

NOISE IMPACT ASSESSMENT

RYEBANK, CHORLTON-CUM-HARDY

REPORT REFERENCE NO. J005178-8158-RDC-03

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This document has been prepared for the client only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law.

This report has been prepared based upon a scope of works and associated resources agreed between the client and Philip Dunbavin Acoustics Ltd (PDA). This report has been prepared with all reasonable skill, care and diligence and has been based upon the interpretation of data collected. This has been accepted in good faith as being accurate and valid at the time of the collection. This report has been based solely on the specific design assumptions and criteria stated herein.



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APPENDIX A – DEFINITION OF ACOUSTIC TERMS



1.0 SUMMARY

At the request of Step Places, Southway Housing Trust and Manchester Metropolitan University; Philip Dunbavin Acoustics has conducted an assessment of the ambient noise climate for the proposed residential development on land off Ryebank Road.

Noise levels at the site consist of noise from distant road traffic and occasional aircraft with additional local noise from Longford Road to the South. Noise levels are generally low indicating that the site is suitable for residential development.

Mitigation is proposed to the building envelope to ensure that internal noise levels within habitable areas are suitable for resting and sleeping and are in accordance with the requirements of the NPPF and BS 8233:2014 "Guidance on sound insulation and noise reduction for buildings". Noise mitigation advice for the proposed residential facades is given in Section 0 in the form of treatment to the glazing and ventilation.

Additionally, our assessment suggests that in accordance with The Building Regulations Approved Document O, open windows are suitable as a means to mitigate against overheating with regard to limiting noise ingress to acceptable levels.

2.0 BRIEF FOR CONSULTANCY

PDA Ltd. was engaged to carry out the following:

A. Noise Survey

We will travel to the site and carry out an ambient noise survey to assess the level of noise incident upon the proposed development site. The measurement and assessment will include for noise from the adjacent road network, and other local noise sources.

We would propose to undertake manned measurements between the hours of 23:00 – 01:00 hours and 06:00 – 10:00 hours representative of daytime and night time hours at the boundaries of the site with local roads. As the site is accessible by the public, it is likely that the noise surveys will need to be fully attended.

We will carry out all noise surveys in accordance with the provisions of BS7445 “Description and Measurement of Environmental Noise”. The measurements made will include both dBA and octave band noise levels including L_{eq} , L_{max} , and L_{90} parameters. During the survey duration, we will require unrestricted access to the site.

B. Survey Processing and Report

The results of the noise survey will be assessed in line with the requirements of the National Planning Policy Framework (NPPF). We will carry out basic calculations, based on available room data/drawings, to predict internal noise levels within the development to compare with good practice guidance criteria, e.g. BS8233:2014, and develop typical outline specifications for the building façades, glazing and ventilation elements.

We will produce a report detailing all survey procedures, measurements and results suitable for submission to the Local Authority in support of your planning application. We will suggest a scheme of sound insulation works (typically windows and ventilation openings) to ensure suitable internal noise levels may be achieved within the proposed outline development.

3.0 SITE DESCRIPTION

The site consists of an area of cleared land known as Ryebank Fields which was the site of a former brickworks, and subsequently used as University playing fields until it subsequently fell into disuse. To the North, East and South side of the site is existing housing and the grounds of a school to the south-eastern boundary, with the northern part of Ryebank Road terminating at the northern boundary of the site. The western boundary is a wooded area which forms the boundary with Longford Park. The southern boundary is a wooded area bounding Longford Road, and to the south west is the running track and sports ground of the Trafford Athletic Club.

It is proposed to develop the land for residential use with a mixture of attached houses, flats and areas of retained open space and woodland.

The below figure illustrates the proposed plan.

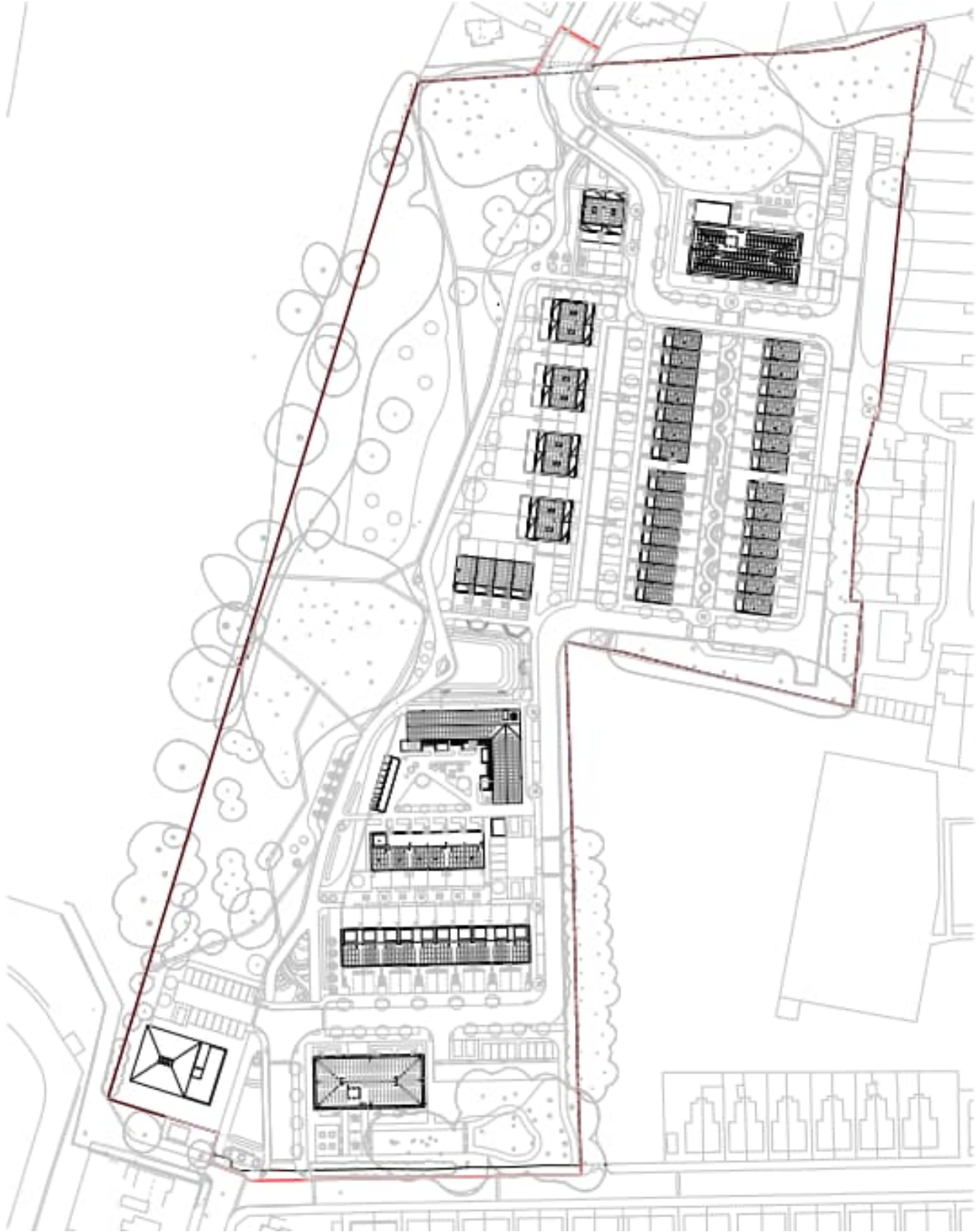


Figure 1 – Proposed site layout

4.0 ASSESSMENT CRITERIA

4.1 National Planning Policy Framework

National Planning Policy is guided by the National Planning Policy Framework (NPPF) updated in December 2023. With regard to Noise the Framework states the following;

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 soil, air, water or noise pollution or land instability.*

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;*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

The terms 'significant adverse impact' and 'adverse impact' are defined in the explanatory notes of the 'Noise Policy Statement for England (NPSE)' which states;

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

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.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The notes also offer an explanation of the term 'adverse impacts' as follows;

... refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.

Although no specific noise limits for LOAEL and SOAEL have been defined, in 2014 the UK Government published a planning practice guidance document for noise which indicates where these limits fall with relation to the perception of noise. A summary is reproduced in Section 4.2 below, and the full document is published at <https://www.gov.uk/guidance/noise--2>. It is considered that guidance from other acoustic

standards may be employed to determine suitable levels within the overall principal of the National Planning Policy Framework.

The National Planning Policy Framework also states:

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 focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

4.2 Planning Practice Guidance – Noise

In March 2014 (updated July 2019) the UK Government published further guidance on the assessment of noise for planning purposes in the form of the on-line publication, Planning Practice Guidance on noise (<http://www.gov.uk/guidance/noise--2>). This document offers further guidance on the typical levels which constitute the NOEL, LOAEL and SOAEL. The relevant section is reproduced in the table below;

Table 1. Planning Practice noise level guidance

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. 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			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			

Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

It is notable from the above planning guidance that development should not normally be permitted above Significant Observed Adverse Effect Levels, and should aim to minimise Other Adverse Effect Levels (below SOAEL but above LOAEL). However, it is clear that noise is permitted to approach and/or exceed the Lowest Observed Adverse Effect Level, providing that noise is mitigated and reduced to a minimum.

4.3 BS8233:2014

BS8233 proposes acceptable noise levels for new residences. The guidance within BS8233 has been revised and updated in 2014 to take into account the most recent research and expert opinion on suitable noise levels for new developments.

4.3.1 Internal noise levels in domestic dwellings

With regard to residential development BS8233 gives the following criteria;

Table 2. BS8233:2014 indoor ambient noise levels for dwellings

Activity	Location	Design range $L_{Aeq,T}$	
		Daytime (07:00 - 23:00)	Night-time (23:00 – 07:00)
Resting	Living rooms	35	-
Dining	Dining room / area	40	-
Sleeping (daytime resting)	Bedroom	35	30

The above criteria apply to steady external noise sources, such as road traffic. Where specific noise events are likely to occur during the night time BS8233:2014 gives the following guidance:

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. Sporadic noise events could require separate values.

With regard to external areas of residential developments BS8233:2014 states the following;

For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, 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, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

4.4 Approved Document O (ADO)

Approved Document O (APO) 2021, provides guidance on meeting the requirements of the Building Regulations 2010, part 'O1 Overheating mitigation'. The aim of the Building Regulations part O1 is to protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures.

Building Regulations part O1 requires that dwellings, institutions or any other buildings containing one or more rooms for residential purposes (other than a room in a hotel) to:

- (a) *Limit unwanted solar gains in summer:*
- (b) *Provide an adequate means to remove heat from the indoor environment*

However in meeting the obligations of ADO the buildings overheating mitigation strategy for use by occupants must consider 'Noise at night' in addition to other non-noise related considerations.

In regards to 'Noise at night', ADO stipulates 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.

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

It should be noted that the above noise limits are with reference to internal noise levels within a bedroom. Guidance on the simplified assessment method published jointly by the Institute of Acoustics and the Association of Noise Consultants in July 2022 suggests that for developments in Approved Document O designated 'Moderate Risk' locations such as this development, windows should be assumed to be closed during sleeping hours for facades exposed to the following night-time noise levels:

49dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am)

64dB L_{AFmax} , more than 10 times a night (between 11pm and 7am)

5.0 SURVEY DETAILS

An ambient environmental noise survey was carried out at two locations on the site. The measurements were taken in free-field conditions at the most southern point of the field adjacent with Longford Road and at a Northern point close to the northern segment of Ryebank road. The surveyed locations were representative of the worst-case noise affected locations on the site (being closest to the local road traffic noise sources).

5.1 Measurement Procedure

5.1.1 Survey times

The ambient noise survey measurements were made between 23:20 on Tuesday 1st October 2024 and 10:15 on Wednesday 2nd October 2024. Measurements were taken using sound level meters fitted with 'all-weather' windshields, set-up and partially attended by Dr Richard Cookson PhD, BSc(Hons), MIOA of PDA Ltd.

5.1.2 Measurement Equipment

The noise survey was conducted using NTI XL2 sound level meters.

The NTI XL2 sound level meter is a Class 1 sound level meter in accordance with IEC 61672-1:2002 capable of operating as an integrating sound level meter with frequency analysis and statistical functions.

The meter was set to measure broadband sound pressure levels, octave frequency band sound pressure levels and statistical parameters.

5.1.3 Measurement Locations

Measurements were taken at two measurement positions. Position 1 was close to the southern boundary of the site, relatively close to where the façade of the southernmost residential façade will be. Position 2 was close to the end of the northern section of Ryebank Road. See Figure 2 below for the measurement locations.

Figure 2. Survey Measurement Locations



The measurement locations were selected to be representative of the likely worst-case locations on the site in terms of environmental noise, being closest locations to the nearby roads.

5.2 Subjective Description of Noise Sources

Subjectively the noise climate at the development site was dominated by distant road traffic with occasional aircraft over-flights and occasional local traffic along Longford road and Ryebank road.

5.3 Measured survey Results

The noise survey results are summarised in Figure 3 and Figure 4 below.

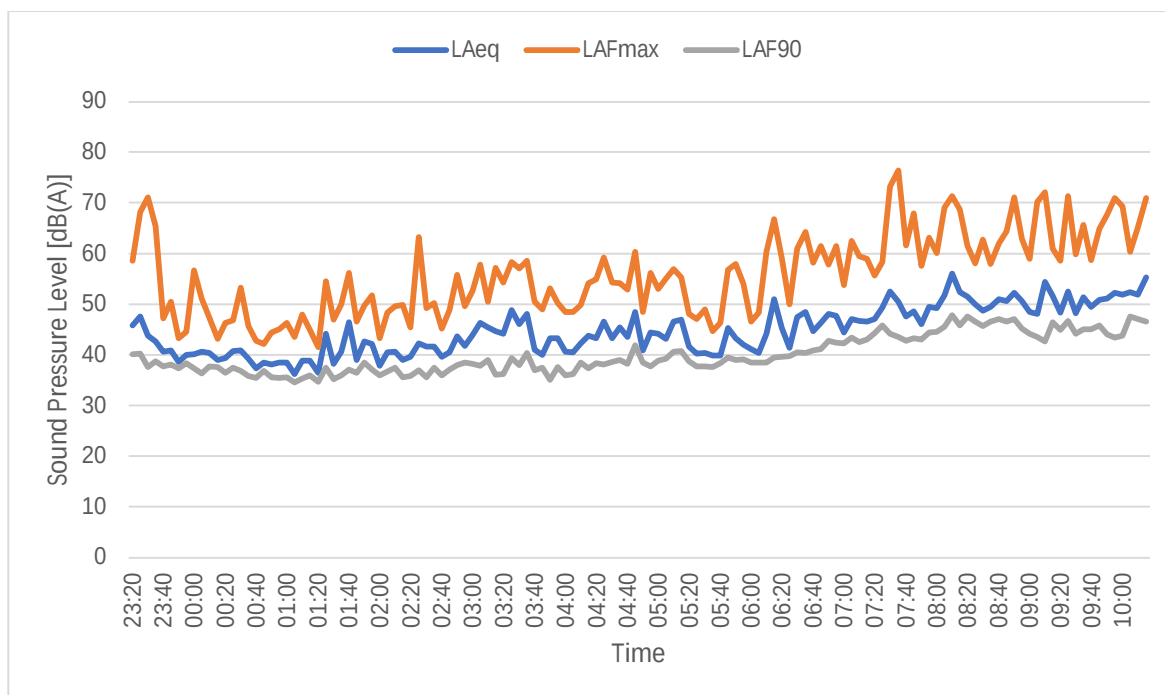


Figure 3. Survey results at measurement position 1

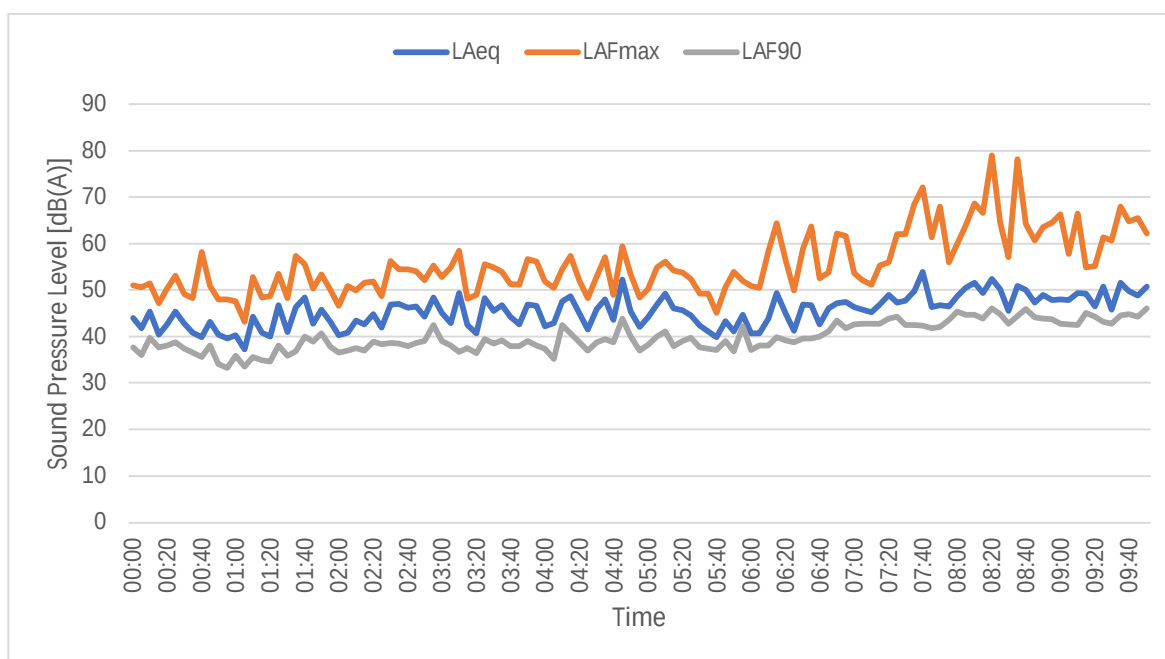


Figure 4. Survey results at measurement position 2

6.0 NOISE PROPAGATION

It was observed that sound levels were similar over the whole of the inner part of the site, being dominated by distant road traffic and occasional aircraft noise. The measurement positions were chosen

to measure the closest locations on the site to the surrounding roads such that the measured levels are representative of the 'worst case' noise levels on the site. For the avoidance of doubt, we have assumed that all residential facades on the developed site will be subject to the sound levels measured at Position 1 (the loudest location, closest to Longford Road).

Table 3. Worst case assumed façade sound level

Daytime sound level L_{Aeq}	Night-time sound level L_{Aeq}	Typical Night-time L_{Amax}^1
51	45	60

Notes:

- 1 Typical L_{Amax} noise levels are those not exceeded more than 10 times over the whole night-time period.

We would note that the above façade levels are relatively low, as expected for a site which is not directly exposed to noise from the surrounding roads. Hence the site is suitable for residential development with appropriate selection of glazing and ventilation to achieve recommended internal noise levels within the dwellings.

7.0 NOISE BREAK-IN CALCULATIONS AND MITIGATION

7.1 Building Envelope Elements

Noise ingress calculations are based on typical apartment room dimensions taken from outline drawings of the scheme. We have assumed the following typical worst case room geometry.

Table 4 – Typical room volumes and glazed areas

Room type	Typical minimum room volume	Typical maximum glazed area
Bedroom	27m ³	2.4m ²
Living Room	56m ³	2.7m ²

7.1.1 Walls

Walls have been assumed to be 100mm brick with 75mm cavity with mineral wool insulation and plasterboard lined inner frame.

7.1.2 Glazing

As the glazing is the acoustically weak area, the noise level incident on the façade will determine the type of glazing specified.

7.2 Design Assumptions

Assessment and specification of the acoustic performance of the building envelope and suitable glazing and ventilation, has been undertaken based on achieving the internal ambient acoustic conditions, specified in Section 4.3.1 above.

Information on the sound insulation properties for specific element details have been obtained from manufacturers test data.

7.3 Calculated noise levels

Noise break-in through the proposed building façades have been calculated in octave frequency bands using the detailed method of BS 8233:2014 taking into account the octave band sound reduction of the façade elements, façade element areas, room volume and reverberation time in the finished rooms. For the purposes of calculation the finished reverberation time has been assumed to be 0.5 seconds in all frequencies in habitable rooms. The calculated octave frequency band internal noise levels have then been used to determine the overall A-weighted noise level in the habitable rooms which has been compared to the criteria of Section 4.3.1. Glazing and ventilation specifications have been selected to ensure that the criteria of Section 4.3.1 are achieved within the proposed dwellings.

Table 5 - Glazing and ventilator schedule for habitable rooms

Room type	Minimum Glazing Rating R_w dB	Minimum combined Ventilator Rating $D_{n,e,w}$ dB	Internal Noise Level Target $L_{Aeq,T}$ dB Day/Night	Calculated Internal Noise Level $L_{Aeq,T}$ dB Day/Night ¹	Internal Noise Level target L_{Amax} dB Night	Calculated Internal Noise Level L_{Amax} dB Night ^{1 2}
Bed-rooms	31	27	35/30	29/22	45	42
Living / dining rooms	31	27	35/-	28/-	-	-

Notes

- 1 Calculated noise levels assuming closed windows and allowing for inlet vents of the specification detailed. Calculations allow for one of the specified vent performance for bedrooms and two of the specified vent performance for living rooms.
- 2 Calculated L_{Amax} noise level typically not exceeded more than 10 times per night.

7.4 Glazing

Table 6 below gives the required glazing sound insulation performance in octave frequency bands, together with typical glazing products which achieve the required sound insulation. Any alternative products should meet the given sound insulation performance in each octave frequency band to ensure that the internal noise levels specified in Table 5 are achieved.

Table 6. Required glazing performance (minimum)

R_w	Typical example (mm glass / mm cavity / mm glass)	Frequency band [Hz]							
		63	125	250	500	1000	2000	4000	8000
29	4/12/4	16	22	19	25	36	42	36	36

7.5 Ventilation

Ventilation indicated in Table 5 will be required as an alternative to open windows in order to achieve the design criterion. Our calculations have allowed for 1 of the specified vent type to each bedroom and 2 of the specified vent type to each living room. We would note that during the daytime it is likely that the internal noise criteria will be achievable with partially opened windows.

Table 7 gives the required acoustic performance of the specified vents in octave frequency bands, together with typical products which achieve the required sound insulation. Any alternative vent should achieve the same performance or greater in each octave band.

Table 7 – Required ventilator performance (minimum)

$D_{n,e,w}$	Typical example vent	Frequency band [Hz]							
		63	125	250	500	1000	2000	4000	8000
27	Simon Airstrip 19000 (non acoustic trickle vent)	30	30	27	27	25	27	30	38

Please note that the specification of vents is in terms of acoustic performance only. It should be checked by others that the ventilation requirements of the Building Regulations are also met.

Bear in mind that with any fan-assisted ventilation systems it should be ensured that the fan itself does not exceed the noise criteria as specified in Section 4.3.1.

7.6 Approved Document O (ADO), Method of Removing Heat

With reference to the survey results our assessment has indicated that sound levels at the façades of the proposed development are predicted to achieve the following criteria (See Table 3).

$\leq 49\text{dB } L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am)

$\leq 64\text{dB } L_{AFmax}$, more than 10 times a night (between 11pm and 7am)

Consequently, based on the simplified assessment method published jointly by the Institute of Acoustics and the Association of Noise Consultants in July 2022, windows may be assumed to be open during the night time in order to mitigate against overheating.

8.0 EXTERNAL AMENITY AREAS

Sound levels measured during the daytime at the worst affected locations on the site from external noise were 51 dB L_{Aeq} at Measurement Position 1 immediately adjacent to Longford Road, and 49 dB L_{Aeq} at Measurement Position 2 immediately adjacent to the northern section of Ryebank Road. As noise levels will reduce further into the site, and as the above are worst case daytime levels measured during the morning peak traffic period from 07:00 to 10:00 it is likely that all external amenity areas on the developed site will be below the 50dB $L_{Aeq,T}$ 'desirable' criterion of BS 8233:2014 (see Section 4.3.1).

9.0 NOISE EGRESS

9.1 Construction Noise and vibration

All developments which involve the new buildings or ground-works will inevitably create some noise impact on nearby neighbouring property during the construction phase. In the case of this development, parts of the northern and eastern boundary of the site are shared with existing residential use, and the residences along these boundaries are likely to be affected by noise (and potentially vibration) to some limited extent, from construction activities during the construction of the development.

Noise and vibration from construction activities are controlled by means of the Control of Pollution Act 1974. This act gives Local Authorities the power to require construction sites to use or not use specified plant and machinery, specify the hours during which construction may be carried out, specify the level of noise which may be emitted and provide for any other change in circumstances during construction.

In order to avoid the risk of being served a notice under the Act requiring limitations as detailed in the paragraph above, developers may submit an application for prior consent, which includes an assessment of the noise and vibration egress from the site and details of how this will be controlled to an appropriate level during construction. Once an application has been approved by the Local Authority, carrying out the works in accordance with the agreed method is deemed to be acceptable.

The assessment of noise and vibration emissions from the site submitted for prior consent is predicted and assessed in accordance with BS 5228:1:2009+A1:2014 "Code of practice for noise and vibration control on construction and open sites – Part 1: Noise" and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration on construction and open sites – Part 2: Vibration"

An assessment of noise and vibration in accordance with BS 5228 uses control of the method of construction, operational hours, and sequencing to reduce the impact of noise and vibration to acceptable levels at nearby noise sensitive residences. Where noise or vibration cannot be controlled to acceptable levels, the standard recommends either provision for noise insulation work to affected properties, or provision for temporary rehousing, funded by the developer. For vibration, the assessment focusses on control of vibration to levels below those where cosmetic damage to buildings is likely to occur.

We would recommend that for this site the developer submits a scheme for prior approval under Section 61 of the above Act along with a suitable construction method statement and noise and vibration impact assessment to demonstrate that noise and vibration will be controlled to acceptable levels. The process for prior approval is outlined in the excerpt from BS 5228 in Figure 5 below.

During the construction of this development there is likely to be limited impact from the construction activities on the nearest noise sensitive properties to the site, in the form of some noise during the daytime, although this will be limited by means of limiting the duration and times of noisier activities to the least sensitive times during the day. Due to the distance from the proposed buildings to those surrounding the site, the impact is likely to be relatively low without the need for significant mitigation.

In terms of vibration, the only significant sources of vibration during construction are usually those associated with piling. Due to the distance between the proposed buildings and the existing houses surrounding the site it is very unlikely that there will be any significant impact in terms of vibration on the

existing dwellings, but this should be further assessed and submitted as part of the Section 61 prior approval when the methodology of any required piling has been finalised.

In addition to the works discussed within this report, any works to deliver off-site infrastructure should also be conducted in accordance with the CEMP (Construction Environmental Management Plan) and, if necessary, assessed and consented in accordance with the procedures detailed above.

Figure A.1 Procedures to control construction noise under the Control of Pollution Act 1974

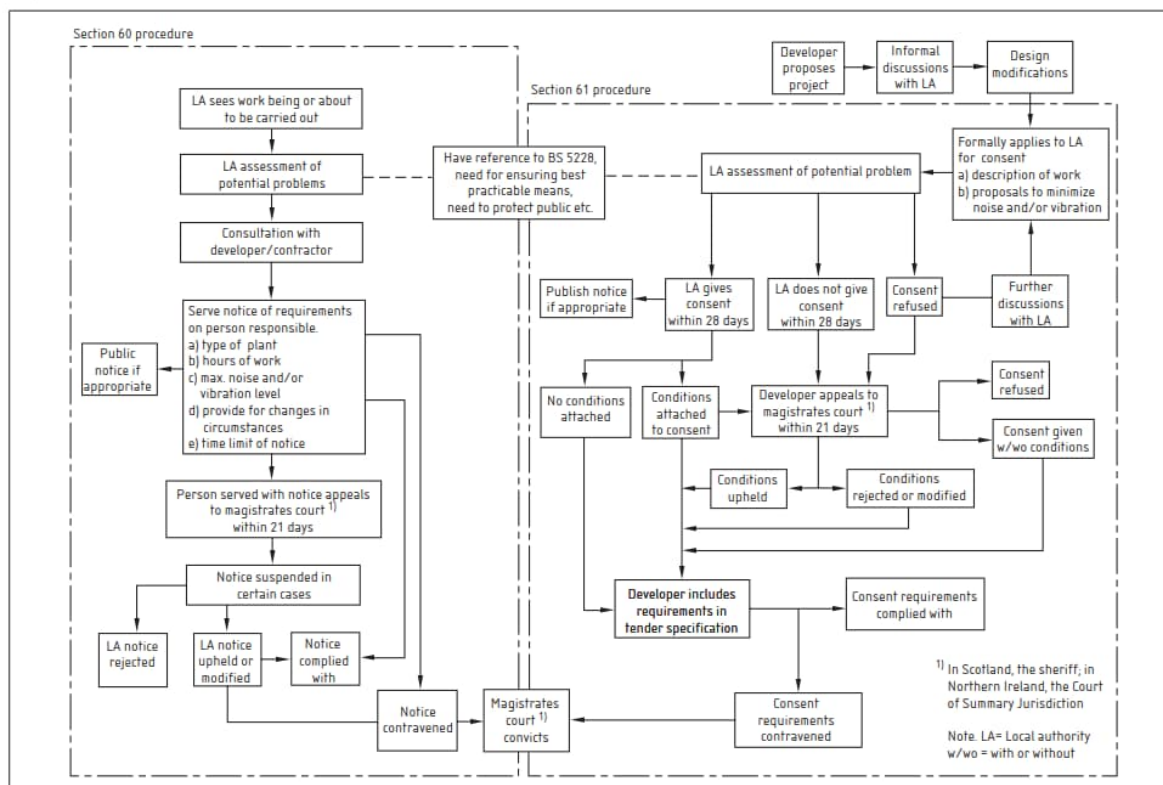


Figure 5 – Excerpt from BS 5228-1:2009+A1:2014 detailing process for assessment and control of construction noise and vibration

9.2 Operational Noise

Once the construction of the development ends and the development comes into use there are unlikely to be any significant noise sources other than noise due to people going about their normal lives. For this size of development the impact of road traffic noise is expected to be low and is unlikely to have a significant impact. Similarly, normal residential building services (heating and ventilation) are not likely to generate any significant noise at the distance between the proposed residences and the surrounding houses. With regard to the noise of people themselves going about their daily lives, this is not expected to be any different, or greater than the sound from the existing residences surrounding the site, the existing school or the existing leisure use of the site currently (i.e. people walking on the paths across the site) or of the nearby Longford Park.

We would note that the specific assessment of noise generated by residential uses affecting surrounding residential uses is not normally formally carried out. With regard to land use and neighbouring land the principle of 'reciprocity' or colloquially 'give and take, live and let live' applies, whereby a neighbour is expected to tolerate the equivalent of the moderate inconveniences which he/she might inflict on his/her fellow neighbour.



10.0 CONCLUSION

At the request of Step Places, Southway Housing Trust and Manchester Metropolitan University; Philip Dunbavin Acoustics has conducted an assessment of the ambient noise climate for the proposed residential development on land off Ryebank Road.

Noise levels at the site consist of noise from distant road traffic and occasional aircraft with additional local noise from Longford Road to the South. Noise levels are generally low indicating that the site is suitable for residential development.

Mitigation is proposed to the building envelope to ensure that internal noise levels within habitable areas are suitable for resting and sleeping and are in accordance with the requirements of the NPPF and BS 8233:2014 "Guidance on sound insulation and noise reduction for buildings". Noise mitigation advice for the proposed residential facades is given in Section 0 in the form of treatment to the glazing and ventilation.

Additionally, our assessment suggests that in accordance with The Building Regulations Approved Document O, open windows are suitable as a means to mitigate against overheating with regard to limiting noise ingress to acceptable levels.

APPENDIX A – DEFINITION OF ACOUSTIC TERMS

The decibel

This is the basic unit of noise, denoted dB.

A Weighting

This is a weighting process which simulates the human ear's different sensitivity at different frequencies. A weighting can be shown two typical ways, 50 dB(A) L_{eq} or 50 dB L_{Aeq} . Both mean the same thing. (See below for a definition of L_{eq}). The dB(A) level can be regarded as the overall level perceived by human beings.

L_{eq} and $L_{eq(s)}$

This is the equivalent continuous noise level which contains the same acoustic energy as the actual time-varying sound. In other words it is a kind of average noise level. It is denoted dB L_{eq} or, for A-weighted figures dB(A) L_{eq} or dB L_{Aeq} . It can also be expressed in terms of frequency analysis (see later). $L_{eq(s)}$ is the sample L_{eq} level.

L_n

This is the level exceeded for n% of the time. It is denoted dB L_n or, for A-weighted figures dB(A) L_n or dB L_{An} . It can be expressed in terms of frequency analysis (see later). L_{90} is the level exceeded for 90% of the time and is a measure of the lowest level typically reached. L_{10} is the level exceeded for 10% of the time and is the highest level typically reached. L_{50} is the level exceeded for 50% of the time and, mathematically, it is the median.

L_{max}

This is the maximum level reached during a measurement period. The "time constant", or the ability of the equipment to respond to impulses is usually expressed along with it, e.g. "Fast", "Slow", etc. It is denoted dB L_{max} or, for A-weighted figures dB(A) L_{max} , dB L_{Amax} , etc. It can also be expressed in terms of frequency analysis.

Frequency Analysis

Whereas dB(A) gives a very useful overall figure, it has its limitations in that it cannot be used to model or predict the effect of noise control and mitigation as this nearly always has radically different performance at different frequencies.

Frequency analysis expresses an overall noise level at each frequency or band of frequencies in the audible range. Octave band analysis divides the audible range into 10 bands from 31.5 Hz to 16 kHz and the noise level in each band can be expressed in any form e.g. L_{eq} , L_{90} , L_{max} etc. One third octave band analysis uses 30 bands.

Narrow band analysis takes the process to resolutions of less than 1 Hz. This is useful for identifying the existence of tones (whines, hums, etc.) and in pin-pointing the sources.