THE BRONDES AGE ROOFTOP TERRACE KILBURN

Noise Impact Assessment

REPORT 6087/NIA
Prepared: 22 April 2014
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The Brondes Age
328 Kilburn High Road
London
NW6 2QN

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Contents

1.0 INTRODUCTION 1

2.0 SITE DESCRIPTION 1

3.0 BACKGROUND NOISE LEVELS 2

4.0 ASSESSMENT CRITERIA 4

5.0 ASSESSMENT 5

6.0 Discussion 7

7.0 CONCLUSION 8

1.0 INTRODUCTION

It is proposed to operate a rooftop terrace at first floor level of the existing premises, The Brondes Age.

The Brondes Age is located opposite Brondesbury Overground and Railway Station, on Kilburn High Road, NW6 2QN. The premise currently operates until 01:30 from Monday until Thursday, 02:30 on Friday and Saturday and 01:00 on Sunday/Monday morning. The proposed rooftop terrace would operate until 00:30 every night.

The premises is currently a one storey building, with access via Kilburn High Road.

RBA Acoustics have been appointed to undertake an assessment of noise breakout from the proposed terrace extension in order to ensure there is compliance with the Local Authority requirements.

2.0 SITE DESCRIPTION

The Brondes Age has a total licensed capacity of 260 people and the proposed rooftop terrace is intended to have a total capacity of 100 people. No proposals exist to increase the total number of customers within the premises even with the increased space from the proposed terrace.

The noise climate to the front of The Brondes Age is dominated by traffic noise along Kilburn High Road and railway noise emanating from trains passing over the railway bridge in close proximity to the premises. To the front of the premises is an external area with seats and a canopy overhead.

The area to the rear of The Brondes Age is generally screened from traffic noise generated along Kilburn High Road. During train passby, trains were clearly audible. It is understood that freight trains use this railway line during the day and night-time periods and are unscheduled.

3.0 BACKGROUND NOISE LEVELS

Monitoring of the prevailing background noise levels was undertaken at two different positions:

Position 1 - Friday 21 February 2014 to Monday 24 February 2014

The microphone was positioned overlooking Kilburn High Road at roof level. The microphone was approximately 1m away from the front façade and is considered to be affected by reflection effects. Noise levels at this position were dominated by vehicle traffic along Kilburn High Road, trains passing over the adjacent railway bridge and customers of the external area of the premises. Traffic lights exist approximately 20m north and south of the premises along Kilburn High Road which means traffic is often stopping and starting, giving rise to higher noise levels due to engine revving. The measurement position is considered as being representative of noise levels to the front of the premises.

Position 2 – Monday 25 February 2014 to Tuesday 26 February 2014

The microphone was positioned on a tripod, approximately 1.2m above ground level to the rear of the premises. This position was generally screened from road traffic noise generated along Kilburn High Road. Trains serving the Overground network and the local National Rail network in addition to freight regularly pass along the train lines to the south of the premises and are clearly audible to the rear of the premises. This measurement position is considered as being representative of noise levels to the rear of the premises.

As the survey was unattended it is not possible to comment with certainty regarding meteorological conditions throughout the entire survey period, however the weather was generally considered satisfactory to acquire measurements, it being dry with little wind.

The measurement positions are identified in Site Plan 6087/SP1. Photographs of each microphone installation during the environmental noise survey are shown in Photo 6087/P1 and Photo 6087/P2.

3.1 Instrumentation

The following equipment was used for the measurements.

Table 6087/T1 – Equipment Details

Manufacturer	Model Type	Serial No.	Calibration	
			Certificate No.	Expiry Date
01dB A&V Type 1 Sound Level Meter	Black Solo 01	65630	CV-DTE-T-12-PVE-64339	16 November 2014
01dB A&V Pre Amplifier	PRE 21 S	16254		
Gras ½" Microphone	MCE 212	166570		
01dB-Stell Calibrator	Cal 21	50241574	U11111	20 April 2014
01dB A&V Type 1 Sound Level Meter	Blue Solo 01	60611	U12035	14 September 2014
01dB A&V Pre Amplifier	PRE 21 S	13678		
01dB A&V ½" Microphone	MCE 212	84967	U12034	14 September 2014
01dB-Stell Calibrator	Cal 21	50441920	U12033	13 September 2014

The equipment was calibrated prior to and on completion of the surveys. No significant calibration drift occurred.

3.2 Noise Survey Results

Table 6087/T1-T2 below summarises the lowest $L_{A90,5min}$ and average $L_{Aeq,5min}$ noise levels as measured during the survey. Where applicable, reflection effects have been taken into account.

Table 6087/T2 – Measurement Results - Position 1

Period	Friday 21 February		Saturday 22 February		Sunday 23 February	
	$L_{Aeq\ 5min}$ (dB)	$L_{90\ 5min}$ (dB)	$L_{Aeq\ 5min}$ (dB)	$L_{90\ 5min}$ (dB)	$L_{Aeq\ 5min}$ (dB)	$L_{90\ 5min}$ (dB)
21:00 to 22:00	69	66	74	65	68	62
22:00 to 23:00	70	66	68	65	66	60
23:00 to 00:00	70	68	71	67	72	61
00:00 to 01:00	71	67	70	69	66	53

Table 6087/T3 – Measurement Results - Position 2

Period	Monday 24 February	
	$L_{Aeq\ 5min}$ (dB)	$L_{90\ 5min}$ (dB)
21:00 to 22:00	54	47
22:00 to 23:00	49	47
23:00 to 00:00	48	46
00:00 to 01:00	48	44

4.0 ASSESSMENT CRITERIA

4.1 Entertainment Premises

The general requirements of Camden Council for noise breakout from licensed venues are outlined within the LDF *Camden Local Development Framework: Camden Development Policies (2010)*. Table D: *Noise levels from places of entertainment on adjoining residential sites at which planning permission will not be granted.* This table is reproduced in Table 6087/T4 for convenience.

Table 6087/T4 – Table D from Camden LDF (2010)

Noise Description and measurement location	Period	Time	Site adjoining places of entertainment
Noise at 1 metre external to a sensitive façade	Day and evening	0700 – 2300	L_{Aeq} , shall not increase by more than 5dB*
Noise at 1 metre external to a sensitive façade	Night	2300 – 0700	L_{Aeq} , 5m shall not increase by more than 3dB
Noise inside any living room of any noise sensitive premises, with the windows open or closed	Night	2300 – 0700	L_{Aeq} , 5m (in the 63Hz Octave band measured using the 'fast' time constant) should show no increase in dB*
*As compared to the same measured, from the same position, and over a comparable period, with no entertainment taking place			

Since the proposed opening hours are inclusive of the night-time period, we have adopted night-time criteria in our assessment. The predicted L_{Aeq} should therefore not increase the existing L_{Aeq} noise levels by more than 3dB. Furthermore, it is required that the 63 Hz octave-band L_{Aeq} should show no increase over the existing 63 Hz octave-band L_{Aeq} noise level.

5.0 ASSESSMENT

5.1 Site Layout

The proposed rooftop terrace would occupy the current roof of the premises at first floor level. In order to reduce noise levels to the rear of the premises due to the operation of the terrace, the following measures are assumed to be implemented:

- 3.5m high acoustic barriers (absorptive) surrounding the south and western edge of the rooftop
- A 3m high acoustic barrier (absorptive) running through the centre of the terrace area

The 3.5m high barrier surrounding the rooftop edge to the south and western edge of the terrace would offer screening to residents to the rear of the property and therefore reduce noise levels.

Furthermore, the layout of the terrace is such that the toilets are positioned to the north east corner to introduce screening for acoustic purposes.

The 3m high barrier to be positioned on the rooftop would act in two ways. Firstly it would screen half of the customers of the terrace area from the residents to the rear. Secondly, it would act to reduce noise levels in both separated 'areas' since customers would not need to speak with such a raised voice to be able to communicate. The orientation assumed within this report of the barrier is not essential, i.e. there is no predicted difference in noise levels should the barrier be oriented differently.

5.2 Noise Model

In order to predict the likely noise levels generated by customers using the rooftop terrace at the nearest affected residential windows, we have undertaken a detailed noise modelling exercise using the CadnaA software.

This modelling suite incorporates the guidance within ISO9613 and has taken as its basis an occupancy of 100 customers on the rooftop, all of whom are speaking simultaneously with raised voices.

The above are worst-case assumptions since it is likely that only a small proportion of customers will be talking simultaneously, as it is usually the case that when one person on a table is talking that the other(s) will be listening to the first person speaking. If this was not the case then it would be practically impossible to hold a conversation.

The predicted noise levels on the terrace have been checked for validity against our database of measured noise levels under similar conditions. The predicted noise levels agree well to situations with similar conditions.

The adoption of these worst-case assumptions will add to the robustness of this report in relation to the use of the Premises.

5.3 Nearest Residential Receptor

The potentially worst affected residential window due to use of the rooftop terrace is likely to be close to 8 Iverson Road, approximately 30m away from the rooftop terrace, to the north east. This is because in this area, noise levels are lower due to screening from Kilburn High Road.

The nearest affected residential windows to the proposed rooftop terrace are those belonging to Globe Mansions, 361 Kilburn High Road, on the opposite side of Kilburn High Road.

Predicted noise levels used within our model are based on extrapolated data of one person speaking with a raised voice, as shown in Table 6087/T5.

Table 6087/T5 – Sound Power Level of One Person Speaking with a Raised Voice

Octave-Band Sound Power Level								Overall (L_{WA})
63	125	250	500	1k	2k	4k	8k	
65	65	70	75	72	64	57	49	75

This 'per person' noise prediction has been used to predict the noise which would be created by 100 customers in the rooftop terrace.

Table 6087/T6 – Sound Power Level of 100 People Speaking Simultaneously

Octave-Band Sound Power Level								Overall (L_{WA})
63	125	250	500	1k	2k	4k	8k	
85	85	90	95	92	84	77	69	95

No music reproduction has been assumed within our analysis.

5.4 Noise Model Results

The attached Noise Map 6087/NM1 details the results of our noise model, with noise levels resulting from the customers in the terrace for the worst-affected floor on each part of the relevant property being shown in the small white circles along the relevant residential façade. In summary, the following worst-case L_{Aeq} noise levels caused by the use of all of the various areas of the restaurant are predicted in the following Table 6087/T7.

Table 6087/T7 – Summary of Predicted L_{Aeq} Noise Levels

Receptor Location	Worst-case Activity Noise Level (dBA)
8 Iverson Road	47
Globe Mansions, 361 Kilburn High Road	60

As shown in Table 6087/T7, the predicted noise level is below the minimum measured $L_{Aeq,5min}$ noise level during the hours of operation (as presented in Tables 6087/T2 and 6087/T3.

6.0 Discussion

Table 6087/T8 shows that the predicted worst-case average $L_{Aeq,T}$ noise level as predicted at the worst affected residential façade to the rear of the premises is 47dB L_{Aeq}.

Table 6087/T8 – Summary of Predicted L_{Aeq} Noise Levels

Receptor Location	Worst-case Activity Noise Level (dBA)	Measured Minimum $L_{Aeq,5min}$ Noise Level (21:00 – 01:00) (dB)	Resultant Worst-Case Noise Level at Nearest Residential Façade ($L_{Aeq,5min}$) (dB)	Increase in Existing Minimum Noise Levels at Nearest Residential Façade (dB)
8 Iverson Road	47	48	51	+3
Globe Mansions, 361 Kilburn High Road	60	66	67	+1

As shown in Table 6087/T8, due to the use of the rooftop terrace there is an increase in the minimum noise level at the window of 8 Iverson Road of 3dB. Furthermore, due to the use of the rooftop terrace there is an increase in the minimum noise levels at Globe Mansions, 361 Kliburn High Road of 1dB.

According to the Camden LDF, as outlined in Section 4.0, these increases should be considered acceptable and should not be refused planning permission on the grounds of noise.

7.0 CONCLUSION

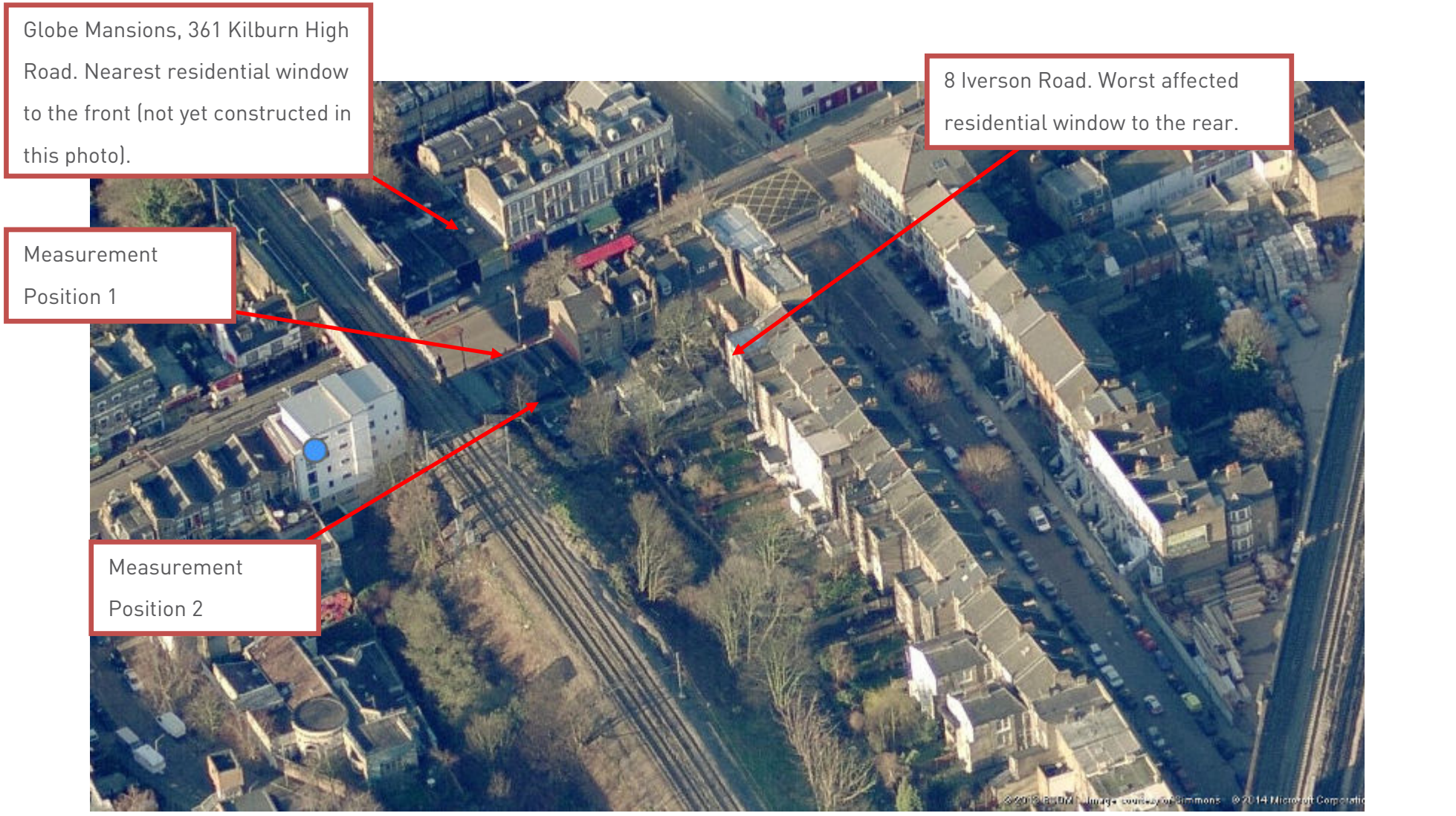
RBA Acoustics have undertaken an assessment of noise breakout from the use of a proposed rooftop terrace at The Brondes Age.

Local Planning Policy is concerned with ensuring that noise generating activity does not cause impact to local residents. To this end, a subjective assessment of music noise break-out from the Premises has been undertaken.

Noise impact of the rooftop terrace has been assessed. According to the Camden Local Development Framework, noise generated through use of the premises should be considered acceptable.

Appendix A - Acoustic Terminology

dB	Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.
dB(A)	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dB(A) level. Because of being a logarithmic scale noise levels in dB(A) do not have a linear relationship to each other. For similar noises, a change in noise level of 10dB(A) represents a doubling or halving of subjective loudness. A change of 3dB(A) is just perceptible.
L_{eq}	L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (1 hour).
L_{Aeq}	The level of notional steady sound which, over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measured over that period.
L_{An} (e.g L_{A1}, L_{A90})	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the average minimum level and is often used to describe the background noise.
$L_{max,T}$	The instantaneous maximum sound pressure level which occurred during the measurement period, T. It is commonly used to measure the effect of very short duration bursts of noise, such as for example sudden bangs, shouts, car horns, emergency sirens etc. which audibly stand out from the general level of, say, traffic noise, but because of their very short duration, maybe only a very small fraction of a second, may not have any effect on the L_{eq} value.



The Brondes Age, Rooftop Terrace

Aerial Site Plan

Figure 6087/SP1

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Not to Scale

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The Brondes Age, Rooftop Terrace

Measurement Position 1

Figure 6087/P1

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Not to Scale

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The Brondes Age, Rooftop Terrace

Measurement Position 2

Figure 6087/P2

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Not to Scale

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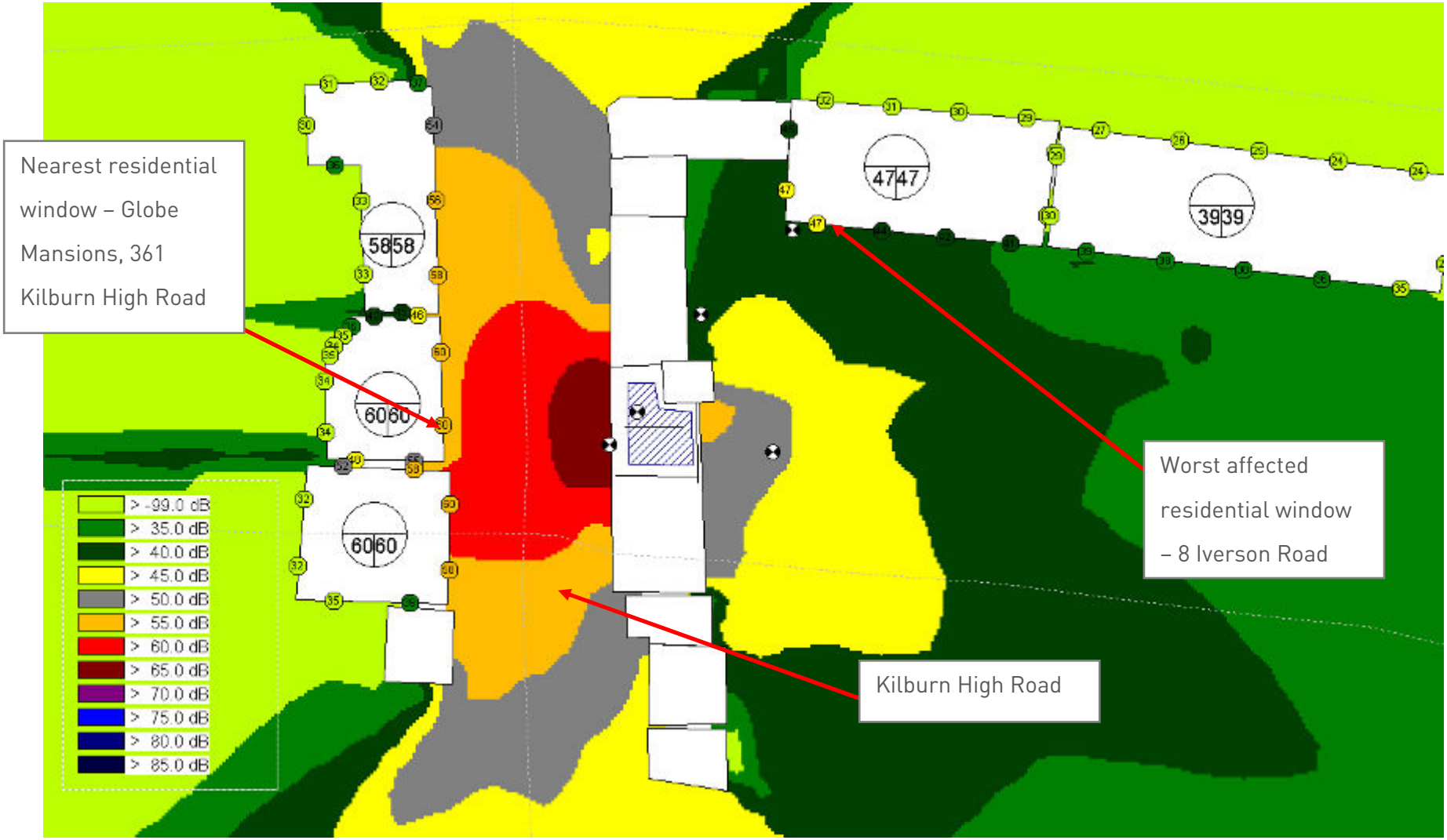

The Brondes Age, Rooftop Terrace

Predicted Noise Map of Terrace Use

Noise Map 6087/NM1

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Not to Scale

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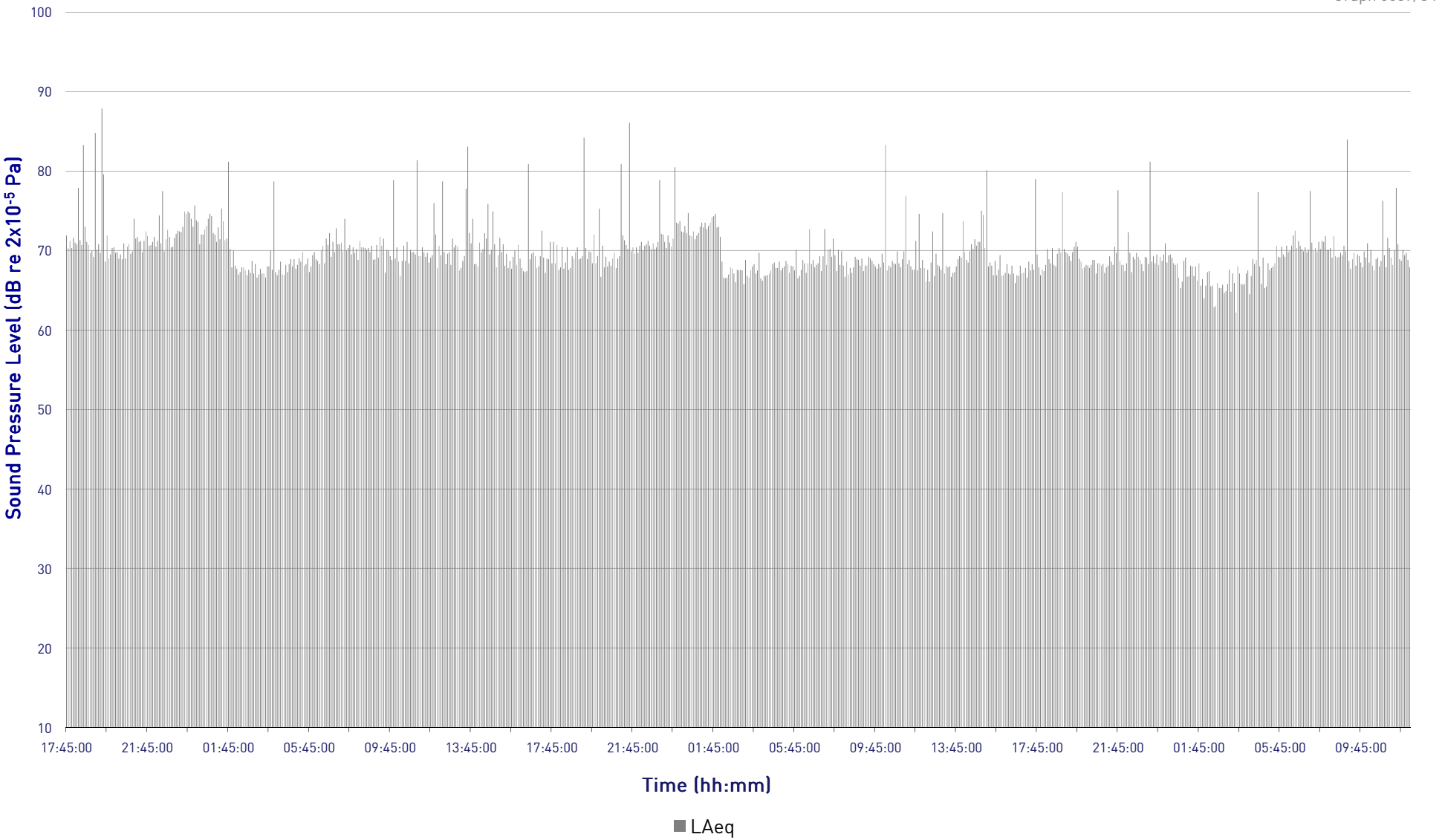
The Brondes Age, Kilburn.

L_{Aeq} Time History

Measurement Position 1, Friday 21st February to Monday 24th February 2014

Graph 6087/G1



The Brondes Age, Kilburn.

L_{Amax} and L_{A90} Time History

Measurement Position 1, Friday 21st February to Monday 24th February 2014

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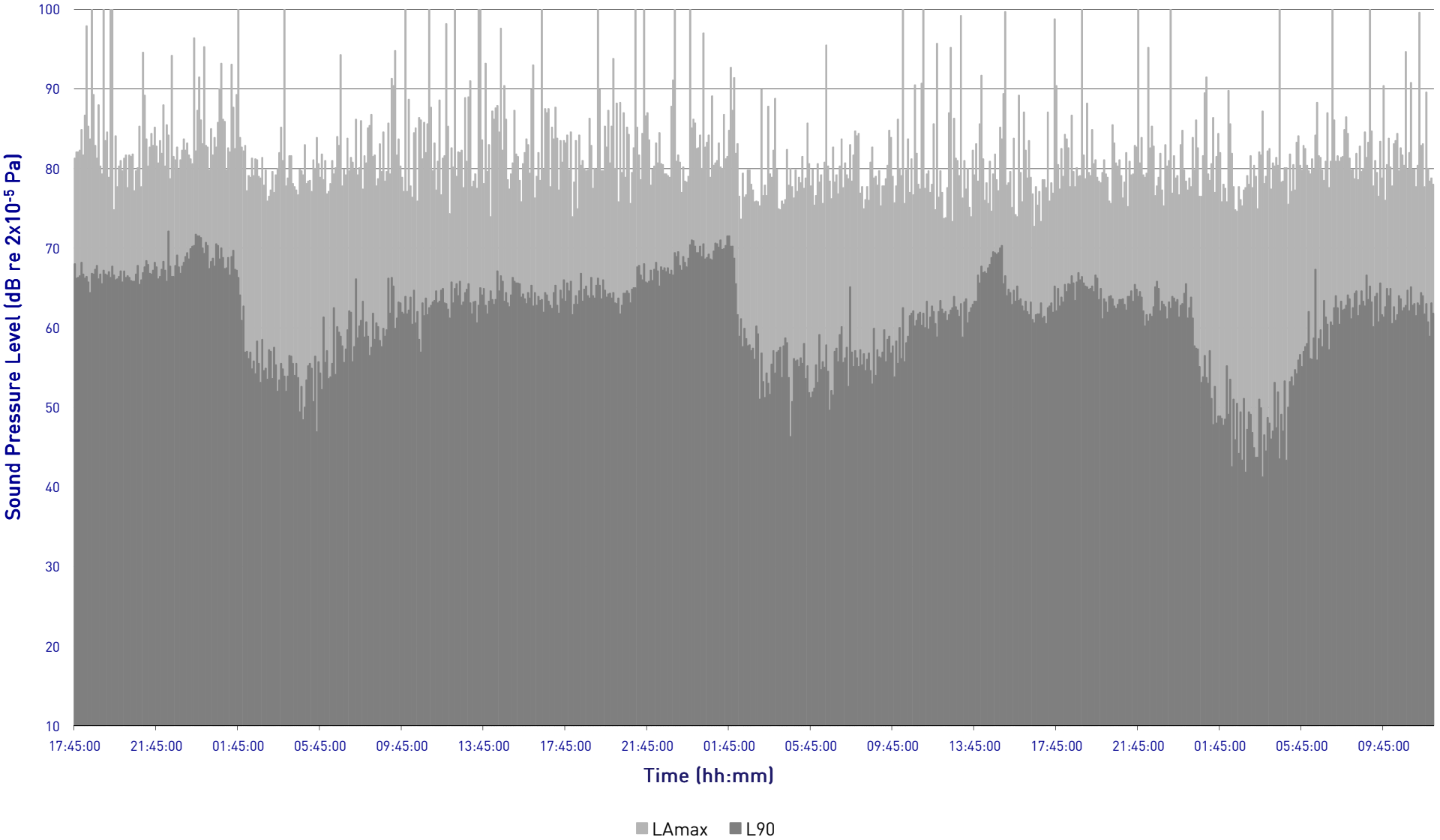
Graph 6087/G2



The Brondes Age, Kilburn.

L_{Aeq} Time History

Measurement Position 2, Monday 24th February to Tuesday 25th February 2014

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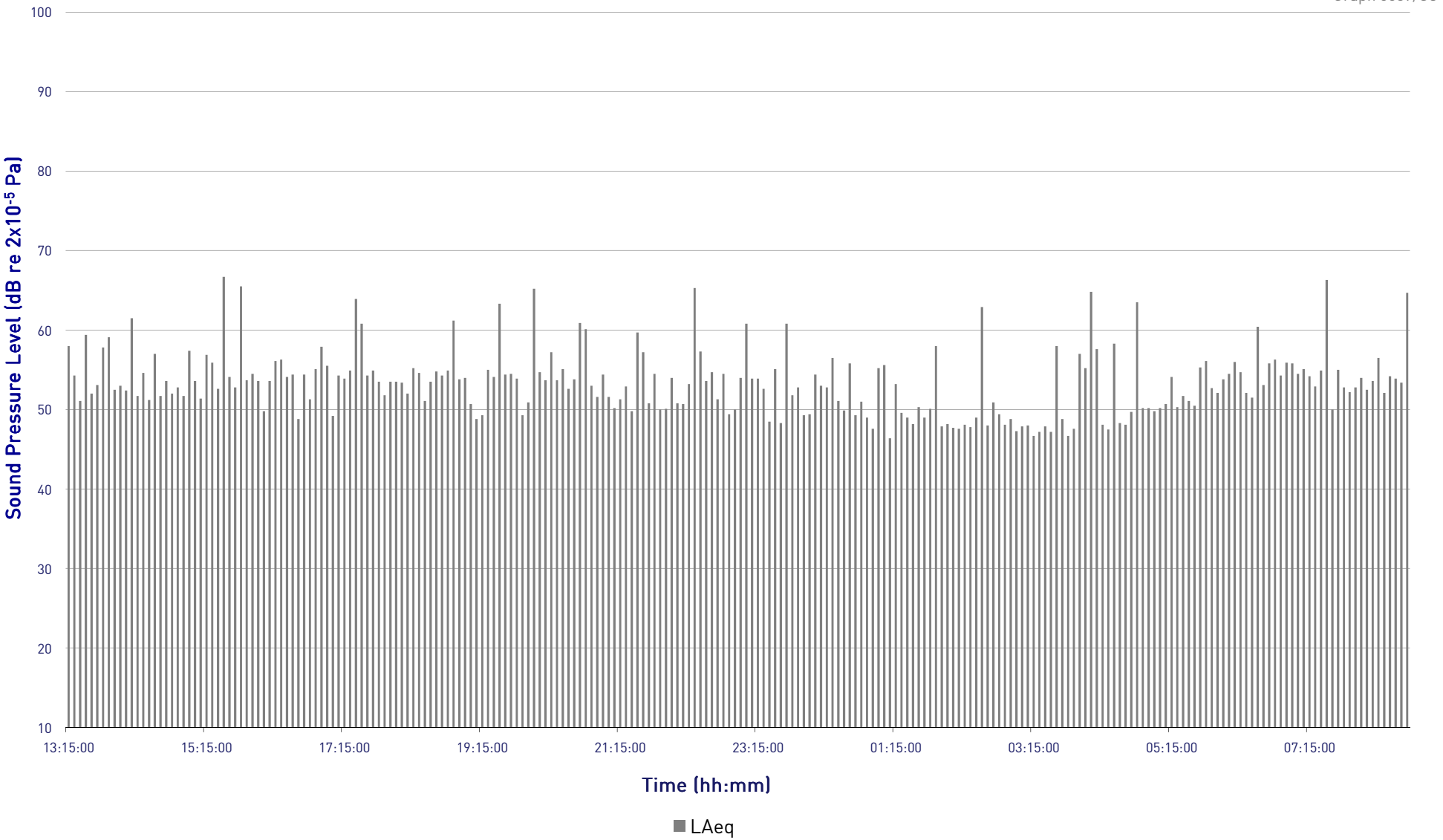
Graph 6087/G3



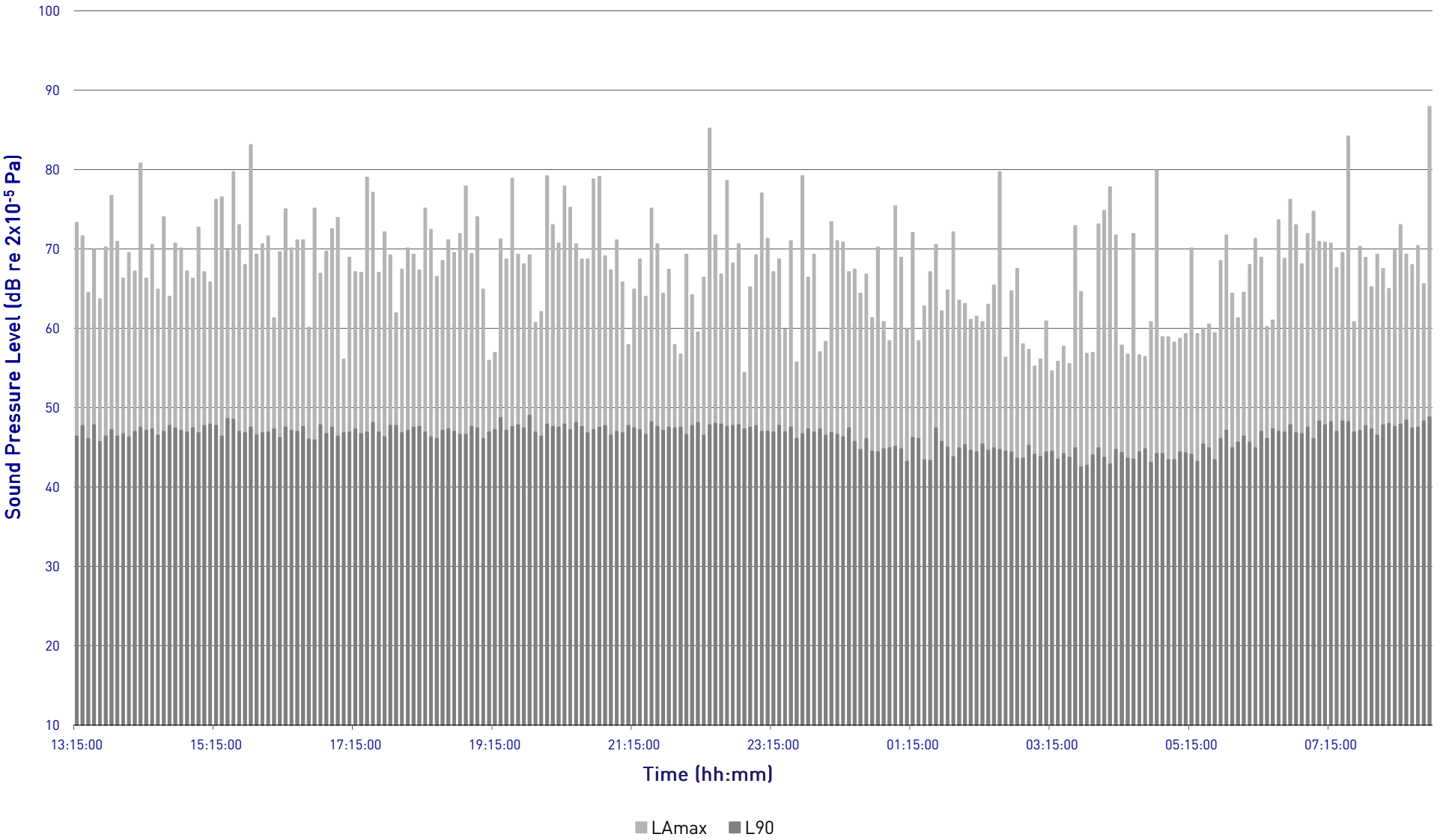
The Brondes Age, Kilburn.

L_{Amax} and L_{A90} Time History

Measurement Position 2, Monday 24th February to Tuesday 25th February 2014

RBA ACOUSTICS

Graph 6087/G4



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