Land to the East of Hereford

STL Group

Noise Assessment

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1 Introduction

General

1.1 Rappor have been instructed by STL Group to undertake a Noise Assessment in support of a planning application for a proposed mixed-use development on land to the east of Hereford ('the Site').

1.2 The outline planning application is for the demolition of existing buildings and structures and the erection of up to 350 dwellings (including affordable housing), a farm shop and cafe, employment workspaces, and land for a potential primary school, along with associated parking, access roads, walking and cycling routes, public open space, landscaping, sustainable urban drainage and other associated works, site clearance and infrastructure. All matters reserved except for the means of access into the Site.

1.3 This report sets out the results of a baseline noise survey undertaken at the Site. The results have been assessed to determine the suitability of the Site for the proposed development.

1.4 A glossary of acoustic terminology is provided in **Appendix A – Acoustic Terminology**.

2 Site Description and Application

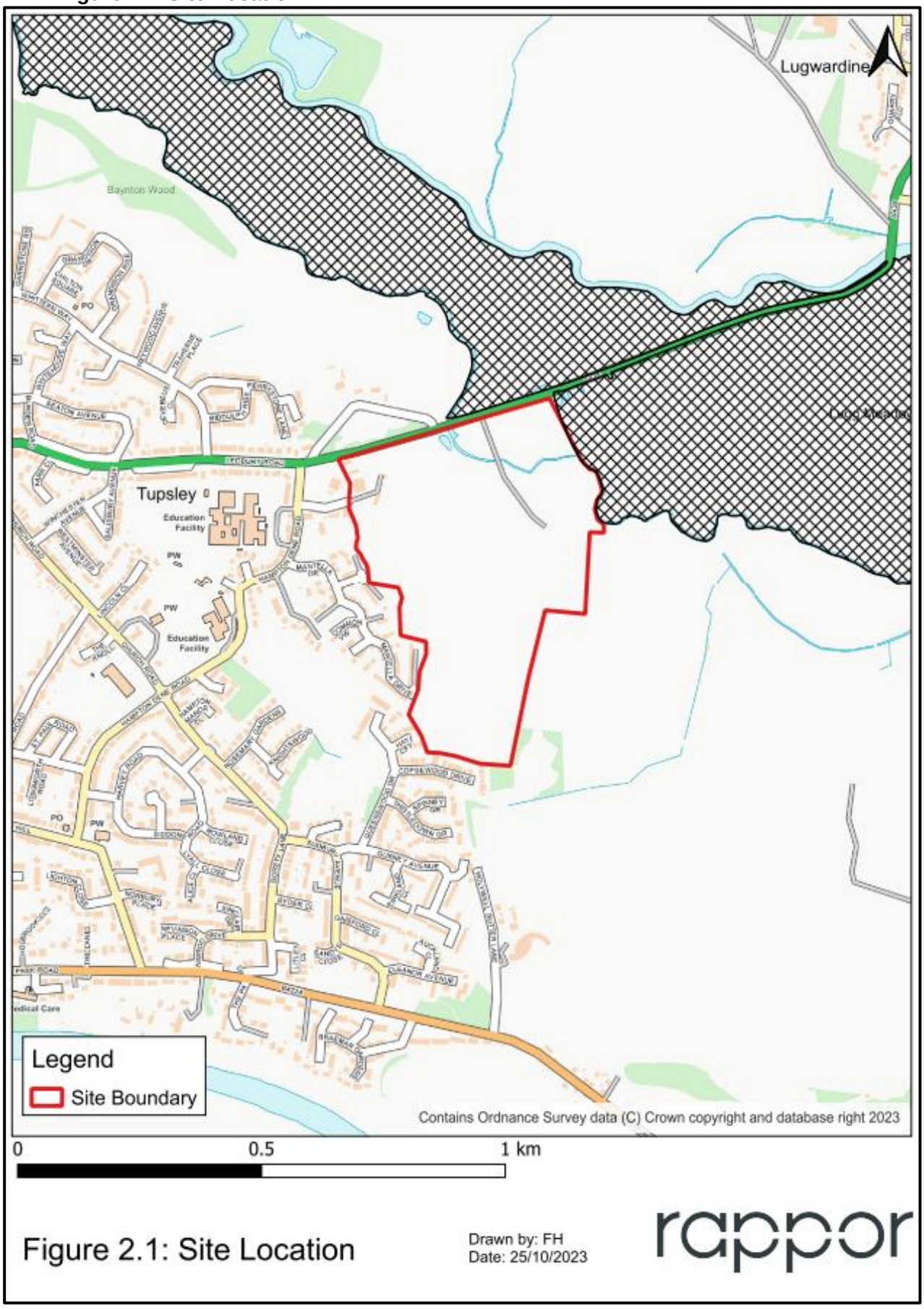
Site Location

2.1 The application Site is located to the south of the A438 on land to the east of Hereford. The Site is currently open farmland with additional farmland to the north, south and east. To the west are residential properties with the Cock of Tupsley pub to the north west.

2.2 The main noise source present on the Site is road traffic with the A438 the dominant source.

2.3 The Site location is illustrated in **Figure 2.1**.

Figure 2.1 Site Location



3 Consultation & Guidance

Consultation

3.1 Prior to undertaking the noise assessment, Rappor consulted with the Environmental Health Officer (EHO) at Herefordshire Council (HC) to confirm the survey requirement and assessment methodology.

3.2 It was agreed that monitoring over a minimum period of 24-hours at the northern and southern boundary of the Site would be used to characterise the prevailing noise climate at the Site.

3.3 The results would be assessed in accordance with guidance contained within ProPG and BS8233 to determine the suitability of the proposed development. Furthermore, the results would be used to set appropriate noise limits for the proposed commercial uses in accordance with BS4142.

3.4 Any changes in road traffic noise would also be assessed in accordance with the calculation methodology detailed in the Calculation of Road Traffic Noise.

3.5 It was requested that noise from any proposed renewables and the nearby Aerobic Digestion (AD) plant should also be considered.

3.6 Details of applicable guidance to the assessment are set out below.

National Planning Policy Framework (2023)

3.7 The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how these are expected to be applied. It states that 'The purpose of the planning system is to contribute to the achievement of sustainable development' and in relation to the natural environment it states at Paragraph 180:

> *"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".*

3.8 Paragraph 191 goes on to state:

> *"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:*
>
> *a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…".

3.9 Finally, Paragraph 194 states:

"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."

3.10 Where considering adverse impacts, the NPPF makes reference to the Noise Policy Statement for England (NPSE).

Noise Policy Statement for England (NPSE)

3.11 The aim of the NPSE states:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

avoid significant adverse impacts on health and quality of life;

mitigate and minimise adverse impacts on health and quality of life; and

where possible, contribute to the improvement of health and quality of life."

3.12 With reference to Significant Observed Adverse Effect Level (SOAEL), the document notes that:

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

Planning Practice Guidance (PPG) – Noise

3.13 The latest version of the PPG – Noise was published in July 2019 and provides advice on how planning can manage potential noise impacts in new developments.

3.14 It states:

"Plan-making and decision making need to take account of the acoustic environment and in doing so consider:

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; and

whether or not a good standard of amenity can be achieved."

3.15 **Table 3.1** presents the noise exposure hierarchy based on the average response of those affected.

Response	Example of outcomes	Increase effect level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOAEL)			
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 change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
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 (SOAEL)			
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

Table 3.1 Noise exposure hierarchy table

ProPG: Planning & Noise

3.16 ProPG was prepared by a working group consisting of representatives of the Association of Noise Consultants (ANC), the Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH) and was published in June 2017. It was produced "*to provide practitioners with guidance on the management of noise within the planning system in England*", though it does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

3.17 ProPG bases much of its guidance on the numerical targets within BS 8233:2014 and the interpretation of NPPF and NPSE guidelines, providing new and extended recommendations where these standards are considered to fall short.

Initial Site Noise Risk Assessment

3.18 ProPG recommends that an initial site noise risk assessment to identify likely adverse effects from noise without accounting for any mitigation measures that may subsequently be included in development proposals. **Figure 3.1** is taken from ProPG which shows the increasing risk of adverse effect based on daytime noise levels ($L_{Aeq,16hr}$) and night-time noise levels ($L_{Aeq,8hr}$) without noise mitigation.

Figure 3.1 Initial Site Risk Assessment

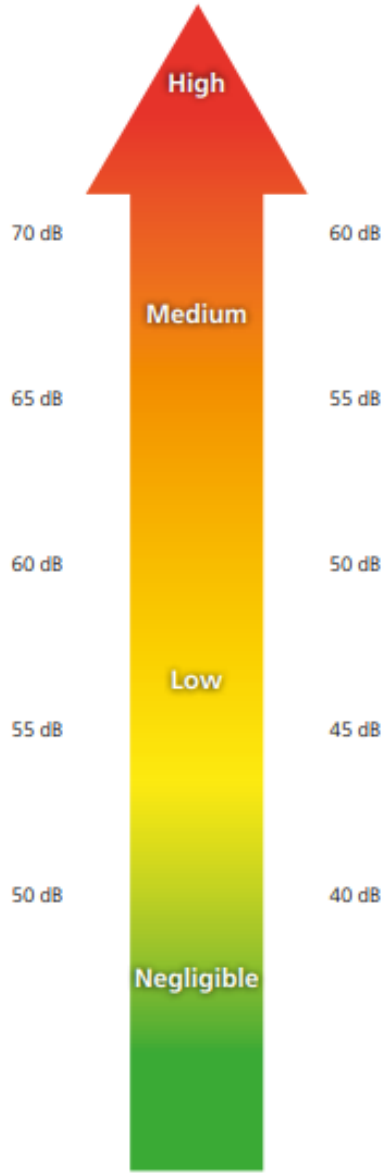
NOISE RISK ASSESSMENT	POTENTIAL EFFECT WITHOUT NOISE MITIGATION	PRE-PLANNING APPLICATION ADVICE
Indicative Daytime Noise Levels $L_{Aeq,16hr}$ / Indicative Night-time Noise Levels $L_{Aeq,8hr}$  	Increasing risk of adverse effect	High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice. As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development. At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.
	No adverse effect	These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

Figure 1 Notes:

a. Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.

b. 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".

c. $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.

d. 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.

Internal Ambient Noise Levels

3.19 ProPG provides internal ambient noise level targets based upon BS 8233:2014, with the addition of maximum noise events. ProPG suggests that the development layout should be designed such that internal noise level targets can be achieved with open windows in as many areas as possible, on the basis that residents will value the ability to open windows at will. However, an assessment can be made with closed windows and open ventilators (i.e. trickle vents) which provide "whole dwelling ventilation" (as defined by Building Regulations Approved Document F).

3.20 The recommended indoor noise levels for dwellings are presented in **Table 3.2**.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq, 16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq, 16hr}$	-
Sleeping (daytime resting	Bedroom	35 dB $L_{Aeq, 16hr}$	30 dB $L_{Aeq, 8hr}$ 45 dB $L_{Amax, F}$*
* 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. 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. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.			

Table 3.2 Indoor noise levels for dwellings

External Amenity Noise Levels

3.21 ProPG provides guidance for external amenity noise levels based upon BS 8233:2014 and PPG-N guidelines. In summary it recommends the following as part of an external amenity area noise assessment:

- If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended. Noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$.
- These guideline values 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.
- Even if external amenity spaces are not an intrinsic part of the overall design, consideration of the need to provide access to a quiet or relatively quiet external amenity space forms part of a good acoustic design process.
- Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g. garden or balcony) then the impact may be partially offset if the residents are provided, through the design of the development or the planning process, with access to:

- a relatively quiet facade (containing openable windows to habitable rooms) or a relatively quiet externally ventilated space (i.e. an enclosed balcony) as part of their dwelling; and/or
- relatively quiet alternative or additional external amenity space for sole use by a household, (e.g. a garden, roof garden or large open balcony in a different, protected, location); and/or
- a relatively quiet, protected, nearby, external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or
- a relatively quiet, protected, publicly accessible, external amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance). The local planning authority could link such provision to the definition and management of Quiet Areas under the Environmental Noise Regulations.BS8233 provides guidance for the control of noise in and around buildings. The scope of the document is applicable for new and refurbished buildings undergoing a change of use.

British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings

3.22 BS8233 provides guidance for the control of noise in and around buildings. The scope of the document is applicable for new and refurbished buildings undergoing a change of use.

3.23 The recommendations from BS8233 for steady external noise sources are presented in **Table 3.2** above with the addition of maximum noise events from ProPG.

3.24 The guidance also provides criteria for external areas and states:

> *"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 LAeq,T, with an upper guideline value of 55 dB LAeq,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."*

British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

3.25 BS4142 describes methods for rating and assessing sound of an industrial and/or commercial nature. The method uses outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes.

3.26 The standard requires the determination at the assessment location(s) of the representative background sound level without the specific sound source, the level of the specific sound

(distinct and free from other influences contributing to the ambient sound), and the acoustic features of the specific sound (which increases the significance of impact).

3.27 A character correction is applied to the specific sound level to account for the acoustic features to obtain a rating level. The corrections to be considered are:

3.28 Tonality – For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

3.29 Impulsivity – A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.

3.30 Intermittency – When the specific sound has identifiable on/off conditions, the specific sound level should be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

3.31 Other sound characteristics - Where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

3.32 An initial estimate of the impact is found by subtracting the background sound level from the rating level with the results compared to the criteria presented in **Table 3.3**.

Rating Level	Impact
Equal to or less than Background	Indication of Low Impact, depending on context
+5dB above Background	Indication of Adverse Impact, depending on context
+10dB or more above Background	Indication of Significant Adverse Impact, depending on context

Table 3.3 Impact Assessment

3.33 However, the significance of the sound depends on both the margin above background and the context in which the sound occurs. The above estimate should therefore be modified to consider factors such as absolute level of sound, character and level of residual sound, and the sensitivity of the receptor.

4 Noise Survey

Survey Details

4.1 A noise survey was undertaken between Tuesday 15th and Thursday 17th August 2023 to capture the prevailing noise climate in the area.

4.2 Noise meters were installed at the northern and southern boundary of the Site as shown in **Figure 4.1** below.

Figure 4.1 Noise Monitoring Locations

4.3 The meters were installed at a height of approximately 1.5m, in free-field conditions, i.e. at least 3.5m from a reflective surface.

4.4 Details of the monitoring equipment can be found in **Appendix B – Monitoring Equipment**. On-site calibration was undertaken before and after measurements with no significant drift observed.

Weather Conditions

4.5 Weather conditions were suitable for environmental noise monitoring being dry with negligible wind.

Noise Climate

4.6 During the installation and collection of the noise meters it was noted that the noise climate consisted of road traffic on the A438 and natural sounds such as bird song. At the southern location the nearby Anaerobic Digestion (AD) plant was not audible with the soundscape generally very quiet.

Monitoring Results

4.7 A summary of the measured noise levels is presented in **Table 4.1**. The logathrimic average of the L_{Aeq} and highest L_{Amax} values have been calculated for the day and night-time period. The range of background sound levels are also presented for Location 1 to set limits for the proposed commercial aspects of the development.

Location	Date	Period	$L_{Aeq, T}$	L_{Amax}	L_{A90}
NML1	15/08/2023	13:15 – 23:00	52.0	78.8	32 - 44
		23:00 – 07:00	44.7	66.6	23 - 40
	16/08/2023	07:00 – 23:00	51.9	72.7	36 - 46
		23:00 – 07:00	45.2	70.6	22 - 36
	17/08/2023	07:00 – 12:45	53.1	74.3	39 - 47
NML2	15/08/2023	14:00 – 23:00*	43.0	76.2	N/A
		23:00 – 07:00	37.5	60.1	
	16/08/2023	07:00 – 23:00	42.1	69.9	
		23:00 – 07:00	36.1	58.7	
	17/08/2023	07:00 – 12:15	43.5	71.7	
*Period 21:15-21:30 removed as uncharacteristic high levels compared to the remaining monitoring data					

Table 4.1 Summary of Measured Noise Levels, dB

5 Noise Assessment

Initial Risk Assessment

5.1 The results of the noise survey when compared to the initial risk assessment as presented in **Figure 3.1** indicate that the Site is at low risk of adverse effect, falling to negligible at the southern boundary.

5.2 For low risk, ProPG states:

> *"At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development."*

5.3 Based on the above, the results of the noise survey have been used to develop a noise model of the development to predict the noise levels at the worst impact facades and outdoor amenity areas.

Noise Model

5.4 The intention of noise modelling/mapping for this assessment is to accurately determine the noise levels at each façade and each floor of the building(s) associated with the proposed development. This avoids relying on using the highest measured noise levels from the baseline sound survey as a worst case, avoiding a blanket, over-specified strategy being applied across the entire façade.

5.5 The noise predictions within this report have been undertaken using the proprietary software IMMI, a 3-D noise mapping package which implements a wide range of national and international standards, guidelines and calculation algorithms, including those set out in ISO 9613-2:1996.

5.6 The results of the noise survey have been used to calibrate a without development model. Once calibrated, the model is updated with an indicative layout based on the concept masterplan for the development and noise levels predicted across the Site.

5.7 The noise map model has assumed:

- downwind propagation, i.e. a wind direction that assists the propagation of sound from source to receptor;
- a maximum reflection factor of three where buildings and barriers are assumed to have a 'smooth' reflective façade, as a worst case;
- that noise sources do not have strong radiation patterns and therefore radiate equally in all directions;
- receptor heights representing the windows at each floor of the building(s) in the proposed development when assessing noise ingress; and
- a grid height at 1.5m when plotting noise across external amenity areas such as gardens.

Internal Ambient Noise Levels

5.8 The ProPG suggests that a 'good' acoustic design process should explore other methods of mitigating noise which doesn't wholly rely on using the building envelope.

5.9 The concept design provides an offset between the main adjacent roads and the nearest noise-sensitive receptors, therefore maximising the spatial separation between source and receiver.

5.10 **Figure 5.1** and **Figure 5.2** present the predicted daytime (07:00 – 23:00) and night-time (23:00 – 07:00) noise levels across the Site.

Figure 5.1 Predicted Daytime Noise Levels

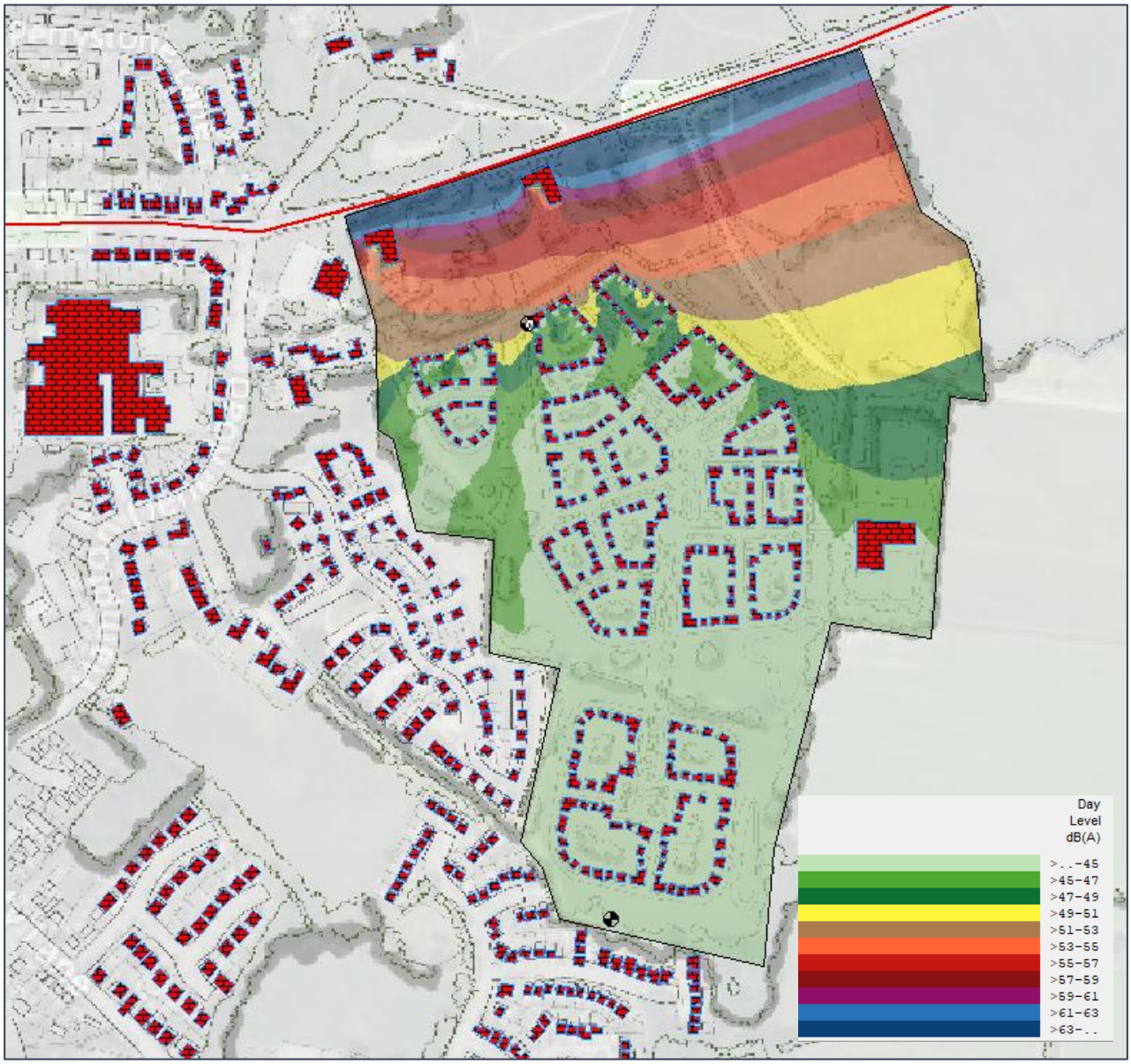
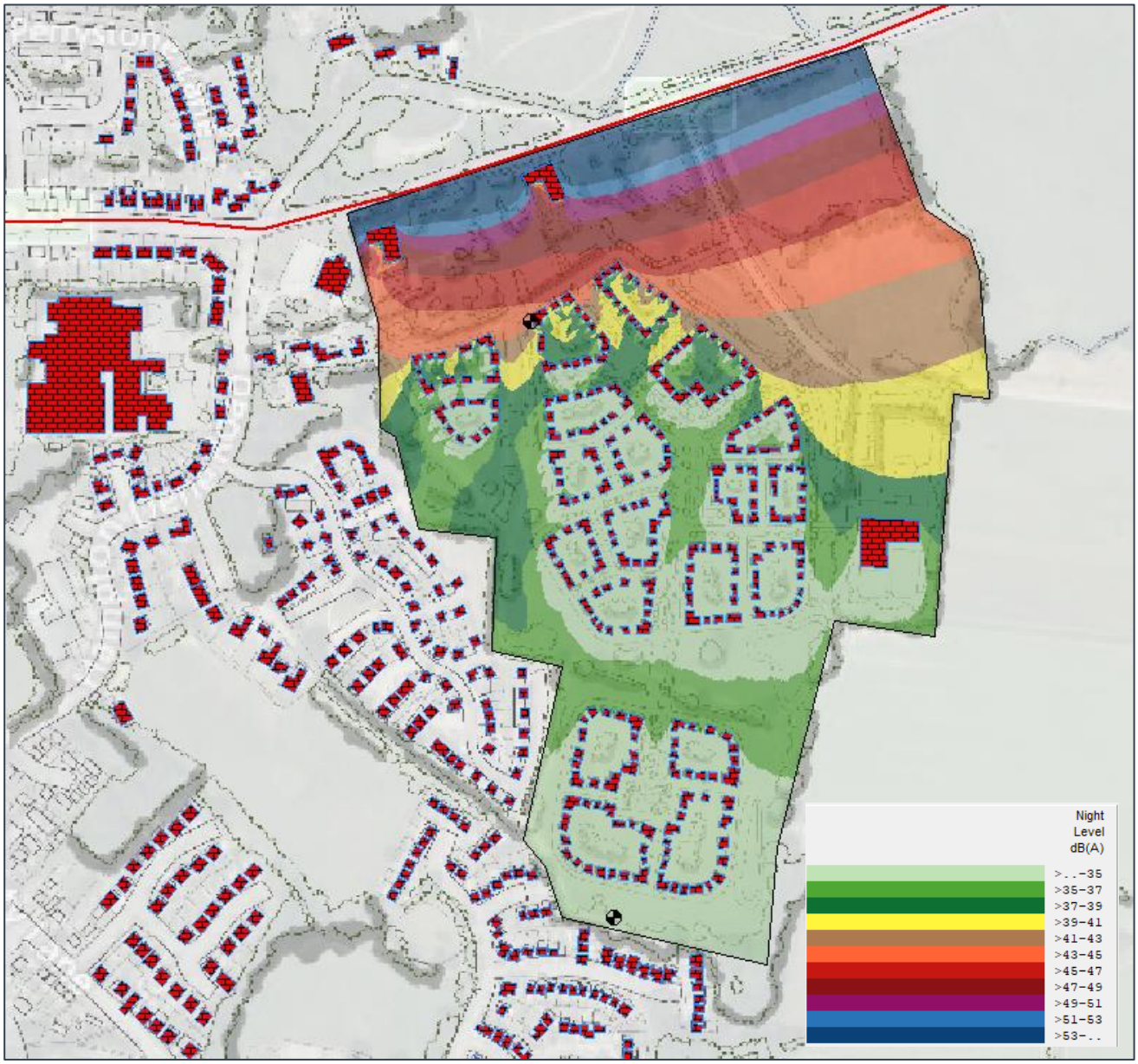


Figure 5.2 Predicted Night-time Noise Levels



5.11 For internal noise levels, a partially open window typically provides up to 15dB sound reduction between outside and inside. As set out in BS8233, internal noise levels during the day should be less than 35dB L_{Aeq} and 30dB L_{Aeq} during the night. Therefore, a level at the façade of less than 50dB during the day or 45dB during the night would achieve acceptable internal noise levels with an open window.

5.12 The results presented in **Figures 5.1** and **5.2** indicate that a selection of properties with facades directed towards the A438 to the northern of the Site would be subject to noise levels in excess of the above guideline values during the daytime and night-time periods. These are the facades within the brown, orange and red noise contours.

5.13 In developing the detailed masterplan it is therefore recommended that, where possible, habitable rooms within these properties should not face towards the A438.

5.14 Notwithstanding, facades that exceed the above guideline would require the installation of a suitable glazing unit and alternative ventilation to achieve acceptable internal noise levels in habitable rooms.

5.15 Windows do not reduce noise equally across the entire frequency spectrum, so the frequency content of the sound will influence the overall sound reduction performance of a given window and by extension, the resulting noise levels within the receiving room.

5.16 However, many glazing manufacturers test their products under laboratory conditions using a typical road traffic noise frequency spectrum source. The resultant measured noise attenuation, in dB, gives a very useful guide to in-situ sound reduction performance of the window for situations where road traffic noise dominates. This performance index is known as the $R_w + C_{tr}$ dB noise level.

5.17 A standard double-glazed unit suitable for thermal insulation would achieve a sound reduction of approximately 26dB $R_w + C_{tr}$. This would be suitable to achieve acceptable internal noise levels across the Site.

5.18 Furthermore, the above specification on the facades overlooking the roads would be suitable to reduce maximum noise levels during the night-time period to less than 10 occurrences in excess of 45dB.

5.19 Where a closed window would be required for internal noise level limits to be achieved, alternative ventilation (to an open window), will be needed to comply with the requirements of the Building Regulations Approved Document F.

5.20 The acoustic performance of ventilators is often referred to as a $D_{n,e,w}$ figure, which is the weighted element-normalized level difference that applies to small building elements with a surface area of less than $1m^2$.

5.21 On average, the $D_{n,e,w}$ value is typically 6dB more than the R_w index. Therefore, a $D_{n,e,w}$ of 31dB would be required. An example ventilator to achieve 31dB would be a Greenwood Slotvent 4000S. Alternative ventilators are available and can be determined during detailed design.

5.22 No further mitigation is considered necessary to achieve acceptable internal noise levels.

External Amenity Noise Levels

5.23 As shown in **Figure 5.1**, noise levels across the development are generally below 55dB L_{Aeq} with areas considered to be for outdoor amenity less than the 50dB L_{Aeq} guidelines. For outdoor amenity areas, BS8233 recommends levels below 50dB L_{Aeq} with an upper limit of 55dB L_{Aeq}.

5.24 Therefore, it is not considered that further noise mitigation will be required to these areas.

Development Related Road Traffic

5.25 Increases in road traffic on the surrounding road network as a result of the proposed development has the potential to impact on existing noise-sensitive receptors. An assessment has therefore been undertaken to consider the increase in noise between the ‘without development’ and ‘with development’ scenarios for the opening year.

5.26 Traffic data were obtained for the above scenarios from Rappor, the Project Transport Consultants.

5.27 The calculation methodology presented in the Calculation of Road Traffic Noise (CRTN) has been followed to calculate the change in Basic Noise Level (BNL) with the results presented in **Table 5.1** below.

Road Link	Description	Opening Year (2025) Without Development	Opening Year (2025) With Development	Percentage Change (%)	Change in BNL, dB
A438	East of Site	8752	9805	12	0.5
A438	West of Site	8750	9991	14	0.6
A438 Ledbury Road	East of Folly Lane	9865	10714	9	0.4
Folly Lane	-	6145	6403	4	0.2

Table 5.1 Change in Road Traffic Noise

5.28 As can be seen from **Table 5.1**, the development would result in a worst-case increase in the BNL of 0.6dB. A change of 1dB is not considered perceptible and therefore not significant.

5.29 Based on the above, changes in road traffic noise as a result of the proposed development will not cause an adverse impact.

Commercial/Industrial Noise

5.30 During the consultation, the EHO highlighted the potential impact from the AD plant located to the south east of the proposed development. This was considered during the survey but was found to be inaudible and therefore no further assessment is considered necessary.

5.31 The proposed commercial units to the northern boundary of the proposed development, including the farm shop, and the potential school have the potential to impact on both existing and proposed noise-sensitive receptors.

5.32 Details of noise sources associated with these aspects of the proposed development will not be available until the detailed design. Therefore, an assessment is not possible at this stage. However, the results of the baseline survey have been considered to set appropriate noise limits to minimise potential adverse impact.

5.33 In accordance with BS4142, a rating level of less than or equal to the background sound level would result in a low impact. For the daytime (07:00 – 23:00), a background sound level of 39dB L_{A90} is considered representative of the area whilst during the night-time period (23:00 – 07:00), a background sound level of 26dB L_{A90} is considered representative.

5.34 Provided the commercial units can be designed to achieve a rating level not in excess of the above background sound levels then there would be a low impact on noise-sensitive receptors.

5.35 The above background sound levels should also be taken into consideration with any proposed renewables associated with the development.

6 Summary and Conclusions

Summary

6.1 Rappor have been instructed by STL Group to undertake a Noise Assessment in support of a planning application for a proposed mixed-use development on land to the east of Hereford.

6.2 The outline planning application is for the demolition of existing buildings and structures and the erection of up to 350 dwellings (including affordable housing), a farm shop and cafe, employment workspaces, and land for a potential primary school, along with associated parking, access roads, walking and cycling routes, public open space, landscaping, sustainable urban drainage and other associated works, site clearance and infrastructure. All matters reserved except for the means of access into the site.

6.3 With the provision of good acoustic design, suitable internal and external noise levels can be achieved across the development.

6.4 During the detailed design, plant associated with the commercial units should be selected in order that the rating level does not exceed the background sound level as defined in BS4142.

Conclusions

6.5 Rappor concludes that based on the results of the noise assessment, it is considered that noise does not represent a material constraint to the development.

Appendix A – Acoustic Terminology

Glossary of Acoustic Terminology

Term	Description
Ambient Sound Level, $L_{Aeq,\ T}$	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T
Background Sound Level, $L_{A90,T}$	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels
Specific Sound Level	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr
Rating level, $L_{Ar,Tr}$	Specific sound level plus any adjustment for the characteristic features of the sound

Appendix B – Monitoring Equipment

Details of Monitoring Equipment

Location	Item Description	Serial Number
1	Svantek SV307A Class 1 Sound Level Meter	116148
2	Svantek SV307A Class 1 Sound Level Meter	116137
All	Svantek SV36 Acoustic Calibrator	122250

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