HOARE LEA

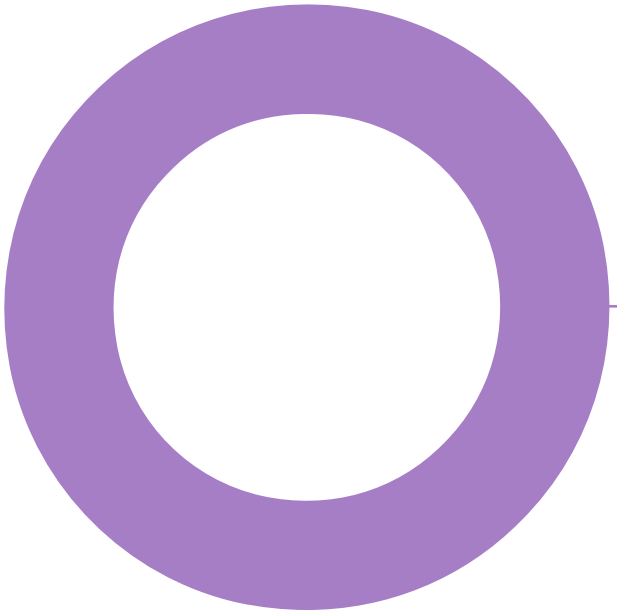
Buck Street Market Camden. London.

Castlehaven Row Ltd.

ACOUSTICS

ACOUSTIC STRATEGY FOR PLANNING

REVISION 01 – 18 MAY 2018



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Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	08/12/2016	First issue	PD	VdH	VdH
01	18/05/2018	Update to latest scheme	MB	BJ	BJ

Project number: 10-057439
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Contents.

Executive summary.

Hoare Lea have prepared an acoustic report on behalf of Castlehaven Row Limited to support the planning application for a temporary upgrade to Camden Market, to be known as Buck Street Market.

The temporary upgrade to the market shall comprise the introduction of a shipping container structure, which will house the existing market stalls, along with other retailers. The proposals will also provide some roof terrace space..

The site is already exposed to moderate levels of noise from road traffic to both the east and west. Acoustic survey work has been undertaken to quantify the level sound from road traffic activity, and establish the sound levels produced by Camden Market in its current form.

Measurements of sound levels typical at other comparable markets have also been taken in order to provide a strong basis of assessment of potential operational impact of the proposed Buck Street Market on the surrounding area.

The assessment has found that no change to the noise environment within the market site is expected as a result of the market upgrade. The installation of the shipping containers will introduce localised screening between the market activities and the surrounding area. This is expected to reduce the sound level of market activities to the surrounding area. The impact on the nearest noise sensitive premises to the north of the site is expected to be beneficial, with a small reduction in average noise levels predicted.

Consideration has also been given to the impact of sound from people speaking on new roof terraces close to the neighbouring residential buildings. The predicted sound levels align with guidance levels within London Borough of Camden policy, and would be in keeping with the local character of the area. Speech sound from terraces it therefore considered to be of low impact.

The development is expected to include the installation of some mechanical services. Noise limits at the nearest noise sensitive premises have been derived in accordance with London Borough of Camden noise policy, and shall apply to the total effect from all equipment.

It is not anticipated therefore that the operation of Buck Street Market will result in any increase in existing sound levels either within the site or to the surrounding area. The shipping containers shall introduce localised screening which are expected to reduce the level of sound breaking out from the existing market site. The acoustic impact of the proposed changes can therefore be considered comparable, or beneficial to the surrounding area.

1. Introduction.

Hoare Lea has been appointed by Castlehaven Row Limited to prepare an acoustic report for planning submission on the proposal to upgrade temporary the current Camden Market whilst the Client continues their dialogue with London Underground regarding the long-term proposal for this site and the creation of a new Underground station entrance and further development opposite the site.

The temporary Buck Street Market scheme proposes to introduce shipping containers to the site to house a mix of uses including market stalls, retail and co-working spaces.

A glossary of acoustic terms used in this report is given in Appendix A.

2. Description of site, surrounding and proposal.

The site is located in the London Borough of Camden between Camden High Street and Buck Street as shown in the figure below.

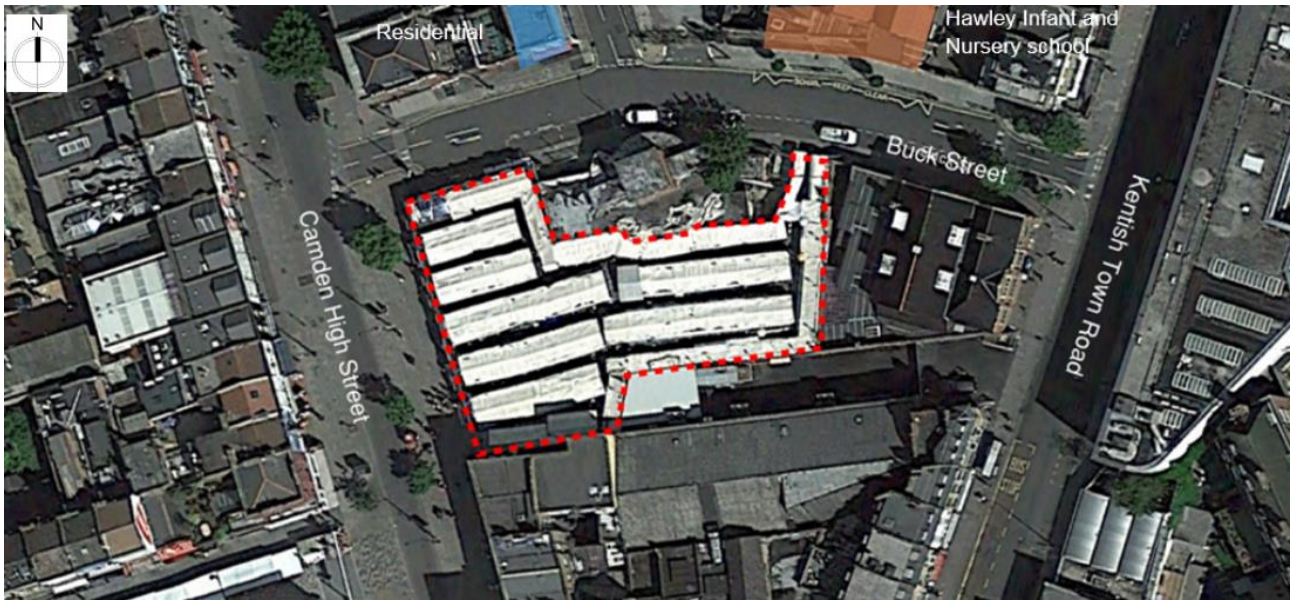

Figure 1 - Buck Street Market site boundaries

The nearest noise sensitive premises to the proposed development site of Buck Street Market are, as per Camden Local Authority definition, the Hawley Infant and Nursery School and the residential building located to the north of the development at 3 Buck Street.

The proposed temporary Buck Street Market (USM) development comprises a mixture of market and retail which will include A1 retail units, A3 restaurants and cafes, A4 drinking establishments, A5 hot food takeaway units within either shipping containers or stalls at the centre of the site.

Figure 2 - Sketch of Proposed Buck Street Market

3. Basis of assessment.

Well established guidance on noise measurements, assessments and related acoustic design is available from a variety of reference including:

- National Planning Policy Framework (NPPF) & Planning Practice Guidance (PPG)
- London Borough of Camden Local Plan 2017
- British Standard 8233: 2014 "Guidance on sound insulation and noise reduction for buildings"
- British Standard 4142 (2014): "Methods for rating and assessing industrial and commercial sound"
- World Health Organisation: 1999 "Guidelines for Community Noise"
- BREEAM New Construction 2014.
- British Council for Offices (BCO) 2014 'Guide to specification'
- BS 6472:2008 – "Guide to evaluation of human exposure to vibration in buildings"
- ANC Guidelines – Red Book: Measurement and Assessment of Groundborne Noise and Vibration
- ISO 14837-1:2005 Mechanical vibration – Ground-borne noise and vibration arising from rail systems

Further details are provided in Appendix B, with the exception of London Borough of Camden requirements, which are set out below.

3.1 London Borough of Camden Local Requirements

The London Borough of Camden (LBC) is the Planning Authority applicable to the development site of Buck Street Market. LBC policy is set out within the Local Plan adopted in 2017.

The Local Plan acknowledges that Camden is well served by markets, and states that the Council will protect markets in the borough. Policy TC6 states:

"The Council will promote and protect markets in Camden. We will:

a. resist the permanent loss of market uses unless comparable replacement provision is made or there is no demand for continued market use;

b. take into account the character of the existing market when assessing proposals for the refurbishment and redevelopment of markets;

c. support new markets that will not cause individual or cumulative harm to the local area.

3.2 Plant noise emissions.

LBC's policy on noise is set out within Appendix 3 of the Local Plan 2017. The document explains that noise is considered in terms of various 'effect levels' which align with the National Planning Policy Framework (NPPF) and National Planning Policy Guidance (NPPG) documents:

- NOEL –No observed effect level
- LOAEL – Lowest observed adverse effect level
- SOAEL – Significant observed adverse effect level

Assessment is made relative to the following context descriptors:

- Green – where noise is considered to be acceptable
- Amber – where noise is observed to have an adverse effect level, but may be acceptable when assessed in the context of other merits of the development
- Red – where noise is observed to have a significant adverse effect

For new noise generating development, assessment should be made with reference to the methodology set out within BS 4142: 2014. The following thresholds are set:

- LOAEL (Green): Noise 'Rating level' to be 10 dB below the existing background. An additional criterion applies at night that no events exceed 57 dB L_{Amax}
- LOAEL to SOAEL (amber): Noise rating level to be between 9 dB below and 5 dB above background, or noise events between 57 dB and 88 dB L_{Amax} at night
- SOAEL (red): Noise rating level is greater than 5 dB above background, and / or events exceed 88 dB L_{Amax} at night

Historically, LBC have required that plant noise emissions are limited to a level 5 dB lower than the existing background sound levels. This would fall at the lower end of the 'amber' category, and is proposed as the basis for setting preliminary noise emission limits.

3.3 Entertainment noise.

LBC sets out requirements for the assessment of 'entertainment noise' in Appendix 3 of the Local Plan 2017. This would apply to activity noise from within the market and terraces. The following thresholds are provided:

- Daytime:
  - NOEL: The higher of 55 dB $L_{Aeq,5min}$ or 10 dB below existing $L_{Aeq,5min}$
  - LOAEL TO SOAEL: 56-60 dB $L_{Aeq,5min}$ or 3-9 dB below the existing $L_{Aeq,5min}$ without entertainment noise

  - SOAEL: The higher of 61 dB $L_{Aeq,5min}$ or 2 dB below existing $L_{Aeq,5min}$
- Evening:
  - NOEL: The higher of 50 dB $L_{Aeq,5min}$ or 10 dB below existing $L_{Aeq,5min}$
  - LOAEL TO SOAEL: 51-55 dB $L_{Aeq,5min}$ or 3-9 dB below the existing $L_{Aeq,5min}$ without entertainment noise
  - SOAEL: The higher of 56 dB $L_{Aeq,5min}$ or 2 dB below existing $L_{Aeq,5min}$
- Night:
  - LOAEL: The higher of 45 dB $L_{Aeq,5min}$ or 10 dB below existing $L_{Aeq,5min}$
  - LOAEL to SOAEL: 46-50 dB $L_{Aeq,5min}$ or 3-9 dB below the existing $L_{Aeq,5min}$ without entertainment noise
  - SOAEL: The higher of 51 dB $L_{Aeq,5min}$ or 2 dB below existing $L_{Aeq,5min}$

4. Environmental sound conditions

The sound conditions of the area surrounding the current Camden Market are mainly dominated by road traffic activity on Camden High Street and Kentish Town Road respectively to the west and to the east of the market. Activities within Camden Market are also audible and contributes to the overall ambient sound environment.

4.1 Baseline acoustic measurements

An acoustic survey was undertaken at the current Camden Market to establish the existing environmental sound levels in the surrounding area and those generated by the market.

Acoustic surveys were also undertaken at Camden Lock Market in order to gather relevant reference data to the assessment.

Camden Lock Market comprises a mixture of market stalls and retail similar to those of the proposed Buck Street Market.

The surveys are summarised in Section 3.2. Full details of the surveys are reported in Appendices C, D and E.

4.2 Acoustic survey results

4.2.1 Current Camden Market

Results from the long-term surveys indicate that typical levels of 61 and 62 dB $L_{Aeq,T}$ were measured respectively to the east and to the south-west of the market during the market operating hours, between 10:00 and 18:00.

Road traffic noise, which is the main source of noise affecting the west and east side of the site was typically in the order of 68-69 dB L_{Aeq} during the daytime.

Typical market activities were experienced during the survey such as people talking and music from small audio systems diffused by the different stalls. A level of 69 dB(A) was measured within the market and found to decrease to 63 dB(A) at the market boundary on Buck street.

Figure 3 summarises the results obtained at the current Camden Market during operating hours.

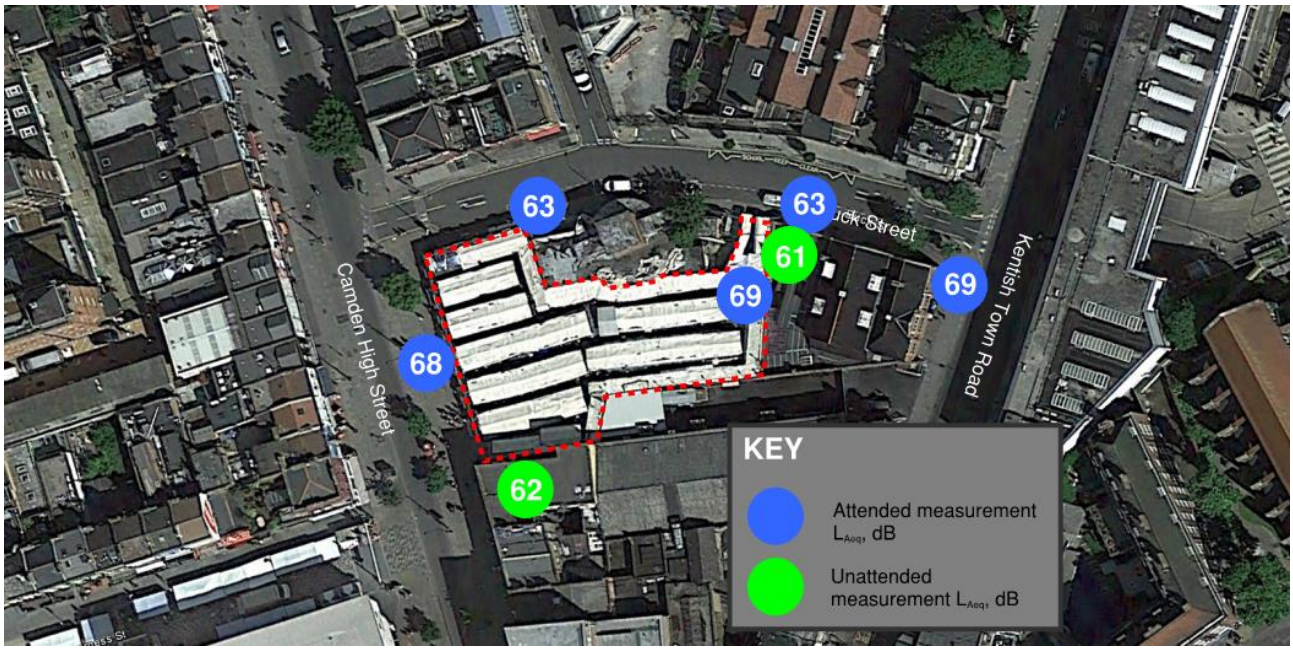

Figure 3 – Results of the acoustic survey at Camden Market

4.2.2 Camden Lock Market

A summary of the typical environmental sound levels around the Camden Lock Market based on data obtained from the surveys undertaken in 2014 and 2015 are presented in Figure 4.

Measurements undertaken on Camden High Street to the east of the market were dominated by road traffic activity. Typically, levels ranged from 70 to 75 dB(A).

Market activities during the survey included people conversations and music from small audio system diffused by the different stalls. Measurements at the market stall area located to the north and at the centre of the market are in the region of 66 dB(A) while levels at the other ends were found to be just below 60 dB(A).

Figure 4 – Results of the attended measurements at Camden Lock Market

5. Potential impact of noise due to the scheme on the surrounding neighbours

5.1 Noise from the market.

Acoustic survey work demonstrated that the dominant sources of sound generated by market operation were music from small sound systems and occupants talking. Sound levels associated with these sources typically ranged between 65 and 70 dB(A). At Camden Market boundaries, unaffected by road traffic activity, these levels reduced to 63 dB(A).

The proposed Buck Street Market is expected to generate operational sound as a result of the A1 retail units, A3 restaurants and cafes, A4 drinking establishments, A5 hot food takeaway units, which will be situated either within shipping containers arranged against the site perimeter, or market stalls within the centre. Operational sound levels are expected to be similar to those within the existing Camden Market and Camden Lock Market.

In addition, the shipping containers will provide localised screening between the market and the surrounding area. It is therefore predicted that to the east and west of the site, road traffic activity shall remain the dominant sound source (see Figure 6). To the north of the site, the screening effect of the shipping containers is predicted to result in potential reduction in sound levels by approximately 3 dB.

It is therefore considered that the environmental sound conditions would not be increased from the existing market conditions. This would therefore be considered a “NOEL” in the context of LBC policy.

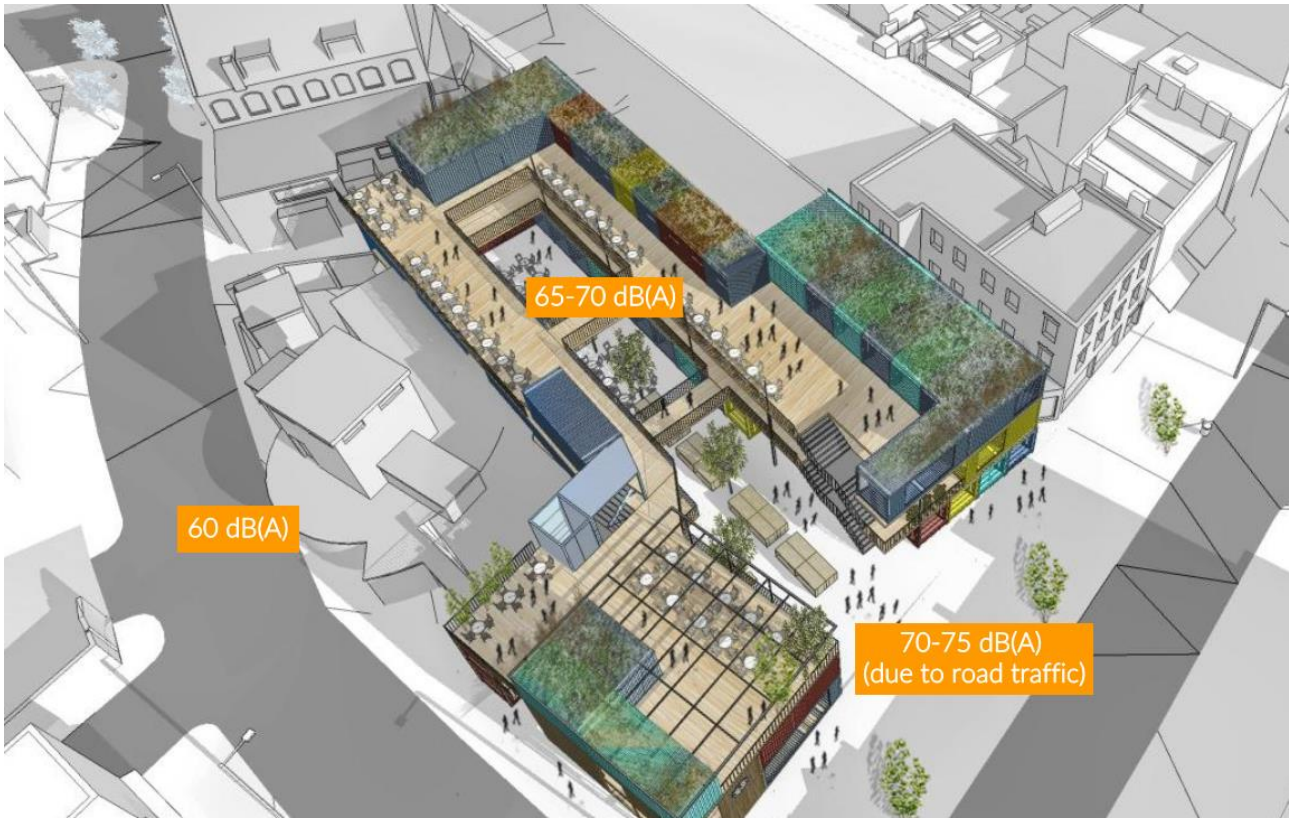

Figure 5 - Expected noise levels generated by Buck Street Market

5.2 Noise from new roof terraces.

There are proposals for new roof terraces atop the shipping containers. The existing market does not include this type of space and so an assessment has been undertaken to determine the likely levels of sound experienced at neighbouring buildings. The predominant sound source will be speech from patrons on the terraces.

An objective assessment of the likely levels of speech sound has been undertaken. The predictions are based upon the terraces being at full occupancy (drawings show seating for 60 people in the 'uncovered' part of the terrace closest to the residential development), with at least 50% of occupants speaking simultaneously at a 'normal' speech level of typically 60 dB (A) at 1m. Allowance has also been made for additional standing patrons within the terraces. The predicted level of sound at the neighbouring residential buildings is expected to be in the order of 50-55 dB(A).

During the day, this would be considered a "NOEL". The predicted sound levels are in line with the lower boundary set out within LBC policy.

During the evening, a sound level just outside the neighbouring residential building is considered a LOAEL. The predicted sound levels align with the sound levels within LBC policy, although there is a need to place the sound into context. The terraces will be located within a busy part of Camden Town, where the sound of people speaking is part of the existing soundscape. In addition, there is a terrace associated with the Bucks Head pub which is immediately adjacent to the residential building; and so there is precedent for roof terraces within the area. On this basis, speech sound from the terraces is in keeping with the local area character, and is considered to be of low impact.

It is, however, recognised that there will need to be a degree of noise management, and this may include restriction of outdoor amplified music.

6. Control of plant noise associated with the new market

The development is expected to include mechanical services to serve the retail and the stall areas. At this stage no details are available. However, it is recognised that it will be important that the installation of new fixed plant will need to include consideration of noise control to protect the nearby sensitive receivers.

The fundamental basis of the plant noise control strategy will be to observe the following plant noise limits in the selection of equipment and determination of additional noise control measures. The limits have been derived from the lowest measured background noise levels.

Plant noise emission limits have been derived in accordance with LBC policy. Limits have been set 5 dB lower than the lowest measured background sound levels. Limits are shown in Table 1.

Table 1 Plant noise emission limits

Period	Plant noise emission limits, dB	
	Receivers to west of development	Receivers to east of development
Day (07:00-23:00)	46	38
Night (23:00-07:00)	42	32

Limits would apply at 1m from the nearest noise sensitive facades, which were identified as 3 Buck Street (residential) to the north-west, and Hawley Infant and Nursery School to the north-east of the development.

For testing of emergency generation plant, for no more than 1 hour per month between 09:00 and 17:00 during working weekdays, it is common protocol, though not formally documented in local policy that the criteria are relaxed to correspond to an increase in the typical background noise levels by no more than 10dB(A).

7. Conclusions

The assessment has found that no change to the noise environment within the market site is expected as a result of the market upgrade. The installation of the shipping containers shall introduce localised screening between the market activities and the surrounding area. This is expected to reduce the sound level of market activities to the surrounding area. The impact on the nearest noise sensitive premises to the north of the site is expected to be beneficial, with a small reduction in average noise levels predicted.

Consideration has also been given to the impact of sound from people speaking on new roof terraces close to the neighbouring residential buildings. The predicted sound levels align with guidance levels within London Borough of Camden policy, and would be in keeping with the local character of the area. Speech sound from terraces it therefore considered to be of low impact.

The development is expected to include the installation of some mechanical services. Noise limits at the nearest noise sensitive premises have been derived in accordance with London Borough of Camden noise policy, and shall apply to the total effect from all equipment.

It is not anticipated that the operation of Buck Street Market will result in any increase in existing sound levels either within the site or to the surrounding area. The shipping containers shall introduce localised screening which are expected to reduce the level of sound breaking out from the existing market site. The acoustic impact of the proposed changes can therefore be considered comparable, or beneficial to the surrounding area.

Appendix A – Glossary of Acoustic Terms.

Decibel (dB)

The decibel is the unit used to quantify sound pressure levels. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). Therefore, a logarithmic scale is used to describe sound pressure levels and also sound intensity and power levels. The logarithms are taken to base 10. Hence an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pascals). Subjectively, this increase would correspond to a doubling of the perceived loudness of sound.

Octave and Third Octave Bands

The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz and is generally more sensitive to medium and high frequencies than to low frequencies within the range. There are many methods of describing the frequency content of a noise. The most common methods split the frequency range into defined bands, in which the mid-frequency is used as the band descriptor and in the case of octave bands is double that of the band lower. For example two adjacent octave bands are 250 Hz and 500 Hz. Third octave bands provide a fine resolution by dividing each octave band into three bands. For example third octave bands would be 160 Hz, 250 Hz, 315 Hz for the same 250 Hz octave band.

A-Weighting

The 'A' weighting is a correction term applied to the frequency range in order to mimic the sensitivity of the human ear to noise. It is generally used to obtain an overall noise level from octave or third octave band frequencies. An 'A' weighted value would be written as dB (A).

Equivalent Continuous Sound Level L_{eq},

The L_{eq}, is a parameter defined as the equivalent continuous sound pressure level. Over a defined time period 'T', it is the sound pressure level equivalent to the acoustic energy of the fluctuating sound signal. The $L_{eq,T}$ can be seen to be an "average" sound pressure level over a given time period (although it is not an arithmetic average). Typically the $L_{eq,T}$ will be an 'A' weighted noise level in dB(A). It is commonly used to describe all types of environmental noise sources.

Background Noise Level L_{90}

The $L_{90,T}$ is a parameter defined as the sound pressure level exceeded for 90% of the measurement period 'T'. It is a statistical parameter and cannot be directly combined to other acoustic parameters. It is generally used to describe the prevailing background noise level or underlying noise level.

Rating Level

The specific noise level of the source plus any adjustment for characteristic features of the noise.

Airborne Single Number Quantity Weighting

This is a weighting procedure defined in BS EN ISO 717, Part 1 for converting third octave band R, R', D and D_{nT} values to a single number quantity denoted as R_w, R'_w, D_w or $D_{nT,w}$. It is a decibel value.

Appendix B – References.

Well established guidance on noise measurements, assessments and related acoustic design is available from a variety of reference including:

- National Planning Policy Framework (NPPF) & Planning Practice Guidance (PPG)
- London Borough of Camden Core Strategy 2010-2025
- Camden Local Development Framework 2010-2025 "Camden Development Policies" – Policy DP28 - Noise and Vibration
- British Standard 8233: 2014 "Guidance on sound insulation and noise reduction for buildings"
- British Standard 4142 (2014): "Methods for rating and assessing industrial and commercial sound"
- World Health Organisation: 1999 "Guidelines for Community Noise"
- BREEAM New Construction 2014.
- British Council for Offices (BCO) 2014 'Guide to specification'
- BS 6472:2008 – "Guide to evaluation of human exposure to vibration in buildings"
- ANC Guidelines – Red Book: Measurement and Assessment of Groundborne Noise and Vibration
- ISO 14837-1:2005 Mechanical vibration – Ground-borne noise and vibration arising from rail systems

National Planning Policy Framework (2012)

The NPPF sets out the Government's planning policies for England and how these are expected to be applied. Section 11 paragraph 123 of NPPF states:

'Planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put upon them because of changes in nearby land uses since they were established
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason'

Reference is made to the DEFRA Noise Policy Statement for England 2010. This latter document is intended to apply to all forms of noise other than that which occurs in the workplace and includes environmental noise and neighbourhood noise in all forms.

Noise Policy Statement for England (2010)

Noise Policy Statement for England (NPSfE) advises that noise impact should be assessed on the basis of adverse and significant adverse effect but does not provide any specific guidance on assessment methods or noise limits.

NPSfE introduces the following concepts of noise effects which it states have been applied by the World Health Organisation:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSfE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

No guidance is defined in relation to these effects in terms of limiting values of noise within the NPSfE. The World Health Organisation guidelines (WHO Night Noise Guidelines 2009) adopt these definitions but NPSfE does not apply the noise values contained in the guidelines.

The document advises that it is not possible to have 'a single objective noise based measure…. that is applicable to all sources of noise in all situations.' (paragraph 2.15) It further advises that the sound level at which an adverse effect occurs is likely to be different for different noise sources, for different receptors at different times (paragraph 2.22).

Planning Practice Guidance

On line guidance has been published to provide greater details in relation to the relevance of noise to planning following the introduction of the NPPF and NPSfE.

It states under the heading *'How to Determine the Noise Impact'* that the following should be considered by local authorities:

- Whether or not a significant adverse effect is occurring or likely to occur:
- Whether or not an adverse effect is occurring or likely to occur: and
- Whether or not a good standard of amenity can be achieved.

The overall effect of both construction and when a development is complete should be considered.

In line with NPSfE this includes identifying where noise exposure is above or below the significant observed adverse effect level and the lowest observed adverse effect level for a given situation.

The observed effects are defined in the table given in Appendix B attached which is detailed in the section headed *'How to Recognise when Noise could be a concern?'*

It is important to note that no specific noise parameters are defined in the text or target noise levels provided.

Under the heading '*What factors influence whether noise could be a Concern?'* the subjective nature of noise is discussed. It is stated that there is no simple relationship between noise levels and the impact on those affected. This depends on how various factors combine in particular situations, these include:

- The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day – this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- The spectral content of the noise (i.e. whether or not the noise contained particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features). The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.
- Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases a suitable alternative means of ventilation can be found in the Building Regulations.
- In cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in noise may result in a significant adverse effect occurring even though little to no change in behaviour would be likely to occur.
- If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

Appendix C – Equipment details.

Table 2 - Equipment used for noise survey in February 2015

Monitor	Type	Manufacturer	Model	Serial No.	Calibration Expiry
Fixed	SLM	Rion	NL-31	00841830	20/06/2016
	Pre-amplifier	Rion	NH-21	12962	20/06/2016
	Microphone	Rion	UC-53A	317811	20/06/2016
Manual	Sound Level Meter	Rion	NA-28	01260200	28/08/2015
	Microphone	Rion	UC-59	00280	28/08/2015
Calibrator		Rion	NC-74	34172704	03/07/2017

Table 3 - Equipment used for noise survey in November 2015

Instrumentation Description	Type Number	Manufacturer	Date of Expiration Of Calibration
Sound Level Meter	2250 SN: 3004050	Bruel & Kjaer	16/10/2017
½" Microphone	4189 SN:2887265	Bruel & Kjaer	16/10/2017
Acoustic Calibrator	4231 SN:2445715	Bruel & Kjaer	09/10/2016

Table 4 - Equipment used for noise survey in March 2016

Equipment	Make and Model	Serial Number	Date of Expiration Of Calibration
Sound Level Meter	Rion NL-32	00630481	29/06/2017
Microphone	Rion UC-53A	305112	29/06/2017
Pre-amplifier	Rion NH-21	09098	29/06/2017
Calibrator	B&K 4231	2583630	31/08/2016

Table 5 - Equipment used for noise survey in October 2015

Type	Manufacturer	Model	Serial No.	Date of Expiration Of Calibration
Sound Level Meter	Rion	NA-28	01260200	28/08/2015
Microphone	Rion	UC-59	00280	28/08/2015
Calibrator	B&K	4231	2583630	22/05/2014

Appendix D – Noise Survey details

Camden Market

A noise monitor was positioned on the roof of a building adjacent the existing Camden Market to monitor the west side of the market. The monitor recorded free-field five minute contiguous samples from 12:40 on 13th February 2015 to 11:05 on 18th February 2015.

Another monitor was positioned to the east of the market at the back yard on the roof of the Trinity United Reformed Church extension. The monitor recorded five-minute contiguous samples from approximately 10:50 on 9th March 2016 to 12:40 on 14th March 2016.

Multiple short-term attended measurement were also taken on the 18th February and on the 26th November 2015 to determine the variation in noise levels at several locations around the site.

Measurements were undertaken in the morning and early afternoon during market activities for a duration of 10 -15 minute.

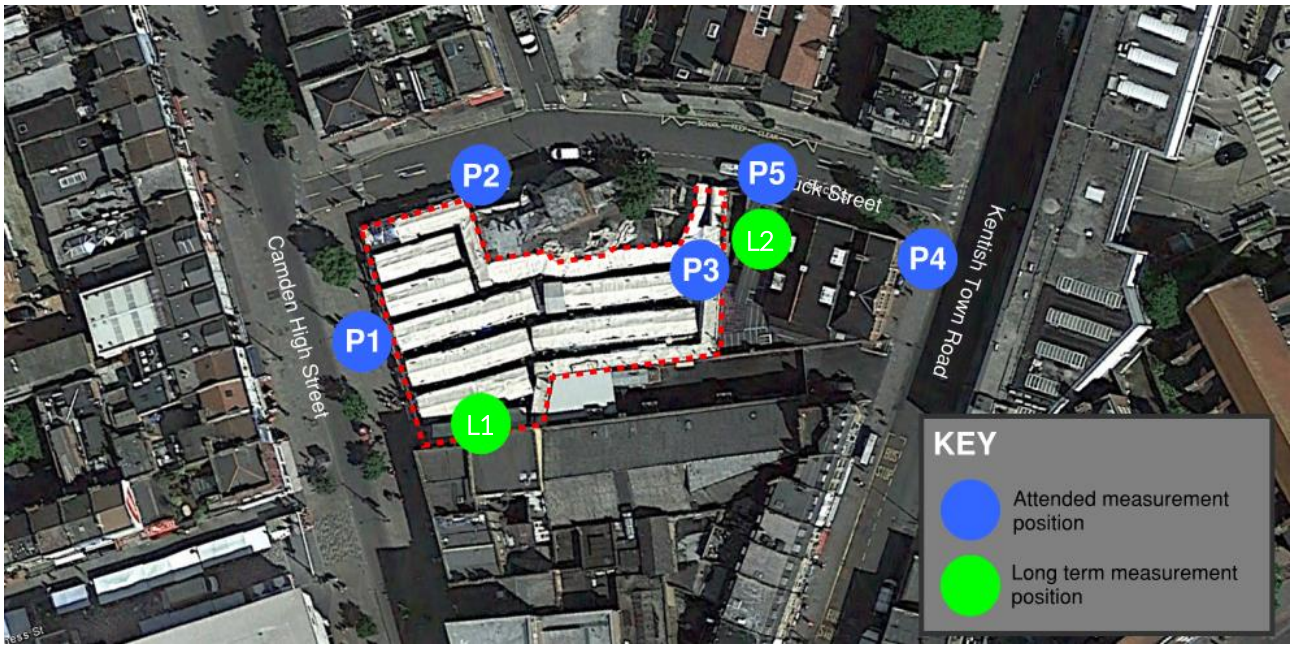

Figure 6 - Noise measurement locations at Camden Market.

Camden Lock Market

Handheld measurements were undertaken by Hoare Lea at the nearby Camden Lock Market in September 2014 and June 2015. Multiple short-term attended measurements were taken between 11.00 and 15.00 during the market activities. The results obtained from these measurements can provide a better understanding of what the noise levels produced by the new Buck Street Market will be. Figure 8 shows the approximate survey measurement locations.

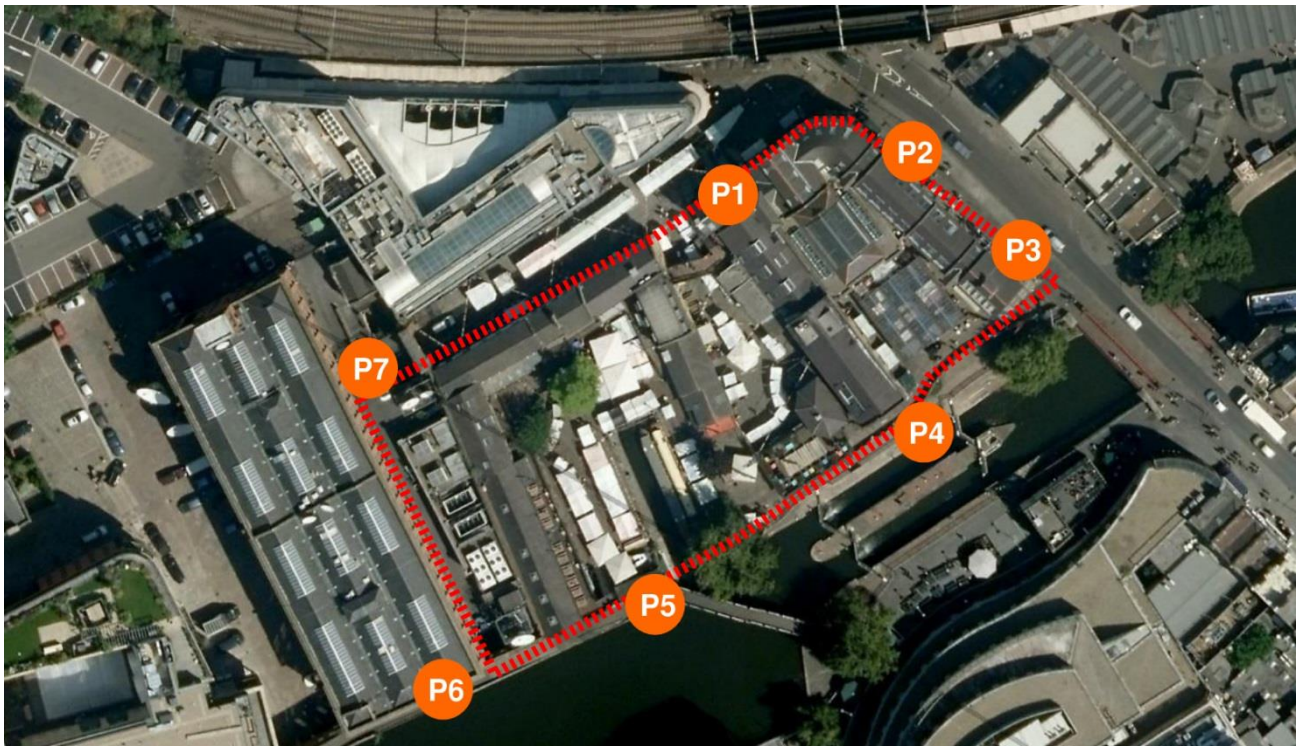

Figure 7 - Noise measurement locations at Camden Lock Market

Appendix E – Survey Results.

Camden Market

Long term survey

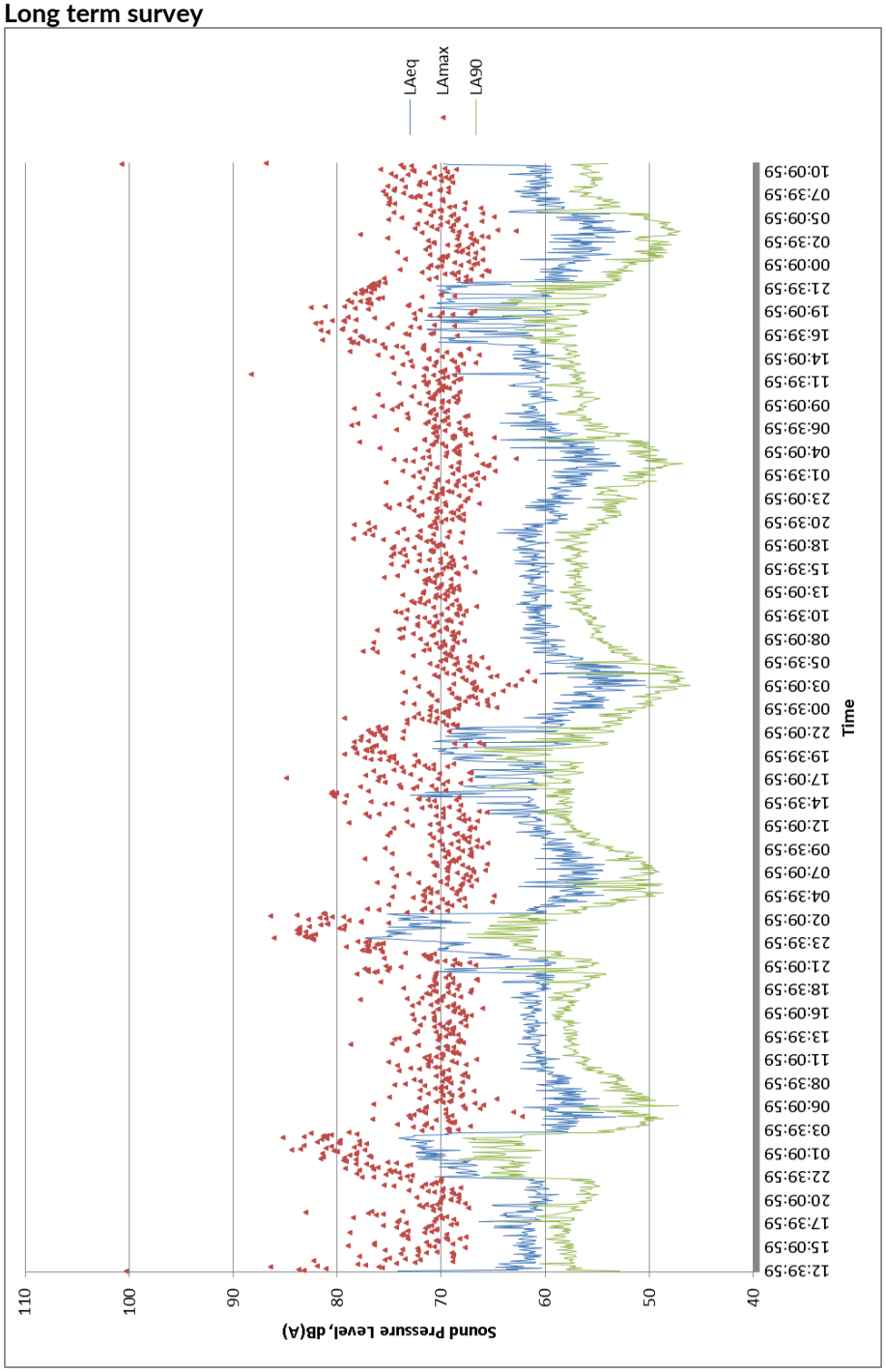

Figure 8 - Long term measurement at L1

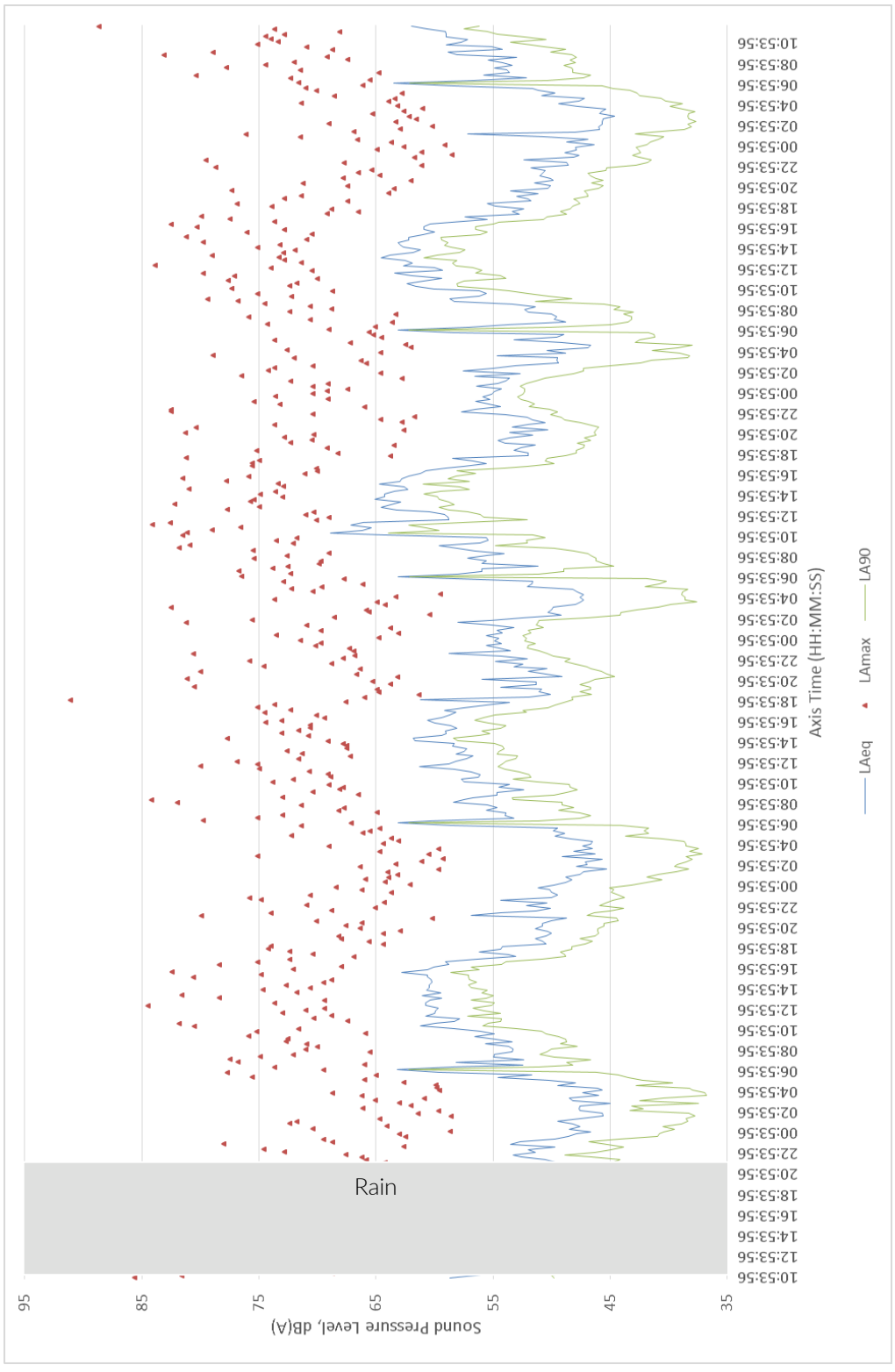

Figure 9 - Long term measurements at L2

Short term measurements

Table 6 - Short term measurement results at Camden Market

Position	Start Time	M-Time	L_{Aeq}, dB(A)	L_{Amax}, dB(A)	L_{A90}, dB(A)
P1	18/02/2015 10:10	00:10:00	68	83	60
	18/02/2015 11:16	00:10:00	69	82	64
P2	18/02/2015 10:25	00:10:00	63	79	57
	18/02/2015 11:27	00:10:00	64	77	60
P3	18/02/2015 10:40	00:10:00	57	76	48
	18/02/2015 11:39	00:10:00	69	79	63
P4	26/11/2015 15:10	00:15:00	69	88	61
	26/11/2015 15:49	00:15:00	69	88	60
P5	26/11/2015 15:33	00:15:00	63	79	58
	26/11/2015 16:05	00:15:00	62	85	55

Camden Lock Market

Table 7 - Short-term measurement results at Camden Lock Market

Position	Start Time	M-Time	L_{Aeq}, dB(A)
P1	02/09/2014 14:52	00:05:00	66
	03/06/2015 11:37	00:10:00	66
	03/06/2015 12:31	00:10:00	66
P2	02/09/2014 13:24	00:05:00	76
	02/09/2014 13:30	00:05:00	63
	02/09/2014 13:52	00:05:00	69
	02/09/2014 13:57	00:05:00	70
	03/06/2015 11:25	00:10:00	72
P3	02/09/2014 13:00	00:05:00	70
	02/09/2014 13:05	00:05:00	57
	02/09/2014 13:11	00:05:00	78

Position	Start Time	M-Time	L_{Aeq}, dB(A)
	02/09/2014 13:17	00:05:00	78
	03/06/2015 11:12	00:10:00	70
P4	02/09/2014 12:54	00:05:00	62
	03/06/2015 12:07	00:10:00	59
	03/06/2015 12:56	00:10:00	60
P5	02/09/2014 12:46	00:05:00	59
P6	02/09/2014 12:40	00:05:00	59
	03/06/2015 12:02	00:01:00	62
P7	02/09/2014 14:48	00:05:00	58
	03/06/2015 11:49	00:10:00	59
	03/06/2015 12:43	00:10:00	58

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