Gorhambury House
St Albans

Plant Noise Assessment Report

HT: 32719/PNA1

10 October 2025

For:
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Document Control

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Hann Tucker Associates

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Attachments

1.0 Introduction

Hann Tucker Associates Limited (Hann Tucker) has been commissioned by Inskip Gee Architects to undertake a noise assessment for a site at Gorhambury House, Gorhambury, St Albans, Hertfordshire, AL3 6AH, hereby referred to as 'the Site'.

The Applicant is proposing to install 1No. emergency back-up generator and 1No. electricity substation within the grounds of The Gorhambury Estate under planning application reference 5/2025/1640.

A plant noise assessment, presented herein, has been undertaken to assess the potential noise impact from the proposed plant equipment.

2.0 Objectives

To assess the noise emissions from the proposed plant, based upon data with which we are provided and comment upon the acceptability.

To advise on noise control measures if required.

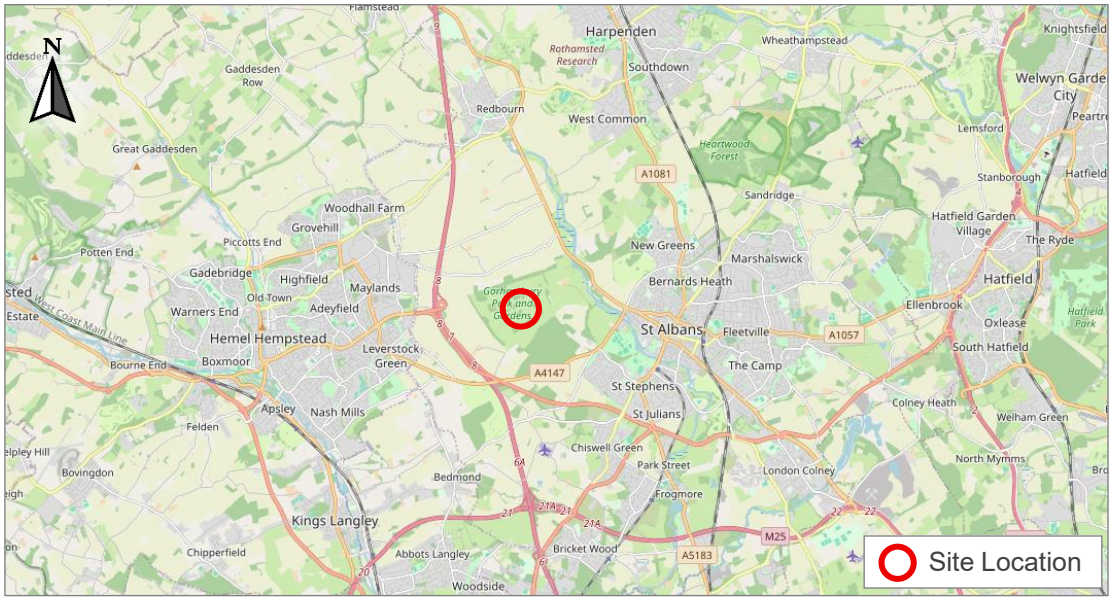
3.0 Acoustic Terminology

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

4.0 Site Description

4.1 Location

The Site is located within the grounds of The Gorhambury Estate. The location is shown in the Location Map overleaf.



Location Map (©OpenStreetMap Contributors)

The site falls within the jurisdiction of St Albans City and District Council.

4.2 Description

The Site is located within the grounds of The Gorhambury Estate. The estate consists of Gorhambury House and various other dwellings and outbuildings. The surrounding area is predominantly grass and woodland.

The M1 motorway passes north/south approximately 1.9km east of the Site. The town of St Albans is to the southeast.

The Site and immediate surrounding area are shown in the Site Plan overleaf.

Site Plan (Map data: ©2025 Google, DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky)

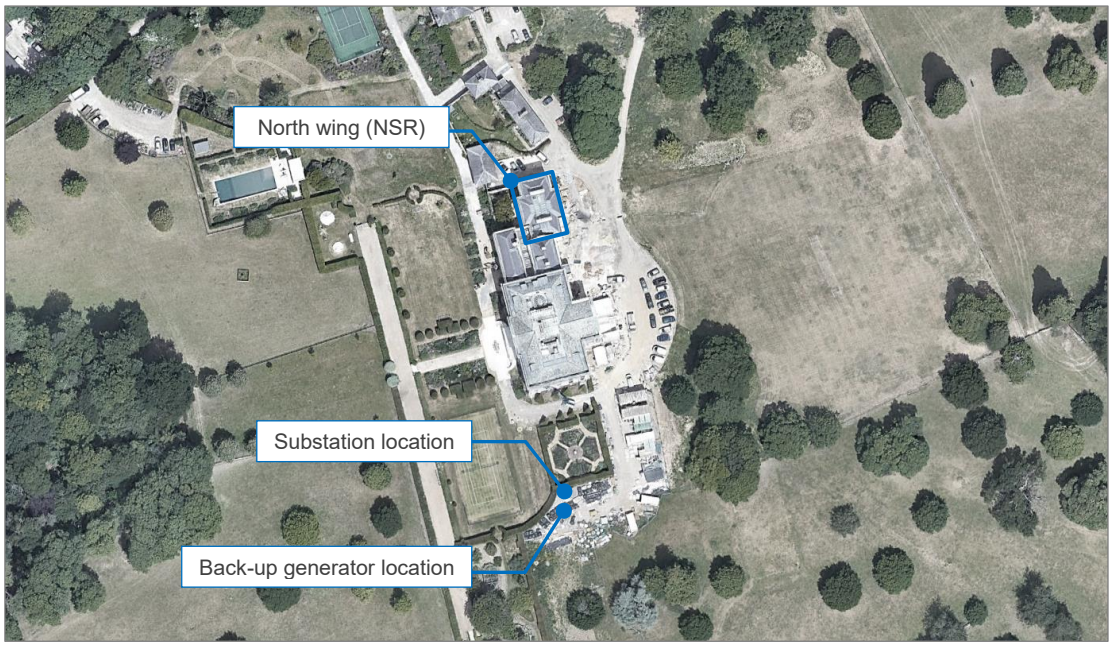
5.0 Plant Noise Impact Assessment

5.1 Proposed Plant

5.1.1 Plant and Receptor Locations

The plan below shows the proposed plant location and nearest or most-affected Noise Sensitive Receptor (NSR) location.

The nearest or most-affected NSR has been identified as separate residential dwellings within the north wing of Gorhambury House. Other potential receptors are located further away and therefore the impact upon these receptors shall be less than that at the dwellings within the north wing of Gorhambury House. I.e. such dwellings do not require consideration in the assessment.



Plant & Receptor Locations (Map data: ©2025 Google, DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky)

5.1.2 Plant Operation

The electricity substation shall operate continuously, 24 hours a day.

The emergency back-up generator shall only operate in the event of failure or disruption to the supply from the national power grid and for occasional periodic testing. The testing should be limited to up to 1-hour during working hours, Monday to Friday and excluding bank holidays and weekends.

5.1.3 Plant Items

We understand the following plant items have been proposed.

Plant Description	Qty.	Manufacturer	Model
1000 KvA Substation	1No.	N/A	N/A
Generator set	1No.	Dagartech	DGVS 170 ME

5.1.4 Plant Noise Data

The following noise data for the equipment has been considered in the assessment.

Plant Description	Sound Power Level (dB re 10^{-12} Watts)
1000KvA Substation	56 dB L_{wA} [1]
Generator set	97 dB L_{wA} [2]

Notes:

[1] Example noise level data for a similar specification 1000KvA substation.

[2] Sourced directly from the Dagartech data sheet.

5.2 Assessment Criteria

World Health Organisation (WHO) guidance "Guidelines on Community Noise" presents guideline noise level criteria for residential environments. A summary of the relevant external noise guidelines is presented in the table below.

Residential Environment	Critical Health Effect(s)	L_{Aeq}	Time Base
Outdoor living area	Serious annoyance, daytime and evening	55	07:00-23:00
	Moderate annoyance, daytime and evening	50	07:00-23:00
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	23:00-07:00

These WHO guidelines are based, in almost all cases, on the lower threshold below which the occurrence rates of any particular effect can be assumed to be negligible.

Per the table above, a limit of 45 dB L_{Aeq} applicable for outside bedrooms during the night-time (23:00 – 07:00 hours) is considered an appropriate plant noise limit criterion.

In addition to external noise levels, it can be prudent to consider expected internal noise levels for plant noise emissions within habitable rooms.

British Standard 8233: 2014 "Guidance on sound insulation and noise reduction for buildings" provides guidance for the control of noise in and around buildings.

BS8233:2014 Section 7.7.2 titled "Internal ambient noise levels for dwellings" states:

"In general for steady external noise sources, it is desirable that internal ambient noise levels do not exceed the following guideline values:

Activity	*Location*	*Desirable Internal Ambient Criteria*	
		07:00 - 23:00	*23:00 - 07:00*
Resting	*Living Rooms*	*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 $L_{Aeq,8hour}$*

Using the desirable internal ambient noise level criteria presented above, an assessment of internal plant noise emissions will be made, considering a typical 10 dB loss through a partially open window.

A summary of the plant noise emission criteria considered for the assessment is set out below.

Location	Plant Noise Limit Criterion
1m outside noise sensitive windows	45 dB L_{Aeq}
Inside habitable rooms	30 dB L_{Aeq}

5.3 Plant Noise Impact Assessment

The following tables summarise our predictions of plant noise emissions from the proposed plant to the nearest noise sensitive residential window, as indicated in Section 5.1.1, and predicted internal noise levels within habitable rooms.

Description	Sound Level (dB)
Dagartech DGVS 170 ME Genset	97 L_{wA}
95m Distance Loss (L_w to L_p)	-48
Screening (fully screened)	-10
Sound pressure at 1m from NSR	39 L_{Aeq}
Loss through a partially open window	-10
Internal noise level	29 L_{Aeq}

Description	Sound Level (dB)
1000KvA Substation	56 L_{wA}
90m Distance Loss (L_w to L_p)	-47
Screening (fully screened)	-10
Sound pressure at 1m from NSR	-1 L_{Aeq}
Loss through a partially open window	-10
Internal noise level	-11 L_{Aeq}

Our calculations indicate that the proposed plant, should be capable of achieving the plant noise emission criteria set out in Section 5.2 for both external and internal noise levels for the nearest noise sensitive receptor.

It should be noted that the back-up generator shall only operate in an emergency capacity in the event of failure or disruption to the supply from the national power grid and for occasional periodic testing. This context serves to lessen the potential noise impact upon receptors.

These assessment outcomes are indicative of a negligible noise impact upon all surrounding noise sensitive receptors.

6.0 Conclusion

A plant noise impact assessment has been carried out to determine the plant noise emissions at the nearest noise sensitive receptor. Consideration has been made for plant noise levels outside and inside habitable rooms of the nearest and most affected noise sensitive receptor.

The assessment outcome is indicative of a negligible noise impact upon all surrounding noise sensitive receptors.

Appendix A

The acoustic terms used in this report are defined as follows:

dB — Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).

dBA — The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The $_A$ subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted

It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

$L_{90,T}$ — L_{90} is the noise level exceeded for 90% of the period *T* (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.

$L_{eq,T}$ — $L_{eq,T}$ is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, *T*.

L_{max} — L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

Sound Pressure Level (L_p) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).

Sound Power Level (SWL or L_w) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).