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# **Noise Impact Assessment for a Proposed B8 and B2 Development**

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**Riverhill Yard, Worcester Park**



| <b>Report Quality Management</b>         |  |  |            |
|--|--|--|------------|
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# Contents

- 1 Introduction ..... 1**
- 2 Basis for Assessment & Assessment Methodology ..... 2**
  - Basis for Assessment..... 2
- 3 Baseline Noise Description ..... 7**
  - Establishing Baseline Conditions ..... 7
  - Measurement Results ..... 8
  - Representative Baseline Sound Levels..... 8
- 4 Calculations and Modelling ..... 10**
  - Modelled Noise Sources ..... 10
  - Model Results ..... 10
- 5 Assessment ..... 12**
  - BS 4142 Assessment..... 12
  - Summary..... 13
- 6 Uncertainty ..... 15**
- 7 Summary & Conclusions..... 16**

## **Tables, Figures and Appendices**

### **Tables**

**Table 2.1 Noise Exposure Hierarchy based on the Likely Average Response**

**Table 3.1 Baseline Sound Level Summary**

**Table 3.2 Representative Baseline Sound Levels**

**Table 4.1 Predicted Specific Sound Levels**

**Table 5.1: BS 4142:2014+A1:2019 Assessment (with HGVs)**

**Table 5.2: BS 4142:2014+A1:2019 Assessment (without HGVs)**

### **Figures**

**Figure 1: Site & Survey Locations**

**Figure 2: Measurement Time History**

**Figure 3: Specific Sound Levels**

### **Appendices**

#### **Appendices**

**Appendix A: BS 4142 Statements**

**Appendix B: Baseline Data**

# 1 Introduction

- 1.1 The Acoustics, Noise and Vibration Team at Savills has been appointed by NSS (Worcester Park) LLP to undertake a noise impact assessment in relation to a planning application for a proposed mixed B8 and B2 development, on land at Riverhill Yard, Worcester Park, South West London. The Site is located within the administrative area of Royal Borough of Kingston upon Thames (RBKT).
- 1.2 The assessment has been undertaken based upon information on the proposed development provided by the project team, which include for the erection of single storey offices, shipping containers for storage and a distribution depot.
- 1.3 The assessment considers potential adverse noise impacts affecting the 'nearest noise sensitive receptors' (NSRs) to the proposed development site.
- 1.4 The technical content of this assessment has been provided by Savills personnel, all of whom are corporate members, i.e. Member (MIOA) or Fellow (FIOA), or non-corporate Associate (AMIOA) members of the Institute of Acoustics (IOA), the UK's professional body for those working in acoustics, noise and vibration. The assessment has been undertaken with integrity, objectivity and honesty in accordance with the Code of Conduct of the IOA.
- 1.5 The Team is also a member of the Association of Noise Consultants (ANC) which seeks to raise the standards of acoustic consultancy and improve recognition of the vital role which good acoustics, and the management and mitigation of noise and vibration play in achieving good design and effective planning in the built and natural environment. Membership of the ANC indicates that the Team is sufficiently competent to pass the high standards for entry to the association.
- 1.6 This report and assessment has been peer reviewed within the Savills team to ensure that it is technically robust and meets the requirements of our Integrated Management System.
- 1.7 Personnel and individual qualifications are provided within the Quality Management table at the start of this report and in Appendix A in accordance with the requirement of Section 12 of British Standard (BS) 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' (BS 4142) [1].

## 2 Basis for Assessment & Assessment Methodology

### Basis for Assessment

- 2.1 This assessment has been undertaken to establish if operation of the proposed development, as currently considered, would be compliant with relevant national and local planning policy and guidance, upon which the proposed development planning application will be determined.

### National Planning Policy & Guidance

#### Noise Policy Statement for England

- 2.2 The Noise Policy Statement for England (NPSE) [2] sets out the long term overarching vision of Government noise policy, which is to promote good health and a good quality of life through the management of noise within the context of Government policy on sustainable development.
- 2.3 The NPSE describes a 'Noise Policy Vision' and three 'Noise Policy Aims' and states that these visions and aims provide:

*“the necessary clarity and direction to enable decisions to be made regarding what is an acceptable noise burden to place on society.”*

- 2.4 The 'Noise Policy Vision' is supported by the following aims:
1. avoid significant adverse impacts of health and quality of life;
  2. mitigate and minimise adverse impacts on health and quality of life; and
  3. where possible, contribute to the improvement of health and quality of life.
- 2.5 The aims of the policy differentiate between noise impacts on health and noise impacts on quality of life. The aims also differentiate between 'significant adverse impacts' and 'adverse impacts'. The explanatory note to the NPSE clarifies that a significant adverse impact is deemed to have occurred if the 'Significant Observed Adverse Effect Level' (SOAEL) is exceeded. An adverse effect, on the other hand, lies between the 'Lowest Observed Adverse Effect Level' (LOAEL) and the SOAEL.

#### National Planning Policy Framework

- 2.6 The National Planning Policy Framework (NPPF) [3] sets out the Government's planning policies for England and how these are expected to be applied. In relation to noise, Paragraph 185 of the NPPF states:

*“Planning policies and decisions should 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 or the wider area to impacts that could arise from the development. In doing so they should:*

- a) *mitigate and reduce to a minimum potential adverse impacts resulting from noise from the development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”*

Planning Practice Guidance - Noise

- 2.7 Planning Practice Guidance on Noise (PPG-N) [4] provides guidance to local planning authorities to ensure effective implementation of the planning policy set out in the NPPF.
- 2.8 The PPG-N reiterates general guidance on noise policy and assessment methods provided in the NPPF, NPSE and British Standards.
- 2.9 The PPG-N provides a relationship between various perceptions of noise, effect level and required action in accordance with the NPPF. This is reproduced in Table 2.1 below.
- 2.10 In line with the NPPF and NPSE, the PPG-N states that consideration needs to be given to mitigating and minimising effects above the LOAEL but taking account of the economic and social benefits being derived from the activity causing the noise.
- 2.11 In line with the NPPF and NPSE, the PPG-N states that effects above the SOAEL should be avoided and that, whilst the economic and social benefits being derived from the activity causing the noise must be taken into account, such exposures are undesirable.

**Table 2.1 Noise Exposure Hierarchy based on the Likely Average Response**

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

### Local Planning Policy & Consultation

2.12 The RBKT ‘Core Strategy’ document [5] sets out detailed development management policies to assess planning applications. Policy DM 10 ‘Design Requirements for New Developments (including House Extensions)’ of the document is considered pertinent with regard to this assessment, stating:

“ ...

*Development proposals should also:*

...

*k. have regard to the amenities of occupants and neighbours, including in terms of privacy, outlook, sunlight/daylight, avoidance of visual intrusion and noise and disturbance*

...”



### British Standard 4142

- 2.13 BS 4142 primarily provides a numerical method by which to determine the significance of sound of a commercial and/or industrial nature, i.e. the 'specific sound', at 'noise sensitive receptor' (NSR) locations.
- 2.14 The specific sound level may then be corrected for the character of the sound, if appropriate, and is then termed the 'Rating Level'.
- 2.15 The commentary to paragraph 9.2 of BS 4142 suggests the following subjective methods for the determination of the rating penalty for tonal, impulsive and/or intermittent specific sounds:

#### *"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 converted to a rating penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.*

#### *Impulsivity*

*A correction of up to +9 dB 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 converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.*

#### *Intermittency*

*When the specific sound has identifiable on/off conditions, the specific sound level should be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. ... If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.*

#### *Other sound characteristics*

*Where the specific sound features characteristics that are neither tonal nor impulsive, nor intermittent, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied."*

- 2.16 The Rating Level is then compared to the background sound level, which should be representative of the period being assessed.
- 2.17 An initial estimate of the impact of the specific sound is obtained by subtracting the representative background sound level from the Rating Level.
- 2.18 Typically, the greater this difference, the greater is the magnitude of the impact:

- 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.
- 2.19 The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. 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.
- 2.20 Whilst there is a relationship between the significance of impacts determined by the method contained within BS 4142 and the significance of effects described in the PPGN, there is not a direct link. It is not appropriate to ascribe numerical rating / background level differences to LOAEL and SOAEL because this fails to consider the context of the sound, which is a key requirement of the Standard.
- 2.21 The significance of the effect of the noise in question (i.e. whether above or below the SOAEL and LOAEL) should be determined on the basis of the significance of the initial estimate of impact from the BS 4142 assessment with reference to the examples of outcomes described within the PPGN and after having considered the context of the sound at the receptor/s affected.

## 3 Baseline Noise Description

- 3.1 The area of the proposed development is located on land at Riverhill Yard, Worcester Park. The area is bounded by the Hogsmill River to the south east, and the Rokeby Sports Ground to the north.
- 3.2 Road traffic movements on Kingston Road (A240) and Old Malden Lane (B284) are considered to be the primary sources of noise affecting the baseline acoustic environment at NSR locations.
- 3.3 The nearest NSRs to the proposed development site are residential dwellings on the new Gunpowder Road housing development on the opposite side of the Hogsmill River to. These are located approximately 50 metres from the boundary of the site. Other NSRs include the dwellings on the corner of Worcester Park Road (B284) and Cromwell Road, and the dwelling north of the side between the site boundary and The River Club.
- 3.4 The Site and survey locations are provided as Figure 1 at the end of this report.

### Establishing Baseline Conditions

- 3.5 In order to establish baseline acoustic conditions at the nearest NSRs, one unattended long term sound level survey was deployed on Friday 2<sup>nd</sup> June and collected on Friday 9<sup>th</sup> June 2023.
- 3.6 The sound level meter (SLM) was installed on the south-western boundary of the Site, approximately 70 m from the nearest residential dwellings on Worcester Park Road, in a location representative of the acoustic environment at the nearest dwellings.
- 3.7 The microphone was mounted on a metal fencing post at 2.5 m above ground level in a free-field position (at least 3.5 m from any reflecting surface, excluding the ground).
- 3.8 Sound level measurements were made using a NRST Mk3 sound level meter (SLM) in accordance with BS 7445-2:1991 'Description and measurement of environmental noise Part 2: Guide to the acquisition of data pertinent to land use' [6]. The SLM was set up to log the A-weighted broadband sound pressure level (SPL) in 125 ms periods. Raw data were post-processed into 15-minute periods.
- 3.9 The equipment calibration level was checked to 94 dB prior to and after the monitoring period; no significant deviation (i.e. above 0.5 dB) was noted.
- 3.10 At the time of setting up and collecting the survey, the following noise sources were noted as affecting the acoustic environment at the survey location: road traffic on the A240 and Worcester Park Road, birdsong and light running water sound from the Hogsmill River.



3.11 Meteorological conditions were monitored via a publicly accessible nearby weather station<sup>1</sup>. The survey period was dry and wind speeds were low and below 5 m/s. As such, no data have been removed from the subsequent analysis.

### Measurement Results

3.12 Table 3.1 below provides a summary of the baseline sound levels measured over the 8-day survey period at LT1, for the daytime (07:00 to 23:00 hours) and the night-time (23:00 to 07:00 hours) periods.

3.13 Figure A1 at the end of the report provides a graphical presentation of post processed 15-minute levels for LT1. Full 15-minute data are provided in Appendix B, along with a photo of the monitoring location.

**Table 3.1 Baseline Sound Level Summary**

| Period (hours)               | Background Sound Level (dB L <sub>A90,15min</sub> ) |                  |     |     |     | Residual Sound Levels (dB L <sub>Aeq,15min</sub> ) |     |     |     |     |
|------------------------------|---|------------------|-----|-----|-----|--|-----|-----|-----|-----|
|                              | Min   | 25% <sup>1</sup> | 50% | 75% | Max | Min  | 25% | 50% | 75% | Max |
| Daytime<br>07:00 to 23:00    | 39  | 45               | 46  | 48  | 50  | 44   | 53  | 55  | 56  | 76  |
| Night-time<br>23:00 to 07:00 | 38  | 39               | 40  | 41  | 46  | 38   | 42  | 46  | 50  | 57  |

Notes:  
 1. Percentile value, for example 25% is the value below which 25% of the data are found.

### Representative Baseline Sound Levels

3.14 BS 4142 requires that the background sound levels adopted for the assessment are representative of the period being assessed. The Standard recommends that the background sound level should be derived from continuous measurements of normally not less than 15-minute intervals, which can be contiguous or disaggregated (paragraph 8.13 of BS 4142).

3.15 However, the Standard states that there is no ‘single’ background sound level that can be derived from such measurements. It is particularly difficult to determine what is ‘representative’ of the night-time period because it can be subject to a wide variation in background sound levels between the beginning and end of the night period, and the quieter middle part of the night period. The accompanying note states that “a representative level should account for the range of background sounds levels and should not automatically be assumed to be either the minimum or modal value”.

<sup>1</sup> <https://www.wunderground.com/dashboard/pws/IWORCE84>

- 3.16 In this instance, the 25<sup>th</sup> percentile levels of the survey data have been used to characterise the baseline sound environment at all NSRs.
- 3.17 This is not the lowest sound level encountered but is lower than that obtained using the average. It therefore represents somewhere in the range of lower sound levels that are likely to be encountered and provides a precautionary assessment. For 75% of the time, baseline sound levels will be higher than the 25<sup>th</sup> percentile levels. Use of the 25<sup>th</sup> percentile ensures that any periods when higher wind speeds (or other extraneous noise) could have affected the measured baseline sound levels do not unduly affect the analysis.
- 3.18 Similarly, representative baseline residual levels have been based on the 25<sup>th</sup> percentile level. Table 3.2 below provides a summary of representative sound levels used in the subsequent assessment.

**Table 3.2 Representative Baseline Sound Levels**

| <b>Period</b>                | <b>Background Sound Level <math>L_{A90,T}</math> (dB)</b> | <b>Residual Sound Level <math>L_{Aeq,T}</math> (dB)</b> |
|------------------------------|---|---|
| Daytime<br>07:00 to 23:00    | 45  | 53  |
| Night-time<br>23:00 to 07:00 | 39  | 42  |

## 4 Calculations and Modelling

- 4.1 In order to calculate specific sound levels at the nearest NSRs associated with operation of the proposed development, a 3D sound model has been built using SoundPLAN v8.2 noise modelling software.
- 4.2 The model predicts sound levels under light down-wind conditions based on hemispherical sound propagation with corrections for atmospheric absorption, ground effects, screening and directivity based on the procedure detailed in ISO 9613-2:1996 'Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation' [7].

### Modelled Noise Sources

- 4.3 Based on the information provided by the client, the following noise sources have been included within the model:
- two car park area sources set to a standard engine starting spectrum;
  - one area source to simulate a loading area with diesel forklift acoustic details used; and
  - an HGV route set to a standard full road lorry source spectrum taken from BS 5228-1:2009 and set as a moving point source at 8 kmph.
- 4.4 The HGV movements in the area will not be overly frequent throughout the daytime period generally, and primarily only occurring during the 4-week period up to Christmas, with up to 10 deliveries per day. For this reason, two scenarios have been modelled in order to compare the specific sound levels without and without onsite HGV movements.
- 4.5 The following generic assumptions have been incorporated into the noise model:
- the topography of the site and the surrounding area has been obtained from publicly surveyed topographical data and Ordnance Survey (OS) 'Terrain 50' open data;
  - the effect of screening from solid structures (buildings) has been incorporated into the modelling process by importing OS Open Data 'Settlement Area' shape file data into the model; notably, the top roof area of Royal Buildings has been included, which effectively screens the rooftop plant area to NSRs to the north and east; and
  - the ground type in the model has been set to hard (G=0).

### Model Results

- 4.6 Table 4.1 below provides a summary of modelled specific sound levels at the nearest NSRs. All levels are free-field equivalent. Levels are for the floor of each building with the highest modelled specific sound level.



**Table 4.1 Predicted Specific Sound Levels**

| NSR                 | Specific Sound Level (dB $L_{Aeq, Tr}$ ) |                                |
|---------------------|--|--------------------------------|
|                     | With HGVs (07:00 to 23:00 hours)         | No HGVs (07:00 to 23:00 hours) |
| Gunpowder Road      | 45                                       | 35                             |
| Worcester Park Road | 35                                       | 24                             |

## 5 Assessment

### BS 4142 Assessment

- 5.1 With reference to BS 4142, a character correction can be applied to the specific sound level depending on the acoustic characteristics of the sound, determined at the NSRs, including tonality, impulsivity, intermittency and other readily distinctive features.
- 5.2 In this case, it is not considered appropriate to apply any character correction on the basis that any specific features would not be audible or readily distinctive above the residual acoustic environment (specific sound levels at least 8 dB below the daytime residual sound level). As such, modelled specific sound level are equal to the Rating Level.
- 5.3 On the basis of the above, and in accordance with BS 4142, Table 5.1 and Table 5.2 below provide an initial estimate of the noise impact at the nearest NSRs during operation of the proposed development for the two scenarios with and without onsite HGV movements included respectively.

**Table 5.1: BS 4142:2014+A1:2019 Assessment (with HGVs)**

| NSR                 | Specific Sound Level (dB L <sub>Aeq, T</sub> ) | Character Correction (dB) | Rating Level (dB L <sub>Ar, Tr</sub> ) | Background Level (dB L <sub>A90, T</sub> ) | Rating / Background Level Difference (dB) |
|---------------------|--|---------------------------|--|--|---|
| Gunpowder Road      | 45   | 0                         | 45                                     | 45   | 0   |
| Worcester Park Road | 35   | 0                         | 35                                     | 45   | -10                                       |

**Table 5.2: BS 4142:2014+A1:2019 Assessment (without HGVs)**

| NSR                 | Specific Sound Level (dB L <sub>Aeq, T</sub> ) | Character Correction (dB) | Rating Level (dB L <sub>Ar, Tr</sub> ) | Background Level (dB L <sub>A90, T</sub> ) | Rating / Background Level Difference (dB) |
|---------------------|--|---------------------------|--|--|---|
| Gunpowder Road      | 35   | 0                         | 35                                     | 45   | -10                                       |
| Worcester Park Road | 24   | 0                         | 24                                     | 45   | -21                                       |

- 5.4 With regards to the rating/background level difference, BS 4142 states:
- 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; and
  - the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.



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.

- 5.5 With reference to Table 5.1 above, as the Rating Level including onsite HGV movements does not exceed the background level at the nearest NSRs, it is considered that there would be a low risk for adverse impact and a very low risk for significant adverse impact.
- 5.6 In this case, it is considered that the context of the situation further reduces the risk for adverse impact, as summarised below.
- 5.7 With reference to Table 5.2 above, the Rating Level excluding onsite HGV movements is at least 10 dB below the background sound level, which is indicative of a very low risk for adverse impact, significant or otherwise.
- 5.8 On the basis of the above, and with reference to paragraph 3.10, as the baseline acoustic environment is primarily affected by road traffic movements on the A240 and Worcester Park Road, and that onsite HGV movements would be limited (approximately 10 per day), it is considered that the onsite HGV movements would not be discernible when compared to the residual sound, particularly as residual sound levels are at least 8 dB above noise levels with HGV movements. Operation of the site would not introduce new noise sources that may be considered to be intrusive, distinctive or incongruous in comparison to the residual acoustic environment.
- 5.9 In addition, onsite HGV movements would primarily occur during the 4-week run-up period to Christmas and, for the remainder of the year would be limited, further reducing the risk for adverse impacts due to reduced 'exposure' to that specific sound.
- 5.10 Furthermore, any onsite HGV movements would be limited to daytime hours, and would therefore not affect sleep.
- 5.11 On the basis of the above, and with reference to Table 2.1, it is considered that noise associated with operation of the proposed development would, at worst, result in effects below the LOAEL, i.e. the operation might be heard during quiet periods, but it would not be of a magnitude or character that would be sufficient to cause any change in behaviour, attitude or other physiological response. It would not affect the acoustic character, or result in any sleep disturbance.
- 5.12 Consequently, it is considered that operation of the proposed development would likely not be audibly discernible or adversely affect residential amenity and significant effects would be avoided.

## Summary

- 5.13 In summary, when considering noise from the proposed development, this would:
- result in maximum Rating Levels not exceeding the background sound level and more typically at least 8 dB below the background sound level;

- not introduce new noise sources of an intrusive, incongruous or otherwise distinguishable character; and
- be limited to daytime hours, and not affect sleep.

- 5.14 As such, and with reference to Table 2.1, it is considered that noise associated with operation of the proposed development would, at worst, result in effects below the LOAEL, i.e. the operation might be heard during quiet periods, but it would not be of a magnitude or character that would be sufficient to cause any change in behaviour, attitude or other physiological response. It would not affect the acoustic character of the area, or result in any sleep disturbance.
- 5.15 On the basis of the above, significant adverse noise impacts on health and the quality of life would not occur and the amenity of NSRs would not be compromised.
- 5.16 Consequently, from a noise perspective, the proposal would be compliant with national planning policy (the NPSE and the NPPF) and local planning policy (Policy DM10 of the RBKT Core Strategy).

## 6 Uncertainty

- 6.1 In all assessments, it is good practice to consider uncertainty which can arise from a number of different aspects. There are degrees of uncertainty associated with: instrumentation used for surveying; measurement technique and the variables influencing the measurement results such as transmission path and weather conditions; source terms used for modelling; calculation uncertainty; assessment uncertainty; and the subjective response of residents to noise sources.
- 6.2 Uncertainty due to instrumentation has been significantly reduced with the introduction of more modern instrumentation and is reduced further by undertaking field calibration checks on sound level meters before and after each measurement period and that all instrumentation is within accepted laboratory calibration intervals.
- 6.3 Every effort has been made to reduce the uncertainty of the baseline sound level measurements. The 8-day duration of the baseline survey is considered to significantly reduce the uncertainty associated with the baseline sound levels. Based on professional judgement including substantial experience of acquiring and analysing baseline data for numerous sites in various locations, and a desk-based review of the site and surrounding area, it is considered that the baseline data acquired during the survey is typical of the area.
- 6.4 With regards to subjective response, the noise standards adopted for the assessment will have been based upon the subjective response of the majority of the population or will be based upon the most likely response of the majority of the population. This is considered to be the best that can be achieved in a population of varying subjective response which will vary dependent upon a wide range of factors.
- 6.5 All areas and potential consequences of uncertainty have been minimised at every stage of the assessment process. On the basis of the above, and in the context of subjective response, the effects of uncertainty on the assessment are considered minimal.

## 7 Summary & Conclusions

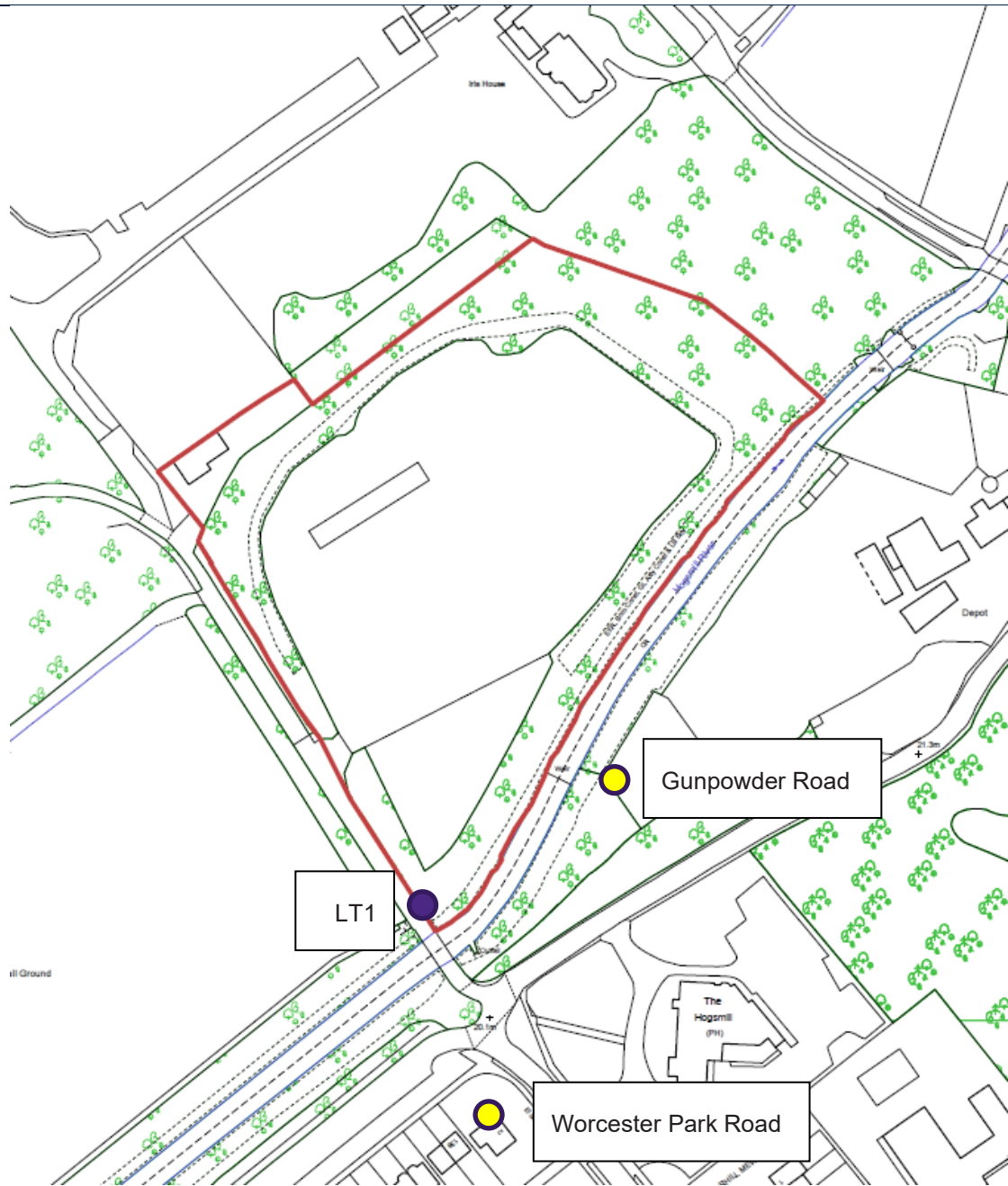
- 7.1 The Acoustics, Noise and Vibration Team at Savills has been appointed by NSS (Worcester Park) LLP to undertake a noise impact assessment in relation to a planning application for a proposed mixed B8 and B2 development, on land at the Riverhill Yard, Worcester Park, South West London. The Site is located within the administrative area of Royal Borough of Kingston upon Thames (RBKT).
- 7.2 The results of the assessment show that the operation of the proposed development would likely result in sound levels of a magnitude below the 'Lowest Observed Adverse Effect Level' (LOAEL).
- 7.3 As such, adverse noise impacts/effects associated with the operation of the proposed development would be avoided and residential amenity would not be adversely affected.
- 7.4 Consequently, from a noise perspective, the proposal would be compliant with both national planning policy (the 'National Planning Policy Framework') and local planning policy.

## References

- 1 British Standards Institution. British Standard 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound.
- 2 Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. Defra. 2010.
- 3 Ministry of Housing, Communities and Local Government. National Planning Policy Framework: HMSO. July 2021.
- 4 Department for Communities and Local Government. National Planning Practice Guidance
- 5 Royal Borough of Kingston upon Thames (RBKT) 'Core Strategy (2012)'
- 6 British Standards Institution. British Standard 7445-2:1991 'Description and measurement of environmental noise Part 2: Guide to the acquisition of data pertinent to land use.
- 7 ISO. International Standard ISO 9613-2:1996. Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation.



# Figures



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Notes

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Mocatta House, Trafalgar Place  
Brighton, East Sussex BN1 4DU

Client: NSS (Worcester Park)

Project: Riverhill Yard

Job Ref: 639258

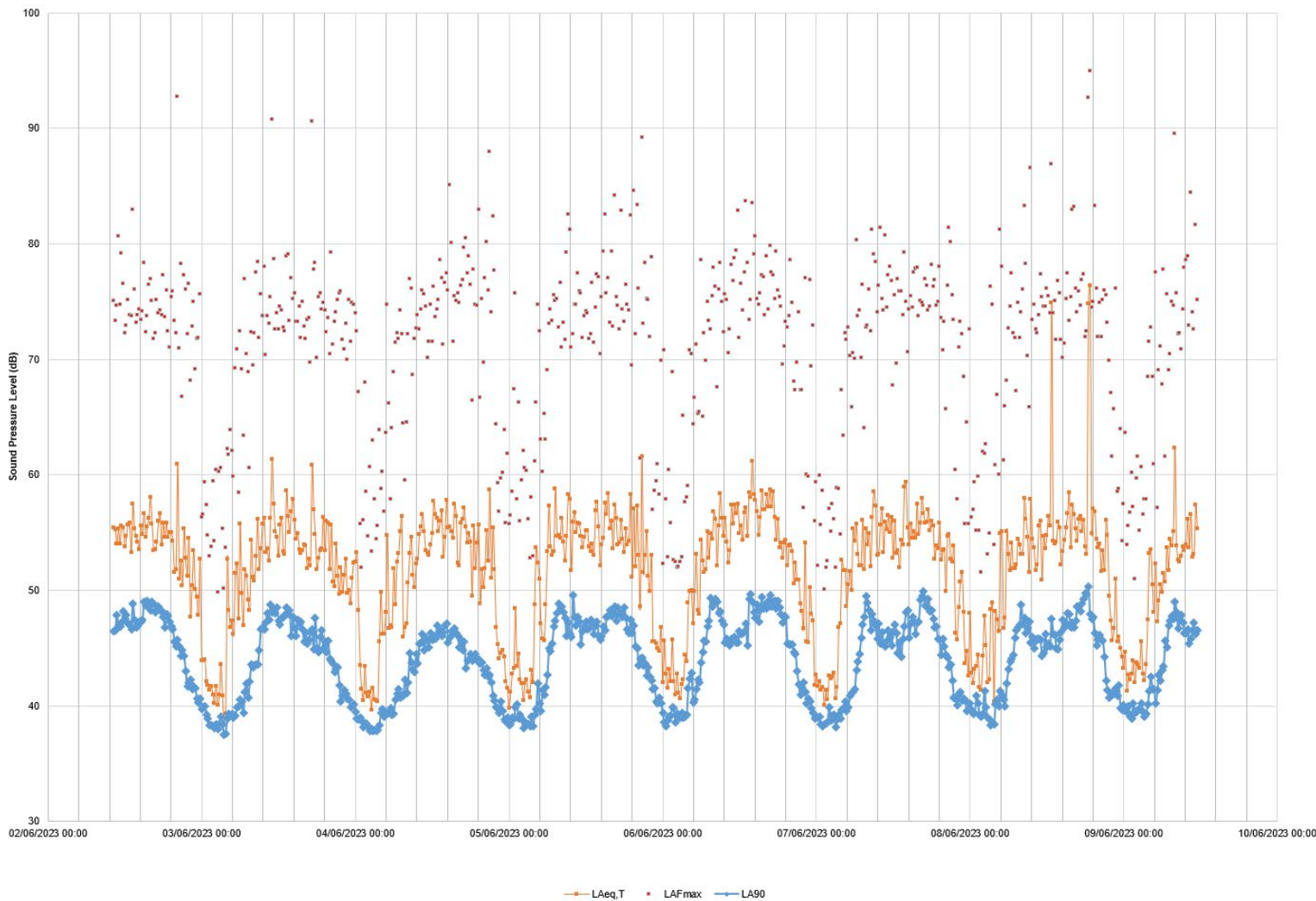
File location:

Date: 19/07/20233 Rev:01

Drawn: GR Checked: PB

**Figure 1: Site & Survey Locations**

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Mocatta House, Trafalgar Place  
Brighton, East Sussex BN1 4DU

Client: NSS (Worcester Park)

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File location:

Date: 19/07/2023

Rev: 01

Drawn: GR

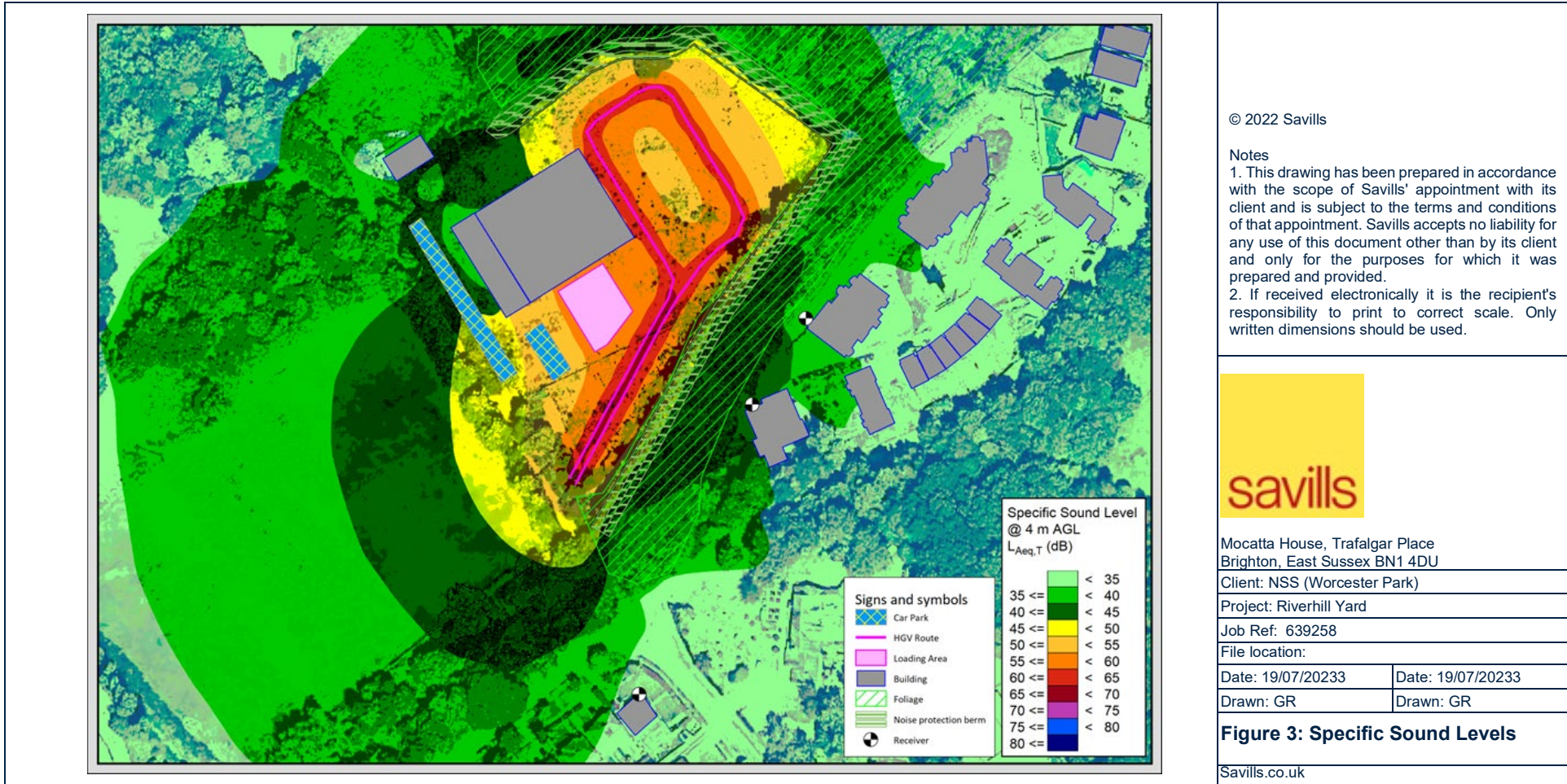
Checked:

**Figure 2: Measurement Time History**

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**NOISE IMPACT ASSESSMENT FOR A PROPOSED B8 AND B2 DEVELOPMENT**  
**RIVERHILL YARD, WORCESTER PARK**



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Drawn: GR

Drawn: GR

**Figure 3: Specific Sound Levels**

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## Appendices

## Appendix A: BS 4142 Statements

### Phil Evans: Director - Acoustics

*BSc (Hons) Geology; MSc Acoustics, Vibration and Noise Control; Fellow of the Geological Society; and Fellow of the Institute of Acoustics*

- A.1 Phil is a Director and leads the Savills Acoustics Team. He is a specialist in environmental acoustics and is active on a number of committees including the Association of Noise Consultants' Vibration Working Group; British Standards Institution (BSi) Committee GME/21/6/4 - BS 6472: Guide to Evaluation of Human Exposure to Vibration in Buildings; BSi Committee B/564/01 on BS 5228: Noise and Vibration Control on Construction and Open Sites which has now also revised and issued BS 8233:2014 Guidance on sound insulation and noise reduction in buildings. He has been a corporate member of the Institute of Acoustics (MIOA) for over 20 years and is now a Fellow.
- A.2 Phil has over 25 years' experience in the project management of, and technical input to, environmental noise and vibration impact assessments for major developments. He is an expert in the industrial/commercial, transportation and construction sectors including the measurement, calculation, evaluation and mitigation of environmental noise and vibration. Phil has significant experience in the preparation and presentation of technical evidence and reports for public inquiries and planning applications. He is experienced in consultation and liaison with government departments, local authorities and other statutory bodies. He is an experienced expert witness. He has a Continuous Professional Development Record to support this competency and experience.
- A.3 Phil has been involved in many BS 4142 noise assessments for both the previous and current 2014 version of BS 4142. He has given evidence at public inquiries where BS 4142 has been the primary assessment methodology. He is very familiar with the Standard and attended the joint ANC/BSi launch of the 2014 version of the Standard. On the basis of Phil's overall experience in acoustics combined with particular focus on BS 4142, he is deemed competent for BS 4142 assessments.
- A.4 For this project, Phil has taken on the role of Project Director and has been responsible for overseeing and delivering the project.



**Peter Barling: Associate - Acoustics**

*BSc (Hons) Physics; PGDip Environmental Assessment and Management; Member of the Institute of Acoustics*


- A.6 Peter is an Associate Consultant in Acoustics and environmental acoustics specialist with nine years' experience. He has a Degree in Physics and also has a Post Graduate Diploma in Environmental Assessment and Management. He has been a member of the Institute of Acoustics since 2013.
- A.7 Peter has project managed and undertaken noise assessments for a variety of developments, including: large scale mixed-use developments, incorporating commercial, retail, leisure and residential elements; on-shore substations for off-shore windfarms; energy from waste facilities; manufacturing facilities; distribution centres; retail units; minerals extraction and exploration; solar farms; and petrol service filling stations. He has provided input into Environmental Impact Assessments (EIAs) and undertaken noise assessments to support planning applications and discharge planning conditions. He has a Continuous Professional Development (CPD) Record to support this competency and experience.
- A.8 Peter has undertaken BS 4142 noise assessments for both the previous and current 2014 version of BS 4142. He is familiar with the Standard and has attended and participated in internal and external CPD training seminars regarding the revised 2014 version of the Standard. On the basis of Peter's overall experience in acoustics, combined with particular focus on BS 4142, he is deemed competent for BS 4142 assessments.



---

# Appendix B: Baseline Data

## Sound Level Survey Record

|   |                      |                      |                       |
|---|----------------------|----------------------|-----------------------|
| Project Name and Number   |                      | Riverhill            |                       |
| Location  |                      | LT1                  |                       |
| Purpose of Monitoring   |                      | Baseline             |                       |
| Relevant Guidance / Standard  |                      | BS 4142:2014         |                       |
| <b>Sound Measurement System</b>   |                      |                      |                       |
| ID  | Manufacturer / Model | Serial Number        | Last Lab Verification |
| -   | NSRT Mk3 SLM         | SLM1                 | 27/12/2021            |
| Microphone Height   | Façade / Freefield   | Measurement Interval | Filename              |
| 2.5   | Freefield            | 125 ms               | 1                     |
| <b>START</b>  |                      | <b>END</b>           |                       |
| Personnel   |                      | GR                   | GR                    |
| Date / time   |                      | 02/06/2023 10:15     | 09/06/2023 11:30      |
| Calibrator  | Reference level      | 94.0                 | 94.0                  |
|   | Meter reading        | 94.0                 | 93.8                  |
| Photographs of Measurement Location   |                      |                      |                       |
|   |                      |                      |                       |
| Description of site (location of equipment, general surroundings, nature of ground between NSR and sound source(s) (hard/ soft ground, topography, intervening features, reflecting surfaces))  |                      |                      |                       |
| The sound level meter (SLM) was installed on the south-western boundary of the Site, approximately 70 m from the nearest residential dwellings on Worcester Park Road, in a location representative of the acoustic environment at the nearest dwellings.                   |                      |                      |                       |
| Description of sound environment (principal environmental and natural sound sources, which sources are dominant, character of the sound environment cf. to the character of the new source)   |                      |                      |                       |
| At the time of setting up and collecting the survey, the following noise sources were noted as affecting the acoustic environment at the survey location: road traffic on the A240 and Worcester Park Road, birdsong and light running water sound from the Hogsmill River. |                      |                      |                       |



| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 02/06/2023 10:15        | 55.4     | 75.1      | 46.4     |
| 02/06/2023 10:30        | 55.3     | 73.4      | 46.6     |
| 02/06/2023 10:45        | 54.0     | 74.7      | 47.8     |
| 02/06/2023 11:00        | 55.3     | 80.7      | 46.9     |
| 02/06/2023 11:15        | 54.0     | 74.8      | 46.9     |
| 02/06/2023 11:30        | 55.6     | 79.2      | 47.2     |
| 02/06/2023 11:45        | 55.4     | 76.6      | 48.2     |
| 02/06/2023 12:00        | 53.7     | 72.3      | 47.5     |
| 02/06/2023 12:15        | 54.7     | 73.0      | 47.8     |
| 02/06/2023 12:30        | 55.7     | 75.2      | 47.1     |
| 02/06/2023 12:45        | 55.8     | 73.9      | 47.0     |
| 02/06/2023 13:00        | 53.3     | 73.8      | 46.7     |
| 02/06/2023 13:15        | 57.5     | 83.0      | 48.8     |
| 02/06/2023 13:30        | 55.3     | 76.1      | 47.5     |
| 02/06/2023 13:45        | 54.7     | 73.2      | 46.8     |
| 02/06/2023 14:00        | 54.2     | 73.9      | 46.9     |
| 02/06/2023 14:15        | 53.5     | 74.4      | 47.3     |
| 02/06/2023 14:30        | 55.5     | 73.5      | 47.3     |
| 02/06/2023 14:45        | 54.8     | 74.2      | 47.4     |
| 02/06/2023 15:00        | 56.7     | 78.4      | 49.0     |
| 02/06/2023 15:15        | 54.6     | 72.4      | 48.7     |
| 02/06/2023 15:30        | 55.5     | 73.8      | 49.1     |
| 02/06/2023 15:45        | 56.2     | 76.5      | 48.7     |
| 02/06/2023 16:00        | 58.0     | 77.0      | 48.3     |
| 02/06/2023 16:15        | 55.8     | 75.1      | 49.0     |
| 02/06/2023 16:30        | 53.4     | 71.8      | 48.8     |
| 02/06/2023 16:45        | 53.5     | 72.3      | 48.1     |
| 02/06/2023 17:00        | 54.2     | 75.2      | 48.3     |
| 02/06/2023 17:15        | 56.0     | 74.0      | 48.6     |
| 02/06/2023 17:30        | 56.7     | 74.3      | 48.3     |
| 02/06/2023 17:45        | 53.9     | 73.9      | 48.2     |
| 02/06/2023 18:00        | 55.8     | 77.3      | 47.7     |
| 02/06/2023 18:15        | 54.6     | 73.7      | 46.7     |
| 02/06/2023 18:30        | 55.9     | 76.0      | 48.0     |
| 02/06/2023 18:45        | 54.6     | 72.5      | 47.8     |
| 02/06/2023 19:00        | 55.0     | 71.1      | 47.3     |
| 02/06/2023 19:15        | 55.0     | 75.4      | 46.9     |
| 02/06/2023 19:30        | 54.2     | 75.9      | 46.7     |
| 02/06/2023 19:45        | 51.5     | 73.4      | 45.6     |
| 02/06/2023 20:00        | 51.8     | 72.3      | 45.1     |
| 02/06/2023 20:15        | 60.9     | 92.8      | 45.8     |
| 02/06/2023 20:30        | 51.0     | 71.0      | 45.2     |
| 02/06/2023 20:45        | 52.5     | 78.3      | 44.3     |
| 02/06/2023 21:00        | 50.4     | 66.8      | 44.8     |
| 02/06/2023 21:15        | 55.4     | 77.3      | 44.3     |
| 02/06/2023 21:30        | 52.8     | 76.1      | 43.0     |
| 02/06/2023 21:45        | 51.2     | 72.2      | 41.7     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 02/06/2023 22:00        | 54.5     | 76.6      | 42.0     |
| 02/06/2023 22:15        | 47.7     | 68.2      | 42.3     |
| 02/06/2023 22:30        | 50.4     | 72.9      | 41.4     |
| 02/06/2023 22:45        | 53.5     | 75.0      | 41.7     |
| 02/06/2023 23:00        | 50.1     | 69.2      | 41.5     |
| 02/06/2023 23:15        | 49.4     | 71.8      | 40.6     |
| 02/06/2023 23:30        | 47.8     | 71.9      | 40.3     |
| 02/06/2023 23:45        | 52.7     | 75.7      | 40.6     |
| 03/06/2023 00:00        | 43.9     | 56.4      | 39.7     |
| 03/06/2023 00:15        | 43.9     | 56.6      | 39.9     |
| 03/06/2023 00:30        | 44.0     | 59.4      | 40.0     |
| 03/06/2023 00:45        | 42.1     | 57.4      | 39.2     |
| 03/06/2023 01:00        | 41.8     | 54.8      | 38.9     |
| 03/06/2023 01:15        | 41.4     | 53.0      | 38.3     |
| 03/06/2023 01:30        | 41.7     | 53.8      | 38.3     |
| 03/06/2023 01:45        | 41.0     | 59.5      | 38.2     |
| 03/06/2023 02:00        | 40.2     | 54.3      | 38.1     |
| 03/06/2023 02:15        | 41.7     | 60.5      | 38.4     |
| 03/06/2023 02:30        | 40.0     | 49.9      | 38.0     |
| 03/06/2023 02:45        | 40.9     | 60.3      | 38.4     |
| 03/06/2023 03:00        | 43.6     | 60.6      | 39.0     |
| 03/06/2023 03:15        | 40.9     | 55.4      | 38.4     |
| 03/06/2023 03:30        | 38.4     | 50.2      | 37.5     |
| 03/06/2023 03:45        | 39.3     | 53.7      | 37.6     |
| 03/06/2023 04:00        | 52.7     | 62.3      | 38.9     |
| 03/06/2023 04:15        | 48.3     | 61.8      | 39.3     |
| 03/06/2023 04:30        | 46.8     | 63.9      | 39.1     |
| 03/06/2023 04:45        | 47.4     | 62.1      | 39.3     |
| 03/06/2023 05:00        | 46.2     | 59.9      | 38.9     |
| 03/06/2023 05:15        | 51.4     | 69.3      | 39.1     |
| 03/06/2023 05:30        | 52.3     | 70.9      | 39.9     |
| 03/06/2023 05:45        | 47.6     | 58.5      | 40.0     |
| 03/06/2023 06:00        | 55.8     | 72.5      | 40.5     |
| 03/06/2023 06:15        | 49.8     | 69.2      | 40.3     |
| 03/06/2023 06:30        | 47.0     | 63.4      | 39.4     |
| 03/06/2023 06:45        | 51.8     | 77.0      | 41.2     |
| 03/06/2023 07:00        | 51.2     | 70.5      | 42.0     |
| 03/06/2023 07:15        | 49.2     | 68.9      | 40.7     |
| 03/06/2023 07:30        | 48.3     | 60.6      | 42.1     |
| 03/06/2023 07:45        | 54.4     | 72.4      | 43.5     |
| 03/06/2023 08:00        | 51.1     | 69.5      | 43.4     |
| 03/06/2023 08:15        | 50.8     | 72.3      | 43.5     |
| 03/06/2023 08:30        | 53.0     | 77.6      | 43.6     |
| 03/06/2023 08:45        | 56.2     | 78.5      | 43.6     |
| 03/06/2023 09:00        | 51.8     | 71.9      | 44.8     |
| 03/06/2023 09:15        | 53.6     | 75.7      | 46.7     |
| 03/06/2023 09:30        | 55.7     | 73.8      | 46.8     |
| 03/06/2023 09:45        | 56.3     | 78.1      | 46.7     |
| 03/06/2023 10:00        | 53.3     | 70.4      | 47.2     |



| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 03/06/2023 10:15        | 53.6     | 73.8      | 48.0     |
| 03/06/2023 10:30        | 52.5     | 73.1      | 47.4     |
| 03/06/2023 10:45        | 56.2     | 75.4      | 48.8     |
| 03/06/2023 11:00        | 61.3     | 90.8      | 48.1     |
| 03/06/2023 11:15        | 57.4     | 78.7      | 48.3     |
| 03/06/2023 11:30        | 55.1     | 72.6      | 48.0     |
| 03/06/2023 11:45        | 54.6     | 74.0      | 48.5     |
| 03/06/2023 12:00        | 52.9     | 72.6      | 47.3     |
| 03/06/2023 12:15        | 55.7     | 74.6      | 47.0     |
| 03/06/2023 12:30        | 56.2     | 74.3      | 47.6     |
| 03/06/2023 12:45        | 53.4     | 72.8      | 47.7     |
| 03/06/2023 13:00        | 53.1     | 72.5      | 47.8     |
| 03/06/2023 13:15        | 58.7     | 79.0      | 48.5     |
| 03/06/2023 13:30        | 56.4     | 79.1      | 47.9     |
| 03/06/2023 13:45        | 55.0     | 73.4      | 48.2     |
| 03/06/2023 14:00        | 56.8     | 77.1      | 46.0     |
| 03/06/2023 14:15        | 57.9     | 75.3      | 47.7     |
| 03/06/2023 14:30        | 56.1     | 75.8      | 46.7     |
| 03/06/2023 14:45        | 54.4     | 73.3      | 46.1     |
| 03/06/2023 15:00        | 54.9     | 73.3      | 47.5     |
| 03/06/2023 15:15        | 53.5     | 74.6      | 47.1     |
| 03/06/2023 15:30        | 53.2     | 71.9      | 47.3     |
| 03/06/2023 15:45        | 53.4     | 75.0      | 46.6     |
| 03/06/2023 16:00        | 54.0     | 72.9      | 45.6     |
| 03/06/2023 16:15        | 53.9     | 71.8      | 46.4     |
| 03/06/2023 16:30        | 51.9     | 73.5      | 45.4     |
| 03/06/2023 16:45        | 52.7     | 73.6      | 45.7     |
| 03/06/2023 17:00        | 52.2     | 69.8      | 46.4     |
| 03/06/2023 17:15        | 60.9     | 90.6      | 46.6     |
| 03/06/2023 17:30        | 57.0     | 77.8      | 44.9     |
| 03/06/2023 17:45        | 54.8     | 78.4      | 47.6     |
| 03/06/2023 18:00        | 51.8     | 70.2      | 45.0     |
| 03/06/2023 18:15        | 52.8     | 75.4      | 44.6     |
| 03/06/2023 18:30        | 53.5     | 75.8      | 45.9     |
| 03/06/2023 18:45        | 53.6     | 74.4      | 46.6     |
| 03/06/2023 19:00        | 56.3     | 74.9      | 45.0     |
| 03/06/2023 19:15        | 53.5     | 74.3      | 45.6     |
| 03/06/2023 19:30        | 56.0     | 72.4      | 44.6     |
| 03/06/2023 19:45        | 55.8     | 73.6      | 45.7     |
| 03/06/2023 20:00        | 51.8     | 70.5      | 44.1     |
| 03/06/2023 20:15        | 55.6     | 79.3      | 43.9     |
| 03/06/2023 20:30        | 50.7     | 71.3      | 43.7     |
| 03/06/2023 20:45        | 50.3     | 73.3      | 42.9     |
| 03/06/2023 21:00        | 54.0     | 74.1      | 43.2     |
| 03/06/2023 21:15        | 51.2     | 75.2      | 43.3     |
| 03/06/2023 21:30        | 49.7     | 75.8      | 41.8     |
| 03/06/2023 21:45        | 52.0     | 75.9      | 40.3     |
| 03/06/2023 22:00        | 49.8     | 71.7      | 40.9     |
| 03/06/2023 22:15        | 51.3     | 70.9      | 41.4     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 03/06/2023 22:30        | 52.7     | 73.1      | 41.1     |
| 03/06/2023 22:45        | 49.7     | 70.0      | 40.6     |
| 03/06/2023 23:00        | 50.0     | 75.2      | 40.6     |
| 03/06/2023 23:15        | 48.8     | 71.6      | 39.9     |
| 03/06/2023 23:30        | 51.1     | 74.9      | 40.0     |
| 03/06/2023 23:45        | 52.4     | 74.8      | 40.2     |
| 04/06/2023 00:00        | 52.5     | 74.0      | 39.5     |
| 04/06/2023 00:15        | 53.2     | 72.5      | 38.9     |
| 04/06/2023 00:30        | 48.3     | 67.2      | 38.8     |
| 04/06/2023 00:45        | 43.5     | 55.8      | 39.0     |
| 04/06/2023 01:00        | 41.4     | 52.0      | 38.8     |
| 04/06/2023 01:15        | 40.5     | 56.1      | 38.2     |
| 04/06/2023 01:30        | 43.4     | 68.0      | 38.3     |
| 04/06/2023 01:45        | 41.1     | 58.6      | 38.5     |
| 04/06/2023 02:00        | 40.8     | 54.7      | 38.2     |
| 04/06/2023 02:15        | 41.2     | 60.7      | 37.8     |
| 04/06/2023 02:30        | 39.6     | 53.4      | 38.0     |
| 04/06/2023 02:45        | 41.5     | 63.0      | 37.8     |
| 04/06/2023 03:00        | 40.5     | 57.9      | 37.9     |
| 04/06/2023 03:15        | 40.4     | 54.5      | 37.8     |
| 04/06/2023 03:30        | 40.4     | 55.6      | 37.9     |
| 04/06/2023 03:45        | 45.6     | 63.9      | 38.3     |
| 04/06/2023 04:00        | 49.8     | 58.8      | 39.4     |
| 04/06/2023 04:15        | 46.2     | 60.3      | 39.7     |
| 04/06/2023 04:30        | 46.2     | 56.9      | 39.0     |
| 04/06/2023 04:45        | 48.1     | 63.7      | 39.4     |
| 04/06/2023 05:00        | 54.8     | 74.8      | 39.3     |
| 04/06/2023 05:15        | 46.7     | 66.2      | 39.4     |
| 04/06/2023 05:30        | 47.0     | 57.9      | 39.8     |
| 04/06/2023 05:45        | 46.8     | 64.1      | 39.2     |
| 04/06/2023 06:00        | 51.9     | 68.9      | 39.3     |
| 04/06/2023 06:15        | 48.8     | 71.5      | 40.5     |
| 04/06/2023 06:30        | 52.4     | 72.3      | 41.0     |
| 04/06/2023 06:45        | 53.2     | 71.8      | 41.5     |
| 04/06/2023 07:00        | 55.1     | 74.3      | 40.7     |
| 04/06/2023 07:15        | 56.4     | 72.2      | 41.0     |
| 04/06/2023 07:30        | 46.0     | 64.5      | 40.9     |
| 04/06/2023 07:45        | 46.8     | 59.6      | 42.3     |
| 04/06/2023 08:00        | 47.1     | 64.6      | 41.1     |
| 04/06/2023 08:15        | 50.6     | 72.2      | 42.0     |
| 04/06/2023 08:30        | 53.2     | 77.0      | 44.6     |
| 04/06/2023 08:45        | 54.6     | 76.2      | 43.8     |
| 04/06/2023 09:00        | 51.3     | 68.7      | 43.2     |
| 04/06/2023 09:15        | 50.2     | 71.8      | 42.9     |
| 04/06/2023 09:30        | 52.3     | 72.7      | 44.5     |
| 04/06/2023 09:45        | 52.7     | 73.9      | 43.6     |
| 04/06/2023 10:00        | 54.8     | 72.6      | 45.4     |
| 04/06/2023 10:15        | 55.5     | 74.4      | 45.5     |
| 04/06/2023 10:30        | 56.6     | 76.0      | 46.2     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 04/06/2023 10:45        | 55.1     | 75.7      | 44.8     |
| 04/06/2023 11:00        | 53.4     | 74.6      | 45.9     |
| 04/06/2023 11:15        | 53.3     | 70.2      | 45.6     |
| 04/06/2023 11:30        | 53.0     | 71.6      | 45.1     |
| 04/06/2023 11:45        | 53.9     | 74.8      | 46.3     |
| 04/06/2023 12:00        | 54.9     | 71.6      | 45.7     |
| 04/06/2023 12:15        | 57.7     | 76.3      | 46.0     |
| 04/06/2023 12:30        | 56.6     | 73.7      | 45.8     |
| 04/06/2023 12:45        | 56.2     | 74.4      | 46.9     |
| 04/06/2023 13:00        | 55.1     | 75.2      | 46.2     |
| 04/06/2023 13:15        | 56.0     | 78.6      | 46.5     |
| 04/06/2023 13:30        | 56.9     | 77.1      | 46.0     |
| 04/06/2023 13:45        | 52.9     | 71.3      | 46.4     |
| 04/06/2023 14:00        | 54.6     | 76.7      | 47.0     |
| 04/06/2023 14:15        | 57.8     | 77.5      | 47.2     |
| 04/06/2023 14:30        | 55.4     | 76.0      | 45.5     |
| 04/06/2023 14:45        | 55.5     | 85.1      | 45.9     |
| 04/06/2023 15:00        | 55.1     | 80.1      | 46.4     |
| 04/06/2023 15:15        | 54.5     | 71.6      | 46.3     |
| 04/06/2023 15:30        | 57.5     | 75.5      | 46.7     |
| 04/06/2023 15:45        | 56.4     | 75.1      | 46.3     |
| 04/06/2023 16:00        | 52.4     | 75.8      | 46.0     |
| 04/06/2023 16:15        | 52.1     | 74.9      | 45.1     |
| 04/06/2023 16:30        | 55.8     | 76.4      | 45.7     |
| 04/06/2023 16:45        | 56.2     | 76.9      | 44.8     |
| 04/06/2023 17:00        | 57.1     | 79.7      | 45.5     |
| 04/06/2023 17:15        | 55.5     | 80.5      | 43.2     |
| 04/06/2023 17:30        | 54.1     | 77.5      | 43.9     |
| 04/06/2023 17:45        | 54.9     | 79.0      | 44.0     |
| 04/06/2023 18:00        | 54.2     | 76.5      | 44.5     |
| 04/06/2023 18:15        | 49.5     | 66.5      | 43.9     |
| 04/06/2023 18:30        | 55.6     | 77.8      | 44.0     |
| 04/06/2023 18:45        | 51.9     | 74.8      | 44.5     |
| 04/06/2023 19:00        | 54.1     | 74.7      | 43.9     |
| 04/06/2023 19:15        | 55.6     | 83.0      | 44.0     |
| 04/06/2023 19:30        | 48.9     | 66.7      | 43.7     |
| 04/06/2023 19:45        | 51.8     | 75.3      | 43.7     |
| 04/06/2023 20:00        | 50.3     | 69.8      | 43.1     |
| 04/06/2023 20:15        | 51.9     | 77.1      | 42.7     |
| 04/06/2023 20:30        | 55.2     | 80.2      | 43.3     |
| 04/06/2023 20:45        | 52.6     | 76.0      | 42.5     |
| 04/06/2023 21:00        | 58.7     | 88.0      | 42.7     |
| 04/06/2023 21:15        | 51.0     | 74.1      | 42.0     |
| 04/06/2023 21:30        | 55.4     | 82.4      | 40.9     |
| 04/06/2023 21:45        | 51.8     | 77.7      | 40.5     |
| 04/06/2023 22:00        | 46.7     | 64.4      | 39.9     |
| 04/06/2023 22:15        | 45.3     | 59.3      | 39.8     |
| 04/06/2023 22:30        | 44.0     | 56.9      | 39.4     |
| 04/06/2023 22:45        | 44.6     | 59.7      | 40.4     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 04/06/2023 23:00        | 44.8     | 60.2      | 39.5     |
| 04/06/2023 23:15        | 44.3     | 63.9      | 38.8     |
| 04/06/2023 23:30        | 42.1     | 55.9      | 38.7     |
| 04/06/2023 23:45        | 41.5     | 61.9      | 39.0     |
| 05/06/2023 00:00        | 39.8     | 55.8      | 38.3     |
| 05/06/2023 00:15        | 41.2     | 56.5      | 38.4     |
| 05/06/2023 00:30        | 42.8     | 58.6      | 39.0     |
| 05/06/2023 00:45        | 43.3     | 67.5      | 38.9     |
| 05/06/2023 01:00        | 48.5     | 75.8      | 39.9     |
| 05/06/2023 01:15        | 43.4     | 57.9      | 40.1     |
| 05/06/2023 01:30        | 44.5     | 66.3      | 38.9     |
| 05/06/2023 01:45        | 42.3     | 56.0      | 39.2     |
| 05/06/2023 02:00        | 41.9     | 59.6      | 38.9     |
| 05/06/2023 02:15        | 40.5     | 62.1      | 38.0     |
| 05/06/2023 02:30        | 41.9     | 60.6      | 38.6     |
| 05/06/2023 02:45        | 42.2     | 60.4      | 38.5     |
| 05/06/2023 03:00        | 41.2     | 56.2      | 38.4     |
| 05/06/2023 03:15        | 40.7     | 52.8      | 38.2     |
| 05/06/2023 03:30        | 43.1     | 58.1      | 39.1     |
| 05/06/2023 03:45        | 42.0     | 53.0      | 38.2     |
| 05/06/2023 04:00        | 48.8     | 61.2      | 39.2     |
| 05/06/2023 04:15        | 53.7     | 66.3      | 39.7     |
| 05/06/2023 04:30        | 52.3     | 74.8      | 41.9     |
| 05/06/2023 04:45        | 51.0     | 72.5      | 40.3     |
| 05/06/2023 05:00        | 47.1     | 63.1      | 39.6     |
| 05/06/2023 05:15        | 45.8     | 60.3      | 41.4     |
| 05/06/2023 05:30        | 45.7     | 65.3      | 40.9     |
| 05/06/2023 05:45        | 48.8     | 63.1      | 41.6     |
| 05/06/2023 06:00        | 53.4     | 69.1      | 42.7     |
| 05/06/2023 06:15        | 57.3     | 73.1      | 45.0     |
| 05/06/2023 06:30        | 53.8     | 74.4      | 44.7     |
| 05/06/2023 06:45        | 53.1     | 73.4      | 45.4     |
| 05/06/2023 07:00        | 53.4     | 75.6      | 46.8     |
| 05/06/2023 07:15        | 58.8     | 75.1      | 47.3     |
| 05/06/2023 07:30        | 54.6     | 75.3      | 48.0     |
| 05/06/2023 07:45        | 54.7     | 72.8      | 48.8     |
| 05/06/2023 08:00        | 54.5     | 76.7      | 48.4     |
| 05/06/2023 08:15        | 56.2     | 71.1      | 48.6     |
| 05/06/2023 08:30        | 54.2     | 73.2      | 48.1     |
| 05/06/2023 08:45        | 52.5     | 71.7      | 47.6     |
| 05/06/2023 09:00        | 54.7     | 79.3      | 46.0     |
| 05/06/2023 09:15        | 58.3     | 82.6      | 47.2     |
| 05/06/2023 09:30        | 57.9     | 81.3      | 46.2     |
| 05/06/2023 09:45        | 51.7     | 71.1      | 46.0     |
| 05/06/2023 10:00        | 55.9     | 72.2      | 49.6     |
| 05/06/2023 10:15        | 56.8     | 74.8      | 47.7     |
| 05/06/2023 10:30        | 55.0     | 74.8      | 46.9     |
| 05/06/2023 10:45        | 55.8     | 77.5      | 47.7     |
| 05/06/2023 11:00        | 55.7     | 75.9      | 47.3     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 05/06/2023 11:15        | 54.6     | 75.8      | 45.3     |
| 05/06/2023 11:30        | 53.7     | 71.9      | 46.4     |
| 05/06/2023 11:45        | 54.6     | 73.8      | 46.9     |
| 05/06/2023 12:00        | 55.2     | 74.2      | 47.3     |
| 05/06/2023 12:15        | 55.1     | 74.0      | 46.6     |
| 05/06/2023 12:30        | 53.8     | 71.8      | 46.7     |
| 05/06/2023 12:45        | 53.4     | 72.2      | 47.4     |
| 05/06/2023 13:00        | 54.0     | 76.7      | 47.2     |
| 05/06/2023 13:15        | 53.0     | 71.5      | 46.2     |
| 05/06/2023 13:30        | 56.9     | 74.5      | 47.0     |
| 05/06/2023 13:45        | 57.7     | 77.4      | 47.3     |
| 05/06/2023 14:00        | 55.5     | 77.2      | 46.1     |
| 05/06/2023 14:15        | 52.2     | 70.5      | 45.7     |
| 05/06/2023 14:30        | 53.9     | 75.4      | 46.0     |
| 05/06/2023 14:45        | 54.5     | 79.4      | 46.9     |
| 05/06/2023 15:00        | 57.6     | 82.6      | 46.6     |
| 05/06/2023 15:15        | 56.5     | 75.8      | 47.7     |
| 05/06/2023 15:30        | 58.4     | 77.1      | 47.7     |
| 05/06/2023 15:45        | 55.3     | 73.2      | 48.3     |
| 05/06/2023 16:00        | 56.0     | 79.4      | 47.8     |
| 05/06/2023 16:15        | 53.6     | 72.9      | 48.0     |
| 05/06/2023 16:30        | 57.4     | 84.2      | 48.6     |
| 05/06/2023 16:45        | 56.2     | 75.4      | 47.4     |
| 05/06/2023 17:00        | 53.9     | 74.7      | 48.5     |
| 05/06/2023 17:15        | 54.1     | 72.6      | 47.9     |
| 05/06/2023 17:30        | 56.1     | 82.9      | 48.0     |
| 05/06/2023 17:45        | 54.5     | 74.4      | 47.7     |
| 05/06/2023 18:00        | 53.3     | 73.3      | 48.5     |
| 05/06/2023 18:15        | 55.3     | 76.5      | 47.6     |
| 05/06/2023 18:30        | 53.9     | 74.8      | 46.6     |
| 05/06/2023 18:45        | 54.2     | 74.3      | 46.3     |
| 05/06/2023 19:00        | 58.3     | 82.5      | 47.4     |
| 05/06/2023 19:15        | 51.1     | 69.5      | 46.3     |
| 05/06/2023 19:30        | 57.1     | 84.6      | 46.9     |
| 05/06/2023 19:45        | 52.0     | 72.2      | 45.1     |
| 05/06/2023 20:00        | 57.3     | 83.4      | 45.0     |
| 05/06/2023 20:15        | 53.0     | 76.2      | 43.5     |
| 05/06/2023 20:30        | 48.6     | 61.5      | 44.1     |
| 05/06/2023 20:45        | 61.6     | 89.2      | 44.2     |
| 05/06/2023 21:00        | 51.5     | 73.1      | 43.5     |
| 05/06/2023 21:15        | 53.0     | 78.4      | 43.7     |
| 05/06/2023 21:30        | 55.1     | 75.3      | 42.6     |
| 05/06/2023 21:45        | 51.2     | 75.2      | 43.3     |
| 05/06/2023 22:00        | 49.9     | 72.0      | 42.5     |
| 05/06/2023 22:15        | 53.0     | 78.9      | 42.2     |
| 05/06/2023 22:30        | 45.6     | 57.0      | 41.4     |
| 05/06/2023 22:45        | 45.6     | 58.7      | 41.5     |
| 05/06/2023 23:00        | 45.4     | 59.5      | 40.3     |
| 05/06/2023 23:15        | 45.0     | 61.0      | 40.2     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 05/06/2023 23:30        | 44.7     | 58.3      | 40.7     |
| 05/06/2023 23:45        | 46.8     | 69.9      | 40.2     |
| 06/06/2023 00:00        | 42.0     | 52.3      | 39.4     |
| 06/06/2023 00:15        | 45.6     | 70.8      | 38.5     |
| 06/06/2023 00:30        | 42.8     | 57.9      | 38.3     |
| 06/06/2023 00:45        | 41.5     | 52.9      | 38.7     |
| 06/06/2023 01:00        | 43.2     | 60.5      | 39.1     |
| 06/06/2023 01:15        | 42.1     | 55.9      | 39.1     |
| 06/06/2023 01:30        | 45.7     | 68.9      | 39.9     |
| 06/06/2023 01:45        | 42.1     | 52.7      | 39.8     |
| 06/06/2023 02:00        | 41.0     | 52.5      | 38.6     |
| 06/06/2023 02:15        | 42.8     | 52.0      | 39.3     |
| 06/06/2023 02:30        | 41.2     | 52.1      | 39.1     |
| 06/06/2023 02:45        | 40.6     | 52.5      | 39.0     |
| 06/06/2023 03:00        | 41.9     | 52.9      | 39.4     |
| 06/06/2023 03:15        | 42.3     | 65.2      | 38.9     |
| 06/06/2023 03:30        | 44.4     | 57.7      | 39.1     |
| 06/06/2023 03:45        | 43.8     | 58.1      | 39.2     |
| 06/06/2023 04:00        | 48.9     | 59.1      | 41.5     |
| 06/06/2023 04:15        | 49.9     | 70.8      | 42.4     |
| 06/06/2023 04:30        | 50.0     | 70.5      | 42.8     |
| 06/06/2023 04:45        | 47.1     | 64.4      | 40.3     |
| 06/06/2023 05:00        | 49.9     | 66.7      | 40.5     |
| 06/06/2023 05:15        | 53.1     | 71.3      | 41.5     |
| 06/06/2023 05:30        | 48.2     | 65.3      | 42.3     |
| 06/06/2023 05:45        | 47.9     | 65.5      | 42.0     |
| 06/06/2023 06:00        | 54.4     | 78.6      | 43.8     |
| 06/06/2023 06:15        | 52.6     | 65.1      | 44.6     |
| 06/06/2023 06:30        | 51.6     | 72.3      | 45.6     |
| 06/06/2023 06:45        | 51.8     | 69.9      | 45.6     |
| 06/06/2023 07:00        | 55.1     | 75.0      | 46.9     |
| 06/06/2023 07:15        | 52.8     | 73.4      | 47.4     |
| 06/06/2023 07:30        | 54.9     | 72.6      | 49.3     |
| 06/06/2023 07:45        | 54.4     | 75.5      | 48.6     |
| 06/06/2023 08:00        | 56.8     | 78.0      | 48.9     |
| 06/06/2023 08:15        | 56.1     | 76.3      | 49.2     |
| 06/06/2023 08:30        | 52.1     | 67.6      | 49.0     |
| 06/06/2023 08:45        | 55.6     | 76.1      | 48.0     |
| 06/06/2023 09:00        | 58.3     | 78.4      | 48.2     |
| 06/06/2023 09:15        | 56.3     | 75.0      | 47.3     |
| 06/06/2023 09:30        | 54.7     | 72.4      | 47.1     |
| 06/06/2023 09:45        | 56.2     | 75.7      | 45.5     |
| 06/06/2023 10:00        | 54.2     | 75.2      | 45.8     |
| 06/06/2023 10:15        | 52.4     | 70.6      | 45.4     |
| 06/06/2023 10:30        | 53.4     | 72.6      | 45.3     |
| 06/06/2023 10:45        | 57.4     | 78.2      | 45.8     |
| 06/06/2023 11:00        | 55.8     | 76.8      | 45.7     |
| 06/06/2023 11:15        | 57.4     | 78.8      | 46.0     |
| 06/06/2023 11:30        | 56.6     | 79.5      | 45.5     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 06/06/2023 11:45        | 57.5     | 82.9      | 45.5     |
| 06/06/2023 12:00        | 55.0     | 71.9      | 46.4     |
| 06/06/2023 12:15        | 55.5     | 76.6      | 46.2     |
| 06/06/2023 12:30        | 54.3     | 74.3      | 46.3     |
| 06/06/2023 12:45        | 56.7     | 77.6      | 46.5     |
| 06/06/2023 13:00        | 57.2     | 83.7      | 47.1     |
| 06/06/2023 13:15        | 54.7     | 78.4      | 45.2     |
| 06/06/2023 13:30        | 58.5     | 73.5      | 49.3     |
| 06/06/2023 13:45        | 58.1     | 75.2      | 49.7     |
| 06/06/2023 14:00        | 61.1     | 83.6      | 49.0     |
| 06/06/2023 14:15        | 58.3     | 79.1      | 48.1     |
| 06/06/2023 14:30        | 57.8     | 80.7      | 47.6     |
| 06/06/2023 14:45        | 56.8     | 75.3      | 48.8     |
| 06/06/2023 15:00        | 54.7     | 74.8      | 47.3     |
| 06/06/2023 15:15        | 56.3     | 75.8      | 48.3     |
| 06/06/2023 15:30        | 58.6     | 77.3      | 49.4     |
| 06/06/2023 15:45        | 57.0     | 77.2      | 48.4     |
| 06/06/2023 16:00        | 57.0     | 73.9      | 48.8     |
| 06/06/2023 16:15        | 58.3     | 79.0      | 48.4     |
| 06/06/2023 16:30        | 57.2     | 74.4      | 49.1     |
| 06/06/2023 16:45        | 58.7     | 79.9      | 49.6     |
| 06/06/2023 17:00        | 57.2     | 77.6      | 48.6     |
| 06/06/2023 17:15        | 58.6     | 77.3      | 49.0     |
| 06/06/2023 17:30        | 56.3     | 75.3      | 49.1     |
| 06/06/2023 17:45        | 54.4     | 79.4      | 48.4     |
| 06/06/2023 18:00        | 56.1     | 76.0      | 49.1     |
| 06/06/2023 18:15        | 53.7     | 75.4      | 48.5     |
| 06/06/2023 18:30        | 54.1     | 74.6      | 48.0     |
| 06/06/2023 18:45        | 52.8     | 69.6      | 47.2     |
| 06/06/2023 19:00        | 54.1     | 71.2      | 47.8     |
| 06/06/2023 19:15        | 54.3     | 73.3      | 47.7     |
| 06/06/2023 19:30        | 52.2     | 72.8      | 45.4     |
| 06/06/2023 19:45        | 53.8     | 73.8      | 45.3     |
| 06/06/2023 20:00        | 53.9     | 78.6      | 45.3     |
| 06/06/2023 20:15        | 53.3     | 74.9      | 45.3     |
| 06/06/2023 20:30        | 50.6     | 68.1      | 44.6     |
| 06/06/2023 20:45        | 52.4     | 67.4      | 44.5     |
| 06/06/2023 21:00        | 50.9     | 69.8      | 43.0     |
| 06/06/2023 21:15        | 50.9     | 74.1      | 41.8     |
| 06/06/2023 21:30        | 48.8     | 67.4      | 41.0     |
| 06/06/2023 21:45        | 48.1     | 67.4      | 41.6     |
| 06/06/2023 22:00        | 46.7     | 57.2      | 42.0     |
| 06/06/2023 22:15        | 54.1     | 77.1      | 41.2     |
| 06/06/2023 22:30        | 45.5     | 60.1      | 40.2     |
| 06/06/2023 22:45        | 45.5     | 59.9      | 40.6     |
| 06/06/2023 23:00        | 50.2     | 76.9      | 40.4     |
| 06/06/2023 23:15        | 47.9     | 69.4      | 39.8     |
| 06/06/2023 23:30        | 47.3     | 73.0      | 39.4     |
| 06/06/2023 23:45        | 41.8     | 56.0      | 38.9     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 07/06/2023 00:00        | 42.7     | 59.4      | 39.1     |
| 07/06/2023 00:15        | 41.7     | 52.2      | 39.0     |
| 07/06/2023 00:30        | 42.1     | 60.0      | 39.0     |
| 07/06/2023 00:45        | 41.4     | 55.7      | 38.4     |
| 07/06/2023 01:00        | 41.6     | 58.7      | 38.3     |
| 07/06/2023 01:15        | 40.0     | 50.1      | 38.4     |
| 07/06/2023 01:30        | 41.3     | 52.0      | 38.5     |
| 07/06/2023 01:45        | 40.6     | 52.6      | 38.6     |
| 07/06/2023 02:00        | 42.6     | 57.1      | 39.9     |
| 07/06/2023 02:15        | 42.4     | 55.1      | 38.7     |
| 07/06/2023 02:30        | 42.5     | 57.5      | 39.2     |
| 07/06/2023 02:45        | 42.9     | 56.2      | 39.2     |
| 07/06/2023 03:00        | 40.6     | 52.0      | 38.1     |
| 07/06/2023 03:15        | 41.6     | 58.9      | 38.8     |
| 07/06/2023 03:30        | 46.8     | 58.8      | 39.2     |
| 07/06/2023 03:45        | 47.1     | 54.9      | 38.9     |
| 07/06/2023 04:00        | 52.7     | 67.4      | 39.7     |
| 07/06/2023 04:15        | 51.7     | 63.4      | 39.8     |
| 07/06/2023 04:30        | 51.7     | 72.3      | 40.4     |
| 07/06/2023 04:45        | 48.6     | 71.7      | 39.5     |
| 07/06/2023 05:00        | 50.5     | 72.8      | 39.9     |
| 07/06/2023 05:15        | 51.6     | 70.3      | 40.9     |
| 07/06/2023 05:30        | 50.0     | 65.9      | 41.1     |
| 07/06/2023 05:45        | 55.3     | 70.6      | 41.2     |
| 07/06/2023 06:00        | 54.3     | 70.1      | 41.4     |
| 07/06/2023 06:15        | 55.8     | 80.4      | 43.1     |
| 07/06/2023 06:30        | 53.1     | 73.8      | 43.9     |
| 07/06/2023 06:45        | 52.1     | 74.3      | 44.5     |
| 07/06/2023 07:00        | 52.2     | 70.2      | 45.8     |
| 07/06/2023 07:15        | 56.0     | 76.5      | 47.0     |
| 07/06/2023 07:30        | 51.8     | 64.1      | 47.7     |
| 07/06/2023 07:45        | 55.3     | 72.8      | 49.5     |
| 07/06/2023 08:00        | 54.0     | 73.0      | 49.0     |
| 07/06/2023 08:15        | 54.9     | 76.1      | 48.3     |
| 07/06/2023 08:30        | 52.1     | 72.5      | 46.6     |
| 07/06/2023 08:45        | 56.3     | 81.3      | 47.9     |
| 07/06/2023 09:00        | 58.5     | 79.1      | 47.4     |
| 07/06/2023 09:15        | 57.3     | 78.5      | 46.9     |
| 07/06/2023 09:30        | 53.1     | 74.1      | 45.8     |
| 07/06/2023 09:45        | 53.1     | 76.4      | 47.1     |
| 07/06/2023 10:00        | 55.7     | 81.4      | 45.4     |
| 07/06/2023 10:15        | 57.1     | 75.3      | 46.4     |
| 07/06/2023 10:30        | 53.3     | 74.3      | 45.3     |
| 07/06/2023 10:45        | 55.9     | 80.8      | 45.2     |
| 07/06/2023 11:00        | 55.3     | 74.5      | 45.7     |
| 07/06/2023 11:15        | 56.5     | 77.3      | 46.5     |
| 07/06/2023 11:30        | 55.0     | 78.1      | 45.9     |
| 07/06/2023 11:45        | 56.3     | 76.8      | 45.2     |
| 07/06/2023 12:00        | 52.8     | 67.8      | 46.4     |



| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 07/06/2023 12:15        | 56.0     | 75.6      | 47.1     |
| 07/06/2023 12:30        | 53.2     | 69.7      | 46.3     |
| 07/06/2023 12:45        | 53.5     | 77.0      | 44.5     |
| 07/06/2023 13:00        | 51.9     | 75.9      | 45.5     |
| 07/06/2023 13:15        | 54.4     | 75.9      | 44.2     |
| 07/06/2023 13:30        | 53.9     | 73.9      | 45.8     |
| 07/06/2023 13:45        | 59.0     | 79.3      | 46.8     |
| 07/06/2023 14:00        | 59.3     | 75.0      | 48.1     |
| 07/06/2023 14:15        | 55.4     | 70.7      | 48.2     |
| 07/06/2023 14:30        | 53.9     | 74.4      | 45.9     |
| 07/06/2023 14:45        | 55.7     | 75.5      | 47.1     |
| 07/06/2023 15:00        | 54.5     | 74.5      | 47.7     |
| 07/06/2023 15:15        | 55.1     | 77.6      | 47.3     |
| 07/06/2023 15:30        | 54.5     | 77.9      | 46.2     |
| 07/06/2023 15:45        | 57.5     | 78.0      | 47.2     |
| 07/06/2023 16:00        | 54.8     | 73.8      | 47.3     |
| 07/06/2023 16:15        | 55.8     | 75.1      | 49.2     |
| 07/06/2023 16:30        | 58.0     | 74.9      | 49.5     |
| 07/06/2023 16:45        | 56.7     | 74.7      | 49.9     |
| 07/06/2023 17:00        | 55.9     | 77.0      | 48.7     |
| 07/06/2023 17:15        | 55.9     | 76.4      | 48.6     |
| 07/06/2023 17:30        | 57.0     | 74.3      | 49.3     |
| 07/06/2023 17:45        | 55.1     | 74.6      | 48.2     |
| 07/06/2023 18:00        | 56.0     | 78.2      | 48.3     |
| 07/06/2023 18:15        | 55.6     | 76.3      | 47.5     |
| 07/06/2023 18:30        | 52.7     | 76.9      | 46.8     |
| 07/06/2023 18:45        | 53.9     | 74.7      | 46.9     |
| 07/06/2023 19:00        | 53.6     | 75.0      | 45.8     |
| 07/06/2023 19:15        | 55.8     | 78.1      | 45.7     |
| 07/06/2023 19:30        | 52.6     | 73.6      | 44.4     |
| 07/06/2023 19:45        | 53.4     | 70.8      | 45.8     |
| 07/06/2023 20:00        | 53.5     | 73.3      | 45.2     |
| 07/06/2023 20:15        | 49.9     | 65.7      | 44.4     |
| 07/06/2023 20:30        | 54.7     | 76.4      | 44.2     |
| 07/06/2023 20:45        | 54.8     | 81.4      | 43.3     |
| 07/06/2023 21:00        | 52.7     | 80.2      | 43.6     |
| 07/06/2023 21:15        | 52.5     | 75.6      | 42.2     |
| 07/06/2023 21:30        | 53.8     | 73.5      | 40.7     |
| 07/06/2023 21:45        | 46.3     | 60.5      | 40.6     |
| 07/06/2023 22:00        | 45.7     | 57.9      | 40.1     |
| 07/06/2023 22:15        | 48.5     | 71.1      | 41.1     |
| 07/06/2023 22:30        | 50.8     | 73.3      | 41.2     |
| 07/06/2023 22:45        | 51.6     | 72.2      | 40.5     |
| 07/06/2023 23:00        | 48.1     | 68.5      | 40.7     |
| 07/06/2023 23:15        | 43.7     | 55.8      | 40.4     |
| 07/06/2023 23:30        | 44.8     | 64.6      | 39.6     |
| 07/06/2023 23:45        | 42.6     | 55.8      | 39.7     |
| 08/06/2023 00:00        | 48.0     | 72.6      | 40.2     |
| 08/06/2023 00:15        | 42.9     | 56.4      | 39.6     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 08/06/2023 00:30        | 42.0     | 57.0      | 39.3     |
| 08/06/2023 00:45        | 43.2     | 59.4      | 39.4     |
| 08/06/2023 01:00        | 43.4     | 55.2      | 40.9     |
| 08/06/2023 01:15        | 44.4     | 59.9      | 40.2     |
| 08/06/2023 01:30        | 41.6     | 55.2      | 39.2     |
| 08/06/2023 01:45        | 41.3     | 51.6      | 39.0     |
| 08/06/2023 02:00        | 44.3     | 62.0      | 39.3     |
| 08/06/2023 02:15        | 47.8     | 61.9      | 41.3     |
| 08/06/2023 02:30        | 45.2     | 62.7      | 39.9     |
| 08/06/2023 02:45        | 42.0     | 53.2      | 39.0     |
| 08/06/2023 03:00        | 42.3     | 55.0      | 38.8     |
| 08/06/2023 03:15        | 48.3     | 76.3      | 38.3     |
| 08/06/2023 03:30        | 49.0     | 74.8      | 38.5     |
| 08/06/2023 03:45        | 40.4     | 54.0      | 38.4     |
| 08/06/2023 04:00        | 48.2     | 60.9      | 40.1     |
| 08/06/2023 04:15        | 47.4     | 67.0      | 40.6     |
| 08/06/2023 04:30        | 46.4     | 60.1      | 40.0     |
| 08/06/2023 04:45        | 54.9     | 81.3      | 41.2     |
| 08/06/2023 05:00        | 55.1     | 78.1      | 41.0     |
| 08/06/2023 05:15        | 46.7     | 61.3      | 40.6     |
| 08/06/2023 05:30        | 47.6     | 66.0      | 40.0     |
| 08/06/2023 05:45        | 55.1     | 68.2      | 42.0     |
| 08/06/2023 06:00        | 53.1     | 72.7      | 43.2     |
| 08/06/2023 06:15        | 51.7     | 74.6      | 43.8     |
| 08/06/2023 06:30        | 54.1     | 77.5      | 44.0     |
| 08/06/2023 06:45        | 51.9     | 72.3      | 44.4     |
| 08/06/2023 07:00        | 51.9     | 71.9      | 45.9     |
| 08/06/2023 07:15        | 52.2     | 67.3      | 46.6     |
| 08/06/2023 07:30        | 54.4     | 74.9      | 46.8     |
| 08/06/2023 07:45        | 53.9     | 71.9      | 47.1     |
| 08/06/2023 08:00        | 53.1     | 74.1      | 48.8     |
| 08/06/2023 08:15        | 53.1     | 76.1      | 47.1     |
| 08/06/2023 08:30        | 58.0     | 83.3      | 47.6     |
| 08/06/2023 08:45        | 56.1     | 78.3      | 46.3     |
| 08/06/2023 09:00        | 54.6     | 70.3      | 46.7     |
| 08/06/2023 09:15        | 51.5     | 65.9      | 47.2     |
| 08/06/2023 09:30        | 57.9     | 86.6      | 45.5     |
| 08/06/2023 09:45        | 54.4     | 73.5      | 46.0     |
| 08/06/2023 10:00        | 53.7     | 74.8      | 45.0     |
| 08/06/2023 10:15        | 51.7     | 72.6      | 45.6     |
| 08/06/2023 10:30        | 52.2     | 72.3      | 45.8     |
| 08/06/2023 10:45        | 55.6     | 73.9      | 45.8     |
| 08/06/2023 11:00        | 56.0     | 77.4      | 45.7     |
| 08/06/2023 11:15        | 50.9     | 75.4      | 44.3     |
| 08/06/2023 11:30        | 54.7     | 74.6      | 44.6     |
| 08/06/2023 11:45        | 53.6     | 74.6      | 46.2     |
| 08/06/2023 12:00        | 54.7     | 76.2      | 45.1     |
| 08/06/2023 12:15        | 56.4     | 75.5      | 45.4     |
| 08/06/2023 12:30        | 55.6     | 74.0      | 45.2     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 08/06/2023 12:45        | 74.9     | 86.9      | 47.5     |
| 08/06/2023 13:00        | 54.3     | 74.0      | 46.2     |
| 08/06/2023 13:15        | 54.0     | 75.1      | 46.2     |
| 08/06/2023 13:30        | 54.2     | 71.7      | 45.0     |
| 08/06/2023 13:45        | 55.9     | 76.8      | 44.9     |
| 08/06/2023 14:00        | 55.4     | 75.8      | 45.7     |
| 08/06/2023 14:15        | 52.2     | 71.7      | 46.4     |
| 08/06/2023 14:30        | 53.4     | 70.2      | 47.5     |
| 08/06/2023 14:45        | 54.3     | 71.4      | 46.8     |
| 08/06/2023 15:00        | 55.4     | 75.3      | 47.1     |
| 08/06/2023 15:15        | 56.7     | 77.5      | 48.0     |
| 08/06/2023 15:30        | 58.4     | 73.4      | 47.9     |
| 08/06/2023 15:45        | 53.7     | 75.4      | 46.8     |
| 08/06/2023 16:00        | 57.4     | 83.0      | 47.2     |
| 08/06/2023 16:15        | 56.6     | 83.2      | 46.8     |
| 08/06/2023 16:30        | 55.3     | 76.2      | 47.3     |
| 08/06/2023 16:45        | 54.3     | 74.1      | 48.6     |
| 08/06/2023 17:00        | 56.1     | 75.9      | 48.6     |
| 08/06/2023 17:15        | 56.4     | 74.7      | 48.2     |
| 08/06/2023 17:30        | 55.1     | 76.9      | 48.8     |
| 08/06/2023 17:45        | 56.1     | 77.4      | 49.3     |
| 08/06/2023 18:00        | 53.8     | 72.0      | 49.7     |
| 08/06/2023 18:15        | 53.1     | 72.5      | 49.6     |
| 08/06/2023 18:30        | 74.8     | 92.7      | 50.3     |
| 08/06/2023 18:45        | 76.4     | 95.0      | 47.9     |
| 08/06/2023 19:00        | 54.9     | 74.5      | 47.5     |
| 08/06/2023 19:15        | 57.1     | 75.0      | 47.7     |
| 08/06/2023 19:30        | 56.8     | 83.3      | 46.3     |
| 08/06/2023 19:45        | 54.4     | 76.2      | 45.2     |
| 08/06/2023 20:00        | 53.7     | 72.0      | 45.7     |
| 08/06/2023 20:15        | 54.0     | 74.9      | 46.1     |
| 08/06/2023 20:30        | 51.7     | 72.0      | 45.7     |
| 08/06/2023 20:45        | 53.4     | 75.2      | 45.6     |
| 08/06/2023 21:00        | 51.7     | 76.0      | 44.3     |
| 08/06/2023 21:15        | 56.0     | 75.6      | 42.2     |
| 08/06/2023 21:30        | 54.7     | 73.2      | 41.4     |
| 08/06/2023 21:45        | 49.5     | 69.9      | 40.7     |
| 08/06/2023 22:00        | 47.4     | 67.1      | 40.9     |
| 08/06/2023 22:15        | 45.6     | 61.6      | 41.1     |
| 08/06/2023 22:30        | 46.7     | 65.7      | 41.1     |
| 08/06/2023 22:45        | 51.0     | 76.2      | 41.5     |
| 08/06/2023 23:00        | 45.5     | 58.6      | 40.9     |
| 08/06/2023 23:15        | 46.0     | 58.8      | 41.8     |
| 08/06/2023 23:30        | 45.0     | 64.0      | 39.8     |
| 08/06/2023 23:45        | 44.2     | 54.3      | 39.6     |
| 09/06/2023 00:00        | 43.2     | 57.5      | 40.0     |
| 09/06/2023 00:15        | 44.6     | 63.7      | 39.6     |
| 09/06/2023 00:30        | 41.3     | 54.0      | 39.5     |
| 09/06/2023 00:45        | 42.7     | 55.6      | 40.0     |

| Time (Date hh:mm:ss.ms) | LEQ dB-A | Lmax dB-A | L90 dB-A |
|-------------------------|----------|-----------|----------|
| 09/06/2023 01:00        | 42.3     | 56.8      | 39.1     |
| 09/06/2023 01:15        | 42.8     | 60.2      | 38.9     |
| 09/06/2023 01:30        | 43.9     | 57.3      | 40.2     |
| 09/06/2023 01:45        | 42.0     | 51.0      | 39.4     |
| 09/06/2023 02:00        | 43.8     | 59.7      | 39.5     |
| 09/06/2023 02:15        | 43.6     | 61.6      | 39.6     |
| 09/06/2023 02:30        | 43.3     | 55.2      | 39.7     |
| 09/06/2023 02:45        | 45.5     | 60.7      | 40.3     |
| 09/06/2023 03:00        | 42.7     | 56.6      | 39.5     |
| 09/06/2023 03:15        | 42.2     | 57.9      | 39.1     |
| 09/06/2023 03:30        | 43.6     | 57.9      | 39.3     |
| 09/06/2023 03:45        | 47.4     | 68.5      | 40.2     |
| 09/06/2023 04:00        | 53.2     | 71.6      | 41.3     |
| 09/06/2023 04:15        | 53.6     | 72.8      | 42.5     |
| 09/06/2023 04:30        | 50.5     | 68.5      | 41.4     |
| 09/06/2023 04:45        | 48.1     | 61.0      | 41.5     |
| 09/06/2023 05:00        | 52.3     | 77.6      | 40.2     |
| 09/06/2023 05:15        | 47.2     | 57.2      | 41.3     |
| 09/06/2023 05:30        | 49.1     | 69.1      | 42.7     |
| 09/06/2023 05:45        | 50.5     | 71.2      | 42.1     |
| 09/06/2023 06:00        | 49.8     | 67.9      | 43.1     |
| 09/06/2023 06:15        | 51.5     | 77.8      | 43.4     |
| 09/06/2023 06:30        | 50.7     | 61.6      | 45.6     |
| 09/06/2023 06:45        | 53.7     | 75.7      | 45.1     |
| 09/06/2023 07:00        | 51.7     | 69.1      | 46.9     |
| 09/06/2023 07:15        | 54.4     | 70.5      | 47.4     |
| 09/06/2023 07:30        | 53.9     | 75.0      | 47.8     |
| 09/06/2023 07:45        | 55.1     | 74.7      | 47.5     |
| 09/06/2023 08:00        | 62.3     | 89.6      | 49.0     |
| 09/06/2023 08:15        | 53.9     | 75.8      | 48.1     |
| 09/06/2023 08:30        | 52.6     | 72.2      | 46.7     |
| 09/06/2023 08:45        | 52.5     | 72.3      | 47.6     |
| 09/06/2023 09:00        | 53.0     | 70.9      | 47.8     |
| 09/06/2023 09:15        | 53.8     | 74.4      | 47.2     |
| 09/06/2023 09:30        | 53.4     | 78.0      | 46.3     |
| 09/06/2023 09:45        | 54.0     | 78.6      | 46.3     |
| 09/06/2023 10:00        | 56.2     | 79.0      | 46.6     |
| 09/06/2023 10:15        | 53.7     | 73.0      | 45.4     |
| 09/06/2023 10:30        | 56.6     | 84.5      | 45.8     |
| 09/06/2023 10:45        | 52.8     | 74.1      | 46.5     |
| 09/06/2023 11:00        | 53.1     | 72.6      | 47.2     |
| 09/06/2023 11:15        | 57.4     | 81.7      | 46.2     |
| 09/06/2023 11:30        | 55.3     | 75.2      | 46.6     |