

NOISE ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT ON LAND AT NORTH BRADLEY

ALLISON HOMES SW LIMITED

APRIL 2026

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Revision	Prepared By	Date
1.0	L Jephson BEng (Hons) MIOA	16/4/26

This report has been prepared using all reasonable skill and care within the resources and brief agreed with the client. LF Acoustics Ltd accept no responsibility for matters outside the terms of the brief or for use of this report, wholly or in part, by third parties.

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1. Introduction

LF Acoustics Ltd have been appointed by Allison Homes SW Limited to undertake an assessment of the noise levels within a proposed residential development to be located on land at North Bradley.

It is proposed to construct a residential development of 70 units on land to the south of Bradley Road, with a new access from the road.

This report presents an assessment of the road traffic noise levels within the proposed residential development, based upon a noise monitoring exercise carried out to establish current road traffic noise levels.

The following section of this report provides a summary of the relevant standards and guidance. Section 3 provides a description of the proposed development and its surroundings. The results of a baseline noise monitoring exercise carried out to determine the existing noise environment within the proposed development are presented in Section 4. Calculations and an assessment of the noise levels within the Proposed Development are presented in Section 5. Finally, Section 6 presents a summary of the report.

This report has been prepared by L Jephson BEng(Hons) MIOA, Director of LF Acoustics Ltd.

2. Applicable Standards and Guidance

A description of the noise units referred to within this report is provided in Appendix A.

2.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF), revised in December 2024 [1], sets out the Government's planning policies for England and how these should be applied. It provides a framework upon which locally prepared plans for housing and other development can be produced.

The purpose of the planning system is to contribute to the achievement of sustainable development and at the heart of the Framework is a presumption in favour of sustainable development.

Planning policies and decisions should ensure that developments:

- f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience (Para 135).

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans (Para 187).

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment. In doing so they should: 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 (Para 198).

Reference is made within the NPPF to the Noise Policy Statement for England [2] (NPSE), which sets out the long-term vision of the Government noise policy. Further information has been provided on the assessment of noise within recent Planning Practice Guidance, updated in July 2019 and available on the Government planning web site. Whilst this guidance does not provide any objective criteria upon which to base noise assessments, the guidance provides a description of the relevant Effects Levels identified within the NPPF and NPSE and this is reproduced in Table 2.1.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect (NOEL)	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level (LOAEL)	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level (SOAEL)	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 2.1 Significance Criteria

2.2. British Standard BS 8233

British Standard BS 8233 [3] recommends design aims for noise levels to be achieved in new buildings and is the most appropriate guidance in defining applicable noise levels within the proposed development. The Standard was updated in 2014 to better reflect the requirements of the NPPF in terms of impact classifications and achieving the recommended guidance values, seeks to ensure that the occupants would not be subject to any significant adverse impacts, to ensure compliance with the requirements of the NPPF.

For residential properties, the guidance recommends the following design aims for the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods:

- 35 dB $L_{Aeq,T}$ within living rooms and bedrooms during the daytime period;
- 40 dB $L_{Aeq,T}$ within dining areas / rooms during the daytime period;
- 30 dB $L_{Aeq,T}$ within bedrooms at night; and
- 50 – 55 dB $L_{Aeq,T}$ within gardens and patios during the daytime.

With regards internal noise levels, the Standard advises:

“Where development is considered necessary or desirable, external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”

Where the above limits require windows to be closed to maintain the standard of noise, there needs to be appropriate alternative ventilation provided that does not compromise the façade insulation or resulting noise level.

For outdoor amenity spaces, it is recognised in the Standard that these guideline values may not be achievable in all circumstances. Where development might be desirable, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, the development should be designed to achieve the lowest practicable levels but should not be prohibited. Given that there is a need for the development, it is considered in this situation, that this relaxation could be applied, providing the lowest practicable levels have been achieved.

2.3. World Health Organisation Guidelines

The World Health Organisation guidance [4] provides additional guidance upon potential effects in relation to noise.

The guidance advises that few people are moderately annoyed by external noise levels of below 50 dB L_{Aeq} during the daytime, with a level of 55 dB L_{Aeq} considered to be an upper limit to minimise the potential for serious annoyance.

2.4. ProPG: Planning and Noise

Professional planning guidance on planning and noise was published in May 2017 [5]. The guidance seeks to provide a recommended approach to the management of noise within the planning system in England. The guidance has been prepared jointly between the Association of Noise Consultants, The Institute of Acoustics and the Chartered Institute of Environmental Health with the aim of providing a coherent approach to achieving the requirements of the NPPF.

The guidance advocates a systematic, proportionate, risk based, 2-stage approach, encouraging early consideration of noise within the design process for new residential developments:

- Stage 1 provides an initial noise risk assessment of the development site;
- Stage 2 provides systematic consideration of four key elements: demonstrating a good acoustic design process; observing internal noise level guidelines; undertaking an external amenity area noise assessment; and consideration of other relevant issues.

The initial risk assessment should identify the risk of adverse effects from noise and identifying whether the site poses a negligible, low, medium or high risk. The level of risk does not determine whether a site may be unsuitable for development, but highlights an increasing requirement for noise to be considered within the design of the development and the likelihood of a need for specific noise mitigation measures, as follows:

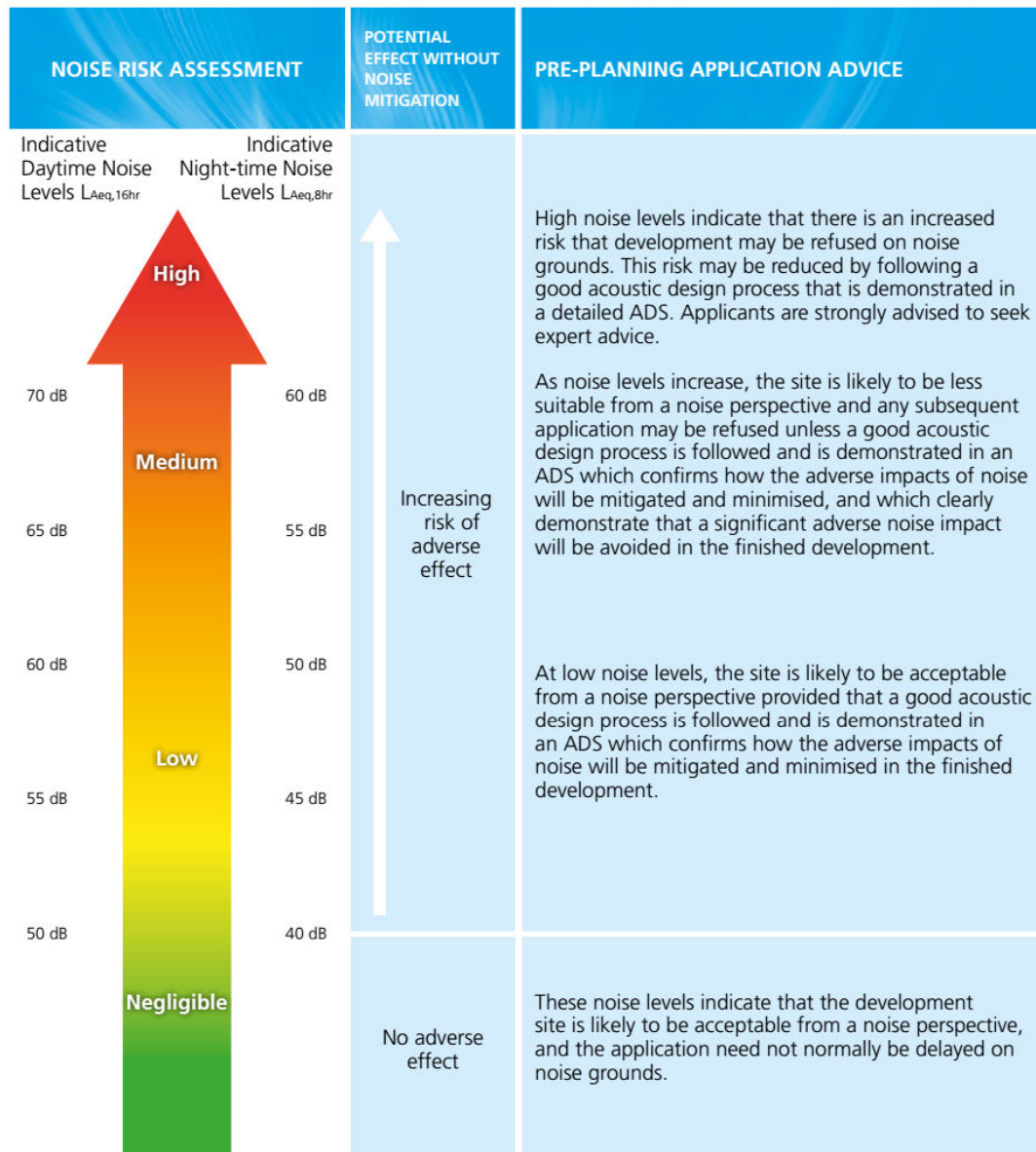


Figure 1 Notes:

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is "not dominant".
- $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.
- An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F} > 60$ dB means the site should not be regarded as negligible risk.

For a Stage 2 assessment, the guidance additionally refers to BS 8233 with respect of achieving an acceptable internal noise environment and within gardens.

Internally, the guidance recommends that the targets within BS 8233 are adopted as an aim. Expanding upon the guidance within BS 8233, for internal noise environments it is stated:

“Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as “unreasonable”. Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as “unacceptable” by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing “unacceptable” noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form.”

Within external amenity areas, the guidance reflects BS 8233, as follows:

“These guideline values (i.e. a level of between 50 – 55 dB L_{Aeq}) may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited.”

ProPG additionally provides guidance upon acceptable maximum noise levels within bedrooms at night to minimise the potential for sleep disturbance. The guidance recommends that a level of 45 dB $L_{Amax,F}$ is normally exceeded more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only upon the maximum noise levels but also other factors such as source, number, distribution, predictability and regularity of noise events.

2.5. Approved Document O

Approved Document O of the Building Regulations (ADO) came into force during June 2022. The document provides the requirements within dwellings to minimise the potential solar gains and to provide adequate means to remove heat from the indoor environment.

This report provides an assessment of the noise aspects of ADO, to identify areas where the requirement for additional assisted ventilation may be required.

ADO requires excess heat to be removed by the following means:

- Opening windows;
- Ventilation louvres in external walls;
- A mechanical ventilation system; and
- A mechanical cooling system.

The building should be designed to remove excessive heat by passive means as far as reasonably practical.

With regards to noise, ADO requires the following:

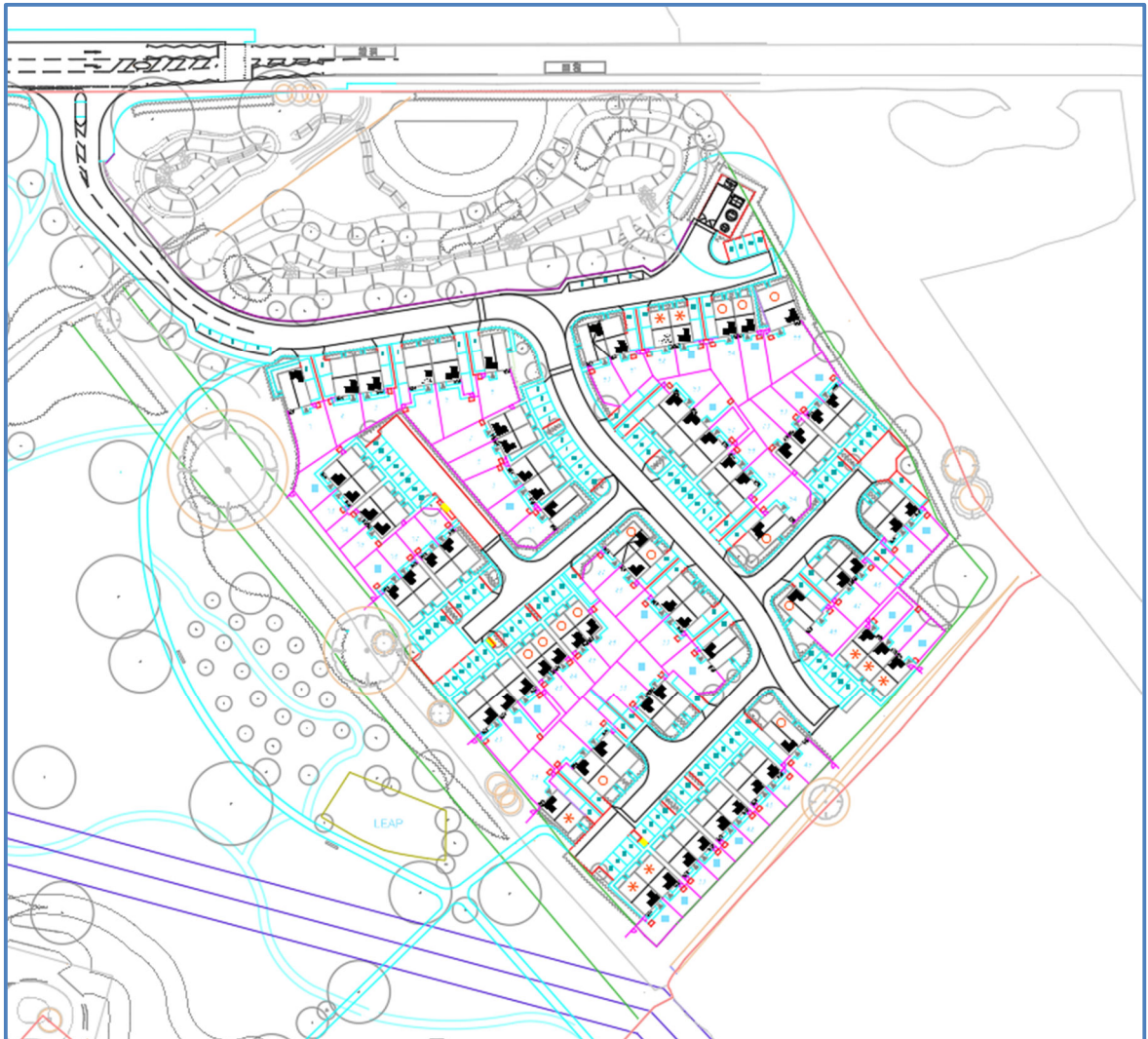
In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

- 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).
- 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).

3. Proposed Development

The site location and proposed development layout is indicated below.



The main source of noise within the application site is attributable to traffic travelling along Bradley Road to the north, which is approximately 50 metres from the closest properties.

Woodmarsh is located approximately 170 metres to the west of the application site. This road was noted to be lightly trafficked, with traffic using that road generally not audible above the noise from traffic travelling along Bradley Road.

As indicated above, the development layout has considered noise from Bradley Road within the design by utilising the development access road to maximise separation distance and orientating the northern properties to face towards the road. This layout ensures that the gardens of the properties closest to the road are effectively screened from the road by the property façades.

4. Noise Monitoring

4.1. Noise Monitoring Exercise

To establish the existing noise levels within the application site, a noise monitoring survey was carried out between Monday 9 and Friday 13 February 2026.

The survey comprised unattended noise monitoring carried out at two positions along the northern development boundary, representative of the closest properties to Bradley Road.

The monitoring positions are indicated on Figure 1.

Weather conditions for the surveys were good, remaining generally dry with light winds throughout and thus suitable for undertaking an environmental noise survey.

Rion NL-52 Class 1 Sound Level Meters were used for the exercise, which were calibrated before and after the exercise using a Rion NC-75 Class 1 Acoustic Calibrator, with the instruments reading 94.0 dB on each occasion. All the instrumentation used had been laboratory calibrated within the past 24 months in accordance with national standards. Details of the instrumentation used and calibration dates are provided below.

Instrument	Serial No.	Calibration Date	Laboratory / Certificate No.
Rion NL-52 Class 1 SLM (Position 1)	00976158	11/4/24	AcSoft – 1508401-2
Rion NL-52 Class 1 SLM (Position 2)	00375678	19/11/24	AcSoft – 1510597-1
Rion NC-75 Class 1 Acoustic Calibrator	35270122	1/10/25	AcSoft – 1513567-2

Table 4.1 Instrumentation Details for Unattended Noise Surveys

At each position, the microphone was set in free-field conditions and at a height of 1.5 metres above the ground. The microphones were fitted with Rion WS-15 outdoor microphone protection, to ensure Class 1 performance was maintained under a wide range of weather conditions.

The instruments were configured to monitor over 5-minute periods throughout the duration of the survey. The instruments were also fitted with an audio recording option card that enabled periodic audio snapshots of the noise environment to be captured, along with any particular activities giving rise to high noise levels, thus enabling particular sources to be identified.

The noise monitoring results obtained at each position are presented graphically in Appendices B and C.

The monitoring results obtained at each position have been subsequently analysed to derive the day and night-time noise levels. Ambient $L_{Aeq,T}$ noise levels have been evaluated based upon the noise levels monitored over the 16-hour daytime and 8-hour night-time periods in accordance with the requirements of BS 8233.

The period noise levels at each position are summarised below.

4.2. Results of Noise Survey at Position 1 – North-Western Boundary

Table 4.2 below presents the period noise levels obtained from the survey carried out at this location.

Period	Period $L_{Aeq,T}$ Noise Levels [dB]	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Monday 9/2/26	53.0	46.4
Tuesday 10/2/26	51.7	44.5
Wednesday 11/2/26	51.8	44.5
Thursday 12/2/26	53.9	50.5
Typical Weekday	53	47

Note: * Period comprised 11:00 – 23:00 hours

Table 4.2 Period Noise Levels Evaluated from Unattended Noise Survey at Position 1 – North-Western Boundary

As indicated previously, noise levels monitored at this location were observed to be principally influenced by road traffic travelling along Bradley Road.

Maximum noise levels monitored at this position overnight were noted to be generally of the order of or below 60 dB $L_{Amax,F}$ attributable to road traffic, with the occasional higher event recorded, noted to be associated with birdsong within the hedge adjacent to the monitoring position.

4.3. Results of Noise Survey at Position 2 – North-Eastern Boundary

Table 4.3 below presents the period noise levels obtained from the survey carried out at this location.

Period	Period $L_{Aeq,T}$ Noise Levels [dB]	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Monday 9/2/26	54.5	48.0
Tuesday 10/2/26	55.5	50.4
Wednesday 11/2/26	57.0	50.3
Thursday 12/2/26	59.0	52.0
Typical Weekday	57	50

Note: * Period comprised 11:00 – 23:00 hours

Table 4.3 Period Noise Levels Evaluated from Unattended Noise Survey at Position 2 – North-Eastern Boundary

Noise levels monitored at this location were observed to be principally influenced by road traffic travelling along Bradley Road.

Maximum noise levels monitored at this position overnight were noted to be generally of the order of or below 60 dB $L_{Amax,F}$ attributable to road traffic, with the occasional higher event recorded, noted to be associated with birdsong.

5. Calculations and Assessment

5.1. Initial Assessment

An initial assessment of the noise environment within the proposed development has been made against the ProPG guidance, based upon the results of the noise surveys.

An assessment of the period noise levels monitored indicates that the site is at low risk from noise both during the day and night-time periods.

In these situations, a good acoustic design process still needs to be considered to reduce any potential for adverse impacts, which has been accounted for within the proposed design, as discussed in Section 3.

5.2. Noise Modelling

A noise model has been prepared using the SoundPlan computer modelling software to calculate the road traffic noise levels at the proposed dwellings, based upon the proposed development layout.

Ground levels for the noise modelling have been obtained from LiDAR data, with soft ground assumed for the land between Bradley Road and the proposed housing.

An initial model was prepared, based upon the present open site to calibrate the model against the results of the unattended noise surveys.

A second model was then prepared, taking account of the proposed layout, to predict the day and night-time noise period $L_{Aeq,T}$ levels at the proposed dwellings.

The noise model with the development has taken account of the standard 1.8-metre-high close-boarded fences that would be provided around the gardens of the properties, which would provide additional screening from the road traffic.

The results of the noise modelling are presented on Figures 2 and 3.

5.3. Assessment of Noise Levels Within Gardens

The daytime noise modelling, presented on Figure 2, indicates that the road traffic noise levels within the majority of the gardens within the proposed development would be below a level of 50 dB $L_{Aeq,T}$, thus achieving the lower guideline value specified in BS 8233.

Noise levels would be higher within the gardens of the properties closest to the road, however, the modelling indicates that the noise levels within those gardens would remain within the upper guideline value of 55 dB $L_{Aeq,T}$ specified in BS 8233.

On this basis, the proposed layout for the development would provide adequate protection to ensure the requirements of BS 8233 were achieved within the gardens of the properties.

5.4. Assessment of Noise Levels Within Dwellings

The proposed dwellings will be of standard brick / blockwork construction, with tiled roofs. Windows to the properties would be standard thermal double glazed units (typically 4-16-4 composition), with window vents with an indirect air path (for the purposes of this assessment Titon Trimvent Select E18 or equivalent have been assumed).

Calculations of the noise levels within the properties closest to Bradley Lane have been made on the basis of the proposed constructions. The calculations have been principally based upon closed windows with the window vents open for ventilation purposes. The details of the calculations are provided in Appendix D.

The calculations indicate the following noise levels at the properties most exposed to road traffic noise:

- 31 dB $L_{Aeq, 16 \text{ hr}}$ daytime; and
- 24 dB $L_{Aeq, 8 \text{ hr}}$, with maximum noise levels normally lower than 38 dB $L_{Amax, F}$ night-time.

Noise levels at the southern façades of these properties and within other properties in the proposed development would be lower. An assessment on this basis therefore provides a worst-case situation.

The calculations indicate that the proposed construction would provide a 28 dB(A) reduction in ambient noise levels between outside and in assuming windows closed.

Assessing the noise levels within the properties against the requirements of BS 8233 and ProPG guidelines would ensure a good standard of noise was maintained within the properties.

Consideration has also been given to the occupants maintaining windows open. Calculations have been prepared on the basis of the calculated façade noise levels at the first-floor bedroom windows, assuming a partially open window suitable for night-time ventilation during warmer periods. On this basis, noise levels within the properties closest to the road, with a window open on the northern façade of the property would be up to 44 dB $L_{Aeq, 16 \text{ hr}}$ daytime / 37 dB $L_{Aeq, 8 \text{ hr}}$ night-time. With windows open, noise levels would remain within a reasonable standard of noise with reference to BS 8233 and below that which would be considered unacceptable, with regards to the guidance within ProPG.

Consideration has also been given to the noise requirements of Approved Document O, in relation to noise within the bedrooms of the properties overnight.

Approved Document O requires consideration to the fact that occupants may wish to maintain windows closed when internal noise levels exceed a level of 40 dB $L_{Aeq, 8 \text{ hr}}$ / 55 dB $L_{Amax, F}$ more than 10 times per night.

The calculations above indicate that the ambient noise levels within the bedrooms assuming a window partially open for ventilation would remain at least 3 dB(A) below the value specified in Approved Document O, thus remaining acceptable. With regards maximum noise levels overnight, based upon the survey data and assuming the same noise reduction for an open window, levels would remain below 50 dB $L_{Amax, F}$ and thus below the limit specified within ADO.

On this basis, there would be no specific acoustic requirements necessary for the properties within the proposed development. Standard constructions for the properties would ensure that the requirements of BS 8233 and ADO were achieved.

6. Summary

LF Acoustics Ltd were appointed by Allison Homes SW Limited to undertake an assessment of the noise levels within a proposed residential development to be located on land at North Bradley.

It is proposed to construct a residential development of 70 units on land to the south of Bradley Road, with a new access from the road.

This report has presented an assessment of the road traffic noise levels within the proposed residential development, based upon a noise monitoring exercise carried out to establish current road traffic noise levels.

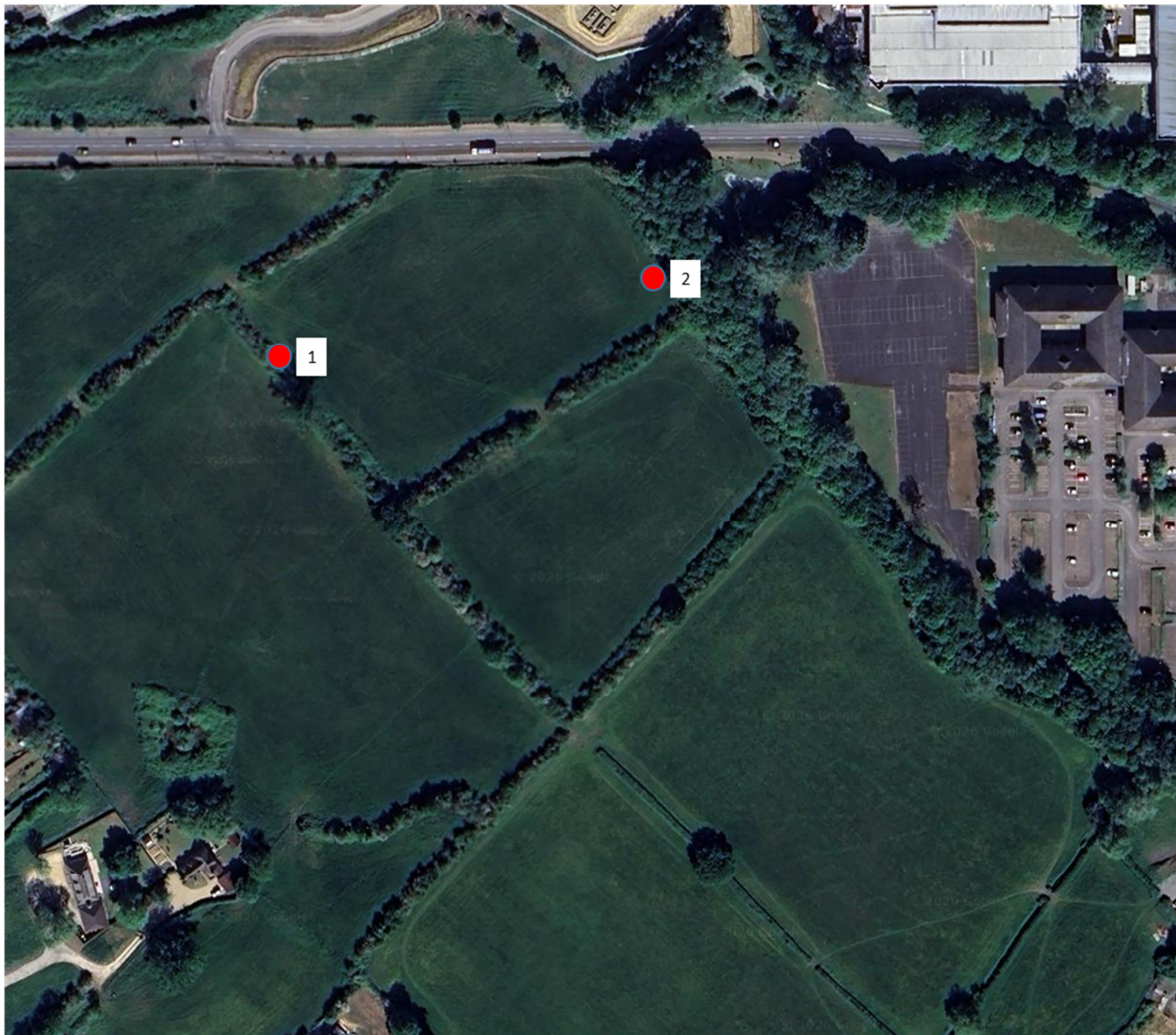
An assessment of the noise levels has been carried out within the proposed development based upon the proposed layout. The layout of the proposed development has considered noise, with the properties set back from Bradley Road, the principal source of noise, utilising the development access road to provide additional separation and by orientating the northernmost properties to face the road, thus ensuring the gardens would be effectively screened.

The assessment concluded that the requirements of BS 8233, ProPG and ADO would be achieved through the adoption of standard constructions for the properties. The proposals therefore comply with the requirements of the NPPF.

References

1. Ministry of Housing, Communities and Local Government. National Planning Policy Framework. December 2024.
2. Department for Communities and Local Government. Noise Policy Statement for England. 2010.
3. British Standards Institute. Guidance on Sound Insulation and Noise Reduction for Buildings. BS 8233. 2014.
4. World Health Organisation. Guidelines for Community Noise. 1999. WHO Geneva.
5. ANC / Institute of Acoustics / Chartered Institute of Environmental Health. ProPG: Planning and Noise. Professional Practice Guidance on Planning & Noise. New Residential Development. May 2017.
6. Department of Transport / Welsh Office. A Calculation of Road Traffic Noise. 1988.
7. Defra. Method for Converting the UK Traffic Noise Index LA10,18h to the EU Noise Indices for Road Noise Mapping. TRL/ Casella. Doc Ref. st/05/91/AGG04442. 2006.

Figures



● Noise Survey Location

Figure 1:
Site Location and Noise
Monitoring Positions







Appendix A

Noise Units

Decibels (dB)

Noise can be considered as ‘unwanted sound’. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable, a 5 dB change is generally considered to be clearly discernible and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness.

A-Weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit that has a frequency response similar to the human auditory system. All the measurement results referred to in this report are A-weighted.

Units Used to Describe Time-Varying Noise Sources (L_{Aeq} , L_{Amax} , L_{A10} , and L_{A90})

Instantaneous A-weighted sound pressure level is not generally considered as an adequate indicator of subjective response to noise because levels of noise usually vary with time.

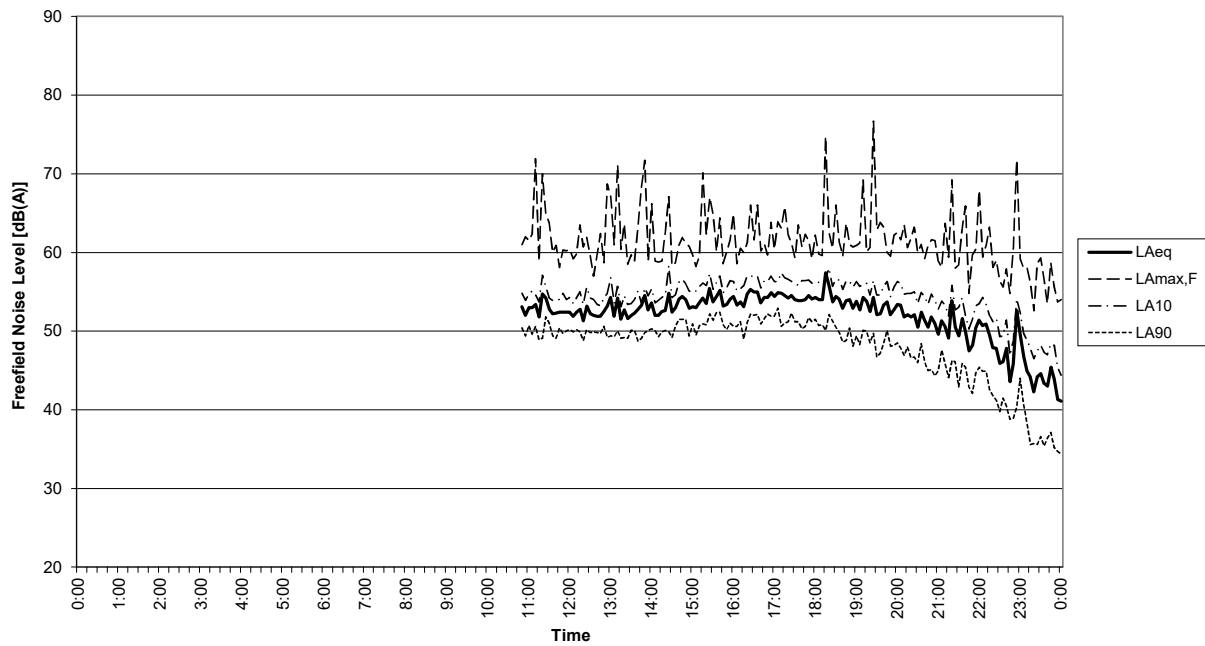
For many types of noise the Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) is used as the basis of determining community response. The $L_{Aeq,T}$ is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

The L_{Amax} is the maximum value that the A-weighted sound pressure level reaches during a measurement period. $L_{Amax,F}$, or Fast, is averaged over 0.125 of a second and $L_{Amax,S}$, or Slow, is averaged over 1 second. All L_{Amax} values referred to in this report are Fast.

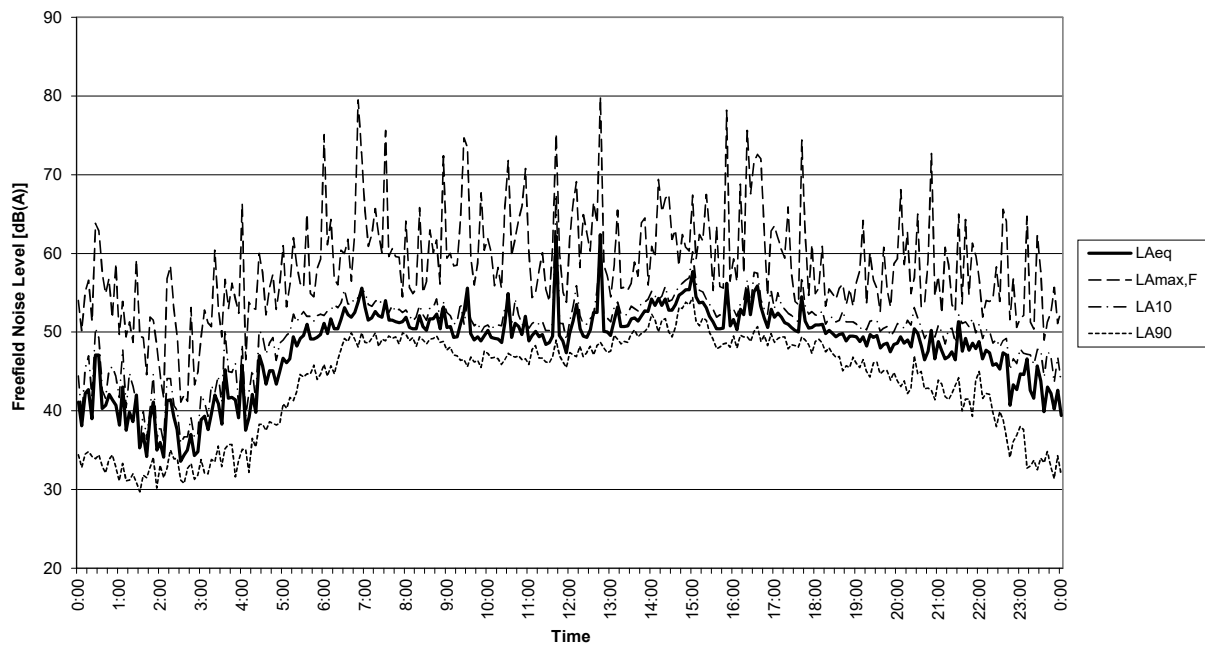
The L_{A90} is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise that is present even during the quieter parts of measurement period.

Appendix B
Results of Unattended Noise Survey
Position 1 – North-Western Development Boundary

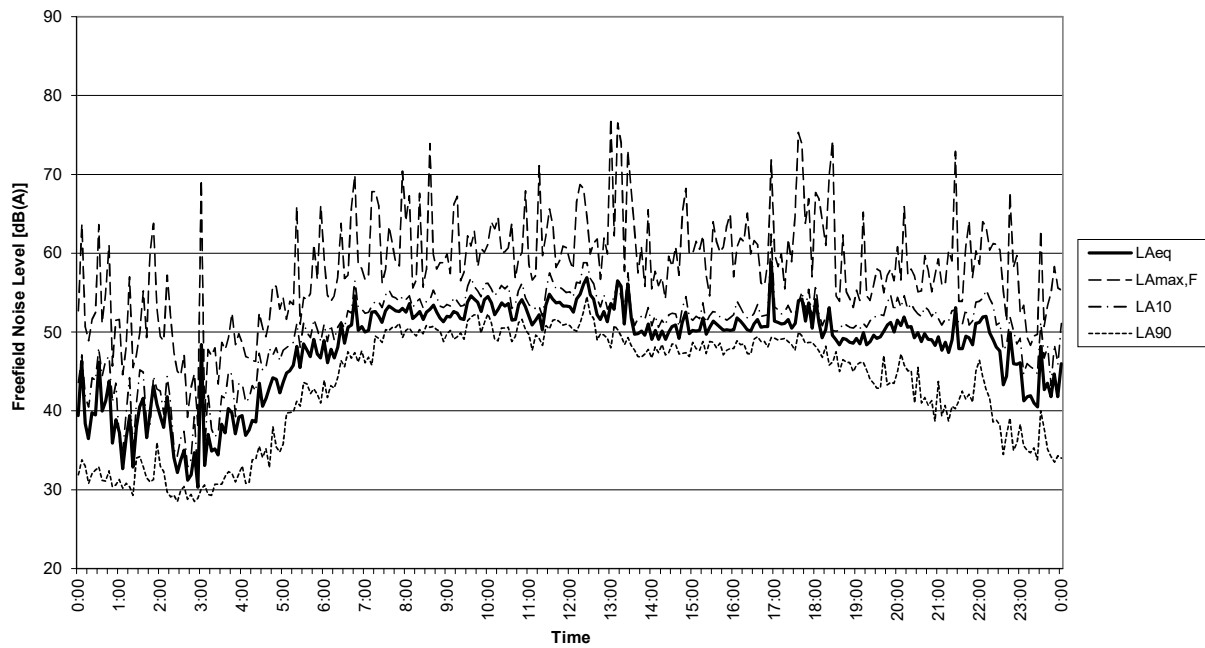
Monday 9/2/26



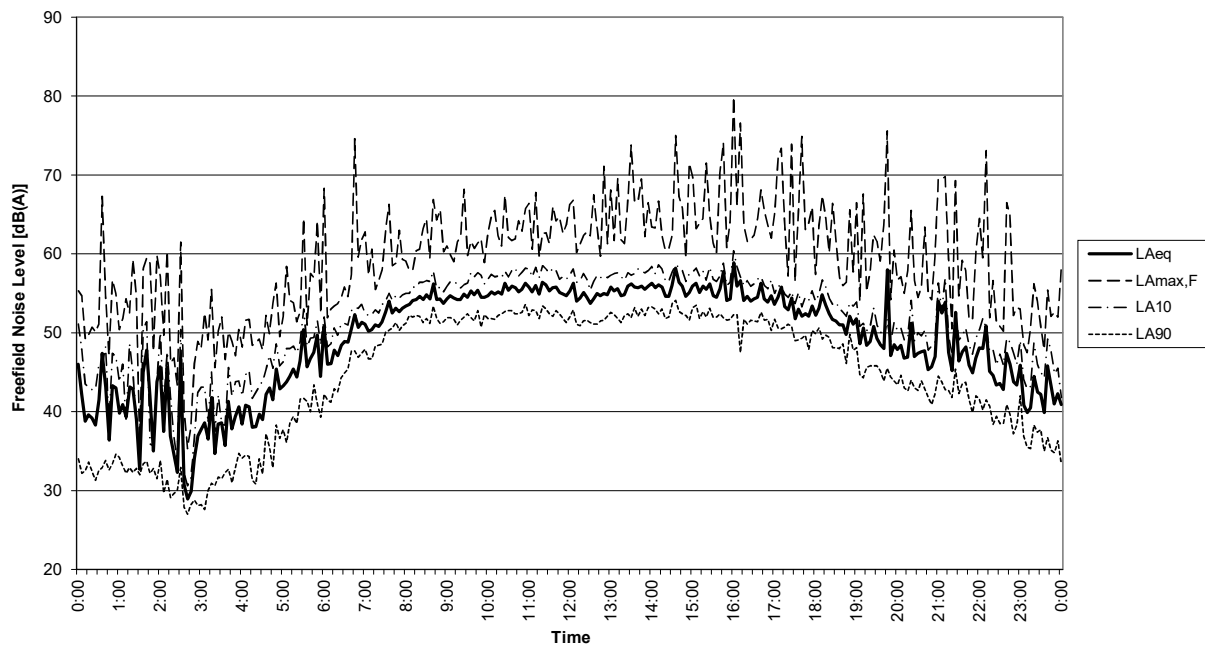
Tuesday 10/2/26



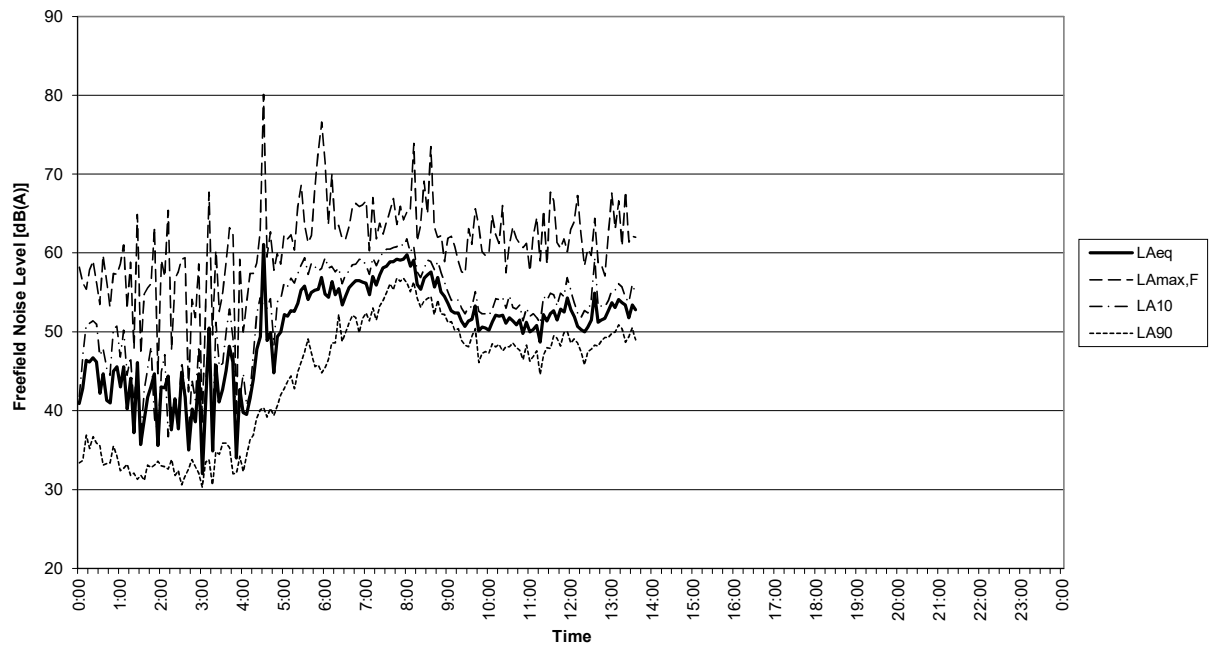
Wednesday 11/2/26



Thursday 12/2/26

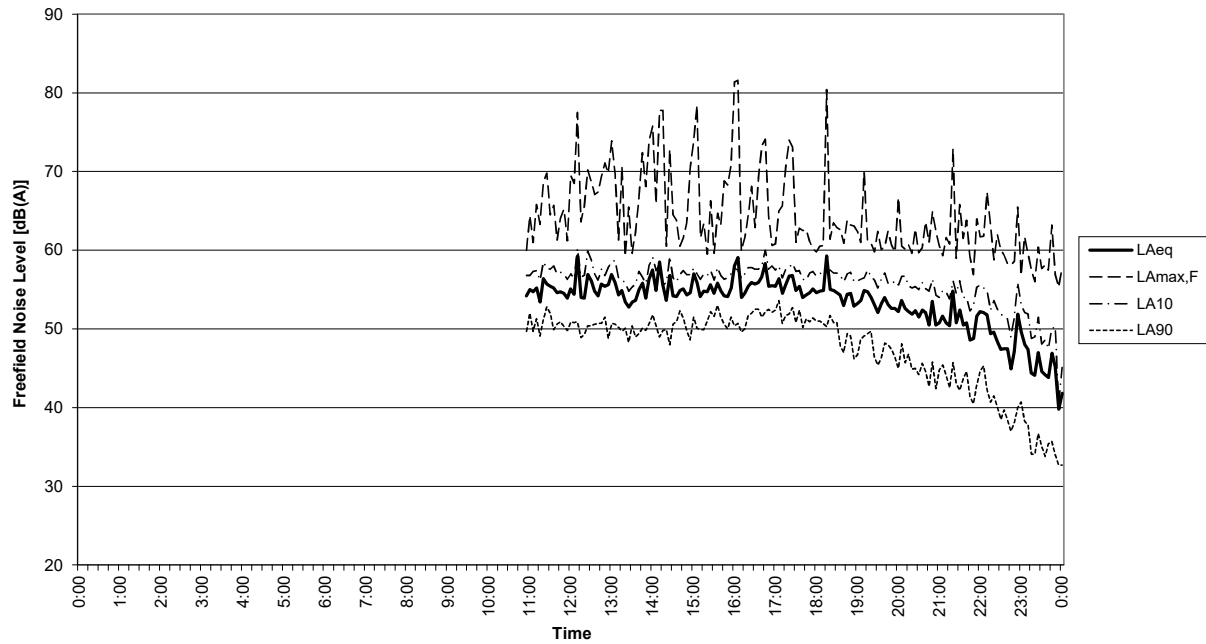


Friday 13/2/26

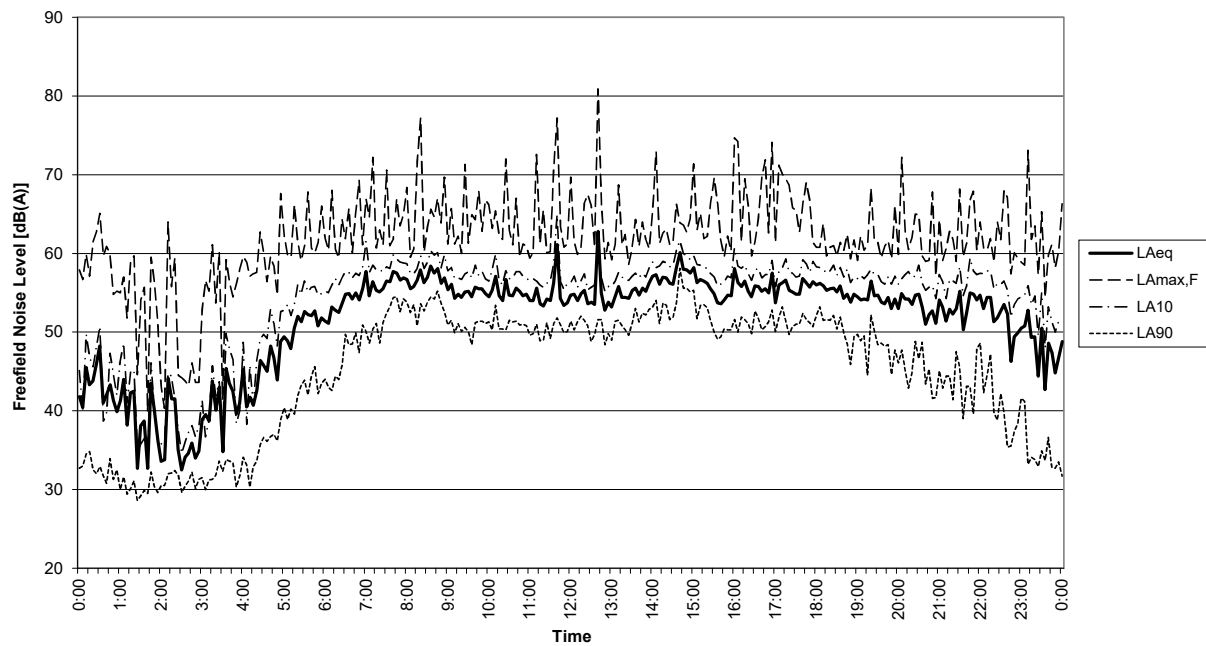


Appendix C
Results of Unattended Noise Survey
Position 2 – North-Eastern Development Boundary

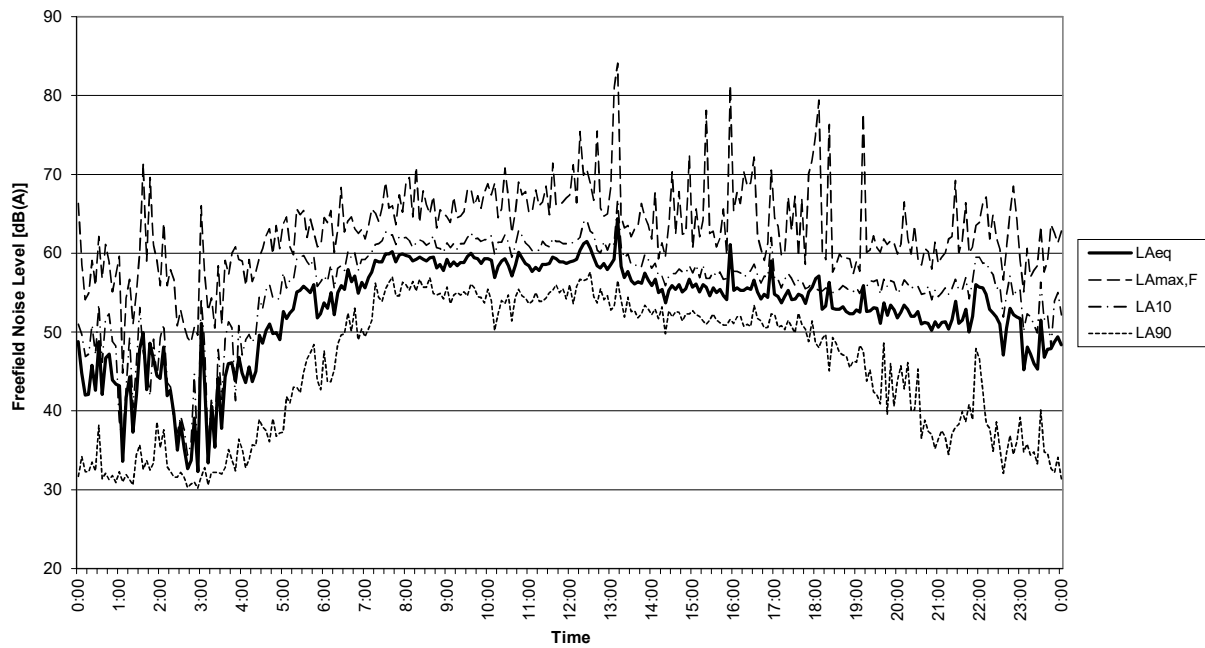
Monday 9/2/26



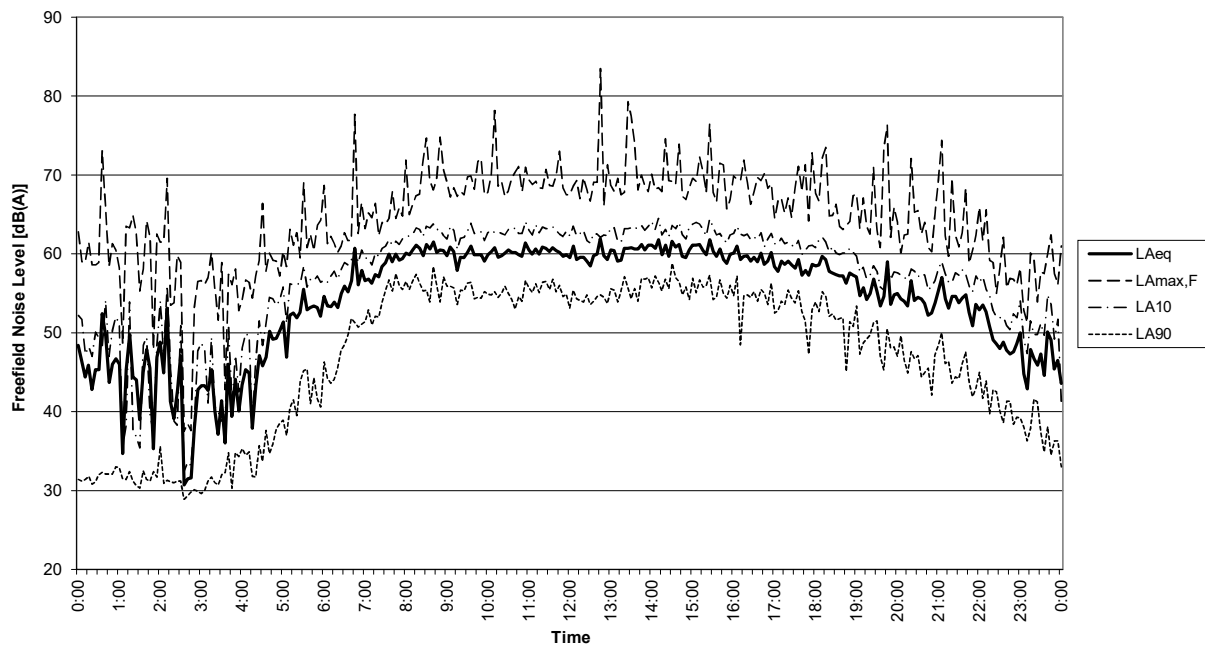
Tuesday 10/2/26



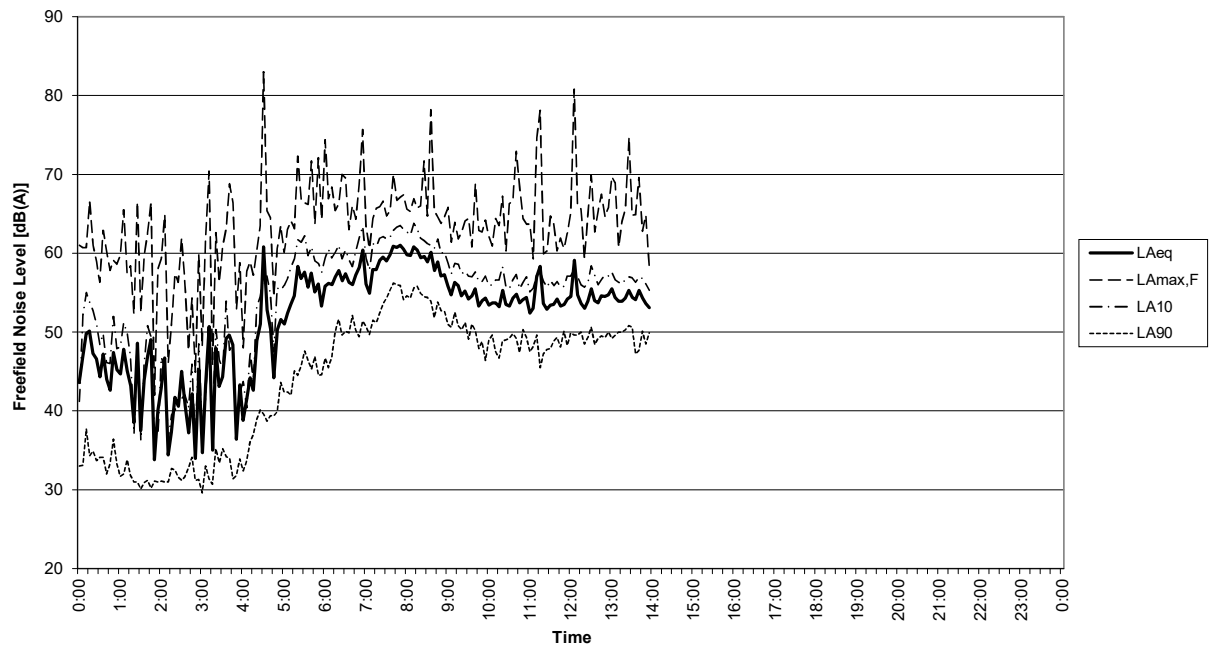
Wednesday 11/2/26



Thursday 12/2/26



Friday 13/2/26



Appendix D

Calculation Details

Proposed Development on Land at North Bradley
Calculation of Internal Noise Levels

Position : Northern Properties Closest to Bradley Lane

Prepared By: LPJ - 16/4/25

PROPOSED GLAZING & STANDARD VENTS

Sf	Facade Area (inc Window)	10
Swi	Window Area	2
Sew	Sf-Swi	8
Srr	Area of Ceiling	12
S	Sf+Srr	22
A0	Ref Absorption Area	10

			Overall	1/3 Octave Band Leq							
			A-Wtd	125	250	500	1000	2000	4000		
Source Level	L _{eq} Freefield	A	59	56	52	49	55	53	44	Equivalent Freefield Level	(61 dB LAeq Façade)
Window Vent	Dn,e	B		34	34	33	27	32	34	Standard Titon Trickle Vent	
			0.00018	0.00018	0.00023	0.00091	0.00029	0.00018			
Glazing	Rwi	C		22	20	32	41	45	38	4-16-4 Glazing	
			0.00057	0.00091	0.00006	0.00001	0.00000	0.00001			
Wall	Rew	D		41	45	45	54	58	58		
			2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07			
Ceiling	Rrr	E		30	42	50	54	54	54		
			0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06			
10Log (B+C+D+E)				-28.765095	-29.446355	-35.198121	-30.372625	-35.339908	-37.030854		
A (Furnished)				11	14	16	16	15	15		
10*log (S/A)				3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142		
Leq,2				33.7	27.8	17.9	29.0	22.7	11.5		
A-Weighting				-16.1	-8.6	-3.2	0	1.2	1		
LAeq,2				17.6	19.2	14.7	29.0	23.9	12.5		
			Day	Night							
LAeq, Internal			31	24							
Reduction			-28								

Proposed Development on Land at North Bradley
Calculation of Internal Noise Levels

Position : Northern Properties Closest to Bradley Lane

Prepared By: LPJ - 16/4/25

PROPOSED GLAZING & STANDARD VENTS

Sf	Facade Area (inc Window)	10
Swi	Window Area	2
Sew	Sf-Swi	8
Srr	Area of Ceiling	12
S	Sf+Srr	22
A0	Ref Absorption Area	10

		Overall	1/3 Octave Band Leq							
		A-Wtd	125	250	500	1000	2000	4000		
Source Level	L_{max} Freefield A	63	75	62	54	55	56	46	Equivalent Freefield Level	(65 dB LAeq Façade)
Window Vent	Dr,e		34	34	33	27	32	34	Standard Titon Trickle Vent	
	B		0.00018	0.00018	0.00023	0.00091	0.00029	0.00018		
Glazing			22	20	32	41	45	38	4-16-4 Glazing	
			0.00057	0.00091	0.00006	0.00001	0.00000	0.00001		
Wall	Rew		41	45	45	54	58	58		
	D		2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07		
Ceiling	Rrr		30	42	50	54	54	54		
	E		0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06		
10Log (B+C+D+E)			-28.765095	-29.446355	-35.198121	-30.372625	-35.339908	-37.030854		
A (Furnished)			11	14	16	16	15	15		
10*log (S/A)			3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142		
$L_{max,2}$			51.9	37.0	22.8	29.4	25.4	13.3		
A-Weighting			-16.1	-8.6	-3.2	0	1.2	1		
$L_{Amax,2}$			35.8	28.4	19.6	29.4	26.6	14.3		
L_{Amax}, Internal		38								
Reduction		-25								

Proposed Development on Land at North Bradley
Calculation of Internal Noise Levels

Position : Northern Properties Closest to Bradley Lane

Prepared By: LPJ - 16/4/25

STANDARD GLAZING OPEN & OPEN VENTS

Sf	Facade Area (inc Window)	10
Swi	Window Area	2
Sew	Sf-Swi	8
Srr	Area of Ceiling	12
S	Sf+Srr	22
A0	Ref Absorption Area	10

			Overall	1/3 Octave Band Leq					
			A-Wtd	125	250	500	1000	2000	4000
Source Level	L_{eq} Freefield	A	59	56	52	49	55	53	44
Open Window	$D_{n,e}$	B		14	14	16	14	17	19
				0.01810	0.01810	0.01142	0.01810	0.00907	0.00572
Open Window									
Wall	Rew	D		41	45	45	54	58	58
				2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07
Ceiling	Rrr	E		30	42	50	54	54	54
				0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06
10Log (B+C+D+E)				-17.288529	-17.413221	-19.417783	-17.423358	-20.422911	-22.422142
A (Furnished)				11	14	16	16	15	15
10*log (S/A)				3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142
$Leq,2$				45.2	39.8	33.7	42.0	37.6	26.1
A-Weighting				-16.1	-8.6	-3.2	0	1.2	1
$L_{Aeq,2}$				29.1	31.2	30.5	42.0	38.8	27.1
$L_{Aeq, Internal}$			Day 44	Night 37					
Reduction			-14.3						

Equivalent Freefield Level (61 dB L_{Aeq} Façade)

Standard Open Window (200kmm²)
(Based Upon Results within Napier University Report)