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THE WALLACE HOUSE, FITZROY PARK

PRELIMINARY NOISE IMPACT ASSESSMENT

Report 3423.NIA.01

Prepared on 29 October 2009

For:

Derrick Dale The Wallace House Fitzroy Park London N6 6HT



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1.0 INTRODUCTION

Practical Acoustics has been commissioned by Derrick Dale, The Wallace House, Fitzroy Park, London, N6 6HT to measure existing background noise levels at the same site. The measured noise levels will be used to determine noise emission criteria for any proposed plant units in agreement with the planning requirements of the London Borough of Camden.

This report presents the results of the environmental survey to allow future noise impact calculations to be undertaken.

2.0 ENVIRONMENTAL NOISE SURVEY

2.1 Procedure

Measurements were taken at the position shown in Site Plan 3423.SP1. The choice of this position was based both on accessibility and on collecting representative noise data in relation to the nearest noise sensitive receiver.

Continuous automated monitoring was undertaken for the duration of the survey between 10:15 on 21/10/2009 and 11:45 on 22/10/2009.

Background noise levels at the monitoring position consisted mainly of noise from existing plant.

Weather conditions were dry with light winds, therefore suitable for the measurement of environmental noise.

The measurement procedure generally complied with BS7445:1991. *Description and measurement of environmental noise, Part 2- Acquisition of data pertinent to land use*.

2.2 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed.

The equipment used was as follows.

- Svantek Type 957 Class 1 Sound Level Meter
- Norsonic Type 1251 Class 1 Calibrator

3.0 RESULTS

The $L_{Aeq: 15min}$, $L_{Amax: 15min}$, $L_{A10: 15min}$ and $L_{A90: 15min}$ acoustic parameters were measured at the location shown in Site Plan 3423.SP1. The measured levels are shown as a time history in Figure 3423.TH1.

Average and minimum background levels are shown in Table 3.1.

	Average background noise level L _{A90: 15min} dB(A)	Minimum background noise level L _{A90: 15min} dB(A)
Daytime (07:00-23:00)	42	40
Night-time (23:00-07:00)	39	38

Table 3.1: Average and minimum background noise levels

4.0 NOISE CRITERIA

The London Borough of Camden's criteria for noise emissions of new plant installations are as follows:

"Design measures should be taken to ensure that specific plant noise levels at a point 1 metre external to sensitive façades are at least 5dB(A) less than the existing background measurement (LA90) when the equipment is in operation. Where it is anticipated that equipment will have a noise that has distinguishable, discrete continuous note[...], special attention should be given to reducing the noise at any sensitive façade by at least 10dB(A) below the LA90 level."

We therefore propose to set the noise criteria as shown in Table 4.1 in order to comply with the above requirement.

	Daytime (07:00 to 23:00)	Night-time (23:00 to 07:00)
Noise criterion at nearest residential receiver (10dB below minimum L _{A90})	30	28

Table 4.1: Proposed Noise Emissions Criteria

As the units will be used on an on-demand basis, the night-time criterion of 28dB(A) will be used.

The closest residential receivers are approximately 10m from any roof space, where units are likely to be installed.

A more detailed analysis will be undertaken once the operating schedule, location and make of plant units is finalised. This would enable the investigation of any potential noise control measures that could be applied on the plant installation.

5.0 CONCLUSION

An environmental noise survey has been undertaken at The Wallace House, Fitzroy Park, London, N6 6HT. The results of the survey have enabled criteria to be set for noise emissions from the proposed plant units in accordance with the requirements of the London Borough of Camden.

All acoustics calculations will be refined once all the plant schedule is known.





APPENDIX A

GLOSSARY OF ACOUSTIC TERMINOLOGY



dB(A)

The human ear is less sensitive to low (below 125Hz) and high (above 16kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq} . The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L₁₀

This is the level exceeded for not more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise

L₉₀

This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 10 such octave bands whose centre frequencies are defined in accordance with international standards.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than one alone and 10 sources produce a 10dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

Barriers

Outdoor barriers can be used to reduce environmental noises, such as traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and its construction.

Reverberation control

When sound falls on the surfaces of a room, part of its energy is absorbed and part is reflected back into the room. The amount of reflected sound defines the reverberation of a room, a characteristic that is critical for spaces of different uses as it can affect the quality of audio signals such as speech or music. Excess reverberation in a room can be controlled by the effective use of sound-absorbing treatment on the surfaces, such as fibrous ceiling boards, curtains and carpets.