Flourish Childcare Centre

Acoustic Report for DA

Daleford Property Pty Ltd

Level 6 100 Edward Street, Brisbane, QLD 4000

Prepared by:

SLR Consulting Australia

SLR Project No.: 620.041734.00001

28 January 2025

Revision: 1.1

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.1	28 January 2025	Louisa Cheung	Timothy Trewin	Timothy Trewin
1.1	9 December 2024	Louisa Cheung	Timothy Trewin	Timothy Trewin

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Daleford Property Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Daleford Property Pty Ltd on behalf of Cedar Woods Development to conduct noise assessment for the proposed Childcare Centre at Lot 553 on SP341905, South Maclean QLD 4280 (the Project). The purpose of this assessment was to assess the noise impact of the proposed development in the support of the development application.

2.0 Project Overview

2.1 Proposed Development

The tentative opening times of the childcare centre are weekdays between 6.30am to 6.30pm. Its proposed occupancy is 108 children aged 0-5 years old. There are six (6) activity rooms, two (2) cot rooms, kitchen, some staff area proposed on the ground floor with other staff area on the mezzanine floor. A carpark is proposed on the western side of the site while the outdoor area is proposed on the eastern side of the site.

The operation time of the children care is yet confirmed at this stage. Based on the operation time of closest childcare centre in the nearby area, the operation time is assumed to be 6.30am to 6.30 pm, Monday to Friday. **Figure 1** below presents proposed development site plan.

Figure 1 Childcare centre site plan

2.2 Site and Surroundings

The proposed childcare centre will be located at Lot 553 on SP341905 (a PDA zone), South Maclean QLD 4280. The site is adjacent to new residential lands to the west, surrounding by more residential lands to the south and east, separated by Nambucca street and Clarence Street. Across Endeavour Circuit, there will be the linear park on the outside of Flagstone Creek. The site location and nearby lots are shown in **Figure 2 .**

The site and its neighbouring lots are still under development. To the far west of the site is a developed residential area.

Figure 2 Site location and nearby lots

2.3 Ambient Noise Environment

2.3.1 Background Noise Monitoring

Noise logging has been conducted at the 2 locations shown in **Figure 3.**

The monitoring was carried out between 14 November 2024 to 28 November 2024. Location 1 is at the site while location 2 is out the house of 1 Bowen Street along Peeble Creek Way. Location 2 is within the closest neighbouring residential area where the background noise will be similar to that around the site after development. The locations are shown in **Figure 3.**

Figure 3 Noise monitoring location

The noise surveys were undertaken with reference to relevant guidelines and standards for the measurement of environmental noise, including:

- Standards Australia AS 1055.1-2018 Acoustics – Description and measurement of environmental noise – General procedures, (AS 1055).
- Department of Environment and Science, Noise Measurement Manual (NMM 2020).

Details of instrumentation use is presented in **Table 1**.

Table 1 Noise monitoring equipment

Location	Equipment type	Make and Model	Serial number
L1	Noise logger	Svan 977	98419
L2	Noise logger	Svan 977	99018

Location	Equipment type	Make and Model	Serial number
All	Acoustic calibrator	B&K - Sound Level Calibrator	3002750

2.3.2 Noise Monitoring Results

The measured results are summarised in **Table 2**. As observed at location 2, there were construction activities at the adjoining lot during the noise monitoring period. Those periods have been excluded and presented in **Table 2.** The measured L_{A90} at location 2 is adopted in the assessment in this report as it will be more similar to the noise environment after the development of the site. Details of the noise monitoring results are presented in **Appendix A**.

Table 2 Noise monitoring results

Logging Location		RBL			Days	L_{A90}		
		Day	Evening	Night		Day	Evening	Night
1	1 Bowen St/ Peeble Creek Way	36	34	29	Monday to Friday	39	39	34
					Saturday	35	40	36
					Sunday	27	37	41
					Monday to Friday, 6:30am to 6:30pm	39	--	--
2	Site	40	35	28	Monday to Friday	44	37	33
					Saturday	41	44	35
					Sunday	39	39	34
					Monday to Friday, 6:30am to 6:30pm	43	--	--

3.0 Assessment Criteria

3.1 PDA Development Guideline

In Queensland PDA guidelines no. 14 Environmental values and sustainable resource use (May 2015), under “Pollution sources and strategies” source 2- noise, sensitive land uses shall be managed to acceptable acoustic standards with references as listed below:

- SPP 5/10: Air, Noise and Hazardous Materials 2010, currently replaced by latest State Planning Policy 2022
- Environmental Protection (Noise) Policy 2008, currently replaced by Environmental Protection (Noise) Policy 2019
- Queensland Development Code: Mandatory Part 4.4 - Buildings in transport noise corridors (DSDIP)
- Road traffic noise management code of practice (DTMR)
- AS 2021: 2000 Acoustics - Aircraft noise intrusion - Building siting and construction
- Relevant local noise management criteria

According to the State Planning Policy Interactive Mapping System, there is no major road nor transport corridor in the close vicinity of the site, therefore, Queensland Development Code: Mandatory Part 4.4 and requirements from DTMR do not apply here. Also, the site is not located within any ANEF contour, therefore AS 2021:2000 does not apply.

3.1.1 SPP 5/10: Air, Noise and Hazardous Materials

The code outlines the following outcomes regarding noise:

Performance outcomes (PO)		Acceptable outcomes (AO)
PO2 Development must not result in sensitive land use being exposed to industrial air, noise and odour emissions that impact on human health, amenity and wellbeing.	AO2.1	The use is designed to ensure that: the indoor noise objectives set out in the Environmental Protection (Noise) Policy 2008 are met the air quality objectives in the Environmental Protection (Air) Policy 2008, and any relevant national or international standard (for example, the World Health Organisation Guidelines for Air Quality 2000) are met. Design measures could include: landscaping setting back sensitive land uses from existing and future industrial noise sources positioning buildings in the most appropriate geographic locations (e.g. placing bedrooms away from existing and future industrial noise sources) using barriers, mounds and fences screening sensitive land uses from industrial noise sources. Note: an air and/or noise impact assessment can be prepared by a suitably qualified professional to demonstrate compliance with acceptable outcome AO2.1. Refer to the SPP Guideline (Annexes 3 and 4) to see the minimum requirements for an air or noise impact assessment.

3.2 Logan Planning Policy 3

Section 3.2.1 Noise emission and noise intrusion standards of the policy specified the following standards:

1 The noise emission standards are specified in:

a) Table 3.2.1.1 - Noise emission standards for the protection of residential amenity in this planning scheme policy for the:

i. Community facilities zone;

ii. Emerging community zone;

iii. Environmental management and conservation zone;

iv. Low density residential zone;

v. Low-medium density residential zone;

vi. Medium density residential zone;

vii. Private sport and recreation precinct of the Recreation and open space zone;

viii. Rural residential zone other than the Cottage rural precinct;

b) Table 3.2.1.2 - Noise emission standards for the protection of general amenity in this planning scheme policy for the:

i. Centre zone;

ii. Low impact industry zone;

iii. Medium impact industry zone;

iv. Mixed use zone;

v. Specialised centre zone.

Table 3.2.1.1 - Noise emission standards for the protection of residential amenity

Noise level at the boundary of premises			
Noise type	Time period	Monday to Saturday	Sunday and public holidays
Non-steady sound*	Day 7:00am - 6:00pm	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A)	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A)
	Evening 6:00pm to 10:00pm	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A)	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 5 dB(A)
	Night 10:00 - 7:00am	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 0 dB(A) and L_{Amax} ≤ 60dB(A)	$L_{Aeq,adj,T}$ ≤ L_{A90} plus 0 dB(A) and L_{Amax} ≤ 60dB(A)
Continuous noise*	Anytime	$L_{A90,T}$ plus 0dB(A)	$L_{A90,T}$ plus 0dB(A)

Editor's note - * as defined in AS1055.1-1997 Acoustics - Description and measurement of environmental noise

Note - Adjustments for tonality and impulsiveness to be included in accordance with AS1055.1-1997 Acoustics - Description and measurement of environmental noise.

Table 3 Project specific noise emission standards for the protection of residential amenity

Noise level at the boundary of premises			
Noise type	Time period	Monday to Saturday	Sunday and public holidays
Non-steady sound*	Day 7:00am - 6:00pm	Monday to Friday $L_{Aeq,adj,T}$ ≤ 49 dB(A) Saturday $L_{Aeq,adj,T}$ ≤ 46 dB(A)	$L_{Aeq,adj,T}$ ≤ 44
	Evening 6:00pm to 10:00pm	Monday to Friday $L_{Aeq,adj,T}$ ≤ 44 dB(A) Saturday $L_{Aeq,adj,T}$ ≤ 42 dB(A)	$L_{Aeq,adj,T}$ ≤ 44
	Night 10:00 - 7:00am	$L_{Aeq,adj,T}$ ≤ 38 dB(A) and L_{Amax} ≤ 60dB(A)	$L_{Aeq,adj,T}$ ≤ 39 and L_{Amax} ≤ 60dB(A)
Continuous noise*	Operational hours 6.30am to 6.30pm	Monday to Friday $L_{A90,T}$≤ 43 dB(A)	Not in operation

Note - Adjustments for tonality and impulsiveness to be included in accordance with AS1055.1-1997 Acoustics - Description and measurement of environmental noise.

3.3 Environmental Protection (Noise) Policy 2019 – Noise Emission

Noise from commercial and industrial activity is commonly regulated by the Queensland Environmental Protection (Noise) Policy 2019 (EPP Noise). The Acoustic Quality Objectives from the EPP Noise have been applied as the assessment criteria for noise emissions associated within the site.

Where noise levels are above the objectives, it triggers the investigation of reasonable and practicable measures to maintain and preserve acoustic amenity and health and wellbeing.

Table 4 Acoustic Quality Objectives for Residential Receptors

Sensitive receptor	Time of day	Acoustic Quality Objectives[2], dBA			Environmental value
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$	
Residence (outdoors)	Daytime and evening	50/42[1]	55/47[1]	65/52[1]	Health and wellbeing
	Night-time	37[1]	42[1]	47[1]	Health and wellbeing, in relation to the ability to sleep
Residence (indoors)	Daytime and evening	35	40	45	Health and wellbeing
	Night-time	30	35	40	Health and wellbeing, in relation to the ability to sleep

Source Environmental Protection (Noise) Policy 2019.

[1] As stated in Noise and vibration—EIS information guideline, an outdoor to indoor attenuation value of 7dB, which is appropriate for typical Queensland buildings with open windows, is used to calculate the outdoor objectives from the indoor objectives.

The daytime outdoor AQO, corrected evening time outdoor AQO and corrected night-time outdoor AQO will be adopted in the following assessment as below:

- Dwelling (outdoor) daytime/evening sound level of $L_{Aeq,Adj,1hr}$ 50 dBA, daytime $L_{A1,Adj,1hr}$ 65 dBA and evening time $L_{A1,Adj,1hr}$ 52 dBA when considered through assumed open windows.
- Dwelling (outdoor) night-time sound level of $L_{Aeq,Adj,1hr}$ 37 dBA and $L_{A1,Adj,1hr}$ 47 dBA when considered through assumed open windows.

3.4 Project Specific Noise Limits

Following the review of the criteria detailed in sections above, the project assessment noise limits are presented in **Table 5**. The noise limits were conservative from the above-mentioned Noise Policies.

Table 5 Project specific noise limits

Noise level at the boundary of premises		
Noise type	**Time period**	**Monday to Friday**
	Day (7am-6pm)	$L_{Aeq,adj,1hr}$ ≤ 49 dBA and $L_{A1,Adj,1hr}$ 65 dBA

Noise level at the boundary of premises		
Non-steady sound	Evening (6pm-10pm)	$L_{Aeq,adj,1hr}$ ≤ 44 dBA and $L_{A1,Adj,1hr}$ 52 dBA
	Night (10pm-7am)	$L_{Aeq,adj,1hr}$ ≤ 38 dBA, $L_{A1,Adj,1hr}$ 47 dBA and L_{Amax} ≤ 60 dB(A)
Continuous noise	Operational hours Day (6.30am-6.30pm)	$L_{Aeq,adj,1hr}$ ≤ 43 dBA

3.5 Environmental Protection (Noise) Policy 2019 – Noise Intrusion to Childcare Centre

Noise into the childcare centre is also regulated by the Queensland Environmental Protection (Noise) Policy 2019 (EPP Noise). The Acoustic Quality Objectives from the EPP Noise have been applied as the assessment criteria for noise intrusion to the site.

Where noise levels are above the objectives, it triggers the investigation of reasonable and practicable measures to maintain and preserve acoustic amenity and health and wellbeing.

Table 6 Acoustic Quality Objectives for Childcare Centre

Sensitive receptor	Time of day	Acoustic Quality Objectives[2], dBA			Environmental value
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$	
Childcare centre of kindergarten (for indoors)	When open for business, other than when the children usually sleep	35			Health and wellbeing
Childcare centre of kindergarten (for indoors)	When the children usually sleep	30			Health and wellbeing, in relation to the ability to sleep
Source Environmental Protection (Noise) Policy 2019.					

4.0 Noise Modelling Details

To assess the noise emissions from the Project against the noise limits, a computational noise model was developed using SoundPLAN (Version 8.2) acoustic software. SoundPLAN is a software package that enables the development of a sophisticated 3D digital terrain and building elevation model, the locations and noise emission levels of identified noise sources, and the locations of communities and other sensitive receptors with potential to be impacted.

The software applies acoustic and environmental standards and guidelines to calculate the emission of noise from multiple sources and the propagation of noise (sound) within the environment. The modelling accounts for the complex interaction of the noise emissions with the local environment, including screening and reflection of noise from local buildings, the effects of local weather conditions, the acoustic properties of the local ground coverage and the frequency content of the noise emission sources.

Noise predictions were made using the SoundPLAN implementation of International Standard ISO 9613-2:2024 – *Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors (ISO 9613). This standard* assumes downwind propagation, i.e. wind is assumed to blow from source to receptor, under a well-developed moderate ground-based temperature inversion;

therefore, ISO 9613-2:1996 is considered appropriate for assessment of noise levels at close distance as it provides reasonable conservativism without gross overprediction.

Other buildings and intervening structures as observable in aerial images were digitised incorporated in the model to account for the noise screening provided. The dimensions and elevations were extracted from the LiDAR data discussed below.

4.1 Digital Elevation Model (DEM)

The noise model was developed starting from a digital elevation model (DEM) using 0.5 m contour lines for existing terrain within 20m of the site the site and 1m beyond interpolated from 2014 digital elevation LiDAR data extracted from a QLD Government website to model the existing and expansion site.

4.2 Operational Noise Sources

The operation time of the childcare is yet confirmed at this stage. A similar operation time, 6.30am to 6.30 pm, as closest childcare in Flagstone is assumed.

4.2.1 Mechanical Services

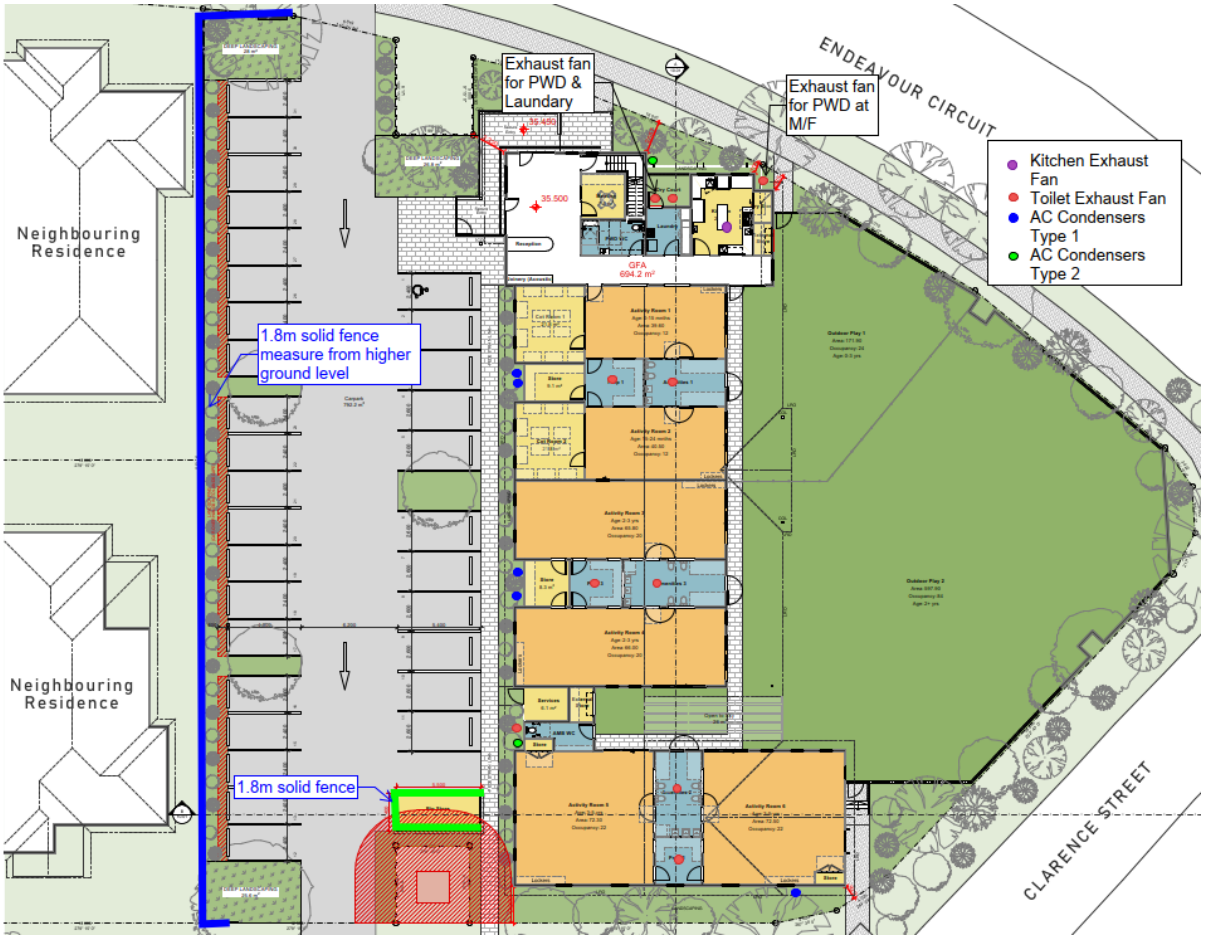
No specific mechanical plant selection has been provided for the project at this stage. Mechanical plant items have therefore been modelled based on experience with similar previous applications. The plant would operate during the centre opening times, currently assumed to be 6.30am and to 6.30pm. A range of sound power levels for each mechanical plant item typically associated with a childcare centre is presented in **Table 7** and has been derived from reference catalogues and the AAAC[1] Guidelines. The indicative location of each plant unit is shown in **Figure 4**.

Table 7 Mechanical plant sound power levels

Noise Source	Location	Sound Power Level L_{WA} (dB re 1pW)
Medium (double fan) condenser	Wall/floor mount at Ground Level	Type 1: 71[1] Type 2: 76[1]
Kitchen Exhaust Fan	Wall/Roof	70
Toilet Exhaust Fan	Walls/Roof	60
Note 1: Reference to noise level of Mitsubishi Electric's outdoor units PUMY-SP140V/YKMD-A and PUMY-P200YKMD-A		

[1] Association of Australasian Acoustical Consultants.

Figure 4 Site layout and mechanical plant locations



The noise emissions from the mechanical services associated with the centre operation are subject to equipment selection and final location. The following will be required to comply with the project noise criteria:

- Plant items to be free from intrusiveness characteristics (tonality).
- Equipment to be shielded form view from the closest receivers.

The noise emission from mechanical services should be confirmed on subsequent stage of the project once the mechanical plant is selected. With careful consideration and equipment selection the plant emission has potential to comply with the project noise criteria.

4.2.2 Carpark

Carparking for 31 spaces associated with the childcare centre is proposed to be located on the west side of the site. the location of the car park is also shown in **Figure 5**. The noise from staff traffic, drop off/pick up and is assumed as **Table 8** below. A traffic speed of 10km/hr on site was modelled. The paths to the bay closest to the nearest receiver at lot 504 was selected in modelling to represent the worst scenario. The continuous sound power levels of a vehicle modelled are also listed in **Table 8**.

Door shutting is modelled as L_{wAmax} 84 dB inclusive of a 10 dB impulsive adjustment that may be applicable as per **Section 3.2.**

Table 8 Site traffic

Type	Total Sound Power Level L_{WA} (dB re 1 pW)	Assumption and Frequency
Staff traffic with door closing (18 staff planned)	81	6 arrivals before 7am 12 arrivals between 7 to 8am 12 departures between 5pm to 6pm 6 departures between 6pm to 7pm 2 arrivals and departures at other time
Pick up and drop off (Planned 108 children)	81	10 arrivals & departure before 7am 40 arrivals & departure between 7 to 8am 20 arrivals & departure between 4 to 6pm 10 arrivals & departure after 6pm 10 arrivals and departures at other time
Delivery Van	86	1 arrival and departure within a 15-min period between 7am to 5pm

4.2.3 Outdoor Play Areas

Figure 5 presents the childcare site plan with annotated outdoor play areas location.

The childcare centre will likely operate during the 6:30 am to 6:30 pm period. The time of the outdoor play areas use has not been specified at this stage and will be decided by the centre operator. With regard to the period between 6:30 am to 7:00 am, which by definition is part of the night-time period for noise, it is assumed there will be a relatively low number of children at the centre at this time and no outdoor play will occur.

Figure 5 Outdoor play areas location

Children noise from outdoor play areas has been established based on the *Association of Australasian Acoustical Consultants (AAAC) Guideline for Child Care Centre Acoustic Assessment* and our previous experience on similar projects. AAAC Guidelines provide a typical range of effective sound power levels for groups for 10 children playing. The effective sound power levels for the project have been established based on the number of children playing and are presented in **Table 9**.

Table 9 Outdoor play areas sound power levels

Age Group	Location	Number of children at outdoor play area at the same time	Play Time each day	Total Sound Power Level L_{WA} (dB re 1 pW)
0-3yo	Outdoor play area 1	12	Up to 4 hours total	88.
2-5yo	Outdoor play area 2	42	Up to 4 hours total	93

5.0 Noise Intrusion Assessment

The measured LAeq at the site during the operation hours of the Childcare Centre is summarised in **Section 3.5.** To account for the future growth after the completion of the childcare centre, a 3 dB correction is allowed.

Table 10 Measured LAeq at the site

Logging Location		L_{Aeq}, Monday to Friday 6:30am to 6:30 pm	Design Basis Including Future Growth
2	Site	54 dBA	57dBA

To achieve the acceptable EPP (Noise) acoustic quality objectives as required in **Section 3.5** at the indoor of the childcare (i.e. 35dBA for play/education areas and 30dBA for sleeping areas), the following building envelope acoustic ratings are required:

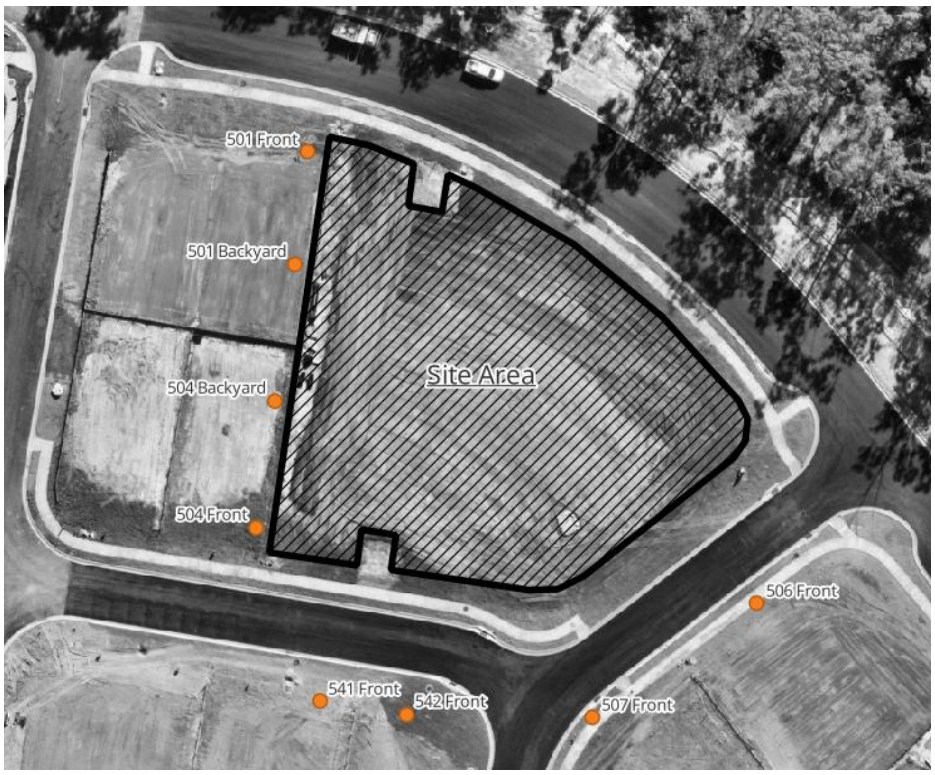
- **External walls:** Rw 42. Typically achievable by a fibre cement sheeting or weatherboards external façade, insulated cavity wall construction and an internal plasterboard lining (or equivalent).
- **Roof:** Rw 42. Typically achievable by profiled metal roof sheeting, insulated roof cavity and plasterboard ceiling system.
- **External glazing:**
  - Indoor play/education areas: Rw 32. Typically achievable by 6.38mm thick laminated glass, with full perimeter acoustically rated seals.
  - Sleeping areas: Rw 35. Typically achievable by 10.38mm thick laminated glass, with full perimeter acoustically rated seals

6.0 Noise Emission Assessment

6.1 Noise Sensitive Receivers

The nearest noise sensitive receivers identified are shown in **Figure 6.** All of them are currently vacant residential lots to be developed.

Figure 6 Nearest noise sensitive receivers



6.2 Mechanical Services

Predicted $L_{Aeq,adj,1hr}$ due to mechanical services is presented in the table below. The noise levels predicted complies with the noise limits. The noise from mechanical services is continuous, therefore, its $L_{Aeq,adj,1hr}$ will be similar to the $L_{A1,adj,1hr}$. Hence, complying with the $L_{Aeq,adj,1hr}$ noise limits also imply compliance with $L_{A1,adj,1hr}$.

Table 11 Mechanical noise predictions

NSR	Noise limits	Night (6:30am to 7am)	Day (7am-6pm)	Complies
501 Backyard	During operational hours, $L_{Aeq,adj,1hr}$ dBA- 43dBA EPP (Noise) nighttime criteria – $L_{Aeq,adj,1hr}$ 37dBA Day time criteria – $L_{Aeq,adj,1hr}$ 50dBA	37	40	Yes
501 House front		33	36	Yes
504 Backyard		37	40	Yes
504 House front		35	38	Yes
506 House front		25	28	Yes
507 House front		32	35	Yes
541 House front		32	35	Yes
542 House front		32	35	Yes

6.3 Carpark

Predicted $L_{Aeq,adj,1hr}$ and L_{Amax} due to carpark activities is presented in **Table 12**.

All predicted results comply with the council requirements ($L_{Aeq,adj,1hr}$ & L_{Amax}) , thus the EPP (Noise), which are with higher limits, will also be complied. The staff traffic and pick up & drop off will account for more than 1% of 1 hour between 6am to 7am and the daytime peak 7 am to 8am. Given that both the traffic and door closing has been included in the $L_{Aeq,adj,1hr}$ prediction, the predicted $L_{Aeq,adj,1hr}$ is believed to be similar to the $L_{A1,adj,1hr}$. Whereby the $L_{As,adj,1hr}$ limit is always higher than the $L_{Aeq,adj,1hr}$ limits, compliance with $L_{As,adj,1hr}$ is expected.

Table 12 Carpark noise predictions

NSR	Day (7am-6pm)	Evening (6pm-10pm)	Night (10pm-7am)		Complies
	$L_{Aeq,adj,1hr}$ ≤ 49 dBA	$L_{Aeq,adj,1hr}$ ≤ 44 dBA	$L_{Aeq,adj,1hr}$ ≤ 38 dBA,	L_{Amax} ≤ 60 dB(A)	
501 Backyard	38	32	32	49	Yes
501 House front	35	29	29	45	Yes
504 Backyard	36	30	30	42	Yes
504 House front	35	29	29	40	Yes
506 House front	15	9	9	19	Yes
507 House front	24	18	18	21	Yes
541 House front	37	31	31	41	Yes
542 House front	34	28	28	37	Yes

6.4 Outdoor Play Area

Predicted $L_{Aeq,adj,1hr}$ due to outdoor play area is presented in **Table 13.** The predicted noise levels comply with the $L_{Aeq,adj,1hr}$ limits and are at least 15dBA lower than the $L_{A1,adj,1hr}$ limits. Therefore, compliance with $L_{A1,adj,1hr}$ is also expected.

Table 13 Outdoor play area noise predictions without any mitigations

NSR	Noise limit during daytime	Day (7am-6pm)	Complies
501 Backyard	$L_{Aeq,adj,1hr}$ ≤ 49dBA $L_{A1,adj,1hr}$ ≤ 65dBA	29	Yes
501 House front		29	Yes
504 Backyard		28	Yes
504 House front		27	Yes
506 House front		47	Yes
507 House front		44	Yes
541 House front		27	Yes
542 House front		29	Yes

7.0 Summary of Acoustic Recommendations

From the above predictions, noise compliance could be expected with provision of the following recommendations:

- For control of noise intrusion into the occupied childcare areas of the building apply the following acoustic rated constructions to the building envelope:
  External walls: Rw 42. Typically, achievable by a fibre cement sheeting or weatherboards external façade, insulated cavity wall construction and an internal plasterboard lining (or equivalent).
  Roof: Rw 42. Typically achievable by profiled metal roof sheeting, insulated roof cavity and plasterboard ceiling system.
  External glazing:
  - Play/education areas: Rw 32. Typically achievable by 6.38mm thick laminated glass, with full perimeter acoustically rated seals.
  - Sleeping areas: Rw 35. Typically achievable by 10.38mm thick laminated glass, with full perimeter acoustically rated seals
- Apply solid fences (acoustic barriers) as marked on site layout/plan **Figure 4.** The nominated solid fences are to be constructed of a material achieving a minimum surface density of 12.5 kg/m^2. Suitable materials are expected to include, but are not limited to, 25mm lapped and capped pine palings, 9mm fibrous cement sheeting, or 75mm thick Hebel.
- Childcare outdoor group play be limited to hours 7 am to 7 pm only.
- The carpark surface is of a ‘low-squeal’ compound (in relating to tyre noise). Asphalt or plain concrete surfaces are expected to satisfy this requirement.
- Metal grates and man-hole covers be well fixed to avoid rattling, where applicable.
- Noise emitting mechanical plant and equipment are to be shielded from view from the closest receivers. Should plant sound powers exceed those listed in Table 7 then acoustic design input will be required during the later detailed design phase such that mechanical plant noise is able to be controlled to acceptable levels at both on and off-site noise sensitive receptors. Upon commissioning of the building, it will be the mechanical contractor’s responsibility to submit confirmation that noise emissions from the installed plant comply with the noise criteria listed in this report.

8.0 Conclusion

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Daleford Property Pty Ltd to conduct noise assessment for the proposed Childcare Centre at Lot 553 on SP341905, South Maclean QLD 4280 (the Project).

Potential noise sources were identified, and hence future potential noise emissions assessed. The assessment has considered the requirements of the Queensland EPP Noise, EP Act and AAAC Guideline with regard to the applicable ambient noise level. Based on the listed operating hours, the predictions show that the proposed development, with inclusion of the recommendations contained in this report is capable of complying with the relevant criteria at the most exposed noise sensitive receptors.

Appendix A Noise Monitoring Results

Flourish Childcare Centre

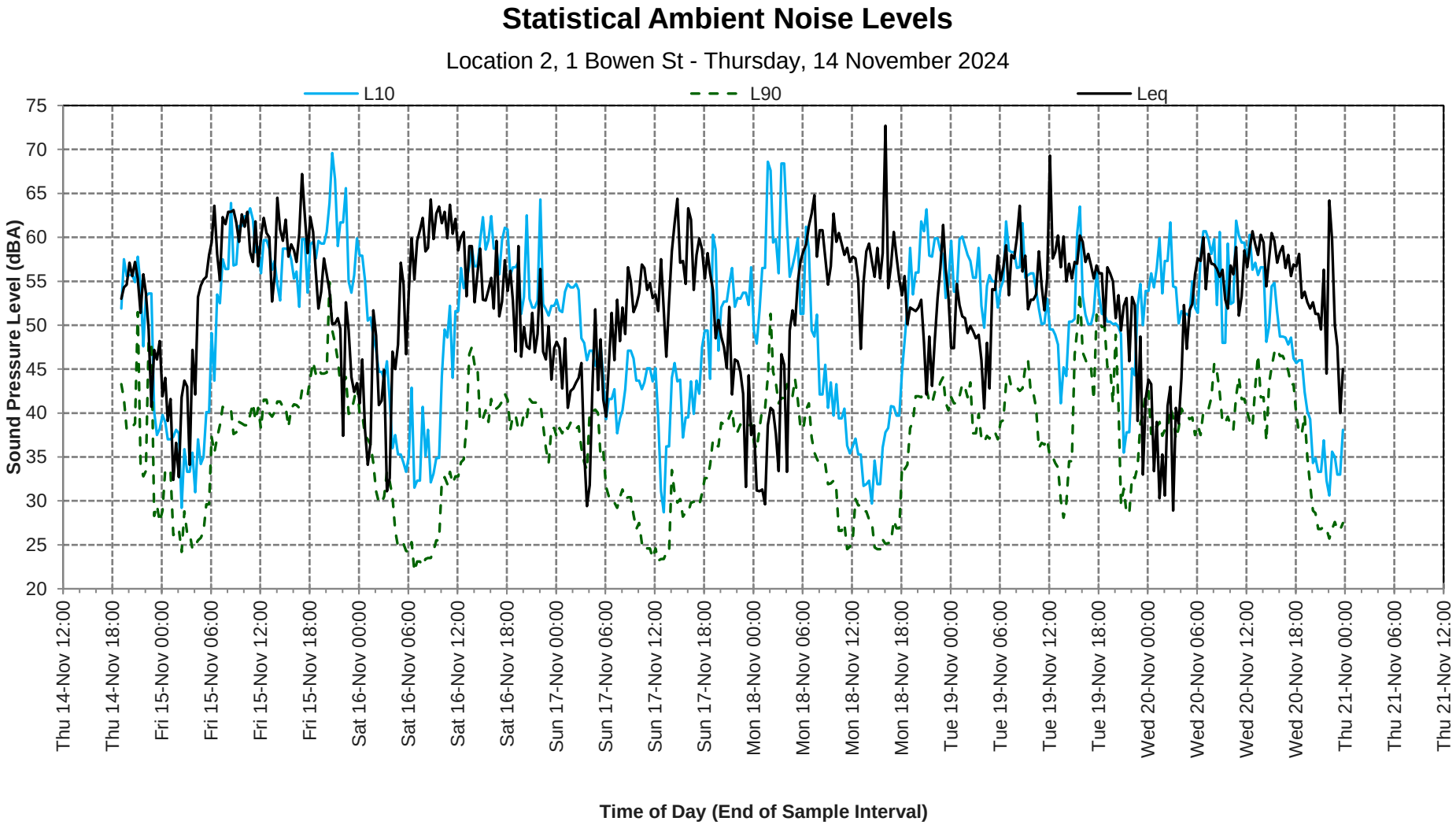
Acoustic Report for DA

Daleford Property Pty Ltd

SLR Project No.: 620.041734.00001

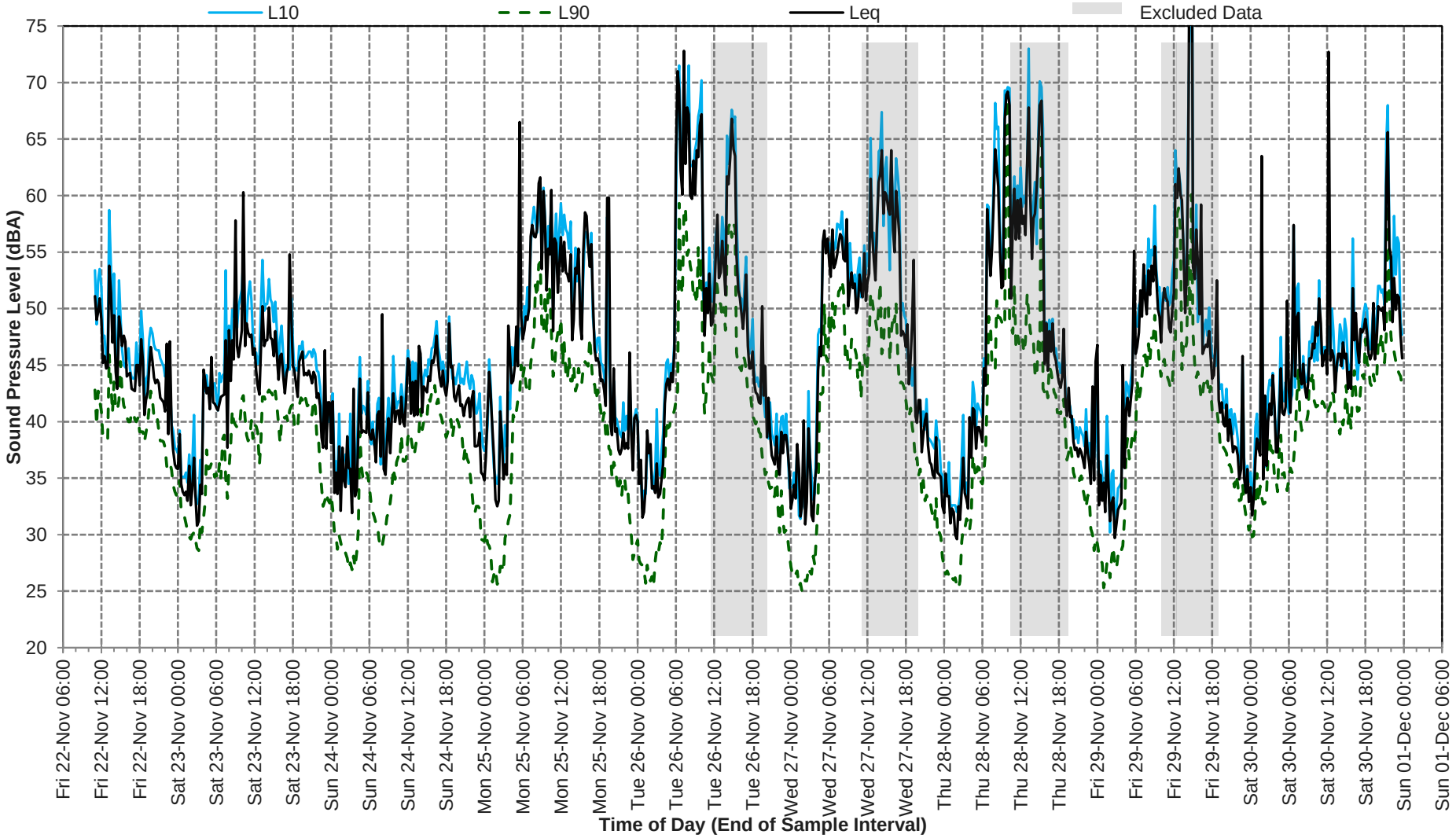
28 January 2025

A.1 Plots of noise monitoring results



Statistical Ambient Noise Levels

Site - Friday, 22 November 2024



A.2 Weather data during monitoring

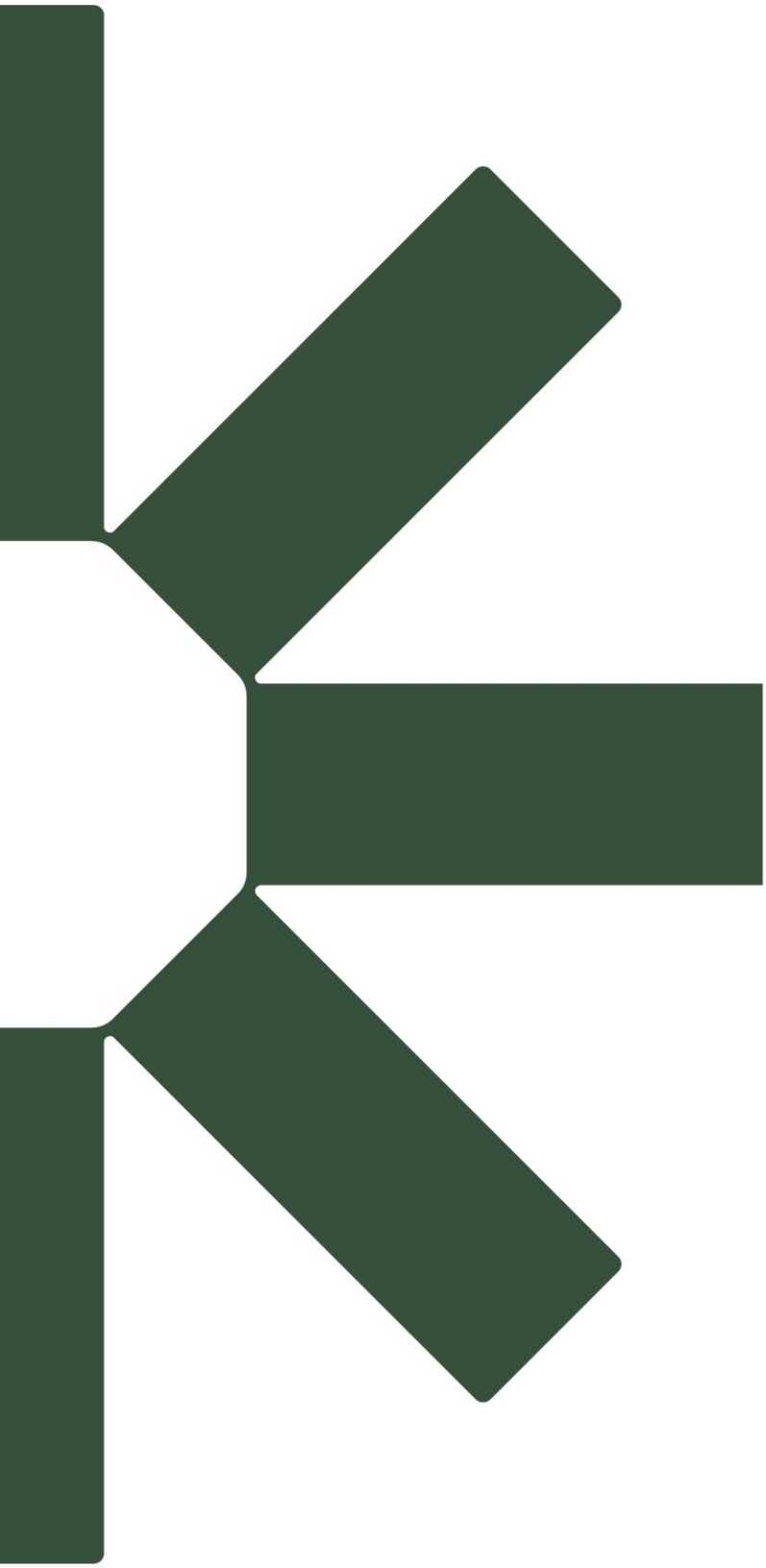
Logan City, Queensland
November 2023 Daily Weather Observations

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We			0																	
2	Th		33.0	0																	
3	Fr	13.0	25.0	0						22.0	62	4	SE	7							
4	Sa	17.0		1.0						23.0	66	5	E	4							
5	Su			0																	
6	Mo			0																	
7	Tu			0																	
8	We			0																	
9	Th		28.5	0												26.0	42	3	NE	6	
10	Fr	15.0	26.5	0						22.0	78	7	NE	2							
11	Sa	15.0	25.5	13.0						22.0	82	4	S	4							
12	Su	15.5		18.0						23.0	70	4	E	2							
13	Mo		30.0	0																	
14	Tu	19.5		0						24.5	68	8	SE	7							
15	We																				
16	Th		32.5													30.5	56	6	S	7	
17	Fr		30.0																		
18	Sa	17.0	27.5	2.0						24.5	64	4									
19	Su	19.5		0						24.0	67	3	E	4							
20	Mo		28.5																		
21	Tu	16.0	26.0	50.0						21.0	100	8	E	7		25.5	88	8	S	6	
22	We																				
23	Th																				
24	Fr																				
25	Sa																				
26	Su																				
27	Mo																				
28	Tu																				
29	We		31.2																		
30	Th	19.1								27.3	63	8	E	2		33.8	28	2	SE	9	
Statistics for November 2023																					
	Mean	16.7	28.7							23.3	72	5		4		28.9	53	4		7	
	Lowest	13.0	25.0							21.0	62	3	#	2		25.5	28	2	#	6	
	Highest	19.5	33.0	50.0						27.3	100	8	#	7		33.8	88	8	SE	9	
	Total			84.0																	

Observations were drawn from Logan City Water Treatment Plant {station 040854}

IDCJDW4073.202311 Prepared at 13:01 UTC on 12 Nov 2024



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