



Reading Winter Wonderland

Plant Noise Assessment Report

6 November 2025

For
Reading Winter on Ice

Contents

SUMMARY..... 2

1.0 INTRODUCTION 3

2.0 DESCRIPTION OF SITE AND PROPOSALS 3

3.0 PLANNING CONDITION 8 REQUIREMENTS 4

4.0 BASELINE NOISE SURVEY 4

4.1 Methodology 4

4.2 Noise Survey Results & Observations..... 5

5.0 PLANT NOISE ASSESSMENT 5

5.1 Proposed Plant..... 5

5.2 Nearest Noise Sensitive Properties 6

5.3 Plant Noise Limits 6

5.4 Plant Noise Predictions..... 6

APPENDIX A – ACOUSTIC TERMINOLOGY..... 7

APPENDIX B – TIME HISTORY GRAPH 8

SUMMARY

A new generator is proposed on the site of the Reading Winter Wonderland at Hill's Meadow in Caversham, noise emissions from which will be subject to the requirements of a planning condition.

A noise survey has been undertaken to determine the typical background noise levels representative of the nearest noise sensitive properties, during the periods when the proposed generator would be operational.

Subsequently, a noise assessment has been undertaken to predict noise emissions associated with the proposed generator at the nearest noise sensitive properties.

The assessment shows that the predicted plant noise levels at the nearest noise sensitive properties achieve the planning condition 8 requirements.

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1.0 Introduction

A new generator is proposed on the site of the Reading Winter Wonderland at Hill's Meadow in Caversham, noise emissions from which will subject to the requirements of a planning condition.

auricl has been commissioned to carry out a noise assessment of the generator, in relation to the planning condition requirements.

This report presents the methodology and results of a noise survey to determine background noise levels that are representative of the nearest noise sensitive properties, as well as an acoustic assessment of the new plant to address the planning condition requirements.

2.0 Description of Site and Proposals

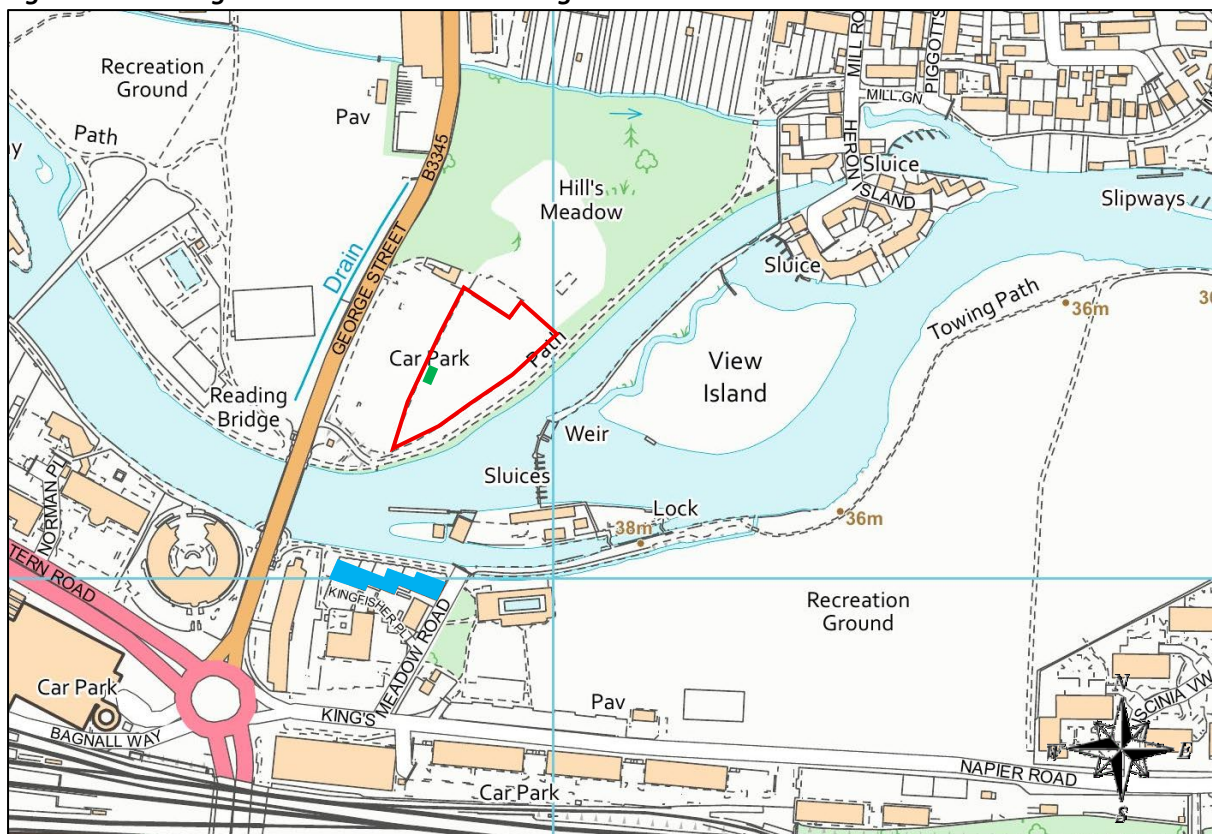
The site is located at Hill's Meadow in Caversham and occupies part of the car park, with Hill's Meadow bounding the site to the north, the River Thames to the east and south, and the remainder of the car park to the west.

A generator is proposed on the western site boundary.

The nearest noise sensitive (residential) properties to the proposed generator are noted to be located at Kingfisher Place on the southern side of the river.

Figure 2.1 shows the approximate site extent in **red**, with the approximate proposed generator location indicated in **green** and the nearest noise sensitive (residential) properties indicated in **blue**.

Figure 2.1 Existing Site Extent and Surroundings



The generator is proposed to operate during daytime periods and occasionally during the night-time.

3.0 Planning Condition 8 Requirements

Planning condition 8 of the planning permission (ref: PL/25/1225) states the following:

“No mechanical plant shall be installed before the event opens for public use until a noise assessment of the proposed mechanical plant has been submitted to and approved by the Local Planning Authority. The assessment shall be carried out in accordance with BS4142:2014+A1:2019 methodology. The predicted rating level, $L_{A,T,r}$ (specific sound level plus any adjustment for the characteristic features of the sound) as measured at a point 1 metre external to the nearest noise-sensitive façade (habitable window of a dwelling) shall not exceed the pre-existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation. The plant shall thereafter be installed before the event opens to public use in accordance with the assessment and shall thereafter be maintained so that it operates to the same standard for the duration of the use.”

We will therefore base our noise survey methodology and acoustic assessment on the above requirements.

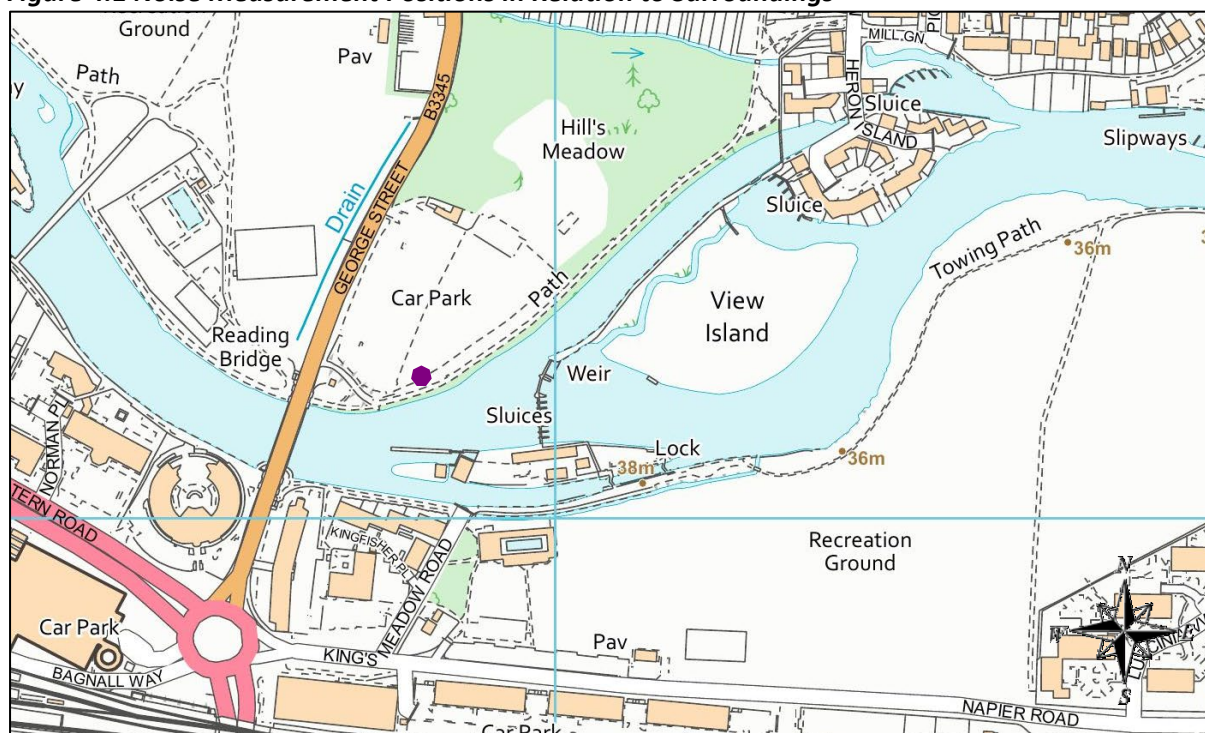
4.0 Baseline Noise Survey

4.1 Methodology

An unmanned environmental noise survey was undertaken over a 4-day period between Thursday 16 October 2025 and Monday 20 October 2025. The noise survey period was selected to determine typical background noise levels during periods when the proposed plant is expected to be operational i.e. daytime and night-time periods, on weekdays and weekends.

The measurement position was located at the southern end of the site, as indicated approximately on **purple** on Figure 4.1, with the measurement microphone mounted approximately 2m above ground level in free-field.

Figure 4.1 Noise Measurement Positions in Relation to Surroundings



The measurement position was agreed with Reading Borough Council over email and is considered to be representative of background noise levels at the nearest noise sensitive properties to the south of the river.

The equipment used for the noise survey is summarised in Table 4.1.

Table 4.1 Description of Noise Survey Equipment

Item	Make & Model	Serial Number
Type 1 automated logging sound level meter	01dB Fusion	11388
Type 1 ½" microphone	GRAS 40CD	330883
Calibrator	Cirrus CR:515	105381

L_{Aeq} and L_{A90} sound pressure levels were measured throughout the noise survey over contiguous 1-second intervals.

Due to the nature of the noise survey, i.e. unmanned, we are unable to comment on the weather conditions throughout the entire noise survey period. However, at the beginning and end of the survey period, there was noted to be mild conditions with clear skies and only light wind. Weather conditions are not considered to have had a significant effect on the measured noise levels.

The noise monitoring equipment was calibrated before and after the noise survey period. No significant change was found to have occurred.

4.2 Noise Survey Results & Observations

Appendix B presents time history graphs showing the L_{Aeq} and L_{A90} sound pressure levels measured throughout the entire noise survey (shown as 15-minute intervals).

In accordance with BS 4142: 2014+A1: 2019, the typical (modal) measured (L_{A90}) background noise level was 51 dB L_{A90} (1 hour) during daytime periods (07:00 – 23:00 hours) and 45 dB L_{A90} (15 min) during night-time periods (23:00 – 07:00 hours).

We would consider the levels measured to be reasonable, considering the location of the measurement position and the dominant nearby noise sources.

Due to the nature of the unmanned noise survey, we are unable to comment on the exact noise climate throughout the entire survey period however, at the beginning and end of the survey period, the daytime noise climate was noted to be affected by noise from road traffic noise using George Street (B3345) to the west of the site.

5.0 Plant Noise Assessment

This section presents our assessment and calculations of noise emissions from the proposed generator, in relation to the planning condition 8 requirements presented in Section 3 above.

5.1 Proposed Plant

A generator is proposed on the western site boundary, as indicated approximately on Figure 2.1.

The proposed generator is a CES Power NEF4STM2A packaged generator, operating at a sound pressure level of 63 dB (L_{pA}) at 7m according to the manufacturer's data.

The generator is expected to emit consistent broadband noise and is not anticipated to be tonal, intermittent or impulsive, or contain any other distinctive audible characteristics.

The generator is proposed to operate during daytime periods and occasionally during the night-time.

5.2 Nearest Noise Sensitive Properties

We have considered the nearest noise sensitive properties to be the residential properties noted to be located to the south of the river at Kingfisher Place, as indicated on Figure 2.1, at a distance of approximately 130m from the proposed generator.

5.3 Plant Noise Limits

Based on the planning condition 8 requirements and the results of the noise survey, Table 5.1 presents the plant noise limits to be achieved at the nearest noise sensitive properties during weekday office hours.

Table 5.1 External Noise Limits

Period	External $L_{A,T,r}$ Rating Level Limit during Plant Operating Period (dB)
Daytime (07:00 – 23:00 hours)	51
Night-time (23:00 – 07:00 hours)	45

The noise limits are to be achieved at a distance of 1m external to the nearest noise sensitive property and apply to the total cumulative noise level with all relevant plant operating simultaneously.

5.4 Plant Noise Predictions

Our calculations to predict the total plant noise level at each of the nearest noise sensitive properties are presented in Table 5.2.

Table 5.2 Plant Noise Emission Calculations

Element	Level (dB)	
Generator Sound Pressure Level (L_{pA}) at 7m	63	
Attenuation due to Screening from Intervening Structures	-5	
Attenuation due to Distance	-13	
Predicted Sound Pressure Level at Noise Sensitive Property	45	
Noise Limit	51 Daytime	45 Night-time

It can be seen that the total predicted noise level at the nearest noise sensitive properties does not exceed the proposed plant noise limit during daytime and night-time periods and should therefore be considered acceptable in relation to the planning condition 8 noise requirements.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
L_{A90} (15 min)	The noise level exceeded for 90% of the time (also referred to as the background noise level), measured over a 15 minute period

Appendix B – Time History Graph

