



Baseline Noise Survey Report – NSR4 Land North of Bronwylfa Road

27th September 2024

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Version	Comments	Date	Authored By
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1. MEASUREMENT METHODOLOGY

1.1. General

A previous environmental noise survey in the area had been undertaken by [inacoustic](#) in November 2022 to support the planning application for the proposed c. 400MW Energy Storage System (ESS) facility on Land north of Bronwylfa Road, Rhostyllen, Wrexham.

[Inacoustic](#) has now been appointed to undertake a new environmental noise survey at NSR4 (Cadgwan Farm) in order to assess the prevailing background sound levels at this receptor, which had not been surveyed specifically in the previous noise monitoring due to access.

The prevailing noise conditions at this receptor have now been determined by an environmental noise survey conducted during both daytime and night-time periods between Thursday 19th and Tuesday 24th September 2024.

1.2. Measurement Details

All noise measurements were undertaken by a consultant certified as competent in environmental noise monitoring, and, in accordance with the principles of BS 7445¹.

All acoustic measurement equipment used during the noise survey conformed to Type 1 specification of British Standard 61672². A full inventory of this equipment is shown in Table 1 below.

TABLE 1: INVENTORY OF SOUND MEASUREMENT EQUIPMENT

Position	Make, Model & Description	Serial Number	Calibration Certificate Number	Calibration Due Date
MP1	Rion NL-52 Sound Level Meter	00175499	CONF012302	22/01/2025
	Rion NH-25 Preamplifier	22091		
	Rion UC-59 Microphone	21910		
All	Cirrus CR:515 Acoustic Calibrator	80029	1161557	29/04/2025

The sound measurement equipment used during the survey was field calibrated at the start and end of the measurement period. A calibration laboratory has calibrated the field calibrator used within the twelve months preceding the measurements. A drift of less than 0.2 dB in the field calibration was found to have occurred on the sound level meter.

The weather conditions during the survey were conducive to noise measurement; it being predominantly dry, with low wind speeds. A rain-tipping gauge was deployed on site for the duration of the survey. When periods of inclement weather occurred, they have been removed from the dataset used to derive the typical ambient and background sound levels. Other periods with atypical elevated sounds have also been removed from the relevant dataset.

The microphone was fitted with protective windshields for the measurements, which are described in Table 2, with an aerial photograph indicating their locations shown in Figure 1.

¹ British Standard 7445: 2003: *Description and measurement of environmental noise*. BSI.

² British Standard 61672: 2013: *Electroacoustics. Sound level meters. Part 1 Specifications*. BSI.

TABLE 2: MEASUREMENT POSITION DESCRIPTIONS

Noise Monitoring Location	Description
NML1	Largely unattended daytime and night-time measurement of sound under free-field conditions, at a height of 1.5 metres above local ground level located in the front garden of the residential property at Cadwan Farm. The sound environment at this position during survey set up and collection was influenced by machinery and farm vehicles working on the farm site, along with sound from farm animals and road traffic noise from the A483, approximately 950m to the east. Although the survey was mostly unattended, it is expected that sounds from the working farm drop during evening and night-time periods, with the A483 to the east sustaining the background sound levels.

FIGURE 1: NOISE MONITORING LOCATION (NML1)



1.3. Sound Indices

The parameters reported are the average Equivalent Continuous Sound Level, $L_{Aeq,T}$, the statistical index (typical) Background Sound Level, $L_{A90,T}$, as well as the and the typical Maximum Sound Pressure Level, L_{AFmax} . An explanation of the sound units presented is given in Appendix A.

The measured L_{Aeq} , L_{AFmax} , and L_{AF90} sound levels are presented as time histories in a graph in Appendix B. Furthermore, the statistical distribution of the measured background sound levels to derive the typical representative $L_{A90,T}$ values are presented in a graphical format in Appendix C.

1.4. Summary Results

The summarised results of the environmental sound measurements, during the day and night-time periods, can be seen below in Table 3. Values have been rounded to the nearest whole number.

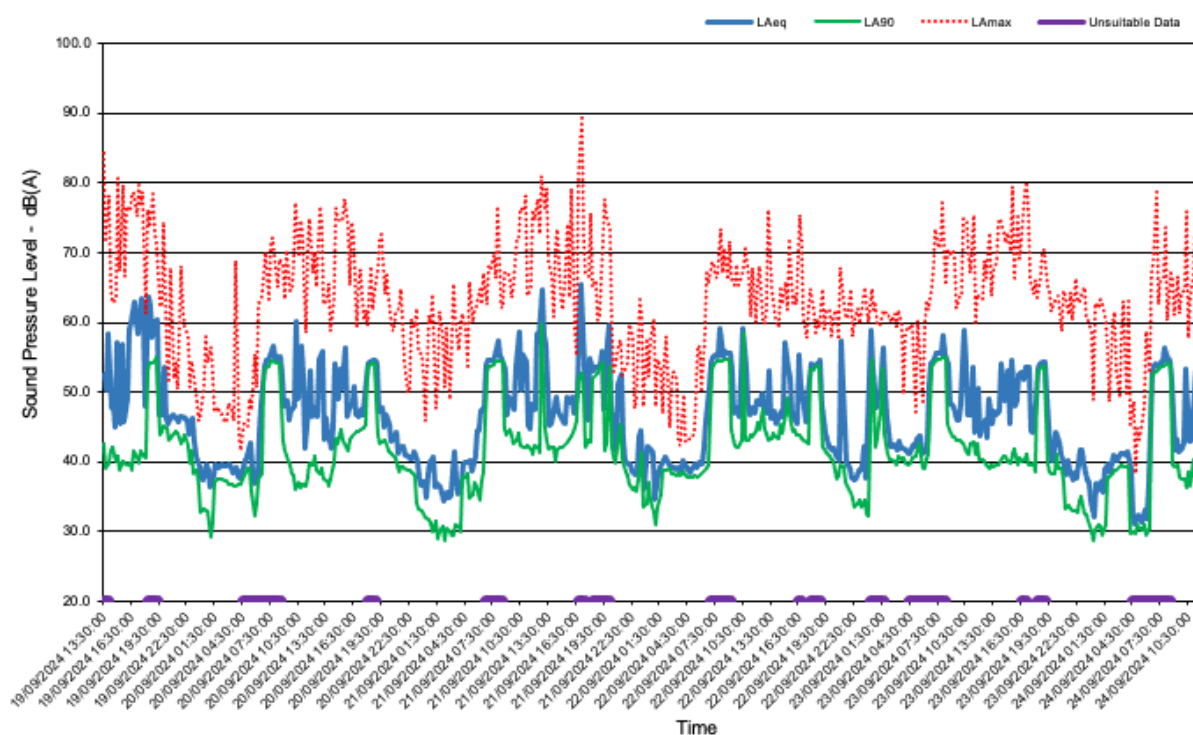
TABLE 3: SUMMARY OF SOUND MEASUREMENT RESULTS

Noise Monitoring Location	Period	$L_{Aeq,T}$ (dB)	$L_{AF90,T}$ (dB)	L_{AFmax} (dB)
NML1	Day	51	39	76
	Night	42	33	63

2. APPENDICES

2.1. Appendix B – Sound Measurement Results

FIGURE 2: MEASURED TIME HISTORY –>NNL1



2.2. Appendix C – Statistical Analysis

FIGURE 3: STATISTICAL ANALYSIS OF LA90 BACKGROUND - DAYTIME - MP1

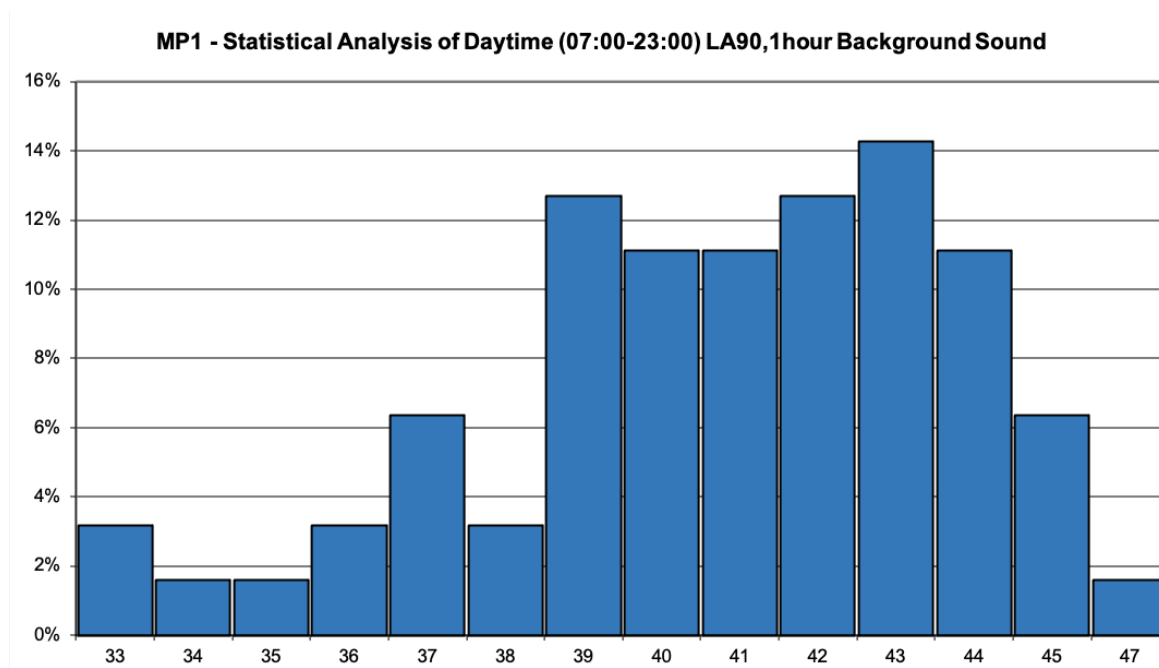
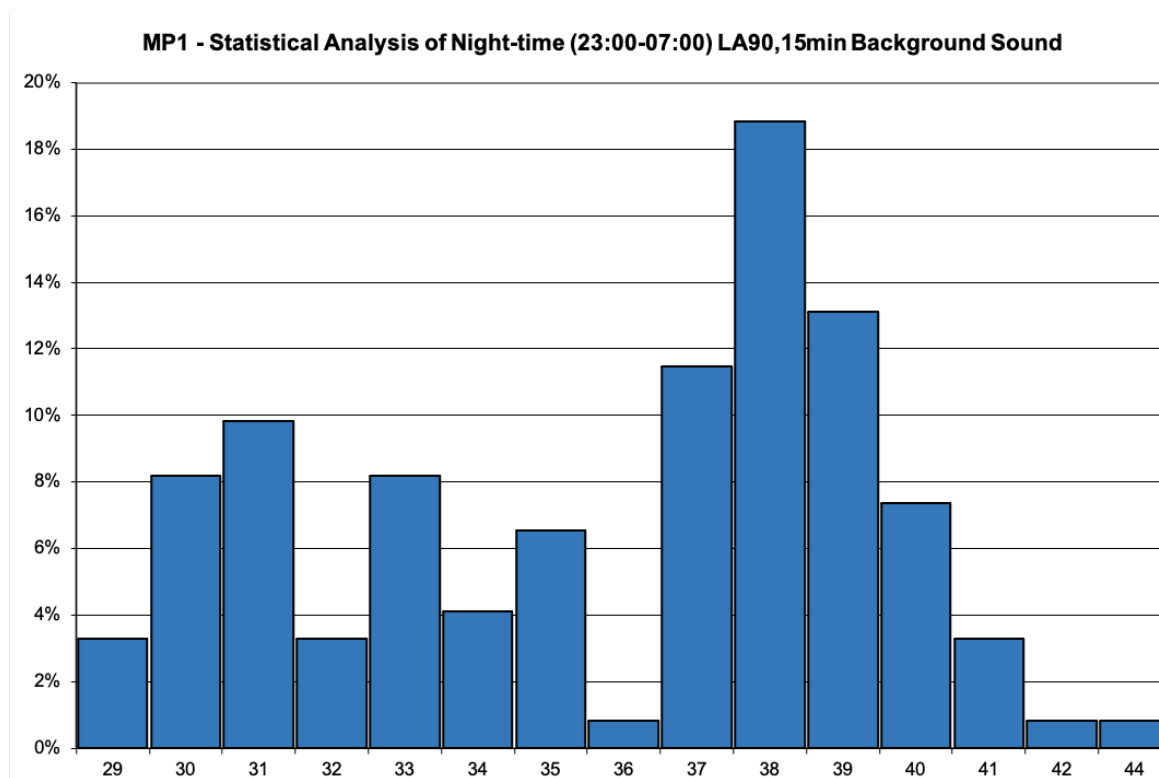


FIGURE 4: STATISTICAL ANALYSIS OF LA90 BACKGROUND - NIGHT - TIME - MP1



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