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CARPENTERS ARMS, 105 KING'S CROSS ROAD, LONDON

NOISE IMPACT ASSESSMENT

Report 13234.NIA.02 Rev A

Prepared on 12 December 2016

For:

Golfrate Property Management Ltd

177-187 Arthur Road

Wimbledon

London

SW19 8AE

CONTENTS

List of Attachments

1.0 INTRODUCTION

KP Acoustics Ltd, Britannia House, 11 Glenthorne Road, London, W6 0LH, has been commissioned by Golfrate Property Management Ltd, 177-187 Arthur Road, Wimbledon, London, SW19 8AE, to measure existing background noise levels outside of The Carpenters Arms, London.

The measured noise levels will be used to investigate and assess the noise impact due to external patron activity associated with the Ground Floor Public House to the proposed residential flats above.

This report presents the results of the environmental survey followed by an assessment of noise transfer from external patron activity associated with the public house to the closest noise sensitive receiver.

2.0 PROCEDURE AND EQUIPMENT

2.1 Environmental Noise Survey

External measurements of existing environmental noise were undertaken at the position shown on Site Plan 13234.SP1. The choice of this position was based both on accessibility and on collecting representative noise data in relation to the nearest noise sensitive receiver.

Continuous automated monitoring was undertaken for the duration of the survey between 11:11 on 6th October 2015 and 11:00 7th October 2015.

Weather conditions were generally dry with light winds, therefore deemed suitable for the measurement of environmental noise.

The measurement procedure complied with ISO 1996-2:2007 Acoustics "*Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels*".

The equipment calibration was verified before and after use and no abnormalities were observed.

The equipment used was as follows.

- 1 No. Svantek Type 958 Class 1 Sound Level Meter
- B&K Type 4231 Class 1 Calibrator

3.0 RESULTS

The $L_{Aeq:\ 5min}$, $L_{Amax:\ 5min}$, $L_{A10:\ 5min}$ and $L_{A90:\ 5min}$ acoustic parameters were measured and are shown as a time history in Figure 13234.TH1. The average background (L_{Aeq}) levels monitored for the duration of the survey are shown in Table 3.1.

	Level dB(A)
Daytime $L_{Aeq,16hour}$ (07:00-23:00)	67
Evening $L_{Aeq,4hour}$ (19:00-23:00)	68
Night-time $L_{Aeq,8hour}$ (23:00-07:00)	64

Table 3.1: Average background noise levels measured during the environmental noise survey

4.0 DISCUSSION

Due to the proposed residential refurbishment directly above the Carpenters Arms, concerns have been raised with regards to externally generated patron noise to the residential receivers above. This would include general conversation being patrons upon entering and exiting the building, as well as noise from patrons gathering outside in the designated smoking area to the front of the premises.

It is anticipated that any noise generated from the aforementioned activities would be highly unlikely to cause noise nuisance to the residences above due to the current prevailing background noise level at the closest receiving windows. The noise profile of the area is currently dominated by road traffic noise from King's Cross Road, which would mask any noise generated from patrons, as outlined in the assessment below.

	Daytime
Noise level of typical conversation between 2 No. patrons at 1m	65 dB(A)
Correction for increased number of patrons (10 No.)	+7dB
Attenuation provided by distance to receiving windows (3m)	-10
Noise level at 1m from receiving window	**62dB(A)**
Existing background noise profile of the area (19:00-23:00)	68dB(A)
Assessment level	6dB(A) below existing background noise level during daytime hours

Table 4.1: Noise assessment of external public house activity

As shown in Table 4.1, externally generated noise from patrons would be 6dB(A) below the existing background noise level at the receiving window. This would demonstrate that existing background noise profile at this position would partially mask the noise generated from patron activity to within acceptable levels.

It should be noted that the levels generated would be in the category of 'Noticeable and not instrusive', as stipulated in the National Planning Policy Guidance as shown in Table 4.2 below.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 4.2: Noise exposure hierarchy based on likely average response (National Planning Policy Guidance)

5.0 CONCLUSION

An environmental noise survey has been undertaken at The Carpenters Arms, King's Cross Road, London. The results of the survey have enabled the assessment of noise propagation of typical external patron activity to the nearest noise sensitive receiver, being the proposed residential flats directly above the public house.

The predictions show that noise generated in this area are expected to be below the existing measured background noise level, and would therefore be non-significant in causing an increase in the background noise profile of the area, ensuring that residential amenity is protected.

Report by

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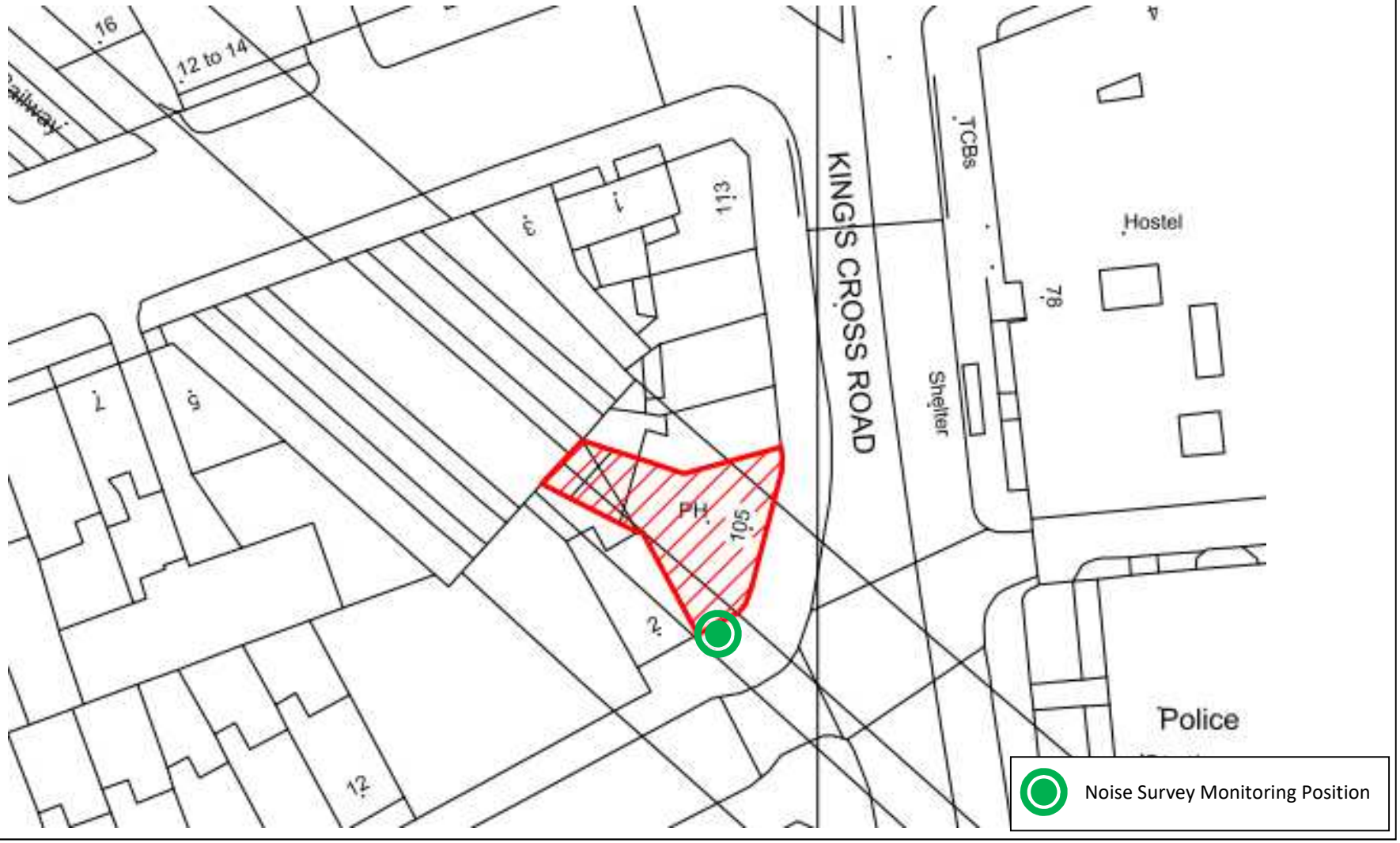

Title:

Indicative site plan showing noise monitoring position

Date: 9 October 2015

FIGURE 13234.SP1

KP acoustics

Carpenters Arms, 105 Kings Cross Road, London
Environmental Noise Time History
6th October to 7th October 2015

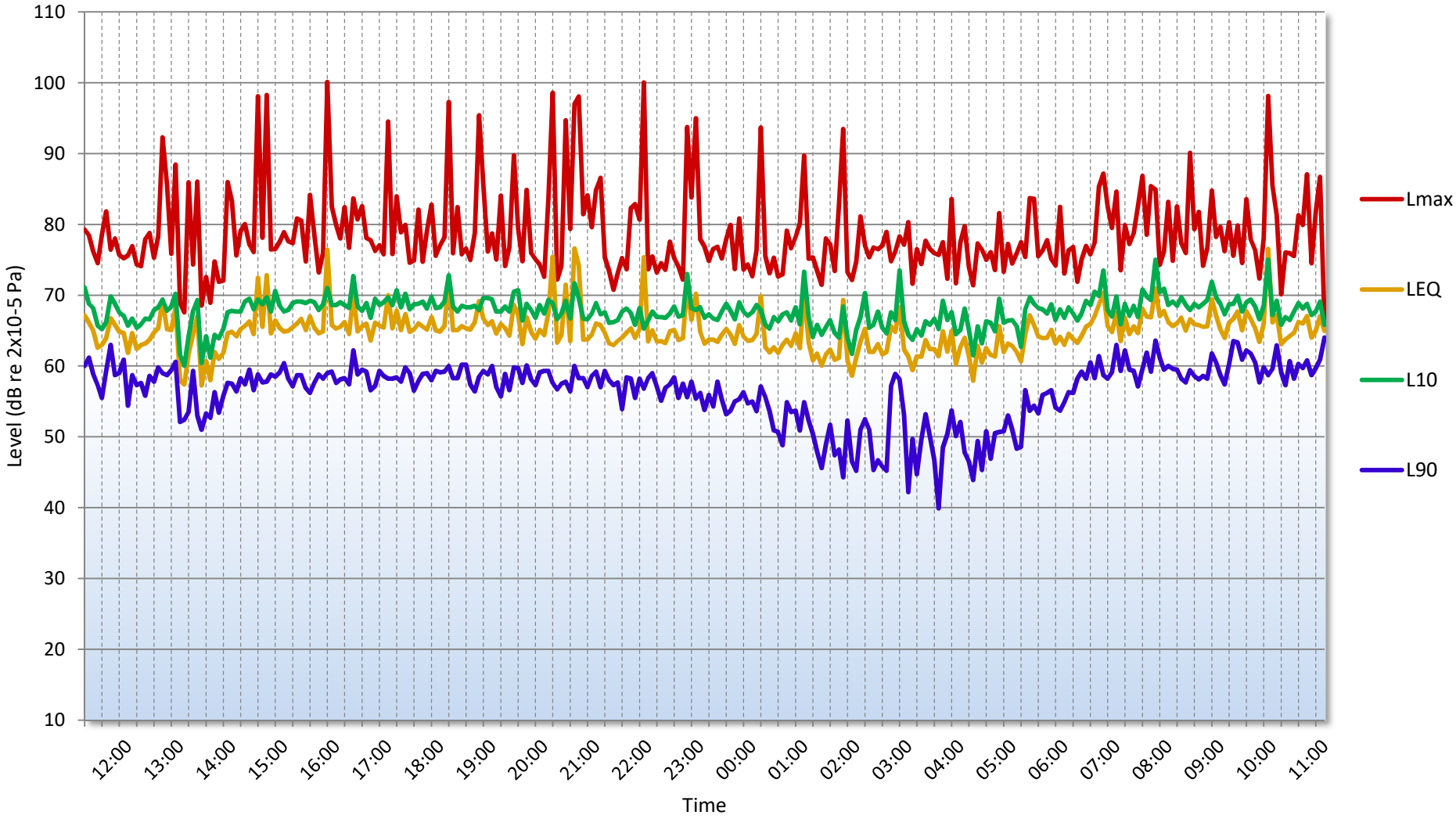

Figure 13234.TH1

APPENDIX A

GENERAL ACOUSTIC TERMINOLOGY

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq}. The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L_{10}

This is the level exceeded for no more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise.

L_{90}

This is the level exceeded for no more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Environmental noise terms are defined in BS7445, *Description and Measurement of Environmental Noise*.

APPENDIX A

APPLIED ACOUSTIC TERMINOLOGY

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.