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Old Wood Energy Park

Land west of Wysall, Nottinghamshire

Noise Impact Assessment

Date: January 2024 | Pegasus Ref: P21-2533

NOISE IMPACT ASSESSMENT
OLD WOOD ENERGY PARK

VERSION 3.0

November 2023

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1 INTRODUCTION

Metrica Environmental Consulting Ltd ('Metrica') has been commissioned by Exagen Development Limited ('the Client') to undertake a Noise Impact Assessment (NIA) in relation to the proposed Old Wood Energy Park ('the Development'), a renewable energy development comprising of a ground mounted solar photovoltaic array, a co-located battery energy storage system at the point of connection, a new substation and ancillary infrastructure located on two parcels of land approximately 1 km west of the village of Wysall, Nottinghamshire ('the Site').

The aim of this assessment is to assess the operational noise generated by the Development against relevant guidance, and incorporating mitigation measures as necessary to ensure the amenity of residents surrounding the Development is not unreasonably impacted.

2 DEVELOPMENT OVERVIEW

The Development is divided across two separate land parcels, approximately 300 m apart. The Site is situated in a predominantly rural area, surrounded by a relatively low number of farms and isolated dwellings; no dwellings or other Noise-Sensitive Receptors (NSRs) are located in the area between the two land parcels. Local sources of background noise include traffic associated with the A60 to the west of the Site, and traffic and general anthropogenic noise associated with the village of Wysall to the east.

The Development includes the installation of several potential sources of noise, including transformers and inverters associated with the solar array and a Battery Energy Storage System (BESS) and 132kV transformer, located towards the south of the Development's southern land parcel. A figure showing the Development layout is provided in Appendix 1.

With regard to cumulative effects, a cumulative solar PV development with battery storage, known as Highfields Solar Farm (application number 22/00303/FUL), was consented by Rushcliffe Borough Council ('the Council') in February 2023, located immediately to the west of the Development. The cumulative effects of Highfields Solar Farm operating in conjunction with the Development have been considered, as presented in Section 9 of this report.

3 GUIDANCE

The following guidance and standards are pertinent to the assessment:

- The National Planning Policy Framework (NPPF);
- The Noise Policy Statement for England (NPSE);
- BS 4142:2014 +A1:2019 *Method for rating and assessing industrial and commercial sound* ('BS 4142');
- BS 8233:2014 *Sound insulation and noise reduction for buildings* ('BS 8233'); and
- The Council's *Solar Farm Development Planning Guidance*.[1]

3.1 THE NATIONAL PLANNING POLICY FRAMEWORK

The NPPF sets out the Government's planning policies for England, providing a framework within which local policies can be developed. The key principle of the NPPF is a presumption

[1] Rushcliffe Borough Council (November 2022). Solar Farm Development Planning Guidance

in favour of sustainable development. With regards to noise, the NPPF states that sustainable development can be achieved by:

- Avoiding noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigating and reducing to a minimum potential adverse impacts resulting from noise from new development, including through the use of conditions; and
- Identifying and protecting areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

3.2 THE NOISE POLICY STATEMENT FOR ENGLAND

The NPSE sets out the purpose of noise policy, together with the Government's Noise Policy Vision and Aims, consistent with the NPPF.

The aims of the NPSE require that:

- Significant adverse effects on health and quality of life are avoided, while taking into account the guiding principles of sustainable development;
- Adverse impacts on health and quality of life are mitigated or minimised; and
- Where possible, noise management should seek to improve health and quality of life within the context of Government policy on sustainable development.

Paragraph 2.24 of the NPSE states that in relation to minimising and mitigating adverse impacts:

"...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. This does not mean that such adverse effects cannot occur."

3.3 SOLAR FARM PLANNING GUIDANCE

The Council published a planning guidance document in 2022. It summarises the key material planning considerations likely to be relevant to the determination of planning applications for major solar farm developments, and provides examples of the information / documents that the Council expects to be submitted with planning applications for major solar farm developments.

Whilst the guidance does not provide any specific detail on the required noise assessment methodology, Paragraph 6.64 of the guidance states:

"Solar panels themselves do not generally make any significant noise when generating electricity, although ancillary equipment, such as invertors, transformers or sub-stations may produce noise. Any such noise generating equipment should be carefully sited so as not to adversely affect any nearby noise sensitive receptors (e.g.: people or wildlife)."

3.4 BS 4142:2014

BS 4142:2014 provides a method for rating and assessing noise in order to provide an indication of it's likely impact on nearby noise-sensitive receptors (NSRs).

The standard provides advice for monitoring background noise and the subsequent derivation of an appropriate representative background level (dB L_{A90}).

The 'Specific' noise level at NSRs due to noise from a development (generally predicted using noise modelling software) is rated by applying corrections to account for the acoustic characteristics of the sound. Acoustic characteristics considered are tonality, impulsivity, intermittency and distinctiveness. Each characteristic has its own penalty based on how noticeable the characteristic is at the NSR location. The resultant 'Rating' level is then assessed against the representative background sound level at the NSR to determine a likely level of impact.

An initial assessment is undertaken based on the level by which the Rating level exceeds the representative background sound level, as follows:

- A difference of 10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around 5 dB is likely to be an indication of an adverse impact, depending on the context; and
- Where the rating level does not exceed the background level, this is an indication of the specific sound source having a low impact, depending on context.

Once an initial estimate of the impact has been undertaken, the level of impact can be modified up or down, due to the site context, including the absolute level of noise, character of the sound and / or sensitivity of the NSR.

BS 4142 states that where the rating level and background levels at a receptor are low, changes in the absolute level should be taken into account. It states:

"Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."

4 CONSULTATION AND ASSESSMENT CRITERIA

Consultation was carried out with the Council's Environmental Health Officer to agree the scope, methodology and assessment criteria for the Development. It was agreed that:

- The assessment would be undertaken in line with BS 4142;
- Background monitoring would be undertaken at two locations representative of the nearest NSRs for a period of approximately 24 - 48 hours;
- Background noise levels during daytime and night-time periods will be measured in terms of $L_{A90,15min}$;
- Noise modelling will be undertaken based on plant noise emission data for similar BESS / solar sites, and noise levels predicted and assessed at the nearest NSRs.
- Predicted Rating levels will be assessed against BS 4142 criteria, with a target of no more than 5 dB above the representative background level. In line with BS 4142, the assessment will consider context, as well as considering alternative approaches in the event of low background noise levels.
- Due to the temporary and mobile nature of construction works, it was agreed that a quantitative construction noise assessment was not required, and construction noise will be controlled via a suitably worded planning condition.

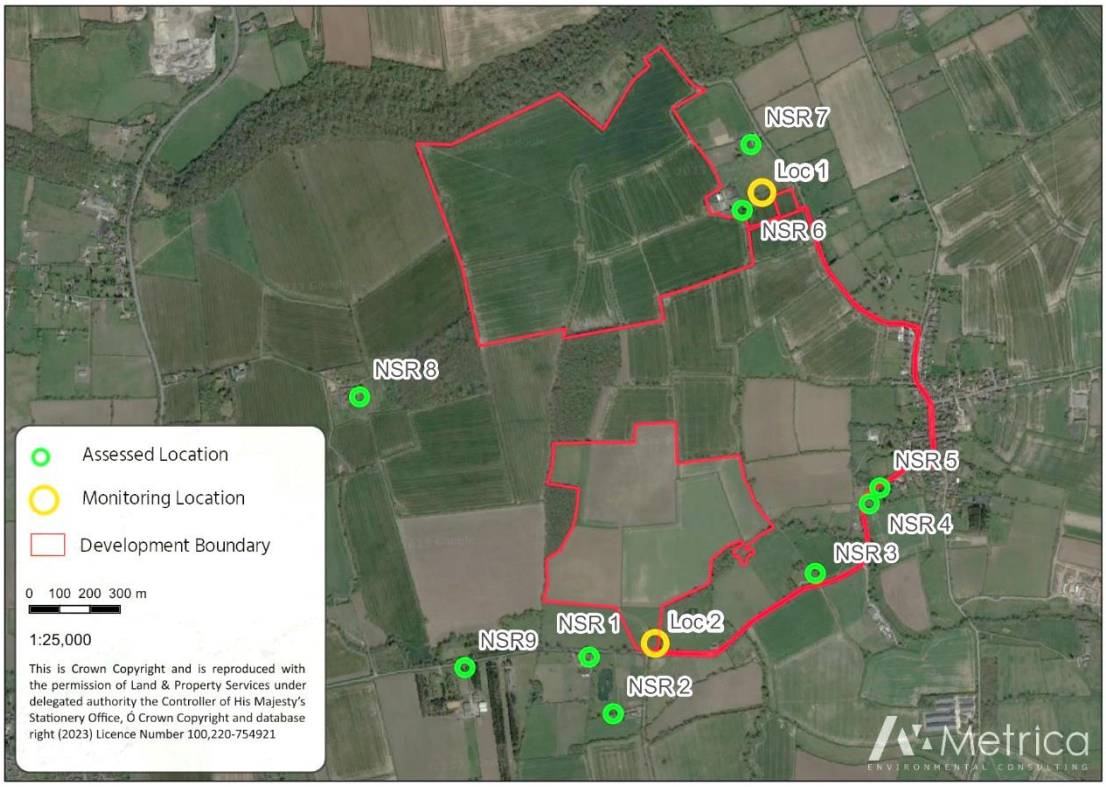
With regard to the assessment of cumulative effects in conjunction with Highfields Solar Farm, it was noted that no NIA was submitted as part of that application, and it is therefore not possible to undertake a detailed cumulative assessment of noise. However, it was

agreed that a high-level assessment of cumulative noise would be undertaken to ensure no unacceptable cumulative impacts.

5 BACKGROUND NOISE SURVEY

To establish the background sound environment in the locality of the Development, background noise monitoring was undertaken from Tuesday 28th to Friday 31st March at two locations representative of the nearest NSRs. Figure 1 shows the location of the closest NSRs/ assessment locations and the background monitoring locations.

Figure 1: Monitoring and Assessment Locations



The monitoring equipment consisted of two Class 1 sound level meters, calibrated to traceable standards, and housed in all-weather cases with long-life batteries. The microphones were placed at a height of 1.4 m above ground level, within a suitable proprietary windshield. The meters were field calibrated at the start and end of the survey period; no significant calibration drift was found. Indices measured included $L_{A90,15mins}$ (i.e., the background sound level).

A weather station was installed to measure wind speeds and rain data throughout the survey period. Several periods of rain occurred during the survey, however wind speeds remained below 5 m/s throughout. All periods of rain were excluded during data analysis, as presented in Section 6.

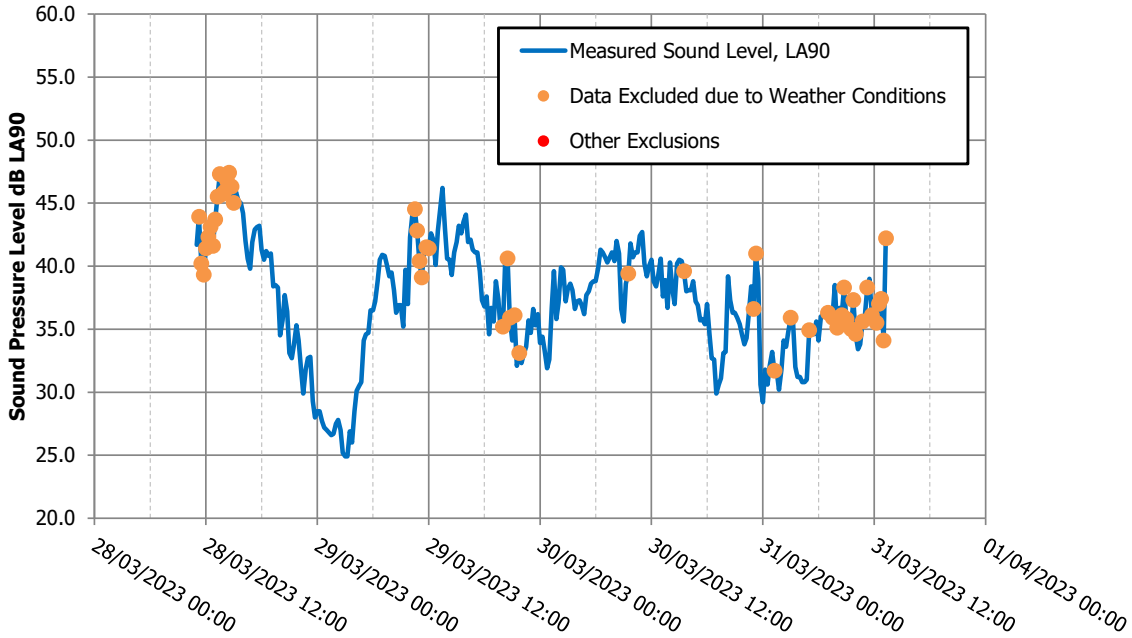
Survey record sheets, including photographs of the equipment in situ, are presented in Appendix 2.

6 SURVEY RESULTS

6.1 LOCATION 1

Chart 1 provides a summary of background noise levels during the survey period at Location 1, detailing $L_{A90,15min}$ sound levels and the excluded periods of rainfall.

Chart 1: Background Noise Survey Time History - Location 1



When determining typical daytime and night-time levels for assessment purposes, BS 4142 advises against assuming that it can be determined using any single approach (mean, median, mode etc.). To determine the prevailing background noise level for the purposes of this assessment, Charts 2 -3 present the range of $LA_{90,15min}$ noise levels recorded, along with the percentage of periods for which they occurred, for daytime (0700 – 2300) and night-time (2300-0700) periods respectively.

It should be noted that the $L_{A90,15min}$ parameter was used for both daytime and night-time periods. BS 4142 permits the use of longer (1 hour) measurements for daytime periods, however the use of $L_{A90,15min}$ for both daytime and night-time periods is a conservative approach, as $L_{A90,15min}$ values are more sensitive to short-term noise events.

Chart 2: Daytime Background Statistical Analysis (0700 – 2300)– Location 1

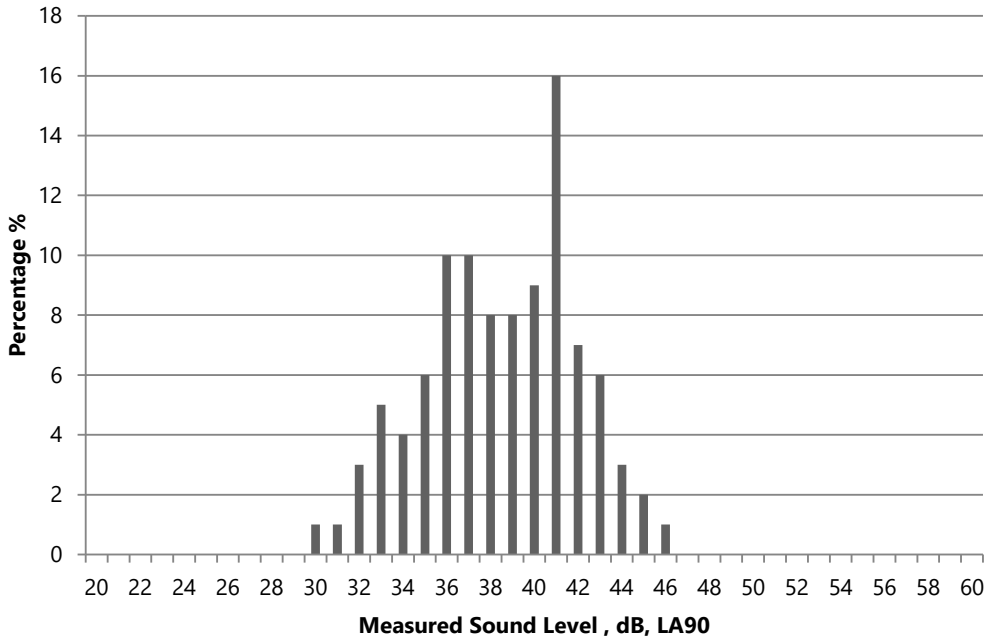


Table 1 presents the mean, median and mode averages of the above dataset.

Table 1: Daytime Background Noise Results - Location 1

Mode	Median	Mean	Representative
41	39	38	38

Chart 3: Night-time Background Statistical Analysis (2300 – 0700) – Location 1

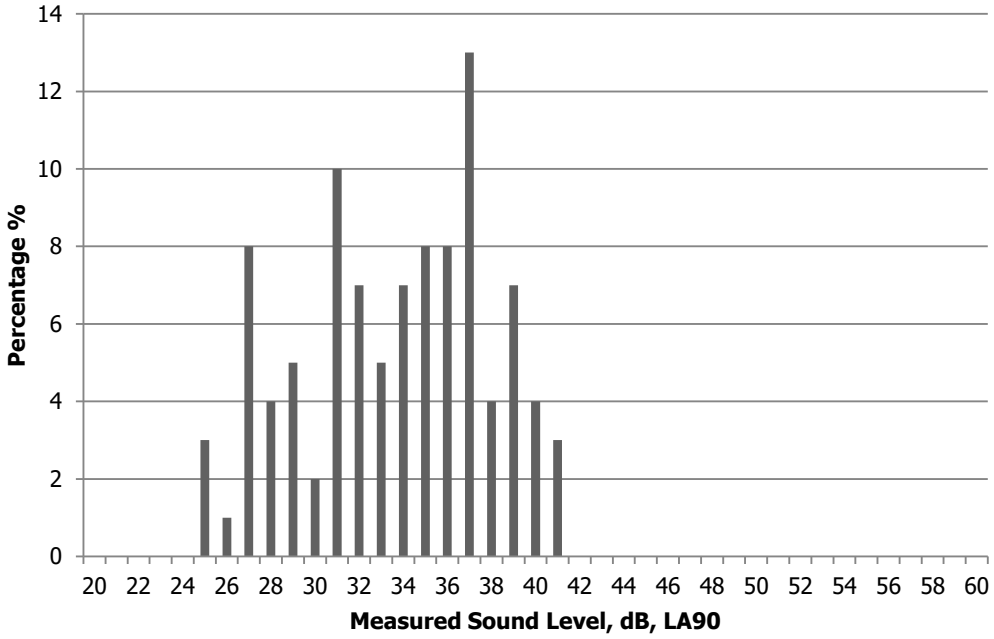


Table 2 presents the mean, median and mode averages of the night-time dataset.

Table 2: Night-time Background Noise Results – Location 1

Mode	Median	Mean	Representative
36	34	34	31

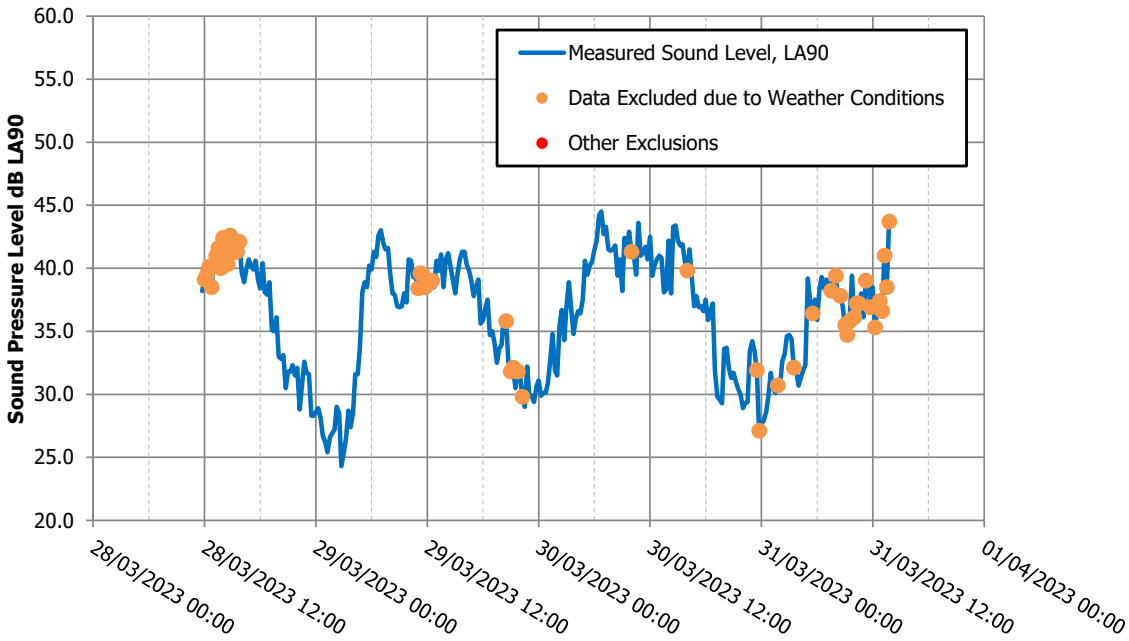
Based upon the results in Table 1, along with the spread of data in Chart 2, a daytime background noise level of 38 dB L_{A90} is considered to be representative for Location 1 for the purposes of this assessment.

Based upon the results in Table 2, the average values are not considered to be wholly representative of the dataset. Based upon the spread of data in Chart 3, a night-time background noise level of 31 dB L_{A90} is considered appropriate for Location 1 for the purposes of this assessment. This is the second most common value, being 5 dB lower (i.e., more conservative) than the mode value.

6.2 LOCATION 2

Chart 4 details the $L_{A90,15min}$ levels measured at Location 2.

Chart 4: Background Noise Survey Time History - Location 2



As can be seen, the background noise environment at Location 2 was found to be very similar to that at Location 1. Charts 5 presents the range of $L_{A90,15min}$ noise levels recorded at Location 2 during daytime and night-time periods respectively.

Chart 5: Daytime Background Statistical Analysis (0700 – 2300)– Location 2

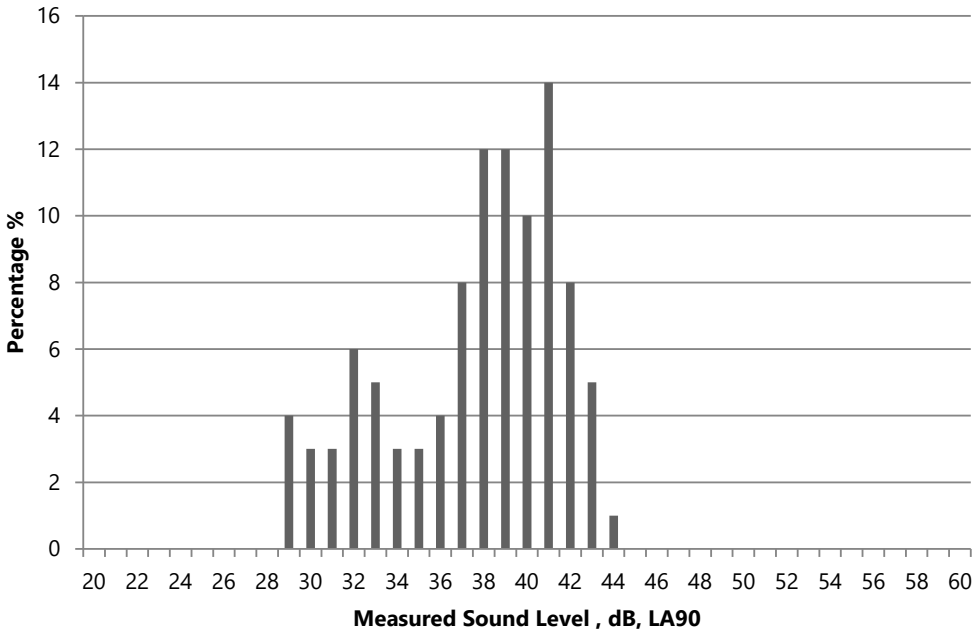


Table 3 presents the mean, median and mode averages of the above dataset.

Table 3: Daytime Background Noise Results – Location 2

Mode	Median	Mean	Representative
41	39	38	38

As can be seen, the daytime average levels at Location 2 are the same as those at Location 1. A daytime background noise level of 38 dB L_{A90} for Location 2 is considered appropriate.

Chart 6: Night-time Background Statistical Analysis (2300 – 0700) – Location 2

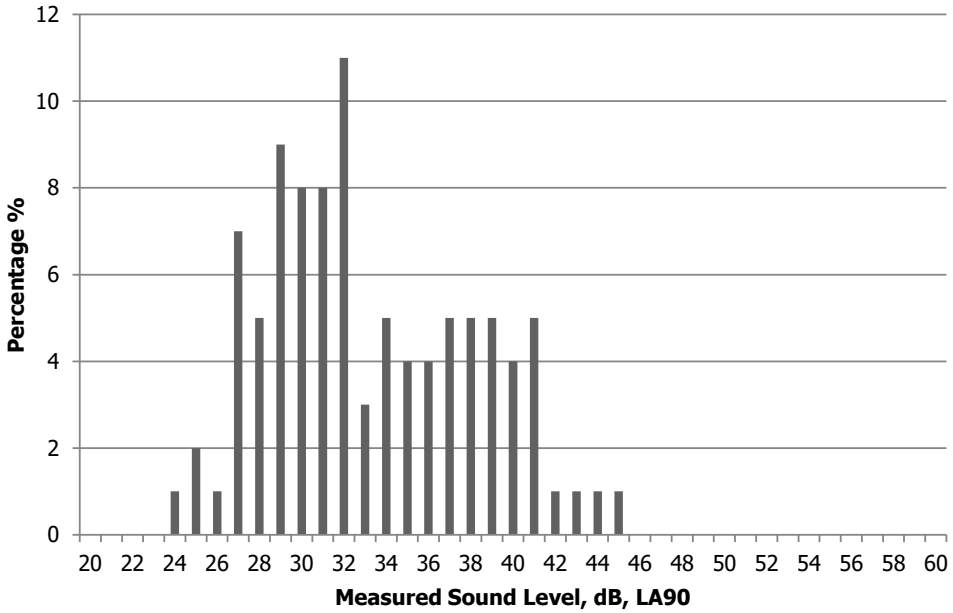


Table 4 presents the mean, median and mode averages of the above dataset.

Table 4: Night-time Background Noise Results – Location 2

Mode	Median	Mean	Representative
32	32	33	29

As per Location 1, the average values measured at Location 2 are not considered to be wholly representative of the dataset. Based upon the spread of data in Chart 6, a night-time background noise level of 29 dB L_{A90} is considered appropriate for Location 2 for the purposes of this assessment. This is the second most common value, being 3 dB lower (i.e., more conservative) than the mode value.

7 NOISE MODELLING

The Development consists of the following noise sources:

- Primary Transformers;
- Battery Storage Containers, including inverter system;
- BESS Cooling plant;
- BESS Auxiliary transformers; and
- Centralised Inverter / transformer stations distributed throughout the solar panel array.

Additional infrastructure includes storage containers, switchgear / metering equipment and the solar PV panels themselves. These elements will emit no / negligible levels of noise and therefore have not been considered further as part of this assessment.

As requested by the client, The equipment modelled as part of this assessment has been based on similar BESS / solar developments. The actual plant ultimately chosen for installation is yet to be finalised, however these will be selected to comply with any noise limits specified in the Development's planning conditions.

The level of noise emitted by the solar PV aspects of the Development in particular will be related to both the intensity of light incident upon the solar panels and the air temperature. It is therefore anticipated that noise from these elements will be negligible for much of the time, particularly during night-time periods. However, as a worst-case approach, all plant is assumed to be operating simultaneously, at full power, during both daytime and night-time periods.

7.1 NOISE EMISSION DATA

The sound power levels of the plant included in the noise model are included in Table 5, overleaf.

Table 5: Equipment Sound Power Levels

Plant Type / Description	Sound Power Level, dB, LwA	Octave Band Centre Frequency, Hz, dBA							
		63	125	250	500	1000	2000	4000	8000
Battery & Inverter Container (long side)	68	38	49	53	60	63	64	60	52
Battery & Inverter Container (short side)	60	40	50	51	55	54	53	36	28
Battery & Inverter Container (roof)	55	40	48	48	50	45	43	30	23
BESS Cooler	75	63	73	62	68	65	62	51	45
Primary Transformer	77	56	62	69	72	72	67	61	55
33kv Transformer	67	43	61	62	62	56	49	49	40
Auxiliary Transformer	63	39	57	58	58	52	45	45	36
Centralised Solar Inverter/Transformer	85	56	65	75	78	77	75	81	69

It should be noted that the sound power levels presented above are the maximum noise levels emitted from the plant operating at full capacity, which is unlikely to regularly be the case in practice.

7.2 MODELLING PARAMETERS

The Specific sound level at the nearest NSRs has been calculated in SoundPlan software, using the environmental noise propagation model ISO 9613-2:1996 - Acoustics, *'Attenuation of sound during propagation outdoors – Part 2: General method of calculation'*.

The ISO 9613-2 method predicts the level of sound at a receptor by taking the octave-band sound power level spectrum of the source and applying a number of attenuation factors that determine the resulting rating level at the receptor location. The following parameters were used in the prediction model and are considered to provide a conservative prediction of the noise levels likely to be experienced in practice:

- Atmospheric conditions of 10°C and 70% relative humidity;
- A ground factor of G = 0.5 (mixed ground); and
- A receiver height of 1.5 m (approximating head height in the closest external amenity space of each assessed dwelling);
- All plant operating simultaneously at full capacity;
- Includes local terrain and buildings;
- Primary transformer modelled as a point source at a height of 4 m;
- 33 kV transformers modelled as a point sources at a height of 3 m;
- Battery containers modelled as buildings with area sources applied to each façade; and
- Auxiliary transformers, coolers and centralised solar inverter/transformer systems modelled as point sources at a height of 1 m.

The solar panels themselves do not generate any noise, and in practice will act as noise barriers, reducing the noise levels at receptor locations. The PV panels have not been included in the noise model, therefore representing a conservative approach.

Details of the NSRs considered in this assessment are provided in Table 6, as presented in Figure 1. On the basis that noise is acceptable at these locations, it will also be acceptable at other NSRs located further from the Development.

Table 6 Assessed Receptors

Assessed Receptor	Representative Background Monitoring Location
NSR 1	Location 2
NSR 2	Location 2
NSR 3	Location 2
NSR 4	Location 2
NSR 5	Location 2
NSR 6	Location 1
NSR 7	Location 1
NSR 8	Location 1
NSR 9	Location 2

7.3 RATING LEVEL CORRECTIONS

BS 4142 states that corrections should be applied to account for certain acoustic features which have the potential to increase the level of noise impact at nearby dwellings.

The four acoustic features to be considered in the application of rating corrections are:

- Impulsivity: No impulsive characteristics are anticipated from the Development;
- Tonal Elements: The main noise-emitting plant in the Development will be the BESS inverter systems. Based upon prior experience of operational developments, this noise is broadband in nature and therefore non-tonal;
- Intermittency: While certain plant will operate only as required, there will be no synchronisation between the various units. The overall change in noise level due to a single item of plant switching on / off would be negligible, and not distinguishable at NSRs. Therefore, when taken as a whole, the Development is highly unlikely to have "*identifiable on / off conditions*" in terms of BS 4142:2014, and no correction for intermittency is therefore required; and
- Distinctiveness: BS 4142 states that where the characteristics of the sound in question neither tonal nor intermittent, but are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied. Given the relatively rural location and lack of similar electrical infrastructure nearby, noise due to the Development may be distinctive against the existing acoustic environment. As such, a correction of 3 dB has been applied as a conservative approach.

Based on the above, the Rating Levels at the receptor locations are therefore 3 dB greater than the Specific Levels.

8 ASSESSMENT OF IMPACT

An assessment of the likely impact has been made based upon the difference between the Rating Levels and prevailing background levels for daytime and night-time periods, at each assessed NSR. The modelling assumes all plant operating simultaneously and at maximum power as a worst case; noise levels are therefore likely to be lower than presented during typical operation. Table 7 presents an assessment of the impact at the closest NSRs based upon the difference between the predicted Rating and Background noise levels during daytime periods.

Table 7: Assessment of Impact

Receptor	Specific Noise Level, dB(A)	Rating Level, dB(A)	Daytime Background Noise Level, dB, L_{A90}		Difference, dB	
			Daytime	Night-time	Daytime	Night-time
NSR 1	29	32	38	29	-6	3
NSR 2	26	29	38	29	-10	-1
NSR 3	29	32	38	29	-6	3
NSR 4	25	28	38	29	-10	-1
NSR 5	25	28	38	29	-10	-1
NSR 6	21	24	38	31	-14	-7
NSR 7	24	27	38	31	-11	-4
NSR 8	21	24	38	31	-14	-7
NSR 9	23	26	38	29	-12	-3

As Table 7 shows, despite the highly conservative approach taken in this assessment, Rating levels are predicted to be at least 2 dB below the EHO's assessment criterion of 5 dB above the representative background noise level, and at least 2 dB below the level of 'Adverse' impact specified in BS4142.

A noise map presenting a graphical representation of noise levels due to the Development is provided in Appendix 3.

8.1 CONTEXT

The Development is located in a relatively rural environment, and the lack of similar infrastructure nearby has been accounted for through the inclusion of a 3 dB correction for Distinctiveness in terms of BS4142. However, it is of note that Highfields Solar Farm has been consented immediately to the west of the Development (see Section 9 for the assessment of potential cumulative impacts).

8.2 UNCERTAINTY

Background noise monitoring was undertaken at two locations conservatively representative of nearby receptors for a period of three days to minimise uncertainty, and all periods of rainfall were excluded from the resulting datasets.

Modelling of the proposed plant has been undertaken on a worst case basis, assuming all plant is operating simultaneously and at maximum power. Noise levels during typical operation are therefore likely to be lower than those presented, particularly during night-time periods.

Given this highly conservative approach, any uncertainties inherent in the assessment will have no material effect on the findings of the assessment.

9 CUMULATVIE EFFECTS

As stated in Section 2, a cumulative solar and battery storage development known as Highfields Solar Farm was consented by the Council in February 2023, located immediately west of the Development.

The planning application for Highfields Solar Farm did not include a Noise Impact Assessment and the Decision Notice for Highfields Solar farm does not specify any noise limits, although Condition 23 of the consent does require the applicant to submit the final specifications and position of any noise-emitting plant prior to construction, supported by a full BS 4142 assessment, should it be deemed necessary. At the time of writing, Condition 23 is yet to be discharged, therefore a detailed calculation of cumulative effects cannot be undertaken. However, a qualitative consideration of the potential cumulative effects has therefore been undertaken, as agreed with the EHO during consultation, in the interest of completeness.

Given the position of Highfields Solar Farm relative to the Development, the only NSRs considered to have the potential to experience cumulative effects are NSRs 8 and 9 (see Table 5). Predicted Rating levels due to the Development in isolation at these NSRs are at least 4 dB below the level of background noise. On the assumption that Highfields Solar Farm was to result in a similar Rating level at the same NSRs, the cumulative noise level of both developments operating simultaneously would be 3 dB greater than the Development in isolation; this would result in cumulative levels being 1 dB below the level of background noise. On this basis, the level of impact would remain 'Low' at these NSRs in terms of BS4142, and the cumulative effects remain complaint with the EHOs recommended noise limit by a margin of 6 dB.

10 CONCLUSION

Metrica Environmental Consulting Ltd has been commissioned to undertake a noise assessment of the proposed Old Wood Energy Park.

Due to the temporary and mobile nature of construction works, it was agreed with the Council that a quantitative construction noise assessment was not required, as construction noise can be controlled via a suitably worded planning condition.

An assessment of the operational noise impact has been undertaken in accordance with BS 4142, as required by the Council. It has been found that Rating Levels due to noise from the Development, either in isolation or in combination with the consented Highfields Solar Farm would not exceed the Council's recommended noise limit, and would be below the level of Adverse impact in terms of BS4142 criteria.

The Development has therefore been found to be acceptable in terms of noise.

11 GLOSSARY OF TERMS

Background Noise: The background noise level is the underlying level of noise present at a particular location for the majority (usually 90%) of a period of time.

Decibel (dB): The decibel is the basic unit of noise measurement. It relates to the cyclical changes in pressure created by the sound and operates on a logarithmic scale, ranging upwards from 0 dB. 0 dB is equivalent to the normal threshold of hearing at a frequency of 1000 Hertz (Hz). Each increase of 3 dB on the scale represents a doubling of the Sound Pressure, and is typically the minimum noticeable change in sound level under typical listening conditions.

dB(A): Environmental noise levels are usually discussed in terms of dB(A). This is known as the A-weighted sound pressure level, and indicates that a correction factor has been applied, which corresponds to the human ear's response to sound across the range of audible frequencies. The ear is most sensitive in the middle range of frequencies (around 1000-3000 Hz), and less sensitive at lower and higher frequencies. The A weighted noise level is derived by analysing the level of a sound at a range of frequencies and applying a specific correction factor for each frequency before calculating the overall level. In practice this is carried out automatically within noise measuring equipment by the use of electronic filters, which adjust the frequency response of the instrument to mimic that of the ear.

Frequency: The frequency of a sound is equivalent to its pitch in musical terms. The units of frequency are Hertz (Hz), which represents the number of cycles (vibrations) per second.

$L_{A90,t}$: This term is used to represent the A-weighted sound pressure level that is exceeded for 90% of a period of time, t. This is used as a measure of the background noise level.

$L_{Aeq,t}$: This term is known as the A-weighted equivalent continuous sound pressure level for a period of time, t. It is similar to an average, and represents the sound pressure level of a steady sound that has, over a given period, the same energy as the fluctuating sound in question.

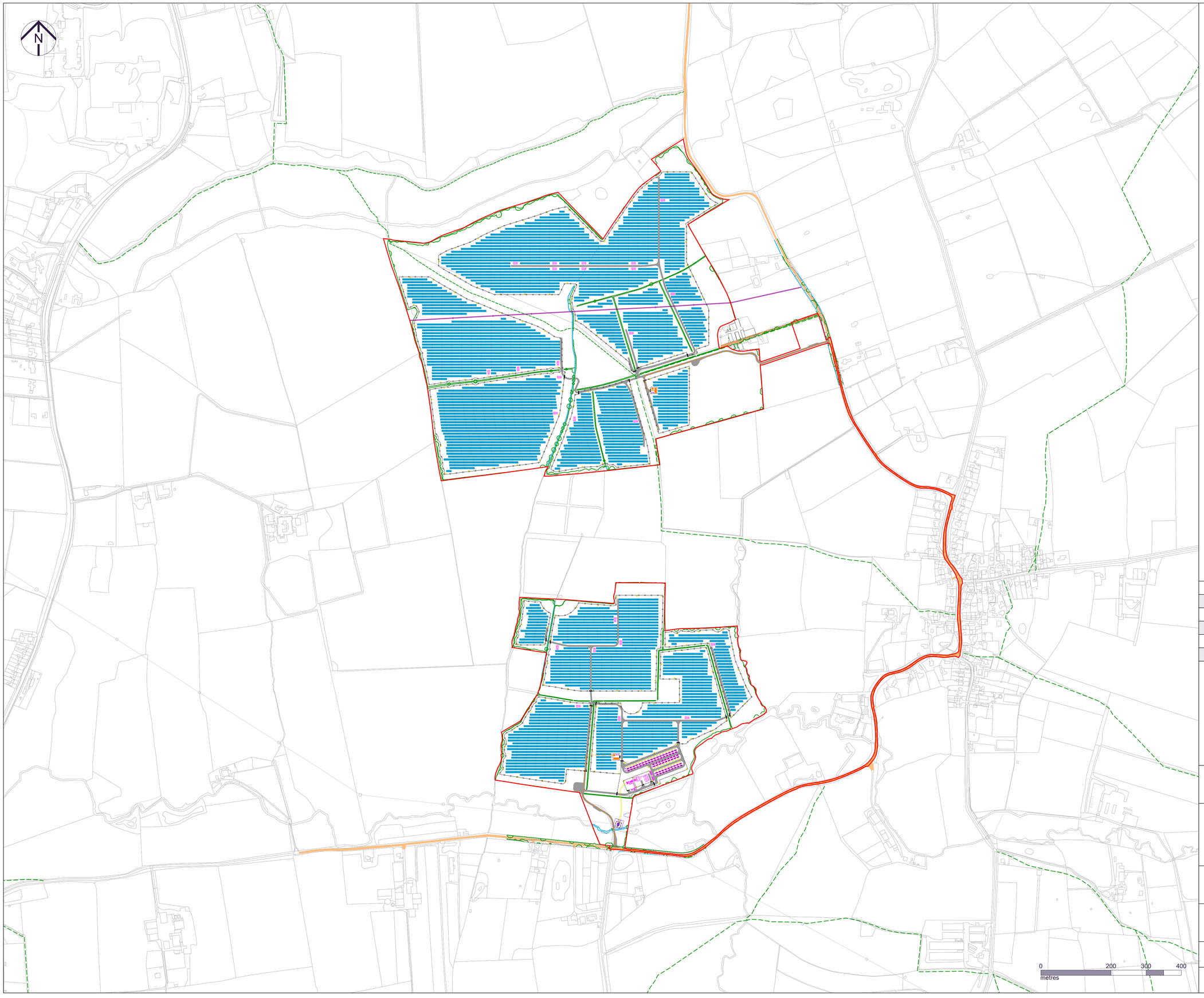
Rating Level: Noise levels which have been corrected for certain acoustic features, as required under BS4142 methodology.

Sound pressure (P): The fluctuations in pressure relative to atmospheric pressure, measured in Pascals (Pa).

Sound pressure level (L_p): Sound pressure measured on the decibel scale, relative to a sound pressure of 2 x 10-5 Pa.

Specific Level: In terms of BS4142 methodology, the specific level is the sound level produced by a source, without corrections for acoustic features.

APPENDIX 1: DEVELOPMENT LAYOUT



Notes:
View in conjunction with all relevant documents.
All dimensions to be checked on site before proceeding with work.
To be used only for the status specified.

All dimensions, levels, and coordinates are in metres unless defined.
All areas are approximate and indicative only.
All omissions and discrepancies to be reported in writing to Exagen Development Ltd.

Key

- Site Boundary
- Existing 33kV overhead electricity line
- Existing public road
- Existing access track
- Existing public right of way
- Existing watercourse
- Existing vegetation
- Proposed solar panel table (2P24)
- Proposed solar panel table (2P12)
- Proposed deer fencing
- Proposed palisade fencing
- Proposed fence gate
- Proposed access tracks
- Proposed central inverter
- Proposed battery storage container
- Proposed battery storage inverter
- Proposed auxiliary transformer
- Proposed CCTV / lighting post
- Proposed substation infrastructure
- Proposed POC infrastructure
- Proposed POC cable connection
- Proposed solar cable connection
- Proposed solar connection infrastructure

Rev	Date	Description
P04	05.01.23	PV and planting changes
P03	01.08.23	2 BESS access, minor aligns
P02	12.07.23	Reduced solar, new planting

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Client
Exagen Development Limited

Drawing title
Site Layout Plan

Project
Old Wood Energy Park

Status
For Information Only

Date	Scale at A3	Status code
18/05/2023	1:5000	S0

Drawing number	Revision
WLL02A-EXG-04-00-D-K001	P04.08

APPENDIX 2: SURVEY RECORD SHEETS

Project No.	0189	**Project Name:**	Old Wood Solar
Location Number	1	**Installed By:**	MS
Grid Reference	459954,328040	**Location Name**	Field View
Start Date	28/03/2023	**Start Time**	1200

Equipment Details	**Make/Model**	**Serial No.**
Sound Level Meter:	NL52	00721026
Calibrator:	NC75	35024443
Source of Equipment:		Metrica
Meter Timestamp (Start/End, GMT/BST):		Start GMT

Description of Location	On drive close to Field View Farm
Distance from Façade	NA
Noise Sources Observed	Road noise, breeze, birds
Weather Conditions	Overcast, rain, moderate breeze

Set-Up / Visit 1

Date	28/03/2023	**Time**	1200
Filename	0101	**Calibration Level**	94.0
Range	20-120	**Measurement Index**	15min
Frequency Weighting	A	**Weather Monitoring?**	Yes
Lp Logging?	1 sec	**Audio / Octave Bands?**	No
Additional Notes			

Visit 2

Date	31/3/23	**Time**	1430
Visited by	AM	**Calibration Level**	94.0
Level Pre-Calibration	94.0	**Batteries Replaced?**	N/A
Equipment Removed?			Yes
Additional Notes			


PK16 FHF

Project No.	0189	**Project Name:**	Old Wood Solar
Location Number	2	**Installed By:**	MS
Grid Reference	459512,326582	**Location Name**	Field View
Start Date	28/03/2023	**Start Time**	1245

Equipment Details	**Make/Model**	**Serial No.**
Sound Level Meter:	NL52	00721025
Calibrator:	NC75	35024443
Source of Equipment:		Metrica
Meter Timestamp (Start/End, GMT/BST):		Start GMT

Description of Location	At side of field, approximately same distance from road as nearby receptors
Distance from Façade	NA
Noise Sources Observed	Road noise, breeze, birds, occasional loud plane noise – location is under flight path
Weather Conditions	Overcast, rain, moderate breeze

Set-Up / Visit 1

Date	28/03/2023	**Time**	1245
Filename	0201	**Calibration Level**	94.0
Range	20-120	**Measurement Index**	15min
Frequency Weighting	A	**Weather Monitoring?**	Yes
Lp Logging?	1 sec	**Audio / Octave Bands?**	No
Additional Notes			

Visit 2

Date	31/3/23	**Time**	1500
Visited by	AM	**Calibration Level**	94.0
Level Pre-Calibration	94.0	**Batteries Replaced?**	N/a
Equipment Removed?			Yes
Additional Notes			

APPENDIX 3: NOISE MAP

458000 459000 460000 461000

328000 327000

Windmill Hill
Woodside Farm
Longcliffe Farm
Old Wood
Bunny Hill
Keyworth Road
Bradmore Road
Fair View
The Stable
NSR 1
Whitegates
Intake Wood
Rough Plantation
Wysall Rough Plantation
Long Rough Plantation
Field Farm
Elm Lodge
Wysall Road
Scotland Hill Farm
Costock Road
The Oakland
Brookleia Farm
Thorpe in the Glebe
Annabell's Plantation

458000 459000 460000 461000

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Customer: Exagen

Project: Old Wood

Project-No: 0189

Description
Noise Contour Plot @ 1.5m

Building
Receptor Location
Point source
Building Source

Specific Level dB, LAeq

25 -	30
30 -	35
35 -	40
40 -	45
45 -	50
50 -	55
>	55

1:15,000
0 100 200 300 400 500

Metrica
ENVIRONMENTAL CONSULTING