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Acoustic Report

Centre Point Food Store Acoustic Survey

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08 June 2006

1 Executive Summary

Munro Acoustics were commissioned by Centre Point to carry out a noise survey to establish the impact of noise from new plant equipment upon nearby residences. A 24-hour noise survey found the lowest measured L_{A90} during the 24-hour period to be 52.2 dB. The predicted L_{Aeq} at the nearest residence due to the plant equipment is 24 dB. This meets the Camden Borough Council requirements. Octave band analysis shows that the plant equipment will not increase the noise level at the nearest residence in any octave band. This also meets the Camden Borough Council requirements.

2 Introduction

Munro Acoustics were commissioned by Centre Point to carry out a noise survey to establish the impact of noise from new plant equipment upon nearby residences. A 24-hour noise survey was carried out from 5 June 2006 to 6 June 2006 to measure the lowest L_{A90} during a typical 24-hour period. As the plant equipment was already in operation at the time of the noise survey, noise measurements of the plant equipment were made to enable calculation of the noise level at the nearest residence.

3 Noise Criteria

Centre Pint Food Store falls within the Borough of Camden. The requirement for noise from new plant in this area is that the overall level (A weighted) should be at least 5dB below the existing background noise levels (L_{A90}) at the nearest sensitive residential window. In addition, the plant noise in each octave band (L_{Aeq}) should add not more than 1dB to any existing octave band background noise level (L_{A90}).

4 Site description

The plant equipment is located at the rear of Centre Point Food Store, 20-21 St. Giles High Street, London WC2H 8LH. The rear of this building faces on to Earnshaw Street. The primary sources of noise at the site were traffic noise from the road (including heavy goods vehicles and double-decker buses) and plant noise from an existing extract duct on a different property. There is a balcony and two storeys of offices that obscure the direct line of sight between the plant equipment and the nearest noise sensitive window. This can be seen in Figure 1 below.

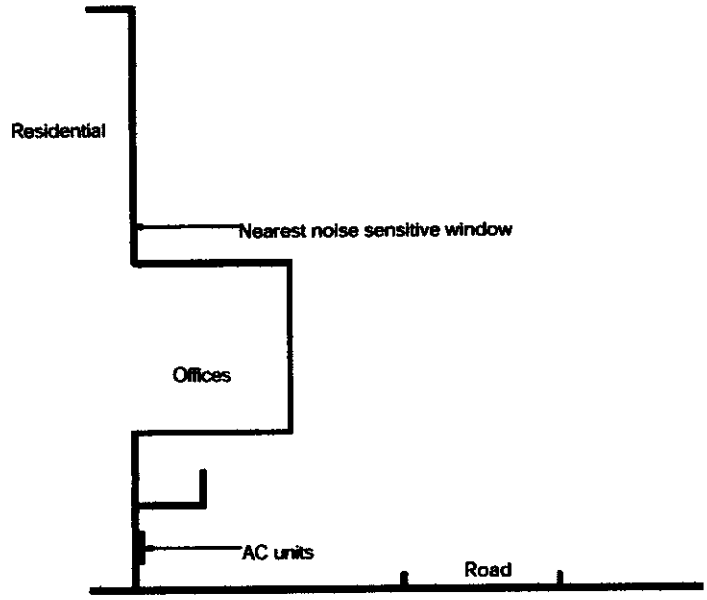

Figure 1 Section showing the location of the plant equipment relative to the nearest residence

The plant equipment at the rear of Centre Point Food Store was subjectively very quiet, and was indistinguishable from the general background noise when standing approximately 3 m away.

5 Noise Survey

A Neutrik NC10 sound analyser with MTG WME250 weatherproof microphone was used for the noise survey. The equipment was checked for calibration using a Castle GA607 calibrator before and after the measurement, no significant drift was detected. Continuous measurements were taken in 15-minute segments from 14.00 on Monday 5th June to 14.00 on Tuesday 6th June.

The microphone was positioned on a stand on the first floor balcony at the rear of the building.

Weather conditions were warm and dry.

Additional measurements were made of the plant running from one metre away. The data from this measurement are used in the calculation detailed below.

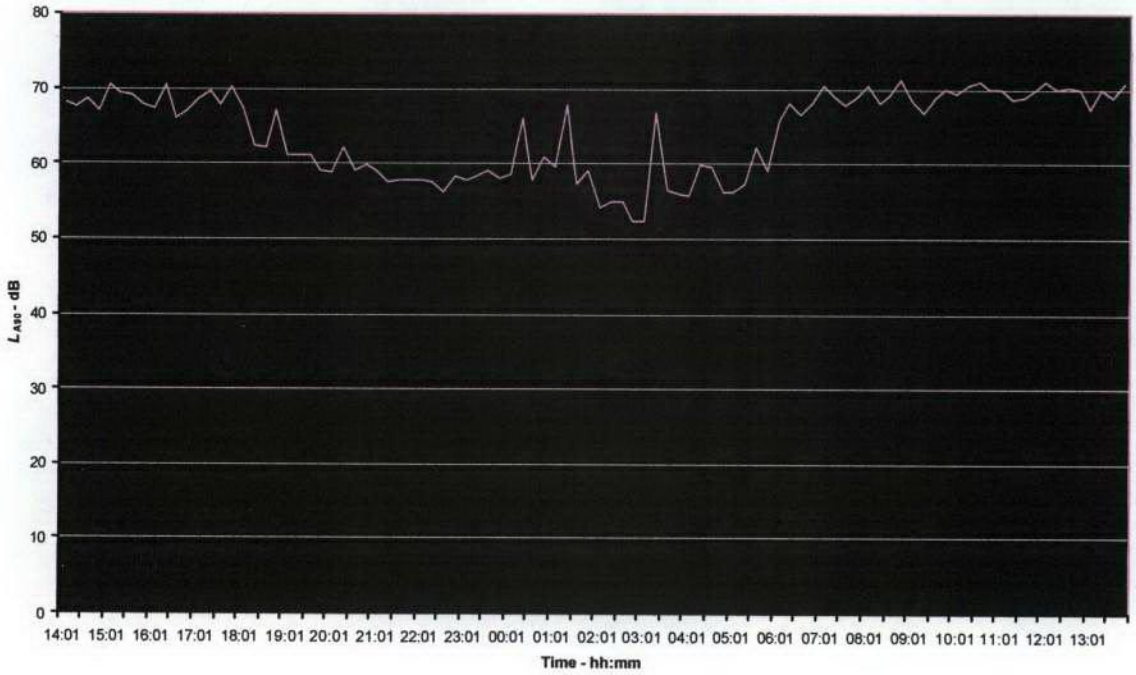

Figure 2 Noise survey data

The lowest background noise level measured during the proposed hours of operation was L_{A90} 52.2 dB on Tuesday morning (02.46-03.01).

Full measurement data is given in Appendix 1.

6 Noise Assessment

Figure 3 below shows the geometry of the noise barrier formed by the balcony and offices.

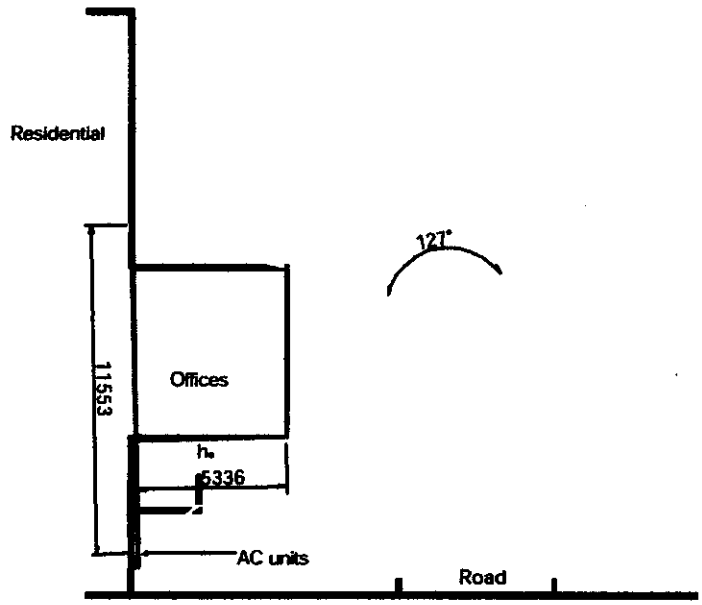

Figure 3 Calculation of barrier correction

6.1 Overall levels

The lowest measured background noise level (L_{A90}) during the 24-hour period was 52.2 dB, measured at 02:46.

In order to meet the requirements of Camden Council the noise generated by the new plant must be at least 5dB below this level at the nearest residential window (ie. $L_{Aeq} < 47.2$ dB).

Based on measured data, the calculation indicates that the predicted noise level from the plant will be $L_{Aeq} = 23$ dB. Therefore the predicted noise level comfortably meets the Camden Council Criteria.

Detail calculation is given in Appendix 2

6.2 Octave band levels

The individual octave band levels should not be increased by more than 1dB, in order to achieve this the predicted octave band levels from the plant must be 6dB lower than the existing background levels.

Details of the calculation are given in Appendix 3. It indicates that the predicted noise levels are more than 6 dB below the existing background noise levels and therefore meet the criteria.

7 Conclusion

The plant equipment at Centre Point Food Store meets the Camden Council noise criteria.

8 Appendix 1

Start hh:mm	End hh:mm	LAF_90%
14:01	14:16	68.2
14:16	14:31	67.6
14:31	14:46	68.6
14:46	15:01	67.1
15:01	15:16	70.3
15:16	15:31	69.3
15:31	15:46	69.2
15:46	16:01	67.9
16:01	16:16	67.3
16:16	16:31	70.3
16:31	16:46	66
16:46	17:01	67.1
17:01	17:16	68.7
17:16	17:31	69.7
17:31	17:46	67.8
17:46	18:01	70.1
18:01	18:16	67.4
18:16	18:31	62.5
18:31	18:46	62.2
18:46	19:01	67
19:01	19:16	61.2
19:16	19:31	61
19:31	19:46	61.1
19:46	20:01	58.9
20:01	20:16	58.7
20:16	20:31	62.2
20:31	20:46	59.1
20:46	21:01	59.7
21:01	21:16	59.1
21:16	21:31	57.4
21:31	21:46	57.7
21:46	22:01	57.8
22:01	22:16	57.8
22:16	22:31	57.4
22:31	22:46	56.2
22:46	23:01	58.2
23:01	23:16	57.6
23:16	23:31	58.3
23:31	23:46	58.9
23:46	00:01	57.9
00:01	00:16	58.6
00:16	00:31	65.9
00:31	00:46	57.8
00:46	01:01	60.8
01:01	01:16	59.5
01:16	01:31	67.8
01:31	01:46	57.3
01:46	02:01	59
02:01	02:16	54.2
02:16	02:31	54.9
02:31	02:46	54.9
02:46	03:01	52.2
03:01	03:16	52.3
03:16	03:31	66.7
03:31	03:46	56.5
03:46	04:01	55.9
04:01	04:16	55.6
04:16	04:31	59.9
04:31	04:46	59.6
04:46	05:01	56.3
05:01	05:16	56.1
05:16	05:31	57.2
05:31	05:46	62.2
05:46	06:01	59.1
06:01	06:16	65.8
06:16	06:31	68.1
06:31	06:46	66.5
06:46	07:01	68.1
07:01	07:16	70.3
07:16	07:31	68.8
07:31	07:46	67.9
07:46	08:01	68.8
08:01	08:16	70.4
08:16	08:31	68.1
08:31	08:46	69.1
08:46	09:01	71.2
09:01	09:16	68.4
09:16	09:31	66.8
09:31	09:46	69
09:46	10:01	69.8
10:01	10:16	69.5
10:16	10:31	70.3
10:31	10:46	70.9
10:46	11:01	69.8
11:01	11:16	69.8
11:16	11:31	68.7
11:31	11:46	68.9
11:46	12:01	69.9
12:01	12:16	70.9
12:16	12:31	70
12:31	12:46	70.1
12:46	13:01	69.9
13:01	13:16	67.3
13:16	13:31	69.9
13:31	13:46	68.8
13:46	14:01	70.6

9 Appendix 2 – Calculation 1

	Octave Band Centre Frequency - Hz							
	63	125	250	500	1000	2000	4000	8000
L_{eq} of units (measured)	77	73	72	69	66	61	56	52
Distance correction	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2	-21.2
SPL without barrier	56.1	51.6	50.6	47.7	44.3	39.8	34.6	30.4
Wavelength	5.40	2.72	1.36	0.68	0.34	0.17	0.09	0.04
h_m/wavelength	1	2	4	8	16	31	63	126
Attenuation due to barrier	18	21	24	28	30	35	40	45
L_{eq} with barrier	38.1	30.6	26.6	19.7	14.3	4.8	-5.4	-14.6
A-weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	0.8	-2
L_{Aeq} with barrier	11.9	14.5	18.0	16.5	14.3	6.0	-4.6	-16.6

L_{Aeq} with barrier	23 dB

10 Appendix 3 – Calculation 2

	Octave Band Centre Frequency - Hz							
	63	125	250	500	1000	2000	4000	8000
L_{eq} at 02:46	66.5	61.9	64.6	59.4	58.4	55.2	49.3	48.4
A-weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	0.8	-2
L_{Aeq} at 02:46	40.3	45.8	56.0	56.2	58.4	56.4	50.1	46.4
L_{A90} at 02:46 *	29.3	34.8	45.0	45.2	47.4	45.4	39.1	35.4
Maximum allowable L_{Aeq}	23.3	28.8	39.0	39.2	41.4	39.4	33.1	29.4
Predicted L_{Aeq}	11.9	14.5	18.0	16.5	14.3	6.0	-4.6	-16.6

* Octave Band LA90 values are not measured directly. The LAEQ octave band levels are used and corrected to the overall LA90 value