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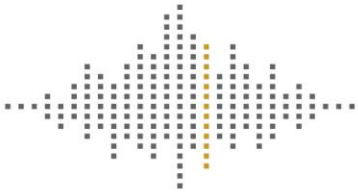

Report

Gail's Artisan Bakery, 21 Swains Lane, Highgate, Camden

Environmental Noise Report

Prepared by
Gary King MIOA

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Sharps Redmore
The White House, London Road,
Copdock, Ipswich, IP8 3JH
T 01473 730073
E contact@sharpsredmore.co.uk
W www.sharpsredmore.co.uk

Sharps Redmore Partnership Limited
Registered in England No. 2593855
Directors
TL Redmore BEng(Hons). MSc. PhD. MIOA;
RD Sullivan BA(Hons). PhD. CEng. MIOA. MAAS;
DE Barke MSc. MIOA

Institute of Acoustics sponsoring organisation

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Appendices

1.0 Introduction

1.1 Sharps Redmore have been instructed by Planning Potential Ltd, on behalf of Gail's Ltd (Trading as Gail's Artisan Bakeries), to carry out a noise assessment for the kitchen extract system which will be installed at the proposed bakery at 21 Swains Lane, Highgate, Camden.

1.2 To facilitate the use of the premises as an bakery, new mechanical services plant will be installed, including two air conditioning units will which will be located internally and a new air extract unit which will discharge through the flat roof at the rear of the shop, at first floor level.

1.3 The nearest noise sensitive properties to the proposed bakery are the residential apartments on the first floor. As the a/c units will be installed internally noise from the units planning permission is not required for the units. Therefore the purpose of this report is to determine the impact from the air extract system.

1.4 Sharps Redmore have previously carried out a survey of existing noise levels to determine plant criteria in accordance with Policy DP 28 'Noise and Vibration' of the London Borough of Camden Core Strategy.

1.5 Details of the acoustic survey and noise criteria are set out in section 2.0 of this report. An assessment of the impact of proposed ventilation system based on manufacturer's data and drawings in included in section 3.0.

1.6 A guide to the acoustic terminology used within the report is included in Appendix A.

2.0 Survey Details

2.1 To determine existing background noise levels a series of noise measurements were taken at the rear of 21 Swains Lane. Full details of the survey are included in the SR report dated 15 July 2015.

2.2 SR have been advised that the bakery will trade between 0700 – 2000 hours (Monday to Saturday) and between 0800 – 2000 hours (Sundays). Outside these hours all mechanical plant will be switched off. Using the background noise levels measured during these periods the representative background noise level measured at the first floor residential apartments was found to be 44 dB $L_{A90T.}$

2.3 Policy DP 28 of the London borough of Camden Core strategy requires that noise from mechanical services plant should be 5 dB below the background noise levels or where the plant has a distinct discrete isolated tone, 10 dB below the background noise level when measured 1 metre from the nearest noise sensitive properties.

2.4 Based on experience and taking into account the type of plant that will be installed, this type of equipment tends to be bland in nature and does not contain any distinguishable tones which would mean the application of a character correction. In addition the noise from the extract fan would not be out of character with existing noise climate which includes noise from mechanical plant at the adjacent Tesco Express store.

2.5 Therefore to comply with the requirements of Camden's Policy DP 28, noise from the kitchen extract should not exceed 39 dB $L_{Aeq,1hr}$ when measured at 1 metre from the façade of the first floor flats above the proposed bakery.

3.0 Noise Assessment and Conclusions

3.1 SR have been advised that the proposed kitchen extract will be a Fantronix in-line kitchen extract fan, with a sound level of 52 dBA at 3m distance from the fan. Details of the fan can be found at http://www.fantronix.com/acatalog/TT_Mixed_Flow_Fan_8__dia.html

3.2 To ensure a robust assessment, SR has assumed the sound pressure level provided will be the noise level from the discharge cowl, however in practice noise levels will be slightly less taking into account noise losses through the ductwork and discharge cowl.

3.3 The nearest noise sensitive properties are 6 metres from the discharge cowl therefore taking into account the distance attenuation 20 log (ratio of distances) the predicted noise level from the operation of the extract system 1 metre from nearest residential property will be 48 dB L_{Aeq1hr}.

3.4 The predicted noise level will exceed the target noise criteria and therefore to ensure that noise from the kitchen extract does not cause significant impact to the adjacent residential properties, it is recommended that an in-line silencer is fitted to the system. A 600 mm silencer fitted to the proposed ductwork will reduce the noise levels by 10 dB, resulting in a noise level at the façade of the nearest residential properties of 38 dB L_{Aeq1hr}.

3.5 Following installation of the silencer noise levels will be within the target criteria as set out in paragraph 2.5 above.

APPENDIX A

ACOUSTIC TERMINOLOGY

Acoustic Terminology

A1 Noise, defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB, i.e. 50 dB + 50 dB = 53 dB. Increases in continuous sound are perceived in the following manner:

1 dB increase - barely perceptible.

3 dB increase - just noticeable.

10 dB increase - perceived as twice as loud.

A2 Frequency (or pitch) of sound is measured in units of Hertz. 1 Hertz (Hz) = 1 cycle/second. The range of frequencies audible to the human ear is around 20Hz to 18000Hz (or 18kHz). The capability of a person to hear higher frequencies will reduce with age. The ear is more sensitive to medium frequency than high or low frequencies.

A3 To take account of the varying sensitivity of people to different frequencies a weighting scale has been universally adopted called "A-weighting". The measuring equipment has the ability automatically to weight (or filter) a sound to this A scale so that the sound level it measures best correlates to the subjective response of a person. The unit of measurement thus becomes dBA (decibel, A-weighted).

A4 The second important characteristic of sound is amplitude or level. Two units are used to express level, a) sound power level - L_w and b) sound pressure level - L_p. Sound power level is an inherent property of a source whilst sound pressure level is dependent on surroundings/distance/directivity, etc. The sound level that is measured on a meter is the sound pressure level, L_p.

A5 External sound levels are rarely steady but rise or fall in response to the activity in the area - cars, voices, planes, birdsong, etc. A person's subjective response to different noises has been found to vary dependent on the type and temporal distribution of a particular type of noise. A set of statistical indices have been developed for the subjective response to these different noise sources.

A6 The main noise indices in use in the UK are:

L_{A90}: The sound level (in dBA) exceeded for 90% of the time. This level gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background sound level" of an area.

L_{Aeq}: The equivalent continuous sound level in dBA. This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the intermittent noise". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as aircraft and trains.

L_{A10}: The sound level (in dBA) exceeded for 10% of the time. This level gives an indication of the sound level during the noisier periods of time in any given sample. It has been used over many years to measure and assess road traffic noise.

L_{AMAX}: The maximum level of sound measured in any given period. This unit is used to measure and assess transient noises, i.e. gun shots, individual vehicles, etc.

A7 The sound energy of a transient event may be described by a term SEL - Sound Exposure Level. This is the L_{Aeq} level normalised to one second. That is the constant level in dBA which lasting for one second has the same amount of acoustic energy as a given A weighted noise event lasting for a period of time. The use of this unit allows the prediction of the L_{Aeq} level over any period and for any number of events using the equation;

$$L_{AeqT} = SEL + 10 \log n - 10 \log T \text{ dB}.$$

Where

n = Number of events in time period T.

T = Total sample period in seconds.

A8 In the open, known as free field, sound attenuates at a rate of 6 dB per each doubling of distance. This is known as geometric spreading or sometimes referred to as the Inverse Square Law. As noise is measured on a Logarithmic scale, this attenuation in distance = 20 Log (ratio of distances), e.g. for a noise level of 60 dB at ten metres, the corresponding level at 160 metres is:

$$60 - 20 \text{ Log } {}^{160}/_{10} = 60 - 24 = 36 \text{ dB}.$$