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Proposed Residential Development Land to the North of Pitt Street, Wombwell, S73 8FE

Noise Impact Assessment

For: Alphin Property Ltd

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Ref: NIA-11972-25-12211-v2 Pitt Street, Wombwell

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1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Alphin Property Ltd to undertake a noise impact assessment for a proposed residential development on land to the north of Pitt Street, Wombwell, Barnsley, S73 8FE (hereafter referred to as 'the site').

The objectives of the noise impact assessment were to:

- Determine external noise levels at the site
- Assess the potential impact of the external noise climate on the proposed residential development with reference to relevant guidelines
- Provide recommendations for a scheme of sound attenuation works as necessary

This report details the methodology and results of the assessment and provides recommendations as appropriate. It has been prepared to accompany an application for planning permission to be submitted to Barnsley Metropolitan Borough Council.

The report has been prepared for Alphin Property Ltd for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult Alphin Property Ltd and ENS as to the extent to which the findings may be appropriate for their use.

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

1.2 Site Description and Development Proposals

The site is located to the north of the town of Wombwell. See Figure 1.1 for the approximate site boundary outlined in red.

Figure 1.1: Location of Proposed Development Boundary



The site is bounded by:

- Pitt Street to the south, with Netherwood Academy playing fields and MUGA beyond
- Residential development (planning ref: 2021/0602) to the east
- Existing residential housing to the north
- Open land to the west

A Multi Use Games Area (MUGA) at Netherwood Academy is located circa 50 metres from the nearest proposed plots at the site. The MUGA is used by Netherwood Academy during the daytime for school activities, and is available for bookings during the evening.

The proposals are for the land to be developed for residential use. An indicative proposed site layout plan is illustrated in Figure 1.2 below.

Figure 1.2: Indicative Development Layout



2 Policy Context and Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)¹ was updated in February 2025 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 187 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of.....noise pollution'.

Paragraph 198 advises that:

'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, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. 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'.

With regard to extant community noise sources and the potential to affect proposed new developments, Paragraph 200 states that:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

2.2 Noise Policy Statement for England

The Noise Policy Statement for England² (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision 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
- Where possible, contribute to the improvement of health and quality of life

The NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)

2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

‘...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.’

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance³ (PPG) is an online resource which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur
- Whether or not an adverse effect is occurring or likely to occur
- Whether or not a good standard of amenity can be achieved

In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

‘...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation’.

The PPG also provides general advice on the typical options available for mitigating noise, suggesting that Local Plans may include noise standards applicable to proposed developments within the Local Authority’s administrative boundary, although it states that:

‘Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed’.

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. The following guidance documents provide some meaningful context.

3 Planning Practice Guidance on Noise: <http://planningguidance.planningportal.gov.uk/blog/guidance/noise/>

2.4 ProPG Planning and Noise: New Residential Development

ProPG Planning and Noise: New Residential Development (ProPG) was published in 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.

Stage 2: Element 2 of ProPG sets indoor ambient noise levels for residential dwellings based on the guidance contained in British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233), see Table 2.1.

Table 3.1: Summary of Noise Measurement Data

Activity	Location	Indoor Ambient Noise Level Targets	
Resting	Living Room	35 dB L_{Aeq} (0700-2300)	-
Sleeping	Dining Room/Area	40 dB L_{Aeq} (0700-2300)	-
Sleeping (daytime resting)	Bedroom	35 dB L_{Aeq} (0700-2300)	30 dB L_{Aeq} (2300-0700) 45 dB L_{AFmax} (2300-0700)

Note 4 to the above table states:

'A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night.'

Note 5 to the above table states:

'Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7.'

The NPPF PPG requires that the character of the noise is taken into account. In relation to commercial noise impacting on the development, Annex B of BS 8233 describes methods for assessing the acceptability of a noise spectrum for a given application through the use of Noise Rating (NR) curves.

2.5 Sport England Design Note

Sport England's 'Artificial Grass Pitch (AGP) – Planning Implications: New Guidance for 2015' provides guidance to assess the noise impact of new artificial grass pitches on residential dwellings.

The Sport England guidance suggests that:

"The determining noise criteria for AGPs proximity to residential properties, to avoid moderate annoyance in the daytime and evenings, as set by The World Health Organisation's 'Guidelines for Community Noise': = 50 dB L_{Aeq} (1 hour) upper noise limit external to residential properties and within external living areas"

The guidance states that typical noise emissions for an AGP would be 58 dB $L_{Aeq,1hour}$ at 10m from the halfway line. It also suggests that levels of 50dB $L_{Aeq,1hour}$ can normally be met at a distance of 40m from the edge of an AGP, at 1.5m above ground level.

2.6 Approved Document O

Approved Document O, 2021 is written in support of Part O of Schedule 1 to the Building Regulations 2010. The approved document details methods of addressing overheating of residential dwellings and is applicable only across England.

The approved document has the following relevant guidance in Section 3 regarding noise ingress into buildings:

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_{Amax} , more than 10 times a night (between 11pm and 7am)*

3 Noise Survey

3.1 Overview

In order to determine the level of external noise affecting the proposed development, noise monitoring was carried out from Tuesday 11th to Wednesday 12th March 2025.

The adopted noise monitoring positions (shown in Appendix 2) were as follows:

- MP1 – at the south of the site, 10 metres from Pitt Street
- MP1A – 20 metres from Pitt Street
- MP1B – 40 metres from Pitt Street
- MP2 – south-east corner of site, 10 metres from Pitt Street
- MP3 – at the north of the site

Noise measurements were made at 4 metres above ground level, in free field conditions using Brüel & Kjaer 2250 and NTi Audio XL3 Type 1 integrating sound level meters. A windshield was fitted for all measurements. The calibration of each measurement system was verified immediately before and after the survey using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted.

The noted weather conditions during the survey were dry with average wind speeds < 5 m/s. Weather conditions were therefore considered appropriate for noise monitoring.

Measurements consisted of A-weighted broadband parameters, together with linear octave band data.

3.2 Summary

Table 3.1 presents a summary of the noise data for each measurement session, at each measurement position, rounded to the nearest decibel.

The maximum noise level is given as the highest over the full measurement period.

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	L _{Aeq} (dB)	L _{A90} (dB)	L _{A10} (dB)	L _{AFmax} (dB)	Comment
MP1	11/03/25	1022-1122	60	41	64	-	Road traffic on Pitt Street dominant. No noise from MUGA.
	11/03/25	1122-1222	60	42	64	-	
	11/03/25	1222-1322	59	42	64	-	
	11/03/25	1322-1422	59	41	65	-	
	11/03/25	1422-1522	61	44	64	-	
	11/03/25	1522-1530	60	40	65	-	
	12/03/25	0452-0552	54	34	53	73	Road traffic on Pitt Street dominant.
	12/03/25	0552-0652	57	40	60	75	
MP1A	11/03/25	1050-1150	55	41	57	-	Road traffic on Pitt Street dominant.
MP1B	11/03/25	1154-1254	47	41	50	-	
MP2	11/03/25	1300-1330	60	43	66	-	Road traffic on Pitt Street dominant.
MP3	11/03/25	1337-1437	47	39	47	-	Distant road traffic dominant.

3.3 Analysis

Road traffic on Pitt Street was found to control the noise climate to the south of the site. No noise was noted from the MUGA at Netherwood Academy.

For the prediction of daytime road traffic noise, the Department of Transport's Memorandum on the Calculation of Road Traffic Noise (CRTN) explains that the following shortened measurement procedure may be used. Measurements of L_{A10} are made over any three consecutive hours between 10:00 and 17:00 hours. Using $L_{A10(3\text{ hour})}$ as the arithmetic mean of the three consecutive values of hourly L_{A10} , the $L_{A10(18\text{ hour})}$ can be calculated from the equation:

$$L_{A10(18\text{ hour})} = L_{A10(3\text{ hour})} - 1\text{ dB}$$

A study prepared by TRL Limited on behalf of the Department for Environment, Food and Rural Affairs (DEFRA) entitled 'Converting the UK Traffic Noise Index $L_{A10(18\text{ hour})}$ to EU Noise Indices for Noise Mapping' presents a methodology for calculating daytime $L_{Aeq(0700-2300)}$ and night-time $L_{Aeq(2300-0700)}$ ambient noise levels based on the $L_{A10(18\text{ hour})}$ noise levels, as follows:

$$L_{Aeq,16hr} = 10 \times \log_{10} \left(\frac{\left(\left(10^{\left(\frac{0.95 \times L_{A10,18hr} + 1.44}{10} \right)} \times 12 \right) + \left(10^{\left(\frac{0.97 \times L_{A10,18hr} - 2.87}{10} \right)} \times 4 \right) \right)}{16} \right)$$

$$L_{Aeq,8hr} = 0.9 \times L_{A10,18hr} - 3.77$$

Based on the above formulae, the daytime and night-time ambient noise levels at MP1 are calculated at **61 dB $L_{Aeq(0700-2300)}$** and **53 dB $L_{Aeq(2300-0700)}$** respectively. Typical maximum noise levels were measured at **73 dB L_{AFMax}** during the night-time.

Based on the current site layouts, the nearest plots to Pitt Street are set back circa 35 metres. Noise from Pitt Street was found to approximate point source propagation (i.e. reducing by circa 6 dB per doubling of distance). As such, noise levels at 35 metres from Pitt Street are taken to be **50 dB $L_{Aeq(0700-2300)}$** and **42 dB $L_{Aeq(2300-0700)}$** respectively [i.e. $(20 \times \log(10/35)) = -11\text{ dB}$]. Typical maximum noise levels are taken as **62 dB L_{AFMax}** during the night-time.

No noise was noted from the MUGA at Netherwood Academy during the survey period. With reference to the Sports England guidance set out in section 2, levels of 50 dB $L_{Aeq,1hour}$ can normally be met at a distance of 40m from the edge of an AGP, at 1.5m above ground level. The nearest proposed dwellings are set back circa 94 metres from the MUGA. As such, any noise from the MUGA is expected to be significantly below the dominant road traffic noise levels at the site, and is therefore not considered significant to the assessment.

4 Noise Assessment

4.1 Design Noise Levels

Noise levels at the site were controlled by road traffic on Pitt Street, with no other noise sources noted during noise monitoring. The noise levels measured at the site have been used to determine the design noise levels for the proposed development.

Plots set back at least ≥ 35 metres from Pitt Street:

- ≤ 50 dB L_{Aeq} (0700-2300)
- ≤ 42 dB L_{Aeq} (2300-0700) and ≤ 62 dB L_{AFMax} during the night-time

4.2 Scheme of Sound Attenuation

Thermal double glazing rated at least **28 dB R_w+C_{tr}** (such as 6 mm glass / 6-20 / 4 mm glass) with trickle vents (rated at least **32 dB $D_{n,e,w}+C_{tr}$** (vent open)) will be appropriate for plots set back at least 35 metres from Pitt Street and throughout the remainder of the site. This specification has been tested by ENS on numerous sites and would typically provide in the order of 25 dB reduction from outside to inside.

The resultant internal noise levels for typical bedrooms are set out in the table below.

Table 4.2 – External Noise Levels and Resultant Internal Noise Levels

Location	External Noise Level	Reduction	Resultant Internal Level
≥ 35 metres from Pitt Street	≤ 50 dB L_{Aeq} (0700-2300) ≤ 42 dB L_{Aeq} (2300-0700) ≤ 62 dB L_{AFMax}	-25 dB	≤ 25 dB L_{Aeq} (0700-2300) ≤ 17 dB L_{Aeq} (2300-0700) ≤ 37 dB L_{AFMax}

The following points should be noted:

- The glazing recommendations apply to the window within a sealed unit. It is the responsibility of the window supplier to ensure that the window frame does not compromise the performance of the glazing.
- The ventilation provision should be checked by a mechanical service engineer before designs are finalised. Should the proposals be insufficient to meet the minimum requirements of ADF, it may be necessary to provide additional ventilators. Where this applies, the required sound reduction of the ventilation units should be considered accordingly.

4.3 External Amenity

BS 8233 recommends a guideline range for external amenity noise of 50-55 dB $L_{Aeq,16-hour}$ however the standard also recognises that these guideline values are not achievable in all circumstances.

In Section 3 of this report, it was established that daytime free-field noise levels were around 50 dB L_{Aeq} at 35 metres from Pitt Street.

On the basis of the above, noise levels in gardens set back ≥ 35 metres from Pitt Street are expected to readily satisfy the guideline values, as recommended by BS 8233 / ProPG for external amenity areas. Noise levels are expected to reduce further once the development is built out due to screening afforded by boundary fencing and the dwellings themselves.

4.4 Mitigation of Overheating

ADO states that for moderate risk locations (i.e. outside of London) the minimum free area of the open window should be at least 4% of the floor area of the room.

As the free area varies as a function of the floor area, for a typical floor-to-ceiling height of 2.4m, a free area of 4% of the floor area equates to an external to internal noise reduction of 10 dB.

With reference to the internal targets contained in ADO, it is assumed that open windows can form the overheating mitigation strategy with no additional ventilation or cooling, provided the external noise levels outside bedrooms at night do not exceed **50 dB L_{Aeq} (2300-0700)** and **65 dB L_{AFMax}** (more than 10 times).

Based on the results of the noise measurements undertaken for the site, plots throughout the site which are set back >35m from Pitt Street can utilise windows opened to the minimum open area of 4% of the floor area, meaning that the overheating mitigation strategy is not constrained by acoustics.

5 Summary and Conclusions

A noise impact assessment has been undertaken for the proposed residential development at land to the north of Pitt Street, Wombwell, Barnsley.

Noise monitoring was undertaken at the site to determine the level of external noise affecting the proposed development. The noise environment was found to be controlled by road traffic on Pitt Street.

A scheme of sound attenuation works (glazing, fenestration and ventilation) has been developed to protect the proposed development from the ambient noise climate in accordance with pertinent guidelines.

On this basis, the ambient noise climate does not pose a constraint to the proposed residential development.

Appendix 1 – Abbreviations and Definitions

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μ Pa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μ Pa).

A-weighting

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF \max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_w)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_w is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix 2 – Noise Measurement Positions

