



Architectural & Environmental Consultants
Acoustics | Vibration | Air Quality

Noise Assessment

Park Lane, Charvil

Noise Assessment

Project: PARK LANE, CHARVIL

Report reference: RP01-25453-R2

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Document control:

REVISION	ISSUE DATE	REPORT BY	CHECKED BY	NOTES
0	13 November 2025	Nathan Hyde, BSc (Hons), Acoustics Consultant	Tim Ives, PhD BEng CEng FIOA, Director	Initial issue
1	24 November 2025	Nathan Hyde, BSc (Hons), Acoustics Consultant	Tim Ives, PhD BEng CEng FIOA, Director	Minor Amendments
2	10 December 2025	Nathan Hyde, BSc (Hons), Acoustics Consultant	Tim Ives, PhD BEng CEng FIOA, Director	Updated Layout

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1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by Bellway Homes Limited (Thames Valley) to assess the acoustic design of a new development at Park Lane, Charvil.
- 1.2 The assessment was carried out in accordance with Planning Condition 13 and 14.
- 1.3 A noise survey was carried out at the site. Noise levels at the site are dictated by road traffic noise emissions from Park Lane, train noise from the Great Western Railway line and airplane noise from flights serving Heathrow Airport.
- 1.4 A 3D noise model of the development was developed based on the results of a site noise survey, project drawings and topographic details. The noise model was used to predict road traffic noise levels at all facades of the development.
- 1.5 Noise affecting the development has been assessed in accordance with Planning Condition 13 and 14. The design of the development has been demonstrated to comply with the Planning Condition.
- 1.6 Compliance with noise criteria in Building Regulations Part O has also been assessed. Some bedrooms will need to be designed so that windows can remain closed at night without the rooms overheating.
- 1.7 It is our view that this report contains the information required to discharge the noise-related planning condition on the development.

2. INTRODUCTION

2.1 Cass Allen has been instructed by Bellway Homes Limited (Thames Valley) to assess the acoustic design of a new development at Park Lane, Charvil.

2.2 The assessment has been carried out in accordance with the requirements of noise-related Planning Conditions 13 and 14 as shown below:

13. Noise Insulation for Dwellings

The dwellings hereby approved shall be designed and/or insulated to provide attenuation against externally generated noise, the design should ensure that all noise implications are mitigated so that internal ambient noise levels for dwellings meet the BS8233 sound insulation and noise reduction for buildings design range 'good' for living accommodation

14. Acoustic Mitigation

The reserved matters submission for 'Layout' must be informed by pages 22-25 of the submitted Noise Impact Evaluation Report prepared by SoundPlanning dated Thursday 2nd November 2023 referenced J05184

2.3 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

3. DEVELOPMENT DESCRIPTION

- 3.1 The development comprises residential properties. A current drawing of the development layout is shown in Appendix 1.
- 3.2 The site is located in a mixed-use area, bounded to the east by Park Lane, to the south by various local commercial and industrial businesses and the north by residential dwellings. To the east of the site is Charvil Piggot Primary School. To the south of the site is the Great Western Railway Line. To the west of the site is a Golf Course.
- 3.3 The site location and surrounding area is shown in Figure 1 below.

Figure 1 Site Location and Surrounding Area



- 3.4 To address the requirements of Planning Condition 13, noise affecting the habitable areas of the development and the design of the external facades (as per Planning Condition 13) have been assessed.
- 3.5 To address the requirements of Planning Condition 14, noise affecting external amenity areas within the proposed development have been assessed.

4. NOISE AFFECTING THE DEVELOPMENT

- 4.1 The noise levels that will exist within the habitable areas of the finished development have been predicted based on the existing noise environment at the site and details for the design of the development. The predicted noise levels have then been compared with appropriate design criteria. Suitable mitigation measures have been identified where necessary to achieve acceptable noise levels.

Design criteria – Internal noise levels

- 4.2 Planning Condition 13 requires that the development is designed to achieve the criteria as detailed in BS8233:2014 '*Guidance on sound insulation and noise reduction for buildings*'.
- 4.3 Relevant BS8233 design criteria are summarised in Table 1 below.

Table 1 BS8233:2014 Internal Noise Criteria

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB LAeq,16hour	-
Dining	Dining room/area	40 dB LAeq,16hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour

- 4.4 BS8233 also states that it is desirable that noise levels in external amenity areas of residential developments do not exceed 50 dB LAeq and that 55 dB LAeq,T should be regarded as an upper guideline value. BS8233 recognises however that these guideline values will not always be achievable in city centres or urban areas adjoining main roads or other transport sources. In these cases, BS8233 states that the development should be designed to achieve the lowest practical noise levels in the amenity spaces.

Existing site noise levels

- 4.5 A noise survey was carried out at the site from 16 - 21 October 2025 to assess existing noise levels in the area. The full methodology and results of the noise survey are provided in Appendix 2.
- 4.6 Average noise levels (LAeq) across the site were generally dictated by railway noise from the Great Western Railway Line. Average noise levels at the eastern edge of the site were also affected by vehicle movements on Park Lane.
- 4.7 Maximum noise levels (L_{Amax}) at the across the site were largely dictated by fast train passes on the Great Western railway but were also affected by airplanes flying overhead for Heathrow Airport. Maximum noise levels on the eastern edge of the site are dictated by fast car passes along Park Lane. Maximum noise levels on the northern edge of the site are dictated by airplanes flying overhead for Heathrow Airport.
- 4.8 Background noise levels (LA₉₀) across the site were dictated by nature sounds.

- 4.9 Areas of the development at the southern edge of the site will be subject to the highest noise levels. The noise survey results show that noise levels at these positions are as follows:
- Eastern edge of the site facing railway:
 - Average noise levels during the daytime - 54 dB LAeq,0700-2300hrs
 - Average noise levels during the night-time - 48 dB LAeq,2300-0700hrs
 - Typical maximum noise levels during the night-time - 73 dB LMax
- 4.10 Based on the results of the site noise survey, a 3D computer noise model was developed to predict and assess the noise levels that will exist across the entire development.
- 4.11 The 3D noise model was developed using Cadna/A v2025 environmental noise modelling software. Cadna/A incorporates the calculation methodology outlined in the Department of Transport Welsh Office - Calculation of Road Traffic Noise (CRTN) for the assessment of road traffic noise propagation, CRN for rail noise and ISO 9613 for industrial noise.
- 4.12 The layout of the development and surrounding area was input into the model. To calculate the spread of noise levels around the site, day-time average, night-time average and night-time maximum noise levels were input for the surrounding roads (e.g. Park Lane) and railways. This was then calibrated to the results of the on-site noise measurements.
- 4.13 The methodology and results of the noise modelling are provided in Appendix 3. It can be seen from the modelling results that noise levels will be highest on facades of the development facing the railway and Park Lane. Noise levels will be lowest on facades at the rear of the site.

Internal noise levels in noise-sensitive rooms

- 4.14 The external walls of the development will be constructed using a standard masonry construction (e.g. 102mm brick, 100mm insulated cavity, 100mm concrete block). Consequently, internal noise levels will be dictated by external noise ingress via glazing and ventilators.
- 4.15 The units will be ventilated via trickle ventilators in the external facades with openable windows for the provision of purge ventilation.
- 4.16 Calculations were carried out using facade modelling software in accordance with the "more rigorous" methodology given in BS8233:2014 to establish the sound insulation performance required of the glazing and ventilation to achieve the nominated internal noise criteria in all habitable rooms across the development. The design includes a 3 dBA design margin.
- 4.17 The calculations were carried out based on the dimensions/details for facade elements taken from project drawings.
- 4.18 The results of the calculations are shown in Appendix 4 and are summarised in Table 2 below.

Table 2 Acoustic Requirements for All Habitable Rooms

Habitable Rooms	Glazing Performance Requirements (inc. Frames)	Ventilator Performance Requirements (in Open Position)
Habitable rooms in the southeast corner of the development	30 dB Rw+Ctr	38 dB Dne,w + Ctr
Habitable rooms across the rest of the development	27 dB Rw+Ctr	31 dB Dne,w + Ctr

Note The acoustic performance of the glazing systems (including frames) should always be confirmed with the manufacturer before selection for installation.

- 4.19 Based on the results of the calculations summarised in Table 2 and the measured noise levels at the site (considering both the day and night-time average and maximum noise levels), a specification has been developed showing the sound insulation performance requirements for all facades of the development. The façade specification is shown in Appendix 5.
- 4.20 The required sound insulation performance values in Table 2 could typically be achieved by the glazing and ventilator types shown in Table 3.

Table 3 Typical Glazing / Ventilator Acoustic Performances

Glazing (in Good Quality Sealed Frames)	Typical Weighted Sound Reduction (Rw + Ctr)
4/16/4mm standard thermal double glazing	27
6/16/6.4mm thermal double glazing	30
Ventilators	Typical Acoustic Performance (Dnew + Ctr)
Standard 'hit & miss' in-frame trickle ventilator	31
Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules – External & Internal)	38

Note The acoustic performance of the glazing systems (including frames) should always be confirmed with the manufacturer before selection for installation on site.

- 4.21 It can be seen from the above that compliance with Planning Condition 13 is predicted to be achieved via the selection of glazing and ventilation systems to achieve the specification given in Appendix 5.

Part O Compliance (noise and overheating)

- 4.22 The above assessment is based on internal noise levels with windows closed (assumed to be "normal" circumstances). However, it is anticipated that residents will open their windows at times

for thermal comfort (e.g. to prevent overheating in warmer months). Noise levels in the rooms will increase under these circumstances.

- 4.23 Specific requirements relating to noise and overheating are given in Part O of the Building Regulations (Approved Document O), which came into effect on 15 June 2022 and states:

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.

a. 40dB LAeq,T, averaged over 8 hours (between 11pm and 7am).

b. 55dB LAFmax, more than 10 times a night (between 11pm and 7am).

- 4.24 It is important to note that the Part O requirements only apply to bedrooms at night. There are no requirements for other habitable rooms (living rooms, dining rooms, etc).

- 4.25 The noise levels in bedrooms at night with the windows open will vary based on the external night-time noise levels and the size and extent of window opening required to control overheating. The wider the window needs to be open, the lower the sound insulation performance. The following indicative “outside to inside” reduction values have been adopted for the assessment based on current industry guidance¹:

- ~4 dB when the window is fully open
- ~9 dB when the window is open to around ~0.4m²
- 13 dB when the window is partially open to ~0.2m².

- 4.26 It is therefore possible to rely on a larger window opening to control overheating on quieter facades. The relationship between external noise levels and window openings for compliance with Part O is summarised in Table 4.

Table 4 External Part O Noise Criteria and Allowable Window Opening for Overheating

External Noise Levels outside Bedrooms at Night		Allowable night-time window opening to control overheating
Average Noise Levels (LAeq,8hrs)	Maximum Noise Levels (LAmax) – see Note 1	
≤44 dB	≤59 dB	Fully open (to achieve 13% of the floor area which is typically ~1.3m ²). Ventilators fully open.

¹ These values are taken from guidance published in the document “Guide to Demonstrating Compliance with the Noise Requirements of Approved Document O” Version 1.1 November 2024, by the Association of Noise Consultants. The values are based on a floor area of 10m² and a room height of 2.4m.

≤49 dB	≤64 dB	Open (~4% of floor area e.g. ~0.4m ²) – see Note 2. Ventilators fully open.
≤53 dB	≤68 dB	Partially open (~2% of floor area e.g. ~0.2m ²). Ventilators fully open.
≥54 dB	≥69 dB	Windows to be assumed to be fully closed during the night for the purposes of Part O compliance. Ventilators fully open.

Note 1 Not exceeded more than 10 times per night (between 11pm and 7am)

Note 2 An opening of 4% of the floor area would comply with the 'simplified method' for Part O compliance, if targeted, as the site is in a 'medium risk' area.

- 4.27 The criteria in Table 4 above have been applied to the predicted night-time noise levels from the model to show where open windows can be relied upon for the control of overheating and Part O compliance. The results are shown in Appendix 6.
- 4.28 It can be seen from Appendix 6 that windows to bedrooms across the whole site (with the exception of those nearest to the railway) be assumed only openable ~ 4% of the floor area and bedrooms nearest to the railway be assumed openable only ~2% of the floor area within the overheating assessment to ensure internal noise limits are achieved.
- 4.29 The information in Appendix 6 can be provided to the project Energy Assessor to inform the overheating assessment and demonstrate compliance with Part O.

Noise levels in external amenity areas

- 4.30 Noise levels within external amenities comply with the BS8233 recommended levels through the use of standard 1.8m high close-boarded timber fences around gardens. Therefore, the recommendation of 2m high acoustic fences, as per the SoundPlanning Noise Impact Evaluation report can be reduced to a standard 1.8m acoustic fence.
- 4.31 The development achieves the requirements to discharge Planning Condition 14.

5. CONCLUSIONS

- 5.1 Cass Allen was instructed by Bellway Homes Limited (Thames Valley) to assess the acoustic design of the development as required by the planning conditions.
- 5.2 The assessment was carried out in accordance with Planning Condition 13 and 14.
- 5.3 Noise levels at the site are dictated by road traffic noise emissions from Park Lane, train noise from the Great Western Railway line and airplane noise from flights serving Heathrow Airport.
- 5.4 Noise affecting the development has been assessed in accordance with Planning Condition 13 and 14. The design of the development is considered to be acceptable subject to the adoption of acoustically upgraded glazing and ventilation.
- 5.5 Compliance with noise criteria in Building Regulations Part O has also been assessed. Some bedrooms have been designed to have partially openable windows to offset noise with regards to overheating.
- 5.6 It is our view that this report contains the information required to discharge the noise-related Planning Conditions on the development.

Appendix 1 Development Layout



Key

Proposed Site Boundary

Proposed 2.448m Visibility at the Site Entrance

Proposed Tree Planting

Existing Trees & associated RPA to be retained

Proposed Affordable Accommodation

Proposed First Home Accommodation

Proposed Shared Ownership Accommodation

A

24-11-25

SUDs Design Updated

CT

Rev	Date	Amendment	Initials

Project:

LAND AT PARK LANE
CHARVIL

Client:

BELLWAY (THAMES VALLEY)

Drawing:

PROPOSED COLOURED SITE LAYOUT

Drawing no:

25.2208.2001

Rev:

A

Scale@A0:

1:500

Date:

OCT 2025

Drawn:

CT

Checked:

finc

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All dimensions and measurements to be checked on site.

This drawing is to be printed in colour.

PLANNING

Appendix 2 Survey Results

Survey Summary:

The survey comprised short-term operator attended noise measurements and longer-term unattended noise monitoring at the site. Noise levels at the site were generally dictated by road traffic on surrounding roads and noise from train passes on the adjacent railway.

Survey Period:

16/10/2025 to 21/10/2025

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To measure noise levels around the site over a typical day and night-time period.

Equipment Used:

Type	Manufacturer	Model	Serial Number
Sound level meter ¹ (noise logger)	Rion	NL-32	00530374
Sound level meter ¹ (noise logger)	Rion	NL-32	00903342
Sound level meter ¹ (noise logger)	Rion	NL-32	00903343
Calibrator	Rion	NC-74	34551703
Sound level meter ¹	Rion	NL-52	00965090

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

Weather Conditions:

The observed weather conditions were acceptable for acoustic measurement throughout the attended survey periods (low-medium wind speeds and no rain). Weather records for the area confirmed that weather conditions were also generally acceptable for acoustic measurement during the unattended monitoring. Any periods of unattended monitoring that may have been adversely affected by weather conditions have been excluded from the data analysis.

Measurement Positions:

Position (refer plan below)	Description
N1	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to nearby noise sources
N2	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to nearby noise sources
L1	Unattended noise logging position. 3m above ground level. Free-field. Direct line of sight to nearby noise sources
L2	Unattended noise logging position. 3m above ground level. Free-field. Direct line of sight to nearby noise sources
L3	Unattended noise logging position. 3m above ground level. Free-field. Direct line of sight to nearby noise sources

Site Plan showing Measurement Positions:



Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmix, dB	LA90, dB	Observations
16/10/2025	N1	12:38	5 mins	55	69	39	Noise dictated by train passes along the railway and airplane passbys overhead
	N2	12:48	5 mins	55	71	48	Noise dictated by road traffic from Park Lane, train passes along railway and plane passbys overhead

Unattended Noise Monitoring Results:

Meas. Period	Position	Daytime (0700-2300hrs)		Night-time (2300-0700hrs)		
		LAeq,16hr, dB	LA90,1hr dB ¹	LAeq,8hr, dB	LA90,5mins, dB ¹	LAmix, dB ²
16/10/2025 to 21/10/2025	L1	54	40	48	25	65-66
	L2	53	40	46	28	65-66
	L3	53	39	46	27	63-65

Note 1: Typical lowest measured during the period shown.

Note 2: Highest typical maximum noise level during the night-time (not exceeded more than 10-15 times per night).

Unattended Noise Monitoring Results:



