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Peter Biggs
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Date: 22nd June 2023
Reference: 10123-3 Rev 0

Dear Peter,

Re: Land off Pines Hill, Stansted – Planning Conditions (Noise) UTT/23/0966/PINS

Further to UDC's recent list of proposed planning conditions, please see our comments below.

1.0 PROPOSED CONDITIONS

- 1.1 Other than for the construction phase, no conditions have been drafted in relation to noise. Although the risk of disturbance from noise is low, it recommended that the following conditions be considered:

Prior to any above ground development, a scheme to demonstrate that the internal noise levels within residential units will conform to the 'Indoor ambient noise levels for dwellings' guideline values specified within BS 8233:2014, namely:

*35 dB LAeq 16 hour (daytime) in living rooms
40 dB LAeq 16 hour (daytime) in dining rooms
30 dB LAeq 8 hour (night-time) in bedrooms
45 dB LAmax, f (night-time) in bedrooms (not more than 10 times)*

shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall be compiled by a competent acoustician on sound insulation and noise reduction for buildings. The works specified in the approved scheme shall then be carried out in accordance with the approved details prior to occupation of the premises.

Prior to any above ground development and unless otherwise agreed in writing, details of a noise barrier designed to protect the nearest dwellings from noise arising from R&N Engineering shall be submitted to and approved in writing by the Local Planning Authority. The works specified in the approved scheme shall then be carried out in accordance with the approved details prior to occupation of the premises.

No dwellings shall be occupied until the scheme providing protection for those dwellings has been implemented in accordance with the approved details and has been demonstrated to achieve the required noise levels to the satisfaction of the Local Planning Authority. The approved scheme shall be retained in accordance with those details thereafter.

- 1.2 Further to our letter dated 8th June, which established that the risk of disturbance is low, additional noise measurements have been undertaken at the site. The measurements and findings below tally well with the previous findings reported on the 8th June.

2.0 ADDITIONAL NOISE MEASUREMENTS

Introduction

- 2.1 24 Acoustics Ltd has been instructed by Luxus Homes to undertake additional noise measurements at land east of Pines Hill, Stansted Mountfitchet.
- 2.2 This letter presents the results of the assessment, following site visits and an environmental noise survey undertaken between 13th and 20th June 2023.

Site Description

- 2.3 The existing site is located east of Pines Hill. A railway line is located approximately 40m to the east and a small workshop (R&N Engineering) to the south. Residential properties are located around the site.
- 2.4 Local road traffic using the Pines Hill together with occasional rail and air movements control prevailing noise levels at the site.
- 2.5 The site and environmental noise measurement locations are shown in Figure 1. The proposed (outline) site layout is shown in Figure 2.

Noise Measurements

- 2.6 Environmental noise measurements were undertaken between 13th and 19th June 2023, in order to establish existing ambient and background noise levels. The noise measurement locations are described below and shown in Figure 1.
- 2.7 Noise measurements were undertaken at three locations at the site, in free-field conditions, and are described as follows:
- Location 1: Adjacent to Pines Hill Road
 - Location 2: North east of the site, on boundary with railway land
 - Location 3: South of the site, adjacent to R&N Engineering
- 2.8 Additional measurements and observations were taken at Location 3 (as shown in Figure 1) during the daytime on 20th June 2023, at a height of approximately 1.5 m above local grade level.
- 2.9 Noise measurements were undertaken with the following instrumentation:
- 3 No Rion NL52 Class 1 accuracy sound level meters;
 - Brüel and Kjær Type 4231 Class 1 accuracy acoustic calibrator.
- 2.10 Noise measurements were undertaken in samples of 5 minutes, in terms of free-field A weighted and linear octave-band L_{eq} , L_{90} and $L_{max,f}$ parameters. Measurements were made in accordance with BS 7445:1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use".

- 2.11 The instrumentation's calibration was verified before and after the survey in accordance with the manufacturer's instructions. No significant drift in calibration was recorded. Microphones were fitted with environmental weather shields during the measurement periods.
- 2.12 The weather conditions during the survey period were fine and dry, with wind speeds below 5 m/s.
- 2.13 The overall measured noise levels from Location 1, adjacent to Pines Hill Road, are summarised in Table 1 and shown graphically in Appendix B.

Date	Sound Pressure Level (dB)		
	Daytime (07:00 to 23:00)	Night-time (23:00 to 07:00)	
	$L_{Aeq, 16 \text{ hour}}$	$L_{Aeq, 8 \text{ hour}}$	Typical $L_{Amax, f}$
Tuesday 13/6/2023	60.5	55.2	70.1
Wednesday 14/6/2023	60.4	55.2	70.6
Thursday 15/6/2023	60.3	55.2	71.3
Friday 16/6/2023	60.5	54.1	70.8
Saturday 17/6/2023	60.0	54.0	69.6
Sunday 18/6/2023	59.6	55.0	71.3
Monday 19/6/2023	60.5	54.9	69.9
Representative	60.3	54.8	70.5

Table 1: Overall Measured Noise Levels at Location 1

- 2.14 24 Acoustics considers the typical maximum to be the 10th highest $L_{Amax, f}$ noise level during the relevant night-time period.
- 2.15 Overall noise levels at Location 1, arising from road traffic on Pines Hill, are low to medium during the daytime and night-time periods.
- 2.16 Measured noise levels at Location 2, on the railway boundary, are shown in Table 2.

Date	Sound Pressure Level (dB)		
	Daytime (07:00 to 23:00) $L_{Aeq, 16 \text{ hour}}$	Night-time (23:00 to 07:00)	
		$L_{Aeq, 8 \text{ hour}}$	Typical $L_{Amax, f}$
Tuesday 13/6/2023	54.2	51.6	70.6
Wednesday 14/6/2023	53.2	55.2	72.4
Thursday 15/6/2023	52.5	48.8	67.1
Friday 16/6/2023	52.2	47.8	68.5
Saturday 17/6/2023	53.9	49.2	69.5
Sunday 18/6/2023	51.9	46.7	69.5
Monday 19/6/2023	52.3	49.2	67.5
Representative	52.9	49.8	69.3

Table 2: Overall Measured Noise Levels at Location 2

- 2.17 Overall levels at Location 2 are considered to be low during the daytime and night-time periods.
- 2.18 Measured noise levels at Location 3, adjacent to R&N Engineering, are shown in Table 3.

Date	Sound Pressure Level (dB)		
	Daytime (07:00 to 23:00) $L_{Aeq, 16 \text{ hour}}$	Night-time (23:00 to 07:00)	
		$L_{Aeq, 8 \text{ hour}}$	Typical $L_{Amax, f}$
Tuesday 13/6/2023	51.0	48.8	65.5
Wednesday 14/6/2023	50.3	47.9	64.6
Thursday 15/6/2023	49.2	47.5	62.3
Friday 16/6/2023	48.8	46.2	61.2
Saturday 17/6/2023	48.4	47.9	66.1
Sunday 18/6/2023	48.6	43.8	61.5
Monday 19/6/2023	48.6	47.8	66.3
Representative	49.3	47.1	63.9

Table 3: Overall Measured Noise Levels at Location 3

- 2.19 As per Location 2, overall noise levels at Location 3 are low during the daytime and night-time periods.
- 2.20 Noise measurements and observations were obtained at Location 3 during the morning of June 20th, with normal activities at R&N Engineering. The measured values are summarised below:

Ambient noise levels in range 48 – 59 dB $L_{Aeq\ 1\ minute}$ with aircraft typically of 54 – 57 dB $L_{Aeq\ 1\ minute}$ and trains around 54-56 dB $L_{Aeq\ 1\ minute}$.

R&N Engineering noise levels in the range 52 – 54 dB $L_{Aeq\ 1\ minute}$ arising from various activities including power tools and sawing of metal.

- 2.21 Prevailing background noise levels (excluding noise from R&N Engineering) were in the range 48 – 49 dB L_{A90} .

Assessment

- 2.22 Using the data from above and assuming no acoustic fence on the boundary with the nearest proposed plots yields the following assessment:

R&N Engineering (inclusive of ambient)	52 dB $L_{Aeq\ 1\ hour}$
Residual noise level	48 dB $L_{Aeq\ 1\ hour}$
Specific noise level	49.8 dB $L_{Aeq\ 1\ hour}$
Character correction	+ 3 dB (impulsivity)
Rating noise level	52.8 dB $L_{Aeq\ 1\ hour}$
Background noise level	48 dB L_{A90}
Excess over background	+ 4.8 dB

- 2.23 However, inclusion of a 2.4m acoustic fence at the position shown in Figure 1 would provide a reduction of 12 dBA at the nearest properties. The proposed fence should meet the following criteria:

Barrier 2.4 m high;
Minimum mass per unit area (12 kg/m²)
No holes or openings

- 2.24 A lower daytime background noise level may arise. Assuming a value of 43 dB L_{A90} and inclusion of the noise barrier, would give the following assessment:

R&N Engineering (after barrier loss)	40 dB $L_{Aeq\ 1\ hour}$
Specific noise level	40 dB $L_{Aeq\ 1\ hour}$
Character correction	+ 3 dB (impulsivity)
Rating noise level	43 dB $L_{Aeq\ 1\ hour}$
Background noise level	43 dB L_{A90}
Excess over background	0 dB

- 2.25 This value is significantly lower than an indication of an adverse impact and considered acceptable.

- 2.26 It is also relevant to note that, although not directly comparable, internal noise levels from noise associated with R&N Engineering (assuming an open window) will comfortably meet BS 8233 guidelines values within the nearest properties.

- 2.27 The ProPG (see References) for Noise states the following for sites with a low noise impact (the term ADS means Acoustic Design Statement or, more conventionally, a noise assessment).

At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

2.28 As noise at this site is either low or below medium (as classified by ProPG), it is not necessary to examine in detail at this stage acoustically critical issues such as site layout, building heights, etc (as per guidance in ProPG).

Conclusions

2.29 24 Acoustics Ltd has been instructed by Luxus Homes to undertake a noise assessment at land east of Pines Hill, Stansted Mountfitchet, proposed for residential development.

2.30 Ambient noise surveys have been undertaken to determine the level of noise from existing noise sources. Noise levels in the area are typically low or below medium when assessed using ProPG guidance. Similarly, activities at R&N Engineering has been assessed and found to be below that associated with an indication of adverse impact when using BS 4142.

2.31 Recommendations for boundary treatment, together with proposed planning conditions for consideration at the reserved matters stage have been given.

2.32 It is considered that the site is suitable for residential development subject to compliance with proposed conditions.

I trust the above is in order – please call if you have any queries.

Yours sincerely
For 24 Acoustics Ltd

Steve Gosling BEng (Hons) MIOA MAES FRSA
Principal Consultant

REFERENCES

1. ProPG Professional Practice Guidance on Planning and Noise (ProPG), ANC, IOA, CIEH, May 2017.
2. British Standards Institution. British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings, 2014.
3. British Standards Institution. British Standard 4142: Methods for rating and assessing commercial and industrial sound, 2014. BS 4142:2014+A1:2019




Project: Pines Hill	Title: Site Plan and Survey Locations		
DWG No: Figure 1	Scale: N.T.S.	Rev: -	
Date: June 2023	Drawn By: SG	Job No: 100123	

FIGURE 2 – SITE PLAN SHOWING ACOUSTIC FENCE LOCATION



APPENDIX A – ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dBA corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

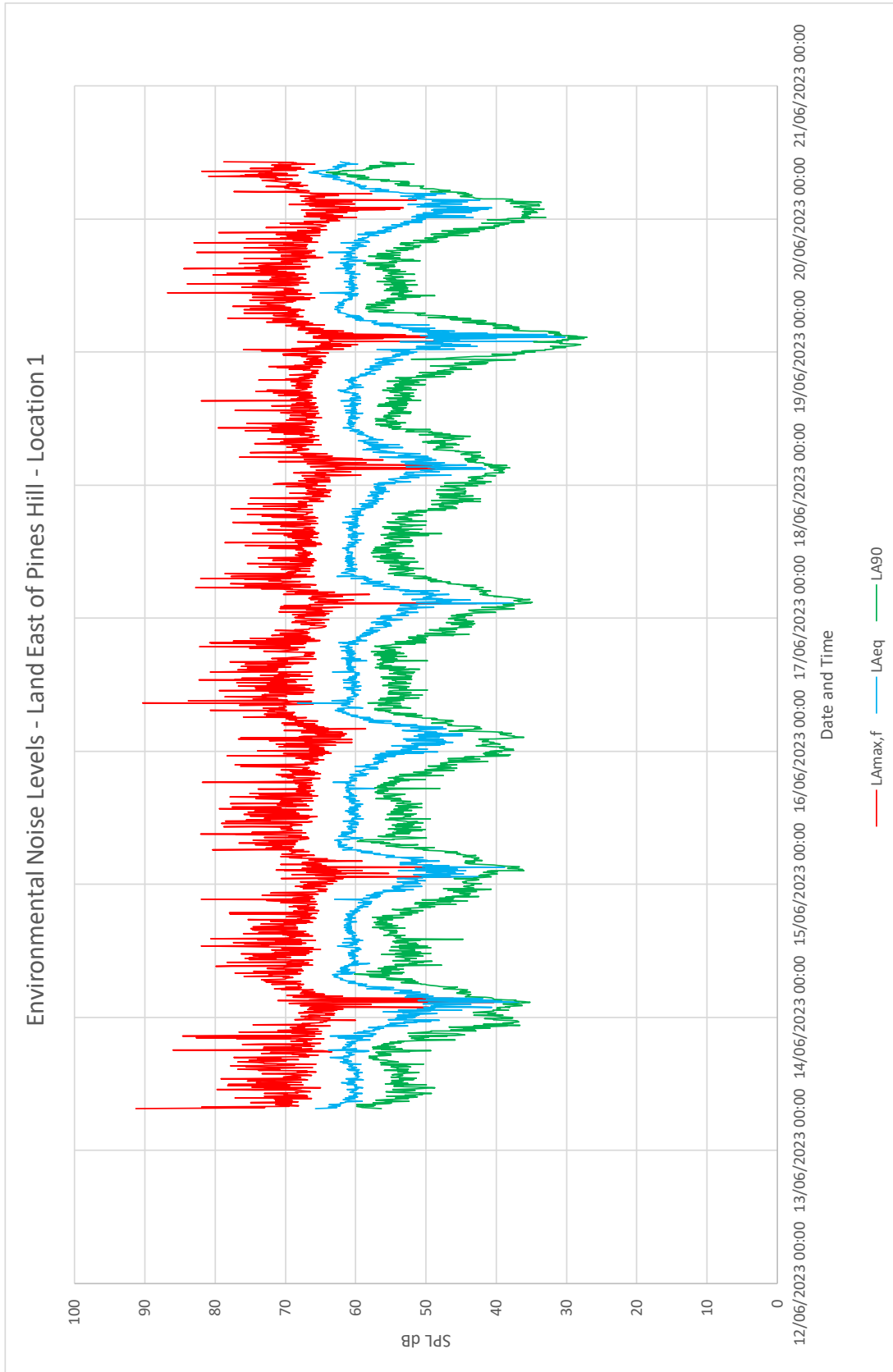
This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

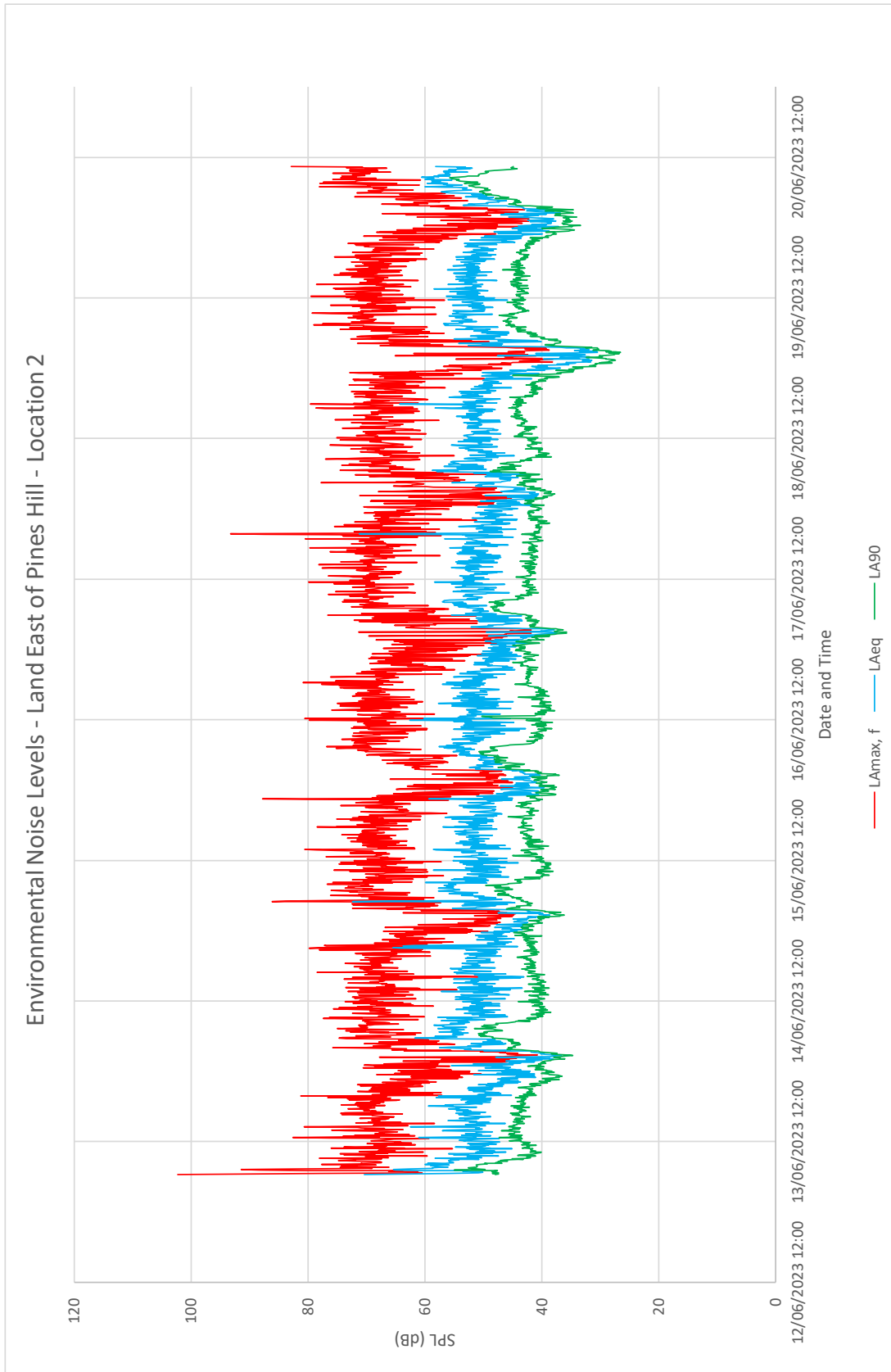
This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B: NOISE MEASUREMENT RESULTS

APPENDIX B1 – LOCATION 1



APPENDIX B2 – LOCATION 2



APPENDIX B3 – LOCATION 3

