

PROPOSED DOG DAY CARE AT 17 RHOS BERSE ROAD, COEDPOETH
NOISE IMPACT ASSESSMENT

On behalf of:
Pawclub

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1.0 INTRODUCTION

- 1.1 Hepworth Acoustics Ltd was commissioned by Pawclub to carry out a noise impact assessment in connection with a planning application for a proposed dog day-care business at 17 Rhos Berse Road, Coedpoeth near Wrexham. The site location is shown on Figure 1.
- 1.2 No. 17 Rhos Berse Road is a private dwelling with 4.5 acres of land along with a detached garage. The application site forms part of 17 Rhos Berse lying to the east of the dwelling and adjacent to Rhos Berse Road. The nearest dwellings are those opposite the site at 12 to 14 Rhos Berse Road.
- 1.3 The proposal includes a change of use of an existing garage to a 'doggy' day care building and all associated works. Externally the building will remain the same, internally dog bays will be introduced to ensure that the dogs are secure and separated when required. There is a paddock adjacent to the building which will be used as a walking and outdoor play area for the dogs at their allotted times. The existing agricultural fencing around the paddock will be retained to ensure that all dogs are safe and secure. The proposed layout of the development is shown in Figure 2.
- 1.4 The business will be operated and staffed by at least two experienced dog handlers and will trade between 08:00 – 17:00 Monday to Friday, however this includes the collection and drop off service which means effectively that dogs will only be on site between 10:00 and 15:30 hours. There will be no weekend or overnight accommodation provided.
- 1.5 The noise assessment has included:
- An inspection of the site and surrounding area;
 - Measurement of baseline noise levels at a location representative of the nearest dwellings;
 - Assessment of potential noise impact;
 - Recommendation of appropriate noise mitigation measures.
- 1.6 The various noise units and indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

2.0 GUIDANCE

Planning Policy Wales: Edition 11 (Feb 2021)

- 2.1 Planning Policy Wales (PPW) 2021 6.7.7 states that *“To assist decision making it will be important that the most appropriate level of information is provided and it may be necessary for a technical noise assessment to be undertaken by a suitably qualified and competent person on behalf of the developer.”*

Planning Guidance (Wales), Technical Advice Note (Wales) 11, Noise (Oct 1997)

- 2.2 There is no specific or relevant guidance on numerical acoustic assessment criteria provided in the PPW, that can be applied to noise from barking dogs.
- 2.3 Technical Advice Note 11 (TAN 11) 8 states that *“Local planning authorities must ensure that noise generating development does not cause an unacceptable degree of disturbance.”*
- 2.4 TAN 11 refers to the two most often used British Standards that relate to controlling environmental noise but both are not applicable in this particular case. The scope of the first standard, British Standard 4142:2014+A1:2019 *“Methods for rating and assessing industrial and commercial sound”*, applies only to sound of an industrial nature and specifically excludes noise from domestic animals. The second standard, British Standard 8233:2014 *“Guidance on sound insulation and noise reduction for buildings”*, offers no specific guidance in considering the affect of noise from barking dogs.

3.0 NOISE SURVEY

- 3.1 Environmental noise monitoring was carried out at a location representative of the nearest dwellings to the proposed development. The purpose of the survey was to establish the prevailing noise climate of the area. The monitoring location is indicated in Figure 1.
- 3.2 Noise measurements were taken for a representative off-peak time of day in consecutive 15-minute periods between approximately 10:30 and 12:20 hours on Thursday 12 January 2023. The noise measurements were taken in 'free-field' conditions and at a microphone height of approximately 1.5m above the ground.
- 3.3 The noise measurements were taken in terms of consecutive 15-minute periods in 'free-field' conditions and at a microphone height of approximately 1.4 m above the ground. Calibration checks were carried out both before and after the measurement period with no variance in levels noted. Frequency analysis was also carried out.
- 3.4 The weather conditions during the noise survey were considered acceptable for the purposes of the survey and subsequent assessment.
- 3.5 The results of the noise measurements are summarised in Table 1 and the full results of the noise survey are shown in Appendix II.

Table 1: Summary of Noise Levels Measured (dB)

Location	$L_{Aeq,15\text{ min}}$	$L_{A90,15\text{ min}}$
13 Rhos Berse Road	50 – 55	42 – 44

- 3.6 During survey, the noise climate of the area was due to occasional vehicles on Rhos Berse Road, birdsong, leaf rustle and distant road traffic.

Source Noise Measurements

- 3.7 During the ambient/background survey it was noted that there were professional dog walkers using a nearby field to walk approximately 10-12 dogs of varying breeds. The dogs accompanied by the walkers were in the field for approximately 20 minutes. During this time, while observing from afar, there was very little barking. Indeed, the noise levels measured at the baseline noise survey location (as reported in Table 1 and Appendix II) were due to occasional passing traffic, birds, distant traffic, etc. and not due to any barking dogs.

- 3.8 However, in between survey periods when the noise surveyor approached the dog walkers some of the dogs did bark and therefore the opportunity was taken to carry out some separate measurements of any noise from the dogs at positions close to the dogs in the field.
- 3.9 The dog barking noise levels were measured in terms of the 'sound exposure level' (L_{AE}). L_{AE} is the total sound energy generated by a discrete noise event (in this case dog barking) normalised to a 1 second duration. The approach of using L_{AE} values for discrete events is useful for calculating equivalent noise levels in $L_{Aeq,T}$ over a longer period (e.g. for a known or assumed number of events over a longer period).
- 3.10 The measured L_{AE} values for the dog barking as described above, and used subsequently in the assessment, are shown in Table 2 below. The values have been standardised to a distance of 1 metre.

Table 2: Summary of Measured Dog Barking Sound Levels at 1 metre (dB)

Source	L_{AE}
Dogs barking	86 – 88

- 3.11 These source noise levels (and corresponding octave band levels, where appropriate) have been used in calculations to determine the likely noise levels in terms of $L_{Aeq,T}$ outside the nearest dwellings resulting from dogs barking at the proposed day care centre.

4.0 NOISE ASSESSMENT

- 4.1 In terms of the potential noise impact of the proposed development, the following issues need to be considered:-
- Potential noise break out from the day care building;
 - noise associated with dogs outdoors in the exercise area;
- 4.2 The proposed day care building is a single storey timber frame construction clad with solid timber boards and a slate roof. A ceiling is fitted within the main care space of timber board with insulation above. The building is to be fully enclosed with no outdoor runs except for the attended exercise space. Therefore, providing that windows are kept closed, and doors of the building remain closed except for access and egress, the noise level at the nearest dwellings resulting from dogs barking inside the building can be expected to be insignificant.
- 4.3 Therefore, our assessment focuses primarily on any noise impact from dogs using the outdoor exercise/paddock area. Likely noise levels have been calculated for the nearest dwellings and compared with the measured existing ambient noise levels.
- 4.4 The control of noise has been an important consideration as set out within the planning/justification statement accompanying the application. It is proposed to limit the occupancy to a maximum of 10 dogs per single day. There will be no weekend or overnight accommodation provided. Only dogs that pass an initial consultation where behavioural traits are assessed and suitability is achieved, will be allowed to attend the day-care. Any dog which displays unwanted persistent barking will not be allowed to attend.
- 4.5 The business will be operated and staffed by at least two experienced dog handlers and will trade between 08:00 – 17:00 hours Monday to Friday. However, it is proposed to collect the dogs during the morning period with the van arriving back at the site around 10:00 hours, the drop off journey being made around 15:30 hours. Therefore, the dogs will only be on site for five and half hours in total.

Noise from Barking Dogs

- 4.6 In order to determine the likely noise levels outside the nearest dwellings, calculations have been undertaken based on the measured L_{AE} noise source levels.

4.7 The equivalent continuous one-hour noise levels have been calculated from the L_{AE} values as follows:

$$L_{Aeq,T} = L_{AE} + 10 \log N - 10 \log T$$

where $L_{Aeq,T} = L_{Aeq}$ over time period T

L_{AE} = 'Sound Exposure Level'

N = Number of events in time period T

T = Time period in seconds, (i.e. 3600s for a 1 hour period)

4.8 The resulting $L_{Aeq,T}$ values have been calculated in the front gardens of the nearest dwellings based on a set of parameters to represent a possible worst-case scenario and considering the following:

- 10 dogs equally spaced throughout the field (i.e. ranging from 50m to 82m distance to reference point of the front garden of the nearest dwelling), acknowledging that some, but unlikely all, dogs may bark close to the boundary nearest to residences;
- Each dog barking for a cumulative period of 30 seconds in each hour, i.e. this could be a single continuous 30 second period, or more likely a number of shorter bursts of barking totalling 30 seconds overall;
- A robust reference noise level of 88 dB L_{AE} at 1 metre for a single forward-facing dog barking;
- For a cautious assessment no allowance for air/ground absorption of sound.

4.9 It is considered that the above represents a fair set of assumptions for the purposes of robust assessment of worst-case potential impact. It is stressed that this is reflective of a single set of circumstances only, and it is anticipated that usually the overall barking noise levels, and hence the noise impact at residences, will be lower. Based on the above the resulting noise level are shown in Table 3 below:

Table 3: Calculated Likely Noise Levels from dogs barking in paddock (dB)

Location	$L_{Aeq,1hr}$
In the front garden of 15 Rhos Berse Road	53

4.10 The predicted worst case noise level from barking dogs is 53 $L_{Aeq,1hr}$ which is within the measured range of existing ambient noise levels (i.e. 50 – 55 dB $L_{Aeq,15mins}$) measured during the noise survey near to dwellings in Rhos Berse Road. This is of course a worst-case scenario, and the vast majority of the time fields the dogs are not presented with unfamiliar animals or situations which can give rise to barking.

- 4.11 Given the characteristics of dog barking noise, which would be at times distinguishable against the background road traffic noise climate, it is still the case that dog barking may be audible at the nearby residences very occasionally.
- 4.12 However, the area is used extensively for walking and dog walking, it was noted during the survey that a number of people were out walking dogs along Rhose Berse Road and in the nearby fields. Therefore, dog barking would not be considered a new/unusual type of noise in the area.
- 4.13 Taking all of the above into account, however, as well as the daytime-only operational hours, it is concluded that operation of the proposed development does not pose a significant risk to amenity of nearby residences by reason of noise. The usual tendency of dogs during exercise sessions is to run and play, but not to bark to any significant extent.
- 4.14 To minimise further the likelihood of barking noise, it is recommended that a Noise Management Plan be prepared by the operators, setting out the general measures to be adopted in the control and supervision of the dogs to ensure that barking is minimised. We would recommend the following to ensure best practise in minimising barking from dogs.
- Feeding of dogs should be done in such a way to not cause undue stress/excitement (i.e. all food should be pre-prepared and delivered at the same time);
 - Windows and doors should remain shut wherever possible. However, should ventilation be required, an alternative and acoustically treated method to opening windows or doors would be needed to be incorporated that does not compromise the overall sound insulation of the building. In this instance, we recommend that the requirement for alternative ventilation is assessed following planning approval should it be required;
 - Dogs should not be required to wait outside the building on arrival. Instead, any waiting dogs should do so within the building in order to minimise as far as practicable the time spent outside when arriving at the site;
 - As proposed, any dogs moved to the external area should be monitored at all times. Any barking dogs should be calmed or taken inside the building.

Planning Condition

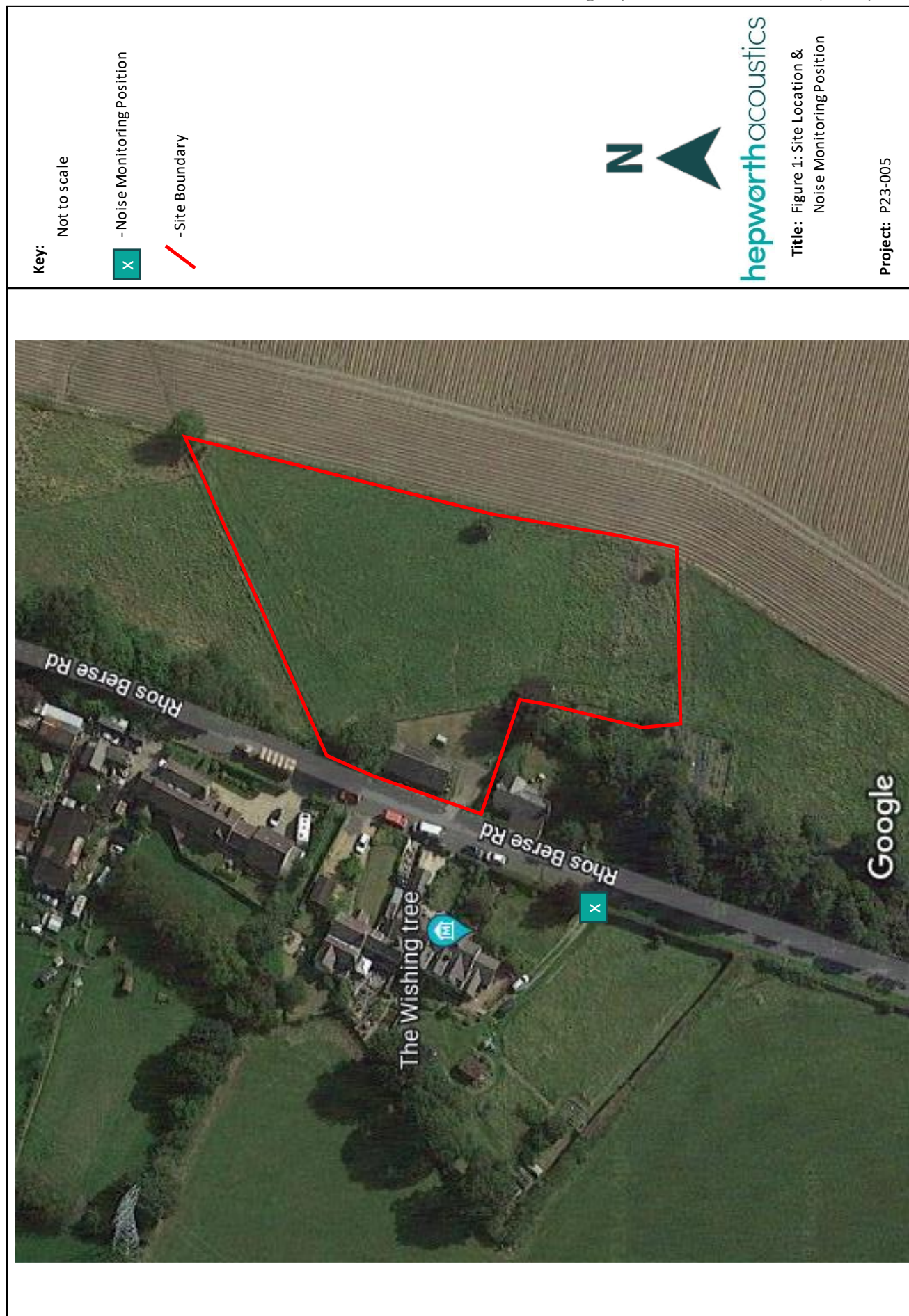
- 4.15 The need to ensure that adequate control of noise by a noise management plan can be formalised by an appropriately worded planning condition that requires a details to be submitted to, and approved by, the local planning authority prior to the commencement of the site use.

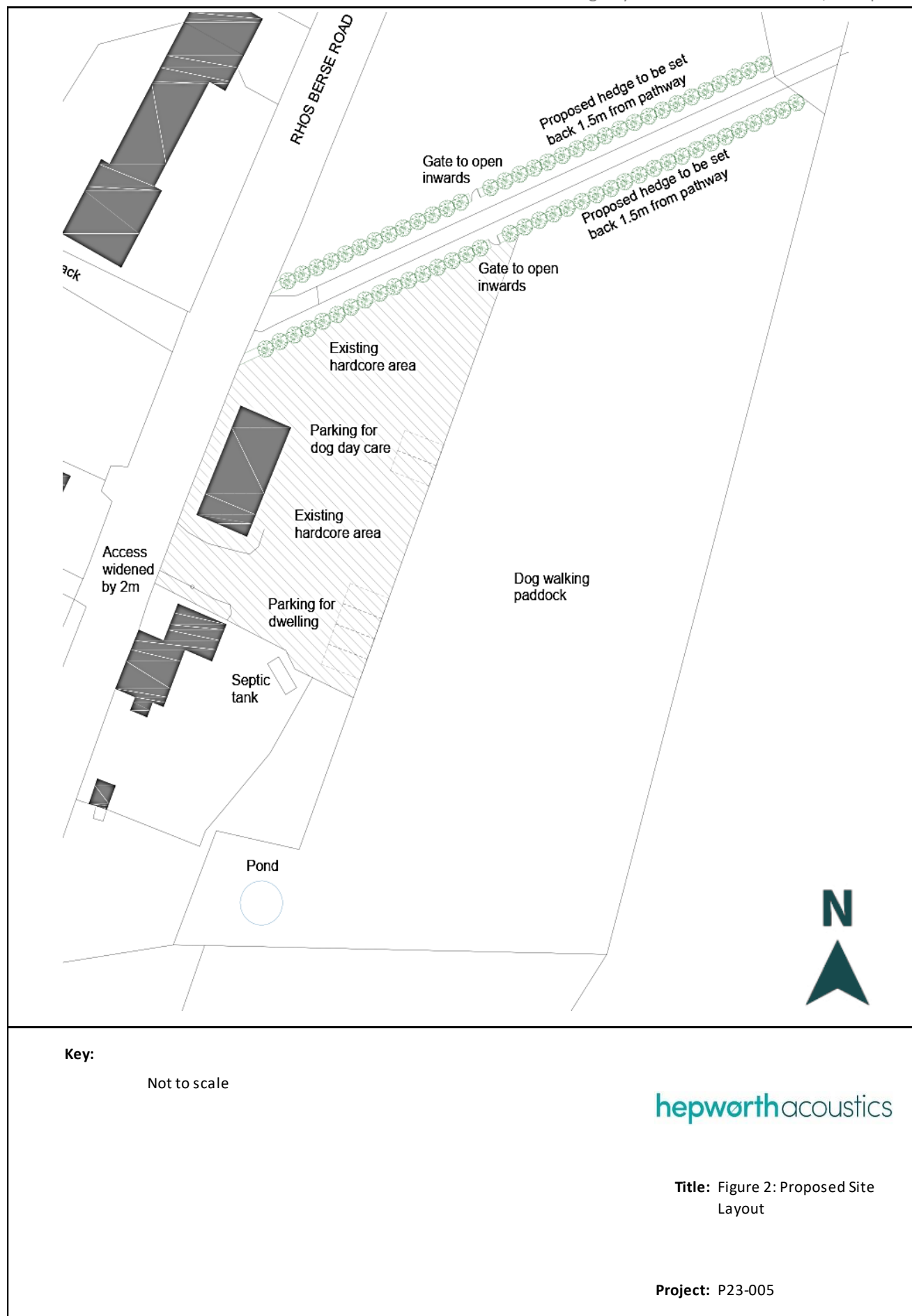
Conclusion

- 4.16 We conclude that the operation of the proposed development would not result in any unacceptable harm to residential amenity by reason of noise disturbance.

5.0 SUMMARY

- 5.1 The impact of noise has been assessed for a proposed dog day care facility at 17 Rhos Berse Road, Coedpoeth, Wrexham.
- 5.2 A noise survey has been carried out to determine existing noise levels at locations representative of the nearest dwelling where any potential noise impact would be at its highest.
- 5.3 Calculations have been carried out to assist with assessment of the likely noise impact.
- 5.4 It has been concluded that there will be no significant impact associated with dogs barking at the nearest dwellings.
- 5.5 A number of recommendations have been made to ensure that noise impact is adequately controlled.





Appendix I: Noise Units & Indices

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The indices used in this report are described below.

$D_{n,e,w}$ This is the weighted element normalized level difference as measured in a laboratory, and is a measure of the sound insulation properties of small building elements such as ventilators.

$L_{Aeq,T}$ This is the A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, $L_{Aeq,T}$ is the level of a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for all forms of environmental noise.

L_{AFmax} This is the maximum A-weighted noise level that was recorded during the measurement period in terms of 'Fast' time weighting.

$L_{A90,T}$ This is the A-weighted noise level exceeded for 90% of the time period. $L_{A90,T}$ is used as a measure of background noise.

L_{AE} This is the A-weighted 'Sound Exposure Level' which is used for measuring discrete noise events. Essentially it is a measure of the sound energy of the whole noise event normalised to a period of 1 second. The SEL value can be used to calculate the actual L_{Aeq} value for a given time period if the number of noise events is known.

Appendix II: Noise Survey Results

Date(s):	Thursday 12 January 2023
Equipment	B&K 2260 'Type 1' sound analyser (serial no. 2467016) with tripod and associated calibrator
Weather	Dry, ~9°C, clear skies and SW breeze <4 m/s with occasional gusts

All levels in dB(A)

Location : 13 Rhos Berse Road

Time		Measured Noise Levels (dB)			Comments
Start	End	L_{AFmax}	$L_{Aeq,T}$	$L_{A90,T}$	
10:30	10:45	75.2	53.4	42.4	Occasional road traffic on Rhos Berse Road, peaks of noise due to passing vehicles, birdsong, leaf rustle
10:46	11:01	80.6	54.7	41.8	
11:01	11:16	81.4	53.9	44.2	
11:47	12:02	80.3	54.3	44.4	
12:02	12:17	71.1	50.4	43.8	