



REPORT

NOISE IMPACT ASSESSMENT
TO SUPPORT REVISED PLANNING APPLICATION: 24/02636/FP

SITE ADDRESS

WELWYN EQUESTRIAN CENTRE, ARNOLDS FARM,
POTTERSHEATH ROAD, POTTERSHEATH, WELWYN, HERTFORDSHIRE, AL6 9SZ



REFERENCE

HA/AH489/V1.1

HEALTHY ABODE ACOUSTICS
BUILDING ACOUSTICIANS & ENVIRONMENTAL NOISE CONSULTANTS

Our Ref HA/AH489/V1.1
Site Address Welwyn Equestrian Centre, Arnolds Farm Pottersheath Road Welwyn,
Hertfordshire, AL6 9SZ
For Welwyn Equestrian Centre
Date of Report 30 July 2025
Site Acoustician Mr Ian Gorton MSc BA (Hons) AMIOA
Author Mr Ian Gorton MSc BA (Hons) AMIOA
Checked by Mr Stuart Nixon MSc BSc (Hons) MIOA MCIEH



Healthy Abode Ltd t/a HA Acoustics
Company No. 07429355 (England & Wales)
Office Address: Healthy Abode Ltd t/a HA Acoustics, HIC113 ARU Arise, Science Park, Maypole Boulevard,
Harlow, Essex, CM17 9TX
Registered Business Address: Abacus House. 68a North Street, Romford, London, RM1 1DA
E-mail: info@HA-acoustics.co.uk
Website: www.HA-acoustics.co.uk
Telephone: (Chelmsford) 01245 206 250

This report has been prepared by Healthy Abode Limited t/a HA Acoustics with all reasonable expertise, care and diligence. The survey and report has been undertaken in accordance with accepted acoustic consultancy principles, it takes account of the services and terms and conditions agreed verbally and in writing between HA Acoustics and our client. Any information provided by third parties and referenced is considered to have undergone suitably thorough third-party checks to ensure accuracy. We can accept no liability for errors with a third-party data. This report is confidential to our client and therefore HA Acoustics accepts no responsibility whatsoever to third parties unless formally agreed in writing by HA Acoustics. Any such party relies upon the report at their own risk.

SUMMARY

- Healthy Abode Ltd t/a as HA Acoustics were commissioned to conduct a noise assessment of the yard at Welwyn Equestrian Centre, Arnolds Farm Pottersheath Road Welwyn, Hertfordshire, AL6 9SZ, to provide evidence for the Planning Officer to base a decision upon.
- HA Acoustics has undertaken an environmental noise survey and assessment at the site in line with the guidance contained in British Standard (BS) 8233:2014. The environmental noise survey was undertaken between Wednesday 9th July and Wednesday 16th July 2025 at two fixed secure monitoring positions in order to determine prevailing ambient, background and maximum noise levels that are representative of the yard and the proposed cottage.
- The results of the noise survey are considered reasonable given the location of the measurement position and the existing noise sources in the local vicinity. The representative time-averaged ambient and night-time maximum noise levels have been calculated at:
 - Position 1: 52dB L_{Aeq} daytime, 49dB L_{Aeq} night time, and 67dB L_{Amax,F,NNE},
 - Position 2: 52dB L_{Aeq} daytime, 50dB L_{Aeq} night time, and 67dB L_{Amax,F,NNE}
- The assessment has indicated that internal noise levels within the proposed development are predicted to meet the guideline noise criteria contained in BS 8233:2014 provided the identified appropriate minimum specified glazing, ventilation and façade materials are installed to a good manner of workmanship.
- At the time of composing the report the exact specifications of the construction/build of the proposal have not been finalised. Recommendations provided in respect to sound insulation of the building have been proposed based on achieving the desired internal noise levels in BS 8233:2014.
- Noise levels in the yard are no higher than any residential area. The client explained that the yard is kept quiet for the welfare of the horses. The Acoustician's subjective observations from attended monitoring are that the sounds, smells and calmness that the yard staff and the horses create make for an endearing and healthy place to live.

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1. INTRODUCTION

1.1. Following a refused retrospective planning application to convert 4 stables into 2 residential cottages new plans are to be submitted to address the concerns of the Planning Officer. Primarily that the 2 cottages will be knocked through into 1 dwelling. Among other improvements (amenity space, bin storage, natural light) HA Acoustics were commissioned to assess the noise environment, if the planning officers concern is justified and if specialist building materials can be employed in the improved design.

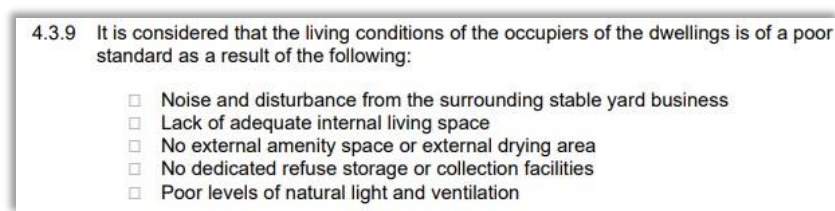


Figure 1.1 - Planning Officers refusal concerns¹

1.2. The purposes of this report are:

- i. To present the results of a robust 7-day noise survey.
- ii. To present desired internal noise levels to be achieved within the residential premises in accordance with BS 8233:2014, and
- iii. To detail appropriate sound insulation requirements for the purposes of mitigating noise caused by prevailing and potential noise sources such that internal noise levels are achieved.

¹ https://documentportal.north-herts.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=FBC88BCF1EB54305A2201FA1F0267CAA

2. SITE DESCRIPTION AND OBSERVATIONS

- 2.1. The proposed dwelling is to be known as the Old Barn Cottage. Located at Welwyn Equestrian Centre, Arnolds Farm Pottersheath Road Welwyn, Hertfordshire, AL6 9SZ (hereafter referred to as 'the site'). It is located within the tarmac'd courtyard of the Welwyn Equestrian Centre. Cars and horseboxes arrive by an automatic gate to the south-east and pass by the proposed dwelling to the car park in the north-west.
- 2.2. The site is located within a rural area with the village of Pottersheath between it and the A1(M) 6km to the east.
- 2.3. The stables are tended by professionals who keep the small yard clean and keep noise to a minimum for the welfare of the horses. (they apparently become restless if a vehicle is idling for example) The staff therefore keep the quad and small tractor to the arena side of the operation (by the car park in the north-west).
- 2.4. A weekly delivery of hay involving a tractor and trailer and telehandler is scheduled on a Tuesday that takes <30mins. Other than this the Acoustician was assured that no other vehicles operate in the yard apart from the horse-owners cars and horseboxes (generally confined to weekends for meets). An electric near-silent golf buggy is used by the owners of the centre.
- 2.5. Nearby 13 homes were built in 2018 on the adjacent land to the north-east (Planning ref: 16/02967/1) in which no concern of stables operational noise was made.

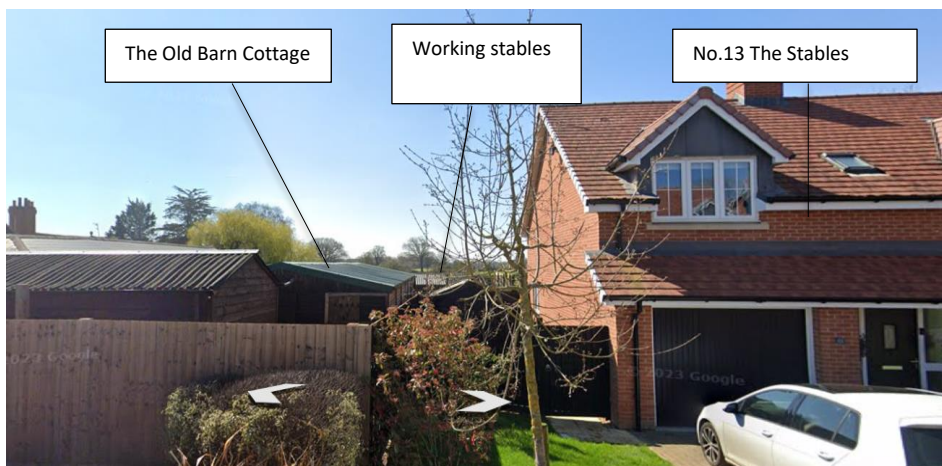


Figure 2.1 - proximity of adjacent housing to the yard

3. NOISE GUIDANCE AND CRITERIA

Local Authority

- 3.1. The proposed site lies within the jurisdiction of the Local Authority, North Herts Council.

National Planning Policy Framework (December 2024)

- 3.2. In March 2012, the National Planning Policy Framework (NPPF) came into force and was revised in 2019, 2021, 2023 and 2024. This document replaces a great many planning guidance documents, which previously informed the planning system in England.

- 3.3. The NPPF (2024) sets out the Government's economic, environmental and social planning policies for England and these policies articulate the Government's vision of sustainable development.

- 3.4. The Noise Policy Statement for England (NPSE) published 2010 applies to 'all forms of noise, including environmental noise, neighbour noise and neighbourhood noise'.

- 3.5. Paragraph 198 of the NPPF (2024) considers noise, stating:

"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 impacts 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; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."*

- 3.6. National Planning Policy is guided by the NPPF. With regard to noise, the terms 'significant adverse impact' and 'other adverse impacts' are defined in the explanatory notes of the 'Noise Policy Statement for England' (NPSE). These state that there are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

- NOAEL – 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.

3.7. Extending these concepts for the purpose of this NPSE leads to the concept of SOAEL - significant observed adverse effect level. This is the level above which significant adverse effects on health and quality of life occur'. However, no specific noise limits for LOAEL and SOAEL have been defined. Therefore, guidance from other acoustic standards must be employed to determine suitable levels within the overall principal of the National Planning Policy Framework, such as BS 8233:2014.

BS8233:2014

- 3.8. Local Authorities usually stipulate internal noise criteria for new build residential uses based on British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings'.
- 3.9. BS 8233:2014 provides references and guideline values for desirable indoor ambient noise levels for dwellings as shown in Table 3.1 below.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	—
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	—
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 3.1 - BS 8233:2014 Desirable Internal Ambient Noise Levels for Dwellings

- 3.10. The table is noted to apply to external noise as it affects the internal acoustic environment from sources without a specific character. The above internal ambient noise levels are therefore considered appropriate within this assessment.
- 3.11. BS 8233: 2014 states that *'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 an upper guideline value of 55dB LAeq, which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances...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. ENVIRONMENTAL NOISE SURVEY METHODOLOGY

- 4.1. An unattended environmental noise survey was undertaken at two measurement locations (see appendix A). The surveys were undertaken between 12:35 hours on 9th July and 12:45 on 16th July 2025.
- 4.2. Ambient, background and maximum sound pressure level measurements (LAeq, LA90 and L_{Amax},F respectively) were measured throughout the noise survey with continuous recorded 5-minute periods.
- 4.3. The sound level meters (SLM) were mounted approximately 1.5 metres above ground level and were placed as far from reflective surfaces as practical. The position is considered to be in ‘free-field’ conditions so a façade correction has not been applied to the data. The positions were chosen to gain representative noise levels from any noise sources as well as for monitoring equipment security reasons.
- 4.4. The equipment used for the noise survey is summarised in Table 4.1

Equipment	Description	Serial Number
Larson Davis LxT SE	Class 1 sound level meter	4960
377B02 microphone	Class 1 ½" microphone	358490
Larson Davis LxT SE	Class 1 sound level meter	4966
ACO 7063E microphone	Class 1 ½" microphone	85214
Larson Davis CAL200	Class 1 Calibrator	20159

Table 4.1 - Noise Survey Equipment

- 4.5. The noise survey and measurements were conducted, in accordance with BS7445-1:2003 ‘*Description and measurement of environmental noise. Guide to quantities and procedures*’. Measurements were made generally in accordance with ISO 1996-2:2017 ‘*Acoustics – Description, measurement and assessment of environmental noise – Part 2: Determination of environmental noise levels*’.
- 4.6. The noise monitoring equipment used was calibrated before and after the noise survey period. No significant drift was recorded. Equipment calibration certificates can be provided upon request.

Weather Conditions

4.7. Weather conditions were noted to be:

- i. during installation - warm (approx. 20° to 24° Celsius), dry, with clear to cloudy skies 80% cloud cover) and a light wind 7mph (3.1m/s) from the northwest.
- ii. during collection - warm (approx. 20° to 24° Celsius), dry, with cloudy skies 100% cloud cover) and a moderate wind 13mph (6m/s).
- iii. throughout the entire noise survey period -predominantly warm (approx. 20° to 24° Celsius), dry, with clear to cloudy skies (50-75% cloud cover) and a light wind (<5m/s). on the penultimate day there was a summer storm with heavy rain and high winds clearly marked on the Time History graphs, and can be seen in the weather summary below

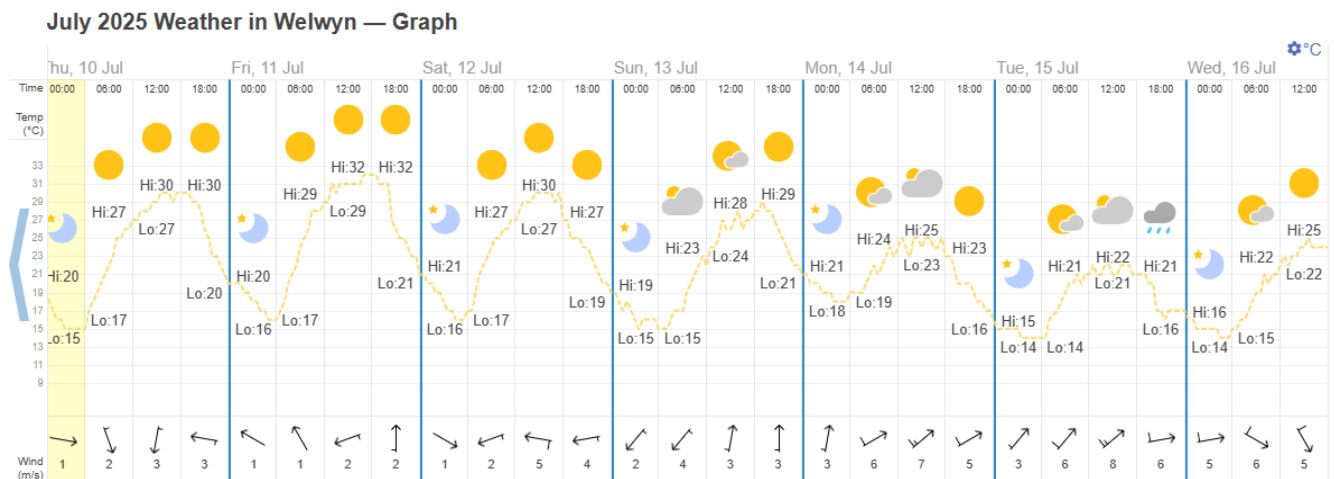


Figure 4.1 - weather data for Northholt, [source:](#)

4.8. These weather conditions were checked against and confirmed by the use of the Met Office. These conditions were generally maintained throughout the whole survey period and are considered reasonable for undertaking environmental noise measurements.

5. NOISE SURVEY RESULTS

5.1. The average-ambient and maximum noise levels at the measurement position during the survey have been based on an analysis of the monitoring data and are summarised in Table 5.1. A time history of the noise monitoring data is provided in Appendix B.

Monitoring Position	Period	Measured External Sound Pressure Level, dB
Position 1 (Stable side)	Daytime (07:00 - 23:00)	52 L_{Aeq}
	Night-time (23:00 - 07:00)	49 L_{Aeq}
		67 $L_{Amax,F,NNE}$
Position 2 (front of cottage)	Daytime (07:00 - 23:00)	52 L_{Aeq}
	Night-time (23:00 - 07:00)	50 L_{Aeq}
		*67 $L_{Amax,F,NNE}$

*10th highest measured noise level

Table 5.1 Noise Survey Results

5.2. BS 8233:2014 does not provide specific guidance on night time $L_{Amax,F}$ criteria therefore maximum levels are based on World Health Organisation (WHO) 'Guideline for Community Noise' (2009) and WHO 'Environmental Noise Guidelines for the European Region' (2018) guidance and ProPG: 2017 guidance:

5.3. It is stated that for suitable sleeping conditions, 45dB $L_{Amax,F}$ should not be exceeded by more than 10-15 times a night within a bedroom. For robustness, the $L_{Amax,F,NNE}$ noise levels presented above is the 'not normally exceeded' (NNE) 10th highest measured between 23:00 and 07:00 hours. This $L_{Amax,F,NNE}$ noise level then needs to be reduced to 45dB internally to comply with the night time internal noise level. i.e. a reduction of 65-45 = 20dB.

6. BUILDING FACADES SUITABILITY

- 6.1. Sound reduction performance calculations have been undertaken to determine the internal noise levels and performance of the glazed and non-glazed elements. The specification has been adopted to achieve the night-time level (23:00 – 07:00 hours) for bedrooms, 30dB $L_{Aeq, 8\text{hour}}$ and for the daytime (07:00 – 23:00) for living rooms, 35dB $L_{Aeq, 16\text{hour}}$. The spectrum of the $L_{Amax, NNE}$ during the night-time period have also been applied to the calculations to confirm the limit of 45 $L_{Amax, F}$, is not regularly exceeded for single events during the night.
- 6.2. Suggested window units and building element specifications other than those provided may be suitable but should be reviewed before purchase or installation. The analysis is provided to demonstrate that a design solution is feasible at the site for the purposes of meeting the requirements of the Local Authority.

Non-Glazed Elements

- 6.3. It is understood that the non-glazed elements of the building will be cladded in thick featherboard with thermal insulation and lined with plasterboard. This construction would need to provide a sound reduction performance of at least the figures shown in Table 6.1 when tested in accordance with BS EN ISO, 140-3:1995.

Element	Octave band centre frequency SRI, dB					
	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz
Non-glazed element featherboard on timber with normal thermal insulation and plasterboard.	22	24	34	40	45	49

Table 6.1 - Non-glazed elements assumed sound reduction performance

- 6.4. The below example of construction provides guidance to a typical wall build which should attenuate external noise such that the internal noise levels are achieved.
- BS 8233 Table E.1A (43to 50dB R_w sound insulation) (d) *“details construction of (75 × 50) mm timber framing using staggered studs at 300 mm spacing with 25 mm stagger forward and back. Frame clad with two layers of 12.5 mm of plasterboard on both sides. Mineral fibre quilt hung between studs. Approximate mass per unit area 36 kg/m².”*

- 6.5. Given the typical extensive build and construction of external walls in accordance with the Building Regulations it is predicted that this element would provide significant attenuation to achieve the internal noise levels.

Roofs

- 6.6. Roofs generally have a lower SRI than masonry façade walls but they are required to reduce noise from external sources. Typical construction and sound insulation values of roofs can be gained from BS 8233:2014, for example a traditional pitched roof with tiles on felt with 100mm mineral wool on plasterboard ceiling has an SRI of approximately 43dB R_w .
- 6.7. Given the typical extensive build and construction of roofs it is predicted that these elements would provide sufficient attenuation to achieve the internal noise levels.

Window Elements

- 6.8. Calculations (Appendix C) show that based on the noise monitoring data obtained, façade materials, room sizes and volumes, a minimum of 31dB R_w noise reduction is required for all glazed elements to be installed.

The performance is specified for the whole window unit, including the frame and other design features such as the inclusion of trickle vents. Sole glass performance data would not demonstrate compliance with this specification. Window performance calculations have been based on the measured L_{Aeq} and $L_{Amax,NNE}$ noise levels as recommended by BS 8233: 2014.

- 6.9. The reference reverberation time of 0.5 second is utilised, as stated in BS8233: 2014 and assumes that the dwelling shall have carpeted, fully furnished, occupied bedroom(s) and living spaces.
- 6.10. The glazing window requirements are listed below in table 6.2. These specifications and their acoustic data on octave band frequencies are provided in Appendix C.

	Glazing and Ventilation Type – Indicative Only
Front façade	R_w 31 dB Double Glazing System (e.g. 4mm Glass – 12mm air gap – 4mm Glass)
	e.g. 27 $D_{n,e,w}$ e.g. Standard Trickle Ventilator

Stable side façade (gable end, SW façade)	R _w 31 dB Double Glazing System (e.g. 4mm Glass – 12mm air gap – 4mm Glass)
	-

**based on approximate room sizes*

Table 6.2 Required window specifications.

Ventilation

6.11. In addition to the glazing requirements, internal noise levels should be considered in the context of room ventilation requirements. At the time of writing, full details regarding a ventilation strategy are not available. Table 6.2 above details a suitable standard trickle ventilator, which provides a sound insulation performance of 27dB $D_{n,e,w}$, which would work in combination with the specified window spectral.

7. EXTERNAL AMENITY SUITABILITY

- 7.1. BS 8233:2014 states that '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 50dB $L_{Aeq,T}$ with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances...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'.
- 7.2. Both microphones (front of cottage & stable side) recorded $L_{Aeq,16hrs}$ of 52dB below the upper guideline value for external amenity given by BS8233.
- 7.3. The client highlighted that the yard staff keep the area quiet for the sake of the horses as was observed at time of attended monitoring.

8. CONCLUSION

- 8.1. An improved design for the Old Barn Cottage is to be submitted for planning permission. the Cottage sits within the yard of Welwyn Equestrian Centre where the client advises that noise is kept to a minimum for the sake of the horses. Cars and occasional heavier vehicles slowly pass by en-route to the car park 85m to the north.
- 8.2. Welwyn Equestrian Centre is a small operation; the car park is 50m long with capacity for approx. 20 vehicles. The yard staff have a quad and a small tractor that mostly stay at the arena (away from the Old Barn Cottage) the owners of the Centre use an electric golf buggy.
- 8.3. A noise survey and assessment has been undertaken for the proposed development in support of improved design ref: 24/02636/FP Existing noise levels at the site have been measured and compared to relevant standards and guidance.
- 8.4. A minimum of 31dB Rw noise reduction is required for all glazed elements to be installed into the proposed building. Window calculations have been carried out and the requirements identified. Passive vents to provide ventilation are available that meet or exceed the sound reduction required by the window elements and can be constructed into the proposal accordingly.
- 8.5. With appropriate sound insulation window measures and building construction as exemplified within this report the proposed residential premises is more than capable of achieving the guideline internal noise criteria contained in BS 8233:2014.
- 8.6. Irrespective of decibel levels, the yard at Welwyn Equestrian Centre is a pleasant environment. The occasional “clip-clop”, the smells and calmness that the yard staff and the horses create provide a wonderful and endearing place to live for a ‘horsey’ person or otherwise. The occasional vehicle passes (always slow moving) are no noisier than a normal street and the types of vehicles are no different to that of delivery vehicles on any residential street
- 8.7. The Acoustician concluded in their attended observations that having spent time in the yard and analysing the 7-days of noise data, that they see no reason to uphold the Planning Officers concern of excessive noise, and found the calmness that the environment creates provides a very good environment in which to reside.

Appendix A – Site Plan (SP1)

Source: [Google Earth](#); date: 10/4/2020



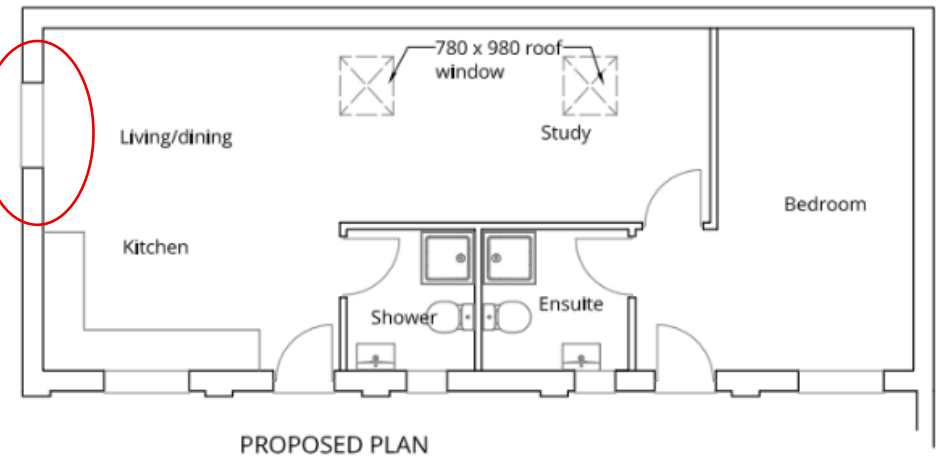
Key:

Noise Monitoring Position 

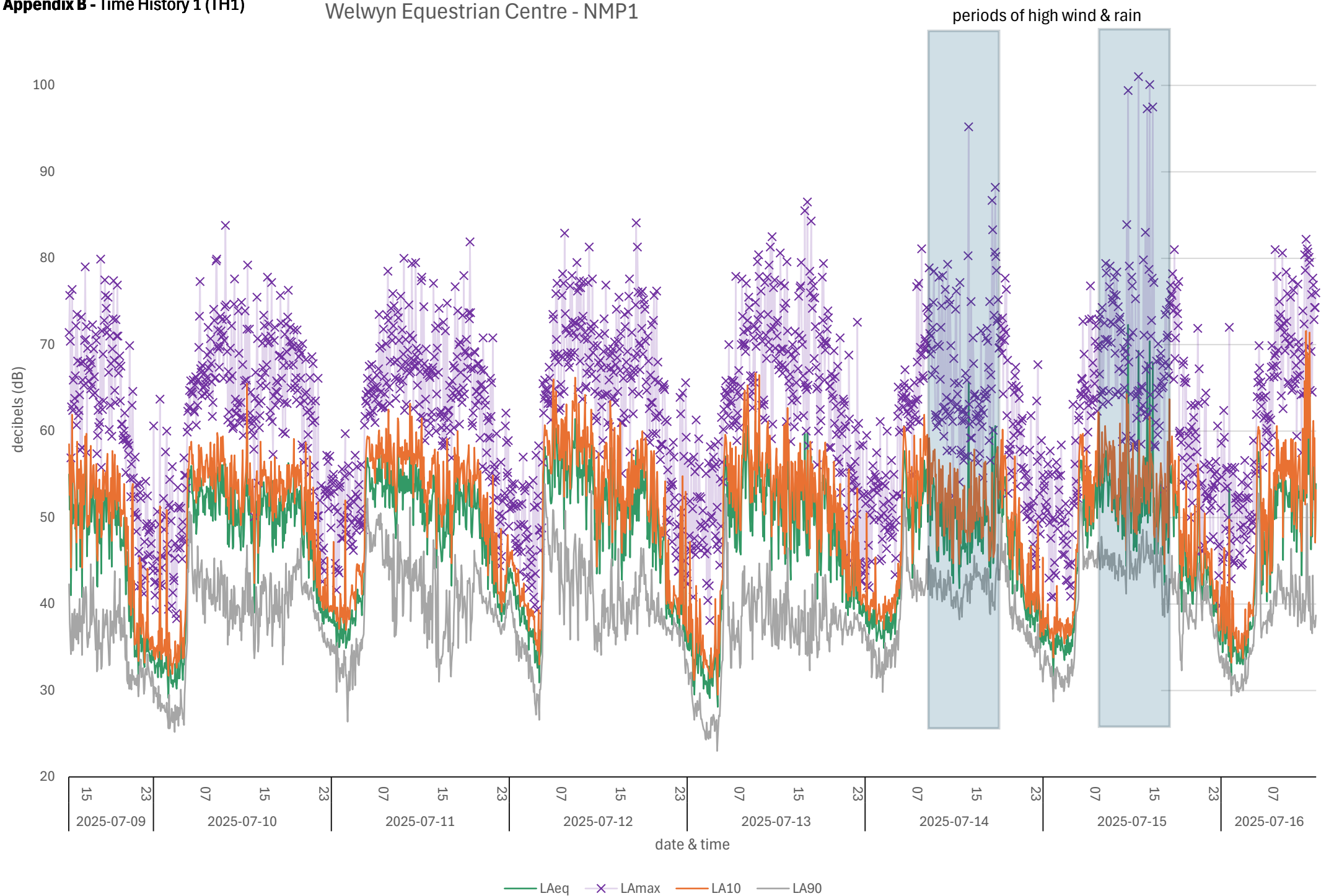
The Old Barn 



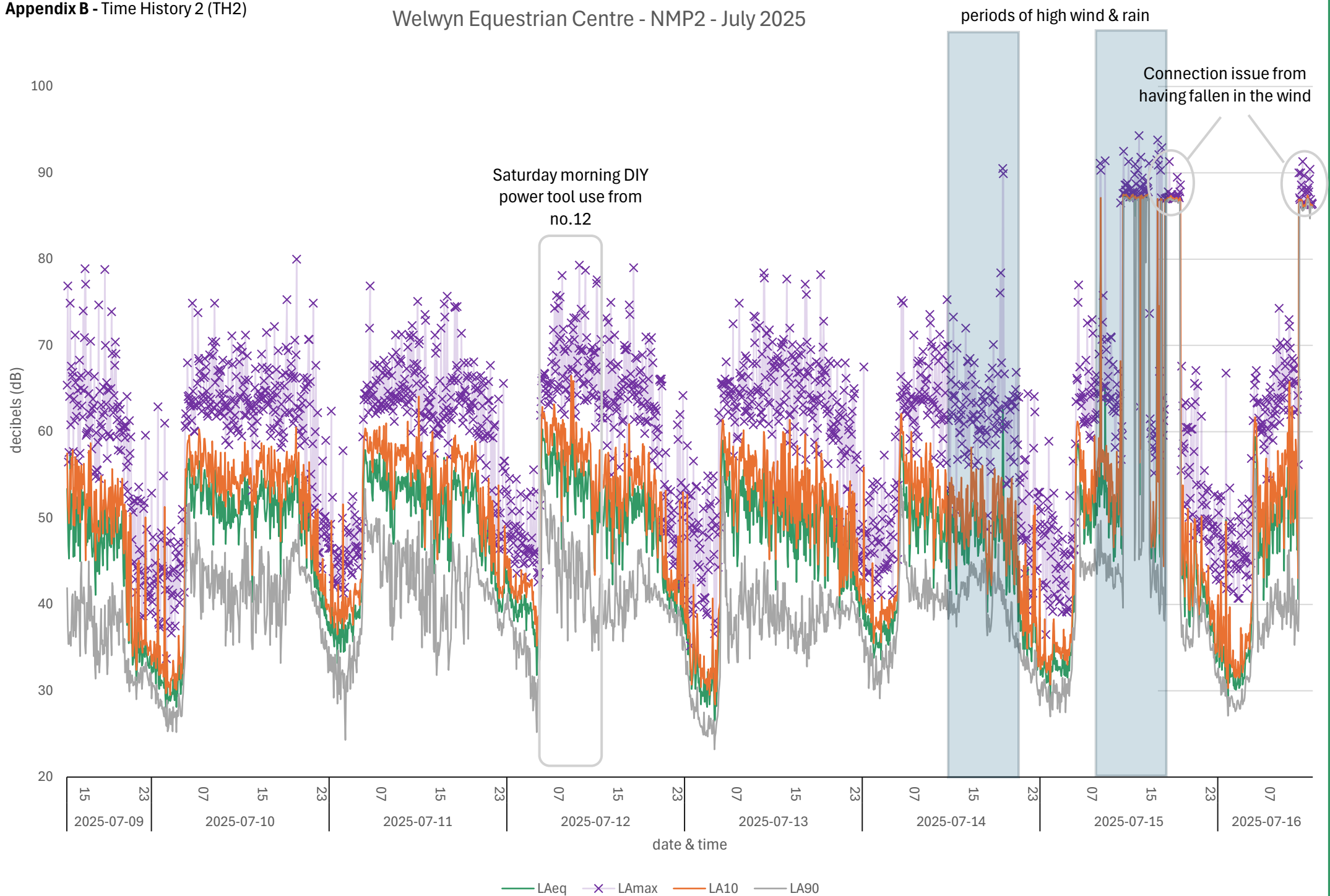
New window

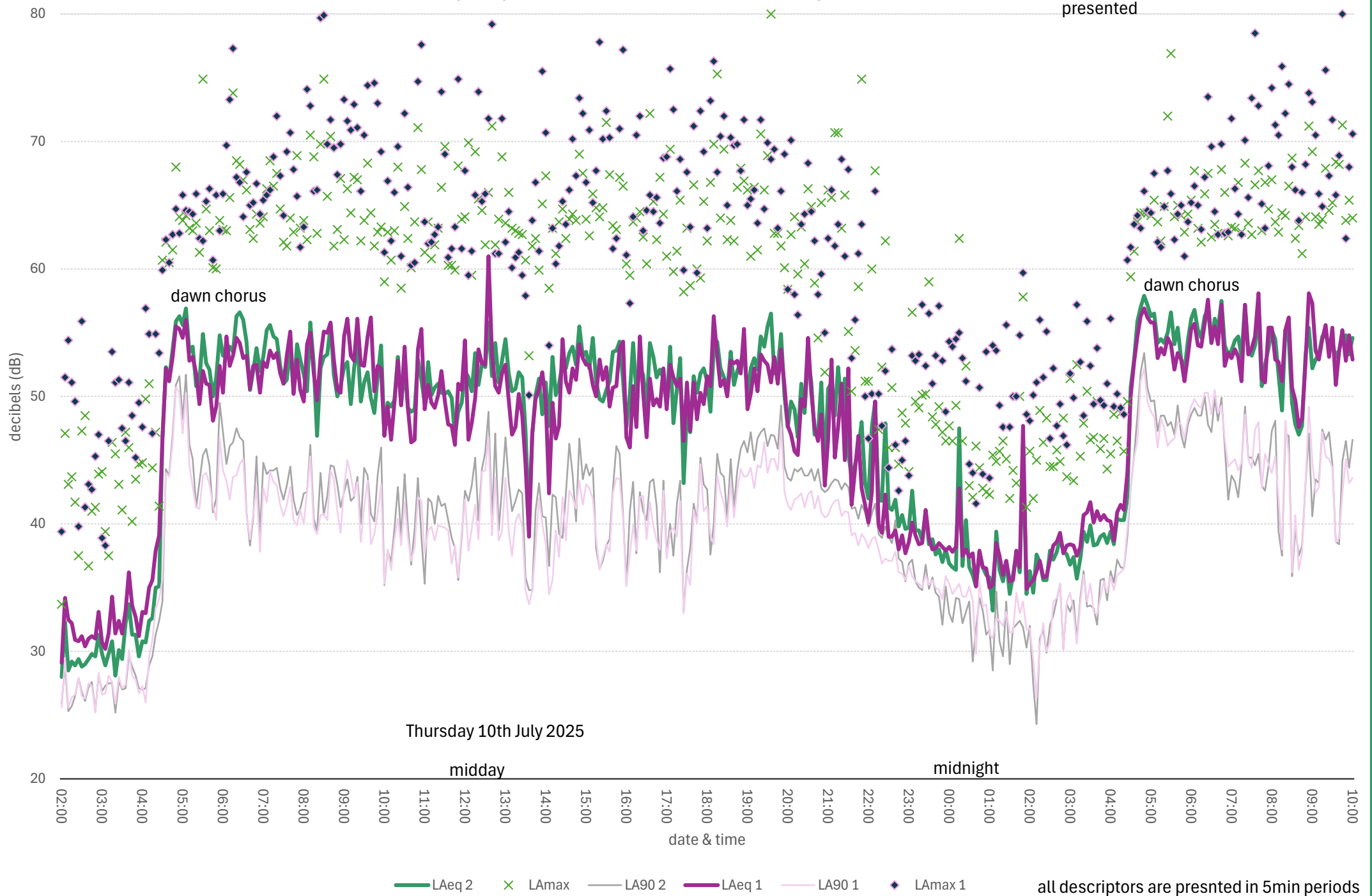


Welwyn Equestrian Centre - NMP1



Welwyn Equestrian Centre - NMP2 - July 2025





Welwyn Equestrian Centre - The Old Barn

Bedroom 1

BS EN 12354-3 Calculation to determine glazing specification

**Based on approximate measured room sizes*

Habitable room data variables

Type of habitable room

Volume

Total area - external façade(s)

Total area - window+door

L(k)

Lmax (K)

Trickle Ventilator(s)

Solid Façade (exc. windows)

Reverberation Time

Bedroom

60 m³15 m²4 m²

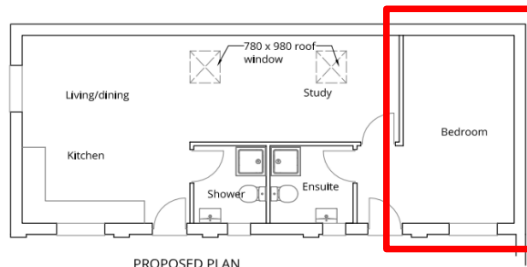
6

6

5

11 m²

0.5 seconds



PROPOSED PLAN

External noise level

	1:1 Octave Bands Centre Frequency (Hz)							dB(A)
	63	125	250	500	1000	2000	4000	
Logged Log average daytime Leq	57	53	52	47	44	39	47	52
Logged Log average night-time Leq	46	46	44	42	39	35	48	50
Logged Lmax for duration of survey	68	70	66	62	57	52	64	67

Sound reduction of building fabric

	1:1 Octave Band Centre Frequency (Hz)							Rw / Dn,e,W
	63	125	250	500	1000	2000	4000	
31 Rw - Pilk 4/12/4mm	22	24	20	25	35	38	35	31
Timber frame + lightweight cladding	22	24	34	40	45	49	49	
23 Dn,e,w - Airflow FB600 Hit & Miss 24000 open - Standard trickle	27	29	22	32	30	29	23	23

	1:1 Octave Band Centre Frequency (Hz)							
	63	125	250	500	1000	2000	4000	
Reduction from façade	-17	-19	-18	-25	-29	-29	-23	
Addition for Ctr	5	5	5	5	5	5	5	

Resultant internal noise level

	1:1 Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1000	2000	4000	
Daytime internal Leq	45	40	39	28	20	15	29	35
Night-time internal Leq	35	32	31	23	16	11	30	32
Night-time internal Lmax	51	51	48	37	28	24	41	45

Based on BS8233:2014 - Night Design Criterion:

LAeq 30

Based on BS8233: 1999 Lmax levels:

LAmax 45

Welwyn Equestrian Centre - The Old Barn

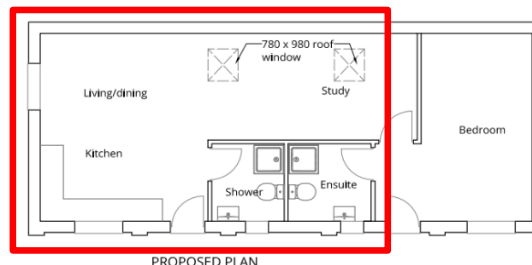
Living area

BS EN 12354-3 Calculation to determine glazing specification

**Based on approximate measured room sizes*

Habitable room data variables

Type of habitable room	Living Room
Volume	120 m ³
Total area - external façade(s)	50 m ²
Total area - window+door	10 m ²
L(k)	6
Lmax (K)	6
Trickle Ventilator(s)	10
Solid Façade (exc. windows)	40 m ²
Reverberation Time	0.5 seconds



External noise level

	1:1 Octave Bands Centre Frequency (Hz)							dB(A)
	63	125	250	500	1000	2000	4000	
Logged Log average daytime Leq	57	53	52	47	44	39	47	52
Logged Log average night-time Leq	46	46	44	42	39	35	48	50
Logged Lmax for duration of survey	68	70	66	62	57	52	64	67

Sound reduction of building fabric

	1:1 Octave Band Centre Frequency (Hz)							Rw / Dn,e,W
	63	125	250	500	1000	2000	4000	
31 Rw - Pilk 4/12/4mm	22	24	20	25	35	38	35	31
Timber frame + lightweight cladding	22	24	34	40	45	49	49	
27 Dn,e,w - Titon Patio Vent - Standard trickle	31	33	27	27	28	26	27	27

	1:1 Octave Band Centre Frequency (Hz)							
	63	125	250	500	1000	2000	4000	
Reduction from façade	-15	-17	-18	-22	-27	-25	-26	
Addition for Ctr	5	5	5	5	5	5	5	

Resultant internal noise level

	1:1 Octave Band Centre Frequency (Hz)							dB(A)
	63	125	250	500	1000	2000	4000	
Daytime internal Leq	47	42	38	30	21	19	26	34
Night-time internal Leq	37	34	31	25	17	15	27	30
Night-time internal Lmax	53	53	47	40	29	27	38	44

Based on BS8233:2014 - Night Design Criterion:

LAeq 35

Based on BS8233: 1999 Lmax levels:

LAmx n/a



PHONE

EAST ANGLIA 01245 206 250

LONDON & NATIONAL 0203 371 980

SOUTH-WEST 01752 426 118

WEB WWW.HA-ACOUSTICS.CO.UK

EMAIL INFO@HA-ACOUSTICS.CO.UK



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