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1377 Hue Hue Rd, Wyee

Traffic Noise and Vibration Assessment

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Attention To	Topa Nominees No.1 Pty. Limited

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1 INTRODUCTION

Acoustic Logic (AL) has been engaged to assess of external noise and vibration impacts in order to determine the feasibility of the re-zoning of 1377 Hue Hue Road, Wyee.

The lot site is primarily zoned as RU2 Rural Landscape and is proposed to change to R2 Low Density Residential. This report will assess the existing ambient noise and vibration environment as well as detail measures to comply with relevant planning guidelines should the site be rezoned.

2 REFERENCED DOCUMENTS

2.1 BACKGROUND INFORMATION USED

The assessment is based on the following drawings, reports and other information:

- Concept Plan of Subdivision prepared by Orion Consulting Rev 2 (Dated 27th April 2021)
- Planning Proposal Outline prepared by GLN (Dated 10th May 2021)

2.2 PLANNING GUIDELINES

The following planning instruments and guidelines have been used in the assessment:

- 'State Environmental Planning Policy (Infrastructure) 2007' as amended ("ISEPP").
- NSW Department of Planning's – 'Developments Near Rail Corridors or Busy Roads – *Interim Guideline*' (DNRCBR)
- Lake Macquarie City Council LEP 2014
- Lake Macquarie City Council DCP 2014 – Rev 26;
- AS 2670.2 – 1990 '*Evaluation of Human Exposure to Whole-body Vibration*'

3 SITE DESCRIPTION AND THE PROPOSAL

The project site is located at 1377 Hue Hue Rd, Wyee. The site is bounded by Hue Hue road and Digary Road. The concept development proposal is comprised of:

- 54 proposed lots composed of single residential dwellings across 4.5 hectares of land (See: concept plan of subdivision)
- Two (2) internal subdividing roads within the wider residential zoning area
- The site is located within a surrounding environment which can be considered a growth area with existing low-medium density housing estates in an otherwise rural zoning
- The adjacent plot to the east of the proposed site is also under development and is accessible via Soreina Drive
- Future residents directly on Digary road would have an approximately 180-degree view of the M1 Pacific Motorway. Direct line of sight to the road is either partially, or full obstructed by surrounding topography.

The subject site and local context, measurement description and surrounding receivers are presented in Figure 1 below.

Figure 1 – Site Plan Showing Monitoring Locations and Surrounding Land Uses/Receivers

- Attended Noise Monitoring Location	- Residential Land Use
- Attended Vibration Monitoring Location	- Project site
- Unattended Noise Monitoring Location	

3.1 ENVIRONMENTAL NOISE AND VIBRATION SOURCES

The following significant environmental noise sources have been identified:

- Traffic noise from the M1 Pacific Motorway, 110-180m to the west of the site

Long term unattended noise monitors were installed at L1 and L2, with attended noise and vibration measurements undertaken directly adjacent.

- **L1** – North-western site boundary, 110m from M1 Pacific Motorway. Measurements at this location were had a largely obstructed, 180 degree view of the M1.

- **L2** – South-western site boundary, 180m from M1 Pacific Motorway. Measurements at this location were had partially obstructed, 180 degree view of the M1.

4 NOISE DESCRIPTORS

Ambient noise constantly varies in level from moment to moment, so it is not possible to accurately determine prevailing noise conditions by measuring a single, instantaneous noise level.

To quantify ambient noise, a 15 minute measurement interval is typically utilised. Noise levels are monitored continuously during this period, and then statistical and integrating techniques are used to characterise the noise being measured.

The principal measurement parameters obtained from the data are:

L_{eq} - represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of noise impact as it closely corresponds with how humans perceive the loudness of time-varying noise sources (such as traffic noise).

L_{90} – This is commonly used as a measure of the background noise level as it represents the noise level heard in the typical, quiet periods during the measurement interval. The L_{90} parameter is used to set noise emission criteria for potentially intrusive noise sources since the disturbance caused by a noise source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

L_{10} is used in some guidelines to measure noise produced by an intrusive noise source since it represents the average of the loudest noise levels produced at the source. Typically, this is used to assess noise from licenced venues.

L_{max} is the highest noise level produced during a noise event, and is typically used to assess sleep arousal impacts from short term noise events during the night. It is also used to assess internal noise levels resulting from aircraft and railway ground vibration induced noise.

L_1 is sometimes used in place of L_{max} to represent a typical noise level from a number of high level, short term noise events.

5 TRAFFIC NOISE INTRUSION ASSESSMENT

The nearby M1 Pacific highway carries moderate to high volumes of traffic. This is a logistical route with frequent heavy vehicle movements.

A traffic noise intrusion assessment has been conducted in accordance with the requirements of the following acoustic noise criteria/standards.

5.1 NOISE INTRUSION CRITERIA

- 'State Environmental Planning Policy (Infrastructure) 2007' as amended ("ISEPP").
- NSW Department of Planning's – 'Development Near Rail Corridors and Busy Roads – *Interim Guideline*' (DNRCBR)
- Lake Macquarie City Council LEP 2014
- Lake Macquarie City Council DCP 2014

5.1.1 Macquarie City Council DCP 2014 and LEP 2014

Lake Macquarie DCP does not provide specific controls for external traffic noise and vibration impacts. It does, however, require that developments are assessed against the relevant standards and that building structures are designed to minimise the transmission of sounds.

In this regard, satisfaction of DNRCBR requirements is suitable in the assessment of minimising noise and impacts.

5.1.2 NSW Department of Planning – Development Near Rail Corridors and Busy Roads -*Interim Guideline*

Section 1.2 of the NSW Department of Planning's DNRCBR states:

> *"The following provides an overall summary of the assessment procedure to meet the requirements of clauses 87 and 102 of the Infrastructure SEPP. The procedure covers noise at developments for both Road and Rail.*
>
> *This clause applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW) and that the consent authority considers is likely to be adversely affected by road noise or vibration.*
>
> *If the development is for the purpose of a building for residential use, the consent authority must be satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:*

- *In any bedroom in the building: 35dB(A) at any time 10pm-7am*
- *Anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time."*

5.2 SUMMARY OF NOISE INTRUSION CRITERIA

The governing project criteria is presented in Table 1 below:

Table 1 -Noise Intrusion Criteria

Location	Required Internal Noise Levels
Bedroom	35 dB(A) $L_{eq\ (9\ hours)}$
Living Areas	40 dB(A) $L_{eq(15\ hours)}$

5.3 AMBIENT NOISE MONITORING

As part of this investigation, long-term unattended and short-term attended measurement data of road traffic noise from the M1 Pacific Motorway been obtained from on-site monitoring. Data obtained is used to determine the relevant treatments required to comply with project acoustic objectives.

It is noted that measurements data in this assessment was obtained during the 2021 mandated COVID lockdown period. It is considered that noise levels during unrestricted times may be higher. As such, it is advised that noise levels be confirmed prior to CC stage.

5.3.1 Measurement Equipment

Unattended noise monitoring was conducted using two Rion NL-42 (Type 2) unattended monitors installed in locations indicated by Figure 1.

The monitoring was continuous, with statistical noise levels recorded at 15-minute intervals throughout the monitoring period. Measurements were taken on "A" frequency weighting and fast time response.

Short-term attended measurements of traffic noise were taken by the office to supplement the unattended noise monitoring. Attended noise monitoring was conducted using a Norsonic N-131 Type 1 sound level meter. Measurements were taken on "A" frequency weighting and fast time response unless noted otherwise.

All monitoring equipment used retains current calibration - either manufacturers' calibration or NATA certified calibration. The monitors were field calibrated at the beginning and the end of the measurement with no significant drift in calibration noted.

5.3.2 Measurement Locations

Noise monitoring was conducted in two primary locations -L1 and L2 - along the western boundary of the proposed development site as shown in Figure 1 above.

5.3.3 Measurement Periods

Attended measurements were conducted between 3:30pm-4:30pm on the 19th of July 2021 and are representative of a peak hour period.

Unattended noise monitors were on site during the period of 19th July - 30th July 2021.

5.3.4 Measured Ambient Noise Levels

The data for the day and night periods as defined in the ISEPP have been processed to determine the ambient noise levels at the monitoring locations.

Weather affected data (rain fall and wind speeds above 5m/s) have been excluded from the assessment as per Fact Sheet A and B of the NSW EPA Noise Policy for Industry. Where interval periods (day and night) have weather affected data of 20%, these periods have been excluded from the assessment.

Table 2 – Ambient Noise Level Summary

Location	Ambient Noise Level (dB(A) $L_{eq,\ period}$)	
	Day (7am to 10pm)	**Night (10pm to 7am)**
L1 –North-West Residential Facades	61	58
L2 – South-West Residential Facades	58	55* (59 measured)

From analysis of noise monitoring data, it is considered that L2 night-time noise levels are influenced by extraneous sources. As such, the L1 measured day/night difference has been applied to L2 day time data in order to obtain a corrected night time noise level at this location.

5.4 ASSUMPTIONS OF ASSESSMENT

Internal noise levels will primarily be a contribution of noise transfer through windows, doors and ceilings as these are relatively light building elements which offer less resistance to the transmission of sound. As no architectural drawings have been issued for specific layouts, the following assumptions have been made based on the expected level and spectral characteristics of the external noise, the area of building elements exposed to traffic noise, the absorption characteristics of the rooms and the noise reduction performance of the building elements.

- Residential dwellings are up to two-storeys high.
- Living rooms have a typical floor area of $30m^2$ (5m x 6m).
- Bedrooms have a typical floor area of $12m^2$ (4m x 3m).
- All rooms have a typical ceiling height of $2.7m^2$.
- External roof construction is masonry tile with large airgap (pitched roof).
- Up to two walls of any room are at the building façade.

Ambient/traffic noise levels will vary across the development site and are dependent on the distance to road, angle of view, topography and screening provided from surrounding residences. As such, requirements for façade upgrades are dependent on the location of the specific lot and façade facing. Traffic noise impacted facades with similar requirements are identified in Figure 2 and summarised below.

- Red Facades –Lots 1-10 & 20-23 –Hue Hue Road or M1 Pacific Highway facing (unscreened).
- Green Facades – Lots 24-30 - M1 Pacific Highway facing (unscreened).

Figure 2 – 1377 Hue Hue Rd, Façade Mark-Up

5.5 COMPLYING CONSTRUCTIONS

5.5.1 Glazed Windows and Doors

Indicative complying glazing constructions are outlined below. The glazing thickness recommended are those needed to satisfy acoustic requirements and do not consider other requirements such as structural or safety.

Aluminium framed/sliding glass doors and windows will be satisfactory provided they meet the following criteria listed below. It is recommended that only window systems having test results indicating compliance with the required ratings obtained in a certified laboratory be used where windows with acoustic seals have been recommended.

In addition to complying with the minimum scheduled glazing thickness, the R_w rating of the glazing fitted into open-able frames and fixed into the building opening should not be lower than the values listed in Table 3 for all areas. Where nominated, this will require the use of acoustic seals around the full perimeter of open-able frames and the frame will need to be sealed into the building opening using a flexible sealant.

Thicker glazing may be required for structural, safety or other purposes. Where it is required to use thicker glazing than scheduled, this will also be acoustically acceptable.

Table 3 -Minimum R_w of Glazing Assembly (with Acoustic Seals)

Glazing Assembly	Minimum R_w of Installed Window
4mm Float	27
6mm Float	29
6.38mm laminated	31
10.38mm laminated	35

Table 4 -Minimum Glazing Construction – If Masonry Wall Construction

Facade	Space	Glazing Thickness	Acoustic Seals
Red	Bedrooms	4mm Float (**up to 6m²**) 6mm Float (**>6m²**)	Yes
	Living Room	4mm Float (**up to 9m²**) 6mm Float (**>9m²**)	Yes
Green	Bedrooms	4mm Float	Yes
	Living Room	4mm Float	Yes

Table 5 -Minimum Glazing Construction – If Lightweight Wall Construction

Lot	Space	Glazing Thickness	Acoustic Seals
Red	Bedrooms	6mm Float (**up to 2m²**) 6.38mm Laminated (**2m²-4m²**) 10.38mm Laminated (**>4m²**)	Yes
	Living Room	4mm Float (**up to 5m²**) 6mm Float (**5m²-8m²**) 6.38mm Laminated (**>8m²**)	Yes
Green	Bedrooms	4mm Float (**up to 5m²**) 6mm Float (>**5m²**)	Yes
	Living Room	4mm Float (**up to 11m²**) 6mm Float (**>11m²**)	Yes

At all other facades, standard glazing is acceptable using either lightweight or masonry wall construction.

Note: Façade constructions to be reviewed at CC stage based on construction drawings, pending final façade design.

5.5.2 External Wall Construction

External walls of masonry construction will be acoustically acceptable without the need for additional upgrades. In the event any penetrations are required through the external lining of any of the system for other building services, gaps should be filled with acoustic sealant to ensure compliance with acoustic criteria stipulated within this report.

For walls that are to be constructed with lightweight materials, see Table 6 below.

Table 6 -Lightweight External Wall Minimum Construction

Lots	Space	Internal Lining	Stud System	External Lining
All	All	1 x 13mm plasterboard	Min 90mm Stud with 75mm thick 11kg/m^3 glasswool insulation	FC Sheet Cladding (Equal to 1x 19mm James Hardie Scyon Stria)

5.5.3 External Roof/Ceiling Construction

External roof construction from concrete or masonry elements will not require acoustic upgrading. External roof construction from light weight elements will require acoustic upgrading. A complying roof construction for lightweight roof/ceiling constructions is detailed below in Figure 2 and Table 11 below.

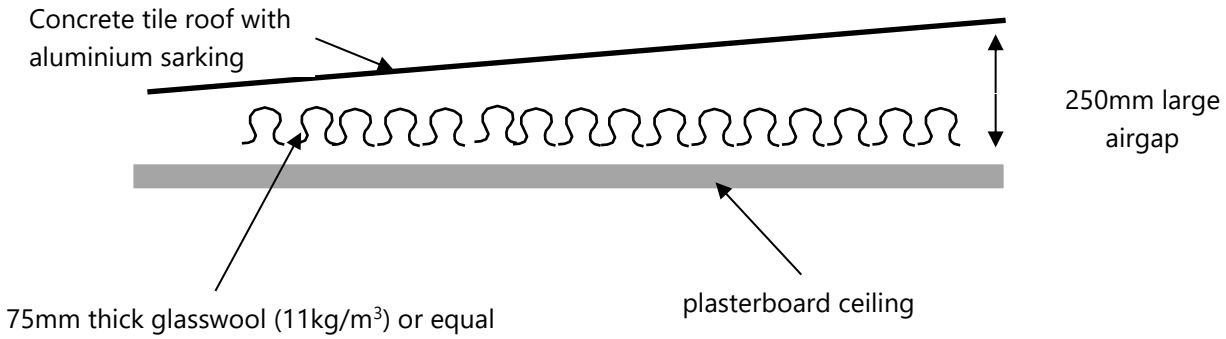

Figure 2 – Roof/ Ceiling Construction

Table 7 - Light Weight Roof/Ceiling Minimum Construction

Lots	Space	Internal Lining	Truss System	External Lining
All	All	1 x 13mm plasterboard	Pitched roof, minimum of 250mm truss with 75mm thick 11kg/m^3 glasswool insulation in cavity	Concrete Tile Roof with Aluminium Sarking

In the event that any penetrations are required thru the external skin, an acoustic sealant should be used to minimise all gaps.

5.5.4 Ventilation Requirements

With respect to natural ventilation of proposed residencies within the project development site, the NSW Department of Planning document Development Near Busy Roads and Rail Corridors - Interim Guideline dictates that:

> *"If internal noise levels with windows or doors open exceed the criteria by more than 10dB(A), the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia."*

With windows open, the allowable internal noise goal is permitted to be 10dB(A) higher than when the windows are closed (i.e. – allowable level in bedrooms becomes 45dB(A), and 50dB(A) in living rooms).

Based on measured noise levels, and under DNRCBR guidelines:

- Red façades (refer Figure 2) are predicted to exceed the 'windows open' noise level in bedrooms and be marginal in other habitable areas.
- Green façades (refer Figure 2) are predicted to be marginal with the 'windows open' noise level in bedrooms and comply in other habitable areas.
- All other facades will achieve DNRCBR 'windows open' noise levels.

In the event that a supplementary ventilation system is proposed to be installed, this should be acoustically designed to ensure that the acoustic performance of the acoustic treatments outlined above is not reduced and does not exceed EPA and council criteria for noise emission to nearby properties. A mechanical engineer is to confirm if supplementary ventilation (to meet Australian Standard AS1668.2 requirements) will be required to these rooms.

Note: Façades requiring alternative ventilation are to be reviewed at CC stage based on construction drawings, pending final façade design.

6 TRAFFIC VIBRATION IMPACT ASSESSMENT

It is noted, under the requirements of DNRCBR, an assessment of vibration impacts from the M1 Pacific Motorway is not required. Notwithstanding, a study has been undertaken at the request of the client as detailed below.

Attended vibration measurements were conducted at locations L1 & L2 (refer Figure 1). These locations are considered representative of the most potentially impacted residential areas being nearest to the M1 and having partially or fully obstructed view.

Attended vibration measurements were conducted between 3:30pm-4:30pm on the 19th of July 2021. A SVAN 958 AE Vibration Analyser was used and was fitted with a Dytran triaxial accelerometer.

6.1 ASSESSMENT CRITERIA

This section presents typical assessment criteria in the assessment of ground borne noise and tactile vibration.

6.1.1 Ground Borne Noise

Development located adjacent to busy roads with an annual average daily traffic volume of 20,000-40,000 or more vehicles must be assessed in accordance with Clause 102 of the SEPP (Infrastructure) 2007. It is noted that the requirements of this standard are achieved when assessed in accordance with the NSW Department of Planning Development Near Rail Corridors and Busy Roads – Interim Guideline (2008).

Analysis for road impacts will be adopted for the section relevant to ground borne noise is as follows:

Generally, ground borne noise is associated more closely with rail operations than roads. Where buildings are constructed over or adjacent to land over tunnels, ground borne noise may be present without the normal masking effect of airborne noise. In such cases, residential buildings should be designed so that the 95th percentile … complies with a ground borne L_{Amax} noise limit of 40dBA (daytime) or 35dBA (night-time) measured using the "slow" response time setting on a sound level meter.

Table 8 - Noise Level Requirements for Ground Borne Noise

LOCATION	TIME OF DAY	Internal Ground Borne Noise Criteria dB(A)$L_{max\ (Slow)}$
Living and sleeping areas	Day (7am-10pm)	40
	Night (10pm-7am)	35

6.1.2 Tactile Vibration

Human comfort is normally assessed with reference to the British Standard BS 7385 Part 2 1993 or Australian Standard AS 2670.2 1990 'Evaluation of Human Exposure to Whole-Body Vibration'.

The Interim Guideline references DECC 2006 *Assessing Vibration- 'A technical guideline'* which recommends that habitable rooms should comply with the criteria therein which is in line with the requirements of British Standard BS 6472:1992 "Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80Hz)".

British Standard BS 6472:1992 "Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80Hz)" is recommended by the RIC's and SRA's Interim Guidelines for Councils "Consideration of rail noise and vibration in the planning process" as this standard includes guidance for the assessment of human response to building vibration including intermittent vibrations such as that caused by trains and roads.

Human response to vibration has been shown to be biased at particular frequencies, relating to the orientation of the person. This standard provides curves of equal annoyance for various orientations. These curves are applied as correction filters such that an overall weighted acceleration level is obtained. As the orientation of the resident is unknown or varying the weighting filter used is based on the combined base curve as given in ISO 2631 & Australian Standard 2670 "Evaluation of Human Exposure to Vibration and Shock in Buildings (1 to 80Hz)" which represent the worst case of the X, Y and Z axes. Filtered measurements are made in all three co-ordinate axes and the highest value axis used.

This standard assesses the annoyance of intermittent vibration by using the Vibration Dose Value (VDV). Alternatively, the VDV may be estimated by the eVDV which is derived by a simpler calculation using an empirical factor. The VDV or eVDV is calculated for the two periods of the day being the "Daytime" (6am-10pm) and "Night-time" (10pm-6am). The overall value is then compared to the levels in Table 11. For this project the aim will be for a low probability of adverse comment.

Table 9 - Vibration Dose Values (m/s1.75) above which various degrees of adverse comment may be expected in residential buildings

Place	Low Probability of adverse comment	Adverse comment possible	Adverse comment probable
Residential buildings 16hr day (Daytime)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8hr night (Night-time)	0.13	0.26	0.51

6.2 VIBRATION MEASUREMENTS

6.2.1 Tactile Vibration

The measured vibration levels at were used to determine the overall vibration dose (VDV) at the proposed development for both daytime and night-time periods. The results are presented in the table below.

Table 10 -Vibration Dose Values

Time Period	Calculated VDV $m/s^{1.75}$	Criteria VDV $m/s^{1.75}$	Compliance
Day (7am – 10pm)	<0.1	0.2 to 0.4	Yes
Night (10pm -7am)	<0.1	0.13	Yes

The Vibration Dose Values were found to be less than the "low probability of adverse comment" criteria (the most stringent criteria) for the subject site.

The results above indicate that vibration isolation treatment is not required to comply with tactile vibration requirements.

6.2.2 Ground Borne Noise Measurements

Internal noise levels within residential lots as a result of structure borne noise have been calculated for nearby traffic along the M1 Pacific Motorway. Noise levels have been determined based on-site measurements of traffic induced road vibration. Refer to Table 11 below for predicted internal noise levels at various locations of the development.

Table 11 -Predicted Structure Borne Vibration Levels

Location	Time of Day	Calculated Internal Ground Borne Noise $dB(A)L_{max(Slow)}$	Criteria $dB(A)L_{max(Slow)}$	Compliance
Closest residential façade with obstructed/restricted view of roadway	Day (7am-10pm)	26	40	Yes
	Night (10pm-7am)	26	35	Yes

The results above indicate that vibration isolation treatment is not required to satisfy with structure borne noise requirements.

6.3 TRAFFIC GENERATION ON SURROUNDING ROADS

For land use developments with the potential to create additional traffic on public streets the development should comply with the EPA Road Noise Policy.

Noise levels generated by traffic should not exceed the noise levels set out in the table below when measured at a nearby property.

Table 12 - Criteria for Traffic Noise Generated by New Developments

Road Type	Time of day	Permissible Noise Generation
Local Road (Hue Hue Road)	Day (7am to 10pm)	55 dB(A)$L_{eq(1hr)}$
	Night (10pm to 7am)	50 dB(A)$L_{eq(1hr)}$

However, if existing noise levels exceed those in the table above, section 3.4 of the Road Noise Policy is applicable, which requires noise impacts are reduced through feasible and reasonable measures. However, in determining what is feasible/reasonable, the Policy notes that an increase of less than 2dB(A) is a minor impact and would be barely perceptible.

Ambient noise levels measured on site are dominated by movements along the M1 motor way and it is considered that monitoring along Hue Hue Rd is likely lower than normal due to COVID lockdown. Notwithstanding, it is not expected that the proposal would generate a perceptible increase in traffic noise along Hue Hue Road.

7 CONCLUSION

This report presents an acoustic assessment of external traffic noise and vibration impacts of the M1 Pacific Motorway at the 1377 Hue Hue Road, Wyee site.

The following planning instruments and guidelines have been used in the assessment of external noise and vibration impacts:

- 'State Environmental Planning Policy (Infrastructure) 2007' as amended ("ISEPP").
- NSW Department of Planning's – 'Developments near Rail Corridors or Busy Roads – *Interim Guideline*' (DNRCBR)
- Lake Macquarie City Council LEP 2014
- Lake Macquarie City Council DCP 2014 – Rev 26;
- AS 2670.2 – 1990 '*Evaluation of Human Exposure to Whole-body Vibration*'

The study indicates that, if rezoned for residential use, future dwellings on the lots would comply with noise criteria determined with reference to these standards. Minor upgrading of the facades of the most traffic noise facades would be required (as identified in the report - northern and western-most lots), as well as the provision of supplementary ventilation, as indicated in section 5.5.4.

Analysis indicates that structure borne noise and vibration levels are well below acceptable limits and isolation of future residential buildings would not be required to achieve compliance.

Traffic noise levels should be confirmed following the easing of COVID restrictions and a return to typical traffic volumes. Acoustic treatments to residential facades would typically be reviewed prior to CC stage using fully developed architectural layouts.

Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
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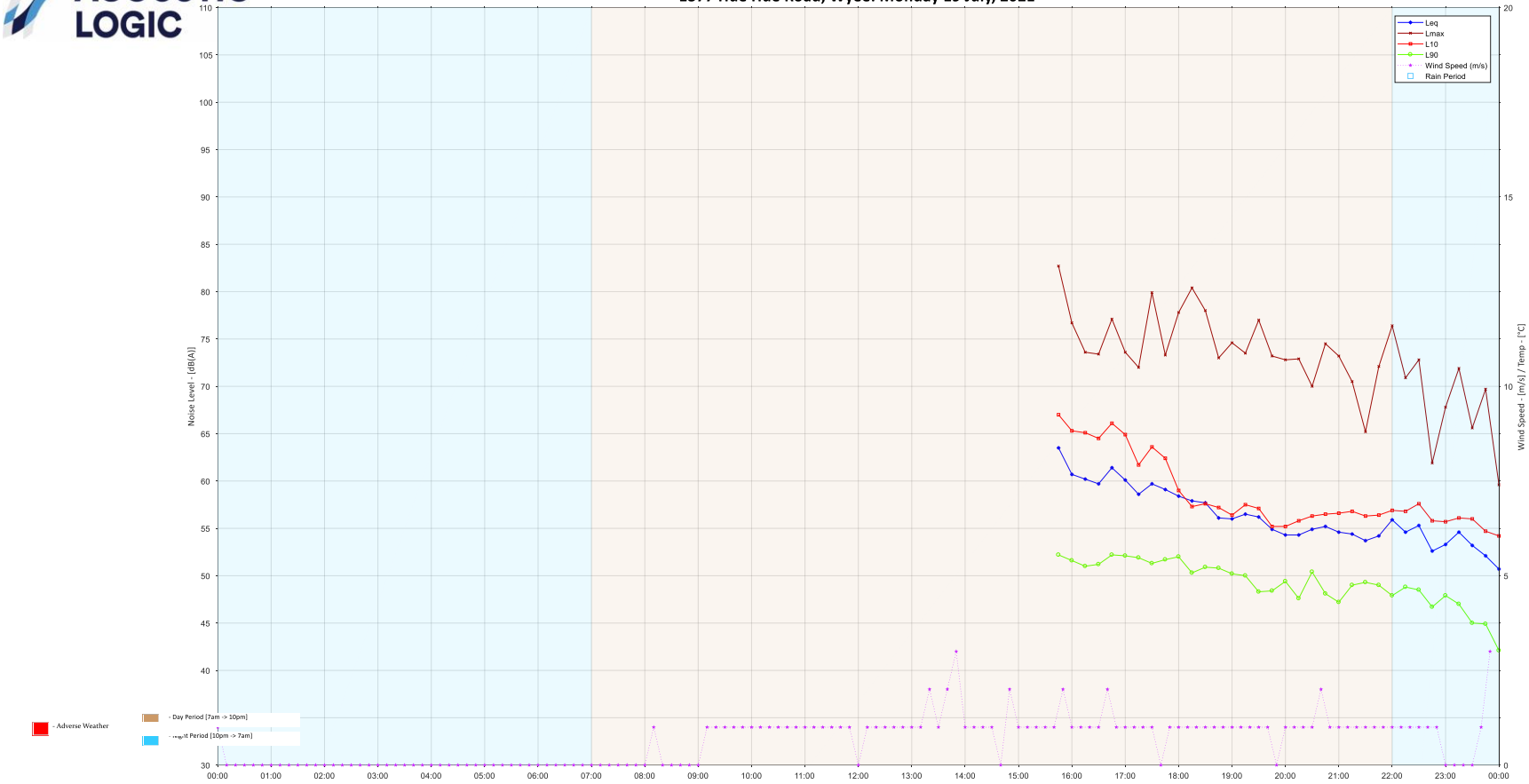
APPENDIX A – UNATTENDED NOISE MONITORING DATA - L1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Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Adverse Weather
Day Period [7am -> 10pm]
Night Period [10pm -> 7am]
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
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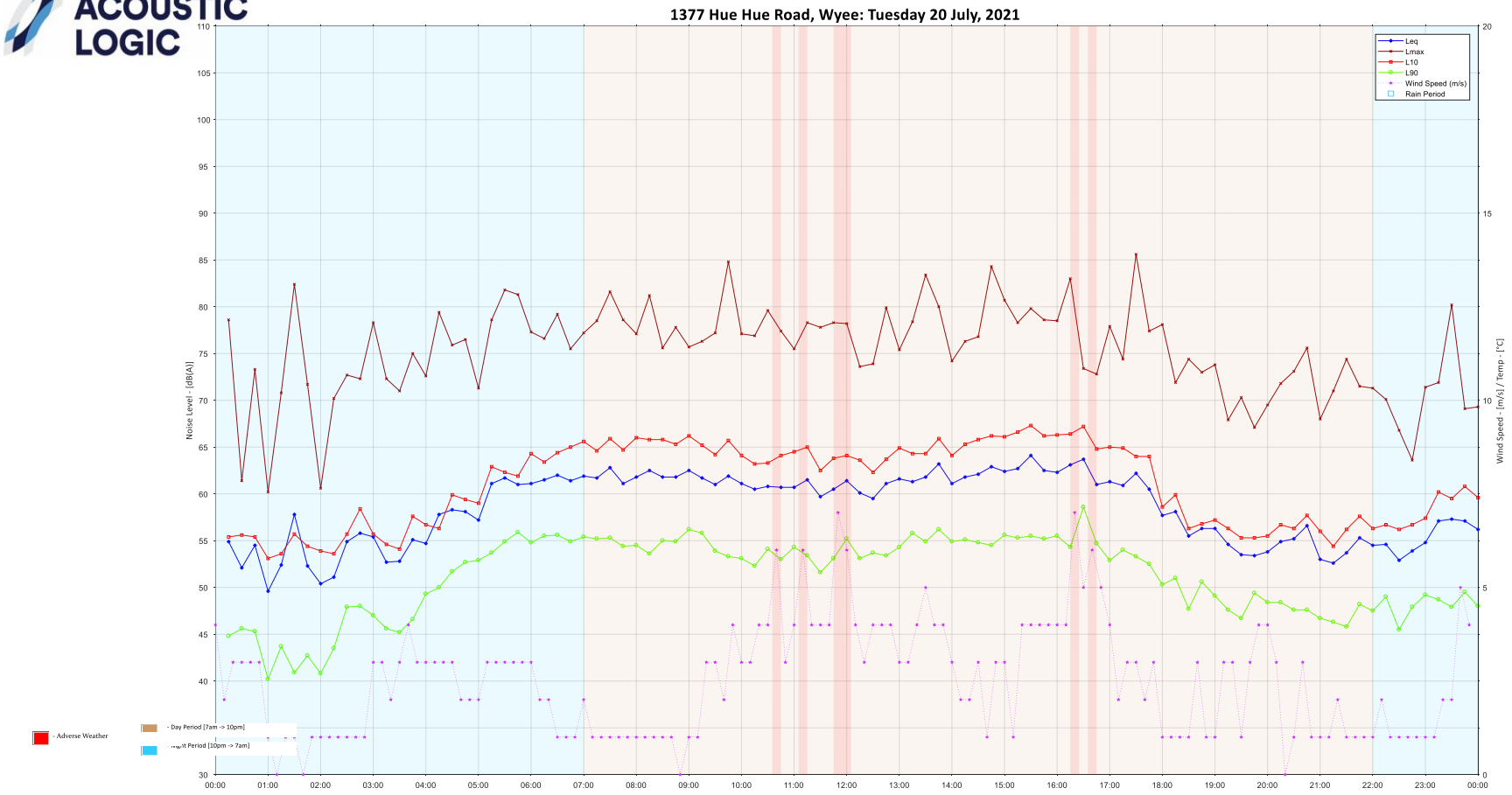
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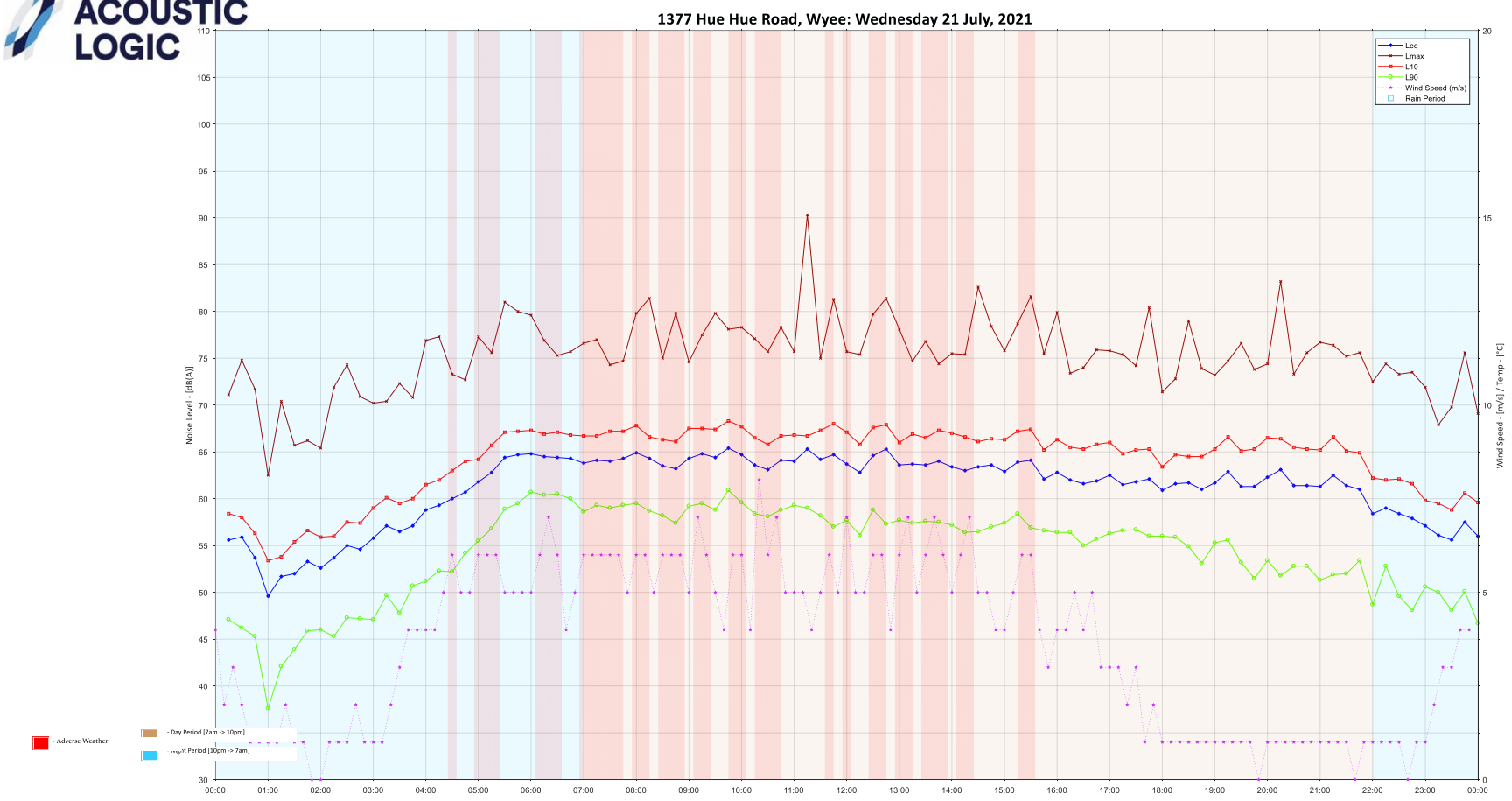
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]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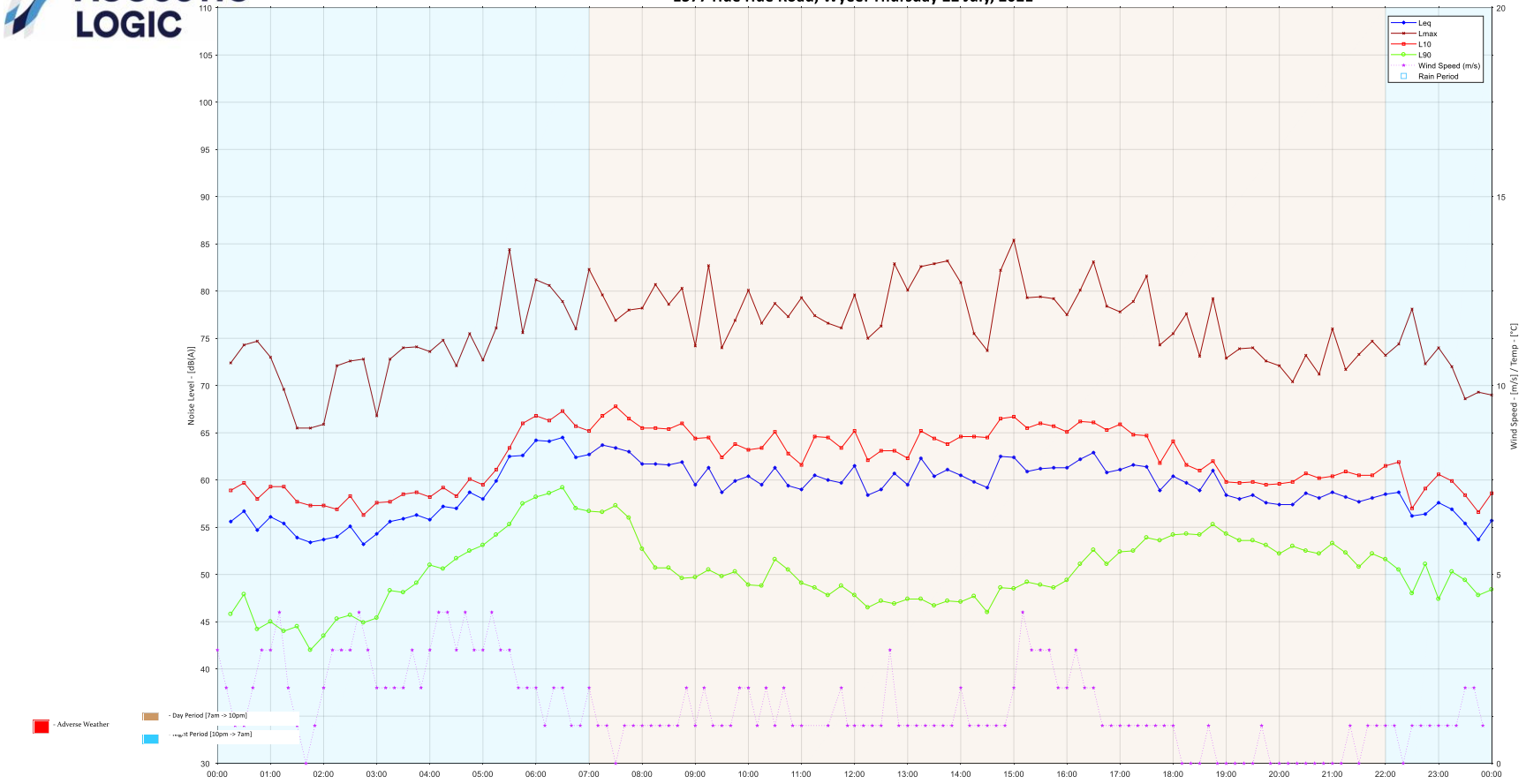
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]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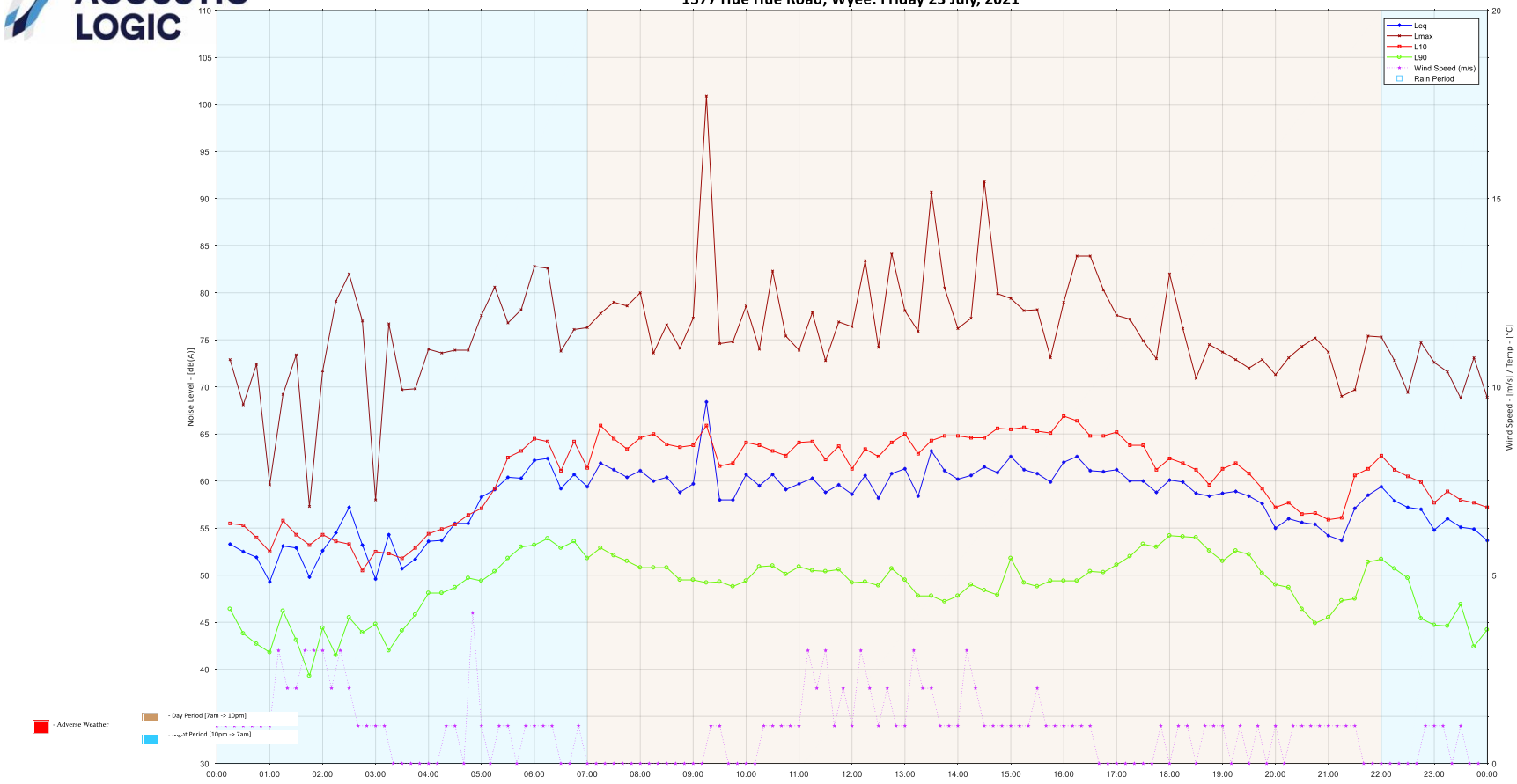
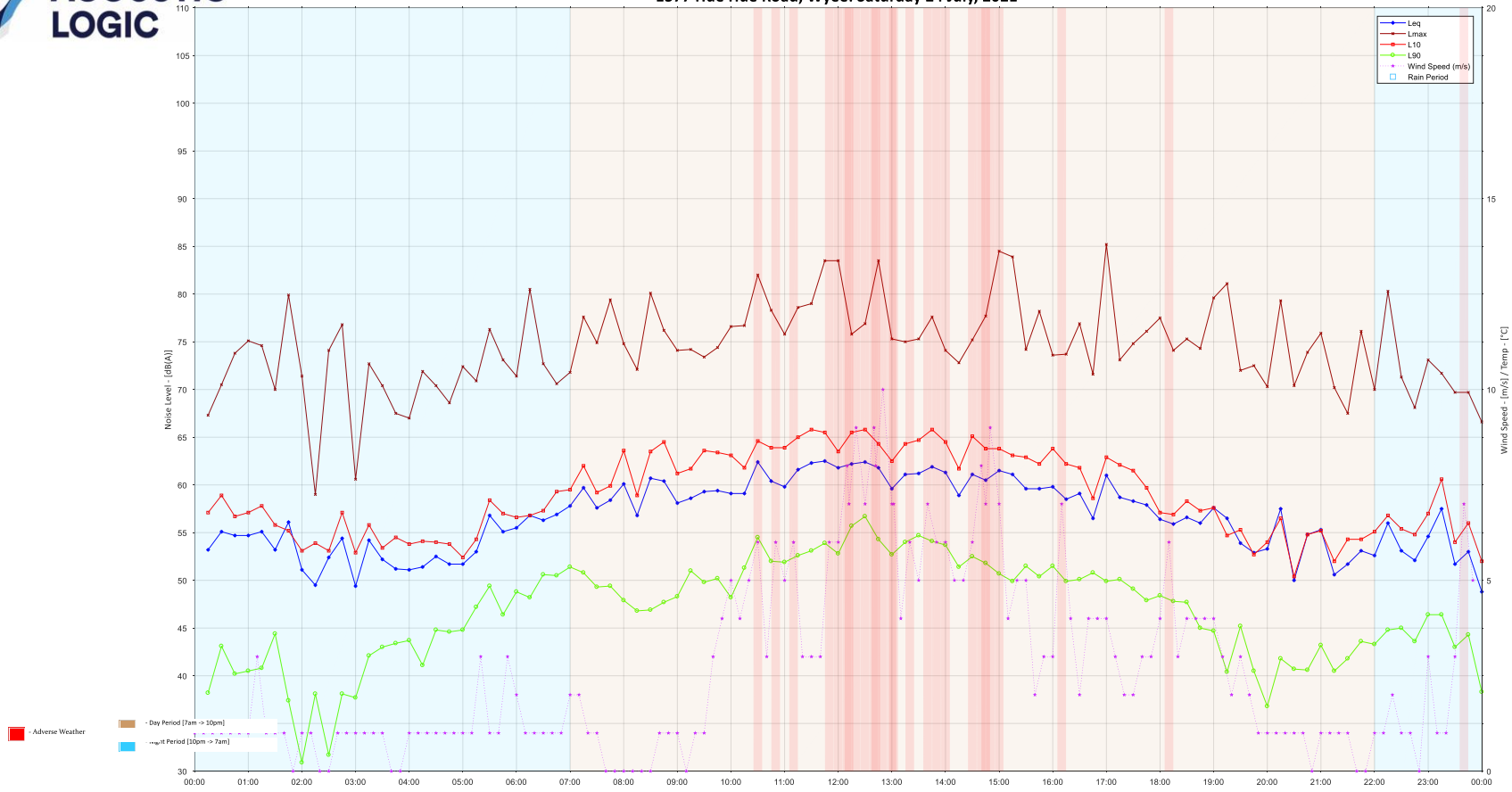
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Road, Wyee: Friday 23 July, 2021
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Road, Wyee: Saturday 24 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
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Lmax
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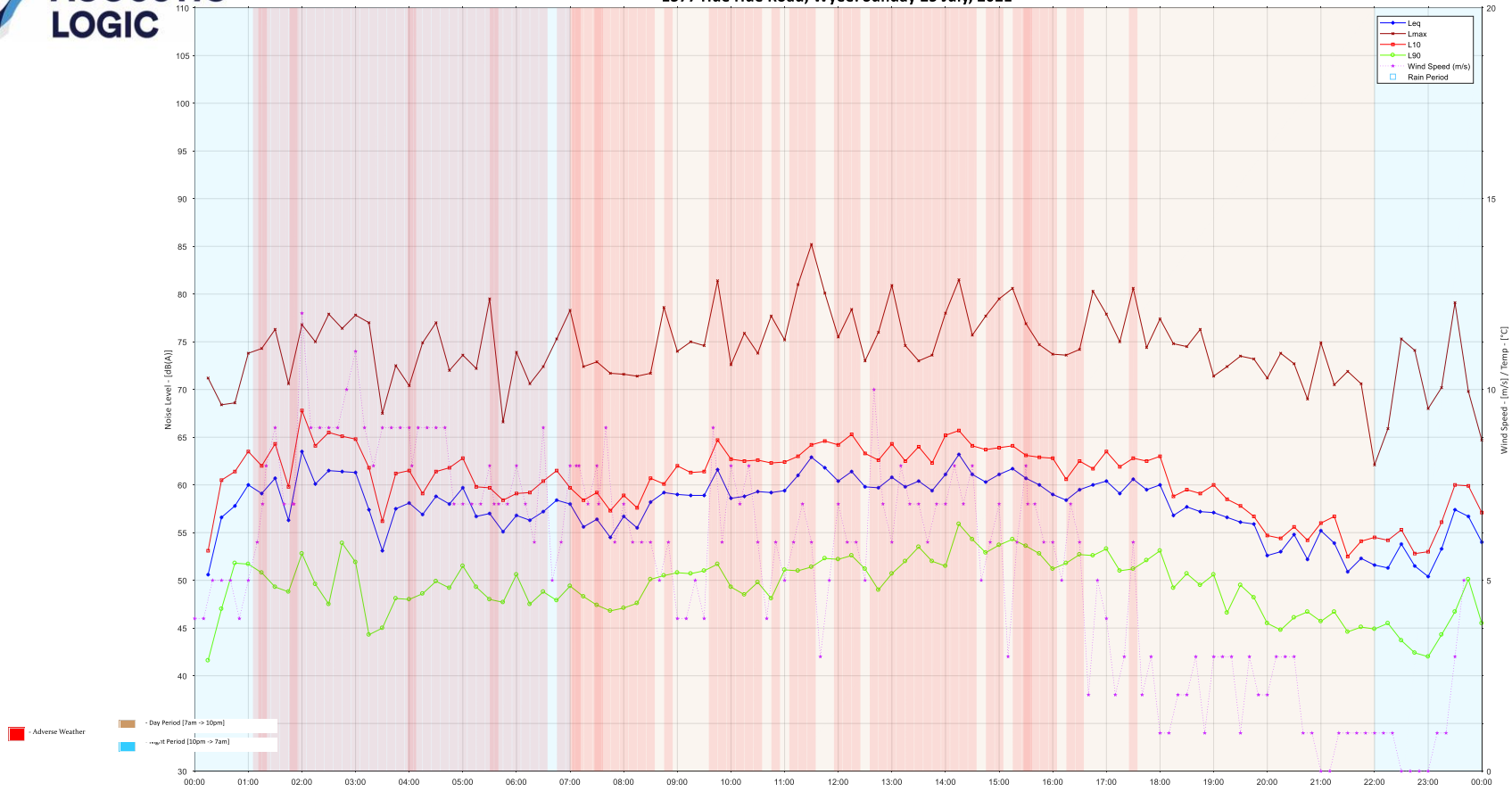
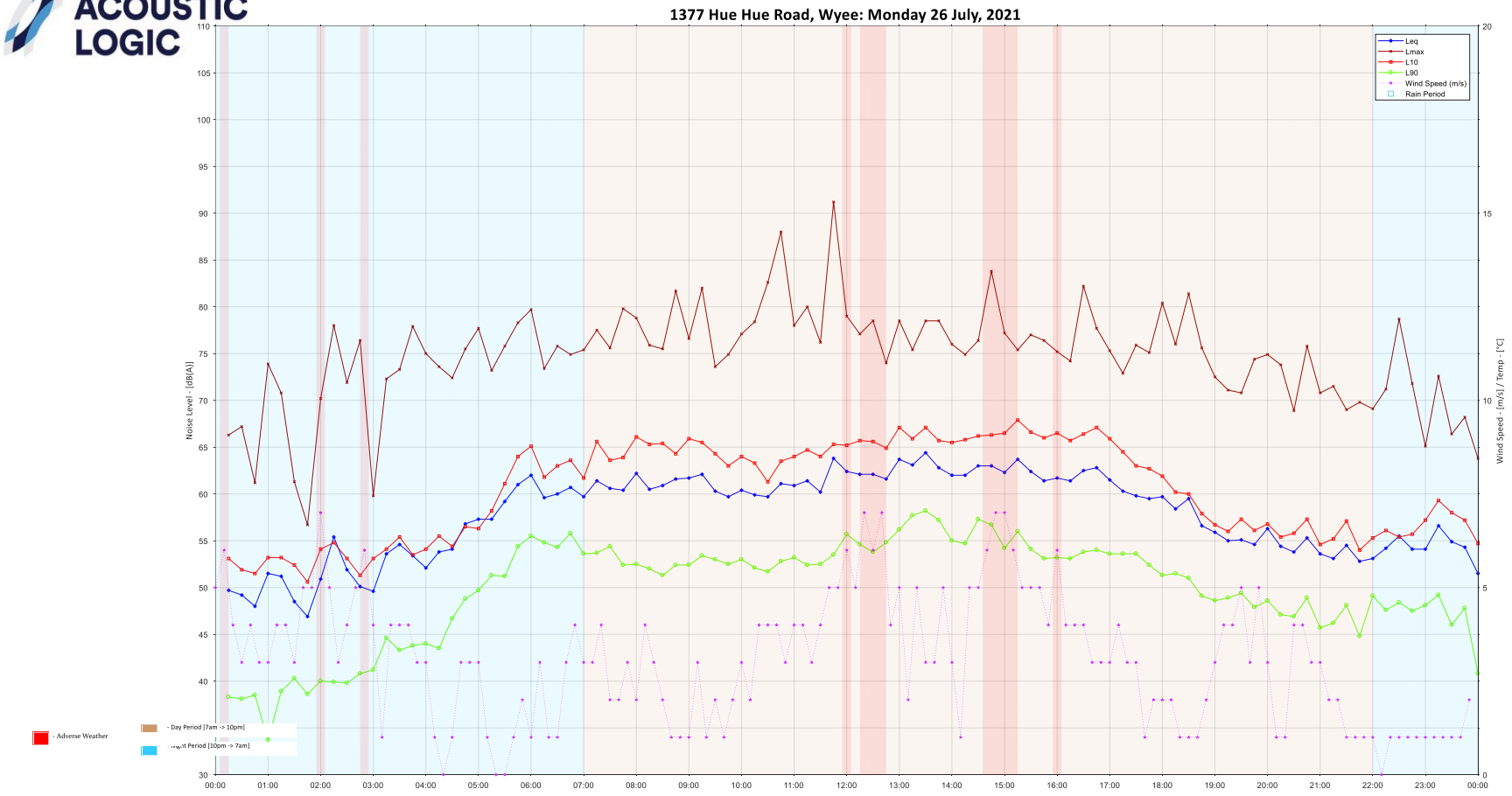
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Road, Wyee: Sunday 25 July, 2021
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Road, Wyee: Monday 26 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]
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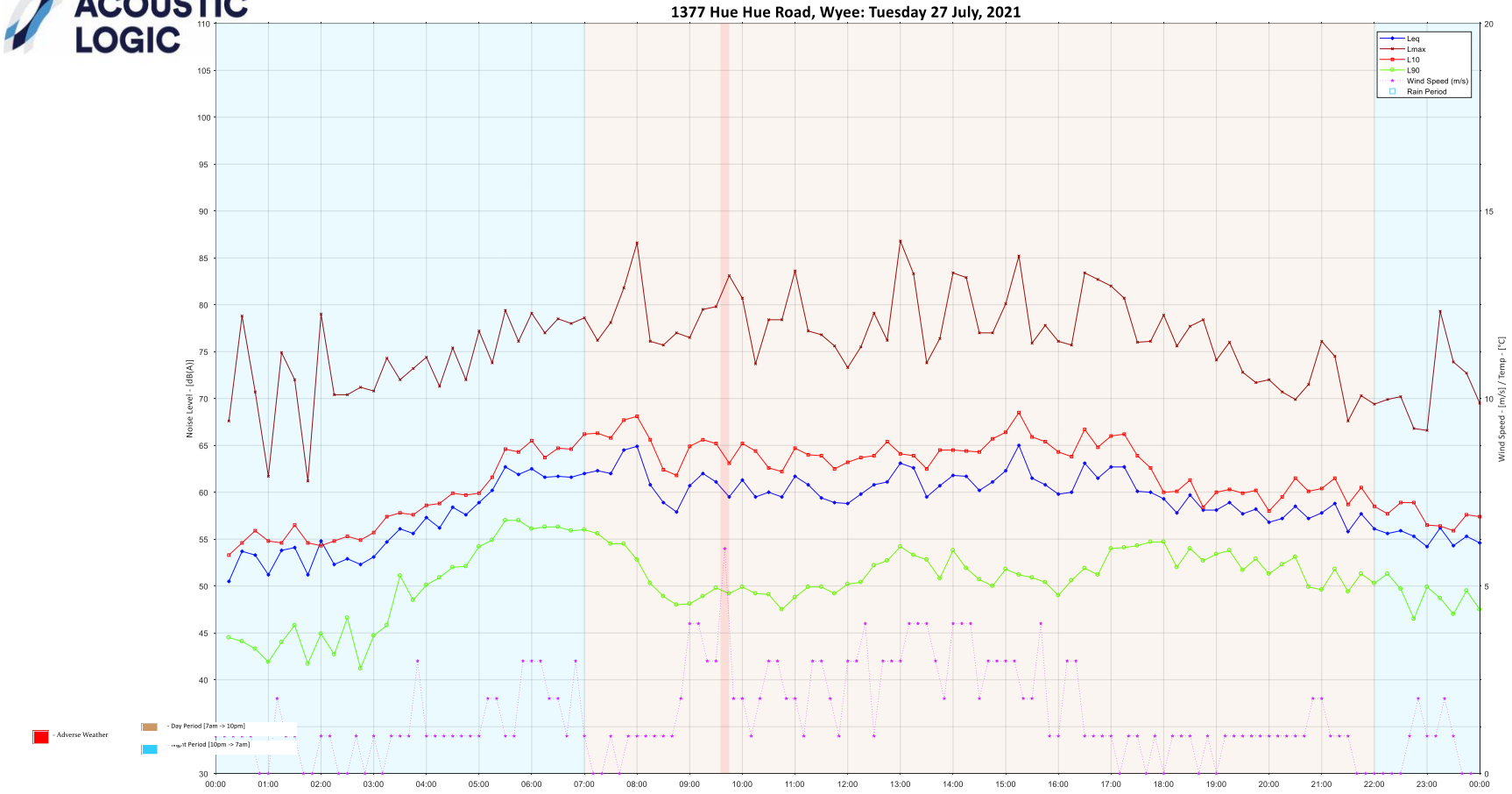
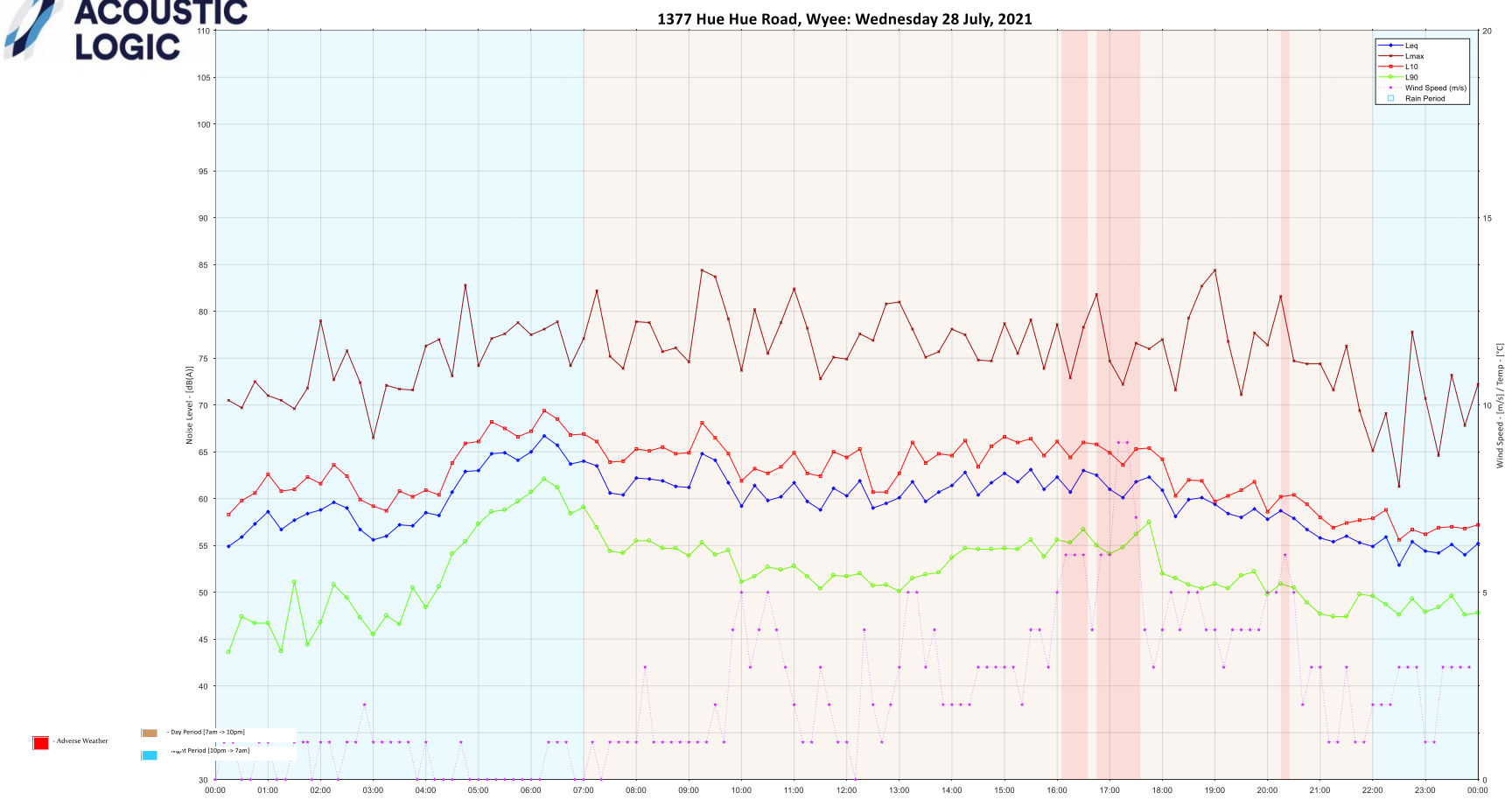

1377 Hue Hue Road, Wyee: Tuesday 27 July, 2021
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Road, Wyee: Wednesday 28 July, 2021
Leq
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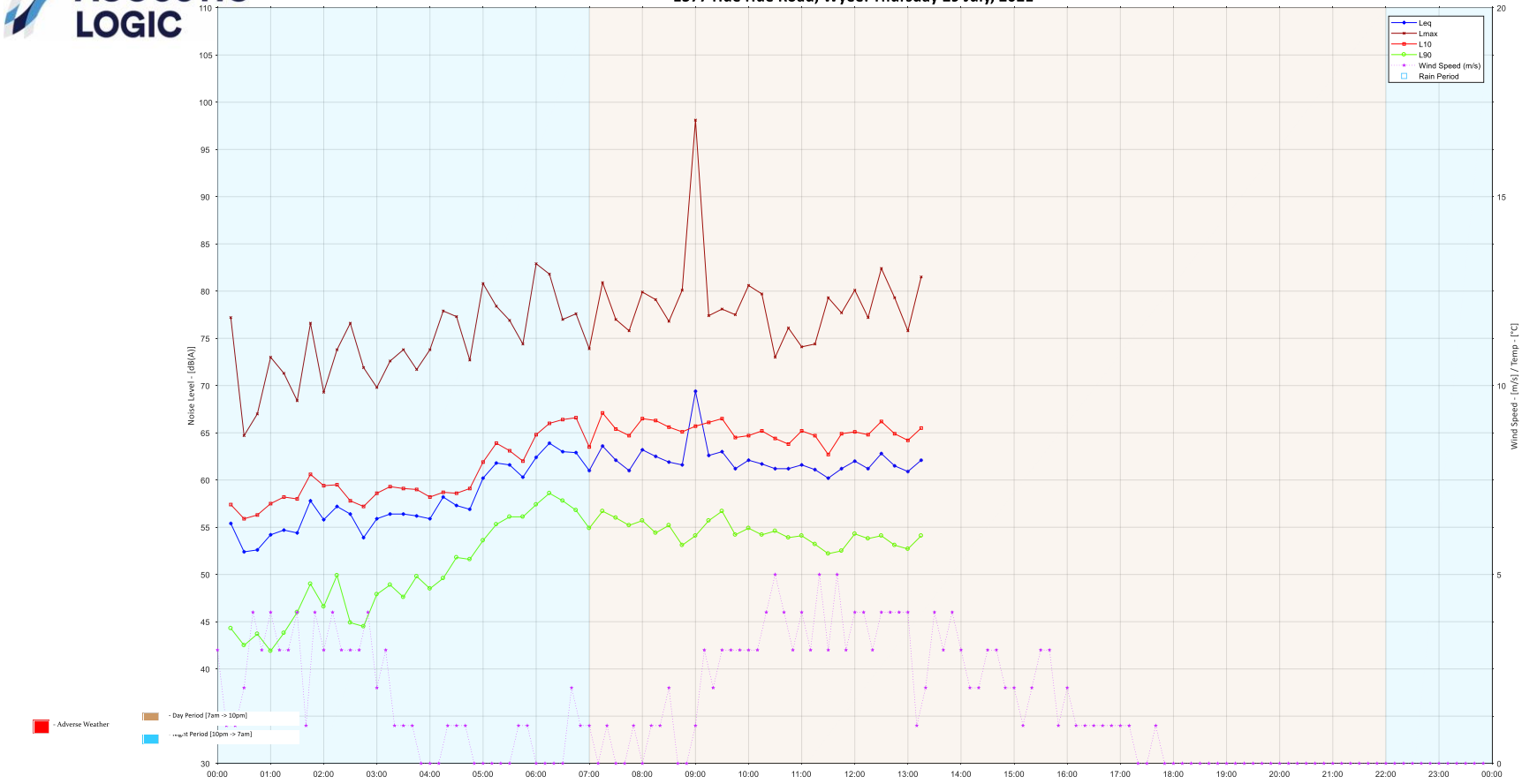
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Road, Wyee: Thursday 29 July, 2021
Leq
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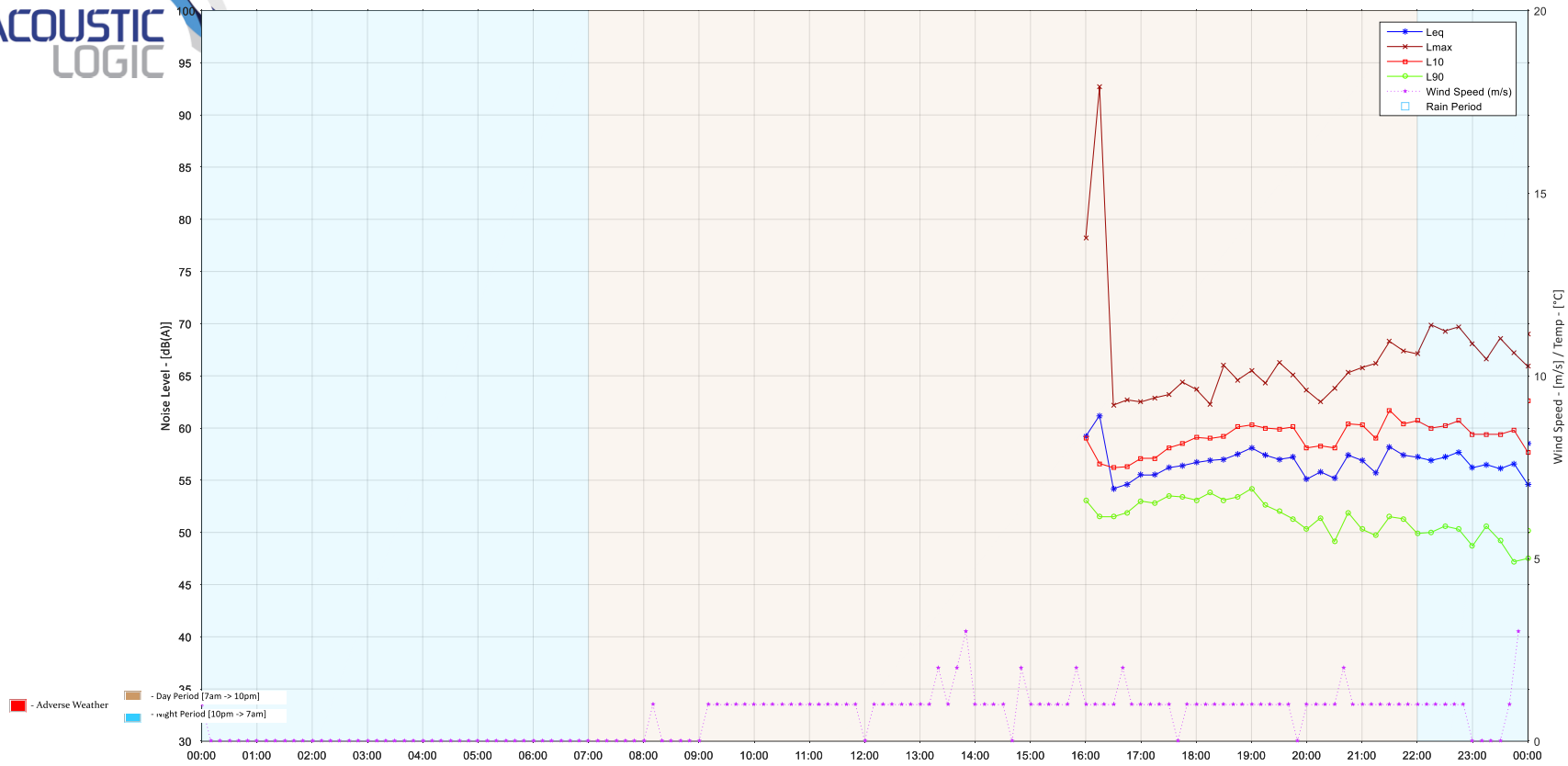
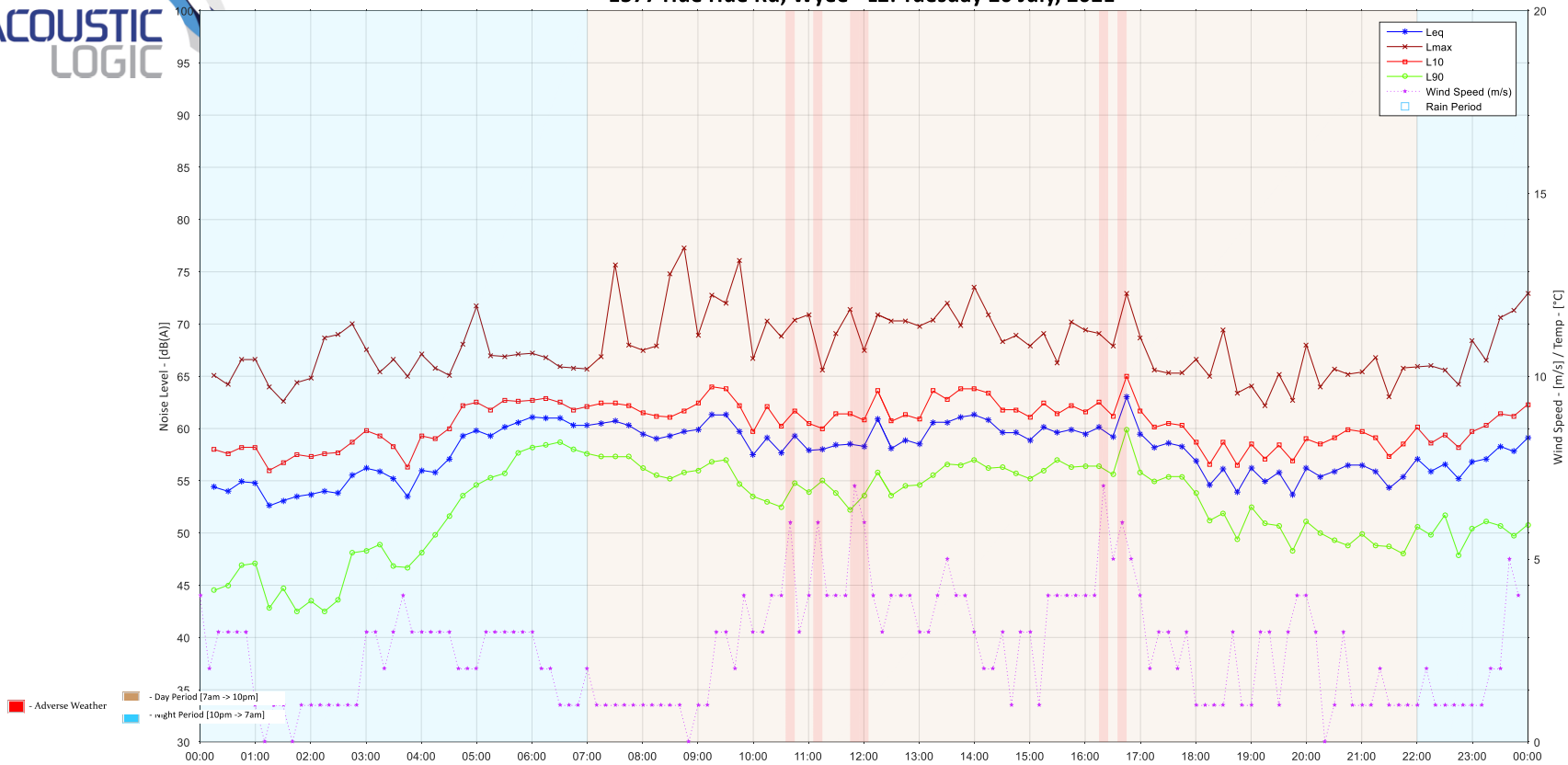
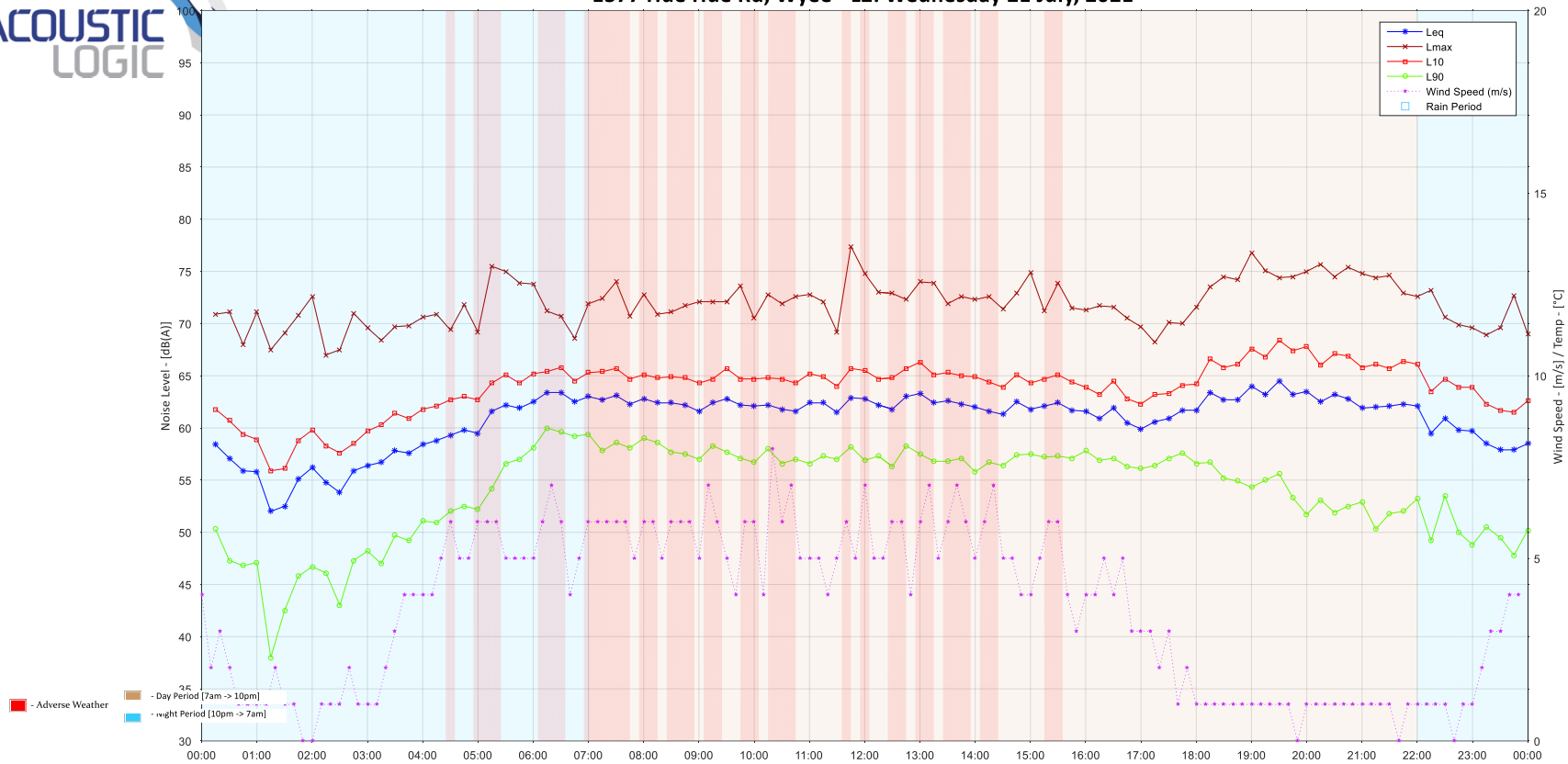
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]

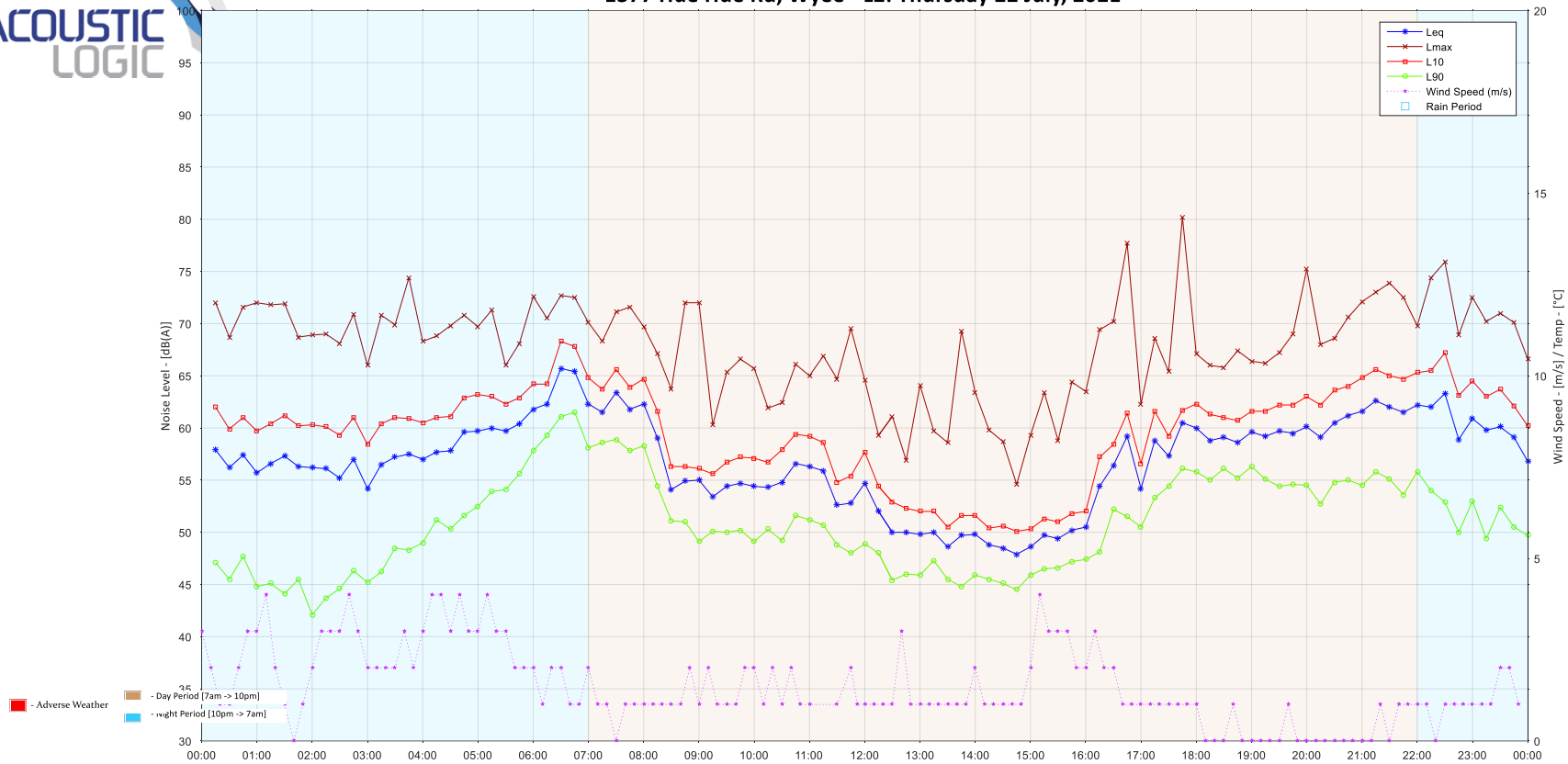
APPENDIX B – UNATTENDED NOISE MONITORING DATA – L2

1377 Hue Hue Rd, Wyee – L2: Wednesday 19 July, 2021




1377 Hue Hue Rd, Wyee - L2: Tuesday 20 July, 2021
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Rd, Wyee - L2: Wednesday 21 July, 2021
Leq
Lmax
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Rd, Wyee - L2: Thursday 22 July, 2021
Leq
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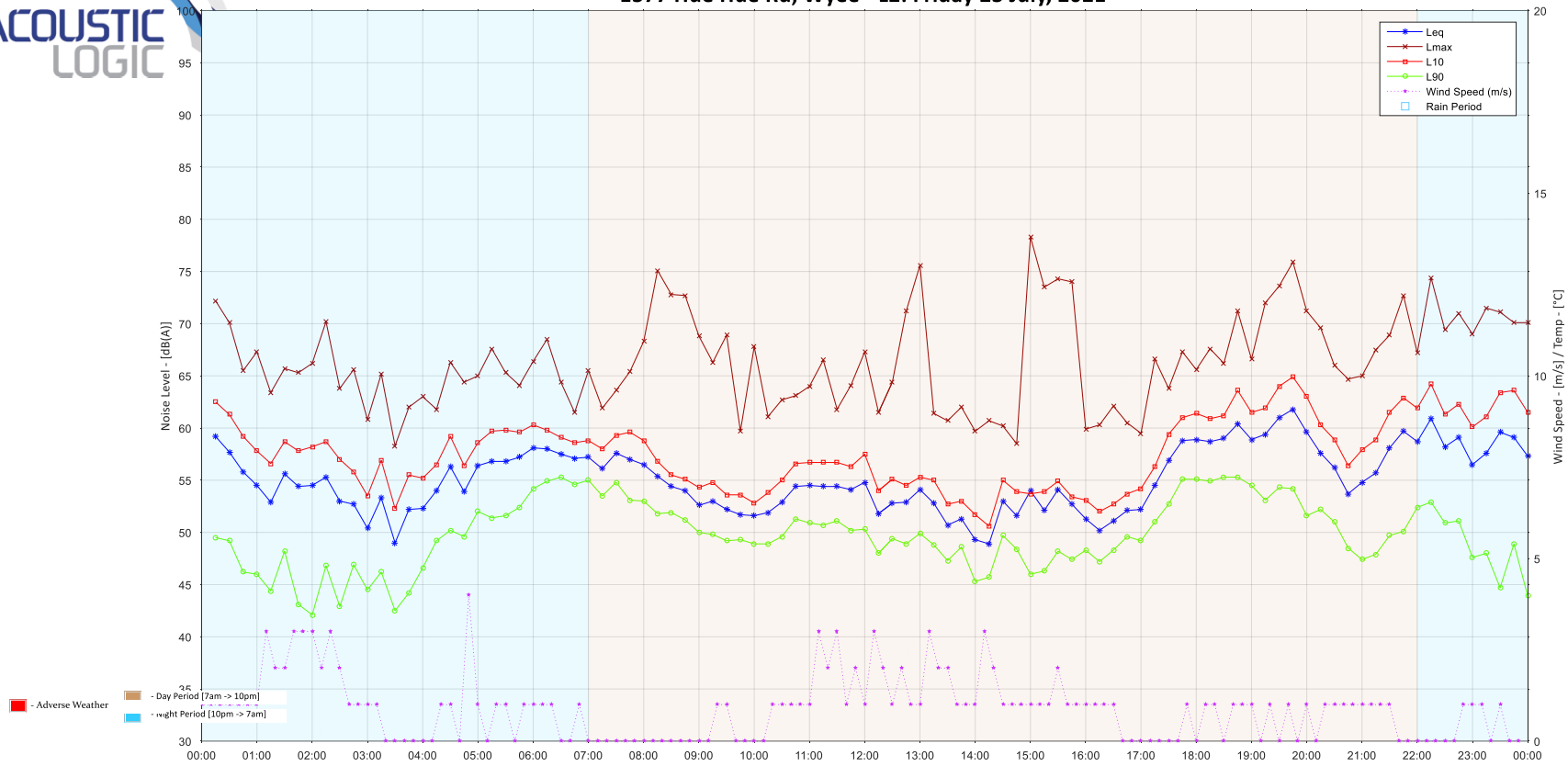
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Rd, Wyee - L2: Friday 23 July, 2021
Leq
Lmax
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Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
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- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]
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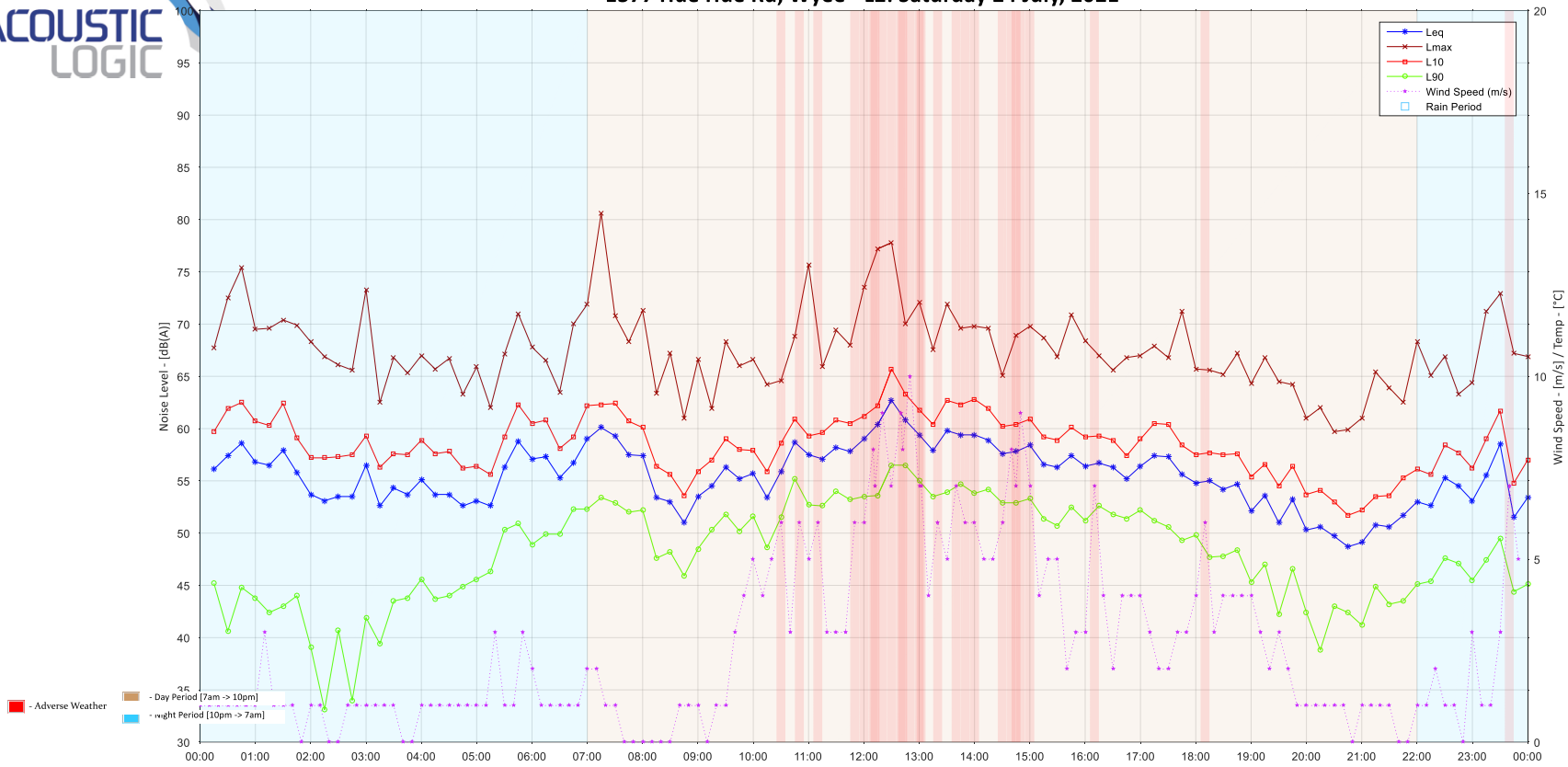
1377 Hue Hue Rd, Wyee - L2: Saturday 24 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
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Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]
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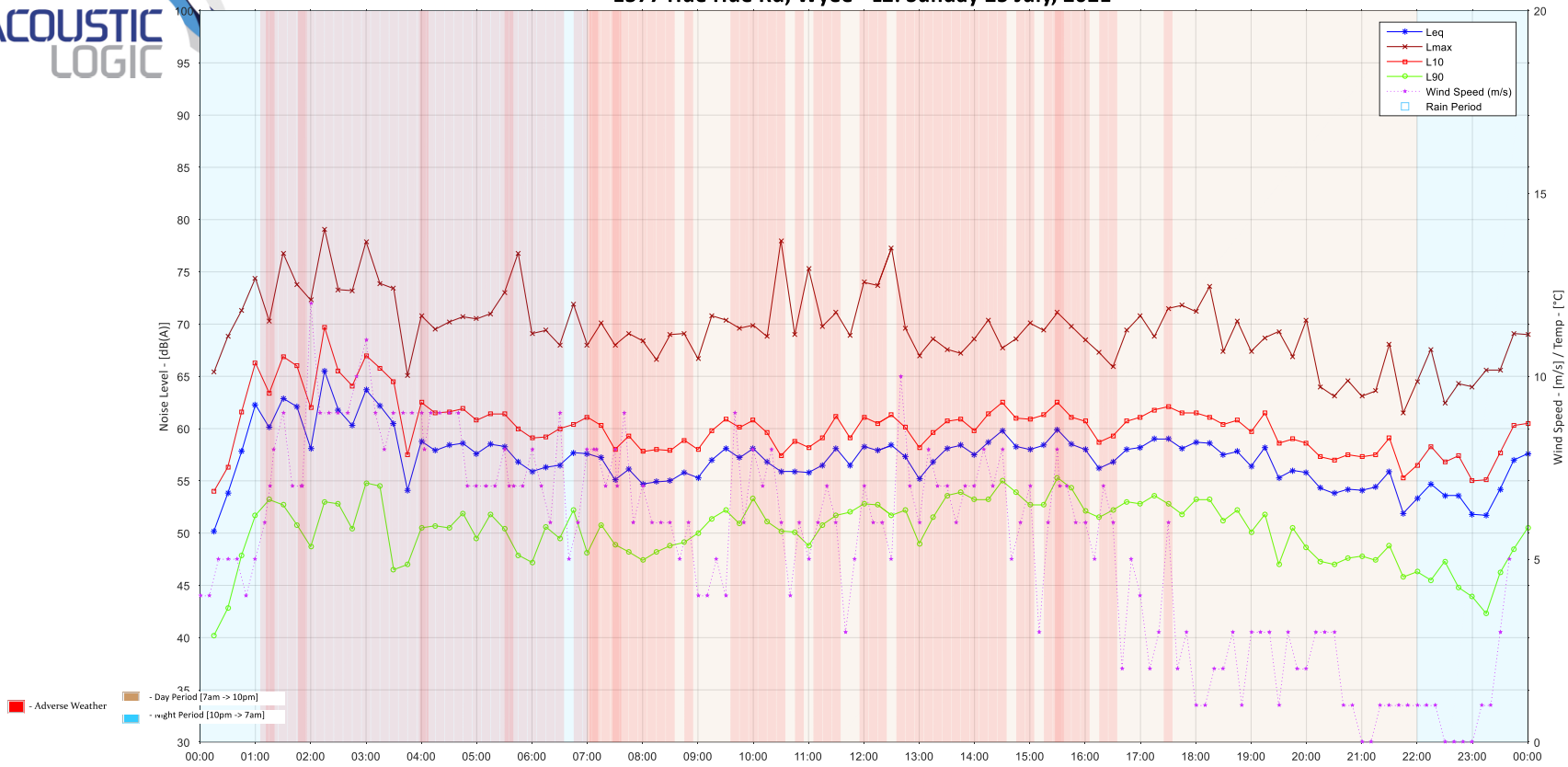
1377 Hue Hue Rd, Wyee - L2: Sunday 25 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
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Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]
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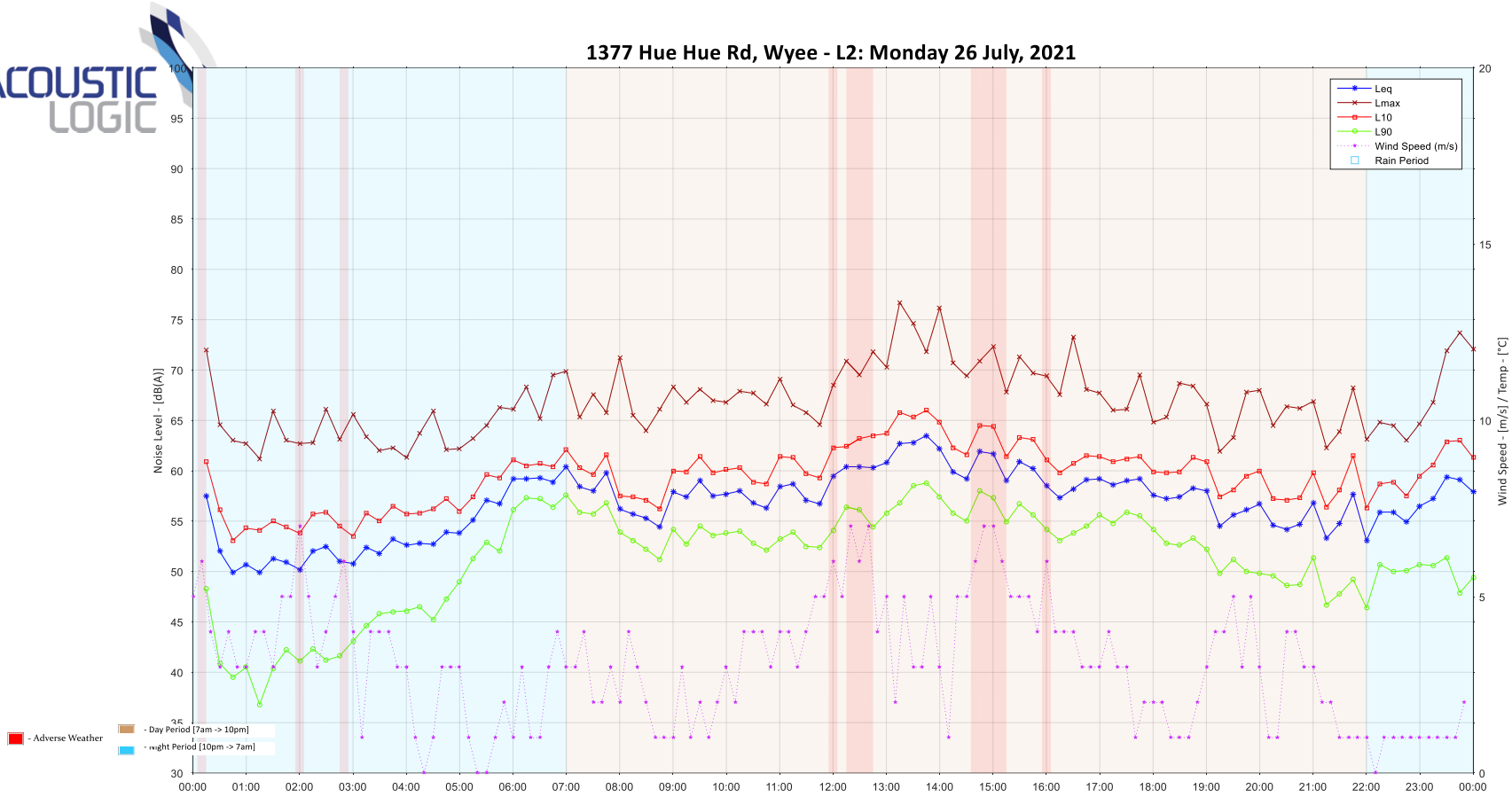
1377 Hue Hue Rd, Wyee - L2: Monday 26 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
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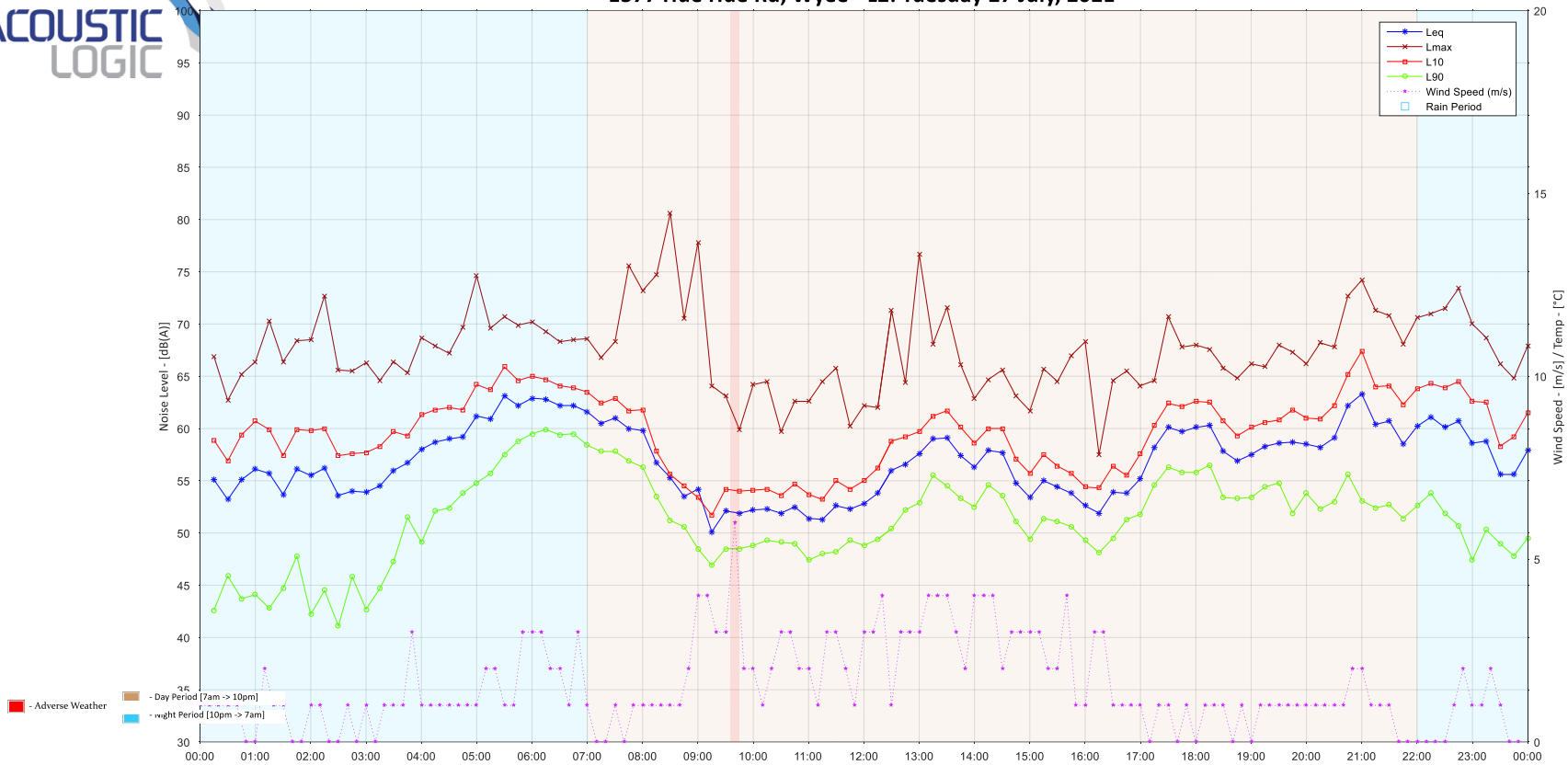
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]


1377 Hue Hue Rd, Wyee - L2: Tuesday 27 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
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L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]
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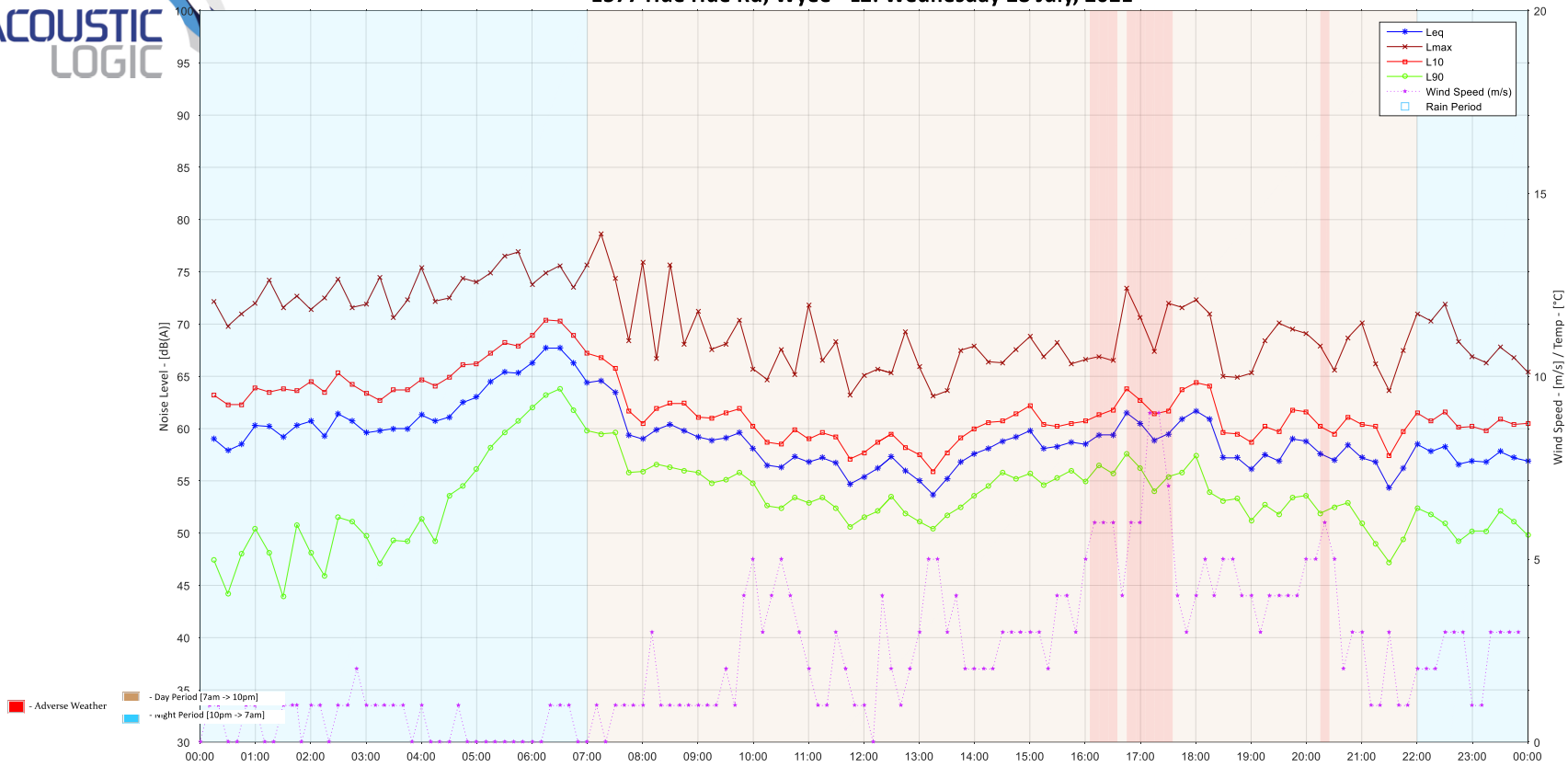
1377 Hue Hue Rd, Wyee - L2: Wednesday 28 July, 2021
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
Lmax
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L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 10pm]
- Night Period [10pm -> 7am]
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1377 Hue Hue Rd, Wyee - L2: Thursday 29 July, 2021