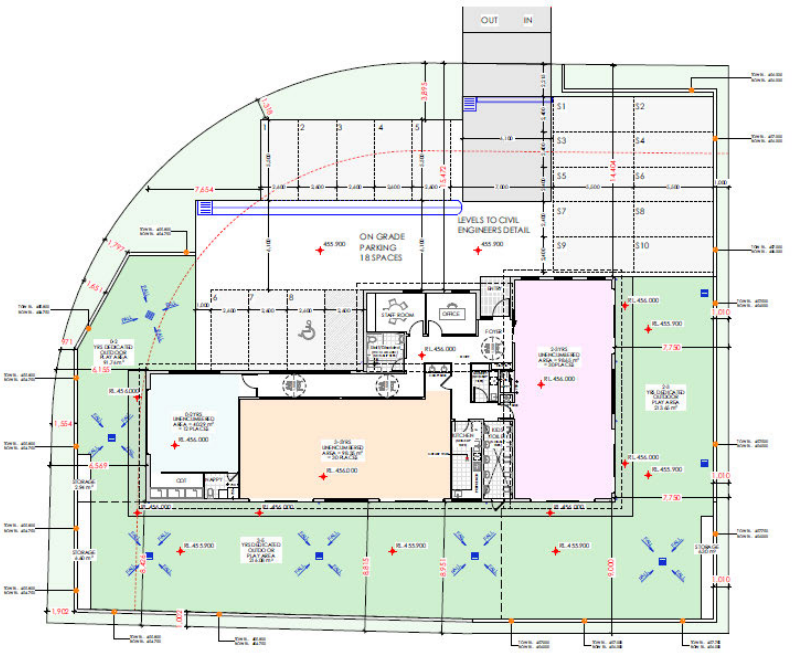
RSDNC. RESIDENCE DESIGN STUDIO

SITE PLAN — DA02 — Proposed Early Learning Centre, 30 Marskell Circuit, Mudgee NSW 2850

COMPLIANCE TABLE

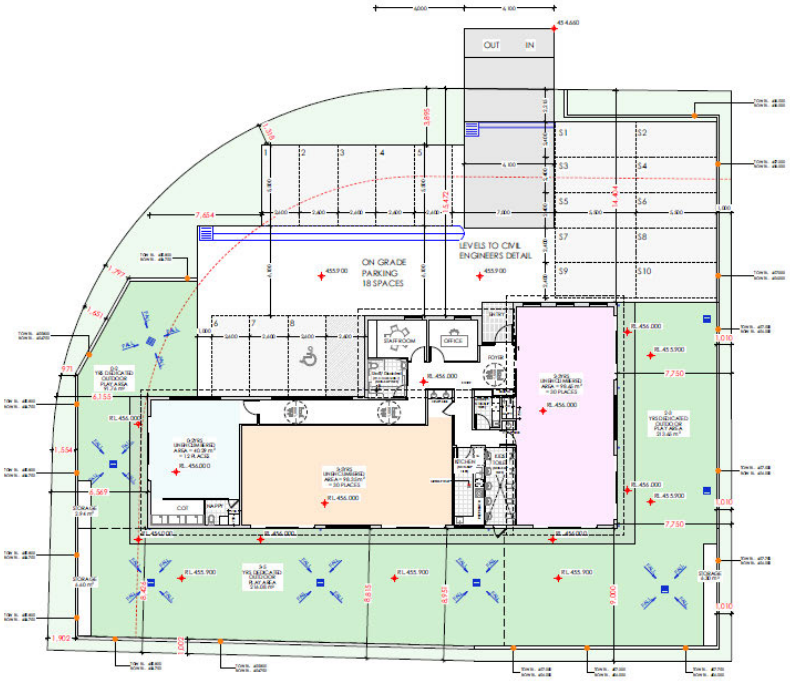
ITEM	PROPOSED	STANDARD	COMPLIANCE
SITE AREA	3671.8m²		
SETBACK			
PRIMARY FRONT	11m	10m	YES
SIDE	2.55m	2.5m	YES
SIDE SECONDARY	3m	3m	YES
REAR	15m	15m	YES
TOTAL FLOOR AREA	650m²	430m² Max.	YES
HEIGHT	8m	9m	YES
STORAGE			
INTERNAL 0-2 YEARS	25m³ COMBINED INTERNAL	25m³ COMBINED INTERNAL	YES
2-3 YEARS			YES
3-5 YEARS			YES
EXTERNAL 0-5 YEARS	15m³ COMBINED EXTERNAL	15m³ COMBINED EXTERNAL	YES
CHILDCARE			
NUMBER OF CHILDREN			
0-2 YEARS	12 KIDS	-	YES
2-3 YEARS	20 KIDS	-	YES
3-5 YEARS	30 KIDS	-	YES
TOTAL NO:	70 KIDS	-	YES
NUMBER OF TEACHERS			
0-2 YEARS	3 TEACHERS	1:4 KIDS	YES
2-3 YEARS	4 TEACHERS	1:5 KIDS	YES
3-5 YEARS	5 TEACHERS	1:10 KIDS	YES
TOTAL NO:	12 TEACHERS	-	YES
INDOOR PLAY AREA			
0-2 YEARS	40m²	3.25m² / KID	YES
2-3 YEARS	97m²	3.25m² / KID	YES
3-5 YEARS	98m²	3.25m² / KID	YES
TOTAL AREA:	237 m²	3.25m² / KID	
OUTDOOR PLAY AREA			
TOTAL AREA:	522 m²	7m² / KID OR 504m²	YES
CAR PARKING	REQUIRED CAR SPACES = 18		
VISITORS/PARENT	13 SPACES	-	
STAFF	-	-	
ACCESSIBLE	1 SPACE	-	
TOTAL CAR SPACES	14 SPACES	-	YES
WASTE MANAGEMENT			
TOTAL BINS		-	YES





RSDNC. RESIDENCE DESIGN STUDIO

CALCULATIONS PLANS — DA03 — Proposed Early Learning Centre, 30 Marskell Circuit, Mudgee NSW 2850



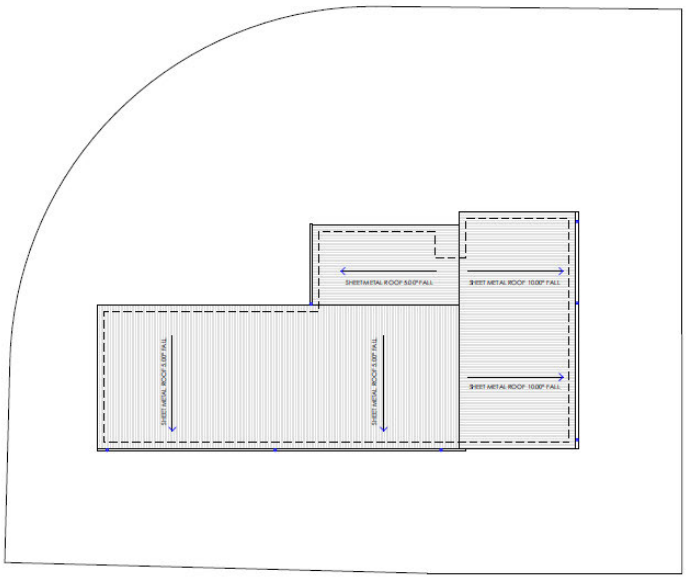
1
-

GROUND FLOOR PLAN
1:150

RSDNC.
RESIDENCY DESIGN STUDIO

GROUND FLOOR PLAN
DA04
DRAWING NAME

Proposed Early Learning Centre
30 Marskell Circuit, Mudgee NSW 2850
PROJECT



1
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ROOF PLAN
1:150

RSDNC.
RESIDENCY DESIGN STUDIO

ROOF PLAN
DA05
DRAWING NAME

Proposed Early Learning Centre
30 Marskell Circuit, Mudgee NSW 2850
PROJECT