



PREPARED: 22 June 2026

# THE ORCHARD, 5 WESTGATE MEWS ACOUSTIC ASSESSMENT

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|                                                  |                   |                                                                                                                                                                                |                              |
|--------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Project Ref:                                     | AS14071           | Project Name:                                                                                                                                                                  | The Orchard, 5 Westgate Mews |
| Report Ref:                                      | AS14071.260508.R1 | Report Title:                                                                                                                                                                  | Acoustic Assessment          |
| Client Name:                                     | Macra Ltd         |                                                                                                                                                                                |                              |
| Project Manager:                                 | Andrew Nesbitt    |                                                                                                                                                                                |                              |
| Report Author:                                   | Andrew Nesbitt    |                                                                                                                                                                                |                              |
| Clarke Saunders Acoustics<br>Winchester SO22 5BE |                   | This report has been prepared in response to the instructions of our client. It is not intended for and should not be relied upon by any other party or for any other purpose. |                              |

## 1.0 EXECUTIVE SUMMARY

- 1.1 Macra Ltd proposes to develop land associated with The Orchard, 5 Westgate Mews, West End, SO30 3RE, to provide eight new dwellings. The site lies within a predominantly residential area and is considered suitable for residential use in terms of general environmental noise.
- 1.2 The previous planning application, ref. F/26/100809 was refused, where Eastleigh Borough Council (EBC) was not provided with sufficiently clear evidence that potential noise impact would be controlled from the adjacent commercial premises, Pitter Commercials Ltd and Utilita Bowl Stadium.
- 1.3 Clarke Saunders Acoustics (CSA) has been appointed to provide a revised acoustic assessment to clarify issues raised by EBC Environmental Health and address suitable mitigation measures in further detail.
- 1.4 The suitability of the site with respect to residential development is assessed following guidance given in *Professional Practice Guidance – New Residential* (2017) and with reference to British Standards BS 8233:2014 *Guidance on sound insulation and noise reduction for buildings* and BS 4142:2014+A.1:2019 *Methods for rating and assessing industrial and commercial sound*.
- 1.5 The existing noise data submitted with planning application F/26/100809, was considered suitable for use and has been used for this assessment.
- 1.6 There is a strong precedent for residential development in this area, with existing residential dwellings on Kenilworth Gardens and Telegraph Heights being similar distances from the commercial noise sources associated with the Utilita Bowl and Pitter Commercials Ltd.
- 1.7 The assessment has demonstrated that environmental noise can be controlled to suitable internal and external ambient noise levels throughout the site.
- 1.8 To reduce noise from Pitter Commercials Ltd, the existing 4.2m high boundary wall would be extended southwards along the eastern boundary. Together with careful dwelling layout and mechanical ventilation which would also provide further noise masking internally, this mitigation is expected to control commercial noise so that adverse impact is avoided.
- 1.9 Noise from cricket events at the Utilita Bowl was included in the measurement data. The assessment indicates that such events would be audible at times, but would not normally dominate the soundscape or prevent acceptable residential conditions. Noise from use of the adjacent car park is also expected to remain below existing typical maximum noise levels at the site, as evident by adjacent dwellings.
- 1.10 Major concerts are occasionally held at the Utilita Bowl, but are subject to strict planning and licencing conditions including noise limits that were set using previous measurements undertaken within this development site. These noise levels are therefore fully representative of those experienced within the proposed development and previous concert noise limits are based upon achieving acceptable levels in this location. Whilst music and crowd participation would be expected to be readily audible on these occasions, any reduction in amenity will be inherently comparable to neighbouring adjacencies. Where the concerts remain occasional, no significant adverse impact would therefore be expected, as evident from the well-established existing dwellings within Westgate Mews.

## 2.0 INTRODUCTION

- 2.1 CSA has been commissioned by Macra Ltd to undertake an acoustic assessment of land associated with The Orchard, 5 Westgate Mews, West End, SO30 3RE to evaluate its suitability for the construction of eight new dwellings.
- 2.2 A noise impact assessment was submitted to Eastleigh Borough Council as part of application F/26/100809, which did not provide sufficiently clear evidence to demonstrate that the amenity of future occupiers of the development would not be unacceptably impacted by noise and other forms of disturbance from neighbouring commercial uses. The delegated officers report provided the following key commentary:

*“The site is adjacent to a commercial yard to the east and northeast, to the Utilita Bowl and in close proximity to the M27.*

*The submitted noise report is not an easy to follow, includes a large amount of unnecessary information and does not provide enough guarantees regarding the potential noise impact of Pitter Commercial Limited and the Utilita Bowl venue. For these reasons I object to this development in noise grounds.”*

...

*“Given the site’s close proximity to Pitter’s HGV depot and commercial yard, noise from vehicle movements, vehicle maintenance, plant and general operational noise of the yard is a concern. There are also other commercial premises further away from the HGV depot, all of which have no restrictions in terms of noise or operating hours...*

*...it is not considered that the submitted noise report adequately addresses the impact of activities at the neighbouring Utilita Bowl. The noise levels set out in the report do not correspond with those registered from the stadium on different applications. The methodology used is also not considered to be appropriate to assess the impact of live music upon residential properties...”*

- 2.3 The noise levels submitted with application F/26/100809, are suitably representative of the existing noise climate and have been used to address the above concerns.
- 2.4 Environmental noise impact will be assessed with respect to Professional Planning Guidance: Planning and Noise - *New Residential Development* (ProPG), with reference to the relevant sections of BS8233:2014 *Guidance on Sound Insulation and Noise Reduction for Buildings* (BS8233), and the World Health Organisation *Guidelines for Community Noise* (1999). Commercial noise impact will be assessed with respect to guidance in BS4142:2014+A.1:2019 *Methods for rating and assessing industrial and commercial sound* (BS4142) and the existing noise impact considered appropriate at adjacent dwellings.
- 2.5 Please see Appendix A for a glossary of acoustic terminology used in this report.

## 3.0 SITE DESCRIPTION & NOISE SOURCES

- 3.1 The proposed development site is located circa 350m to the west of the Utilita Bowl Stadium, off Westgate Mews in West End, within the borough of Eastleigh.
- 3.2 The site is located in a largely residential area with other dwellings to the north and west. The nearest commercial premises are located to the east, including:

- Pitter Commercials Limited – a vehicle dealership and workshop specialising in IVECO trucks and vans.
- Pitter Self Drive – a car, van and truck rental company;
- Utilita Bowl – a cricket ground with a hotel/conference centre also hosting concerts & other large events.

- 3.3 The M27 motorway is circa 750m to the east of the site, and road traffic noise from the M27 and Botley Road form the predominant noise source with respect to environmental noise.
- 3.4 The Utilita Bowl is located around 400m from the site, with the nearest associated car park 70m from the south-east boundary of the site. A sizeable bund screens the nearest car park from the proposed development site, providing a level of noise attenuation.
- 3.5 The Utilita Bowl hosts both domestic and international cricket matches as well as conferences and events including weddings and proms. Whilst variable year-to-year the Utilita Bowl typically hosts up to 40 professional cricket games annually. Live music and entertainment are common pre-match and post-match. The Utilita Bowl has the capacity to host major concerts, but does so infrequently, usually once or twice per year, but not every year.
- 3.6 The site shares a boundary to the east with Pitter Commercials Ltd. Pitter Commercials Ltd is a specialist truck dealership and garage. It includes a six-bay workshop undertaking servicing, diagnostics, repairs and MOTs, as well as a vehicle washing station, located by the north-east boundary of the site. Pitter Commercials Ltd is open between 06:00 hours and 21:00 hours on weekdays, and between 06:00 hours and 14:00 hours on Saturdays. It is closed on Sundays and Bank Holidays. The large majority of the site forms a vehicle storage yard.
- 3.7 With respect to the boundary shared with Pitter Commercials Ltd, it is understood that there is a vehicle-washing area to the north which is used 2-3 times a day for approximately 30 minutes, a customer parking area toward the middle of the boundary, and a staff car park to the south, as shown in the appended site plan, AS14071/SP1. Pitter Commercials Ltd have informed that the majority of arrivals at the staff car park are after 07:00 hours, with four staff members starting an early shift at 06:00 hours. The customer vehicle area is also used for some stock vehicles, where it is advised that it is used during the day but there is very little movement before 07:00 hours.
- 3.8 Whilst the majority of activity occurs during daytime hours, work can commence from 06:00 hours, and it is understood that a handful of noise complaints have been associated historically with early hours activity from Pitter Commercials Ltd, the most relevant of which for this application arising from Westgate Mews.
- 3.9 There is a large brick wall, 4.2m high, along the northern boundary of Pitter Commercials Ltd, that wraps along the north-east extent of the site boundary, stopping at the hedgerow. This wall protects existing residents on Kenilworth Gardens from commercial noise sources associated with Pitter Commercials Ltd, and it is proposed that the wall would be extended to the south to further protect the proposed development and the existing dwellings on Westgate Mews. Photographs of the existing wall are shown below, and the proposed extension to the wall can be seen in the appended site plan.



**Photographs 1 & 2:** Photographs of the existing wall and boundary fencing to rear gardens of Kenilworth Road and extent of existing wall to boundary hedging.

- 3.10 It can be seen that there is a precedent for residential development at this site, with neighbouring dwellings at Telegraph Heights being located at similar distances from the Utilita Bowl car park. With respect to noise from events at the Utilita Bowl, there are many existing dwellings within a 400m radius of the Utilita Bowl, in which the site sits.

## 4.0 COMPETENCE

- 4.1 CSA Senior Acoustic Consultant, Andrew Nesbitt, conducted the relevant assessments and is the author of this report. He has over 8 years' experience of acoustic consulting, holding a Meng (Hons) degree in Acoustical Engineering from the University of Southampton and is a Corporate Member of the Institute of Acoustics (MIOA).
- 4.2 The report adheres to the principles required by the Institute of Acoustics in its Code of Conduct, and the work is within the author's own area of knowledge and expertise. Where opinions have been expressed, these represent true and complete professional opinions on the matters to which they refer.
- 4.3 CSA is a full member of the Association of Noise Consultants (ANC).

## 5.0 RELEVANT GUIDANCE & LOCAL AUTHORITY LIAISON

### 5.1 NATIONAL PLANNING POLICY FRAMEWORK (FEB 2025)

- 5.1.1 In March 2012 the 'National Planning Policy Framework' (NPPF) was introduced as the current planning policy guidance within England. In its current revision, December 2024, as amended in February 2025, paragraphs 198 and 200 state the following:

**Paragraph 198.**

*"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site of the wider area to impacts that could arise from the development. In doing so they should:*

- Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for the recreational and amenity for this reason; and
- Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.“

### Paragraph 200

*“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”*

## 5.2 LIAISON WITH EASTLEIGH BOROUGH COUNCIL

- 5.2.1 CSA spoke with Mr Andrew Pires, the environmental health officer who provided commentary on the refused planning application, ref. F/26/100809, and previous noise impact assessment.
- 5.2.2 It was agreed that the measured environmental noise levels obtained at site and source noise levels of commercial activity from Pitter Commercials Ltd were reasonable and appropriate for assessment purposes, and could be used in this assessment.
- 5.2.3 It was also agreed that the site was largely suitable with respect to environmental noise, however, the noise impact assessment submitted with application ref. F/26/100809 lacked clarity with respect to the assessment of noise impact from adjacent commercial premises, namely the Utilita Bowl and Pitter Commercials Ltd. As a result, there were insufficient assurances that the level of protection proposed was sufficient to control commercial noise sources at the development.
- 5.2.4 With respect to the Utilita Bowl, EBC environmental health noted that the measurements used in the assessment were low compared to other recent applications in the vicinity, and directed CSA to other measured noise levels for planning applications in the vicinity.
- 5.2.5 Mr Pires further advised that where large walls and acoustic screens are proposed, detail regarding the visual impact would need to be provided alongside the new application.

## 5.3 PROFESSIONAL GUIDANCE: PLANNING AND NOISE FOR NEW RESIDENTIAL DEVELOPMENTS (PROPG)

- 5.3.1 ProPG brings together relevant guidance from several sources including British Standard BS 8233: 2014 *Guidance on sound insulation and noise reduction for buildings* and internationally published guidance in the form of World Health Organisation *Guidelines for Community Noise* (1999). This is summarised in Table 5.1 as follows.

| Activity                   | Location    | 07:00 – 23:00          | 23:00 – 07:00                                                  |
|----------------------------|-------------|------------------------|----------------------------------------------------------------|
| Resting                    | Living Room | 35 dB $L_{Aeq,16hour}$ | -                                                              |
| Dining                     | Dining Room | 40 dB $L_{Aeq,16hour}$ | -                                                              |
| Sleeping (daytime resting) | Bedroom     | 35 dB $L_{Aeq,16hour}$ | 30 dB $L_{Aeq,8hour}$<br>45 dB $L_{AFmax}$ <sup>[Note 4]</sup> |

NOTE 1: The table provides recommended internal  $L_{Aeq}$  target levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

NOTE 2: The **internal  $L_{Aeq}$  target levels** shown in the Table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the internal  $L_{Aeq}$  target levels recommended in the Table.

NOTE 3: These **internal  $L_{Aeq}$  target levels** are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.

NOTE 4: Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or  $L_{Amax,F}$ , depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB  $L_{Amax,F}$  more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (Appendix A).

NOTE 5: Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal  $L_{Aeq}$  target levels should not normally be exceeded, subject to the further advice in Note 7.

NOTE 6: Attention is drawn to the requirements of the Building Regulations.

NOTE 7: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal  $L_{Aeq}$  target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal  $L_{Aeq}$  levels start to exceed the internal  $L_{Aeq}$  target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal  $L_{Aeq}$  levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form (see Section 3.D).

**Table 5.1: ProPG Guidance Levels**

5.3.2 Noise levels on a site may be influenced by industrial/commercial noise. Where present but "not dominant", noise effects from these sources can be included in the ProPG assessment. Where industrial/commercial noise is considered dominant, it falls outside the scope of the ProPG and should be assessed instead according to BS4142:2014 +A.1:2019 *Methods for rating and assessing industrial and commercial sound*.

## 5.4 BS4142:2014+A.1:2019

5.4.1 BS4142:2014+A.1:2019 describes a method for rating and assessing sound of an industrial and/or commercial nature, which includes:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and;
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

5.4.2 The purpose of this standard is to determine the magnitude of potential impact on nearby sensitive receptors from industrial or commercial sound, with respect to the existing background sound levels and relevant character penalties owing to distinguishable sound features.

5.4.3 The numerical impact assessment may then be modified through consideration of the context in which the sound occurs.

5.4.4 A detailed overview of the BS4142 methodology is provided in Appendix B.

## 6.0 ENVIRONMENTAL NOISE SURVEY

### 6.1 PROCEDURES & EQUIPMENT

6.1.1 A survey of the existing ambient sound levels was undertaken for the application previously at the locations shown in the appended site plan, AS14071/SP1.

6.1.2 Monitoring positions are understood to have been located in free-field conditions, with Position 1 chosen to capture noise levels associated with proposed dwellings nearest to the Pitter Commercials Ltd site, and Position 2 chosen to capture noise levels to the rear of the site, more affected by the Utilita Bowl car park.

6.1.3 The sound level meters recorded measurements of consecutive  $L_{Aeq}$ ,  $L_{Amax}$ ,  $L_{Amin}$ ,  $L_{A10}$ ,  $L_{A50}$  and  $L_{A90}$  spectral sound pressure levels between 07:00 hours on Thursday 10<sup>th</sup> July and 07:00 hours on Monday 14<sup>th</sup> July 2025. 1-hour and 15-minute measurement intervals were used for the daytime and night-time periods, respectively.

6.1.4 During the measurement period, there was a Vitality Blast county cricket fixture on Thursday 10<sup>th</sup> July 2025 commencing at 19:00 hours. Where this fixture marked 20 years since Oasis played at the Utilita Bowl, the fixture featured post-match live music from Definitely Maybe and a tribute Oasis band – Owaysis. Two further county cricket matches were played on Sunday 13<sup>th</sup> July 2025 at 11:00 hours and 15:00 hours.

## 6.2 SURVEY RESULTS

6.2.1 The free-field average, typical background and typical maximum sound levels are shown in Table 6.1 below.

| Monitoring Location | Period                       | Ambient,<br>$L_{Aeq,T}$ | Typical*<br>Background,<br>$L_{A90}$ | Range of Daily<br>Typical**<br>Maximum<br>Noise Levels,<br>$L_{AFmax}$ |
|---------------------|------------------------------|-------------------------|--------------------------------------|------------------------------------------------------------------------|
| Position 1          | Daytime (07:00-23:00hrs)     | 45 dB                   | 35 dB                                | 68dB - 72 dB                                                           |
|                     | Night-time (23:00-07:00hrs)  | 40 dB                   | 32 dB                                | 59 dB - 64 dB                                                          |
| Position 2          | Daytime (07:00-23:00hrs)     | 44 dB                   | 35 dB                                | 70 dB - 81 dB                                                          |
|                     | Night-time (23:00-04:15hrs*) | 38 dB                   | 32 dB                                | 53 dB - 59 dB                                                          |

**Table 6.1:** Environmental noise levels

[dB ref. 20μPa]

\*typical background derived as the 10<sup>th</sup> percentile of the  $L_{A90}$  dataset

\*\*typical maximum derived as the 90<sup>th</sup> percentile of the  $L_{AFmax}$  dataset

\*Position 2 adversely affected by dawn chorus birdsong between 04:15am – 07:00am. Associated data omitted from analysis

6.2.2 Environmental noise levels are low and sit within the range Negligible to Low with respect to guidance given in the ProPG.

6.2.3 From detailed review of the noise data, ambient and background noise levels across cricket events, including the hour before and after the match were typically elevated by ca. 3 dB and 5 dB at Position 1 and Position 2 respectively. No discernible increase in maximum noise levels was evident during cricket events, when compared to the rest of the daytime period.

6.2.4 From review of the daytime noise data, there is no discernible change in noise levels immediately before or after the opening or closing hours of Pitter Commercials Ltd.

## 7.0 ENVIRONMENTAL NOISE ASSESSMENT

### Internal Noise Intrusion

7.1 CSA has conducted a review of the resultant internal ambient noise levels inside the proposed dwellings with respect to noise intrusion from existing environmental noise sources. The review is based on the submitted site and dwelling layouts available at the time of writing, the environmental noise data previously submitted with the application, and the targeted ProPG internal noise levels set out in Table 5.1.

7.2 For the purposes of assessment, it is assumed that all non-glazed elements will provide a sound reduction performance of approximately  $R_w$  51dB when tested in accordance with ISO 10140-2:2021 or equivalent test standard.

- 7.3 Due to the low environmental noise levels, the targeted internal ambient noise levels could be readily achieved during both the daytime and night-time periods through the use of standard thermal double glazing systems, offering a minimum performance of  $R_w$  30 dB. Where a passive ventilation scheme was desired, the internal ambient noise levels could be maintained, with standard non-acoustically rated trickle ventilator systems.
- 7.4 Both daytime and night-time desirable internal ambient noise levels are expected to be achieved where the performance specifications given in Table 7.1 are achieved.

#### External Amenity Space

- 7.5 External amenity spaces are proposed in the form of private gardens for each dwelling.
- 7.6 ProPG states the following regarding the assessment of noise in external amenity spaces:
- 3(i) "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".*
- 3(ii) "The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB LAeq,16hr..."*
- 7.7 As presented within Table 6.1, in its existing form, external noise levels throughout the site will maintain the targeted noise levels in external amenity spaces without the need for further mitigation.
- 7.8 Due to increased screening losses from the built form of the development, noise levels in the completed private gardens are expected to be lower still.

## 8.0 PITTER COMMERCIALS LTD

- 8.1 The predominant noise sources at Pitter Commercials Ltd include servicing and MOT works undertaken in the vehicle maintenance bay, a vehicle wash bay, and truck movements within the yard.
- 8.2 The noise sources, including their operational times, are inherently variable.

#### Background

- 8.3 From liaison with the EBC environmental health department, it is advised that there have been noise complaints from residents of Westgate Mews concerning activity in the Pitter Commercials Yard. It is understood that the nature of the previous complaints is related to the use of heavy machinery in the early morning hours. It is assumed that this is in relation to activity being undertaken in the servicing bays and general activity within the yard.
- 8.4 As shown in the appended site plan, AS14071/SP1, an existing 4.2m high wall separates Pitter Commercials Ltd and the existing dwellings on Kenilworth Gardens to the north, but only partially returns to the south. The existing level of acoustic screening would, therefore, be expected to be lower at Westgate Mews than at Kenilworth Gardens, in which environmental health has advised that there are no known noise complaints.

- 8.5 The absence of noise complaints from Kenilworth Gardens would suggest that the existing 4.2m wall, extended along the full extent of the northern boundary is providing an appropriate level of protection. To achieve similar losses at the proposed dwellings and enhance the level of acoustic screening provided to existing dwellings on Westgate Mews, it is proposed that the boundary wall will be extended to the south as shown in the appended site plan.
- 8.6 Whilst the acoustic screen does not necessarily require extension to the south boundary, due to limited commercial noise sources in the southern portion of the Pitter Commercials Ltd site, this would provide a level of futureproofing and flexibility in an inherently variable commercial operation.
- 8.7 Due to the commercial nature of the noise source, CSA has subsequently undertaken assessments of noise emissions from Pitter Commercials Ltd, following procedures in BS4142 as detailed in Section 0 and Appendix B.

#### Source Noise Data

- 8.8 Noise measurements were undertaken within Pitter Commercials Ltd as part of planning application ref. F/26/100809, reproduced in Table 8.1 below.

| Event                                                              | Source Noise Level |
|--------------------------------------------------------------------|--------------------|
| Centre of MOT bay during vehicle maintenance activity, $L_{p,rev}$ | 79 dB(A)           |
| Vehicle Wash, $L_p$ at 1m                                          | 81 dB(A)           |

**Table 8.1:** Measured source noise levels, by others, within Pitter Commercials Ltd.

- 8.9 The exact locations and duration of these measurements, along with any other assumptions made, are unknown. Extended monitoring was undertaken within the proposed development site, however, during which Pitter Commercials Ltd is understood to have been operating as normal.
- 8.10 Measurement Position 1, as shown in Figure 8.1, is understood to have been installed in free-field conditions in a location that does not benefit from acoustic screening effects from the existing partially returned boundary wall. Measurements at this position are, therefore, suitably representative of existing commercial noise emissions at the proposed Plot 06.

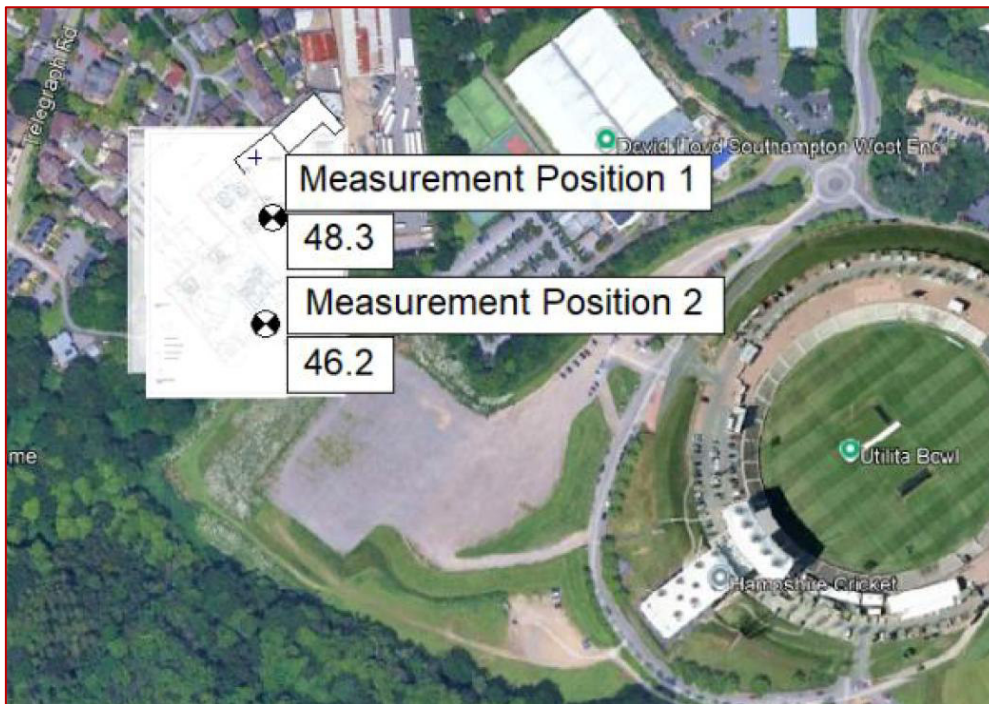


**Figure 8.1:** Screenshot from the noise impact assessment submitted with the planning application, ref. F/26/100809, showing the location of the measurement positions during the extended noise monitoring exercise.

- 8.11 Plot 06 is anticipated to be the most affected receptor with respect to commercial noise, where it is the nearest dwelling that would feature any first-floor windows overlooking Pitter Commercials Ltd.
- 8.12 In the noise impact assessment submitted with planning application, ref. F/26/100809, both 1-hour and 15-minute measurement data was presented for Position 1, which has been used in the subsequent BS4142 assessment, as the dataset with the lowest uncertainty.
- 8.13 Due to the variable nature of the commercial noise sources, assessments have been conducted using a low and high range derived from the daily maximum and minimum  $L_{Aeq}$  noise levels in which Pitter Commercials Ltd was operating. Data measured during cricket events at the Utilita Bowl has, however, been excluded. The measured datasets at Position 1 and 2 are appended for reference.

#### Early Morning Assessment

- 8.14 Primary consideration has been given to the more noise-sensitive early morning operating period between 06:00 and 07:00 hours, this being the period around which previous complaints from Westgate Mews have centred.
- 8.15 For the purposes of BS4142, this operational hour falls within the night-time period. A 15-minute reference period has therefore been used in the subsequent assessment of commercial noise emissions at Plot 06, which is the most affected dwelling. The assessment has been undertaken at the rear first-floor windows, which directly overlook the commercial premises.
- 8.16 As detailed in Sections 8.8 to 8.13, the specific sound level has been determined from noise measurement data at Position 1, representative of the noise climate at Plot 06.

8.17 As shown in the appended datasets, the daily minimum and maximum  $L_{Aeq,15min}$  ambient noise levels between 06:00hrs and 07:00hrs have been derived for days in which Pitter Commercials Ltd was operational. These noise levels have been used to form a typical noise range as presented within Table 8.2. The residual and background sound levels are determined from the equivalent operational hour on Sunday 13<sup>th</sup> July 2025, during which Pitter Commercials Ltd was not operating.

8.18 Table 8.2 presents the BS4142 assessment to the most affected first floor windows at Plot 06. As the specific noise level is controlled to levels tending towards the existing residual noise levels, no tonal, intermittent, or impulsive acoustic features would be expected to be evident within the residual acoustic environment. To form a robust assessment, a 3dB penalty has been applied to account for any sound characteristics that may, however, be readily distinctive.

| EARLY MORNING ASSESSMENT<br>06:00 – 07:00                          |              |               |                         |               |
|--------------------------------------------------------------------|--------------|---------------|-------------------------|---------------|
| PARAMETER                                                          | BASELINE     |               | WITH EXTENDED 4.2M WALL |               |
|                                                                    | RANGE<br>LOW | RANGE<br>HIGH | RANGE<br>LOW            | RANGE<br>HIGH |
| Ambient Sound Level,<br>$L_{Aeq,15min}$                            | 42 dB        | 46 dB         | 42 dB                   | 46 dB         |
| Residual Sound Level,<br>$L_{Aeq,15min}$                           | 39 dB        | 41 dB         | 39 dB                   | 41 dB         |
| Specific Sound Level<br>(unscreened)<br>$L_{Aeq,Tr}$               | 39 dB        | 44 dB         | -                       | -             |
| Specific Sound Level<br>(incl. acoustic screening)<br>$L_{Aeq,Tr}$ | -            | -             | 33 dB                   | 38 dB         |
| Total Acoustic Feature<br>Correction                               | +3 dB        | +3 dB         | 0 dB*                   | +3 dB         |
| Rating Level $L_{Ar,Tr}$                                           | 42 dB        | 47 dB         | 33 dB                   | 41 dB         |
| Background Sound Level<br>$L_{A90,T}$                              | 38 dB        | 38 dB         | 38 dB                   | 38 dB         |
| Assessment Level                                                   | +4 dB        | +9 dB         | -5 dB                   | +3 dB         |

**Table 8.2:** Night-time initial impact estimate BS4142 summary at Plot 06

\*Specific sound level is significantly below residual and background sound levels.

8.19 BS4142 states that:

*“A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*

*A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context...*

*...Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”*

8.20 The initial impact estimate has demonstrated that the proposed mitigation strategy is capable of controlling early morning commercial noise emissions below levels that would indicate an adverse impact, depending on the context.

### Daytime Assessment

8.21 A similar assessment has been undertaken for daytime commercial operations, in which a low and high range was derived for typical operations, as well as separately, a period which is believed to include a vehicle wash.

8.22 As detailed in 8.18, for typical activity, a 3dB penalty was applied in the baseline scenario to account for sound characteristics that may be readily distinctive within the acoustic environment, but are not tonal, intermittent, or impulsive. With the proposed screening, however, the specific sound level would be markedly reduced and sit below existing residual and background sound levels. Acoustic features would, therefore, no longer be expected to be readily distinguishable within the residual sound climate.

8.23 From speaking to staff at Pitter Commercials Ltd, it is understood that vehicle washes may typically occur two or three times per day, each for a 30-minute period. From review of the measurement data at Position 1, this is not immediately evident, however, a 1-hour period was noted between 17:00 – 18:00 on Friday 11<sup>th</sup> July 2025, in which noise levels were significantly elevated with much higher levels of low frequency and high frequency noise. This may correspond to vehicle washing activity, due to its external and nearby location, with increased low frequency noise possibly attributed to compressors and high frequency noise from the spray itself.

8.24 In the baseline scenario with no extended boundary wall, a +6 dB penalty is applied for tonality from noise associated with the vehicle wash compressors, which may be highly perceptible without further mitigation. As the specific sound level is reduced towards the residual sound level through the proposed acoustic screening, the level of perceptibility would reduce. A +2 dB penalty has been applied where the tonal element may be “just perceptible” within the residual soundscape.

8.25 In accordance with BS4142, a 1-hour assessment period has been used for the daytime assessment, as follows.

| DAYTIME<br>T = 1HR                                              |                         |                          |                                          |                         |                          |                                        |
|-----------------------------------------------------------------|-------------------------|--------------------------|------------------------------------------|-------------------------|--------------------------|----------------------------------------|
| PARAMETER                                                       | BASELINE                |                          |                                          | WITH EXTENDED 4.2M WALL |                          |                                        |
|                                                                 | TYPICAL<br>RANGE<br>LOW | TYPICAL<br>RANGE<br>HIGH | VEHICLE<br>WASH                          | TYPICAL<br>RANGE<br>LOW | TYPICAL<br>RANGE<br>HIGH | VEHICLE<br>WASH                        |
| Ambient Sound Level, $L_{Aeq,15min}$                            | 40 dB                   | 46 dB                    | 59 dB                                    | 40 dB                   | 46 dB                    | 59 dB                                  |
| Residual Sound Level, $L_{Aeq,15min}$                           | 39 dB                   | 39 dB                    | 39 dB                                    | 39 dB                   | 39 dB                    | 39 dB                                  |
| Specific Sound Level (unscreened)<br>$L_{Aeq,Tr}$               | 35 dB                   | 45 dB                    | 59 dB                                    | -                       | -                        | -                                      |
| Specific Sound Level (incl. acoustic screening)<br>$L_{Aeq,Tr}$ | -                       | -                        | -                                        | 28 dB                   | 32 dB                    | 42 dB                                  |
| Total Acoustic Feature Correction                               | +3 dB                   | +3 dB                    | +6 dB<br>(Tonality – Highly Perceptible) | 0 dB*                   | 0 dB*                    | +2 dB<br>(Tonality – Just Perceptible) |
| Rating Level $L_{Ar,Tr}$                                        | 38 dB                   | 48 dB                    | 65 dB                                    | 31 dB                   | 35 dB                    | 44 dB                                  |
| Background Sound Level $L_{A90,T}$                              | 39 dB                   | 39 dB                    | 39 dB                                    | 39 dB                   | 39 dB                    | 39 dB                                  |
| Assessment Level                                                | -1 dB                   | +9 dB                    | +27 dB                                   | -8 dB                   | -4 dB                    | +5 dB                                  |

**Table 0.1:** Initial impact estimate BS4142 summary at Plot 06 during daytime operational hours.

\*Specific sound level is significantly below residual and background sound levels.

8.26 The initial impact estimate has shown that during daytime operation, Rating Levels from typical commercial activity emanating from Pitter Commercials Ltd would be controlled below the existing Background Sound Levels, an indication of the specific sound source having a low impact depending on the context.

8.27 The Rating Level for a typical hour containing vehicle wash activity is higher and could indicate an adverse impact, depending on the context. The context is discussed below.

### Context

8.28 The context forms a key part of any BS4142 assessment and should be considered with as much regard as the numerical assessment. The context places the existing environment and background circumstances within the numerical assessment.

8.29 Pitter Commercials Ltd is an established business which has operated in proximity to other residential dwellings for many years. With respect to the proposed development site,

existing complaints have been registered within Westgate Mews, but not Kenilworth Gardens which benefit from a large 4.2m high boundary wall. The proposal would extend this wall to the south, providing similar levels of acoustic screening to the proposed development site, whilst also reducing commercial noise impact on existing receptors at Westgate Mews.

- 8.30 The site layout and dwelling design has been developed with due consideration to the commercial noise sources. The nearest dwelling to the predominant commercial noise sources, Plot 08, does not feature any windows on the façade overlooking the commercial yard that serve acoustically sensitive spaces. In addition, mechanical ventilation is to be provided in all dwellings, such that they will not be reliant on natural ventilation strategies such as trickle vents. Windows will be openable as a matter of personal preference. With this strategy, acoustically sensitive spaces are also expected to be provided with a level of masking from the building services scheme, which will also assist with controlling the resultant impact from commercial noise intrusion.
- 8.31 Whilst inherently variable, the proposed mitigation strategy will reduce commercial noise emissions, with the occasional exception of vehicle wash activity, below levels that would be expected to give rise to an adverse impact with respect to the existing soundscape. In absolute terms, commercial noise emissions were not calculated to be high outside the façade of the most affected dwelling, with the upper range of specific sound levels calculated to be in the low 40's dB  $L_{Aeq,1hr}$ . Noise levels will be significantly lower internally, and typically desired noise levels set out in the ProPG could be maintained through the proposed mitigation strategy.
- 8.32 The assessment determined that noise levels at the most affected proposed dwelling during vehicle wash activity would be higher across a typical one-hour period and tending towards an adverse impact, depending on the context. Unlike the other commercial noise sources, however, use of the vehicle wash is generally limited to two or three times a day, for around 30-minutes, where the measured dataset suggests that this may occur less often than advised. Consideration is therefore given to the existing receptors within Kenilworth Gardens who currently benefit from similar levels of acoustic screening offered by the boundary wall. A number of dwellings are located similar distances from the vehicle wash area and boundary wall, where it is understood that there are no known noise complaints in this regard. Whilst vehicle wash activity would therefore be expected to be audible at the proposed dwellings, short term use during the daytime period is not expected to give rise to an adverse impact, as demonstrated at existing neighbour dwellings.
- 8.33 Consideration should also be given to future receptors who would form the agent of change. Receptors sharing a boundary with a commercial property will be cognisant of the potential for commercial noise emissions at their property, especially those at Plot 06 who would have windows overlooking the far extent of the yard. In this regard, commercial noise emissions would be expected to be audible from time to time.
- 8.34 The numerical assessment scenarios described above are considered a worst-case scenario, assessed to the most affected proposed dwelling, Plot 06. Other residential plots will benefit from additional distance propagation losses and further screening effects from the dwellings themselves. As such, the potential sound impact would generally be expected to be lower at dwellings further away from Pitter Commercials Ltd.

8.35 Taking the numerical assessment in the context described above, the resultant impact from typical commercial activity, including the vehicle wash, is not expected to give rise to an adverse impact and will tend towards a low impact at the proposed dwellings.

#### Uncertainty

8.36 As per the requirements of BS4142, the uncertainty in the initial impact estimate exercise is considered and reported. This is not an indication of error but an acknowledgment of possible variability of the factors contributing to the assessment.

8.37 Where possible, measurement data at the site has been used to minimise uncertainty associated with propagation losses.

8.38 Where the commercial noise sources are inherently variable, the survey was undertaken over an extended period of time to capture multiple days of commercial operations.

8.39 Whilst assessed in a different manner, the assessment outcome supports that determined in the noise impact for the previous planning application at this site, ref. F/26/100809.

8.40A typical range of commercial noise levels was assessed, rather than relying on a single measurement period.

8.41 The variability in the background sound level between the monitoring position and proposed dwellings is likely to be significantly smaller than the difference between the rating levels and background sound levels and, as such, this does not constitute a significant element of uncertainty.

## 9.0 UTILITA BOWL

9.1 As discussed in Section 3.0, the Utilita Bowl Cricket Ground hosts a variety of functions which can include major concerts. The Utilita Bowl's primary and most frequent use, however, is as a cricket ground.

#### Cricket Events

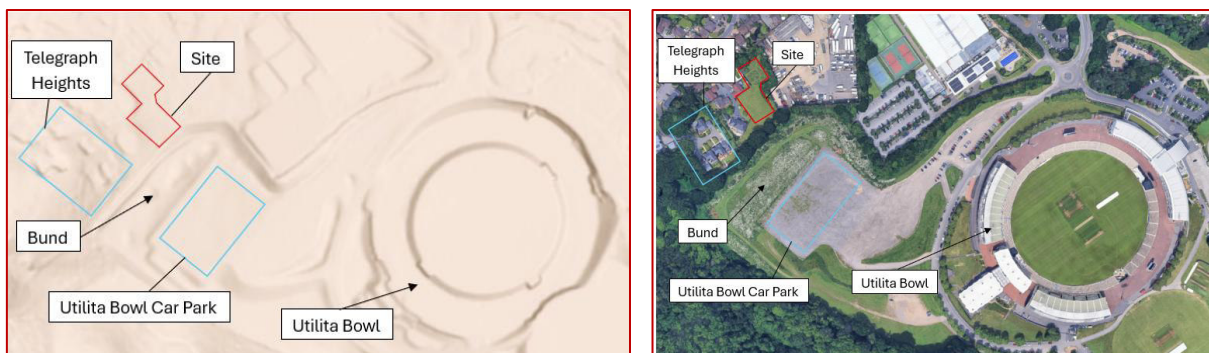
9.2 The data measured in-situ captured three county cricket events, including those forming part of the Vitality Blast series, which features live music at the end of the event and various activities both pre-match and during the event. The measurement data is, therefore, representative of a typical worst-case use from cricket events. Whilst a higher number of patrons may be expected for the fewer international matches, no significant increase in noise levels with respect to music and amplified speech would be expected over those measured.

9.3 The measured dataset indicated that during events, resultant noise levels, from a combination of event and other ambient noise at the site, were increased by around 3dB to 5dB. This is consistent with typical hourly noise levels from cricket events within 3dB of the residual sound climate. With respect to absolute noise levels, noise emanating from the Utilita Bowl is controlled to the low-to-mid 40's dB  $L_{Aeq,1hr}$  throughout the site, such that the desirable ProPG external noise levels for amenity would still be maintained.

- 9.4 Within the dynamic soundscape, elevated noise levels will occur over shorter durations, where crowd participation is not continuous in nature. As stated in Section 6.2.3, maximum noise levels measured during events do not appear to be any higher than those measured in the absence of events.
- 9.5 CSA has reviewed public noise data from other developments in proximity to the Utilita Bowl including that obtained for the adjacent Telegraph Heights development (planning ref. X/15/77329) and a larger proposal for further development at the 'Ageas Bowl' [now 'Utilita Bowl'] in the area between the site and stadium (planning ref. F.22.93194). The adjacent Telegraph Heights noise impact assessment, dating back to 2016, concluded that there was no noticeable difference in the measured noise levels between a match day and a non-match day. The noise impact assessment for the proposed 'Ageas Bowl development', presented results for a cricket match, approx. 150m from the centre of the stadium in the direction of the development site. These measurements found noise levels during a match to be around  $L_{Aeq,1hour}$  51 dB. Accounting for the relative locations of these sites, these noise levels are commensurate with those referred to in CSA's assessment.
- 9.6 Overall, noise from cricket events can be expected to be discernible throughout the site but would not necessarily occupy a dominant position in the soundscape.
- 9.7 Further consideration is given to the context of the proposed development. The surrounding area is largely residential in nature and there are other recent residential developments constructed at similar distances from the Utilita Bowl. This includes recent developments off Botley Road, including dwellings situated on Shaw Road and Fry Close, some 330m north-east of the stadium. The adjacent dwellings on Telegraph Heights form the most comparable context with respect to acceptability, however, where these dwellings are equidistant from the adjacent Utilita Bowl car park, and marginally further from the stadium itself. The lack of complaints from these receptors, indicated by Eastleigh Borough Council, is a good indicator of acceptability.
- 9.8 Consideration is given to the 'Agent of Change'. Occupants who purchase or rent properties adjacent to sports stadia will be aware of the location of their dwelling relative to the stadium and some level of audibility would be expected by most.

#### Car Park Use

- 9.9 A car park serving the Utilita Bowl is located 70m south-east of the site, with a sizeable bund separating the two spaces as shown in the OpenTopography and satellite imagery below.



- 9.10 The nearest parking spaces are located around 75m from the most affected proposed dwelling.

- 9.11 CSA has previously undertaken co-ordinated measurements of car door closures with an environmental health officer from Stevenage Borough Council closing car doors with varying levels of force. Maximum noise levels from typical door closures varied between  $L_{AFmax}$  72 dB and  $L_{AFmax}$  78 dB at five metres distance from the car.
- 9.12 Resultant noise levels have been calculated to the nearest affected proposed receptor, as presented in Table 9.1. Where car park use is primarily anticipated for daytime use, an allowance has been made for line-of-sight screening to ground floor receptor positions due to the bund.

|                                        | Typical Door Closure<br>(Low Range) | Typical Door Closure<br>(High Range) |
|----------------------------------------|-------------------------------------|--------------------------------------|
| $L_{AFmax}$ at 5m                      | 72dB                                | 78dB                                 |
| Distance Attenuation<br>(Point Source) | -24dB                               |                                      |
| Screening Loss<br>(Line-of-Sight)      | -5dB                                |                                      |
| Resultant Noise Level,<br>$L_{AFmax}$  | 43dB                                | 49dB                                 |

**Table 9.1:** Maximum noise levels at nearest affected dwelling from typical door closures at nearest extent of Utilita Bowl car park.

- 9.13 Resultant maximum noise levels from door closures are shown to be significantly below the pre-existing maximum noise levels presented in Table 6.1 and commensurate with the range of existing ambient noise levels experienced across the site. Noise from door closures would, therefore, not be expected to cause adverse impact at the proposed dwellings.
- 9.14 The assessment outcome is further validated by the existing receptors at Telegraph Heights located at a similar distance and direction from the car park. Of note, these receptors are located at a greater elevation than the site and the screening effect of the bund would be lower than at the proposed development.

### Other Events

- 9.15 The data assessed for cricket events represents a reasonable worst-case scenario for both sporting activity within the Utilita Bowl and associated live music. Noise levels associated with other events hosted at the Utilita Bowl, such as weddings, proms and conferences, are smaller in scale and attendance and are unlikely to exceed those assessed above. The exception to this would be major concerts, which are would generate higher music noise levels, although these occur infrequently and are not considered representative of the venue's typical operation. They are subject to specific individual controls established by Eastleigh Borough Council to provide a reasonable balance in relation to neighbour amenity. There are no upcoming major concerts currently planned in the Utilita Bowl calendar, and none have been hosted here since June 2023. Prior to this, major concerts were typically held once or twice a year, if at all, at the venue<sup>1</sup>.

<sup>1</sup> <https://www.concertarchives.org/venues/the-ageas-bowl?date=past>

- 9.16 An environmental statement (EIA) was undertaken as part of the hotel and golf course development in November 2007, planning ref. F/07/61830, which included a noise chapter. As part of the noise chapter, baseline monitoring was undertaken at 5 Westgate Mews, the proposed development site, which was labelled as Telegraph Road / Kenilworth Gardens throughout. The noise chapter also confirmed that there are a low number of concerts held per year “1 to 2 per year”.
- 9.17 The EIA Noise Volume assessed music noise from the Utilita Bowl, following guidance in the Noise Council's *Code of Practice on Environmental Noise Control at Concerts, 1995*, reproduced as follows:

| Table 4 – Code of Practice Guideline Noise Limits |                              |                                                                                                    |
|---------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------|
| Concert days per calendar year, per venue         | Venue Category               | Guidelines                                                                                         |
| 1 to 3                                            | Urban Stadia and Arenas      | The MNL* should not exceed 75dB(A) over a 15 minute period                                         |
| 1 to 3                                            | Other Urban and Rural Venues | The MNL should not exceed 65dB(A) over a 15 minute period                                          |
| 4 to 12                                           | All Venues                   | The MNL should not exceed the background noise level* by more than 15dB(A) over a 15 minute period |

\*The Music Noise Level (MNL) value is the  $L_{Aeq}$  due to music measured at a distance of 1 metre from the facade of any noise sensitive premises. The background noise level is the arithmetic average of the hourly  $L_{Aeq}$  measured over the last four hours of the proposed music event or over the entire period of the proposed music event if scheduled to last for less than four hours.

- 9.18 With the exception of receptors at Botley Road, all remaining receptors, including those at Telegraph Road (West Gate Mews) were assigned a maximum MNL of  $L_{Aeq}$  63 dB, based upon measured baseline background sound levels of  $L_{A90}$  48 dB.
- 9.19 As presented in the EIA noise chapter, subsequent monitoring and predictions of major concerts held at the Utilita Bowl, demonstrated that the following levels were achieved at the Telegraph Road (Westgate Mews) receptor position which lies within the proposed development site:

| Event              | $L_{Aeq,T}$ |
|--------------------|-------------|
| Blue Concert       | 58 dB       |
| Oasis Concert      | 60 dB       |
| Billy Joel Concert | 61 dB       |
| The Who Concert    | 60 – 61 dB  |

Table 9.2: Measured Utilita Bowl event noise levels

9.20 The above levels were found to achieve the maximum MNL target of  $\leq L_{Aeq} 63$  dB at the assessment location, which sits within the development site currently proposed. The EIA noise chapter was used to demonstrate that concerts complied with planning and licence conditions where it was further stated that “*meeting the noise limits also was reflected by the low number of complaints received...*”

9.21 Since then, subsequent planning applications have been approved for concerts at the Utilita Bowl as required, such as application ref. X/12/70787, in which consent was granted to enable four concerts to be held across a two year period; and application ref. X/15/75888 in which consent was granted to enable a maximum of three concerts per year. In each case conditional consent was granted on the basis of a number of noise management measures, including control limits set at the mixer position, targeting the same noise criteria used in the EIA noise volume referenced above.

9.22 On occasions when major concerts are hosted at the Utilita Bowl, music and crowd participation would be readily audible at the proposed dwellings. The Utilita Bowl is subject to strict planning and licencing conditions during these concerts, however, providing suitable amenity protection that will be inherently comparable to neighbouring adjacencies. Where the concerts remain occasional, no significant adverse impact would therefore be expected, as evident from the well-established existing dwellings within Westgate Mews.

## 10.0 CONCLUSIONS

- 10.1 Development is proposed on land associated with The Orchard, 5 Westgate Mews, West End, SO30 3RE to provide eight new residential dwellings in a predominant residential area. The planning application (ref. F/26/100809) was initially refused, where Eastleigh Borough Council was not provided with sufficiently clear evidence that potential noise impact would be controlled from the adjacent Pitter Commercials Ltd and Utilita Bowl Stadium to the east of the site.
- 10.2 Clarke Saunders Acoustics has been appointed to provide a revised acoustic assessment to clarify issues raised by EBC Environmental Health and address suitable mitigation measures in further detail. The existing noise data, measured as part of the previous application, has been used to form this assessment.
- 10.3 Environmental noise sources will be readily controlled to desirable internal ambient noise levels.
- 10.4 It is proposed to extend the existing 4.2m high wall along the full extent of the east boundary to provide a higher degree of protection from noise associated with the adjacent commercial business. Along with good acoustic design and a mechanical ventilation scheme, the assessment has demonstrated that the proposed physical mitigation measures would be expected to avoid an adverse impact at the proposed receptors.
- 10.5 Noise from cricket events at the Utilita Bowl, including use of the adjacent car park, would be expected to be discernible throughout the site, but would not necessarily occupy a dominant position in the soundscape. The level of impact would be comparable with the level of impact at existing receptors in Telegraph Heights, Westgate Mews and Kenilworth Gardens.
- 10.6 Major concerts are occasionally held at the Utilita Bowl. A literature review found that noise measurements were undertaken within the 5 Westgate Mews site to set appropriate noise levels at existing receptors in Westgate Mews and Kenilworth Gardens for these events. On occasions when major concerts are hosted at the Utilita Bowl, music and crowd participation would be expected to be readily audible at the proposed dwellings, as they are in the wider area. Where the concerts remain occasional, no significant adverse impact would therefore be expected, as evident from the well-established existing dwellings within Westgate Mews.



Andrew Nesbitt MIOA  
CLARKE SAUNDERS ACOUSTICS



Indicative Site Plan

Figure AS14071/SP1

### Acoustic Terminology

The human impact of sounds is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and variation in level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sound</b>                                          | Vibrations propagating through a medium (air, water, etc.) that are detectable by the auditory system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Noise</b>                                          | Sound that is unwanted by or disturbing to the perceiver.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Frequency</b>                                      | The rate per second of vibration constituting a wave, measured in Hertz (Hz), where 1Hz = 1 vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20Hz to 20kHz. Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>dB(A):</b>                                         | Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the 'A' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated 'A' weighted sound level is designated as dB(A) or $L_A$ .                                                                                                                                                                                                                                                                                                                                                                                        |
| <b><math>L_{eq}</math>:</b>                           | <p>A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc).</p> <p>The concept of <math>L_{eq}</math> (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction.</p> <p>Because <math>L_{eq}</math> is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.</p> |
| <b><math>L_{10}</math> &amp; <math>L_{90}</math>:</b> | <p>Statistical <math>L_n</math> indices are used to describe the level and the degree of fluctuation of non-steady sound. The term refers to the level exceeded for n% of the time. Hence, <math>L_{10}</math> is the level exceeded for 10% of the time and as such can be regarded as a typical maximum level. Similarly, <math>L_{90}</math> is the typical minimum level and is often used to describe background noise.</p> <p>It is common practice to use the <math>L_{10}</math> index to describe noise from traffic as, being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic flow.</p>                                                                                                          |
| <b><math>L_{max}</math>:</b>                          | The maximum sound pressure level recorded over a given period. $L_{max}$ is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged $L_{eq}$ value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>NR</b>                                             | <i>Noise Rating</i> . A single figure noise level rating that takes into account the frequency content of an acoustic environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>R</b>                                              | <i>Sound Reduction Index</i> . Effectively the Level Difference of a building element when measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 10140-2:2010 and corrected for its size and the reverberant characteristics of the receive room.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>D</b>                                              | The sound insulation performance of a construction is described in terms of the difference in sound level on either side of the construction in the presence of a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

sound source on one side and the reverberant characteristics of the adjoining 'receive' space.  $D$  is the arithmetic Level Difference in decibels between the source and receive sound levels when filtered into frequency bands.

|                                                      |                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $D_{nT}$                                             | <i>Weighted Standardised Level Difference.</i> As defined in BS EN ISO 717-1, representing the Weighted Level Difference, when standardised for reference receiving room reverberant characteristics.                                                                                                       |
| $D_{n,e}$                                            | Normalised sound insulation of small building elements of fixed dimensions, such as vents, measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 10140-2:2010.                                                                                           |
| $D_{n,f}$                                            | Flanking sound insulation of lightweight elements, such as curtain wall mullions, measured in an accredited laboratory test suite in accordance with the procedures laid down in ISO 10848-2:2006                                                                                                           |
| $R_w$ $D_w$<br>$D_{nT,w}$ $D_{n,e,w}$<br>$D_{n,f,w}$ | Value of parameter, determined as above, but weighted in accordance with the procedures laid down in BS EN ISO 717-1 to provide a single-figure value.                                                                                                                                                      |
| $C$ , $C_{tr}$                                       | Spectral adaptation terms to be added to a single number quantity such as $D_{nT,w}$ , to take account of the sound insulation within frequency ranges of particular interest.                                                                                                                              |
| $L'_{nT,w}$                                          | <i>Weighted Standardised Impact Sound Pressure Level</i> as defined in BS EN ISO 717-2, representing the level of sound pressure when measured within a space where the floor above is under excitation from a calibrated tapping machine, standardised for the receiving room reverberant characteristics. |
| $\Delta L_w$                                         | Change in impact sound pressure level when a floor is fitted with a 'soft' or resilient covering, as measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 10140-3:2010.                                                                                 |

Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band.

In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz. The most commonly used octave bands are:

|                                    |    |     |     |     |      |      |      |      |
|------------------------------------|----|-----|-----|-----|------|------|------|------|
| Octave Band Centre<br>Frequency Hz | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|------------------------------------|----|-----|-----|-----|------|------|------|------|

Human Perception of Broadband Noise

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in dB(A) do not have a simple linear relationship. For example, 100dB(A) sound level is not twice as loud as 50dB(A). It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3dB before becoming definitely perceptible to the human ear. Data from other

experiments have indicated that a change in sound level of 10dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

### INTERPRETATION

| Change in Sound Level dB | Subjective Impression                             | Human Response   |
|--------------------------|---------------------------------------------------|------------------|
| 0 to 2                   | Imperceptible change in loudness                  | Marginal         |
| 3 to 5                   | Perceptible change in loudness                    | Noticeable       |
| 6 to 10                  | Up to a doubling or halving of loudness           | Significant      |
| 11 to 15                 | More than a doubling or halving of loudness       | Substantial      |
| 16 to 20                 | Up to a quadrupling or quartering of loudness     | Substantial      |
| 21 or more               | More than a quadrupling or quartering of loudness | Very Substantial |

### Earth Bunds and Barriers - Effective Screen Height

When considering the reduction in sound level of a source provided by a barrier, it is necessary to establish the "effective screen height". For example if a tall barrier exists between a sound source and a listener, with the barrier close to the listener, the listener will perceive the sound as being louder if they climb up a ladder (and are closer to the top of the barrier) than if they were standing at ground level. Equally if they sat on the ground the sound would seem quieter than if standing. This is explained by the fact that the "effective screen height" is changing with the three cases above. In general, the greater the effective screen height, the greater the perceived reduction in sound level.

Similarly, the attenuation provided by a barrier will be greater where it is aligned close to either the source or the listener than where the barrier is midway between the two.

BS4142 is designed to allow contextual assessment of impact from commercial, or industrial sound on sensitive receptors. Examples covered by the Standard include:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment.
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

In brief, the assessment procedure involves establishing sound levels from the items or processes of interest, (the specific sound source(s)), corrected for any acoustic features to derive the Rating Level, ( $L_{A,r,T_r}$ ), at the relevant assessment position(s). The Rating Level is compared against the existing Background Sound Level, ( $L_{A90,T}$ ), to provide an initial estimate of impact. The Standard offers the following guidance with regard to the significance of estimated impact:

- Typically, the greater this difference, the greater the magnitude of the impact;*
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
- A difference of around +5dB could be an indication of an adverse impact, depending on the context;*
- Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context. The lower the rating level is relative to the background sound level, the less likely it is that the specific sound source will have an adverse impact.*

Where relevant, the initial estimate should then be modified by accounting for contextual aspects of the operation of the specific sound source and / or the context of the character of the area.

#### Other Assessment Parameters and Guidance on Character Corrections

The Specific Sound Level ( $L_s$ ) is expressed in terms of an  $L_{Aeq}$  for a reference time interval, ( $T_r$ ) of one-hour during the daytime (07:00 – 23:00 hours) and a fifteen-minute period during the night-time (23:00 – 07:00 hours). The Rating Level is also expressed in terms of the reference time interval,  $T_r$ .

The Specific Sound Level can be determined by various means, which can include prediction based on manufacturer's data and accompanying propagation calculations to the assessment position(s). This method could be used, for instance, where the specific sound source is not yet in-situ, or is in-situ but not yet operational.

Where the specific sound source is already operational and in-situ, measurements of the sound climate resulting from both the specific sound source and all other contributing sources, (known as the Ambient Sound Level,  $L_a = L_{Aeq,T}$ ) should be measured over a representative time period, ideally at the assessment position(s).

Depending on the relative contribution of other sources not related to the specific sound, (known as the residual sound), the Specific Sound Level can be derived by logarithmically subtracting the Residual Sound Level,  $L_r = L_{Aeq,T_r}$ , from the Ambient Sound Level.

With justification, representative proxy locations can be used for the measurement of the ambient and/or residual sound climate. Where these measurement locations are not fully representative of the assessment position(s), measurement can be supplemented with calculation.

The Background Sound Level should ideally also be measured at the assessment position(s) but can be measured at representative proxy locations where suitable reasons can be provided. The Background Sound Level should be measured over a period which is suitable to characterise the background sound climate during the period of interest and should normally be at least 15 minutes.

When deriving the Rating Level from the Specific Sound Level, consideration is given to the character of the sound. The Standard provides several methods for deriving appropriate character corrections, offering the following advice for subjective assessment:

### ***Tonality***

*For sound ranging from not tonal to prominently tonal, the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be allocated as a penalty of 2 dB for a tone which is just perceptible at the sound receptor, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible.*

### ***Impulsivity***

*A correction of up to +9dB can be applied for sound that is highly impulsive considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be allocated as a penalty of 3dB for impulsivity which is just perceptible at the receiver, 6dB where it is clearly perceptible and 9dB where it is highly perceptible.*

### ***Other sound characteristics***

*Where the specific sound contains characteristics that are neither tonal nor impulsive, but are otherwise startling, disturbing or incongruous with the residual acoustic environment, a penalty of +3dB can be applied.*

### ***Intermittency***

*When the specific sound has identifiable on/off conditions, if the intermittency is readily distinctive against the residual acoustic environment, a penalty of +3dB can be applied.*

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 1 - 10.11 July                      Thursday 10th July

| DAYTIME       |      |       |      | LZeq |     |     |     |    |    |    |    |     |  |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|--|
| Time          | LAeq | Lamax | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |  |
| 07:00 - 08:00 | 45   | 38    | 43   | 52   | 47  | 44  | 43  | 41 | 35 | 31 | 24 | 14  |  |
| 08:00 - 09:00 | 44   | 69    | 40   | 51   | 44  | 41  | 40  | 41 | 33 | 29 | 27 | 23  |  |
| 09:00 - 10:00 | 46   | 79    | 43   | 53   | 49  | 44  | 42  | 42 | 40 | 32 | 29 | 25  |  |
| 10:00 - 11:00 | 44   | 70    | 39   | 53   | 49  | 42  | 38  | 37 | 35 | 28 | 40 | 27  |  |
| 11:00 - 12:00 | 41   | 67    | 38   | 50   | 45  | 41  | 37  | 36 | 31 | 27 | 34 | 26  |  |
| 12:00 - 13:00 | 45   | 66    | 38   | 52   | 48  | 44  | 41  | 41 | 37 | 34 | 30 | 25  |  |
| 13:00 - 14:00 | 46   | 67    | 40   | 54   | 49  | 45  | 41  | 39 | 40 | 30 | 34 | 25  |  |
| 14:00 - 15:00 | 43   | 65    | 39   | 54   | 49  | 44  | 40  | 38 | 34 | 26 | 20 | 22  |  |
| 15:00 - 16:00 | 40   | 59    | 36   | 53   | 44  | 40  | 36  | 35 | 31 | 24 | 20 | 22  |  |
| 16:00 - 17:00 | 41   | 61    | 37   | 53   | 47  | 42  | 38  | 36 | 32 | 27 | 22 | 21  |  |
| 17:00 - 18:00 | 43   | 61    | 39   | 54   | 49  | 44  | 40  | 38 | 34 | 31 | 19 | 24  |  |
| 18:00 - 19:00 | 46   | 74    | 40   | 55   | 50  | 46  | 44  | 41 | 38 | 26 | 19 | 21  |  |
| 19:00 - 20:00 | 43   | 68    | 39   | 52   | 46  | 42  | 40  | 37 | 30 | 33 | 35 | 17  |  |
| 20:00 - 21:00 | 43   | 66    | 40   | 54   | 49  | 43  | 42  | 38 | 33 | 23 | 18 | 13  |  |
| 21:00 - 22:00 | 44   | 62    | 40   | 55   | 47  | 43  | 42  | 39 | 34 | 26 | 32 | 15  |  |
| 22:00 - 23:00 | 47   | 62    | 43   | 56   | 45  | 43  | 43  | 42 | 39 | 28 | 13 | 14  |  |
| SUMMARY       | 44   | 72    | 40   | 54   | 48  | 43  | 41  | 39 | 36 | 29 | 31 | 23  |  |

Preceding Hour to Cricket Event (Parking and other external activity)  
Cricket Event at Utilita Bowl  
Cricket Event at Utilita Bowl  
Cricket Event at Utilita Bowl  
Succeeding Hour to Cricket Event (Parking and other external activity)

During Pitter Commercials Ltd Opening Hours

Min LAeq,1hr                      40

Max LAeq,1hr                      46

| NIGHT-TIME    |      |       |      | LZeq |     |     |     |    |    |    |    |     |  |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|--|
| Time          | LAeq | Lamax | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |  |
| 23:00 - 23:15 | 40   | 59    | 37   | 53   | 40  | 40  | 40  | 35 | 26 | 15 | 13 | 12  |  |
| 23:15 - 23:30 | 39   | 50    | 36   | 52   | 43  | 41  | 37  | 35 | 26 | 15 | 11 | 11  |  |
| 23:30 - 23:45 | 36   | 43    | 35   | 50   | 38  | 36  | 34  | 33 | 24 | 14 | 11 | 11  |  |
| 23:45 - 00:00 | 37   | 48    | 36   | 49   | 39  | 36  | 35  | 34 | 25 | 14 | 11 | 12  |  |
| 00:00 - 00:15 | 39   | 48    | 37   | 50   | 41  | 38  | 38  | 35 | 26 | 14 | 12 | 12  |  |
| 00:15 - 00:30 | 40   | 49    | 38   | 48   | 41  | 39  | 38  | 36 | 27 | 14 | 11 | 12  |  |
| 00:30 - 00:45 | 39   | 53    | 37   | 48   | 41  | 38  | 37  | 36 | 27 | 15 | 13 | 12  |  |
| 00:45 - 01:00 | 39   | 47    | 36   | 47   | 38  | 37  | 37  | 35 | 27 | 14 | 11 | 12  |  |
| 01:00 - 01:15 | 37   | 52    | 35   | 47   | 42  | 37  | 35  | 33 | 25 | 14 | 11 | 11  |  |
| 01:15 - 01:30 | 36   | 53    | 34   | 47   | 35  | 33  | 34  | 33 | 25 | 14 | 11 | 11  |  |
| 01:30 - 01:45 | 35   | 46    | 33   | 47   | 36  | 34  | 34  | 32 | 24 | 14 | 11 | 11  |  |
| 01:45 - 02:00 | 35   | 47    | 33   | 47   | 36  | 34  | 34  | 31 | 24 | 19 | 20 | 14  |  |
| 02:00 - 02:15 | 44   | 73    | 33   | 46   | 36  | 35  | 35  | 42 | 35 | 23 | 22 | 14  |  |
| 02:15 - 02:30 | 37   | 52    | 35   | 46   | 37  | 36  | 36  | 34 | 25 | 15 | 13 | 11  |  |
| 02:30 - 02:45 | 37   | 56    | 34   | 46   | 36  | 36  | 36  | 32 | 24 | 14 | 12 | 21  |  |
| 02:45 - 03:00 | 37   | 59    | 34   | 47   | 37  | 35  | 37  | 33 | 25 | 15 | 11 | 23  |  |
| 03:00 - 03:15 | 37   | 51    | 35   | 47   | 40  | 37  | 36  | 33 | 25 | 15 | 12 | 20  |  |
| 03:15 - 03:30 | 39   | 52    | 36   | 46   | 40  | 37  | 38  | 35 | 26 | 15 | 11 | 10  |  |
| 03:30 - 03:45 | 38   | 50    | 35   | 47   | 38  | 37  | 37  | 34 | 26 | 14 | 11 | 10  |  |
| 03:45 - 04:00 | 38   | 54    | 36   | 47   | 40  | 40  | 36  | 34 | 25 | 14 | 11 | 10  |  |
| 04:00 - 04:15 | 38   | 56    | 36   | 47   | 37  | 35  | 35  | 34 | 27 | 21 | 31 | 12  |  |
| 04:15 - 04:30 | 43   | 66    | 37   | 47   | 37  | 36  | 37  | 35 | 28 | 32 | 41 | 22  |  |
| 04:30 - 04:45 | 44   | 72    | 39   | 47   | 39  | 39  | 41  | 37 | 30 | 31 | 41 | 22  |  |
| 04:45 - 05:00 | 43   | 59    | 40   | 47   | 41  | 43  | 41  | 38 | 31 | 30 | 36 | 17  |  |
| 05:00 - 05:15 | 44   | 63    | 41   | 52   | 45  | 41  | 42  | 40 | 33 | 26 | 29 | 12  |  |
| 05:15 - 05:30 | 43   | 50    | 41   | 47   | 40  | 40  | 41  | 39 | 30 | 29 | 23 | 11  |  |
| 05:30 - 05:45 | 44   | 58    | 42   | 47   | 42  | 42  | 41  | 41 | 31 | 23 | 21 | 10  |  |
| 05:45 - 06:00 | 46   | 62    | 44   | 52   | 47  | 44  | 43  | 43 | 36 | 31 | 27 | 12  |  |
| 06:00 - 06:15 | 44   | 61    | 42   | 51   | 43  | 42  | 40  | 41 | 33 | 31 | 24 | 10  |  |
| 06:15 - 06:30 | 44   | 59    | 42   | 51   | 44  | 44  | 41  | 40 | 32 | 23 | 22 | 10  |  |
| 06:30 - 06:45 | 43   | 62    | 40   | 52   | 48  | 44  | 40  | 39 | 32 | 28 | 27 | 13  |  |
| 06:45 - 07:00 | 42   | 60    | 40   | 50   | 46  | 43  | 39  | 38 | 30 | 29 | 28 | 11  |  |
| SUMMARY       | 41   | 62    | 41   | 49   | 41  | 40  | 38  | 37 | 29 | 25 | 30 | 16  |  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,15min                      42

Max LAeq,15min                      44

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 1 - 11.12 July

Friday 11th July

| DAYTIME       |      |      |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmx | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 07:00 - 08:00 | 42   | 64   | 39   | 52   | 46  | 43  | 38  | 38 | 31 | 30 | 35 | 20  |
| 08:00 - 09:00 | 44   | 67   | 39   | 57   | 48  | 44  | 41  | 40 | 34 | 30 | 30 | 25  |
| 09:00 - 10:00 | 43   | 63   | 40   | 56   | 46  | 41  | 38  | 38 | 35 | 29 | 23 | 26  |
| 10:00 - 11:00 | 43   | 67   | 39   | 56   | 47  | 42  | 39  | 38 | 34 | 29 | 32 | 26  |
| 11:00 - 12:00 | 43   | 67   | 39   | 56   | 48  | 42  | 40  | 38 | 33 | 26 | 28 | 25  |
| 12:00 - 13:00 | 43   | 70   | 40   | 57   | 48  | 43  | 39  | 38 | 32 | 28 | 36 | 25  |
| 13:00 - 14:00 | 44   | 61   | 41   | 59   | 52  | 44  | 40  | 39 | 36 | 28 | 22 | 25  |
| 14:00 - 15:00 | 45   | 71   | 39   | 57   | 50  | 46  | 43  | 40 | 34 | 26 | 23 | 25  |
| 15:00 - 16:00 | 40   | 58   | 38   | 56   | 48  | 40  | 36  | 35 | 30 | 24 | 21 | 24  |
| 16:00 - 17:00 | 41   | 59   | 39   | 54   | 47  | 42  | 37  | 36 | 30 | 22 | 18 | 23  |
| 17:00 - 18:00 | 59   | 65   | 58   | 58   | 65  | 63  | 55  | 54 | 47 | 40 | 34 | 22  |
| 18:00 - 19:00 | 42   | 62   | 40   | 55   | 45  | 40  | 39  | 38 | 31 | 25 | 18 | 15  |
| 19:00 - 20:00 | 43   | 59   | 41   | 58   | 45  | 41  | 40  | 40 | 32 | 24 | 19 | 13  |
| 20:00 - 21:00 | 43   | 64   | 41   | 60   | 47  | 41  | 41  | 40 | 33 | 25 | 20 | 11  |
| 21:00 - 22:00 | 42   | 60   | 41   | 58   | 47  | 41  | 40  | 38 | 31 | 20 | 19 | 12  |
| 22:00 - 23:00 | 42   | 61   | 40   | 58   | 45  | 41  | 39  | 38 | 32 | 20 | 12 | 11  |
| SUMMARY       | 48   | 69   | 40   | 57   | 54  | 51  | 45  | 43 | 37 | 30 | 29 | 23  |

Elevated low frequency noise levels likely to be associated with compressor activity associated with the car wash.

During Pitter Commercials Ltd Opening Hours

Min LAeq,1hr 40

Max LAeq,1hr 59

| NIGHT-TIME    |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | Lamax | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 23:00 - 23:15 | 40   | 47    | 39   | 57   | 44  | 39  | 37  | 37 | 30 | 19 | 12 | 12  |
| 23:15 - 23:30 | 41   | 46    | 40   | 58   | 44  | 40  | 37  | 37 | 30 | 20 | 12 | 11  |
| 23:30 - 23:45 | 44   | 58    | 41   | 58   | 49  | 45  | 42  | 40 | 33 | 22 | 13 | 20  |
| 23:45 - 00:00 | 42   | 50    | 40   | 57   | 44  | 42  | 40  | 38 | 31 | 20 | 12 | 23  |
| 00:00 - 00:15 | 40   | 47    | 39   | 57   | 44  | 39  | 37  | 36 | 30 | 19 | 12 | 25  |
| 00:15 - 00:30 | 41   | 58    | 39   | 56   | 44  | 40  | 39  | 37 | 30 | 19 | 12 | 25  |
| 00:30 - 00:45 | 41   | 48    | 40   | 57   | 44  | 40  | 39  | 36 | 30 | 19 | 12 | 10  |
| 00:45 - 01:00 | 43   | 59    | 42   | 56   | 44  | 41  | 41  | 39 | 33 | 21 | 12 | 11  |
| 01:00 - 01:15 | 40   | 49    | 39   | 58   | 44  | 39  | 37  | 36 | 31 | 20 | 12 | 10  |
| 01:15 - 01:30 | 41   | 50    | 40   | 58   | 43  | 40  | 39  | 38 | 31 | 22 | 13 | 10  |
| 01:30 - 01:45 | 41   | 50    | 39   | 51   | 41  | 39  | 39  | 38 | 30 | 18 | 13 | 10  |
| 01:45 - 02:00 | 42   | 67    | 39   | 57   | 44  | 41  | 40  | 38 | 34 | 26 | 23 | 16  |
| 02:00 - 02:15 | 38   | 48    | 37   | 57   | 43  | 37  | 35  | 34 | 28 | 18 | 12 | 10  |
| 02:15 - 02:30 | 38   | 44    | 37   | 56   | 43  | 38  | 36  | 34 | 28 | 18 | 12 | 10  |
| 02:30 - 02:45 | 39   | 52    | 37   | 57   | 43  | 39  | 36  | 34 | 28 | 18 | 13 | 10  |
| 02:45 - 03:00 | 38   | 46    | 37   | 56   | 42  | 38  | 35  | 34 | 28 | 18 | 12 | 10  |
| 03:00 - 03:15 | 40   | 45    | 39   | 57   | 44  | 40  | 37  | 36 | 30 | 20 | 12 | 10  |
| 03:15 - 03:30 | 42   | 66    | 39   | 57   | 43  | 40  | 42  | 37 | 30 | 20 | 12 | 10  |
| 03:30 - 03:45 | 41   | 48    | 39   | 56   | 43  | 39  | 38  | 37 | 30 | 19 | 12 | 10  |
| 03:45 - 04:00 | 40   | 46    | 39   | 57   | 42  | 38  | 37  | 36 | 30 | 19 | 12 | 10  |
| 04:00 - 04:15 | 40   | 53    | 38   | 57   | 43  | 38  | 36  | 36 | 30 | 20 | 26 | 12  |
| 04:15 - 04:30 | 41   | 62    | 40   | 58   | 43  | 38  | 37  | 37 | 32 | 28 | 23 | 11  |
| 04:30 - 04:45 | 41   | 65    | 39   | 57   | 43  | 38  | 37  | 37 | 32 | 26 | 32 | 13  |
| 04:45 - 05:00 | 41   | 50    | 40   | 57   | 43  | 39  | 39  | 37 | 31 | 21 | 16 | 10  |
| 05:00 - 05:15 | 44   | 59    | 41   | 58   | 46  | 42  | 41  | 40 | 34 | 24 | 20 | 10  |
| 05:15 - 05:30 | 43   | 64    | 39   | 51   | 40  | 37  | 39  | 38 | 30 | 30 | 38 | 16  |
| 05:30 - 05:45 | 43   | 59    | 40   | 51   | 41  | 38  | 40  | 40 | 32 | 25 | 22 | 10  |
| 05:45 - 06:00 | 44   | 55    | 43   | 51   | 41  | 39  | 41  | 42 | 33 | 27 | 20 | 10  |
| 06:00 - 06:15 | 45   | 57    | 44   | 51   | 41  | 39  | 42  | 42 | 33 | 25 | 20 | 10  |
| 06:15 - 06:30 | 45   | 60    | 43   | 52   | 46  | 42  | 41  | 42 | 34 | 30 | 23 | 10  |
| 06:30 - 06:45 | 44   | 58    | 42   | 54   | 46  | 42  | 40  | 41 | 33 | 26 | 24 | 10  |
| 06:45 - 07:00 | 42   | 58    | 40   | 54   | 46  | 41  | 38  | 39 | 32 | 27 | 23 | 10  |
| SUMMARY       | 42   | 64    | 40   | 56   | 44  | 40  | 39  | 38 | 31 | 24 | 25 | 16  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,15min 42

Max LAeq,15min 45

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 1 - 12.13 July

Saturday 12th July

| DAYTIME       |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmaz | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 07:00 - 08:00 | 42   | 64    | 39   | 56   | 47  | 42  | 38  | 37 | 33 | 28 | 25 | 17  |
| 08:00 - 09:00 | 45   | 66    | 41   | 54   | 47  | 43  | 41  | 41 | 37 | 31 | 27 | 24  |
| 09:00 - 10:00 | 39   | 59    | 37   | 48   | 45  | 39  | 35  | 35 | 28 | 28 | 24 | 24  |
| 10:00 - 11:00 | 40   | 57    | 36   | 50   | 47  | 41  | 36  | 34 | 29 | 26 | 22 | 25  |
| 11:00 - 12:00 | 40   | 61    | 36   | 51   | 47  | 42  | 35  | 34 | 29 | 25 | 21 | 27  |
| 12:00 - 13:00 | 39   | 70    | 36   | 49   | 46  | 40  | 36  | 33 | 28 | 25 | 23 | 29  |
| 13:00 - 14:00 | 40   | 60    | 37   | 52   | 46  | 42  | 37  | 35 | 29 | 23 | 20 | 26  |
| 14:00 - 15:00 | 45   | 68    | 39   | 52   | 55  | 46  | 42  | 40 | 33 | 25 | 22 | 25  |
| 15:00 - 16:00 | 43   | 64    | 41   | 48   | 46  | 44  | 41  | 40 | 31 | 26 | 23 | 26  |
| 16:00 - 17:00 | 42   | 63    | 41   | 48   | 43  | 41  | 40  | 39 | 32 | 25 | 24 | 24  |
| 17:00 - 18:00 | 42   | 58    | 40   | 48   | 46  | 42  | 39  | 38 | 30 | 24 | 29 | 21  |
| 18:00 - 19:00 | 39   | 60    | 37   | 48   | 44  | 41  | 36  | 35 | 26 | 24 | 18 | 15  |
| 19:00 - 20:00 | 39   | 63    | 34   | 47   | 43  | 41  | 37  | 33 | 26 | 26 | 30 | 14  |
| 20:00 - 21:00 | 37   | 58    | 34   | 47   | 42  | 37  | 35  | 31 | 25 | 18 | 22 | 11  |
| 21:00 - 22:00 | 36   | 63    | 34   | 46   | 39  | 36  | 34  | 32 | 25 | 26 | 23 | 12  |
| 22:00 - 23:00 | 38   | 49    | 36   | 46   | 40  | 38  | 35  | 34 | 26 | 14 | 11 | 10  |
| SUMMARY       | 41   | 67    | 34   | 50   | 47  | 42  | 38  | 37 | 31 | 26 | 25 | 24  |

During Pittter Commercials Ltd Opening Hours

Min LAeq,1hr 39

Max LAeq,1hr 45

| NIGHT-TIME    |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmaz | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 23:00 - 23:15 | 35   | 46    | 33   | 44   | 38  | 35  | 33  | 32 | 24 | 14 | 11 | 11  |
| 23:15 - 23:30 | 35   | 45    | 33   | 43   | 34  | 33  | 32  | 32 | 24 | 14 | 11 | 10  |
| 23:30 - 23:45 | 34   | 43    | 33   | 44   | 35  | 32  | 32  | 31 | 23 | 13 | 11 | 10  |
| 23:45 - 00:00 | 36   | 49    | 34   | 44   | 37  | 35  | 34  | 32 | 24 | 14 | 11 | 10  |
| 00:00 - 00:15 | 36   | 42    | 34   | 44   | 38  | 34  | 33  | 33 | 25 | 15 | 11 | 10  |
| 00:15 - 00:30 | 36   | 45    | 35   | 44   | 37  | 33  | 34  | 34 | 25 | 15 | 11 | 11  |
| 00:30 - 00:45 | 36   | 45    | 34   | 44   | 37  | 32  | 33  | 33 | 24 | 14 | 11 | 10  |
| 00:45 - 01:00 | 37   | 49    | 35   | 44   | 37  | 35  | 34  | 34 | 26 | 14 | 11 | 10  |
| 01:00 - 01:15 | 42   | 54    | 39   | 45   | 40  | 41  | 40  | 38 | 31 | 17 | 11 | 10  |
| 01:15 - 01:30 | 42   | 51    | 40   | 44   | 34  | 37  | 39  | 39 | 30 | 15 | 11 | 10  |
| 01:30 - 01:45 | 40   | 55    | 38   | 44   | 35  | 36  | 37  | 38 | 29 | 16 | 11 | 11  |
| 01:45 - 02:00 | 39   | 46    | 37   | 44   | 34  | 35  | 37  | 36 | 28 | 16 | 11 | 10  |
| 02:00 - 02:15 | 40   | 48    | 38   | 44   | 36  | 37  | 38  | 37 | 28 | 16 | 11 | 10  |
| 02:15 - 02:30 | 41   | 57    | 38   | 45   | 37  | 38  | 40  | 38 | 29 | 15 | 11 | 10  |
| 02:30 - 02:45 | 39   | 51    | 36   | 44   | 36  | 37  | 38  | 35 | 26 | 15 | 11 | 10  |
| 02:45 - 03:00 | 38   | 52    | 36   | 43   | 32  | 34  | 36  | 35 | 27 | 15 | 14 | 10  |
| 03:00 - 03:15 | 36   | 48    | 34   | 42   | 33  | 34  | 34  | 33 | 25 | 15 | 12 | 10  |
| 03:15 - 03:30 | 36   | 46    | 34   | 42   | 32  | 32  | 34  | 33 | 25 | 14 | 11 | 10  |
| 03:30 - 03:45 | 35   | 46    | 34   | 43   | 32  | 33  | 34  | 32 | 24 | 14 | 11 | 10  |
| 03:45 - 04:00 | 38   | 60    | 35   | 44   | 33  | 35  | 36  | 35 | 27 | 19 | 20 | 14  |
| 04:00 - 04:15 | 38   | 53    | 36   | 44   | 37  | 35  | 36  | 35 | 27 | 15 | 20 | 10  |
| 04:15 - 04:30 | 38   | 48    | 35   | 44   | 33  | 33  | 34  | 35 | 29 | 19 | 24 | 12  |
| 04:30 - 04:45 | 39   | 66    | 34   | 44   | 32  | 32  | 34  | 35 | 29 | 24 | 30 | 13  |
| 04:45 - 05:00 | 37   | 49    | 35   | 43   | 32  | 34  | 34  | 34 | 27 | 21 | 23 | 10  |
| 05:00 - 05:15 | 39   | 53    | 36   | 43   | 33  | 33  | 37  | 35 | 28 | 26 | 25 | 10  |
| 05:15 - 05:30 | 39   | 47    | 37   | 43   | 34  | 35  | 36  | 37 | 28 | 24 | 20 | 10  |
| 05:30 - 05:45 | 41   | 51    | 39   | 45   | 38  | 36  | 37  | 38 | 31 | 28 | 25 | 10  |
| 05:45 - 06:00 | 40   | 51    | 38   | 44   | 34  | 35  | 37  | 37 | 28 | 27 | 25 | 10  |
| 06:00 - 06:15 | 39   | 47    | 37   | 44   | 38  | 37  | 36  | 37 | 28 | 19 | 16 | 10  |
| 06:15 - 06:30 | 40   | 65    | 38   | 45   | 40  | 37  | 35  | 36 | 31 | 32 | 25 | 10  |
| 06:30 - 06:45 | 40   | 57    | 38   | 46   | 42  | 38  | 36  | 37 | 29 | 26 | 29 | 12  |
| 06:45 - 07:00 | 41   | 66    | 39   | 47   | 44  | 40  | 37  | 38 | 31 | 26 | 33 | 15  |
| SUMMARY       | 39   | 59    | 36   | 44   | 37  | 36  | 36  | 36 | 28 | 22 | 23 | 11  |

During Pittter Commercials Ltd Opening Hours

Min LAeq,15min N/A

Max LAeq,15min N/A

Measured Background Noise Level (06:00 - 07:00): Pittter Commercials Ltd closed on Sunday

Min LA90,15min 37

Max LA90,15min 39

Measured Residual Noise Level (06:00 - 07:00): Pittter Commercials Ltd closed on Sunday

Min LAeq,15min 39

Max LAeq,15min 41

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 1 - 13.14 July

Sunday 13th July

| DAYTIME       |      |      |      | LZeq |     |     |     |    |    |    |    |     |                                                                           |
|---------------|------|------|------|------|-----|-----|-----|----|----|----|----|-----|---------------------------------------------------------------------------|
| Time          | LAeq | LAmx | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |                                                                           |
| 07:00 - 08:00 | 40   | 63   | 38   | 48   | 44  | 40  | 37  | 36 | 29 | 26 | 24 | 10  |                                                                           |
| 08:00 - 09:00 | 40   | 63   | 37   | 50   | 44  | 39  | 37  | 35 | 27 | 26 | 33 | 19  |                                                                           |
| 09:00 - 10:00 | 40   | 58   | 38   | 51   | 44  | 39  | 37  | 36 | 29 | 23 | 22 | 23  |                                                                           |
| 10:00 - 11:00 | 44   | 63   | 42   | 54   | 46  | 43  | 43  | 40 | 32 | 23 | 20 | 26  | Preceding Hour to Cricket Event (Parking and other external activity)     |
| 11:00 - 12:00 | 46   | 69   | 41   | 56   | 49  | 45  | 44  | 42 | 33 | 23 | 20 | 25  | Cricket Event at Utilita Bowl                                             |
| 12:00 - 13:00 | 43   | 58   | 39   | 54   | 46  | 41  | 41  | 39 | 31 | 23 | 23 | 25  | Cricket Event at Utilita Bowl                                             |
| 13:00 - 14:00 | 42   | 57   | 39   | 55   | 45  | 41  | 41  | 39 | 32 | 22 | 20 | 26  | Cricket Event at Utilita Bowl                                             |
| 14:00 - 15:00 | 46   | 61   | 43   | 55   | 46  | 44  | 45  | 41 | 34 | 23 | 20 | 26  | Interim Hour between Cricket Events (Parking and other external activity) |
| 15:00 - 16:00 | 44   | 59   | 41   | 56   | 44  | 41  | 42  | 40 | 33 | 26 | 21 | 23  | Cricket Event at Utilita Bowl                                             |
| 16:00 - 17:00 | 46   | 63   | 42   | 58   | 47  | 43  | 44  | 42 | 36 | 24 | 20 | 20  | Cricket Event at Utilita Bowl                                             |
| 17:00 - 18:00 | 47   | 66   | 43   | 57   | 50  | 46  | 45  | 43 | 37 | 23 | 19 | 18  |                                                                           |
| 18:00 - 19:00 | 47   | 62   | 44   | 58   | 47  | 45  | 45  | 43 | 39 | 25 | 16 | 12  | Succeeding Hour to Cricket Event (Parking and other external activity)    |
| 19:00 - 20:00 | 42   | 52   | 40   | 57   | 43  | 40  | 39  | 38 | 30 | 25 | 17 | 11  |                                                                           |
| 20:00 - 21:00 | 41   | 58   | 39   | 54   | 43  | 39  | 37  | 37 | 30 | 23 | 29 | 12  |                                                                           |
| 21:00 - 22:00 | 53   | 88   | 38   | 55   | 44  | 40  | 40  | 52 | 43 | 31 | 27 | 14  |                                                                           |
| 22:00 - 23:00 | 40   | 55   | 38   | 54   | 43  | 40  | 37  | 36 | 28 | 18 | 14 | 11  |                                                                           |
| SUMMARY       | 45   | 68   | 38   | 55   | 46  | 42  | 42  | 43 | 35 | 25 | 25 | 22  |                                                                           |

During Pitter Commercials Ltd Opening Hours

Min LAeq,1hr N/A

Max LAeq,1hr N/A

| NIGHT-TIME    |      |      |      | LZeq |     |     |     |    |    |    |    |     |  |
|---------------|------|------|------|------|-----|-----|-----|----|----|----|----|-----|--|
| Time          | LAeq | LAmx | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |  |
| 23:00 - 23:15 | 38   | 48   | 37   | 55   | 39  | 37  | 36  | 35 | 27 | 17 | 14 | 11  |  |
| 23:15 - 23:30 | 40   | 56   | 37   | 55   | 41  | 40  | 38  | 36 | 26 | 16 | 13 | 11  |  |
| 23:30 - 23:45 | 40   | 53   | 37   | 55   | 45  | 42  | 38  | 35 | 27 | 17 | 13 | 10  |  |
| 23:45 - 00:00 | 37   | 49   | 35   | 55   | 42  | 36  | 35  | 33 | 26 | 16 | 11 | 11  |  |
| 00:00 - 00:15 | 36   | 45   | 34   | 54   | 38  | 35  | 33  | 32 | 25 | 16 | 13 | 11  |  |
| 00:15 - 00:30 | 39   | 60   | 35   | 55   | 38  | 38  | 38  | 34 | 26 | 16 | 12 | 11  |  |
| 00:30 - 00:45 | 40   | 54   | 35   | 54   | 38  | 34  | 35  | 36 | 33 | 26 | 22 | 14  |  |
| 00:45 - 01:00 | 34   | 41   | 33   | 55   | 37  | 33  | 31  | 29 | 23 | 15 | 11 | 10  |  |
| 01:00 - 01:15 | 34   | 55   | 32   | 54   | 38  | 34  | 30  | 30 | 23 | 16 | 12 | 10  |  |
| 01:15 - 01:30 | 32   | 43   | 32   | 54   | 36  | 32  | 29  | 28 | 22 | 15 | 12 | 10  |  |
| 01:30 - 01:45 | 32   | 41   | 31   | 53   | 36  | 32  | 28  | 28 | 22 | 15 | 12 | 10  |  |
| 01:45 - 02:00 | 36   | 43   | 35   | 59   | 39  | 33  | 31  | 29 | 26 | 19 | 13 | 10  |  |
| 02:00 - 02:15 | 40   | 45   | 40   | 64   | 44  | 37  | 34  | 33 | 30 | 22 | 14 | 10  |  |
| 02:15 - 02:30 | 37   | 44   | 36   | 60   | 41  | 33  | 32  | 30 | 26 | 19 | 15 | 11  |  |
| 02:30 - 02:45 | 37   | 42   | 36   | 61   | 40  | 34  | 31  | 31 | 26 | 18 | 14 | 10  |  |
| 02:45 - 03:00 | 34   | 47   | 32   | 55   | 36  | 34  | 30  | 29 | 24 | 19 | 15 | 11  |  |
| 03:00 - 03:15 | 35   | 43   | 33   | 57   | 38  | 33  | 30  | 29 | 24 | 18 | 14 | 10  |  |
| 03:15 - 03:30 | 36   | 47   | 35   | 60   | 38  | 34  | 32  | 31 | 25 | 19 | 15 | 10  |  |
| 03:30 - 03:45 | 33   | 41   | 32   | 54   | 36  | 32  | 29  | 29 | 23 | 17 | 14 | 10  |  |
| 03:45 - 04:00 | 33   | 43   | 31   | 55   | 36  | 31  | 29  | 28 | 23 | 16 | 16 | 10  |  |
| 04:00 - 04:15 | 34   | 50   | 31   | 55   | 37  | 32  | 29  | 29 | 23 | 15 | 14 | 10  |  |
| 04:15 - 04:30 | 37   | 56   | 33   | 57   | 38  | 33  | 31  | 31 | 26 | 23 | 33 | 14  |  |
| 04:30 - 04:45 | 36   | 48   | 35   | 59   | 38  | 35  | 32  | 31 | 26 | 19 | 19 | 10  |  |
| 04:45 - 05:00 | 40   | 57   | 33   | 54   | 36  | 33  | 32  | 34 | 35 | 26 | 23 | 10  |  |
| 05:00 - 05:15 | 38   | 64   | 33   | 51   | 44  | 38  | 35  | 34 | 28 | 23 | 21 | 10  |  |
| 05:15 - 05:30 | 39   | 59   | 37   | 59   | 40  | 37  | 36  | 33 | 26 | 24 | 30 | 12  |  |
| 05:30 - 05:45 | 39   | 63   | 36   | 57   | 40  | 37  | 36  | 35 | 29 | 21 | 20 | 10  |  |
| 05:45 - 06:00 | 40   | 62   | 37   | 56   | 41  | 39  | 36  | 36 | 30 | 24 | 21 | 10  |  |
| 06:00 - 06:15 | 43   | 57   | 41   | 61   | 51  | 41  | 38  | 37 | 33 | 26 | 22 | 10  |  |
| 06:15 - 06:30 | 43   | 66   | 39   | 55   | 49  | 41  | 37  | 37 | 31 | 31 | 37 | 17  |  |
| 06:30 - 06:45 | 44   | 59   | 41   | 59   | 50  | 45  | 40  | 39 | 35 | 27 | 21 | 11  |  |
| 06:45 - 07:00 | 46   | 70   | 41   | 57   | 50  | 47  | 43  | 42 | 36 | 25 | 24 | 11  |  |
| SUMMARY       | 39   | 63   | 33   | 57   | 43  | 38  | 35  | 34 | 29 | 22 | 25 | 11  |  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,15min 43

Max LAeq,15min 46

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 2 - 10.11 July

Thursday 10th July

| DAYTIME       |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmaz | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 07:00 - 08:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 08:00 - 09:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 09:00 - 10:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 10:00 - 11:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 11:00 - 12:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 12:00 - 13:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 13:00 - 14:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 14:00 - 15:00 |      |       |      |      |     |     |     |    |    |    |    |     |
| 15:00 - 16:00 |      | 35    | 54   | 33   | 47  | 41  | 36  | 31 | 30 | 25 | 23 | 22  |
| 16:00 - 17:00 | 44   | 74    | 38   | 51   | 46  | 42  | 37  | 35 | 32 | 37 | 39 | 17  |
| 17:00 - 18:00 | 42   | 60    | 39   | 53   | 49  | 44  | 39  | 36 | 31 | 30 | 28 | 18  |
| 18:00 - 19:00 | 45   | 71    | 40   | 53   | 49  | 45  | 42  | 39 | 34 | 34 | 33 | 19  |
| 19:00 - 20:00 | 41   | 65    | 39   | 50   | 48  | 41  | 38  | 36 | 30 | 29 | 32 | 18  |
| 20:00 - 21:00 | 43   | 62    | 39   | 52   | 49  | 42  | 41  | 37 | 33 | 28 | 32 | 18  |
| 21:00 - 22:00 | 43   | 58    | 40   | 55   | 50  | 43  | 39  | 38 | 35 | 28 | 28 | 23  |
| 22:00 - 23:00 | 49   | 63    | 45   | 62   | 55  | 43  | 43  | 44 | 42 | 35 | 26 | 25  |
| SUMMARY       | 44   | 72    | 36   | 55   | 50  | 43  | 40  | 39 | 35 | 33 | 33 | 20  |

Preceding Hour to Cricket Event (Parking and other external activity)  
Cricket Event at Utilita Bowl  
Cricket Event at Utilita Bowl  
Cricket Event at Utilita Bowl  
Succeeding Hour to Cricket Event (Parking and other external activity)

During Pitter Commercials Ltd Opening Hours  
Min LAeq,1hr 35 1complete measurement period  
Max LAeq,1hr 44

| NIGHT-TIME    |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmaz | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 23:00 - 23:15 | 41   | 64    | 38   | 54   | 43  | 41  | 40  | 35 | 28 | 21 | 26 | 26  |
| 23:15 - 23:30 | 40   | 51    | 38   | 54   | 45  | 41  | 37  | 35 | 27 | 21 | 26 | 25  |
| 23:30 - 23:45 | 38   | 48    | 36   | 53   | 42  | 38  | 34  | 33 | 26 | 20 | 26 | 25  |
| 23:45 - 00:00 | 38   | 48    | 37   | 54   | 42  | 37  | 35  | 35 | 26 | 19 | 26 | 25  |
| 00:00 - 00:15 | 40   | 50    | 38   | 52   | 43  | 38  | 38  | 36 | 28 | 21 | 26 | 25  |
| 00:15 - 00:30 | 40   | 49    | 38   | 49   | 41  | 37  | 38  | 36 | 28 | 19 | 22 | 22  |
| 00:30 - 00:45 | 40   | 63    | 38   | 49   | 41  | 37  | 37  | 37 | 28 | 19 | 20 | 21  |
| 00:45 - 01:00 | 38   | 49    | 37   | 49   | 40  | 37  | 37  | 34 | 27 | 18 | 22 | 22  |
| 01:00 - 01:15 | 38   | 53    | 36   | 49   | 42  | 38  | 35  | 34 | 27 | 25 | 27 | 24  |
| 01:15 - 01:30 | 36   | 47    | 34   | 49   | 37  | 33  | 34  | 32 | 25 | 18 | 22 | 21  |
| 01:30 - 01:45 | 36   | 52    | 34   | 49   | 38  | 34  | 34  | 32 | 25 | 19 | 23 | 22  |
| 01:45 - 02:00 | 36   | 48    | 34   | 49   | 38  | 33  | 34  | 32 | 24 | 17 | 22 | 24  |
| 02:00 - 02:15 | 36   | 53    | 34   | 48   | 38  | 34  | 34  | 32 | 24 | 20 | 22 | 23  |
| 02:15 - 02:30 | 37   | 52    | 35   | 48   | 38  | 35  | 35  | 33 | 26 | 19 | 22 | 23  |
| 02:30 - 02:45 | 37   | 55    | 35   | 48   | 39  | 35  | 36  | 32 | 26 | 20 | 23 | 23  |
| 02:45 - 03:00 | 38   | 48    | 36   | 49   | 39  | 35  | 36  | 33 | 26 | 21 | 22 | 22  |
| 03:00 - 03:15 | 38   | 50    | 36   | 50   | 41  | 36  | 36  | 34 | 26 | 21 | 23 | 22  |
| 03:15 - 03:30 | 38   | 50    | 36   | 49   | 40  | 36  | 36  | 34 | 27 | 20 | 22 | 21  |
| 03:30 - 03:45 | 37   | 44    | 36   | 49   | 39  | 36  | 35  | 34 | 26 | 18 | 20 | 20  |
| 03:45 - 04:00 | 38   | 46    | 37   | 49   | 41  | 39  | 36  | 34 | 26 | 18 | 19 | 20  |
| 04:00 - 04:15 | 38   | 43    | 36   | 49   | 39  | 34  | 35  | 34 | 27 | 19 | 18 | 16  |
| 04:15 - 04:30 | 58   | 78    | 45   | 49   | 39  | 36  | 37  | 36 | 37 | 54 | 55 | 31  |
| 04:30 - 04:45 | 55   | 81    | 40   | 50   | 40  | 38  | 39  | 37 | 31 | 46 | 54 | 29  |
| 04:45 - 05:00 | 49   | 79    | 40   | 50   | 43  | 42  | 41  | 39 | 31 | 40 | 48 | 25  |
| 05:00 - 05:15 | 47   | 72    | 41   | 49   | 41  | 38  | 40  | 41 | 36 | 38 | 43 | 19  |
| 05:15 - 05:30 | 44   | 61    | 42   | 48   | 41  | 39  | 41  | 40 | 31 | 30 | 35 | 14  |
| 05:30 - 05:45 | 45   | 56    | 43   | 49   | 43  | 41  | 42  | 42 | 33 | 30 | 28 | 13  |
| 05:45 - 06:00 | 46   | 63    | 44   | 50   | 45  | 42  | 42  | 43 | 33 | 34 | 39 | 16  |
| 06:00 - 06:15 | 51   | 71    | 43   | 50   | 43  | 41  | 41  | 42 | 33 | 45 | 48 | 23  |
| 06:15 - 06:30 | 46   | 76    | 42   | 51   | 43  | 42  | 41  | 41 | 32 | 38 | 41 | 15  |
| 06:30 - 06:45 | 48   | 70    | 41   | 52   | 47  | 43  | 39  | 39 | 30 | 42 | 45 | 22  |
| 06:45 - 07:00 | 47   | 73    | 41   | 51   | 45  | 41  | 39  | 38 | 30 | 41 | 44 | 23  |
| SUMMARY       | 38   | 55    | 34   | 50   | 41  | 37  | 36  | 34 | 26 | 20 | 23 | 23  |

During Pitter Commercials Ltd Opening Hours  
Min LAeq,15min 46 NB: Measurements heavily influenced by dawn chorus - see 4kHz and 8kHz Octave bands  
Max LAeq,15min 51 NB: Measurements heavily influenced by dawn chorus - see 4kHz and 8kHz Octave bands  
Similar high frequency noise levels measured at same time on morning of Sunday 13th July in which Pitter Commercials Ltd is closed

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 2 - 11.12 July

Friday 11th July

| DAYTIME       |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmaz | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 07:00 - 08:00 | 49   | 78    | 39   | 53   | 46  | 42  | 38  | 36 | 33 | 43 | 46 | 23  |
| 08:00 - 09:00 | 43   | 66    | 38   | 61   | 48  | 44  | 40  | 37 | 32 | 28 | 33 | 14  |
| 09:00 - 10:00 | 41   | 58    | 39   | 60   | 47  | 40  | 37  | 35 | 30 | 28 | 28 | 14  |
| 10:00 - 11:00 | 41   | 62    | 39   | 63   | 46  | 40  | 36  | 35 | 30 | 30 | 28 | 16  |
| 11:00 - 12:00 | 43   | 69    | 39   | 62   | 47  | 42  | 37  | 36 | 30 | 31 | 37 | 21  |
| 12:00 - 13:00 | 42   | 67    | 40   | 62   | 46  | 42  | 37  | 36 | 31 | 34 | 32 | 21  |
| 13:00 - 14:00 | 44   | 71    | 40   | 62   | 46  | 42  | 38  | 36 | 34 | 38 | 37 | 22  |
| 14:00 - 15:00 | 44   | 70    | 39   | 62   | 47  | 46  | 42  | 39 | 32 | 30 | 30 | 17  |
| 15:00 - 16:00 | 41   | 56    | 39   | 62   | 46  | 40  | 36  | 35 | 30 | 31 | 31 | 16  |
| 16:00 - 17:00 | 42   | 64    | 40   | 61   | 47  | 41  | 37  | 36 | 30 | 31 | 31 | 19  |
| 17:00 - 18:00 | 42   | 60    | 41   | 59   | 47  | 42  | 39  | 38 | 31 | 30 | 30 | 22  |
| 18:00 - 19:00 | 43   | 69    | 40   | 62   | 44  | 39  | 38  | 37 | 31 | 34 | 34 | 27  |
| 19:00 - 20:00 | 43   | 63    | 42   | 61   | 45  | 41  | 39  | 39 | 31 | 30 | 31 | 19  |
| 20:00 - 21:00 | 43   | 77    | 41   | 60   | 46  | 40  | 40  | 38 | 30 | 30 | 36 | 17  |
| 21:00 - 22:00 | 42   | 62    | 41   | 58   | 44  | 40  | 39  | 38 | 30 | 20 | 26 | 24  |
| 22:00 - 23:00 | 42   | 58    | 40   | 59   | 43  | 41  | 40  | 38 | 29 | 19 | 23 | 27  |
| SUMMARY       | 42   | 71    | 39   | 61   | 46  | 42  | 39  | 37 | 31 | 32 | 33 | 22  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,1hr 41

Max LAeq,1hr 49

| NIGHT-TIME    |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmaz | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 23:00 - 23:15 | 40   | 48    | 39   | 58   | 42  | 40  | 38  | 36 | 28 | 17 | 22 | 25  |
| 23:15 - 23:30 | 41   | 47    | 40   | 58   | 42  | 40  | 38  | 37 | 29 | 18 | 22 | 25  |
| 23:30 - 23:45 | 44   | 59    | 41   | 59   | 47  | 45  | 42  | 39 | 31 | 19 | 22 | 24  |
| 23:45 - 00:00 | 42   | 62    | 40   | 59   | 42  | 42  | 40  | 37 | 30 | 20 | 22 | 23  |
| 00:00 - 00:15 | 40   | 44    | 39   | 59   | 42  | 38  | 37  | 36 | 28 | 17 | 18 | 22  |
| 00:15 - 00:30 | 41   | 55    | 39   | 59   | 42  | 40  | 39  | 36 | 28 | 17 | 18 | 19  |
| 00:30 - 00:45 | 41   | 50    | 41   | 59   | 43  | 41  | 40  | 37 | 30 | 18 | 20 | 21  |
| 00:45 - 01:00 | 43   | 52    | 41   | 59   | 42  | 41  | 41  | 38 | 32 | 21 | 20 | 21  |
| 01:00 - 01:15 | 41   | 54    | 40   | 60   | 43  | 39  | 38  | 36 | 30 | 19 | 19 | 19  |
| 01:15 - 01:30 | 42   | 53    | 40   | 60   | 42  | 40  | 40  | 38 | 30 | 19 | 19 | 20  |
| 01:30 - 01:45 | 41   | 53    | 40   | 57   | 41  | 41  | 40  | 37 | 29 | 17 | 18 | 19  |
| 01:45 - 02:00 | 41   | 51    | 40   | 60   | 43  | 41  | 40  | 37 | 29 | 19 | 19 | 20  |
| 02:00 - 02:15 | 38   | 51    | 37   | 59   | 41  | 37  | 36  | 34 | 27 | 17 | 20 | 22  |
| 02:15 - 02:30 | 39   | 51    | 38   | 60   | 41  | 37  | 37  | 35 | 27 | 17 | 21 | 22  |
| 02:30 - 02:45 | 39   | 47    | 38   | 59   | 41  | 39  | 37  | 35 | 26 | 16 | 20 | 22  |
| 02:45 - 03:00 | 39   | 44    | 38   | 60   | 41  | 38  | 36  | 35 | 27 | 16 | 19 | 22  |
| 03:00 - 03:15 | 41   | 52    | 39   | 59   | 42  | 40  | 39  | 37 | 29 | 19 | 21 | 22  |
| 03:15 - 03:30 | 42   | 62    | 40   | 60   | 42  | 40  | 41  | 37 | 29 | 20 | 22 | 22  |
| 03:30 - 03:45 | 41   | 47    | 40   | 60   | 42  | 39  | 39  | 37 | 29 | 18 | 18 | 20  |
| 03:45 - 04:00 | 40   | 46    | 39   | 60   | 41  | 39  | 38  | 36 | 28 | 17 | 18 | 21  |
| 04:00 - 04:15 | 40   | 49    | 39   | 60   | 42  | 38  | 38  | 37 | 29 | 18 | 19 | 19  |
| 04:15 - 04:30 | 45   | 63    | 40   | 61   | 42  | 39  | 38  | 37 | 31 | 39 | 38 | 15  |
| 04:30 - 04:45 | 47   | 73    | 40   | 59   | 42  | 39  | 39  | 37 | 31 | 41 | 45 | 21  |
| 04:45 - 05:00 | 58   | 81    | 40   | 60   | 42  | 39  | 39  | 38 | 31 | 53 | 56 | 29  |
| 05:00 - 05:15 | 60   | 84    | 41   | 60   | 42  | 40  | 41  | 39 | 32 | 55 | 57 | 29  |
| 05:15 - 05:30 | 45   | 69    | 40   | 57   | 40  | 39  | 39  | 38 | 30 | 35 | 42 | 17  |
| 05:30 - 05:45 | 47   | 73    | 42   | 57   | 42  | 39  | 40  | 40 | 32 | 39 | 44 | 19  |
| 05:45 - 06:00 | 52   | 80    | 44   | 57   | 42  | 42  | 42  | 42 | 33 | 46 | 50 | 21  |
| 06:00 - 06:15 | 48   | 70    | 43   | 57   | 42  | 41  | 42  | 41 | 33 | 42 | 41 | 18  |
| 06:15 - 06:30 | 45   | 66    | 43   | 57   | 45  | 42  | 41  | 41 | 32 | 37 | 37 | 16  |
| 06:30 - 06:45 | 50   | 77    | 42   | 58   | 46  | 42  | 40  | 40 | 31 | 42 | 48 | 21  |
| 06:45 - 07:00 | 45   | 69    | 41   | 57   | 45  | 41  | 39  | 39 | 31 | 39 | 37 | 24  |
| SUMMARY       | 41   | 59    | 38   | 59   | 42  | 40  | 39  | 37 | 29 | 18 | 20 | 22  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,15min 45 NB: Measurements heavily influenced by dawn chorus - see 4kHz and 8kHz Octave bands

Max LAeq,15min 50 NB: Measurements heavily influenced by dawn chorus - see 4kHz and 8kHz Octave bands

Similar high frequency noise levels measured at same time on morning of Sunday 13th July in which Pitter Commercials Ltd is closed

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 2 - 12.13 July

Saturday 12th July

| DAYTIME       |      |       |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|-------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | LAmax | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 07:00 - 08:00 | 45   | 72    | 40   | 59   | 45  | 40  | 38  | 37 | 29 | 38 | 40 | 18  |
| 08:00 - 09:00 | 43   | 66    | 39   | 53   | 45  | 40  | 37  | 36 | 31 | 37 | 36 | 25  |
| 09:00 - 10:00 | 39   | 64    | 36   | 48   | 45  | 39  | 34  | 33 | 27 | 30 | 32 | 23  |
| 10:00 - 11:00 | 39   | 61    | 35   | 48   | 47  | 41  | 35  | 32 | 27 | 27 | 28 | 16  |
| 11:00 - 12:00 | 39   | 54    | 36   | 49   | 46  | 40  | 34  | 32 | 27 | 28 | 29 | 17  |
| 12:00 - 13:00 | 39   | 58    | 36   | 48   | 45  | 40  | 34  | 32 | 27 | 29 | 29 | 17  |
| 13:00 - 14:00 | 41   | 58    | 38   | 51   | 46  | 42  | 36  | 34 | 30 | 32 | 33 | 17  |
| 14:00 - 15:00 | 46   | 70    | 40   | 53   | 58  | 47  | 41  | 39 | 34 | 34 | 33 | 17  |
| 15:00 - 16:00 | 47   | 64    | 43   | 57   | 48  | 45  | 42  | 40 | 37 | 39 | 39 | 21  |
| 16:00 - 17:00 | 45   | 58    | 42   | 55   | 46  | 42  | 40  | 40 | 35 | 38 | 38 | 21  |
| 17:00 - 18:00 | 44   | 68    | 41   | 52   | 46  | 42  | 39  | 38 | 33 | 35 | 36 | 20  |
| 18:00 - 19:00 | 41   | 70    | 37   | 49   | 44  | 40  | 37  | 35 | 27 | 30 | 35 | 17  |
| 19:00 - 20:00 | 44   | 79    | 34   | 48   | 44  | 41  | 36  | 33 | 26 | 35 | 43 | 19  |
| 20:00 - 21:00 | 37   | 65    | 34   | 48   | 42  | 37  | 34  | 31 | 24 | 24 | 32 | 13  |
| 21:00 - 22:00 | 37   | 58    | 35   | 47   | 41  | 37  | 34  | 32 | 25 | 19 | 25 | 21  |
| 22:00 - 23:00 | 37   | 51    | 36   | 47   | 41  | 38  | 35  | 33 | 26 | 17 | 24 | 26  |
| SUMMARY       | 42   | 70    | 34   | 51   | 49  | 42  | 37  | 36 | 31 | 34 | 35 | 21  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,1hr 39

Max LAeq,1hr 45

| NIGHT-TIME    |      |      |      | LZeq |     |     |     |    |    |    |    |     |
|---------------|------|------|------|------|-----|-----|-----|----|----|----|----|-----|
| Time          | LAeq | Lmax | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |
| 23:00 - 23:15 | 36   | 43   | 35   | 46   | 39  | 36  | 34  | 32 | 25 | 17 | 25 | 27  |
| 23:15 - 23:30 | 36   | 45   | 35   | 45   | 37  | 35  | 34  | 32 | 26 | 18 | 26 | 28  |
| 23:30 - 23:45 | 36   | 43   | 35   | 46   | 38  | 35  | 34  | 32 | 24 | 17 | 25 | 28  |
| 23:45 - 00:00 | 36   | 42   | 35   | 45   | 38  | 36  | 33  | 32 | 25 | 18 | 25 | 28  |
| 00:00 - 00:15 | 37   | 42   | 35   | 45   | 38  | 35  | 34  | 33 | 26 | 19 | 24 | 27  |
| 00:15 - 00:30 | 37   | 53   | 35   | 45   | 37  | 35  | 34  | 33 | 26 | 24 | 27 | 27  |
| 00:30 - 00:45 | 36   | 48   | 34   | 44   | 36  | 33  | 32  | 32 | 25 | 19 | 25 | 27  |
| 00:45 - 01:00 | 37   | 49   | 36   | 45   | 37  | 36  | 35  | 34 | 26 | 18 | 25 | 27  |
| 01:00 - 01:15 | 41   | 60   | 39   | 46   | 40  | 41  | 39  | 38 | 32 | 21 | 24 | 26  |
| 01:15 - 01:30 | 41   | 50   | 39   | 45   | 35  | 38  | 39  | 38 | 29 | 17 | 20 | 21  |
| 01:30 - 01:45 | 39   | 53   | 37   | 44   | 36  | 37  | 37  | 37 | 28 | 17 | 22 | 24  |
| 01:45 - 02:00 | 38   | 47   | 37   | 45   | 36  | 36  | 36  | 35 | 28 | 17 | 21 | 23  |
| 02:00 - 02:15 | 40   | 51   | 38   | 45   | 36  | 37  | 38  | 36 | 28 | 17 | 20 | 21  |
| 02:15 - 02:30 | 40   | 59   | 37   | 47   | 36  | 37  | 38  | 37 | 29 | 17 | 20 | 20  |
| 02:30 - 02:45 | 38   | 50   | 36   | 44   | 36  | 37  | 37  | 34 | 28 | 18 | 20 | 20  |
| 02:45 - 03:00 | 37   | 48   | 35   | 44   | 34  | 35  | 35  | 34 | 26 | 17 | 19 | 19  |
| 03:00 - 03:15 | 36   | 50   | 34   | 44   | 34  | 35  | 34  | 32 | 25 | 19 | 20 | 21  |
| 03:15 - 03:30 | 36   | 46   | 34   | 44   | 33  | 33  | 33  | 32 | 25 | 16 | 20 | 19  |
| 03:30 - 03:45 | 35   | 42   | 34   | 44   | 33  | 34  | 33  | 31 | 25 | 16 | 17 | 17  |
| 03:45 - 04:00 | 37   | 50   | 35   | 45   | 34  | 35  | 35  | 34 | 26 | 17 | 17 | 17  |
| 04:00 - 04:15 | 38   | 51   | 36   | 45   | 37  | 37  | 36  | 34 | 26 | 18 | 17 | 14  |
| 04:15 - 04:30 | 39   | 60   | 35   | 45   | 34  | 35  | 35  | 34 | 29 | 24 | 32 | 15  |
| 04:30 - 04:45 | 41   | 65   | 35   | 44   | 33  | 34  | 35  | 34 | 28 | 29 | 38 | 16  |
| 04:45 - 05:00 | 40   | 67   | 36   | 44   | 33  | 34  | 36  | 34 | 27 | 30 | 34 | 14  |
| 05:00 - 05:15 | 45   | 75   | 37   | 45   | 34  | 34  | 37  | 36 | 28 | 40 | 41 | 15  |
| 05:15 - 05:30 | 44   | 68   | 39   | 45   | 35  | 36  | 37  | 38 | 29 | 34 | 42 | 19  |
| 05:30 - 05:45 | 52   | 76   | 40   | 46   | 38  | 38  | 38  | 39 | 31 | 46 | 49 | 22  |
| 05:45 - 06:00 | 42   | 63   | 39   | 45   | 36  | 36  | 37  | 37 | 30 | 31 | 37 | 15  |
| 06:00 - 06:15 | 41   | 63   | 38   | 46   | 39  | 37  | 36  | 37 | 31 | 29 | 32 | 14  |
| 06:15 - 06:30 | 58   | 86   | 38   | 46   | 40  | 37  | 36  | 36 | 30 | 54 | 56 | 28  |
| 06:30 - 06:45 | 50   | 76   | 39   | 47   | 41  | 38  | 36  | 37 | 33 | 40 | 49 | 25  |
| 06:45 - 07:00 | 42   | 63   | 39   | 48   | 43  | 40  | 37  | 38 | 29 | 30 | 34 | 13  |
| SUMMARY       | 38   | 53   | 34   | 45   | 36  | 36  | 36  | 34 | 27 | 18 | 23 | 25  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,15min N/A

Max LAeq,15min N/A

Measured Background Noise Level (06:00 - 07:00): Pitter Commercials Ltd closed on Sunday

Min LA90,15min 38

Max LA90,15min 39

Measured Residual Noise Level (06:00 - 07:00): Pitter Commercials Ltd closed on Sunday

Min LAeq,15min 41

Max LAeq,15min 58

Appendix C  
Measured datasets from Position 1 and Position 2 (Ref. F/26/100809)

Pos 2 - 13.14 July

Sunday 13th July

| DAYTIME       |      |      |      | LZeq |     |     |     |    |    |    |    |     |                                                                           |
|---------------|------|------|------|------|-----|-----|-----|----|----|----|----|-----|---------------------------------------------------------------------------|
| Time          | LAeq | LAmx | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |                                                                           |
| 07:00 - 08:00 | 48   | 76   | 38   | 49   | 44  | 40  | 37  | 36 | 30 | 37 | 47 | 23  |                                                                           |
| 08:00 - 09:00 | 44   | 81   | 37   | 49   | 44  | 40  | 37  | 35 | 27 | 36 | 42 | 18  |                                                                           |
| 09:00 - 10:00 | 41   | 72   | 38   | 50   | 44  | 39  | 36  | 35 | 29 | 30 | 36 | 18  |                                                                           |
| 10:00 - 11:00 | 43   | 62   | 40   | 53   | 48  | 41  | 39  | 38 | 32 | 31 | 32 | 18  | Preceding Hour to Cricket Event (Parking and other external activity)     |
| 11:00 - 12:00 | 45   | 70   | 39   | 55   | 50  | 45  | 43  | 41 | 33 | 31 | 31 | 17  | Cricket Event at Utilita Bowl                                             |
| 12:00 - 13:00 | 42   | 60   | 39   | 53   | 48  | 41  | 39  | 37 | 32 | 30 | 29 | 17  | Cricket Event at Utilita Bowl                                             |
| 13:00 - 14:00 | 42   | 64   | 38   | 54   | 48  | 40  | 37  | 36 | 31 | 31 | 34 | 17  | Cricket Event at Utilita Bowl                                             |
| 14:00 - 15:00 | 44   | 56   | 42   | 54   | 48  | 42  | 40  | 39 | 34 | 34 | 33 | 18  | Interim Hour between Cricket Events (Parking and other external activity) |
| 15:00 - 16:00 | 43   | 58   | 40   | 56   | 47  | 41  | 39  | 38 | 33 | 33 | 32 | 17  | Cricket Event at Utilita Bowl                                             |
| 16:00 - 17:00 | 44   | 64   | 42   | 57   | 48  | 42  | 40  | 40 | 35 | 32 | 35 | 17  | Cricket Event at Utilita Bowl                                             |
| 17:00 - 18:00 | 46   | 66   | 42   | 57   | 51  | 46  | 43  | 41 | 36 | 31 | 29 | 15  |                                                                           |
| 18:00 - 19:00 | 48   | 80   | 44   | 58   | 49  | 44  | 42  | 42 | 38 | 35 | 44 | 21  | Succeeding Hour to Cricket Event (Parking and other external activity)    |
| 19:00 - 20:00 | 55   | 84   | 40   | 57   | 43  | 40  | 38  | 38 | 33 | 45 | 55 | 29  |                                                                           |
| 20:00 - 21:00 | 41   | 62   | 38   | 54   | 44  | 39  | 37  | 36 | 30 | 28 | 30 | 14  |                                                                           |
| 21:00 - 22:00 | 40   | 61   | 38   | 52   | 44  | 40  | 37  | 35 | 28 | 24 | 26 | 23  |                                                                           |
| 22:00 - 23:00 | 39   | 53   | 37   | 52   | 42  | 40  | 37  | 35 | 27 | 21 | 27 | 27  |                                                                           |
| SUMMARY       | 46   | 81   | 37   | 55   | 47  | 42  | 40  | 38 | 33 | 35 | 44 | 22  |                                                                           |

During Pitter Commercials Ltd Opening Hours

Min LAeq,1hr N/A

Max LAeq,1hr N/A

| NIGHT-TIME    |      |      |      | LZeq |     |     |     |    |    |    |    |     |  |
|---------------|------|------|------|------|-----|-----|-----|----|----|----|----|-----|--|
| Time          | LAeq | LAmx | LA90 | 63   | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 16k |  |
| 23:00 - 23:15 | 39   | 52   | 37   | 52   | 40  | 36  | 35  | 35 | 27 | 25 | 28 | 27  |  |
| 23:15 - 23:30 | 39   | 54   | 37   | 51   | 42  | 40  | 38  | 35 | 26 | 22 | 26 | 26  |  |
| 23:30 - 23:45 | 40   | 55   | 37   | 52   | 45  | 42  | 38  | 35 | 27 | 25 | 28 | 27  |  |
| 23:45 - 00:00 | 37   | 50   | 35   | 52   | 38  | 34  | 34  | 33 | 26 | 22 | 27 | 27  |  |
| 00:00 - 00:15 | 36   | 43   | 35   | 50   | 38  | 34  | 33  | 32 | 24 | 20 | 27 | 27  |  |
| 00:15 - 00:30 | 39   | 60   | 35   | 52   | 38  | 38  | 38  | 34 | 25 | 18 | 27 | 27  |  |
| 00:30 - 00:45 | 43   | 59   | 40   | 51   | 39  | 34  | 35  | 35 | 35 | 38 | 38 | 28  |  |
| 00:45 - 01:00 | 34   | 45   | 32   | 52   | 37  | 32  | 31  | 30 | 22 | 17 | 24 | 26  |  |
| 01:00 - 01:15 | 35   | 54   | 32   | 52   | 37  | 34  | 31  | 30 | 22 | 19 | 26 | 27  |  |
| 01:15 - 01:30 | 33   | 45   | 31   | 52   | 36  | 31  | 29  | 27 | 21 | 19 | 26 | 28  |  |
| 01:30 - 01:45 | 34   | 44   | 32   | 50   | 37  | 31  | 29  | 28 | 23 | 24 | 28 | 28  |  |
| 01:45 - 02:00 | 35   | 43   | 34   | 52   | 36  | 32  | 32  | 30 | 25 | 25 | 27 | 27  |  |
| 02:00 - 02:15 | 37   | 45   | 35   | 52   | 37  | 35  | 34  | 32 | 26 | 23 | 26 | 26  |  |
| 02:15 - 02:30 | 35   | 52   | 33   | 53   | 35  | 33  | 32  | 29 | 24 | 23 | 26 | 26  |  |
| 02:30 - 02:45 | 36   | 49   | 35   | 60   | 37  | 34  | 32  | 30 | 24 | 23 | 27 | 27  |  |
| 02:45 - 03:00 | 36   | 48   | 33   | 56   | 36  | 35  | 31  | 29 | 25 | 25 | 28 | 27  |  |
| 03:00 - 03:15 | 34   | 44   | 32   | 53   | 35  | 33  | 30  | 28 | 23 | 21 | 26 | 27  |  |
| 03:15 - 03:30 | 37   | 49   | 35   | 60   | 38  | 35  | 32  | 31 | 25 | 25 | 27 | 27  |  |
| 03:30 - 03:45 | 34   | 41   | 32   | 55   | 35  | 33  | 29  | 28 | 21 | 19 | 26 | 27  |  |
| 03:45 - 04:00 | 34   | 47   | 31   | 53   | 34  | 32  | 29  | 28 | 22 | 22 | 27 | 27  |  |
| 04:00 - 04:15 | 34   | 45   | 32   | 54   | 36  | 33  | 30  | 28 | 22 | 18 | 28 | 27  |  |
| 04:15 - 04:30 | 36   | 50   | 34   | 57   | 38  | 35  | 32  | 30 | 24 | 19 | 27 | 24  |  |
| 04:30 - 04:45 | 44   | 74   | 35   | 61   | 39  | 35  | 33  | 30 | 23 | 30 | 43 | 24  |  |
| 04:45 - 05:00 | 45   | 72   | 33   | 55   | 37  | 34  | 32  | 30 | 30 | 36 | 45 | 22  |  |
| 05:00 - 05:15 | 37   | 64   | 33   | 48   | 40  | 35  | 33  | 30 | 24 | 25 | 33 | 14  |  |
| 05:15 - 05:30 | 41   | 66   | 37   | 60   | 40  | 37  | 35  | 33 | 26 | 33 | 38 | 15  |  |
| 05:30 - 05:45 | 50   | 80   | 36   | 57   | 40  | 37  | 35  | 32 | 26 | 38 | 51 | 28  |  |
| 05:45 - 06:00 | 41   | 68   | 37   | 57   | 42  | 38  | 35  | 34 | 28 | 31 | 35 | 16  |  |
| 06:00 - 06:15 | 43   | 71   | 39   | 61   | 44  | 40  | 37  | 36 | 30 | 32 | 40 | 19  |  |
| 06:15 - 06:30 | 50   | 77   | 38   | 51   | 44  | 40  | 37  | 35 | 29 | 41 | 49 | 24  |  |
| 06:30 - 06:45 | 51   | 78   | 40   | 57   | 46  | 42  | 38  | 37 | 30 | 42 | 50 | 24  |  |
| 06:45 - 07:00 | 53   | 88   | 41   | 57   | 50  | 47  | 45  | 43 | 48 | 47 | 46 | 33  |  |
| SUMMARY       | 37   | 55   | 32   | 54   | 38  | 36  | 33  | 31 | 26 | 27 | 29 | 27  |  |

During Pitter Commercials Ltd Opening Hours

Min LAeq,15min 43 NB: Measurements heavily influenced by dawn chorus - see 4kHz and 8kHz Octave bands

Max LAeq,15min 53 NB: Measurements heavily influenced by dawn chorus - see 4kHz and 8kHz Octave bands