

**Planning Noise Report
for
Proposed Mechanical Plant
at the
1a Community Centre,
Roseberry Avenue
Camden**

Report Ref
PJB4189/PJB/24368

Issued To
Camden Council

Issued By
Phill Banks B Eng MIOA MAAS

Date
September, 2006



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0. FORWARD AND SUMMARY

- An application is being submitted to install ventilation and cooling equipment at premises on the corner of Rosebery Avenue & Laystall Street. As part of the application, Camden Council require a noise impact assessment in accordance with their guidelines, for the nearest residences, which is opposite near the site in Mullen Tower, on the corner of Laystall Street and Mount Pleasant.
- A site survey has been carried out to investigate existing noise sources, distance and screening to nearby residences and other parameters which have a bearing on the noise prediction from the proposed plant. A background noise survey has also been carried out in a location which is representative the existing ambient noise levels outside the nearest residences.
- Although the measured noise levels were significantly affected during the daytime by construction activity that was occurring at the time, it was possible to determine background noise levels from the weekend periods when this was not occurring.
- Calculations have been carried out of the noise levels of all of the proposed plant, operating simultaneously, outside the window of the nearest affected residence.
- The predicted noise level is 5dB below the prevailing background noise level during the day and 15 dB below background at night and therefore complies with Camden Council's noise criteria.
- Accordingly, the operation of the plant will not give rise to unacceptable levels of noise for nearby residents.

1. INTRODUCTION

Camden Council propose to install ventilation and cooling plant to serve the proposed 'Surestart' premises at 1a Community Centre, Rosebery Avenue. It is a requirement of the local planning authority (Camden Council) that a noise report be submitted as part of the application for permission for the installation of this equipment.

Accordingly, Spectrum Acoustic Consultants have been appointed to conduct the necessary measurements, analysis and, if necessary, propose mitigation measures to ensure that the Council's noise guidelines are met.

This report has been prepared by Phill Banks who has a B Eng Honours Degree in Mechanical Engineering, is a Member of the Institute of Acoustics and the Australian Acoustic Society. He has 18 years experience in engineering acoustics, including 14 years experience in environmental noise consultancy and has been involved in numerous projects in which the noise impact of mechanical plant on residential amenity has been assessed. He is employed as a Principal Consultant by Spectrum Acoustic Consultants.

2. SITE DESCRIPTION AND PROPOSALS

1a community centre is a 5 storey building with basement space on the corner of Laystall Street and Rosebery Avenue, EC1. The building adjoins commercial / office property to north. There is an open service yard between the building and the nearest residential building, "Mullen Tower", which is approximately 14m to the west. These are the nearest residences to the proposed plant area. There are no residential properties adjoining the building. There is a school opposite the premises in Laystall Street.

The noise climate in the area is mainly controlled by road traffic noise with pedestrian activity and distant plant noise also audible.

A site location plan and photographs taken at the time of the noise survey are shown in Appendix A.

Layout drawings of the proposed plant are shown in Appendix B with the externally audible plant items highlighted. The great majority of this plant would operate only between 8am and 6pm, although the condenser will work in 'silent mode' outside of these hours.

3. NOISE PRINCIPLES / STANDARDS AND NOISE CONDITIONS

Measurements and analysis are carried out in general accordance with BS 4142:1997 Method for rating industrial noise affecting mixed residential and industrial areas, as recommended by PPG24 Planning Policy Guidance 24: Planning and noise.

Camden Council Noise Standards are as follows.

1a. (old CG08)

Noise levels at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (L_{A90}), expressed in dB(A) when all plant/equipment are in operation. Where it is anticipated that any plant/equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps) special attention should be given to reducing the noise

levels from that piece of plant/equipment at any sensitive façade to at least 10dB(A) below the L_{A90} , expressed in dB(A).

And,

1b. (old CG09)

For each of the octave band of centre frequencies 63Hz-8KHz inclusive, noise levels from all plant/equipment (measured in L_{Aeq}) when in operation shall at all times add not more than 1 decibel to the existing background noise level L_{A90} , expressed in dB(A), in the same octave band as measured 1 metre external to sensitive facades.

1c.

All related measurements shall be carried out over a period of 60 minutes (that is, hourly recorded measurements shall be presented over a 24 hour period).

Others:

2.

The above are the normal Planning Conditions, which would be attached to an application; in addition to ***BS4142: 1997, Method for Rating Noise affecting Mixed Residential and Industrial Areas, being considered.***

3.

Day and Night times shall be described as follows:

Day-time: 0700-2300hrs

Night-time: 2300-0700hrs

4. Timeclock Condition

Where equipment/machinery are to operate within an agreed specified periods:
from to

Automatic time clocks shall be fitted to the equipment/machinery hereby approved, prior to commencement of the use of the units. The timer equipment shall be properly maintained and retained permanently thereafter.

4. BACKGROUND NOISE SURVEY

Ambient noise measurements were carried out during a site survey between 13th and 18th January, 2005, consisting of long-term unattended noise measurements. The measurement location was at the rear of the existing building on the south-western corner as shown in Appendix B. This location is equivalent to the noise exposure at residential facades which would be most exposed to the prevailing noise from the proposed plant. BS4142 indicates that background measurements should be taken at least 3.5m from reflecting surfaces, however, no such location was available in this instance. However, as the measurement was above ground floor level, the measurement was taken within 1m of the façade of the building, in accordance with the notes in BS4142.

Measurements were summarised into contiguous 15 minute periods to present the changes in the noise climate throughout the survey.

The following equipment was used during the survey:

- Bruel & Kjaer Type 2238 Sound Level Meter s/n 2285767
- Bruel & Kjaer Type 4188 Microphone s/n 2289858
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2309049

The instrumentation is calibrated annually using equipment referenced to the British Calibration Service, and the National Physical Laboratory. The equipment was also field calibrated before and after measurements and drift was found to be within the acceptable tolerance.

Measurements consisted of equivalent continuous (L_{Aeq}), instantaneous maximum (L_{Amax}) and statistical noise levels (including L_{A90} , which is the noise level exceeded for 90% of the individual measurement period) were stored for later analysis. Measurements were of both overall and octave band levels.

The results of the measurements are shown in Appendix C.

The results show significant increases in noise daytime levels on weekdays and on Saturday mornings. This was due to extensive building works which were occurring at the adjoining site, to the South. However, levels on Saturday afternoon and Sunday were not affected by this noise. Representative background noise levels have been taken from these periods. For the period between 8am and 6pm, which is the times proposed equipment will operate, this level is L_{A90} 51dB. Overnight, the L_{A90} level is 47dB.

5. EVALUATION AND ANALYSIS OF THE RESULTANT NOISE LEVELS

Using manufacturer's noise data (Appendix D for the condenser data) and standard air conditioning and outdoor noise propagation algorithms, a prediction of the noise level from all plant operating simultaneously has been carried out. The residential receptor location used in the calculations is the first floor flat residence in Mullen Tower facing the site, nearest to the supply and discharge air louvres. This location has no screening to these louvres, or to the cooling condenser. Therefore, this represents a worst case receptor location.

The resultant noise level prediction outside the nearest affected residence is as shown in Appendix E. This indicates that the predicted noise level following the commissioning of the plant would be 46 dB and therefore 5 dB below the background noise level and, therefore, complies with Camden Council's guidelines. At night-time, noise from the condenser alone operating in silent mode would be 32 dB, which is 15 dB below the background noise level for this time and therefore acceptable.

Accordingly, the proposed scheme is considered to comply with the Local Planning Authority requirements in respect of noise impact for nearby residences.



APPENDIX A

Photographs showing noise monitoring location and existing site plan

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Client
LONDON BOROUGH OF CAMDEN

Job
1A COMMUNITY CENTRE
1A Rosebery Avenue
London EC1R 4SR

GRAY'S INN BUILDINGS

PLANE "20 0526

PI 3MF 140 920

03EL

Drawing No.	Rev.
785 A1 10-15	A

Drawing Title
Ground Floor Plan Proposed

Score = 100

D# 2	D# 2	ISSUED	C# 2
Oct 27	10		

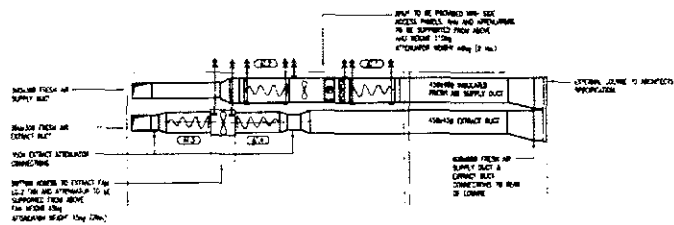
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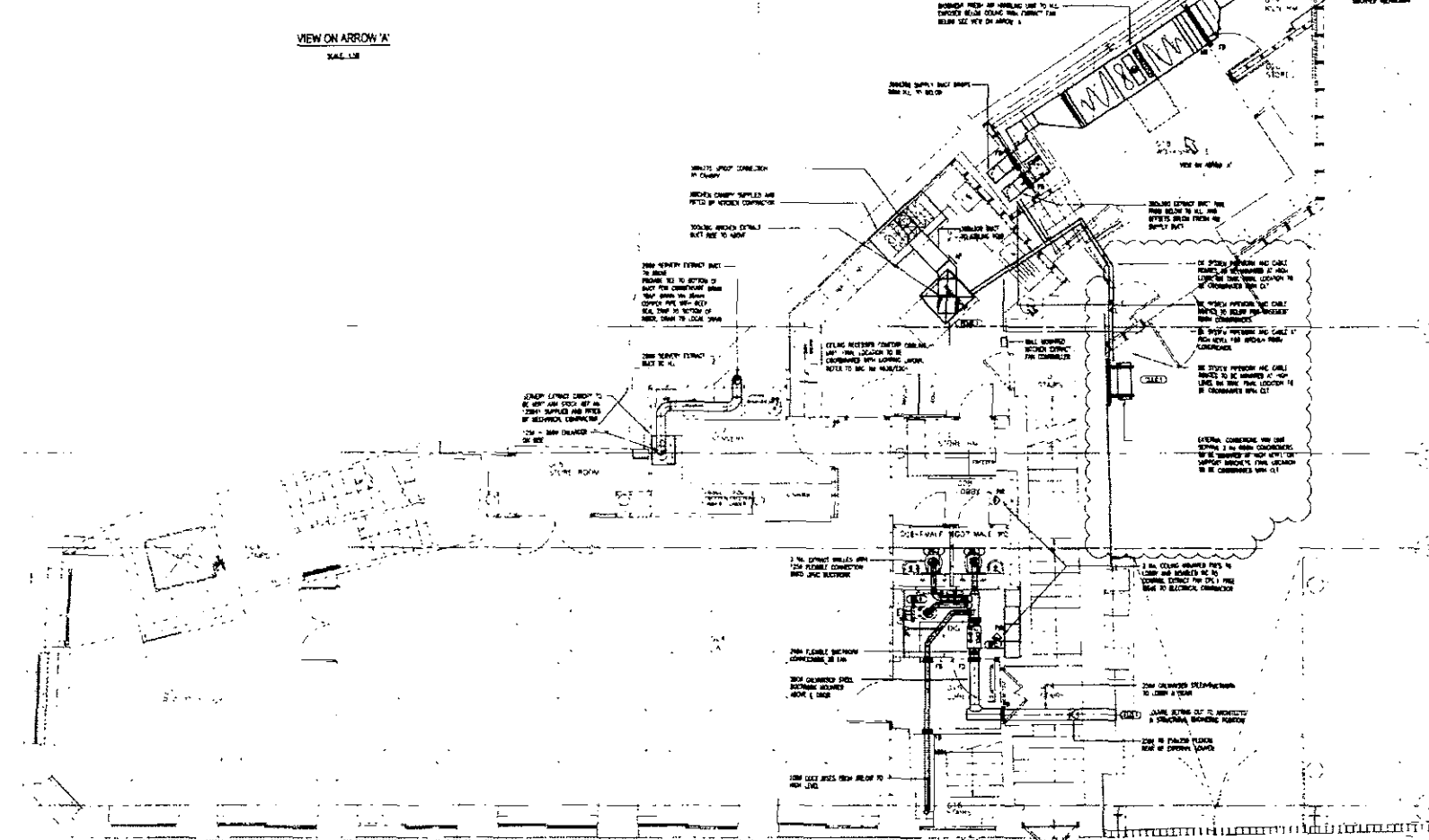
Photo 1: Showing background noise monitoring microphone

APPENDIX B

Drawings showing layout of proposed plant



VIEW ON ARROW A
SCALE 1:20



NOTES

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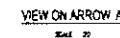
SURE START
1a COMMUNITY CENTRE

LONDON BOROUGH OF CAMDEN

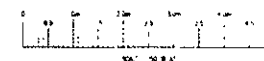
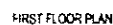
CURL LA TOURELLE

**GROUND FLOOR
PROPOSED VENTILATION
LAYOUT**

1:50 @ A1 4638/M201
FEB 2007 G



THE NEW THE NEW DETROIT CLOTHES TO BE IN BODYPOL. IN
BUT WITHIN NOW IT IS ALONGSIDE WITH THE SHARPER
ASTROPHYSICAL HAVING LATER TO THE CEILING MOUNTED



1. DATE _____

SEE CASE SUPPLY IN PREVIOUS
DRAWING. SUPPLY TO BE
WALL SUPPLY IN ROOM.

WINDLIFT FAN TO THE CORNER
APPLIES. SUPPLY IN ROOM.

THIRD FLOOR PLAN

SECOND FLOOR PLAN

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Rev	Date	Description	By	App'd
1	10/10/05	Issue for tender
2	10/10/05	Issue for tender
3	10/10/05	Issue for tender	...	...
4	10/10/05	Issue for tender	...	...
5	10/10/05	Issue for tender	...	...
6	10/10/05	Issue for tender	...	...
7	10/10/05	Issue for tender	...	...
8	10/10/05	Issue for tender
9	10/10/05	Issue for tender
10	10/10/05	Issue for tender



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SURE START
1a COMMUNITY CENTRE

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SECOND & THIRD FLOORS
PROPOSED VENTILATION
LAYOUT

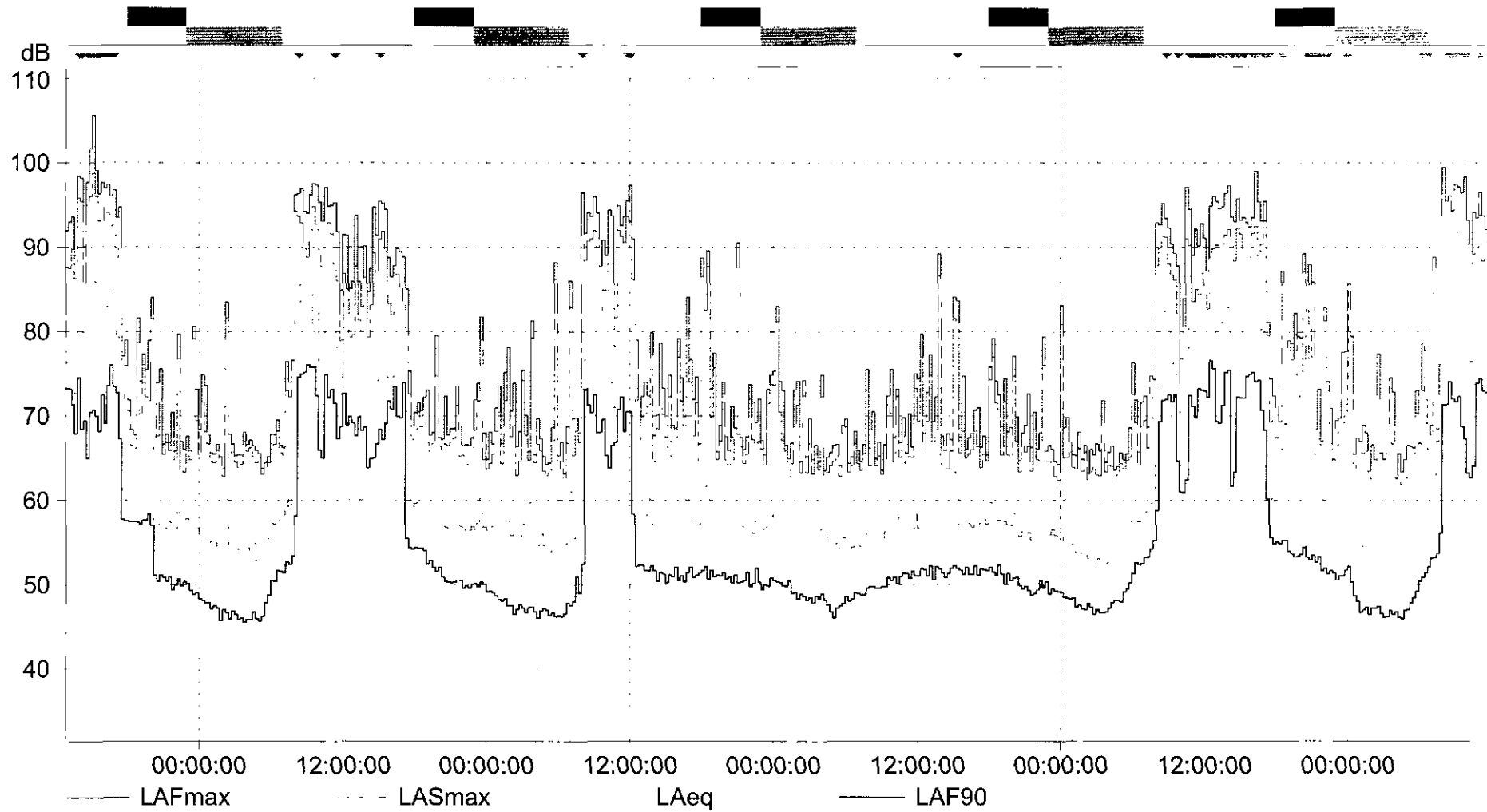
1:50 @ A1 4638/M203

FEB 2005 H

Scale 1:50

Background noise monitoring at 1a community centre, 13-18 January, 2005

Daytime ■ Evening ▨ Night-time



Cursor: 17/01/2005 02:55:41 - 03:10:41 LAFmax=66.6 dB LASmax=63.0 dB LAeq=53.0 dB LAF90=47.0 dB

model name	cooling dB(A)		heating dB(A)	
	nominal	silent	nominal	silent
FDCA140HX	53.0	51.0	53.0	51.0
FDCA160HX	53.0	51.0	53.0	51.0
FDCA224HX	57.0	51.0	57.0	51.0
FDCA280HX	57.0	51.5	58.0	51.5
FDCA335HX	60.5	52.0	61.0	52.0
FDCA335HX-K	56.0	52.0	57.0	52.0
FDCA400HX	58.5	52.0	59.0	52.0
FDCA450HX	61.0	52.5	61.0	52.5
FDCA504HX	60.0	53.0	60.5	53.0
FDCA560HX	60.5	54.0	62.5	54.0
FDCA615HX	63.0	56.5	63.0	56.5
FDCA680HX	63.5	57.0	63.5	57.0

measured condition : JIS-B8615, measured place : non-echoic room
microphone position : center in front of the unit, height : 1m

Equipment	Comment	Sound Power Level (dBA)	Distance to Residence (m)	Distance Attenuation (dB)	Acoustic Screening / Directivity Loss (dB)	Sound Power to Sound Pressure Conversion	Resultant Component Noise Level (dB)
Basement							
EFLG.1 - Toilet extract Fan		68	40	32.0	15	8	13.0
EFLG.10 - LMR extract		68	36	31.1	15	8	13.9
Ground Floor							
ELG.1 - Toilet extract		68	18	25.1	0	8	34.9
CULG.1 0 Condenser		61 (59 night)	13	22.3	-3	8	33.7
Basement Supply air fan intake louvre	Through attenuator AT.1	60	5.7	15.1	-3	8	39.9
Basement extract air fan intake louvre	Through attenuator AT.4	60	5.7	15.1	-3	8	39.9
EFG.2 - Kiln Room extract fan		58	5.7	15.1	0	8	34.9
First Floor							
EF1.2 - Staff Toilet extract		68	26	28.3	10	8	21.7
EF1.1 - Toddler Care extract		68	26	28.3	10	8	21.7
EF1.3 - Toilet extract		68	18	25.1	0	8	34.9
Kitchen extract fan / motor casing noise	mounted on rear wall	70	21	26.4	0	8	35.6
Second Floor							
EF2.1 - WC extract		68	25	28.0	15	8	17.0
EF2.2 - WC extract		68	25	28.0	15	8	17.0
EF2.3 - Tea area extract		68	25	28.0	15	8	17.0
Third Floor							
EF3.1 - WC extract		68	25	28.0	15	8	17.0
EF3.2 - Staff WC extract		68	18	25.1	-3	8	37.9
Fourth Floor							
Kitchen extract discharge	Through in-line attenuator A1.2	75	25.9	28.3	10	8	28.7
Servery Extract discharge		70	30.5	29.7	10	8	22.3

Overall Lp at Residence (daytime) 46.3

Noise Level criterion at Residence 46.0

Excess over criterion 0.3

Overall Lp at Residence (night-time) 31.7
(33.7 - 2 dB for silent mode as shown in italics above)

Noise Level criterion at Residence 47.0

Excess over criterion -15.3