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FINCHWOOOD PARK
PARCEL 13

NOISE ASSESSMENT

Technical Report: R11060-1 Rev 0

Date: 31st March 2025

For: Vistry Thames Valley
550 Oracle Parkway
Thames Valley Park
Reading
RG6 1PT

24 Acoustics Document Control Sheet

Project Title: Finchwood Park, Parcel 13 - Noise Assessment

Report Ref: R11060-1 Rev 0

Date: 31th March 2025

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For and on behalf of 24 Acoustics Ltd				

Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed By	Approved By
0	Approved for issue	Kiel Edwards	Neil McLeod	Stephen Gosling

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CONTENTS

1.0 INTRODUCTION

1.1 24 Acoustics Ltd has been instructed by Vistry Thames Valley to provide a noise assessment for the proposed residential development at Finchwood Park, parcel 13 which has outline consent for residential development.

1.2 The reserved matters application for parcel 13 is underway and the planning officer has requested an assessment of noise associated with road traffic on the new Nine Mile Ride Extension (NMRE) carriageway. Accordingly, this noise assessment has included:

- Environmental noise monitoring;
- Consideration of the noise arising from nearby sources affecting the site;
- Assessment of internal noise levels within the dwellings;
- Assessment of external noise in amenity areas.

1.3 This report presents the results of the assessment, following site visits and ambient noise surveys undertaken between 10th and 13th March 2025.

1.4 An explanation of acoustical terms used in this report is provided in Appendix A. All sound pressure levels in this report are given in dB re: 20 μPa.

2.0 SITE DESCRIPTION

2.1 The site is located in a developing residential area currently under construction (outline planning reference O/2014/2179 and 140764).

2.2 The land is undeveloped with the newly constructed Nine Mile Ride Extension (NMRE) road running along the southern and western boundaries of the site. The existing Hogwood Industrial Estate is located further to the west to the opposite side of the NMRE carriageway. Residential properties and an over 50s residential park are located to the north and east of the site. Undeveloped land is located to the south of the site, which forms parcels 12a and 12b of the wider Finchwood Park development, and is allocated for residential development. The completed parcel 14 residential development is located to the southwest of the site, adjacent to parcels 12a and 12b.

2.3 It is proposed to construct up to 56 dwellings on parcel 13 with associated external amenity areas and public spaces. Existing stub roads to the west and north of the site will be extended to provide access to the dwellings.

2.4 Noise sources in the area include road traffic on the NMRE. Traffic flows on this road are expected to increase as the wider development is completed.

2.5 The existing site and noise measurement locations are shown in Figure 1. The proposed site layout is shown in Figure 2.

3.0 CRITERIA

National Planning Policy Framework and Noise Policy Statement for England

3.1 The National Planning Policy Framework (NPPF) [Reference 1] states in relation to noise that planning policies and decisions should aim to:

- Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

3.2 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims.

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

3.4 The National Planning Practice Guidance (NPPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The NPPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. The NPPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.

3.5 The NPPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system.

3.6 The NPPG also expands on the 'agent of change' principle and provides guidance on how the risk of conflict between new development and existing businesses can be addressed, including where mitigation is required.

3.7 The NPPF, NPSE and NPPG documents do not refer to specific noise criteria. For residential developments 24 Acoustics considers that the spirit of the requirements of the NPPF and NPSE will be complied with if criteria and guidance from British Standard 8233: 2014, British Standard 4142: 2014 and the World Health Organisation.

<u>Professional Practice Guidance on Planning & Noise (ProPG)</u>

3.8 The Professional Practice Guidance on Planning and Noise (ProPG) [Reference 4] was published jointly by the Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health in May 2017. The guidance relates to the consideration of existing sources of transportation noise upon proposed new residential development and strives to:

- Advocate full consideration of the acoustic environment from the earliest possible stage of the development control process;
- Encourage the process of good acoustic design in and around new residential developments;
- Outline what should be taken into account in deciding planning applications for new noise-sensitive developments;
- Improve understanding of how to determine the extent of potential noise impact and effect; and
- Assist the delivery of sustainable development.

3.9 The guidance describes a recommended approach for new residential development, which includes four key elements of the assessment process, identified below:

(i) Good acoustic design process;
(ii) Internal noise level guidelines;
(iii) External amenity area noise assessment;
(iv) Assessment of other relevant issues.

3.10 It is important to note that the guidance in ProPG does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy. It is provided for guidance only and has no formal place within planning legislation.

<u>BS 8233: 2014 and World Health Organisation Criteria</u>

3.11 BS 8233:2014 [Reference 5] provides design guidance for dwelling houses, flats and rooms in residential use and recommends that internal noise levels in dwellings do not exceed 35 dB $L_{Aeq,16\ hour}$ in living rooms and bedrooms during the day, 40 dB $L_{Aeq,\ 16\ hour}$ in dining rooms during the day and 30 dB $L_{Aeq,\ 8\ hour}$ in bedrooms at night.

3.12 The standard states that the above limits apply to steady external noise sources without specific character, and also states the following:

> *"Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate."*

3.13 BS 8233 also notes that "*Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,f}$, depending on the character and number of events per night.*"

3.14 The World Health Organisation (WHO) [Reference 6] provides guidance on desirable internal noise levels to minimise the risk of sleep disturbance. The WHO 2000 guidelines suggest internal noise levels not exceeding 30 dB $L_{Aeq,8hr}$ or regularly exceeding 45 dB $L_{Amax,f}$ for 'a good night's sleep'.

3.15 BS 8233:2014 suggests an upper guideline value of 55 dB $L_{Aeq,16\ hour}$ for noise levels in external amenity spaces such as gardens. This is considered an aspirational limit and BS 8233. BS 8233 also states that development should not be prohibited on the basis of noise levels within external amenity areas.

Summary of Noise Criteria

3.16 The impact of noise upon the site has been assessed using the following methodology:

- BS 8233: 2014 and the WHO Guidelines for recommended internal noise levels, inside the properties. An upper internal daytime level of 35 dB $L_{Aeq,\ 16\ hour}$ for bedrooms, living rooms and communal lounges should apply; and a night-time level for bedrooms of 30 dB $L_{Aeq,\ 8\ hour}$ should apply. Similarly, a maximum night-time internal level of 45 dB $L_{Amax,\ fast}$ should apply in bedrooms for regular events.
- Consideration of noise levels within external amenity areas with regard to BS 8233: 2014's aspirational guideline upper value of 55 dB $L_{Aeq,16\ hour}$.

4.0 ENVIRONMENTAL NOISE MEASUREMENTS AND RESULTS

Measurement Instrumentation and Procedure

4.1 Environmental noise measurements were undertaken between 10th and 13th March 2025 in order to determine prevailing noise levels at the site. Measurements were undertaken using the following equipment:

- 2 x Rion precision sound level meter — Type NL-52
- Brüel & Kjær acoustic calibrator — Type 4231

4.2 Measurements were undertaken to the east and west of the site, as described below and shown in Figure 1.

- Measurement Location 1: To the northwest of the site, near the NMRE junction with Park Lane and Hogwood Industrial Estate. Approximately 26m from the centre of the NMRE and 2.5m above local ground level in free-field conditions;
- Measurement Location 2: To the southeast of the site, overlooking NMRE and parcel 12b. Approximately 10m from the centre of the NMRE and 2.5m above local ground level in free-field conditions.

4.3 The instrumentation's calibration was verified before and after the surveys 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. Measurements were made in accordance with BS 7445: 1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use" [Reference 7].

4.4 Weather conditions during the survey were generally favourable with no significant periods of precipitation and wind speeds below 5m/s.

Results

4.5 The measured noise levels are shown graphically in Appendix B and summarised in Table 1.

Location	**Daytime (07:00 - 23:00) dB $L_{Aeq,\ 16\ hour}$**	**Night Time (23:00 – 07:00)**	
		dB $L_{Aeq,\ 8\ hour}$	**Typical dB $L_{Amax,\ f}$**
1 (northwest)	55	46	66
2 (southeast)	61	51	71

Table 1: Measured Noise Levels

4.6 Morning chorus birdsong affected maximum noise levels at both measurement locations. Typical maximum noise levels from road traffic (excluding morning chorus periods - 04:30 to 07:00 hours) were in the order of 63 dB $L_{Amax\,f}$ at Location 1 and 68 dB $L_{Amax\,f}$ at Location 2.

4.7 24 Acoustics considers the typical maximum level to be the tenth highest during the relevant night-time period.

4.8 Measurements include road traffic noise from the NMRE and surrounding road network. Measurement results and detailed on-site observations demonstrate that noise from Hogwood Industrial Estate is not significant at the site.

4.9 Park Lane to the north of the site is a dead-end street, providing access to a retirement living park and a small number of residential properties. Noise from the small number of vehicles using Park Lane is not significant.

Future Road Traffic Noise Levels

4.10 The Finchwood Park residential development has not yet been completed and the Nine Mile Ride Extension is expected to see higher vehicle flows as the wider development progresses.

4.11 The following assessment has been based on the measured levels discussed above and with consideration to the projected peak hour vehicle movements associated with the new road in 2026 provided in the Royal HaskoningDHV transport assessment issued for planning in October 2014 (ref. PB2112/RR01002/303814/Lond) and in the Nine Mile Ride Extension South (NMRES) Transport Assessment by JNPGroup in 2019 (ref. M42740-JNP-66-XX-RP-D-1003).

4.12 Consideration has also been given to the 12 hour traffic flows undertaken on the existing Nine Mile Ride road to the east of the site in 2023 (site no. 804576) by the Department for Transport.

4.13 Calculations have been undertaken to determine the likely level of road traffic noise incident at the site based on the above traffic flow data. Resultant noise levels based on the predicted 1-hour peak flow and Department for Transport 12 hour traffic counts are all below the on-site measured noise levels.

4.14 To approximate road traffic noise levels on the NMRE when the development is complete and fully occupied, a +3 dB correction has been applied to the measured noise levels outlined in Table 1, which is a robust assumption.

5.0 ASSESSMENT AND RECOMMENDED MITIGATION MEASURES

Internal Noise Levels

5.1 The following calculations are based on site layout and house type drawings by ECE Architecture dated September 2024 and January 2025 respectively.

5.2 The following assessment is based on a cavity masonry external wall construction specified to achieve a minimum sound insulation performance of 52 dB R_w.

Window/Glazing System

5.3 In order to achieve suitable internal noise levels to habitable rooms, an increased window/glazing acoustic specification will be required to properties directly overlooking NMRE. The window/glazing acoustic specification to properties further within the site is lower.

5.4 The minimum acoustic requirements for window/glazing systems apply to all new habitable rooms as described in Table 2 with glazing type locations identified in Figure 2.

Glazing Type	Minimum Octave (Hz) Band Sound Reduction Index, dB						Minimum Overall dB R_w
	125	250	500	1k	2k	4k	
1	26	22	28	38	41	42	33
2	24	20	25	35	38	35	31

Table 2: Glazing Sound Insulation Specifications

5.5 In making a comparison with the values in Table 2, it is important that the glazing figures used are the result of tests in accordance with ISO 10140, Part 2: 2010. The quoted minimum sound reduction specifications must be achieved by the entire glazing system as a whole, including frames, seals, any insulated panels and not just the glass. The requirements also apply to any external doors to habitable rooms.

5.6 For guidance, the following glazing configuration would be capable of achieving the required sound reduction performance if installed properly (i.e. with appropriate frames and seals, etc.):

- Glazing Type 1: 8mm glass – 12mm cavity – 4mm glass;
- Glazing Type 2: 4mm glass – 12mm cavity – 4mm glass.

5.7 All recommendations made apply to the acoustic performance of the window systems and compliance with other requirements (e.g. security/thermal) should be checked by others.

5.8 Following the above measures, suitable internal noise levels can be achieved for the proposed dwellings.

Ventilators

5.9 Habitable rooms closest to NMRE will require attenuated through wall/window trickle ventilators. Lower rated ventilators are recommended further within the site. The minimum acoustic performance requirements for ventilators are shown in Table 3 with locations identified in Figure 2.

Ventilator Type	Minimum $D_{n,ew}$ (dB) per Octave Band Centre Frequency (Hz)						Minimum Overall dB $D_{n,e,w}$
	125	250	500	1k	2k	4k	
1	38	35	32	40	46	60	39
2	23	26	29	30	33	33	31

Table 3: Recommended Ventilator Performances

5.10 In making a comparison with the above ventilator specifications, it is important that the figures used are the result of laboratory tests with the vent in the open position.

5.11 Note that the stated performance values assume two ventilators per habitable room, providing a minimum cumulative equivalent area of 8000mm^2 for multi storey dwellings (i.e. houses) and 10000mm^2 for single level dwellings (i.e. bungalows/apartments), following the requirements of Approved Document F [Reference 8].

5.12 The ventilation sound insulation performances outlined in Table 3 will require acoustically attenuated trickle vents. Alternatively, mechanically assisted ventilation (MEV or MVHR) would also be suitable throughout the development.

5.13 With the above measures in place, the criteria outlined in section 3 will be readily achievable.

External Amenity Areas

5.14 It is recommended to provide a minimum 1.8m high fence (achieving a minimum surface density of 12 kg/m^2 with no hole or gaps) to the gardens of plots 50 and 56 as outlined in Figure 2. With the provision of this fence, noise levels within external amenity areas across the site will be at or below 55 dB $L_{Aeq,\ 16\ hour}$, which is acceptable in planning terms.

6.0 CONCLUSIONS

6.0 24 Acoustics Ltd has been instructed by Vistry Thames Valley to undertake a noise assessment at parcel 13, Finchwood Park, Wokingham. This report has assessed noise from nearby roads including current and future traffic flows.

6.1 Environmental noise measurements have been undertaken at the site, to determine the level of noise from the existing sources, during daytime and night-time periods.

6.2 An assessment of the potential future increase in traffic noise levels has been undertaken, with reference to transport assessments submitted at planning for the wider Finchwood Park development area.

6.3 Calculations have been undertaken in order to determine suitable sound insulation performances for glazing and ventilation to achieve acceptable internal road traffic noise levels at the proposed dwellings, in accordance with defined criteria (BS 8233:2014 and WHO).

6.4 It is concluded that, with the recommended measures, suitable noise levels will be achieved throughout the development.

REFERENCES

1. Ministry of Housing, Communities and Local Government. The National Planning Policy Framework (NPPF), 2025.

2. DEFRA. Noise Policy Statement for England, 2010.

3. Ministry of Housing, Communities and Local Government. Planning Practice Guidance, 2019.

4. ProPG Professional Practice Guidance on Planning and Noise (ProPG), ANC, IOA, CIEH, May 2017.

5. British Standards Institution. British Standard 8233: Guidance on sound insulation and noise reduction for buildings, 2014.

6. World Health Organisation. Guidelines for Community Noise, 1999.

7. British Standards Institution. BS 7445: 'Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use' 1991.

8. Building Regulations. Approved Document F -Ventilation, 2021.

Measurement Location 1
Measurement Location 2

Project: Finchwood park, Parcel 13	**Title:** Site Location, Measurement Locations	
DWG No: Figure 1	**Scale:** N.T.S.	**Rev: -**
Date: March 2025	**Drawn By:** KE	**Job No:** 11060

Glazing Type 1 + Vent Type 1 Glazing Type 2 + Vent Type 2 Recommended Barrier (see 5.15)	(all unmarked façades)

Project: Lower Chase Road, Waltham Chase	**Title:** Site Layout	
DWG No: Figure 2	**Scale:** N.T.S.	**Rev: -**
Date: March 2025	**Drawn By:** KE	**Job No:** 11060

APPENDIX A: NOISE UNITS

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 important 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 dB(A) weighting. This is an internationally accepted standard for noise measurements.

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

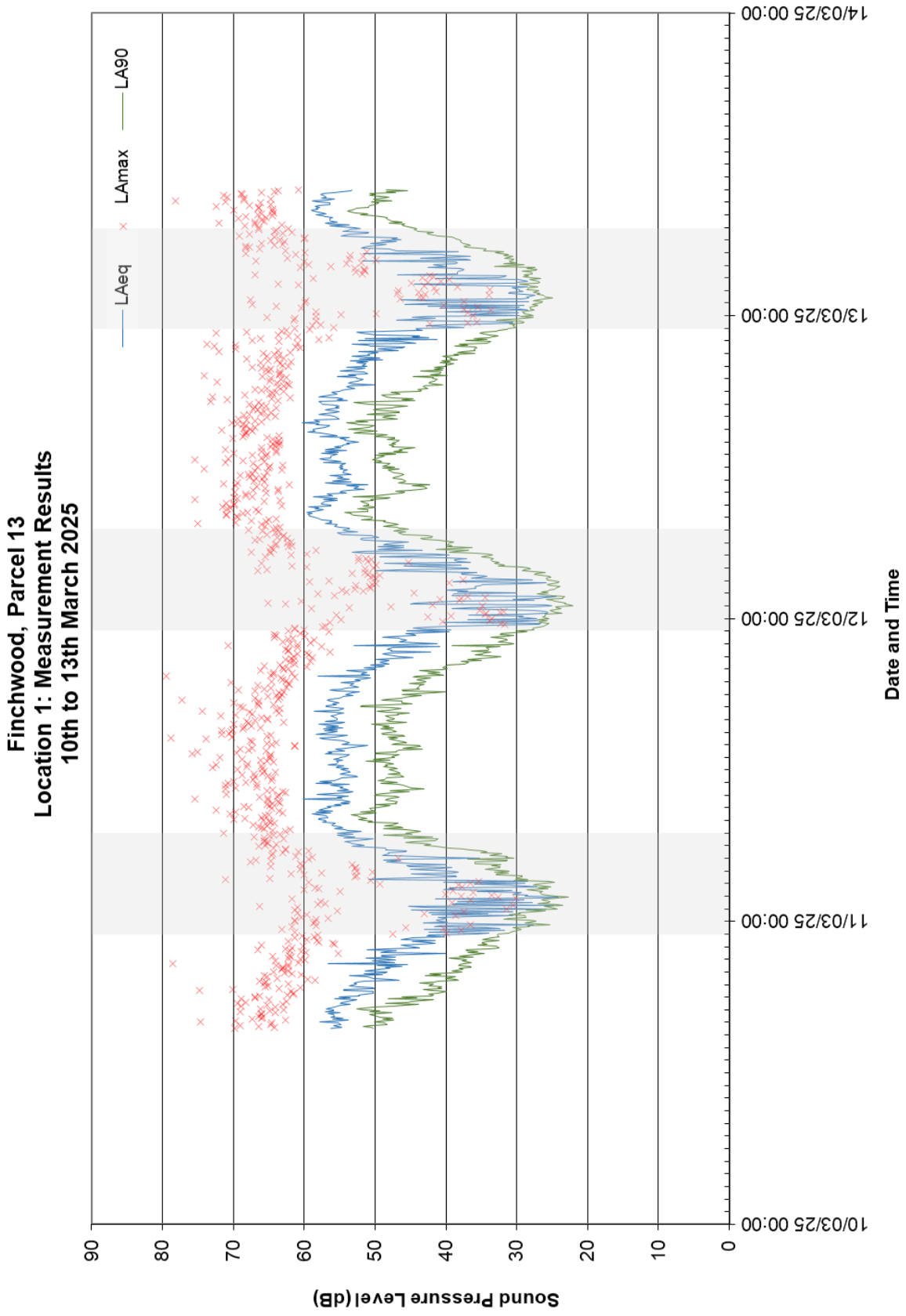
This is the maximum noise level recorded over the measurement period.

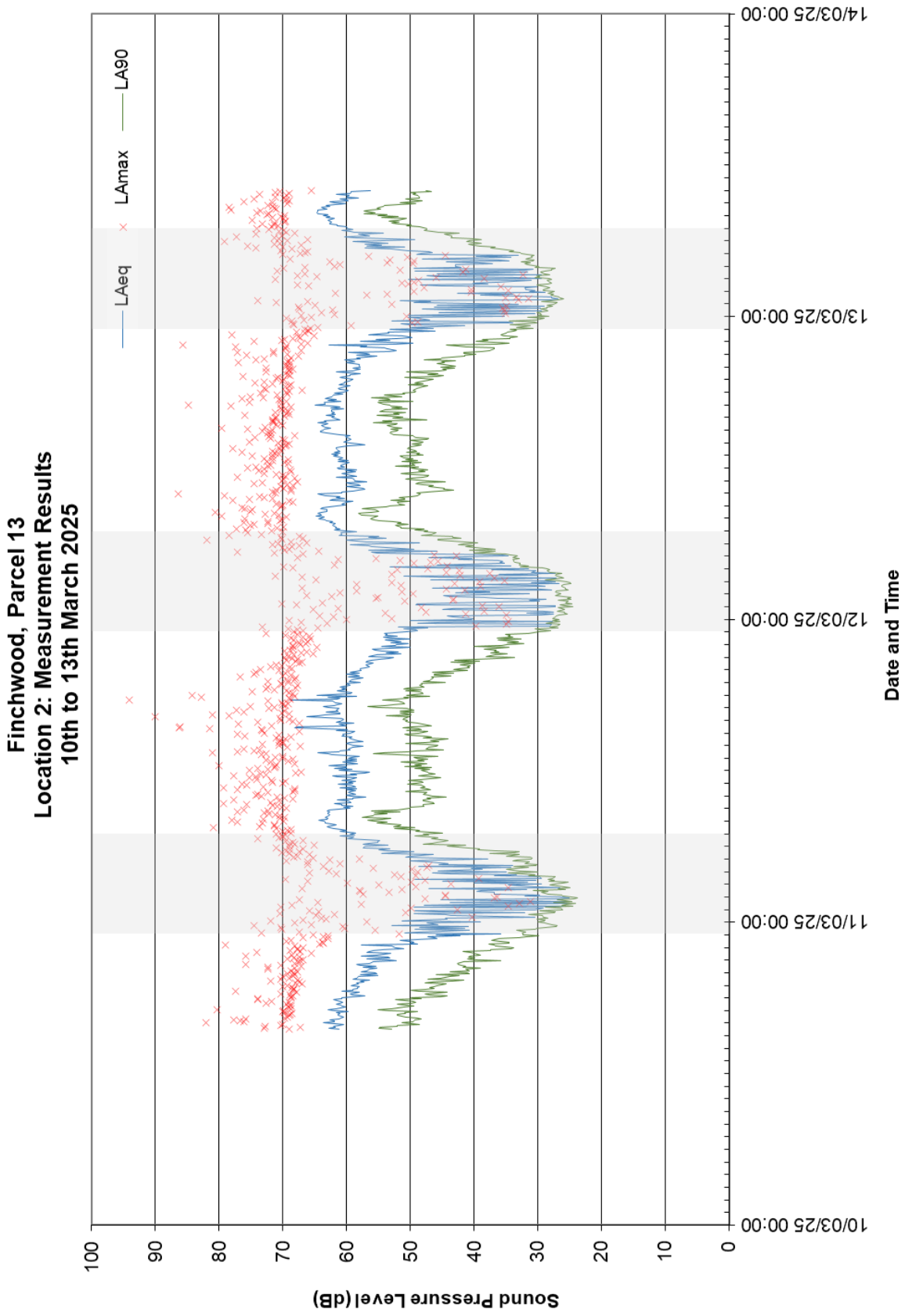
ii) The L_{Aeq} noise level

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 internal, 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.

APPENDIX B: NOISE MEASUREMENT RESULTS




Finchwood, Parcel 13
Location 2: Measurement Results
10th to 13th March 2025
LAeq
LAmax
LA90
Sound Pressure Level (dB)
100
90
80
70
60
50
40
30
20
10
0
10/03/25 00:00
11/03/25 00:00
12/03/25 00:00
13/03/25 00:00
14/03/25 00:00
Date and Time