

MR & MRS GRIMM

**1 BELMONT COURT
150 LOUDOUN ROAD
LONDON NW8 0DH**

NOISE ASSESSMENT OF FOOD HOIST

SEPTEMBER 2014

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PREFACE

This report has been prepared by Ken Collins, a Director of KC Environmental Ltd. Prior to forming KC Environmental, Ken has been a Director of Addiscombe Environmental Ltd, of RPS Planning Transport and Environment, and of Ashdown Environmental Limited. He is a Member of the Institute of Acoustics and a Member of the Institute of Environmental Sciences. He has nearly 45 years project and research experience in acoustics, covering transport, industrial, commercial and residential developments, recreation, and building acoustics.

He has represented the Institute of Acoustics on the BSi Committee EH/1/3 "Industrial and Residential Noise", which deals with BS 4142 "Method for Rating Industrial Noise Affecting Residential and Industrial Areas, since 1991. He is currently a member of the drafting panel writing the proposed revision to BS 4142. He was a committee member of the Environmental Noise Group of the Institute of Acoustics from its inception in 1994 until 2011 (immediate past Chair).

Prior to forming Ashdown Environmental Limited, he worked for Travers Morgan from 1978 until 1988. His experience with them was primarily the assessment of environmental impacts of various transportation and industrial schemes, although he also undertook work on a number of other acoustic issues, unrelated to transport or industry.

Before his employment with Travers Morgan, he was employed in the Acoustics Unit of the National Physical Laboratory for eight years, where he was engaged in research into the prediction of transportation noise and also responsible for the calibration of microphones used as National Standards.

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1. INTRODUCTION

- 1.1 A planning application is being submitted to Camden Council for alterations to 1 Belmont Court, 150 Loudoun Road, London NW8 0AN.
- 1.2 As part of the application, it is proposed to install a food hoist at the rear of the building, which will be totally enclosed by a steel and double skinned plasterboard shaft, and which will be rendered on the outside.
- 1.3 Mr and Mrs Grimm have commissioned KC Environmental Limited (KCEL) to undertake a noise assessment of the proposed food hoist.
- 1.4 The noise level due to the proposed plant has been calculated, and the results compared to the requirements of Camden Council. This report presents the results of the assessment.

2. NOISE UNITS AND STANDARDS

Noise Units

- 2.1 Noise is defined as unwanted sound. The range of audible sound is from 0 dB to 140 dB. The frequency response of the ear is usually taken to be about 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.
- 2.2 The "loudness" of a noise is a subjective parameter, but it is generally accepted that an increase/decrease of 10 dB(A) corresponds to a doubling/halving in perceived loudness.
- 2.3 External noise levels are rarely steady, but rise and fall according to activities within an area. In an attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:
- i) The L_{Amax} noise level
This is the maximum noise level recorded over the measurement period.
 - ii) The L_{Aeq} noise level
This is the "equivalent continuous A-weighted sound pressure level, in decibels", and is defined in British Standard BS 7445 [1] as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.
 - iii) The L_{A10} noise level
This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.
 - iv) The L_{A90} noise level
This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

Camden Council

- 2.4 Camden Council has a noise and vibration policy in their Development policy, 2010 - 2025. Policy DP28 states:

“Policy DP28 - Noise and vibration

The Council will seek to ensure that noise and vibration is controlled and managed and will not grant planning permission for:

- a) development likely to generate noise pollution; or*
- b) development sensitive to noise in locations with noise pollution, unless appropriate attenuation measures are provided.*

Development that exceeds Camden’s Noise and Vibration Thresholds will not be permitted.

The Council will only grant permission for plant or machinery if it can be operated without cause harm to amenity and does not exceed our noise thresholds.

The Council will seek to minimise the impact on local amenity from the demolition and construction phases of development. Where these phases are likely to cause harm, conditions and planning obligations may be used to minimise the impact.”

- 2.5 The text accompanying the policy states:

28.1 Noise and vibration can have a major effect on amenity and health and therefore quality of life. Camden’s high density and mixed-use nature means that disturbance from noise and vibration is a particularly important issue in the borough. Camden’s Core Strategy recognises the importance of this issue for Camden’s residents and policy DP28 contributes to implementing a number of Core Strategy policies, including CS5 - Managing the impact of growth and development, CS9 - Achieving a successful Central London, CS11 - Promoting sustainable and efficient travel and CS16 – Improving Camden’s health and well-being.

28.2 The effect of noise and vibration can be minimised by separating uses sensitive to noise from development that generates noise and by taking measures to reduce any impact. Noise sensitive development includes housing, schools and hospitals as well as offices, workshops and open spaces, while noise is generated by rail, road and air traffic, industry, entertainment (e.g. nightclubs, restaurants and bars) and other uses.

28.3 The Council will only grant planning permission for development sensitive to noise in locations that experience noise pollution, and for development likely to generate noise pollution, if appropriate attenuation measures are taken, such as double-glazing. Planning permission will not be granted for development sensitive to noise in locations that have unacceptable levels of noise. Where uses sensitive to noise are proposed close to an existing source of noise or when development that generates noise is proposed, the Council will require an acoustic report to ensure compliance with PPG24: Planning and noise. A condition will be imposed to require that the plant and equipment which may be a source of noise pollution is kept working efficiently and within the required noise limits and time restrictions. Conditions may also be imposed to ensure that attenuation measures are kept in place and effective throughout the life of the development.

28.4 In assessing applications, we will have regard to the Noise and Vibration Thresholds, set out below. These represent an interpretation of the standards in

PPG24 and include an evening period in addition to the day and night standards contained in the PPG, which provide a greater degree of control over noise and vibration during a period when noise is often an issue in the borough.

Table A: Noise levels on residential sites adjoining railways and roads at which planning permission will not be granted

Noise description and location of measurement	Period	Time	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day	0700-1900	74 dB LAeq'12h	72 dB LAeq'12h
Noise at 1 metre external to a sensitive façade	Evening	1900-2300	74 dB LAeq'4h	72 dB LAeq'4h
Noise at 1 metre external to a sensitive façade	Night	2300-0700	66 dB LAeq'8h	66 dB LAeq'8h

Table B: Noise levels on residential streets adjoining railways and roads at and above which attenuation measures will be required

Noise description and location of measurement	Period	Time	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day	0700-1900	65 dB LAeq'12h	62 dB LAeq'12h
Noise at 1 metre external to a sensitive façade	Evening	1900-2300	60 dB LAeq'4h	57 dB LAeq'4h
Noise at 1 metre external to a sensitive façade	Night	2300-0700	55 dB LAeq'1h	52 dB LAeq'1h
Individual noise events several times an hour	Night	2300-0700	>82dB LAmax (S time weighting)	>82dB LAmax (S time weighting)

Table C: Vibration levels on residential sites adjoining railways and roads at which planning permission will not be granted

Vibration description and location of measurement	Period	Time	Vibration levels
Vibration inside critical areas such as a hospital operating theatre	Day, evening and night	0000-2400	0.1 VDV ms-1.75
Vibration inside dwellings	Day and evening	0700-2300	0.2 to 0.4 VDV ms-1.75
Vibration inside dwellings	Night	2300-0700	0.13 VDV ms-1.75
Vibration inside offices	Day, evening and night	0000-2400	0.4 VDV ms-1.75
Vibration inside workshops	Day, evening and night	0000-2400	0.8 VDV ms-1.75

Where dwellings may be affected by ground-borne regenerated noise internally from, for example, railways or underground trains within tunnels, noise levels within the rooms should not be greater than 35dB(A)max

Table D: Noise levels from places of entertainment on adjoining residential sites at which planning permission will not be granted

Noise description and measurement location	Period	Time	Sites adjoining places of entertainment
Noise at 1 metre external to a sensitive façade	Day and evening	0700-2300	L_{Aeq} , 5m 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 measure, from the same position, and over a comparable period, with no entertainment taking place			

Table E: Noise levels from plant and machinery at which planning permission will not be granted

Noise description and location of measurement	Period	Time	Noise level
Noise at 1 metre external to a sensitive façade	Day, evening and night	0000-2400	5dB(A) <LA90
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade.	Day, evening and night	0000-2400	10dB(A) <LA90
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade.	Day, evening and night	0000-2400	10dB(A) <LA90
Noise at 1 metre external to sensitive façade where LA90>60dB	Day, evening and night	0000-2400	55dB L_{Aeq}

Key references / evidence

- Camden's Noise Strategy, 2002
- The London Plan (Consolidated with Alterations since 2004), 2008
- Planning Policy Guidance 24: Planning and noise

3 NOISE ASSESSMENT

- 3.1 The site is located on the eastern side of Loudoun Road, with the junction with Alexandra Road to the north, and the junction with Boundary Road to the south. Loudoun Road, while not a main thoroughfare, is a typical London residential road with fairly high levels of traffic and pedestrians.
- 3.2 From examination of the surrounding buildings, it has been determined that the nearest residential properties to the hoist are the flats to the rear of the site in Southbury Flats. All other residential property is more distant or more screened, and will therefore receive lower noise levels.
- 3.3 The food hoist will be totally enclosed in a shaft constructed of steel beams and double skinned with plasterboard. The outside will be rendered to match the rest of the property. The location of the hoist is shown in Appendix A.
- 3.4 It is possible that the plant could operate at any time, and therefore the night-time criterion is likely to be the most sensitive. However, it is most likely that the food hoist would be operated during the daytime hours (07:00 – 23:00), because of the nature of its use.
- 3.5 Camden Council requires that noise from the proposed plant will be 5 dB lower than the existing L_{A90} background noise level, when measured 1 m from the nearest sensitive facade, if the noise has no distinguishable discrete continuous tone or impulse, and 10 dB lower than the existing L_{A90} background noise level if there are distinguishable tones or impulses.
- 3.6 Based on the plant data and measurements of similar plant, it is considered that noise from the proposed hoist does not contain any distinguishing characteristics, and therefore the criteria would be 5 dB less than the background noise level.
- 3.7 Calculations of the noise from the hoist have been undertaken, and the results of the calculations are shown in Appendix B.
- 3.8 It has been calculated that the total noise level from the proposed plant would be 20 dB(A) at 1m from the nearest windows of the adjoining property. Whilst background noise levels in the area have not been measured, the calculated level is such that it would be likely to be more than 10 dB below the background noise level, and more than 5 dB below the background level even during the quietest period of the night when the hoist would be unlikely to be used. The level would therefore easily comply with the relevant criterion in Table E of Policy DP28 – Noise and Vibration.
- 3.9 Furthermore, the nature of the hoist use is such that it would only be operated for very short periods at any one time, and therefore noise levels averaged over the daytime or night-time periods would be significantly lower than those predicted.
- 3.10 It should be also noted that an external noise level of 20 dB(A) is exceptionally low, and is 25 dB below the World Health Organisation criterion for the onset of any form of sleep disturbance. It is also 10 dB lower than the *internal* noise level recommended for bedrooms in BS 8233 “Sound insulation and noise reduction for buildings – Code of practice”.
- 3.11 It is therefore considered that the relevant criterion in Table E of Policy DP28 – Noise and Vibration would be complied with, and it is considered that there would be no loss of amenity to nearby residents.

4 CONCLUSIONS

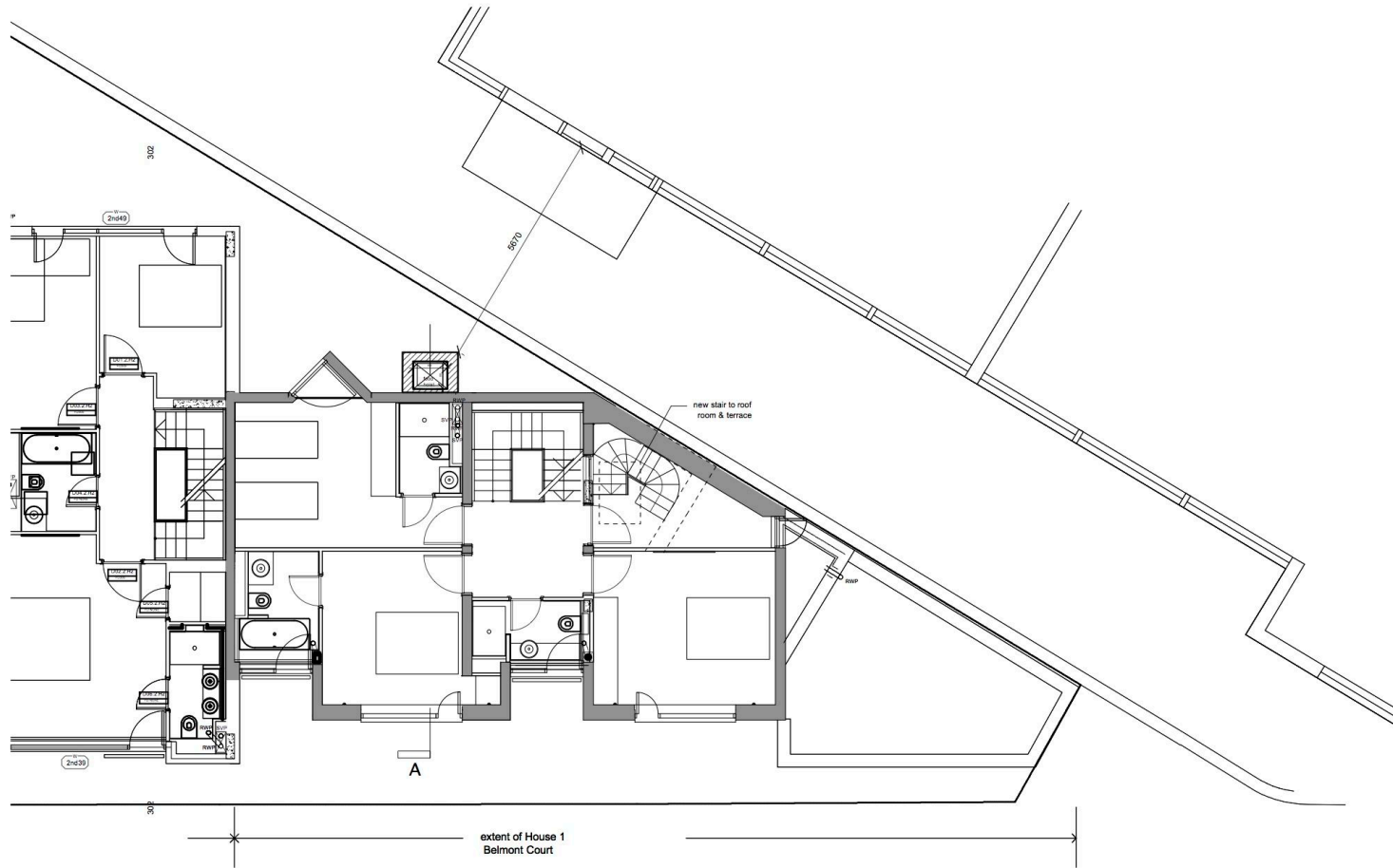
- 4.1 A planning application is being submitted to Camden Council for alterations to 1 Belmont Court, 150 Loudoun Road, London NW8 0AN. As part of the application, it is proposed to install a food hoist at the rear of the building, which will be totally enclosed by a steel and double skinned plasterboard shaft, and which will be rendered on the outside.
- 4.2 A noise assessment of the plant has been undertaken, and the noise level due to the proposed hoist has been calculated.
- 4.3 It has been calculated that the noise from the plant would meet the criteria in Camden Council's Policy DP 28, and would not cause any disturbance or loss of amenity to occupiers of any neighbouring properties.
- 4.4 It is considered that there is therefore no reason why planning permission should not be granted on acoustic grounds.

REFERENCES

1. British Standards Institution. British Standard 7445: Description and Measurement of Environmental Noise, Part 1. Guide to Quantities and Procedures, 1991.

APPENDIX A

Plan showing food hoist shaft and neighbouring property



APPENDIX B
Calculated Noise Levels

Calculation of Noise Breakout through hoist enclosure

Frequency		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	dB(A)
A-Weighting		-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
Hoist Noise level		56	56	57	57	55	53	51	44	60.3
Reverberation in enclosure		6	6	6	6	6	6	6	6	
Transmission Loss (dB)		15	25	37	42	49	53	58	47	
Sound pressure immediately outside building (dB)		49.0	39.0	28.0	23.0	14.0	8.0	1.0	5.0	
Distance to receptor (l m from façade)	4.5 metres									
Distance correction (dB)		-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	
Noise level at receptor (dB)		41.0	31.0	20.0	15.0	6.0	0.0	-7.0	-3.0	19.9