TECHAPPR

Report No: **AAL/BS11022**

Background Noise Survey, Markfield CoOp

Acoustic Associates
LEICESTERSHIRE

Client: **Midlands Co-Operative Society Ltd**
Central House
Hermes Road
Litchfield
Staffs WS13 6RH

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1. Introduction

Acoustic Associates have been commissioned to monitor background noise at 78 Main Street, Markfield, Leicestershire, LE67 9UU. It is proposed to demolish the existing store and build a new on the site with provision of new residential units.

There will be air conditioning which will operate from 7 am to 11 pm and chiller plant that will operate 24 hrs a day.

All information presented is illustrative and intended to assist in the application for planning permission and it should not be used for design or any other purposes. The following concerns acoustic performance only and you must ensure that other non-acoustic requirements are met. This report is based on information supplied by the client and we can not be held responsible for any errors in that information.

2. Noise measurements

Noise levels were measured on 30/3/11 to cover night time and on 6/4/11 for the evening (worst cade "daytime" which in this case is 10-11pm as the air conditioning will go off after that) by a competent person for environmental and occupational noise monitoring, in accordance with BS 7445 (Description and measurement of environmental noise) and BS 4142:1997 (Method for rating industrial noise affecting mixed residential & industrial areas). Free field noise levels were measured at a height of about 1.4 m above the ground using the following sound level meters with wind shields fitted:

Instrument	Serial No.	Calibrated
Larson Davis 820	0709	Jan 10

The equipment was operated according to the manufacturers instructions and calibrated before and after use with a Bruel & Kjaer Type 4230 acoustic calibrator (serial number 781674), and the calibration had not changed appreciably.

Weather conditions were satisfactory for monitoring noise, and noise level measurements were not affected by wind generated noise. Average wind speeds were 0 m/s, and it was mild and dry. Temperatures were over 5°C.

There was significant road traffic noise on the site apparently from the M1. The monitoring position was not affected by any existing plant noise. Background noise levels were 37 $L_{A90,5min}$ at

night and 41 $L_{A90,15min}$ in the late evening.

3. Planning context

In carrying out an assessment in this case we are mindful of the advice contained in Planning Policy Guidance (PPG) 24 "Planning and Noise".

Annex 3 covers "*Detailed Guidance on the assessment of noise from different sources*" and deals with "*Noise from industrial and commercial developments*" as follows;

19. *The likelihood of complaints about noise from industrial development can be assessed, where the standard is appropriate, using guidance in BS 4142: 1990. Tonal or impulsive characteristics of the noise are likely to increase the scope for complaints and this is taken into account by the "rating level" defined in BS 4142. This "rating level" should be used when stipulating the level of noise that can be permitted. The likelihood of complaints is indicated by the difference between the noise from the new development (expressed in terms of the rating level) and the existing background noise. The Standard states that "A difference of around 10 dB or higher indicates that complaints are likely. A difference of around 5 dB is of marginal significance".*

4. Noise specification

The noise specification is derived from the requirement to not exceed a "marginal" assessment to BS 4142 for the new plant. It is below the guideline values given in WHO and BS 8233 and so would not disturb sleep. It applies to the existing AND proposed houses.

The recommended specification is:

Total noise from the new plant should not exceed 41 $L_{Aeq,1hr}$ at any property in the daytime and 37 $L_{Aeq,5min}$ at night.

5. Noise assessment

BS 4142 indicates the likelihood of complaints, and if the Rating Level does not exceed background by more than 5 dBA it is classified as "marginal", which is often considered as acceptable for planning purposes. Taking the specification for a worst case (plant on for a full 5 minutes at night and 60 minutes in the day, and with a character correction of 5) assessing in accordance with BS 4142 indicates that complaints in the worst case it is "marginal" and so planning permission should not be refused on noise grounds.

Assessment to BS 4142 Night time, T_r = 5 min at the nearest dwelling	
Sound Pressure Level	37 L_{Aeq}
Time correction	0 dB
Specific noise level	37 L_{Aeq}
Correction for character unknown so 5 dB to cover tonal noise	5 dB
Rating level	42 dB
Background level	37 L_{A90}
Background subtracted from rating level (Assessment Level)	5

Conclusion: marginal

Assessment to BS 4142 Daytime, T_r = 60 min at the nearest dwelling	
Sound Pressure Level	41 L_{Aeq}
Time correction	0 dB
Specific noise level	41 L_{Aeq}
Correction for character unknown so 5 dB to cover tonal noise	5 dB
Rating level	46 dB
Background level	41 L_{A90}
Background subtracted from rating level (Assessment Level)	5

Conclusion: marginal

6. Conclusions

- Night time background noise levels were 37 $L_{A90,5min}$.
- Day time background noise levels were 41 $L_{A90,15min}$.
- A specification for the plant is derived.
- Assessed to BS 4142 indicates noise is "marginal" and so planning permission should not be refused on noise grounds.

Appendix 1. Monitored noise levels

Night time

Date	Time	L_{Aeq}	L_{Amax}	L_{A90}
30 Mar 2011	00:00	41.6	47.7	37.2
30 Mar 2011	00:05	42.1	47.3	38.5
30 Mar 2011	00:10	42.1	46.2	38.2
30 Mar 2011	00:15	42.7	47.5	39.2
30 Mar 2011	00:20	46.6	50.3	41.2
30 Mar 2011	00:25	46.5	55.2	42

Last hour when air conditioning may operate

Date	Time	L_{Aeq}	L_{Amax}	L_{A90}
06 Apr 2011	22:14	49.7	85.2	42.7
06 Apr 2011	22:29	44.6	54.3	41.4
06 Apr 2011	22:44	45.3	62.5	41.1

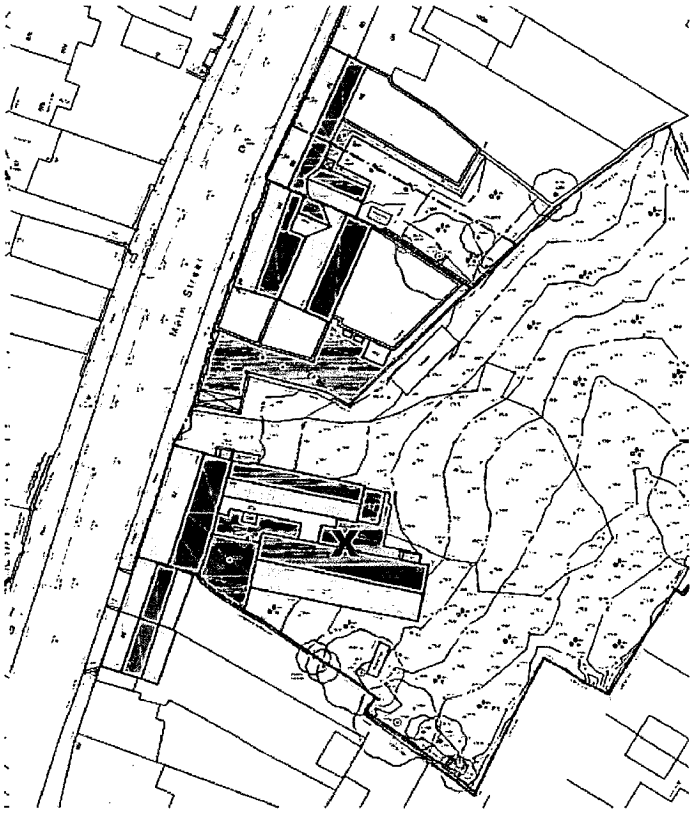


Figure 1 Noise monitoring position