THE STANDARD HOTEL

ACOUSTIC ASSESSMENT REPORT

LICENSING

VC-102348-EN-RP-0001

R05

7TH FEBRUARY 2017

VANGUARDIA

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VANGUARDIA LIMITED

HEAD OFFICE
21 Station Road West, Oxted
Surrey RH8 9EE

Tel +44 (0) 1883 718690
Fax +44 (0) 8700 516196

office@vanguardia.co.uk
vanguardia.co.uk

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1. EXECUTIVE SUMMARY

1.1. Vanguardia were appointed to undertake an assessment for The Standard Hotel on Euston Road, Kings Cross of external and internal noise breakout from the premises to the nearest noise sensitive receptors in support of a new licensing application.

1.2. The assessment contained within this report was produced using noise level data from an attended and unattended acoustic survey undertaken between the 15th and 22nd December 2016.

1.3. The methodology adopted was taken from guidance documents published by Camden Council and compares predicted operational noise levels with existing ambient noise levels at the nearest noise sensitive receptors or locations representative of the nearest noise sensitive receptors.

1.4. The assessment takes account of external areas associated with the hotel as well as internal noise levels from hospitality areas within the hotel and the respective breakout noise level at each receptor location.

1.5. External areas include the hospitality area within the rear garden of the development and a roof terrace on the 11th floor. Internal areas include the café/business area/ library on the ground floor, the 10th floor restaurant and the Sky Lobby also located on the 10th floor.

1.6. Based on the predicted operation noise levels from both internal and external activity up until 23:00 show that the target noise levels of not exceeding 5 dB(A) above the existing ambient noise level (LAeq, 5 minutes) at the nearest noise sensitive receptors has been achieved.

1.7. For night-time periods it is proposed that the main smoking area for guests and residents will be on the Roof Terrace to ensure safety and security, however it is also acknowledged that some guests and residents may still venture out onto Euston Road to smoke, therefore predictions for each scenario have been presented in order to assess on a worst case basis.

1.8. The predicted operational noise levels from external smoking areas and the internal hospitality spaces show that the target noise levels of not exceeding 3 dB(A) above the existing ambient noise level (LAeq, 5 Minutes) at the nearest noise sensitive receptors has also been achieved.

1.9. Low frequency noise levels at 63Hz are not likely to be a problem due to the adjustment to the music noise spectrum in certain internal areas. Levels in certain rooms will be limited to meet the local authority criteria.

1.10. All the predictions undertaken within this report are based on worst case assumptions and use the lowest measured existing noise levels from the survey, therefore in reality it is expected that noise levels will be lower during typical hotel operations.

1.11. Whilst the noise levels contained within this report are only predicted noise levels, if actual noise levels were above those specified within the report they would be reduced and limited accordingly to ensure inaudibility as per the specified conditions contained within section 3 of this report.

2. INTRODUCTION

2.1. Vanguardia has been appointed by Crosstree Real Estate Partners LLP to undertake an assessment of internal and external entertainment and leisure spaces to support a new licensing application for the Standard Hotel, Kings Cross.

2.2. The Standard Hotel is located on Euston road opposite the Renaissance Hotel to the north, Camden town hall to the west, Argyle Street to the east and Tonbridge Street to the south.

2.3. It is proposed that the hotel will have a roof terrace on the 11th floor and garden and external lounge areas to the rear at ground floor level.

2.4. Internal entertainment and leisure areas for assessment consist of a restaurant and bar on the 10th floor and a lounge and bar on the ground floor.

2.5. The predictions in this report have been carried out using existing baseline noise levels obtained from both attended and unattended surveys carried out in December 2016.

2.6. The assessment has been undertaken using published guidance documents from Camden Council to ensure predicted noise levels are within specified levels.

2.7. Planning had been previously granted for use of the basement area as a function space, this has been removed from the plans to assist in the management of noise and the dispersal of guests from any associated events.

3. METHODOLOGY AND GUIDANCE

3.1. Camden Council have two guidance documents relevant to this assessment although one of the documents is only draft guidance and therefore has been referenced where appropriate. The guidance from each document is summarised below.

NOISE STANDARDS FOR LICENSING APPLICATIONS

3.2. This guidance document contains information on noise levels pre and post 23:00 for entertainment premises which adjoin or are adjacent to noise sensitive premises.

3.3. Due to the proximity of the hotel to residential dwellings this set of guidance will be used within the assessment of noise levels for this application. The conditions are reproduced below.

Up to 2300hrs applicable to entertainment premises which adjoin or are adjacent to noise sensitive properties.

- *'The noise climate of the surrounding area shall be protected such that the A-weighted equivalent continuous noise level (LAeq) emanating from the application site, as measured 1 metre from any facade of any noise sensitive premises over any 5-minute period with entertainment taking place shall not increase by more than 5dB as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place'.*

After 2300hrs Applicable to All Entertainment Premises

- *'The noise climate of the surrounding area shall be protected such that the A-weighted equivalent continuous noise level (LAeq) emanating from the application site, as measured 1 metre from any facade of any noise sensitive premises over any 5-minute period with entertainment taking place shall not increase by more than 3dB as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place.*
- *The unweighted equivalent noise level (Leq) in the 63Hz Octave band, measured using the "fast" time constant, inside any living room of any noise sensitive premises, with the windows open or closed, over any 5-minute period with entertainment taking place, should show no increase as compared to the same measure, from the same location(s), and over a comparable period, with no entertainment taking place.*

- *No sound emanating from the establishment should be audible within any noise sensitive premises between 23.00 and 07.00 hours'.*

CAMDEN STATEMENT OF LICENSING POLICY (DRAFT) 2017 – 2022

Premises Providing Music, Dance and Similar Entertainment

3.4. It is proposed that external spaces may consist of low level ambient music to assist in the masking of existing traffic noise from Euston Road and therefore this policy would be applicable for assessment in conjunction with the policy detailed above.

3.5. The draft conditions have been reproduced below.

- *'A sound limiting device shall be installed, set and sealed at a level approved by the Council.*
- *Only the premises licence holder and the designated premises supervisor shall have access to the sound limiting device.*
- *The sound limiting device shall be used whenever relevant regulated entertainment is taking place.*
- *A cut-out device shall be connected to the exit doors and will be operational at all times the licence is in use. When the premises doors are open, the levels of music shall cut out completely or fall to ambient levels that are not intrusive to local residents.*
- *Before 2300 hours, the noise climate of the surrounding area shall be protected such that the A-weighted equivalent continuous noise level (LAeq) emanating from the application site, as measured one metre from any facade of any noise sensitive premises over any five minute period with entertainment taking place, shall not increase by more than 5dB as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place; and the unweighted equivalent noise level (Leq) in the 63Hz Octave band, measured using the "fast" time constant, inside any living room of any noise sensitive premises, with the windows open or closed, over any five minute period with entertainment taking place, should show no increase as compared to the same measure, from the same location(s), and over a comparable period, with no entertainment taking place.*

- *After 2300 hours, the noise climate of the surrounding area shall be protected such that the A-weighted equivalent continuous noise level (LAeq) emanating from the application site, as measured one metre from any facade of any noise sensitive premises over any five minute period with entertainment taking place shall not increase by more than 3dB as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place; and the unweighted equivalent noise level (Leq) in the 63Hz Octave band, measured using the "fast" time constant, inside any living room of any noise sensitive premises, with the windows open or closed, over any five minute period with entertainment taking place, should show no increase as compared to the same measure, from the same location(s), and over a comparable period, with no entertainment taking place.*
- *No sound emanating from regulated entertainment shall be audible a metre from the façade of the nearest noise sensitive premises between 2300 and 0700 hours.*
- *All external doors and windows to the premises shall be kept closed during the provision of regulated entertainment, save during access and egress.*
- *The licence holder or duty manager shall make regular patrols at no less than hourly intervals around the perimeter of the premises when regulated entertainment is taking place. Noise levels shall be adjusted to ensure local residents are not disturbed by noise break out'.*

4. BASELINE NOISE SURVEY

4.1. A baseline noise survey was undertaken at the site of The Standard Hotel, Euston Road, Kings Cross from the 15th December to the 22nd December 2016.

4.2. The baseline noise survey consisted of both unattended monitoring around The Standard Hotel site and attended monitoring at noise sensitive locations in the immediate area.

4.3. The attended survey was undertaken on the 17th and 18th of December 2016 whilst the Camden Centre was operating and was repeated on the 19th December 2016 when the Camden Centre was closed.

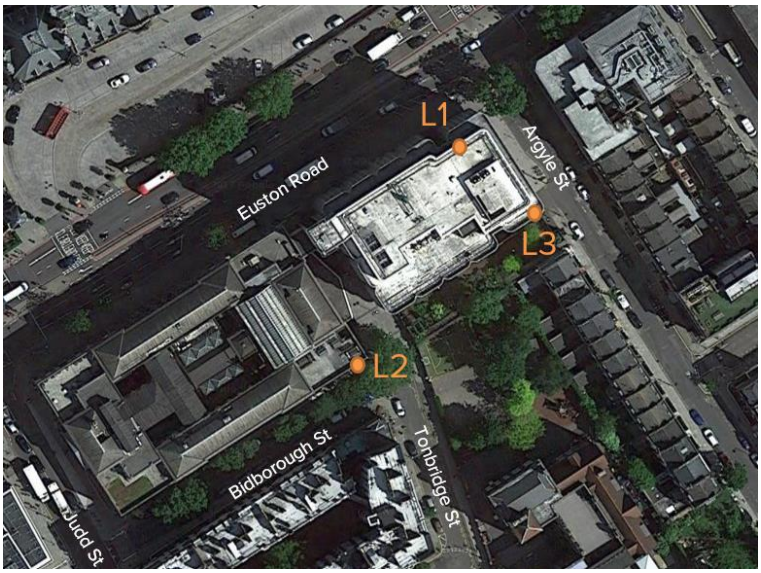
4.4. The purpose of the attended measurements was to ascertain noise levels for noise sensitive properties in the surrounding area and to monitor noise originating from the Camden Centre and in particular at the time of egress at 04:00hrs.

MONITORING LOCATIONS

Unattended Monitoring

4.5. Two sound level meters were setup at different facades of the construction site of the Standard hotel and one on the corner of the Camden Council Town Hall. Figure 1 below shows the monitoring locations for the unattended monitoring.

Figure 1 Unattended Monitoring Locations



4.6. The information regarding monitoring placements have ben summarised below.

- L1 – Euston Road. On the site of The Standard Hotel at fourth floor level overlooking Euston Road. The Microphone was extended 1m from the façade of the building.
- L2 – Bidborough Street. On the roof of Camden Town Hall overlooking Bidborough Street. The Microphone was extended 1m from the façade of the building.
- L3 – Argyle Street. On the site of The Standard Hotel at fourth floor level overlooking Argyle Street. The Microphone was extended 1m from the façade of the building.

Attended Monitoring

4.7. The attended monitoring locations have been presented in Figure 2 below.

Figure 2 Attended Monitoring Locations

4.8. For each attended monitoring location, the meter was on a tripod at a height of 1.5m from the ground. With the exception of S2, each position was in a free field position free from reflective surfaces. This was not possible at S2 due to the restricted width of the alleyway.

4.9. A description of the location of each attended position has been presented below.

- S1 – Renaissance Hotel. On the approximately 5m above and 12m away from Euston Road.
- S2 – Tonbridge Walk Alleyway. Start of alleyway close to the junction of Bidborough Street and Tonbridge Street.
- S3 – Argyle Street. Close to the junction of Argyle Street and St Chad's Street. approximately 2m from the road.
- S4 – Tonbridge Street. At the corner of Tonbridge Street and Hastings Street approximately 1m from the road.
- S5 – Argyle Square. Outside the gated entrance to Argyle Square gardens. And 3m from the road to the west of Argyle Square.

4.10. The equipment used for the survey has been presented in Appendix B.

4.11. All equipment was calibrated in the field before and after measurement and no significant drift was detected.

4.12. The weather conditions were suitable for acoustic measurement throughout the survey, it was noted that 0.3mm of rain fell during the night of Wednesday 21st December 2016 but a study of the data shows this was insignificant and did not affect the survey measurements.

4.13. A summary of the weather conditions is summarised in Appendix C.

NOISE CLIMATE

4.14. Road traffic noise from Euston Road was the dominant noise source for all locations with slight reductions during the night time periods, in particular between 01:00 – 03:00.

4.15. Sirens from emergency service vehicles were frequent throughout the survey and therefore have been considered a typical characteristic of the noise climate.

4.16. Additional noise sources included frequent pedestrian activity along Euston Road, and pedestrians coming and going from hotels around Argyle Street and Argyle Square.

CAMDEN CENTRE

4.17. Events were being held at the Camden Centre during the survey dates and observations were made on the 17th during the Whirly Gig Club Event and 18th December 2016 during the Caribbean Comedy Club to determine the effect these events had in the area surrounding the venue.

4.18. It was observed that there was little effect with no significant subjective changes in noise levels between event and non-event nights.

4.19. Table 1 below presents the noise levels during the times of exit from the Camden Centre during the Whirly Gig Club event against two other days during the week to identify any significant levels changes from the monitoring location overlooking Euston Road.

Table 1 Camden Centre Dispersal Noise Level Against Non-Event Noise Levels

Time Period	LAeq, 15 Minutes Whirly Gig Club Event (17-18 December 2016) (dBA)	LAeq, 15 Minutes Non Event Night 19th December 2016 (dBA)	LAeq, 15 Minutes Non Event Night 20th December 2016 (dBA)
04:00	69	68	69
04:15	70	67	69
04:30	69	68	69
04:45	69	68	70

4.20. Table 2 below presents the noise levels during the times of exit from the Camden Centre during the Whirly Gig Club event against two other days during the week to identify any significant levels changes from the monitoring location overlooking Euston Road.

Table 2 Camden Centre Dispersal Noise Level Against Non-Event Noise Levels

Time Period	LAeq, 15 Minutes Caribbean Comedy Club Event (18 December 2016) (dBA)	LAeq, 15 Minutes Non Event Night 19th December 2016 (dBA)	LAeq, 15 Minutes Non Event Night 20th December 2016 (dBA)
23:00	72	70	73
23:15	74	70	71
23:30	70	70	71
23:45	70	70	70

4.21. The customers of the Camden Centre used smoking areas provided on Euston Road, and the dispersal of the majority of people after the event was along Euston Road. Only a small number of people left via Tonbridge Walk.

Information on Camden Centre events has been presented in Appendix D.

5. EXTERNAL SPACE PREDICTIONS

ASSUMPTIONS

5.1. It is proposed that the hotel will consist of a roof terrace on the 11th floor and a garden and external lounge area at ground floor.

5.2. During the daytime periods up to 23:00 these areas will contain low level background music through a distributed sound system. The music will not be a focal point and will be limited to ensure the level of such music will not be dominant.

5.3. Only external restaurant and lounge areas for hotel guests have been assessed in the garden as 70% of the garden will be open for public use of nearby residents, it is therefore not considered reasonable to assess this area as it is considered a public amenity space.

5.4. Music testing will be undertaken prior to opening to ensure music sources from the external areas are inaudible at the nearest noise sensitive locations up to 23:00 and any associated conditions are met. External music sources will not operate post 23:00.

5.5. Maximum occupancy figures have been provided for each of the external spaces, as a worst case. Based on experience from other similar establishments, it is assumed that 50% of the total number of people will be talking and the other 50% will be listening. The breakdown for each area is presented in Table 3 below.

Table 3 External Capacity and Modelling Assumptions

Level	Location	Occupancy	Number of People Speaking
Ground Floor	Garden Restaurant (Pre 23:00)	40	20
Ground Floor	Garden lounge (Pre 23:00)	40	20
11th Floor	Roof Terrace (Pre 23:00)	200	100
11th Floor	Smoking Area (Post 23:00)	80	40
Euston Road	Smoking Area (post 23:00)	40	20
Tonbridge Walk	Smoking Area (post 23:00)	20	10
Garden	Smoking Area (post 23:00)	20	10

5.6. For the purpose of modelling speech in the external areas, ISO 9921: 2003 Ergonomics – Assessment of Speech Communication has been used.

5.7. This standard contains various noise levels and spectra for male and female voices. The range for noise levels associated with speech is provided in table A1 of the standard document which has been reproduced in Table 4 below.

Table 4 Vocal effort of a male speaker and related A-Weighted Speech Level at 1m in front of the mouth

Vocal Effort	LS, A ,1m (dB)
Very Loud	78
Loud	72
Raised	66
Normal	60
Relaxed	54

5.8. Due to the proposed number of people within each external area it is likely that people will be talking in raised or loud voice to ensure clarity over other people in close proximity. As a worse case, therefore the levels used for the assessment are representative of loud speech which is 6dB(A) higher than the 'Raised' definition.

5.9. A spectrum for a male speaker has been taken from ISO 9921: 2003 Ergonomics – Assessment of Speech Communication. The spectrum has been adjusted upwards to achieve the level of loud speech as per the table above. The source spectrum has been presented in Table 5 below.

Table 5 Speech Spectrum for Modelling Import

Octave Band (Hz) dB							Overall Noise Level	
125	250	500	1000	2000	4000	8000	Linear (dB)	A-Weighted (dB)
74.9	74.9	71.2	65.2	59.2	53.2	47.2	79	72

NOISE LEVELS FOR ASSESSMENT

5.10. From the guidance contained in section 2 of this report taken from Camden Council, the noise levels used for the assessment should be representative of day and night-time LAeq levels as taken over a 5-minute period 1m from the façade of the nearest noise sensitive properties.

5.11. In order to present a robust assessment, the lowest background LAeq, 5 Minute noise levels have been used for the assessment. The noise levels adopted for the assessment have been presented in Table 6 below.

Table 6 Noise Levels for Assessment

LOWEST MEASURED AMBIENT AND BACKGROUND NOISE LEVELS				
Location	**Daytime LAeq (dB)**	**Daytime L90 (dB)**	**Night Time LAeq (dB)**	**Night Time LA90 (dB)**
Renaissance Hotel	60	58	59	51
Bidborough Street	52	49	48	45
Argyle Street	60	55	58	51
Tonbridge Street	54	47	44	42
Argyle Square	50	46	47	44
Argyle Street / St Chads Street	53	50	51	45
Crestfield Street*	53	50	51	45
Euston Road	67	63	66	56

* Assumed to be same noise levels at Argyle Street/ St Chads Street

5.12. In order to fully assess the effects of breakout noise, low frequency noise within the 63Hz octave band requires assessment in accordance with the guidance contained within section 2, the spectral data from the surveys have been assessed and the noise levels at 63Hz relative to the ambient LAeq noise levels presented in Table 6, have been summarised in Table 7 below.

Table 7 Noise Levels at 63Hz

LOCATION	**DAYTIME**	**NIGHT-TIME**
	63Hz, LZeq, 5 Minute (dB)	
Renaissance Hotel	62	51
Bidborough Street	59	57
Argyle Street	66	65
Tonbridge Street	62	54
Argyle Square	61	59
Argyle Street / St Chads Street	50	64
Crestfield Street*	50	64
Euston Road	69	68

* Assumed to be same noise levels at Argyle Street/ St Chads Street

5.13. Noise levels from Euston Road have been assessed against attended measurements at the Renaissance Hotel to derive the difference in the LAeq, 5 Minute noise level and the LAF90, 5 Minute noise level. The difference was found to be 7 dB(A) and 5 dB(A) lower respectively therefore the levels presented in Table 4 and 5 for the Renaissance Hotel have been adjusted to reflect this difference.

5.14. Due to construction works taking place on the site of the Standard Hotel, noise levels between 19:00-23:00 have been assessed for the daytime period and between 23:00 and 04:00 for the

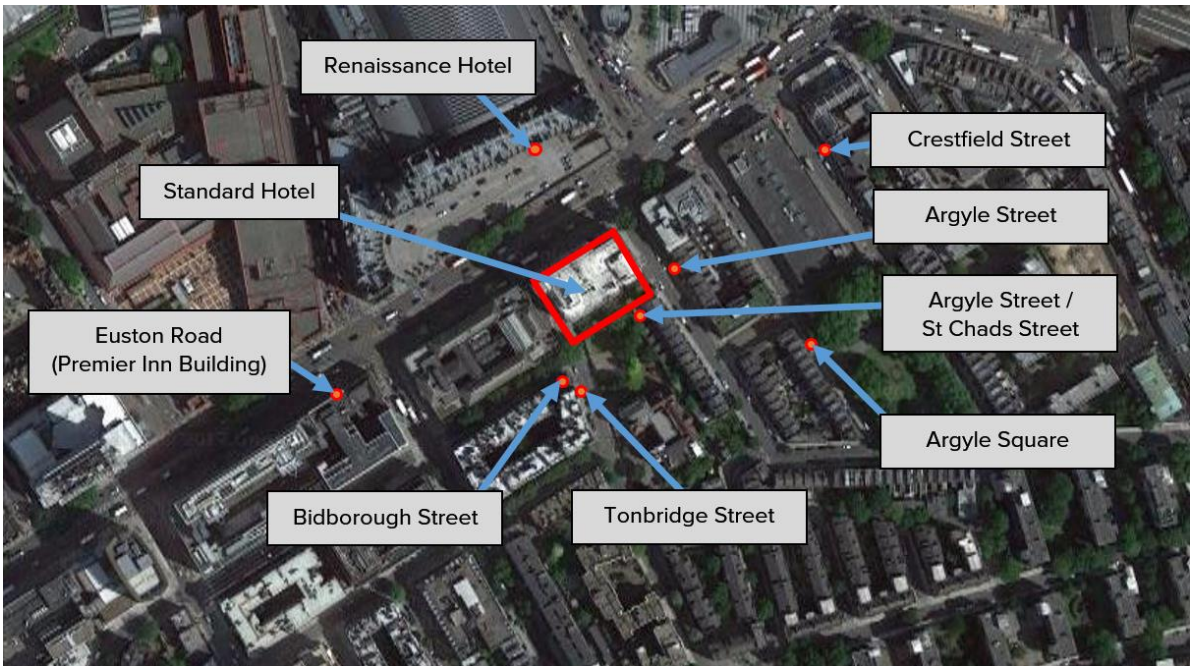
night time period, this allows for a robust assessment during the most sensitive periods of both day and night.

PREDICTED DAYTIME NOISE LEVELS

5.15. Based on the assumptions presented above, predictions have been carried out using Immi 3D acoustic modelling software following the principles of ISO9613: 1996 assuming moderate downwind propagation. All external sources have been predicted using point source propagation.

5.16. Figure 3 below presents the receptor locations where predictions have been made. As the properties are a mixture of flats, houses and hotels, each floor level has been considered in the predictions based on both day and night-time levels.

Figure 3 Receptor Locations for Predictions



5.17. Table 8 below presents the predicted individual noise levels from each of the proposed spaces (Roof Terrace, Garden Restaurant and Garden lounge) alongside the cumulative levels at each receptor location.

Table 8 Predicted Daytime Noise Levels

LOCATION	FLOOR	PREDICTED NOISE LEVEL (GARDEN RESTAURANT AND GARDEN LOUNGE)	PREDICTED NOISE LEVEL (11TH FLOOR ROOF TERRACE)	CUMULATIVE NOISE LEVEL
		(dBA)	(dBA)	(dBA)
Renaissance Hotel	1	17	43	43
	2	17	40	40
	3	17	41	41
	4	17	42	42
	5	17	42	42
	6	17	43	43
Bidborough Street	0	46	29	46
	1	46	31	46
	2	47	32	47
	3	48	33	48
Tonbridge Street	0	45	31	45
	1	45	31	45
	2	46	32	46
	3	47	33	47
	4	47	34	47
	5	47	35	47
Argyle Street	0	46	36	46
	1	46	36	46
	2	46	37	47
	3	46	38	47
Argyle Street / St Chads Street	0	45	30	45
	1	51	32	51
	2	52	33	52
	3	52	33	52
Argyle Square	0	15	21	22
	1	15	22	23
	2	16	24	25
	3	19	32	32
Crestfield Street	0	15	25	25
	1	14	29	29
	2	16	35	35
	3	19	36	36
Euston Road (Premier Inn Building)	0	14	23	24
	1	13	24	24
	2	13	26	26
	3	13	27	27
	4	13	28	28

	5	13	28	28
	6	13	29	29
	7	13	30	30
	8	13	34	34
	9	13	37	37

PREDICTED NIGHT-TIME NOISE LEVELS

5.18. For the night time period (23:00 – 07:00) various smoking areas have been assessed, these include the 11th floor roof terrace, the garden area, Tonbridge Walk and Euston Road. These predictions have been presented in Table 9 below.

Table 9 Predicted Night-time Noise Levels

LOCATION	FLOOR	PREDICTED NOISE LEVEL (11TH FLOOR SMOKING TERRACE)	PREDICTED NOISE LEVEL (GARDEN SMOKING AREA)	PREDICTED NOISE LEVEL (TONBRIDGE WALK SMOKING AREA)	PREDICTED NOISE LEVEL (EUSTON ROAD SMOKING AREA)	CUMULATIVE NOISE LEVEL
		(dBA)	(dBA)	(dBA)	(dBA)	(dBA)
Renaissance Hotel	1	37	11	17	41	43
	2	36	11	17	42	43
	3	36	11	17	42	43
	4	37	11	17	42	43
	5	37	11	17	42	43
	6	38	11	17	41	43
Bidborough Street	0	25	36	35	17	39
	1	26	36	35	17	39
	2	27	40	35	17	41
	3	28	40	35	17	41
Tonbridge Street	0	26	34	41	16	42
	1	26	35	41	16	42
	2	27	38	41	16	43
	3	27	40	41	16	43
	4	28	40	41	16	43
	5	29	40	40	16	43
Argyle Street	0	30	42	16	21	42
	1	31	42	16	21	42
	2	31	42	16	21	42
	3	32	42	16	21	42
Argyle Street / St Chads Street	0	26	41	18	18	41
	1	27	47	23	19	47
	2	28	48	23	19	48
	3	29	47	23	19	47

Argyle Square	0	16	9	8	11	18
	1	16	9	7	10	18
	2	18	9	7	10	20
	3	26	12	7	10	27
Crestfield Street	0	19	9	7	12	21
	1	23	9	5	11	24
	2	30	11	5	11	30
	3	31	13	5	11	31
Euston Road (Premier Inn Building)	0	14	7	10	29	29
	1	15	5	9	27	28
	2	17	5	9	27	28
	3	19	5	9	27	28
	4	19	5	9	27	28
	5	20	5	9	27	28
	6	21	5	9	27	28
	7	22	5	9	27	28
	8	26	6	9	27	30
	9	30	6	9	27	32

5.19. Due to safety, security and managing guests it is proposed that the 11th floor Roof Terrace is the most desirable as it keeps guests and staff on the hotel premises away from noise sensitive areas.

5.20. The values from the smoking area on the Roof Terrace when compared against the lowest existing ambient and background noise levels, as presented in Table 6 are significantly, which alongside the management, safety and security of guests shows the suitability of the Roof Terrace as the designated night-time smoking area.

6. INTERNAL SPACE PREDICTIONS

ASSUMPTIONS

6.1. For internal areas the level of speech has been assumed to be loud speech as per the external areas with 50% of people speaking and 50% of people listening. The assumptions of the number of people speaking in each space is presented in Table 10 below.

Table 10 Internal Capacity and Modelling Assumptions

Level	Location	Occupancy	Number of People Speaking
Ground Floor	Café/Business Area/Library	200	100
Ground Floor	Bar	250	125
10th Floor	Restaurant	160	80
10th Floor	Meeting Room	60	30
10th Floor	Sky Lobby	140	70

6.2. The spectrum used is the same as presented in Table 5 of this report.

NOISE LEVELS FOR ASSESSMENT

6.3. Each of the internal spaces will have music playing, this will vary from ambient background music to the music being an integral part of the atmosphere in the space (foreground music). The assumptions for music within internal spaces has been considered for the foreground music case and is presented in Table 11 below.

Table 11 Music Noise Level (Internal Areas)

Location	Music Noise Level
	(dBA)
Cafe/Business Area/ Library	87
Bar	90
Sky Lobby	90
10th Floor Restaurant	86
Meeting Room	82

6.4. The assumed spectrum used for breakout noise from each of the internal spaces has been collated from average measurements in similar venues which have been undertaken over a period of time by Vanguardia.

6.5. The spectrum has been presented in Table 12 below and has been adjusted up or down depending on the overall LAeq noise level for each space (Table 11).

Table 12 Music Noise Spectrum (Internal Areas)

Octave Band (Hz) dB								Overall Noise Level	
63	125	250	500	1000	2000	4000	8000	Linear (dB)	A-Weighted (dB)
93	83	85	88	86	80	74	71	96	90

6.6. The glazing for the ground floor and curtain walling attenuation spectrums for the 10th floor used for the breakout calculations have been presented in Table 13 below.

Table 13 Glazing Specification

Location	Octave Band (Hz) dB							
	63	125	250	500	1000	2000	4000	8000
Ground Floor Glazing	16	20	19	29	38	36	45	48
10th Floor Curtain Walling	24	29	36	43	44	46	50	-

6.7. The distance from each space to each receptor location is presented in Table 14 below.

Table 14 Distance from Internal Spaces to Receptor Locations

Receptor	Cafe/Business Area/ Library	Bar	10th Floor Restaurant and Bar	Meeting Room	Sky Lobby
	(m)	(m)	(m)	(m)	(m)
Renaissance Hotel	56	56	57	84	55
Bidborough Street	41	33	38	30	62
Tonbridge Street	46	37	40	31	60
Argyle Street	32	52	26	47	16
Argyle Street / St Chads Street	17	32	16	25	14
Argyle Square	95	111	92	105	85
Crestfield Street	133	153	127	149	115
Euston Road (Premier Inn Building)	109	102	102	102	136

6.8. Based on the above assumptions the resulting predicted noise levels at each of the receptor locations have been presented in Table 15 below for both A-weighted noise levels and 63Hz low frequency noise levels.

PREDICTED NOISE LEVELS

Table 15 Predicted Internal Breakout Level at Receptor Locations

RECEPTOR	INTERNAL LOCATION	NOISE BREAKOUT (dBA)	NOISE BREAKOUT 63Hz (dBA)
Renaissance Hotel	Cafe/Business Area/ Library	37	43
	Bar	33	48
	Restaurant	26	38
	Meeting Room	14	26
	Sky Lobby	21	41
Bidborough Street	Cafe/Business Area/ Library	40	45
	Bar	37	52
	Restaurant	30	41
	Meeting Room	23	35
	Sky Lobby	20	40
Tonbridge Street	Cafe/Business Area/ Library	38	44
	Bar	36	51
	Restaurant	29	41
	Meeting Room	23	35
	Sky Lobby	20	40
Arglye Street	Cafe/Business Area/ Library	42	47
	Bar	33	48
	Restaurant	33	45
	Meeting Room	19	31
	Sky Lobby	32	51
Argyle Street/St Chads Street	Cafe/Business Area/ Library	47	53
	Bar	38	53
	Restaurant	37	49
	Meeting Room	25	36
	Sky Lobby	33	53
Argyle Square	Cafe/Business Area/ Library	33	38
	Bar	27	42
	Restaurant	22	34
	Meeting Room	12	24
	Sky Lobby	17	37
Crestfield Street	Cafe/Business Area/ Library	30	35
	Bar	24	39

	Restaurant	19	31
	Meeting Room	9	21
	Sky Lobby	15	34
Euston Road (Premier Inn)	Cafe/Business Area/ Library	31	37
	Bar	28	43
	Restaurant	21	33
	Meeting Room	12	24
	Sky Lobby	13	33

7. ASSESSMENT

7.1. For the assessment of noise levels at each receptor location, as presented in section 6 of this report, the predicted cumulative breakout noise levels from internal and external spaces from the hotel have been assessed against the lowest ambient LAeq, 5 minute measurements.

7.2. The daytime periods have been assessed using measured noise levels from 19:00 – 23:00 and night-time periods have been assessed using the period from 23:00 – 04:00 in order to allow for the assessment of a worst case scenario and in order to restrict contaminated data from construction activity on site.

7.3. The resulting levels for the daytime period have been presented in Table 16 below.

Table 16 Daytime Cumulative Noise Levels Against Lowest LAeq, 5 Minute

LOCATION	FLOOR	EXTERNAL SPACES CUMULATIVE NOISE LEVEL	INTERNAL BREAKOUT CUMULATIVE NOISE LEVEL	LOWEST MEASURED NOISE LEVEL	DIFFERENCE BETWEEN CUMULATIVE AND LOWEST MEASURED NOISE LEVEL
		(dBA)	(dBA)	LAeq, 5 Minute (dB)	(dB)
Renaissance Hotel	1	41	39	60	-17
	2	39			-18
	3	39			-18
	4	40			-17
	5	41			-17
	6	42			-16
Bidborough Street	0	46	42	52	-5
	1	46			-5
	2	47			-4
	3	48			-3
Tonbridge Street	0	45	41	54	-8
	1	45			-8
	2	46			-7
	3	47			-6
	4	47			-6
	5	47			-6
Argyle Street	0	46	43	60	-12
	1	46			-12
	2	46			-12
	3	46			-12
	0	45	48	53	-3

Argyle Street / St Chads Street	1	51			0
	2	52			0
	3	52			0
Argyle Square	0	21	33	50	-17
	1	21			-17
	2	23			-17
	3	31			-15
Crestfield Street	0	25	33	53	-19
	1	28			-19
	2	33			-17
	3	34			-16
Euston Road (Premier Inn Building)	0	23	33	67	-34
	1	24			-33
	2	26			-33
	3	27			-33
	4	27			-33
	5	27			-33
	6	28			-33
	7	29			-33
	8	33			-31
	9	36			-29

7.4. Ambient background music or soundscapes have been proposed through a distributed sound system in external areas. Music noise level tests will be undertaken prior to the opening of the hotel to set levels that do not increase the existing ambient noise levels at the receptor locations.

7.5. Additional tests can be undertaken once the hotel is operating in a typical manner to determine the levels are appropriate in each external space and remain inaudible at receptor locations.

7.6. Sub Bass speakers are not proposed in these locations and therefore noise levels from these areas will not add significant contribution to low frequency noise levels at receptor locations.

7.7. Based on the predictions contained above, which are very much a worst case, it is unlikely that noise emanating from hotel activity will be audible inside residential premises with a partially open window for typical ventilation, which would provide further attenuation by 10 – 15 dB(A)

7.8. The resulting levels for the night-time period have been presented in Table 17 below.

Table 17 Night-Time Cumulative Noise Levels Against Lowest LAeq, 5 Minute

LOCATION	FLOOR	EXTERNAL SPACES CUMULATIVE NOISE LEVEL	INTERNAL BREAKOUT CUMULATIVE NOISE LEVEL	LOWEST MEASURED NOISE LEVEL	DIFFERENCE BETWEEN CUMULATIVE AND LOWEST MEASURED NOISE LEVEL
		(dBA)	(dBA)	LAeq, 5 Minute (dB)	(dB)
Renaissance Hotel	1	43	39	59	-15
	2	43			-15
	3	43			-15
	4	43			-15
	5	43			-15
	6	43			-15
Bidborough Street	0	39	42	48	-4
	1	39			-4
	2	41			-3
	3	41			-3
Tonbridge Street	0	42	41	44	1
	1	42			1
	2	43			1
	3	43			1
	4	43			1
	5	43			1
Argyle Street	0	42	43	58	-12
	1	42			-12
	2	42			-12
	3	42			-12
Argyle Street / St Chads Street	0	41	48	51	-2
	1	47			0
	2	48			0
	3	47			0
Argyle Square	0	18	33	47	-14
	1	18			-14
	2	20			-14
	3	27			-13
Crestfield Street	0	21	33	51	-18
	1	24			-17
	2	30			-16
	3	31			-16
Euston Road (Premier Inn Building)	0	29		66	-32
	1	28			-32

	2	28			-32
	3	28			-32
	4	28			-32
	5	28			-32
	6	28			-32
	7	28			-32
	8	30			-31
	9	32			-30

In addition to the assessment contained above, if the Roof Terrace was to be the main smoking area for guests, the levels would reduce further. It is acknowledged some guests are likely to walk outside the hotel at ground floor level to smoke on Euston Road, therefore a further assessment has been undertaken using just the smoking areas on Euston Road and the 11th Floor terrace. The resulting noise levels have been presented in Table 18 below.

Table 18 Night-Time Cumulative Noise Levels Against Lowest LAeq, 5 Minute (Roof Terrace and Euston Road Smoking Areas)

LOCATION	FLOOR	EXTERNAL SPACES CUMULATIVE NOISE LEVEL	INTERNAL BREAKOUT CUMULATIVE NOISE LEVEL	LOWEST MEASURED NOISE LEVEL	DIFFERENCE BETWEEN CUMULATIVE AND LOWEST MEASURED NOISE LEVEL
		(dBA)	(dBA)	LAeq, 5 Minute (dB)	(dB)
Renaissance Hotel	1	**42**	39	59	-15
	2	43	39		-15
	3	43	39		-15
	4	43	39		-15
	5	43	39		-15
	6	43	39		-15
Bidborough Street	0	26	42	48	-6
	1	27	42		-6
	2	27	42		-6
	3	28	42		-6
Tonbridge Street	0	26	41	44	-3
	1	26	41		-3
	2	27	41		-3
	3	27	41		-3
	4	28	41		-3
	5	29	41		-3
Argyle Street	0	31	43	58	-15
	1	31	43		-15

	2	31	43		-15
	3	32	43		-15
Argyle Street / St Chads Street	0	27	48	51	-3
	1	28	48		-3
	2	29	48		-3
	3	29	48		-3
Argyle Square	0	17	33	47	-14
	1	17	33		-14
	2	19	33		-14
	3	26	33		-13
Crestfield Street	0	20	33	51	-18
	1	23	33		-18
	2	30	33		-16
	3	31	33		-16
Euston Road (Premier Inn Building)	0	29	33	66	-32
	1	27	33		-32
	2	27	33		-32
	3	28	33		-32
	4	28	33		-32
	5	28	33		-32
	6	28	33		-32
	7	28	33		-32
	8	30	33		-31
	9	32	33		-30

7.9. From the table above the cumulative assessment of the daytime and night-time noise level achieve the targets of not exceeding 5 dB(A) during the day (07:00 – 23:00) and 3dB(A) during the night-time (23:00 – 07:00) period based on the existing external measured LAeq, 5 Minute at receptor locations.

7.10. Based on the predictions contained above, which again are very much a worst case, it is unlikely that noise emanating from hotel activity will be audible inside residential premises with a partially open window for typical ventilation, which would provide further attenuation by 10 – 15 dB(A)

7.11. It is therefore reasonable to identify the roof terrace at the most ideal location for smokers in order to minimise noise, keep guests within the confines of the hotel and enable management of the number of people on the roof at any one time.

7.12. The guidance also requires an assessment of low frequency noise levels at 63Hz. Noise levels from internal areas will be the most critical aspect for this part of the assessment, and the

lowest levels from Table 7 of this report have been used for each location to ensure a robust assessment.

7.13. The predictions of the low frequency noise levels at each receptor location have been presented in Table 19 below.

Table 19 Low Frequency Noise Level Predictions

RECEPTOR	INTERNAL LOCATION	NOISE BREAKOUT	CUMULATIVE LOW FREQUENCY NOISE LEVEL	EXISTING MEASURED NOISE LEVEL	DIFFERENCE
		63 Hz (dB)	(dB)	63Hz Lzeq, 5 Minute (dB)	(dB)
Renaissance Hotel	Cafe/Business Area/ Library	43	50	51	-1
	Bar	48			
	Restaurant	38			
	Meeting Room	26			
	Sky Lobby	41			
Bidborough Street	Cafe/Business Area/ Library	45	53	57	-4
	Bar	52			
	Restaurant	41			
	Meeting Room	35			
	Sky Lobby	40			
Tonbridge Street	Cafe/Business Area/ Library	44	52	54	-2
	Bar	51			
	Restaurant	41			
	Meeting Room	35			
	Sky Lobby	40			
Argyle Street	Cafe/Business Area/ Library	47	54	65	-11
	Bar	48			
	Restaurant	45			
	Meeting Room	31			
	Sky Lobby	51			
Argyle Street/St Chads Street	Cafe/Business Area/ Library	53	58	50	8
	Bar	53			
	Restaurant	49			
	Meeting Room	36			
	Sky Lobby	53			
Argyle Square	Cafe/Business Area/ Library	38	45	59	-14
	Bar	42			
	Restaurant	34			
	Meeting Room	24			
	Sky Lobby	37			

Crestfield Street	Cafe/Business Area/ Library	35	42	50	-8
	Bar	39			
	Restaurant	31			
	Meeting Room	21			
	Sky Lobby	34			
Euston Road (Premier Inn)	Cafe/Business Area/ Library	37	45	68	-23
	Bar	43			
	Restaurant	33			
	Meeting Room	24			
	Sky Lobby	33			

7.14. In order for the low frequency noise level to not increase, the target noise levels from hotel operations at 63Hz would need to be at least 10 dB below the existing low frequency noise level.

7.15. The locations that do not meet the required noise levels are affected by both the ground floor Bar and the Sky Lobby on the 10th floor. In order to achieve the target level of 10 dB below the existing 63Hz level it is proposed that significant sound testing will be undertaken from each internal space and all spaces operating simultaneously in order to ensure compliance with the low frequency condition. Limiters will be used to set levels within the spaces so that noise levels are fixed.

7.16. It is also recommended that sub bass speakers are not installed as part of the AV set up to reduce the impact of low frequency noise.

7.17. Detailed work on the sound system set up will be undertaken to ensure speakers are pointing away from noise sensitive areas and are highly directional to focus sound energy to specific locations.

7.18. Based on the findings above the indicative music spectrum in each of the internal spaces has been presented in Table 20 below.

Table 20 Indicative Internal Music Spectra to Achieve Local Authority Conditions

Internal Area	Octave Band Hz (dB)								dB(A)
	63	125	250	500	1000	2000	4000	8000	
Bar	83	83	85	88	86	80	74	71	90
Cafe/Business Area/ Library	80	80	82	85	83	77	71	68	87
10th Floor Bar/Restaurant	79	79	81	84	82	76	70	67	86
Meeting Room	75	75	77	80	78	72	66	63	82
Sky Lobby	83	83	85	88	86	80	74	71	90

7.19. Based on the spectra contained above, if the sound systems were programmed to limit to this level the noise levels at each receptor location would achieve 10 dB below the existing 63Hz existing low frequency noise level and therefore would be likely to achieve inaudibility inside residential properties.

7.20. The Standard Hotel are committed to pre-completion and operational testing demonstrate compliance and adjust specific frequencies to achieve the required criteria. Limiters will also be installed to ensure levels cannot be increased once fixed.

8. CONCLUSION

8.1. Vanguardia were appointed to undertake an assessment for The Standard Hotel on Euston Road, Kings Cross of external and internal noise breakout from the premises to the nearest noise sensitive receptors in support of a new licensing application.

8.2. The assessment involved undertaking an unattended baseline noise survey from the 15th to 22nd December 2016 as well as carrying out attended observations and acoustic measurements of activity in the immediate area on nights when the Camden Centre was both operating and not operating to identify any significant activity associated with the Centre.

8.3. The assessment was undertaken in conjunction with guidance documentation publicly available online from Camden Council, which presents target noise levels for entertainment type noise during daytime and night time periods.

8.4. The assessment has taken account of noise levels from external daytime entertaining and leisure areas, which are defined as the ground floor garden areas and the 11th floor Roof Terrace. The assessment also predicts noise levels from smoking areas post 23:00 with the recommendation that the Roof Terrace is the most suitable location.

8.5. Internal breakout noise has also been assessed from entertainment and leisure spaces, which are defined as the Bar and Cafe/Business/ Library Areas at ground floor level, and the 10th floor Restaurant, Meeting Room and Sky Lobby.

8.6. Noise levels from internal areas have been assumed to operate 24 hours a day with external areas (except smoking) operating until 23:00.

8.7. The results contained within the report show that all spaces operating simultaneously achieve the target noise levels for both day and night time periods based on the existing measured LAeq, 5-minute noise levels.

8.8. Low frequency breakout noise does not achieve the required criteria at the nearest noise sensitive receptors based on the original indicative spectrum within each space, but by eliminating the use of sub bass speakers and limiting the low frequency noise levels internally these targets levels can be achieved. Significant sound testing will be undertaken to ensure limits are set appropriately to the internal areas whilst achieving license conditions.

8.9. Whilst it is noted that background ambient music or soundscapes would be incorporated within the external spaces (Garden and Roof Terrace) this would not be a focal point, and therefore levels would be set and limited to ensure the music levels falls below the ambient

speech levels. Sub Bass speakers would not be used in these areas and therefore would not add any significance to low frequency noise levels.

8.10. If music noise levels in these areas were kept to 5dB(A) below the speech level, an increase of 1 dB(A) would be experienced at receptor locations which would still fall within daytime target noise levels as per the guidance from Camden Council.

8.11. Based on the findings of the assessment if low frequency noise levels are limited then the local authority criteria will be met at all locations for daytime and night-time noise levels for both operational noise and specific low frequency noise levels.

8.12. It is very important to note that whilst the noise levels contained within this report are predicted noise levels, if actual noise levels were above those specified within the report they would be reduced and limited accordingly to ensure inaudibility as per the specified conditions contained within section 3 of this report.

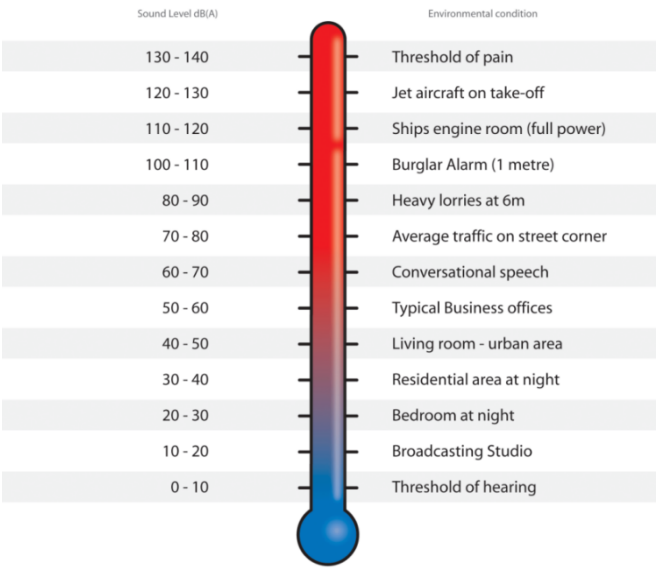
9. APPENDIX A / ACOUSTIC GLOSSARY

9.1. Noise is defined as unwanted sound. The range of audible sound is from 0dB to 140dB, which is taken to be the threshold of pain. The sound pressure detected by the human ear covers an extremely wide range. The decibel (dB) is used to condense this range into a manageable scale by taking the logarithm of the ratio of the sound pressure and a reference sound pressure.

9.2. The frequency response of the ear is usually taken to be about 18Hz (number of oscillations per second) to 18,000Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than at the lower and higher frequencies, and because of this, the low and high frequency component of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most used and which correlates best with the subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

9.3. The ear can just distinguish a difference in loudness between two noise sources when there is a 3dB(A) difference between them. Also when two sound sources of the same noise level are combined the resultant level is 3dB(A) higher than the single source. When two sounds differ by 10dB(A) one is said to be twice as loud as the other.

9.4. The subjective response to a noise is dependent not only upon the sound pressure level and its frequency, but also its intermittency. Various indices have been developed to try and correlate annoyances with the noise level and its fluctuations. The parameter used for this measure is Equivalent Continuous Sound Pressure Level (LAeq). The A-weighted sound pressure level of a steady sound that has, over a given period, the same energy as the fluctuating sound under investigation. It is in effect the energy average level over the specified measurement period (T) and is the most widely used indicator for environmental noise. A few examples of noise of various levels are given right:



10. APPENDIX B / ACOUSTIC SURVEY EQUIPMENT

Equipment Type	Manufacturer	Model	Serial Number	Calibration Due
Unattended Monitoring				
Sound Level Meter	Larson Davis	Sound Track LxT	3812	08/04/2018
Pre-Amplifier		PRMLxT1	28030	
Microphone		377BO2	142711	
Sound Level Meter	Larson Davis	Sound Track LxT	3318	01/04/2018
Pre-Amplifier		PRMLxT1	27651	
Microphone		377BO2	158290	
Sound Level Meter	Larson Davis	Sound Track LxT	3316	27/05/2017
Pre-Amplifier		PRMLxT1	27649	
Microphone		377BO2	LW139016	
Calibrator	Larson Davis	Cal 200	11097	19/04/2017
Attended Monitoring				
Sound Level Meter	Larson Davis	Sound Track LxT	3326	25/05/2017
Pre-Amplifier		PRMLxT1	27652	
Microphone		377BO2	LW135936	
Calibrator	Larson Davis	Cal 200	5014	16/05/2017

11. APPENDIX C / BASELINE SURVEY WEATHER CONDITIONS

Weather data accessed from weather station "ILONDON48" on 5th January 2017 from webpage: https://www.wunderground.com/personal-weather-station/dashboard?ID=ILONDON48#history/s20161215/e20161222/mweek

Weather data from ILONDON48		Temp °C			Wind Speed m/s			Dominant Wind Direction	Precipitation	Rain From	Rain To
Day	Date	High	Low	Average	High	Low	Average	N, E, S, W	mm	hh:mm	hh:mm
Thursday	15/12/2016	11	8	10	1	0	0	S	0		
Friday	16/12/2016	12	10	11	1	0	0	S-N	0		
Saturday	17/12/2016	10	6	8	2	0	1	NW	0		
Sunday	18/12/2016	8	6	7	1	0	1	NW	0		
Monday	19/12/2016	8	6	7	1	0	0	N-S	0		
Tuesday	20/12/2016	9	6	7	2	0	1	SE	0		
Wednesday	21/12/2016	12	6	9	2	0	1	S-W	0.3	03:23	04:04
Thursday	22/12/2016	10	5	7	2	0	1	NW	0		

12. APPENDIX D / CAMDEN CENTRE EVENTS

DATE OF EVENT	EVENT TYPE	START TIME	END TIME
Thursday 6th October	London Durga Puja- Indian Festival	16:00	22:00
Friday 7th October –Monday 11th October	London Durga Puja- Indian Festival	12:00	23:00
Friday 14th October	LIGHTSOUT- Boxing Event	19:30	00:00
Saturday 15th October	Indian Bazaar	10:00	18:00
Friday 21st October	Whirly Gig Club	22:00	04:00
Saturday 22nd October	Yoga Festival	10:00	00:00
Sunday 23rd October	Yoga Festival	11:00	21:30
Tuesday 25th October	Tea Dance	12:30	16:00
Saturday 29th October	Halloween themed club event	21:00	03:00
Thursday 3rd November	Latin Comedy Night	18:00	00:00
Saturday 5th November	Swing Patrol club	18:00	02:00
Sunday 6th November	Latin Comedy	19:00	20:30
Friday 11TH November	Boxing (charity)	19:00	00:00
Saturday 12th November	Caribbean Comedy	18:45	00 00
Sunday 13th November	Sri Lankan concert	14:30	18:00
Tuesday 15th- Thursday 17th November	Ted Baker Sample Sale	08:00	20:00
Saturday 19th November	Whirly Gig Club	22:00	04:00
Sunday 20th November	Tea Dance	12:30	16:00
Friday 25th November	Boxing event	19:30	00:00
Saturday 26th November	We Love Soul ole school club event	22:00	04:00
Sunday 27th November	Private 50th Birthday Party	15:30	20:00
30th November – 2nd December	Corporate Christmas season	18:00	00:00 – 0100 (late TENS applied for where applicable)
Saturday 3rd December	Latino dinner and dance	19:00	03:00
7th-9th December	Corporate Christmas Party season	18:00	00:00 – 0100 (late TENS applied for where applicable)
13th-16th December	Corporate Christmas Party season	18:00	00:00 – 0100) late TENS applied for where applicable)
Saturday 17th December	Whirly Gig club event	22:00	04:00
Sunday 18th December	Caribbean Comedy Night	19:30	23:00
Tuesday 20th December	Tea Dance	12:30	16:00
Friday 24th December	Comedy event	1800	2300
Saturday 31st December	1940's NYE event promoter experienced Bourne and Hollingworth	21:00	03:00

Registered in England 05666276

VANGUARDIA LIMITED

LONDON OFFICE
Southbank Technopark
90 London Road
London SE1 6LN

HEAD OFFICE
21 Station Road West, Oxted
Surrey RH8 9EE

NORTH WEST OFFICE
3A Toft Road, Knutsford
Cheshire WA16 0PE

Tel +44 (0) 1883 718690

office@vanguardia.co.uk
vanguardia.co.uk