



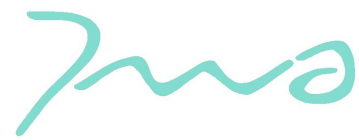
Acoustic Report

Land Off Collett Way, Southall, London

Noise Impact Assessment

Final Report
8th February 2024

1199.001R.4.0.JP



Project Land Off Collett Way, Southall, London
Noise Impact Assessment

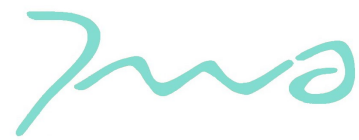
Client Wards of London Properties Limited and Urban Prop 8 S.À R.L
2nd Floor Gadd House
Arcadia Avenue
London
N3 2JU

Report By 7th Wave Acoustics
Patchway
Wellgreen Lane
Kingston
Lewes
BN7 3NS

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1 INTRODUCTION

7th Wave Acoustics has been appointed by Wards of London Properties Limited and Urban Prop 8 S.À R.L to provide an acoustic report to accompany a planning application to the London Borough of Ealing (LBE) for the construction of a Material Recovery Facility located at land off Collett Way, Southall, London, UB2 4SE.

This acoustic report is also to be used to accompany an application for an environmental permit from the Environment Agency (EA).

Sound surveys comprised of attended and unattended baseline sound measurements of the existing ambient acoustic environment.

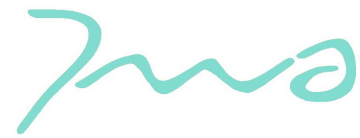
Sound modelling has been undertaken to estimate sound levels at the nearest noise sensitive receivers due to the proposed operations.

The results of the sound modelling have then been used to assess the noise impact at the nearest noise sensitive receivers, in accordance with British Standard 4142:2014+A1:2019.

The report has been produced by Jamie Pearson (MIOA) and reviewed by Neil Anderson (MIOA) of 7th Wave Acoustics. Jamie and Neil are both experienced acousticians with qualifications in recognised acoustics degrees/diplomas and over 15 years of experience working within the acoustics industry. Both are full members of the Institute of Acoustics.

They are experienced in the production of noise impact assessments and have produced a significant number of noise assessments using the methodology presented in British Standard BS4142:2014+A1:2019.

The report author also carried out the on-site attended sound surveys, calculations and assessment.



2 SITE AND DEVELOPMENT DESCRIPTION

2.1 Existing Site

The site is located off Collett Way in Southall, within the London Borough of Ealing.

The site location and existing site layout is shown in Figures A1, A2 and A3 of Appendix A.

The National Grid Reference for the site is: 513332,179916.

At present, the site is owned by Network Rail and sits within the wider railway depot which includes working railway sidings. This area has permitted development rights.

The immediate surrounding land is a mixture of commercial and industrial land uses and residential properties.

The site is bound to the north and south by railway sidings. To the east, south and west are commercial / industrial facilities including Southall Rail Depot to the west and DPD's depot to the south.

Southall Railway Station is located c. 550m to the west of the site.

The nearest existing residential properties are c.140m to the north of the site on Park Avenue.

Other residential dwellings are located c. 320m to the south of the site on Feldspar Grove and c. 490m to the west of the site on Healum Avenue.

The ambient sound climate in the area surrounding the site consists of frequent high speed train passes, trains entering and leaving Southall Railway Station, vehicle sound from within the industrial estate, distant and local road traffic, the sound of aircraft movements from Heathrow Airport and general neighbourhood sound.

2.2 Proposed Development

The proposed development consists of the construction of a Material Recovery Facility, which will operate recovery processes and treatment for non-hazardous waste.

The facility is designed to process up to 150,000 tonnes of non-hazardous waste per year. It is anticipated that c. 75,000 tonnes of treated waste and recovered materials will be transferred by rail for off-site use or further recovery. The remainder will be transferred by the local road network.

The site will consist of a single waste processing building and a two-storey office and welfare block.

A gantry crane will be located along the railway sidings to the south of the site.

An external area will be used for the loading and movement of waste only.

The facility will operate 24 hours a day, 7 days per week, however operational processing will be undertaken only between 07:00 and 21:00 hrs. Activities between 21:00hrs and 07:00hrs will consist of baling and loading to railway and bulkers for onward transport. No other external operations will be undertaken between 21:00hrs and 07:00hrs.

It is understood that there will be 54 staff working a 3-shift pattern.



Site plans showing the proposed site layout, proposed internal layout and proposed elevations can be seen in Figures A4, A5 and A6 of Appendix A, respectively.

Expected Sound Generating Activities

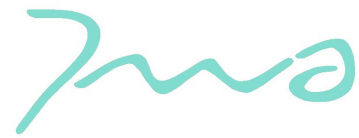
The following sound generating activities are expected within the Waste Processing Building:

- Shredding
- HGVs/skip lorries (up to 172 no. 2-way movements in a 24hr period)
- Picking line
- Blower
- Trommel
- 20T wheeled excavator
- Front loading shovel
- Telehandler
- Conveyor
- Baler
- Shredding
- Crushing

Externally, the following sound generating activities are expected:

- Front loading shovel
- Telehandler
- Gantry crane
- HGV movements
- Diesel locomotives

Further details of expected use of the plant/activities during the daytime, evening and night-time periods are set out in Section 6.



3 POLICY CONTEXT

3.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)^[1] sets out the Government's planning policies for England and how these are expected to be applied. It does not present specific noise criteria to be applied but does provide the following statements regarding noise impacts:

"15. Conserving and enhancing the natural environment

180 (e). Planning policies and decisions should contribute to and enhance the natural and local environment by: [bullet point points reduced to those regarding noise only]

- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

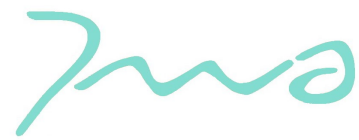
191. Planning policies and decisions should ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the 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 new development – and avoid noise giving rise to significant adverse impacts on health and quality of life; and*
- (b) Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

193. 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.

194. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

The NPPF refers to the Noise Policy Statement for England^[2] for the derivation of significant adverse impacts.



3.2 Noise Policy Statement for England

This document ^[2], which has been approved at Government level sets out 3 aims for noise control.

First aim

Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development.

Second aim

Mitigate and minimise adverse impacts on health and quality of life from environment, neighbourhood noise within the context of Government policy on sustainable development.

The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into account the guiding principles of sustainable development. This does not mean that such adverse impacts effects cannot occur.

LOAEL – Lowest Observed Adverse Effect Level: This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level: This is the level above which significant adverse effects on health and quality of life occur.

Third aim

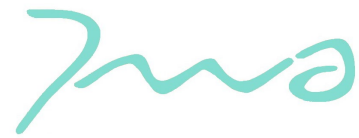
Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy of sustainable development.

This aims seeks, where possible, positively to improve health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

3.3 London Plan (March 2021)

Policy D14 of the London Plan^[3] sets out the following aims to help manage noise:

- 1) avoiding significant adverse noise impacts on health and quality of life
- 2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change
- 3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses
- 4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)



- 5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation
- 6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles
- 7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.

3.4 London Borough of Ealing Local Plan

Policy 4.11: Noise and Vibration of the Ealing Local Plan^[4] states:

“Development generating noise or vibration will not be permitted where it would cause noise or vibration above acceptable levels, particularly where it would harm existing or proposed noise sensitive development, unless this can be satisfactorily attenuated.”

3.5 London Borough of Ealing Noise & Vibration Supplementary Planning Guidance – 2014

The London Borough of Ealing’s Supplementary Planning Guidance 2014^[5] states:

“When considering proposals that will either generate noise or vibration and/or developments that are sensitive, developers and planners are required to consider the detailed criteria and measurements contained within this guidance. The information relates to Policy 4.11: Noise and Vibration contained within Chapter 4: Urban Design, in the Adopted 2004 Plan for the Environment.

When considering new developments care is to be taken to ensure that the potential or existing noise/vibration levels in the area are acceptable. As appropriate, attenuation against noise and vibration may be required. Such attenuation can be achieved in a number of ways through land use, the design of the building and the use of rooms. However where appropriate standards cannot be achieved, planning permission will normally be refused.

The detailed criteria and measurements used within this document are complex. However information regarding the planning requirements for noise and vibration must be readily available, hence the preparation of this supplementary planning guidance. It should therefore be used by individuals and organisations making planning applications in a noisy location or for uses that may generate noise. Detailed information relating to the measurement of sound and other relevant background information can be found in the Appendices.”

In relation to major industrial noise sources, the supplementary planning guidance refers to British Standard 4142:1997. Methods for rating and assessing industrial and commercial sound to guide planning application assessments and specifies the following criteria:

The rating noise level of the noise emitted from the proposed development, determined by the procedure at BS 4142 1997, should be at least 5 dB(A) below the background $L_{A90,1hr}$ noise level, measured or calculated at 3.5 m from ground floor facades and 1m from upper floor facades at the nearest affected premises.



It should be noted that since the publication of the supplementary planning guidance, a new version of British standard 4142 was published and came into effect on 31 October 2014. Subsequent updates were made to the standard in 2019.

3.6 Environmental Permitting Regulations (EPR)

Guidance on development emissions^[6] control was introduced in February 2016 and is designed to provide advice on what information is required to apply for a permit or alter an existing permit. The guidance covers a range of topic areas with noise being mentioned in the section on “Noise and vibration management plan”.

The section on the noise and vibration management plan states that the plan should explain how you will prevent or minimise noise and vibration and the EA may ask for a plan if:

- they think there is a risk of noise and vibration pollution beyond the site boundary; and/or
- after getting a permit, you cause noise or vibration pollution but do not already have a noise and vibration management plan.

When applying for a bespoke permit, a noise and vibration management plan may need to be provided if the following apply:

- your activity uses noisy plant or machinery, for example cooling equipment or fans;
- there will be crushing, grinding or combustion, using trommels and conveyors or moving bulk materials;
- your activities are not contained within buildings;
- some of your activities take place at night;
- the area where you are planning to carry out your activity is sensitive to noise, for example rural areas may have quieter background noise levels than urban areas; and/or
- there are sensitive receptors close to the site, for example houses or habitats.

It then goes on to state that the noise assessment and management plan must be completed using an appropriate noise standard such as BS 4142:2014 (now BS 4142:2014+A1:2019) “Methods for rating and assessing industrial and commercial sound”.



4 NOISE UNITS, METHODOLOGY & ASSESSMENT CRITERIA

4.1 Noise Units

There is a million to one ratio between the threshold of hearing and the highest tolerable sound pressure. Noise is therefore measured using a logarithmic scale, to account for this wide range, called the decibel (dB). Noise is defined as unwanted sound and the range of audible sound varies from around 0 dB to 140 dB.

The human ear is capable of detecting sound over a range of frequencies from around 20 Hz to 20 kHz; however, its response varies depending on the frequency and is most sensitive to sounds in the mid frequency range of 1 kHz to 5 kHz. Instrumentation used to measure noise is, therefore, weighted across the frequency bands to represent the sensitivity of the ear. This is called 'A weighting' and is represented as dB(A).

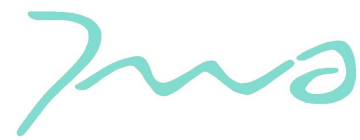
It is generally accepted that a change in noise level of 3 dB is the minimum perceptible under normal conditions, whilst a change of 10 dB is perceived as a doubling or halving of the noise level. An indication of the range of noise levels commonly found in the environment is given below in Table 4.1.

Table 4.1: Typical Noise Levels

Typical Noise Level dB(A)	Example
0	Threshold of hearing
30	Rural area at night
40	Residential area at night
60	Conversation
80	Inside general factory premises
100	Near to pneumatic hammer
120	Near to speaker at rock concert
140	Threshold of pain

A number of different indices are used to describe the fluctuations in noise level over certain time periods. The main indices include:

- $L_{A90,T}$ This is the noise level exceeded for 90% of the measurement period and provides a measurement of the quieter 'lull' periods in between noise events. It is often referred to as the background noise level.
- $L_{Aeq,T}$ This is the equivalent continuous A-weighted sound pressure level and is the level of a notional steady sound which has the same acoustic energy as the fluctuating sound over a specified time period, T. It is often used for measuring all sources of noise in the environment, which can be referred to as the ambient noise.
- $L_{Amax,F}$ This is the maximum sound pressure level measured in a given time period with the sound level meter set to 'fast' response.



4.2 British Standard 4142: 2014+A1 2019^[7]

This standard provides a procedure for rating and assessing sound of an industrial/commercial nature.

The methods described in the standard use outdoor sound levels to assess the likely effects of the industrial/commercial sound on people who might be inside or outside a residential dwelling. The assessment of nuisance explicitly falls outside the scope of this British Standard.

The rating level (L_{A,T_r}) is defined in BS 4142 and is used to rate the industrial sound (known as the specific noise source) outside residential dwellings. This level is obtained by applying a Rating Penalty, which varies depending on the presence of tonality, impulsiveness and other sound characteristics to the specific noise source.

Reference time intervals, T_r , of 1 hour and 15 minutes are specified for the determination of rating levels during the day and night, respectively.

The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Typically, the greater this difference, the greater the magnitude of the impact, as follows:

- 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.
- 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.

Where an initial estimate of impact needs to be modified due to the context the following factors can be taken into consideration:

- Absolute level of sound.
- The character and level of the residual sound compared to the character and level of the specific sound.

The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

4.3 Criteria Summary for the Noise Impact Assessment

Considering the standard and guideline criteria discussed above in Sections 3 and 4, the noise impact assessment at residential receivers is to be undertaken in accordance with BS 4142:2014+A1:2019 to achieve a rating level of at least 5dB below the background sound level.

5 SOUND SURVEY AND ANALYSIS

5.1 Survey Details

Continuous unattended monitoring of ambient and background sound levels was undertaken at a single monitoring location shown as LT1 on Figure A2 of Appendix A.

The sound monitor was setup on Thursday 9th November, however, due to adverse weather conditions which are judged to have influenced the sound dataset, all sound data before 07:00hrs on Friday 17th November 2023 has been discounted from any analysis and has not been presented in this report.

The sound monitoring of ambient and background sound levels used in the analysis, excluding the periods described above, was undertaken between Friday 17th November and Friday 24th November 2023 as detailed in Table 5.1 below.

Table 5.1: Summary of Unattended Sound Monitoring Location

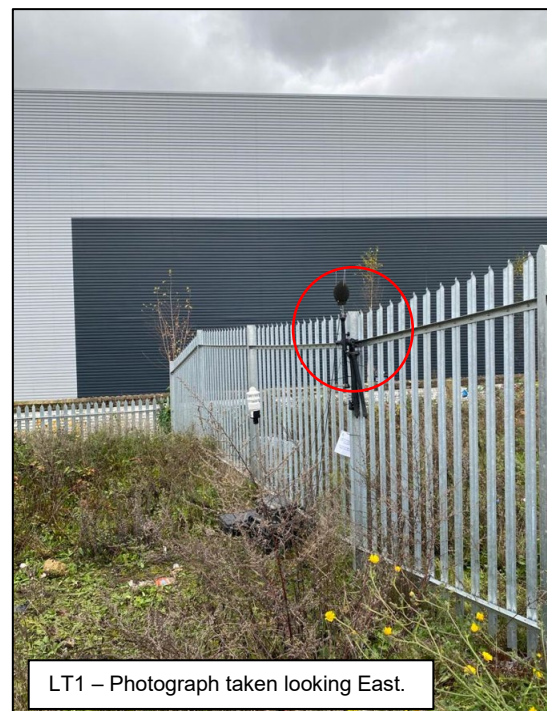
Location	Height ^[1]	Free-field/Façade	From	To
LT1	2.0m	Free-field	07:00 hrs Friday 17 th November 2023	07:00 hrs Friday 24 th November 2023

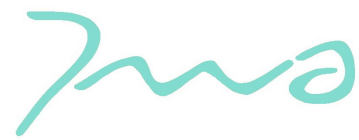
Notes: [1] Approximate height above local ground level

A sound monitor was placed close to the north-east site boundary. The microphone was set approximately 2.0m above local ground level in a free field location, as shown in the photographs provided in Figure 5.1 below. The monitor was positioned c. 33m from the railway line, which is a similar distance to the rear of the residential properties located on Park Avenue.

The sound environment was noted during the site visits to consist of frequent train passes and distant road traffic. Other sources of environmental sound included birdsong and aircraft movements.

Figure 5.1: Sound Monitoring Location LT1





Sound measurements were made using the equipment presented in Table 5.2 below.

Table 5.2: Sound Monitoring Equipment

Manufacturer	Model No.	Description	Serial No.	Calibration Due Date
Rion	NL-52	Sound Level Meter	00164419	October 2024
Larson Davis ^[1]	CAL200	Calibrator	0006489	May 2024
Norsonic ^[2]	1251	Calibrator	33765	August 2024

Notes:

[1] Used at the start of the survey; and

[2] Used at the end of the survey.

The sound level meter was powered by dry cell batteries and stored inside weatherproof security boxes.

Sound measurements were made using a Rion NL-52 Type 1 precision integrating sound level meter fitted with a weatherproof windshield. Measurements were obtained using the 'F' time weighting and A-weighting frequency network. The equipment was calibrated before and after the survey to generate a calibration level of 94.0 dB at 1 kHz, with the noted drift of 0.2dB.

Fifteen-minute consecutive measurements of $L_{Amax,F}$, $L_{Aeq,15min}$ and $L_{A90,15min}$ sound levels were obtained over the duration of the survey.

5.2 Attended Measurements

Supplementary attended short-term sound measurements were obtained at monitoring locations ST1 – ST5, as shown on Figure A2 of Appendix A, to measure the ambient sound levels at other noise sensitive receptors around the site.

The attended measurements were obtained between 11:40 hrs and 16:00 hrs on Thursday 9th November 2023 and between 23:00 hrs on Thursday 23rd November and 03:02hrs on Friday 24th November 2023.

The attended sound measurements were made using the equipment presented in Table 5.3 below.

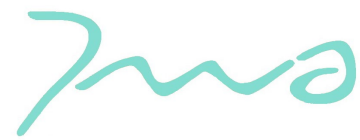
Table 5.3: Sound Monitoring Equipment

Manufacturer	Model No.	Description	Serial No.	Calibration Due Date
Larson Davis	LxT	Sound Level Meter	0006489	April 2024
Larson Davis	CAL200	Calibrator	15521	April 2024

All sound measurements were made in free-field conditions, with the microphone at each location approximately 1.5 m above local ground.

The sound level meter was configured to measure A-weighted sound indices, which included $L_{Amax,F}$, $L_{Aeq,15min}$ and $L_{A90,15min}$ levels.

The clocks on the unattended and attended monitors were synchronised.



5.3 Weather Conditions

Weather conditions noted during the site visits are presented below in Table 5.4.

Table 5.4: Weather Conditions Noted During Site Visits

Site Visit	Date and Time	Noted Weather
Setup / daytime attended	09/11/2023 11:00 hrs	Overcast, very light rain for short period. 10°, average windspeeds 2.2m/s, 83% humidity
Night-time attended	24/11/2023 00:00 hrs	Dry. 8°, average windspeeds 1.9m/s, 78% humidity
Collection	24/11/2023 10:45 hrs	Dry, 10°, windspeed 2m/s, 71% humidity

Weather conditions, comprising wind speed, direction and rainfall during the survey period were measured using a Lufft WS600 weather station set-up close (2m) to the sound monitoring equipment at location LT1.

The clock on the weather station was synchronised with the LT1 sound monitoring equipment. Weather data was captured every 15 minutes for the duration of the monitoring period.

The weather conditions during the survey are considered acceptable for the measurement of environmental sound.

There were infrequent periods where wind gusts were measured to be above 5m/s. These periods were between:

- 14:45hrs and 15:00hrs on Tuesday 21st November 2023; and
- 15:00hrs and 15:15hrs on Thursday 23rd November 2023.

The data during these periods have been removed from any further analysis.

There were also periods of rainfall between:

- 23:30hrs on Friday 17th November and 08:00hrs on Saturday 18th November 2023;
- 23:00hrs and 23:30hrs on Sunday 19th November 2023; and
- 12:45hrs and 13:00hrs on Monday 21st November 2023.

These periods have also been removed from the sound data set.

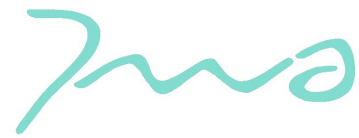
The weather data is presented in full in Table B2 of Appendix B.

5.4 Unattended Survey Analysis

The full results of the unattended sound monitoring survey are presented in graphical form in Figure A7 of Appendix A and are tabulated in Table B1 in Appendix B.

Analysis of the measured sound data indicates that there were periods of spurious data between:

- 11:15hrs and 12:30hrs Saturday 20th November 2023;
- 15:45hrs and 16:15hrs Saturday 20th November 2023, and
- 23:15hrs and 23:45hrs Monday 21st November 2023.



There was also a period of missing data between:

- 01:45hrs and 02:15hrs on Sunday 19th November.

The above periods are excluded from the data analysis.

The measured free-field daily ambient $L_{Aeq,T}$ and background $L_{A90,T}$ sound levels, excluding the periods described above, during daytime and night-time hours at LT1 are summarised below in Table 5.5.

Table 5.5: Summary of Measured Sound Levels at LT1

Date	Measured Free-field Sound Levels, dB					
	Daytime (07:00 - 23:00)			Night-time (23:00 - 07:00)		
	$L_{Amax,F}$	$L_{Aeq,16hr}$	$L_{A90,16hr}$	$L_{Amax,F}$	$L_{Aeq,8hr}$	$L_{A90,8hr}$
Fri 17/11/23	81(79-86)	64	49	79(79-79)	61	47
Sat 18/11/23	81(78-92)	64	49	69(55-83)	56	45
Sun 19/11/23	81(75-93)	63	49	72(51-81)	57	44
Mon 20/11/23	81(79-85)	64	46	78(58-83)	60	41
Tue 21/11/23	82(79-93)	64	45	76(49-84)	59	41
Wed 22/11/23	81(79-86)	64	49	76(66-83)	59	44
Thu 23/11/23	81(75-84)	64	49	77(52-86)	60	42
Mean Averages	81(81-82)	64	48	75(69-79)	59	43

Note: grey highlight excluded from analysis.

The results of the unattended sound measurements show that with periods of adverse weather and spurious data removed, the ambient day time $L_{Aeq,16hr}$ sound levels produced an arithmetic average of 64 dB $L_{Aeq,16hr}$. With periods of adverse weather and spurious data removed, the night-time $L_{Aeq,8hr}$ sound levels produced an arithmetic average of 59 dB $L_{Aeq,8hr}$.

During the daytime period, with periods of adverse weather and spurious data removed, the arithmetic average of the background sound levels was 48 dB $L_{A90,16hr}$. With periods of adverse weather and spurious data removed, the night-time $L_{A90,8hr}$ sound levels produced an arithmetic average of 43 dB $L_{A90,8hr}$.

5.5 Attended Survey Analysis

The results of the short-term attended sound monitoring undertaken during the daytime period on Thursday 9th November 2023 and during the night-time period on Thursday 23rd November are presented in Table B3 of Appendix B and summarised overleaf in Tables 5.6 and 5.7, respectively.

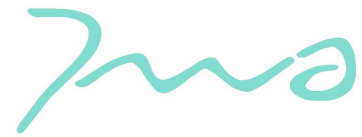


Table 5.6 Summary of Attended Sound Measurements - Daytime

Monitoring Location	Date	Start Time	Dur. (mins)	Measured Free-field Sound Levels, dB		
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}
ST1	09/11/2023	11:40	15	71.1	52.8	47.8
ST1		13:10	15	68.5	53.4	48.6
ST1		14:38	15	67.5	55.7	49.3
Cumulative				71.1	54.1	48.6
ST2	09/11/2023	12:04	15	82.9	66.7	51.6
ST2		13:31	15	72.9	53.9	48.4
ST2		15:04	15	74.0	54.5	47.8
Cumulative				82.9	62.4	49.3
ST3	09/11/2023	12:28	15	81.2	65.6	52.8
ST3		13:54	15	81.0	67.8	53.9
ST3		15:26	15	82.9	68.3	54.3
Cumulative				82.9	67.4	53.7
ST4	09/11/2023	12:45	15	78.8	62.3	50.3
ST4		14:11	15	75.4	61.2	50.7
ST4		15:45	15	77.9	61.4	50.0
Cumulative				78.8	61.7	50.3

Table 5.7 Summary of Attended Sound Measurements – Night-time

Monitoring Location	Date	Start Time	Dur. (mins)	Measured Free-field Sound Levels, dB		
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}
ST5	23/11/2023	23:00	15	73.9	57.7	41.3
		00:04	15	77.7	53.9	37.3
	24/11/2023	01:05	15	72.6	50.4	34.7
		02:06	15	73.1	54.7	33.6
Cumulative				77.7	54.9	36.7
ST2	23/11/2023	23:21	15	72.9	52.1	41.0
		00:23	15	59.0	44.5	39.1
	24/11/2023	01:25	15	76.3	45.9	38.6
		02:28	15	74.4	50.9	42.8
Cumulative				76.3	49.4	40.4
ST1	23/11/2023	23:41	15	65.0	45.2	40.6
		00:42	15	81.1	50.2	39.0
	24/11/2023	01:45	15	73.3	43.9	37.9
		02:48	15	57.7	39.7	38.2
Cumulative				81.1	46.3	38.9



6 NOISE ASSESSMENT

6.1 British Standard 4142 – Assessment of Commercial Sound Levels

The method for predicting the significance of sound of an industrial and/or commercial nature in accordance with the principles of BS 4142:2014 is based on a comparison of the rating level, defined as the specific sound level plus any adjustment for the characteristic features of the sound, with the background sound level, $L_{A90,T}$.

The standard is applicable for assessing sound at proposed new dwellings or premises used for residential purposes.

6.2 Noise Sensitive Receptors

The nearest noise sensitive receptors (NSR) to the site are the existing residential dwellings on Park Avenue (R1) and the future residential dwellings on Park Avenue (R2) also to the north of site. Other sensitive receptors are located further away at Chantry House (R3) to the west of site and Feldspar Grove (R4) to the south of site.

The noise sensitive receptors are shown in Figure A2 of Appendix A. Their approximate distances to the site and grid references are summarised in Table 6.1 below.

Table 6.1: Summary of Noise Sensitive Receptors

Receptor ID	Address	Approximate distance from site (m) ^[1]	Easting	Northing
R1	184 Park Ave	140	513416	180053
R2	Southall Sidings Development	180	513143	179978
R3	Chantry House	475	512899	179799
R4	20 Feldspar Grove	330	513468	179604

Notes:

[1] Measured from the centre of site.

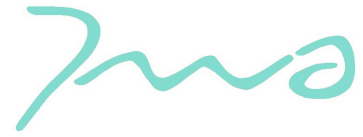
6.3 Derivation of Background Sound Levels

The $L_{A90,T}$ background sound level is the sound level exceeded for 90% of the time in the absence of any sound from the specific source of interest.

'Typical' background sound levels observed over the period of interest, as described in BS4142:2014+A1:2019, are usually established for assessing plant and activities of this kind, with BS4142 stating that a 'representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value'.

Operational processing hours are understood to be between 07:00 and 21:00hrs Monday to Sunday. Between 21:00 and 07:00hrs, on-site activities will consist of bailing and loading to the railway and bulkers for onwards transportation.

To provide an indication of the background sound levels during the daytime (07:00hrs to 21:00hrs), evening (21:00hrs to 23:00hrs) and night-time (23:00hrs to 07:00hrs) periods, modal statistical analysis of the background $L_{A90,T}$ sound levels has been undertaken. This analysis excludes periods of adverse weather and spurious data as described in the previous report section. The statistical analysis is presented in Figure A8 of Appendix A.



The statistical analysis indicates that the most commonly occurring background $L_{A90,15min}$ sound levels during the daytime, evening and night-time periods are 49 dB, 47 dB and 44 dB, respectively.

The results from the continuous unattended sound measurements at LT1 provide an indication of the typical diurnal variation in sound levels; while short term attended sound measurements provide an indication of the variation in sound levels across the development site.

Observations made during the daytime and night-time surveys indicated that the sound sources influencing the background $L_{A90,15min}$ sound levels at R1 and R2 were consistent with the sources influencing the background $L_{A90,15min}$ sound levels observed at LT1. As such, to enable derivation of applicable long term sound levels at attended monitoring locations, simultaneous synchronised measurements were undertaken at LT1 at the same time as the attended monitoring location ST5.

Where appropriate, the attended short-term sound measurements obtained at ST5 have been compared with the corresponding levels at the unattended monitoring location LT1, with the mean differences used to provide a correction factor to extrapolate the daytime, evening and night-time background assessment sound levels.

Following comparison of the measured unattended and attended data during the night-time period on Thursday 23rd November 2023, a difference of -1 dB in $L_{A90,15min}$ sound levels between LT1 and ST5 is calculated. ST5 is considered representative of R1 and R2.

ST1 and ST2 are representative of R4 and R3, respectively. Observations made during the daytime and night-time surveys indicated that there were localised sound sources that were also contributing to the $L_{A90,15min}$ sound levels. As such, it has not been possible to robustly derive a correction factor using the LT1 data to extrapolate the daytime, evening and night-time background assessment sound levels at R3 and R4. Instead, the cumulative measured $L_{A90,15min}$ sound levels, as presented in Tables 5.6 and 5.7, measured during the attended daytime and night-time attended monitoring have been used.

The adopted background sound assessment levels are summarised below in Table 6.2.

Table 6.2: Background Sound Assessment Levels

Receptor ID	Address	Representative Monitoring Location	Adopted Background Sound Assessment Levels dB $L_{A90,T}$		
			Daytime Hours (07:00 hrs to 21:00 hrs)	Evening Hours (21:00 hrs to 23:00 hrs)	Night-time Hours (23:00 hrs to 07:00 hrs)
R1	184 Park Ave	ST5	48	46	43
R2	Southall Sidings Development	ST5	48	46	43
R3	Chantry House	ST2	49 ^[1]	49 ^[1]	40 ^[2]
R4	20 Feldspar Grove	ST1	49 ^[1]	49 ^[1]	39 ^[2]

Notes:

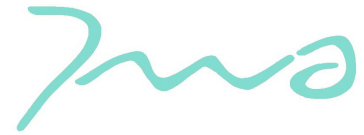
[1] Measured cumulative values as presented in Table 5.6; and

[2] Measured cumulative values as presented in Table 5.7.

6.4 Sound Generating Plant and Activities

Proposed Waste Processing Building

The proposed sound generating plant and activities within the Waste Processing Building, and the external areas with the development land, are summarised below:



Waste Processing Building Operations – Daytime (07:00hrs to 21:00hrs)

Within the Waste Enclosure Building, the following daytime operations are proposed:

- Shredding*
- Crushing*
- Skip lorries
- Picking line
- Blower
- Trommel
- 20T wheeled excavator
- Front loading shovel
- Conveyor
- Baler

*It is understood that shredding and crushing activities will not occur at the same time.

Waste Processing Building Operations – Evening (21:00hrs to 23:00hrs) and Night-time (23:00hrs to 07:00hrs)

Within the Waste Processing Building, the following evening and night-time operations are proposed:

- Front loading shovel
- 20T wheeled excavator
- Telehandler
- Conveyor
- Baler

To assist with the sound level predictions, representative sound levels that were undertaken within similar facilities have been used for calculating the reverberant sound breakout from the Waste Processing Building. These measured levels are summarised below in Tables 6.3 and 6.4 below.

Table 6.3: Source Term Sound Levels of Internal Processing Operations – Waste Processing Building Daytime

Description of Measured Sound Sources	Measured Internal Reverberant Sound Pressure Levels, dB (L _{Aeq,T})	Measured Internal Reverberant Sound Pressure Levels, dB (L _{Aeq,T})
<ul style="list-style-type: none"> • 2 x 20T wheeled excavators • 1 x front loader shovels • Blower (fixed) • Trommel (fixed) • Picking line (fixed) • Conveyor (fixed) between hopper and picking line • HGVs (in and out of building) (5 movements). 	(a) 83.8	(a plus b) 85.2
<ul style="list-style-type: none"> • Baler and wrapper • Haulage and excavator working on feedstock waste 	(b) 79.6	

Note: [1] logarithmic addition.

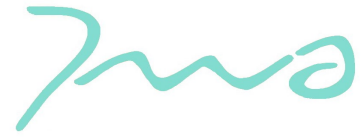


Table 6.4: Source Term Sound Levels of Internal Processing Operations – Waste Processing Building Evening and Night-time

Description of Measured Sound Sources	Measured Sound Pressure Levels, dB (L _{Aeq,T})
<ul style="list-style-type: none"> Baler and wrapper Haulage and excavator working on feedstock waste 	79.6

The following reference spectrum has been used and adjusted to the broadband sound levels displayed in Tables 6.3 and 6.4 above. Again, this spectrum has been obtained from measurements of plant at a similar facility to the proposed. This reference spectrum is used for the daytime, evening and night-time periods.

Table 6.5: Source Term Sound Level Reference Sound Spectrum

Measured Sound Pressure Level dB, L _{eq,T} in 1/1 Octave Bands (Hz)							
63	125	250	500	1k	2k	4k	8k
92	80	80	81	76	74	69	62

External – Daytime (07:00hrs to 21:00hrs), Evening (21:00hrs to 23:00hrs) and Night-time (23:00hrs to 07:00hrs)

The following external operations are proposed for the daytime, evening and night-time periods. :

- Front Loading Shovel (Typically only during the daytime and evening periods)
- Telehandler (Typically only during the daytime and evening periods)
- Gantry crane
- HGV Movements (daytime and night-time only)
- Diesel locomotive idling

The sidings itself is a permitted development and has historically operated with diesel locomotives on a 24hr basis. The locomotive movements within the sidings are unlikely to significantly change from as a result of the proposals and have therefore not been considered in the assessment, however, the idling of diesel locomotives has been considered.

The sound level data presented in Table 6.6 below has been used to assist with the sound level predictions.

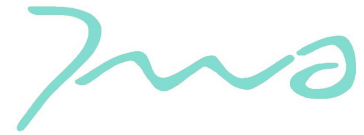
Table 6.6: Source Term Sound Levels of External Operations

Ref	Source Description	Sound Power Level L _w dB per 1/1 Octave Band Frequencies								L _w dB(A)
		63	125	250	500	1k	2k	4k	8k	
BS 5228 C6:34	Front Loading Shovel	110	110	99	101	97	95	94	86	104
BS 5228 C2:35	Telehandler	113	107	97	95	92	90	84	75	99
Measured ^[1]	Gantry Crane at 1m	82	87	88	96	95	93	93	83	100
Measured ^[1]	HGV Pass at 2.5m	88	89	83	83	81	81	77	71	87
Measured ^[1]	Engineering Train Idle at 30m	106	94	91	93	97	95	87	72	100

Note:

[1] Measured SPLs adjusted to Sound Power.

6.5 Specific Sound Levels



The specific sound level is the level equivalent continuous A-weighted sound pressure level produced by the specific sound source(s) at the assessment location over a given time.

When evaluating the specific sound level during the daytime period (07:00hrs to 23:00hrs), a reference period of one hour is recommended. When evaluating the specific sound level during the night-time period (23:00hrs to 07:00hrs), a reference period of 15 minutes is recommended.

Sound Prediction Model

A computer-generated sound model of the site including all acoustically important surrounding land topography has been generated using SoundPLAN Essential 5.1. This proprietary software implements the sound propagation calculation specified in ISO 9613-2^[8] as follows:

$$L_{r}(DW) = L_w + D_c - A$$

Where:

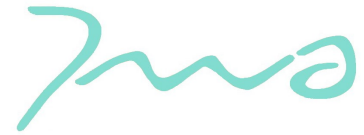
$L_r(DW)$	=	equivalent continuous downwind octave-band sound pressure level at a receiver location
L_w	=	sound power level of the sound source
D_c	=	directivity correction
A	=	attenuation that occurs during propagation from the point sound source to the receiver. $A = A_{div} + A_{atm} + A_{gr} + A_{bar} + A_{misc}$
A_{div}	=	attenuation due to geometrical divergence
A_{atm}	=	attenuation due to atmospheric absorption
A_{gr}	=	attenuation due to the ground effect
A_{bar}	=	attenuation due to a barrier
A_{misc}	=	attenuation due to miscellaneous other effects

The sound model has then been used to estimate the sound levels at the closest noise sensitive receptors. The receptor locations are displayed in Figure A2 of Appendix A and listed in Table 6.2. The following assumptions have been made for the sound modelling exercise:

- the surrounding area included in the modelling exercise, such as buildings and other structures, have been based on Ordnance Survey mapping and site plans
- ground cover has been modelled as hard ground
- topography of the surrounding area has been modelled using a LIDAR Digital Terrain Model (DTM) data available online from Bluesky Mapshop
- sound levels calculated at the sensitive receptors are in free-field conditions
- receivers have been modelled at a height of 1.5 m above local ground, with repeats of 2.5m per floor, where appropriate. The floor with the highest calculated level is presented for assessment purposes
- The following % on-times are assumed for the external operations during 1-hour daytime, 1 hour evening and 15-minute night-time assessment periods

Table 6.7: Assumed Plant % On-Times

Description	Use % Evening	Use % Night-time
-------------	---------------	------------------



	Use % Daytime (07:00-21:00hrs)	(21:00-23:00hrs)	(23:00-07:00hrs)
Front Loading Shovel	25	25	0 ^[1]
Telehandler	25	25	7 ^[1]
Gantry Crane	25	25	25
Vehicle Movements	Up to 24 movements (20 seconds per movement) ^[3]	0 ^[3]	Up to 1 movement (20 seconds per movement) ^[3]
Railway Idle	2	2	7

Notes: [1] typically these activities will not operate at external locations at night. However, to provide a worse case assessment, the operation of a telehandler at an external location has been included in the model; [2] typically these activities will not operate at external locations during the evening period; and [3] Based on developments trip generator information.

- The sound power levels in the model have been adjusted to the % on-times presented above
- The telehandler, front loading shovel and gantry crane have been modelled as point sources at a height of 1m, 10m and 12m above local ground, respectively
- The diesel locomotive idle and HGV movements are modelled as line sources, 1m above location ground
- The HGV movements have been split (50/50) between 2 no. locations. An additional -3dB correction has been applied to each line source in the model
- It is understood that soft loading of materials will be undertaken at night. The sound from hard materials being loaded has therefore not been considered during the night-time period; and
- The locations of the modelled sound sources are presented in Figure A9 of Appendix A

Internal to External Sound

Using the measured reverberant internal sound levels displayed in Tables 6.3 and 6.4, the sound level, L_{out} , just outside the facades of the proposed Waste Processing Building were calculated, arising from the sound transmission through the façade, given the reverberant sound level inside the building, L_{in} , and the sound reduction index, R , of the façade elements.

$$L_{out} = L_{in} - R - 6$$

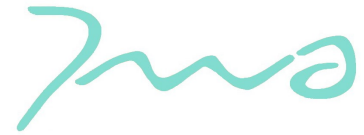
- The following building materials have been used to determine the internal to external sound:
 - The buildings will have a concrete internal wall to 4m, except where roller shutter doors are located
 - The building will comprise of insulated cladding. The wall and roof panels are based on Kingspan Quadcore KS1000RW Wall and roof panels
 - Roof skylights will be made of Perspex (15% of roof area on the building); and
 - Doors to buildings are assumed to be open

The dimensions for the proposed buildings are presented below in Table 6.8.

Table 6.8: Dimensions of Proposed Development Buildings

Building	Dimensions (W x L)	Floorspace (m ²)	Height (m)
Waste Processing	30m x 106m	3,164	13
Office and Welfare Unit	4m x 12m (2 storey)	96	8

Finally, the external sound level was used to calculate the sound power level L_w of the facades, using the following equation:



$$L_w = L_{out} + 10 \log S$$

Where S = surface area of the façade.

The derived façade sound power levels were then incorporated into the computer sound model as area sources for each façade of the Waste Processing Building. The calculated sound power level for each façade is summarised below in Tables 6.9 and 6.10.

Table 6.9: Sound Power Levels of the Waste Processing Building - Daytime

Façade	Sound Power Level, dB (A)	Sound Power Level, dB (L_w) in Octave Band Centre Frequency Hz						
		63	125	250	500	1 k	2 k	4 k
North	93	104	92	92	92	88	84	79
East	95	105	94	93	94	89	87	82
South	97	107	95	95	95	91	88	83
West	81	93	83	81	78	77	66	51
Roof	94	108	100	96	92	88	78	67

Table 6.10: Sound Power Levels of the Waste Processing Building – Evening and Night-time

Façade	Sound Power Level, dB (A)	Sound Power Level, dB (L_w) in Octave Band Centre Frequency Hz						
		63	125	250	500	1 k	2 k	4 k
North	88	99	87	87	87	83	79	74
East	90	100	89	88	89	84	82	77
South	92	102	90	90	90	86	83	78
West	76	88	78	76	73	72	61	46
Roof	89	103	95	91	87	83	73	62

The daytime and evening/night sound contours are presented in Figures A10, A11 and A12 of Appendix A, respectively. A screenshot of the computer sound model is presented below in Figure 6.1.

Figure 6.1: Screenshot of Sound Model

6.6 Rating Level Assessment

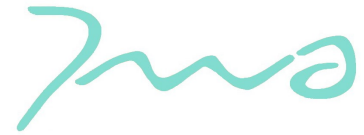
The specific sound level of the site activities was then used to determine the Rating Level at the closest sensitive receptors.

Where appropriate, a rating penalty for sound based on a subjective assessment of its characteristics at the noise sensitive location should be established and added to the specific sound level.

The lowest daytime and night-time mean averages of the measured $L_{Aeq,15min}$ sound level during the unattended or attended sound surveys were 54 dB and 46 dB. The highest daytime and night-time specific sound levels of 43 dB and 38 dB fall 11 dB and 8 dB below these average levels.

The lowest measured $L_{Aeq,15min}$ sound level during the unattended or attended sound surveys during the daytime and night-time periods was 53 dB and 39 dB. The highest daytime and night-time specific sound levels of 43 dB and 38 dB fall 10 dB and 1 dB below this lowest measured $L_{Aeq,15min}$ sound levels.

Based on the above analysis, the risk of perceptible sound characteristics from the plant and activities at the receptors is low and no rating penalty has been applied.



The rating level assessments for the daytime, evening and night-time periods are set out in Tables 6.11, 6.12 and 6.13 below.

Table 6.11: Assessment Of Site Activities - Daytime

Item	Nearest Noise Sensitive Receptors			
	R1	R2	R3	R4
Specific Sound Level (dB L _{Aeq, Tr})	43	39	36	38
Rating Penalty (dB)	+0	+0	+0	+0
Rating Level (dB L _{Ar, Tr})	43	39	36	38
Relevant Background Sound Level (dB L _{A90, T})	48	48	49	49
BS4142 Assessment Level	-5	-9	-13	-11
Assessment (depending on context)	Low Impact	Low Impact	Low Impact	Low Impact

Table 6.12: Assessment Of Site Activities - Evening

Item	Nearest Noise Sensitive Receptors			
	R1	R2	R3	R4
Specific Sound Level (dB L _{Aeq, Tr})	40	36	35	36
Rating Penalty (dB)	+0	+0	+0	+0
Rating Level (dB L _{Ar, Tr})	40	36	35	36
Relevant Background Sound Level (dB L _{A90, T})	46	46	49	49
BS4142 Assessment Level	-6	-10	-14	-13
Assessment (depending on context)	Low Impact	Low Impact	Low Impact	Low Impact

Table 6.14: Assessment Of Site Activities – Night-time

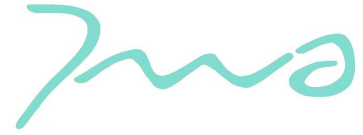
Item	Nearest Noise Sensitive Receptors			
	R1	R2	R3	R4
Specific Sound Level (dB L _{Aeq, Tr})	38	33	31	33
Rating Penalty (dB)	+0	+0	+0	+0
Rating Level (dB L _{Ar, Tr})	38	33	31	33
Relevant Background Sound Level (dB L _{A90, T})	43	43	40	39
BS4142 Assessment Level	-5	-10	-9	-6
Assessment (depending on context)	Low Impact	Low Impact	Low Impact	Low Impact

The results presented in Table 6.121 show that during the daytime period, the rating levels are calculated to be between 5dB and 13dB below the existing background sound level at closest receptors. This could be an indication of low noise impact, depending on context, according to the criteria set out in BS4142: 2014+A1:2019.

The results presented in Table 6.12 show that during the evening period, the rating levels are calculated to be between 6dB and 14dB below the existing background sound level at closest receptors. Again, this could be an indication of low noise impact, depending on context, according to the criteria set out in BS4142: 2014+A1:2019.

The results presented in Table 6.13 show that during the night-time period, the rating levels are calculated to be between 5dB and 10dB below the existing background sound level at closest receptors. Again, this could be an indication of low noise impact, depending on context, according to the criteria set out in BS4142: 2014+A1:2019.

The local authorities preferred criteria of a rating level of 5 dB below the background sound assessment level is also met for all assessment periods.



6.7 Context

When considering the significance of an impact, BS 4142 advises that the context of the impact should be taken into account. The context of the impact should consider factors such as: the absolute level of sound; the character and level of the residual sound compared to the character and level of the specific sound; the sensitivity of the receptor; and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

An important contextual consideration is that the proposed site is adjacent to a railway line, railway sidings and in an industrial and commercial area, with elevated ambient sound levels. The surrounding receptors are therefore used to the sound of a commercial nature and the proposed site is not expected to alter the existing acoustic character.

The lowest daytime and night-time mean averages of the measured $L_{Aeq,15min}$ sound level during the unattended or attended sound surveys were 54 dB and 46 dB. The highest daytime and night-time specific sound levels of 43 dB and 38 dB fall 11 dB and 8 dB below these average levels.

The lowest measured $L_{Aeq,15min}$ sound level during the unattended or attended sound surveys during the daytime and night-time periods was 53 dB and 39 dB, respectively. The highest daytime and night-time specific sound levels of 43 dB and 38 dB fall 10 dB and 1 dB below this lowest measured $L_{Aeq,15min}$ sound levels.

Internal sound levels would be lower by approximately 15 dB for windows partially open and by approximately 30 dB for windows closed. Applying these guideline reductions to the highest calculated daytime specific sound level of 43 dB calculated at R1, the internal guideline value of 35 dB $L_{Aeq,T}$ specified in BS 8233 ^[9] for daytime resting would be met, even where windows were open.

When applying the guideline reductions to the highest calculated night-time specific sound level of 38 dB calculated at R1, the internal guideline value of 30 dB $L_{Aeq,T}$ specified in BS 8233 for sleeping a night would be met, again, even where windows were open.

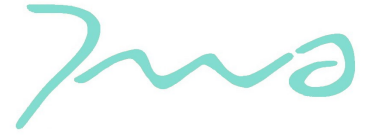
When considered in context, the risk of an adverse noise impact during the daytime period is low.

6.8 Uncertainty

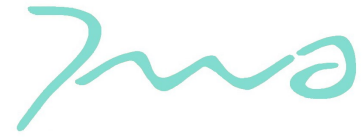
There are a variety of factors that inevitably limit the accuracy associated with all steps of any noise assessment, including measurement, calculation or prediction. Factors include, but are not limited to:

- the positioning of sound sources in the sound model is based on information provided by the client
- The inherent limitation of calculation/prediction methodology in Standards and guidance
- it is understood that all plant/equipment could be operated simultaneously within the daytime period. This has therefore been assumed in the assessment for a worst case daytime 1-hour and night-time 15-minute operation
- Variability in meteorological conditions
- The accuracy of sound source input data of a calculation or sound model.

It is imperative to minimise the uncertainty to a level commensurate with the intention of the assessment objective. Measures taken in this assessment to minimise uncertainty are:



- Sound level measurements were undertaken in accordance with recognised Standards. Measured sound data has been discounted where adverse weather may have influenced the sound dataset
- Field calibration checks were undertaken prior and after measurements to record acceptable drift
- Recognised sound prediction calculations have been used to calculate sound levels at sensitive locations and any assumptions have been stated



7 SUMMARY AND CONCLUSIONS

7th Wave Acoustics has been appointed by Wards of London Properties Limited and Urban Prop 8 S.À R.L to provide an acoustic report to accompany a planning application to the London Borough of Ealing (LBE) for the construction of a Material Recovery Facility located at Land Off Collett Way, Southall, London, UB2 4SE.

This acoustic report is also to be used to accompany an application for an environmental permit from the Environment Agency (EA).

A description of the existing development site and proposals are provided in Section 2. British Standard 4142 has been used to establish suitable criterion and methodology for the assessment and are discussed in Sections 3 and 4.

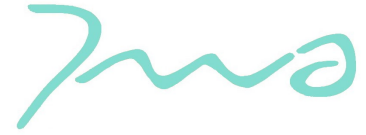
A combination of unattended and attended sound measurements have been undertaken to establish the existing sound environment, which is considered representative of the nearest noise sensitive receptors in the vicinity of the site. The relevant background sound levels adopted for the BS 4142 assessment are presented in Section 6.

The BS4142 assessment for the material recovery operations is also presented in Section 6. The rating levels have been determined in accordance with BS 4142 and compared against the relevant background sound levels.

The BS 4142 assessment indicates that the introduction of the material recovery processing operation would result in low impact, depending on context.

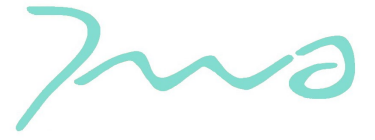
When considered in the context, it is likely that the sound from the on-site operations will not result in adverse noise impact at the nearest noise sensitive receptors.

The London Borough of Ealing's preferred noise criteria of a rating level of 5 dB below the background sound level is also met.



8 REFERENCES

1. Department of Communities and Local Government. National Planning Policy Framework, 2023
2. Defra. Noise Policy Statement for England. March 2010.
3. The London Plan. The Spatial Development Strategy for Greater London. March 2021.
4. Ealing's Adopted 2004 Plan for the Environment / DCLG Direction 2007. Chapter Four.
5. London Borough of Ealing. Supplementary Planning Guidance 2014. Noise And Vibration.
6. Environmental Permitting Regulations (England and Wales) Regulations. 2016.
7. BS 4142:2014 '*Methods for rating and assessing industrial and commercial sound*'.
8. ISO 9613-2 '*Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation*'.
9. British Standards Institution. BS 8233: 2014 '*Guidance on Sound Insulation and Noise Reduction for Buildings*'. 2014.



APPENDIX A: FIGURES

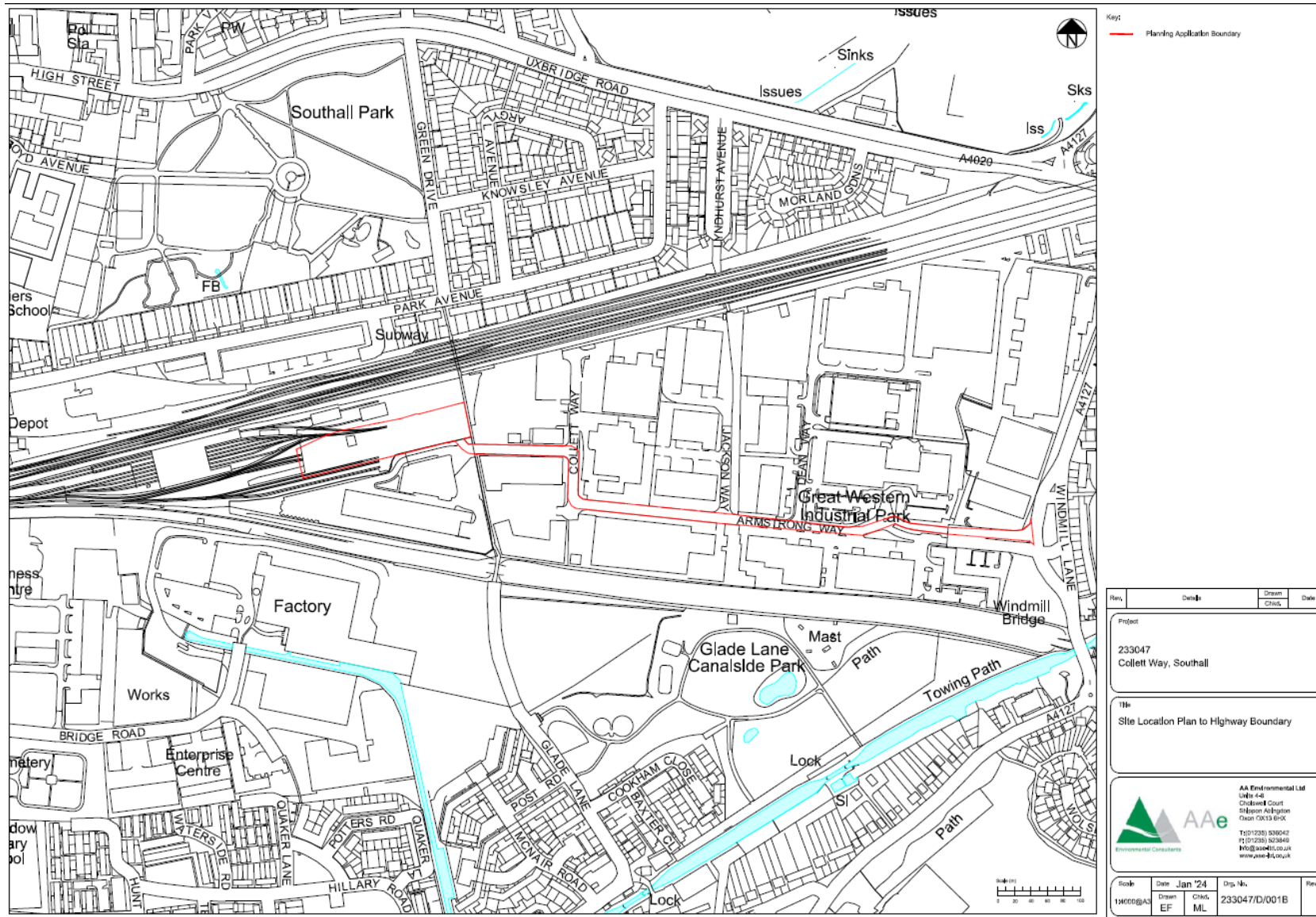


Figure A1: Site Location Plan to Highway Boundary



Figure A2: Site Location, Sound Monitoring Locations and Calculation Receptor Locations

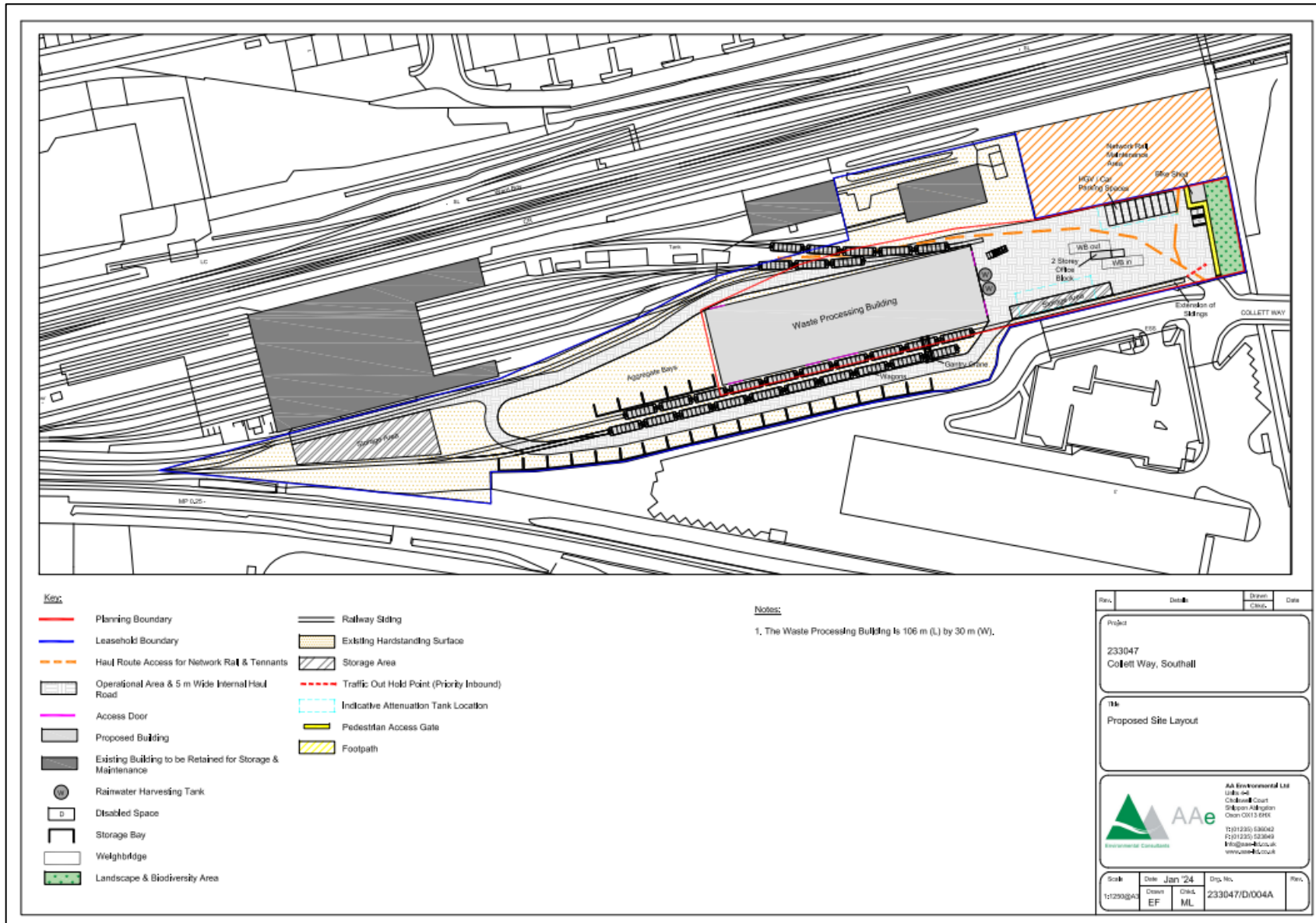


Figure A4: Proposed Site Layout

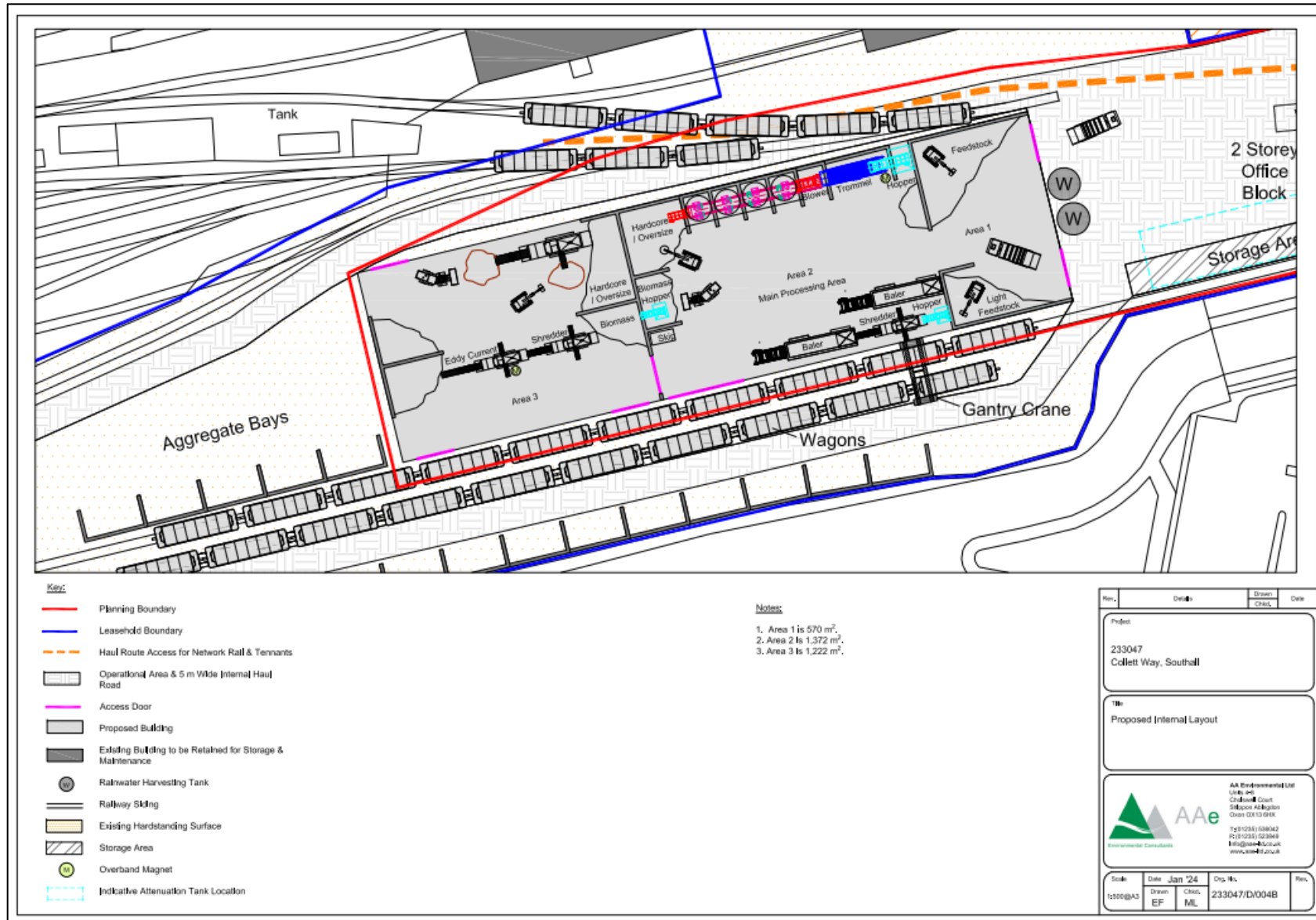


Figure A5: Proposed Internal Layout

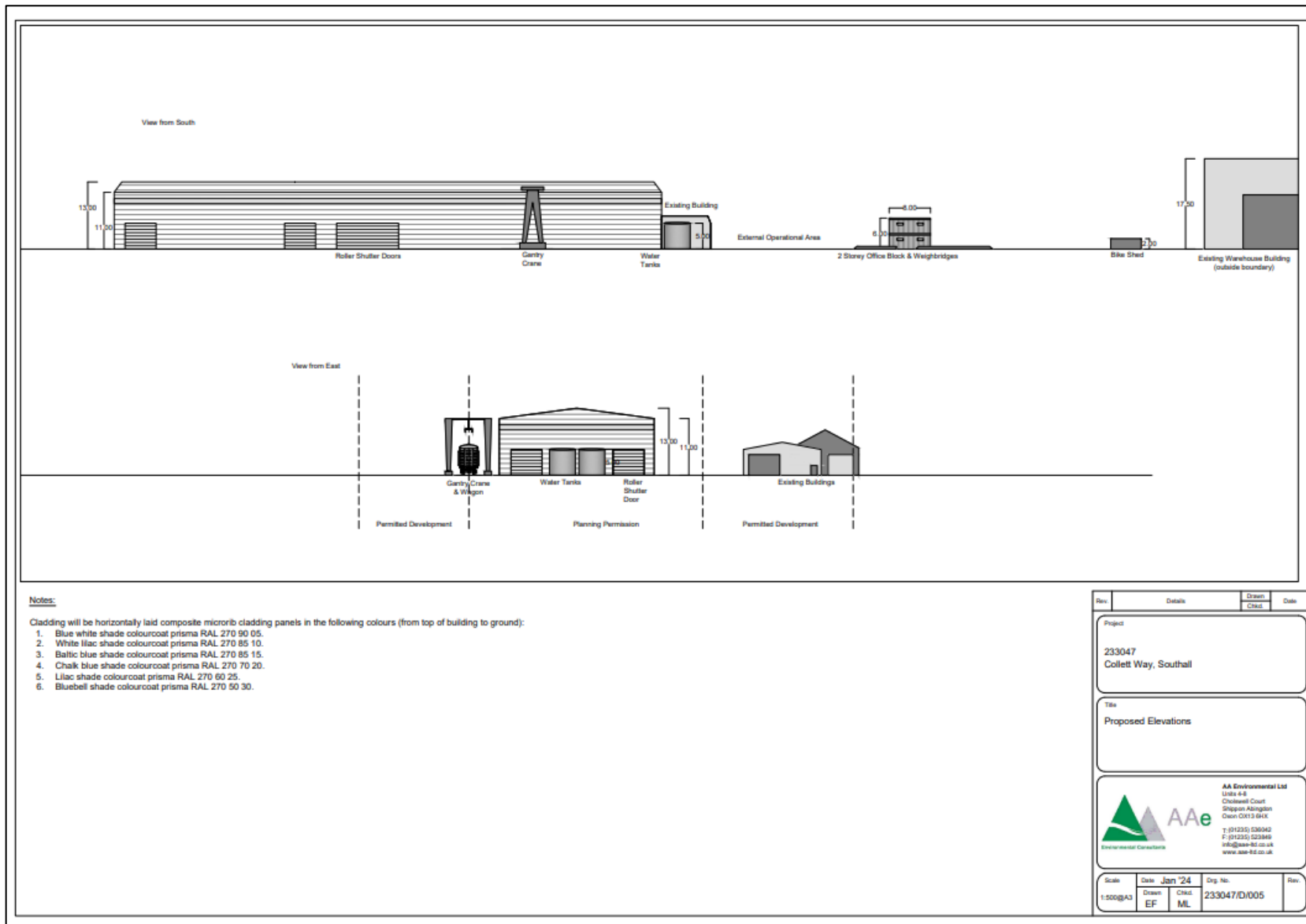


Figure A6: Proposed Elevations

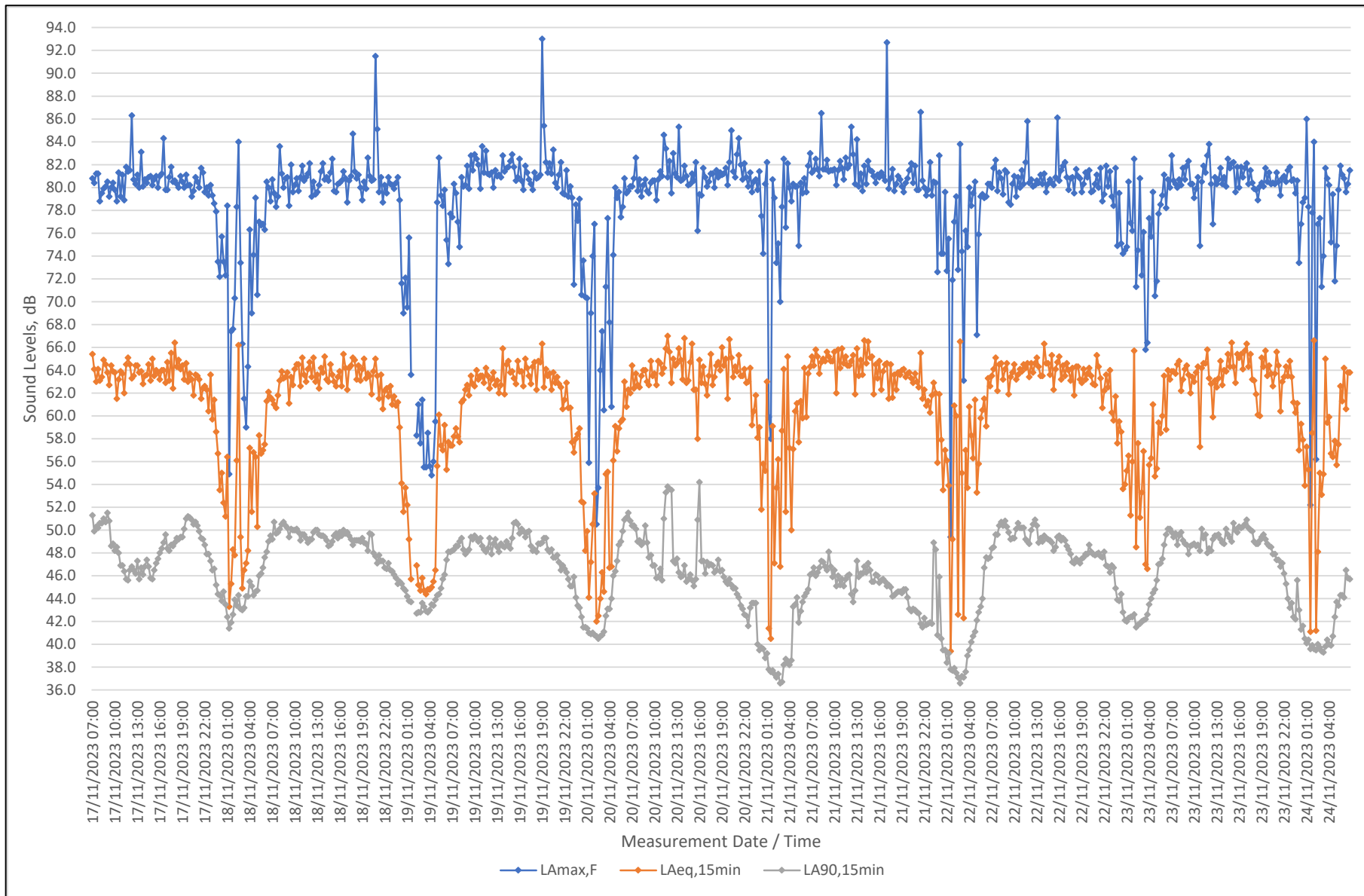


Figure A7: Time History of Unattended Sound Monitoring Data at LT1

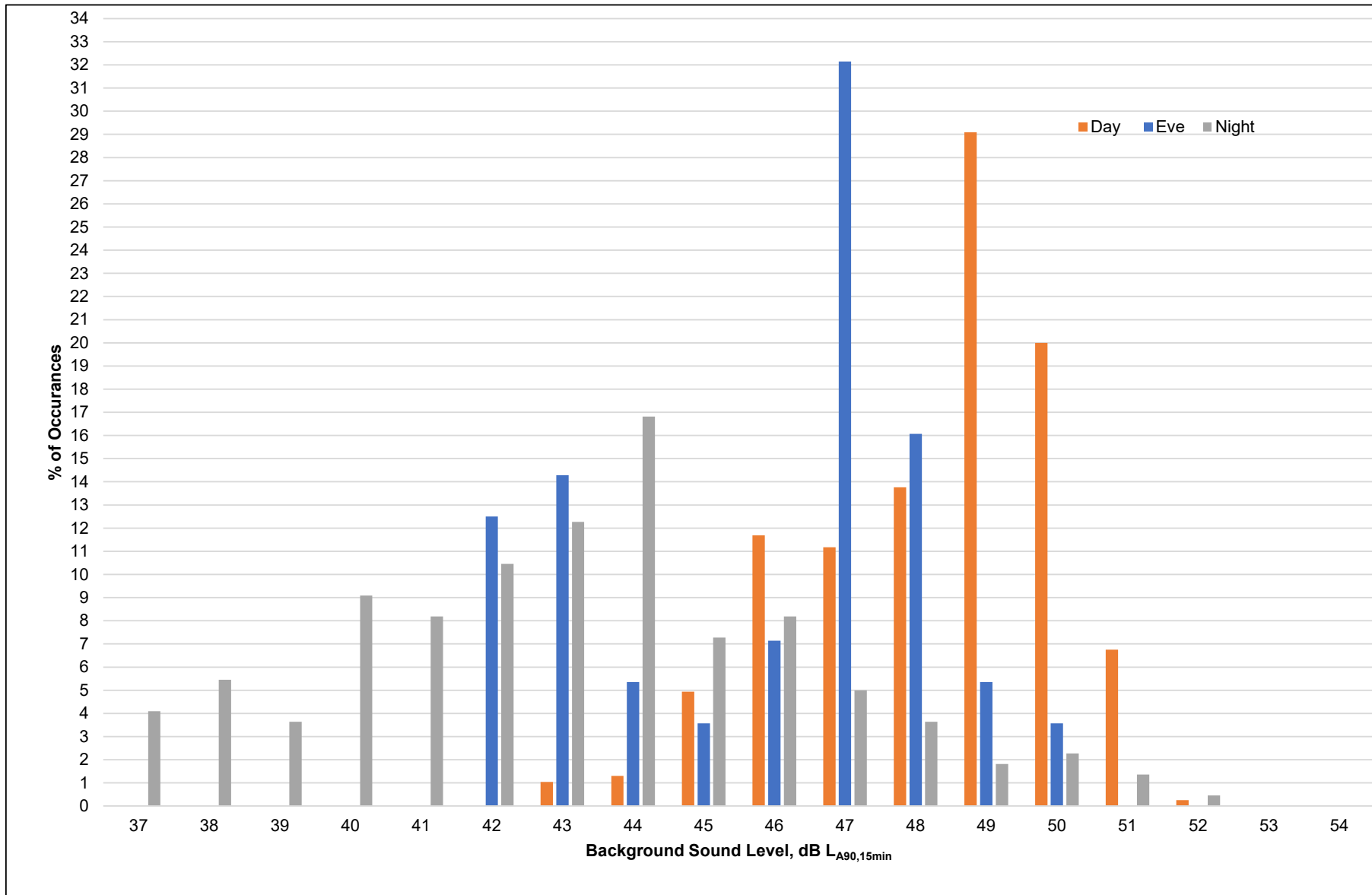


Figure A8: Derivation of Background Sound Levels at LT1

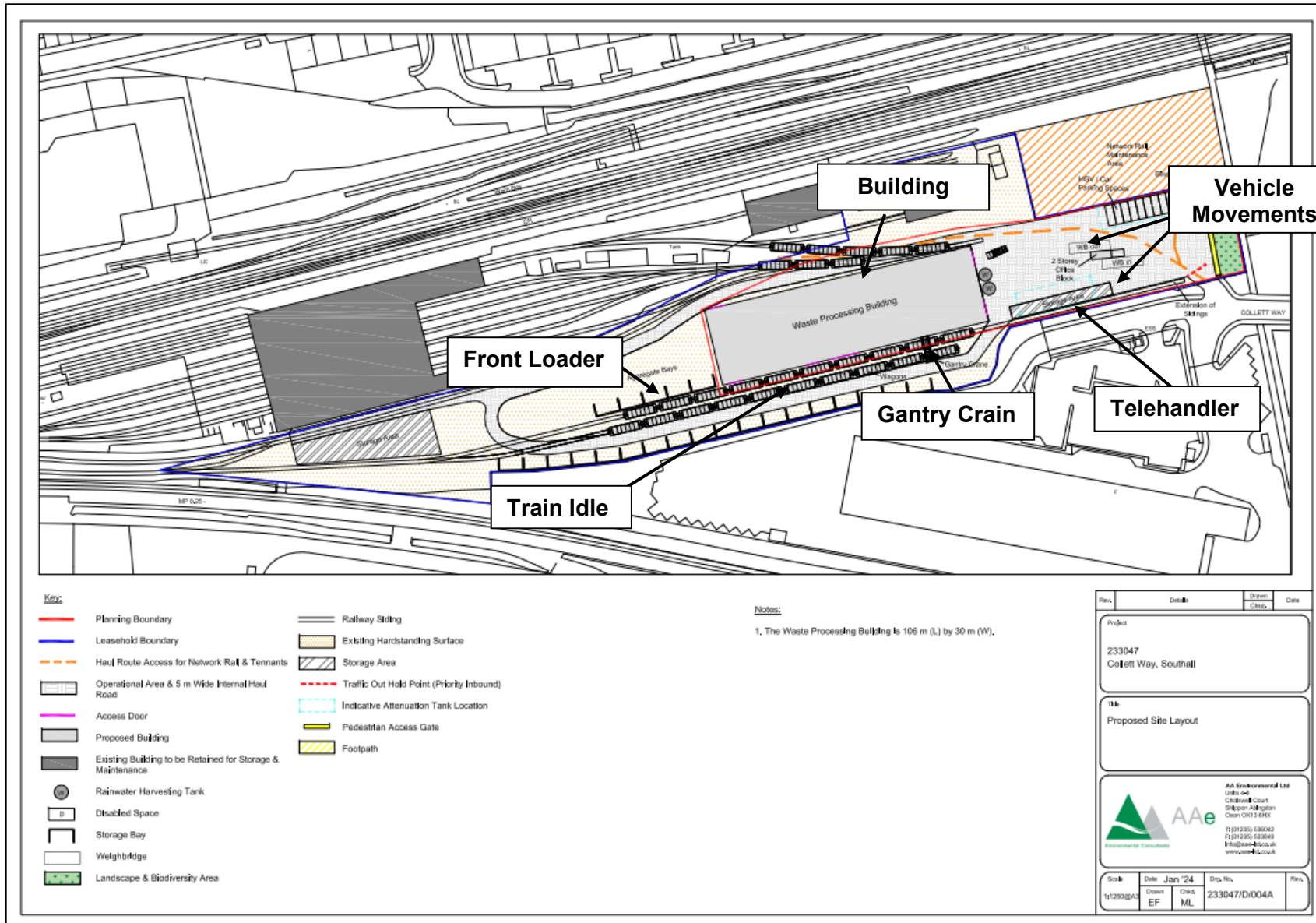


Figure A9: Modelled Source Locations

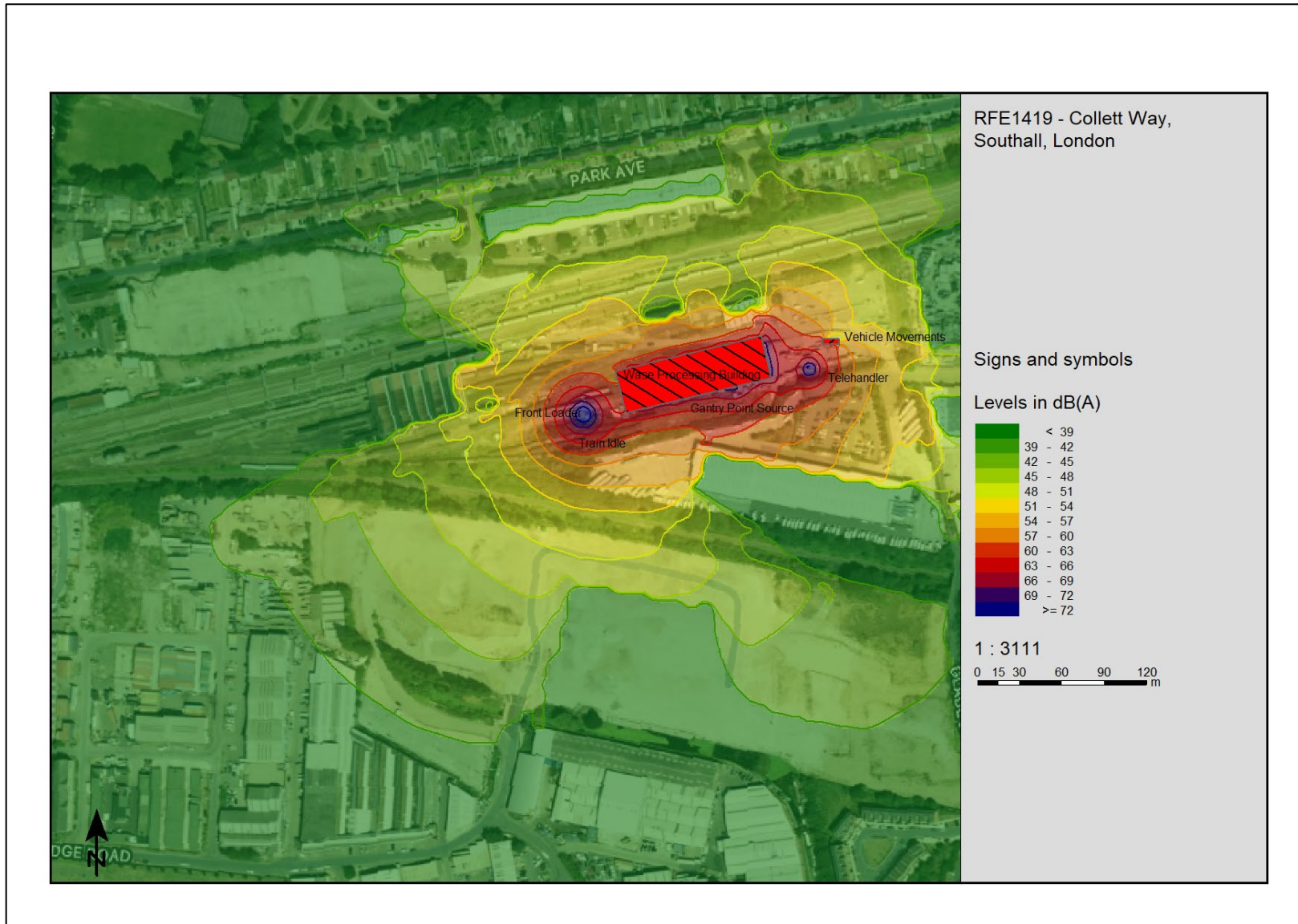


Figure A10: Daytime Sound Contour Plot

Note: Contour calculated at a height of 4m at 5m grid distances.

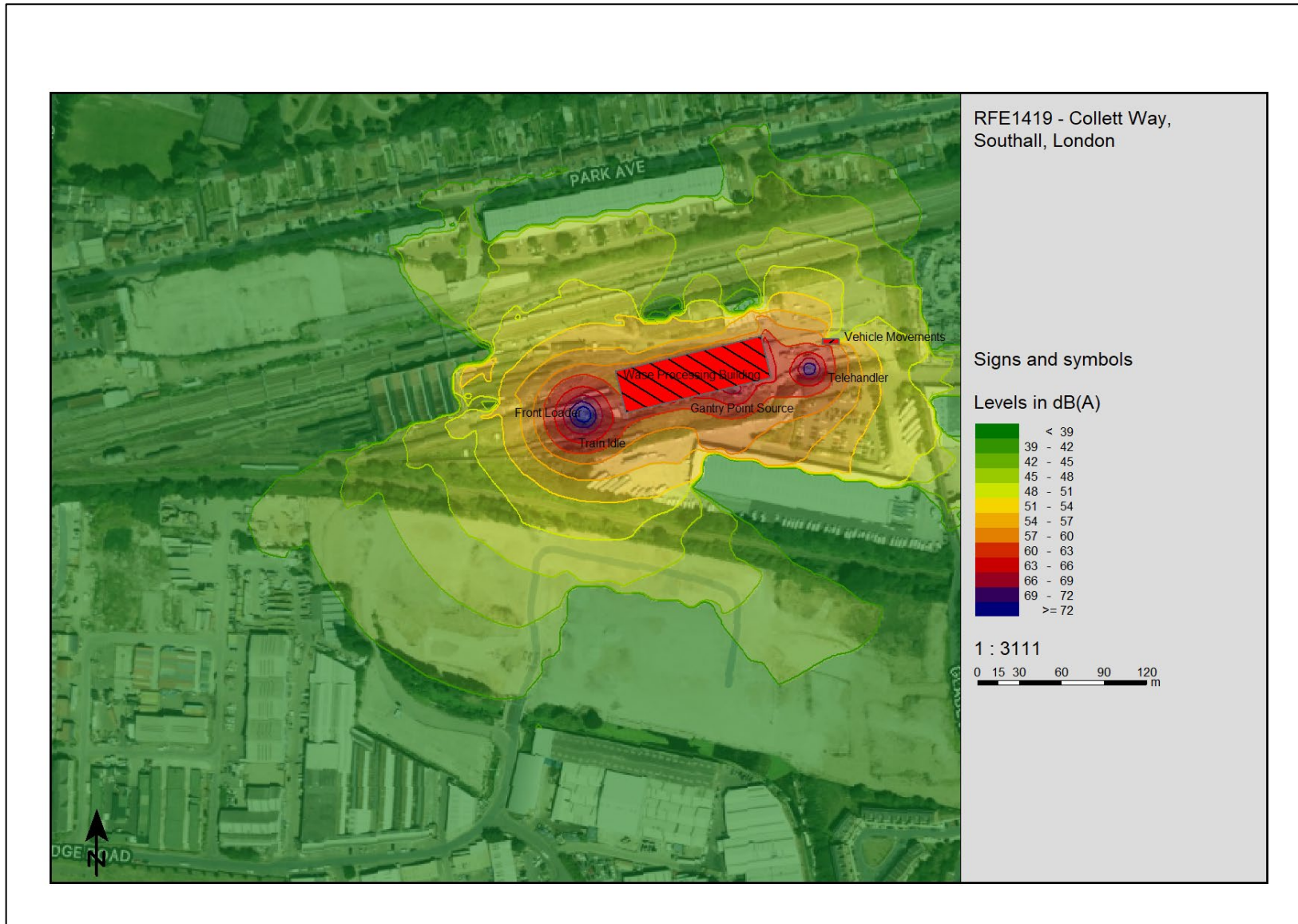


Figure A11: Evening Sound Contour Plot

Note: Contour calculated at a height of 1.5m at 5m grid distances.

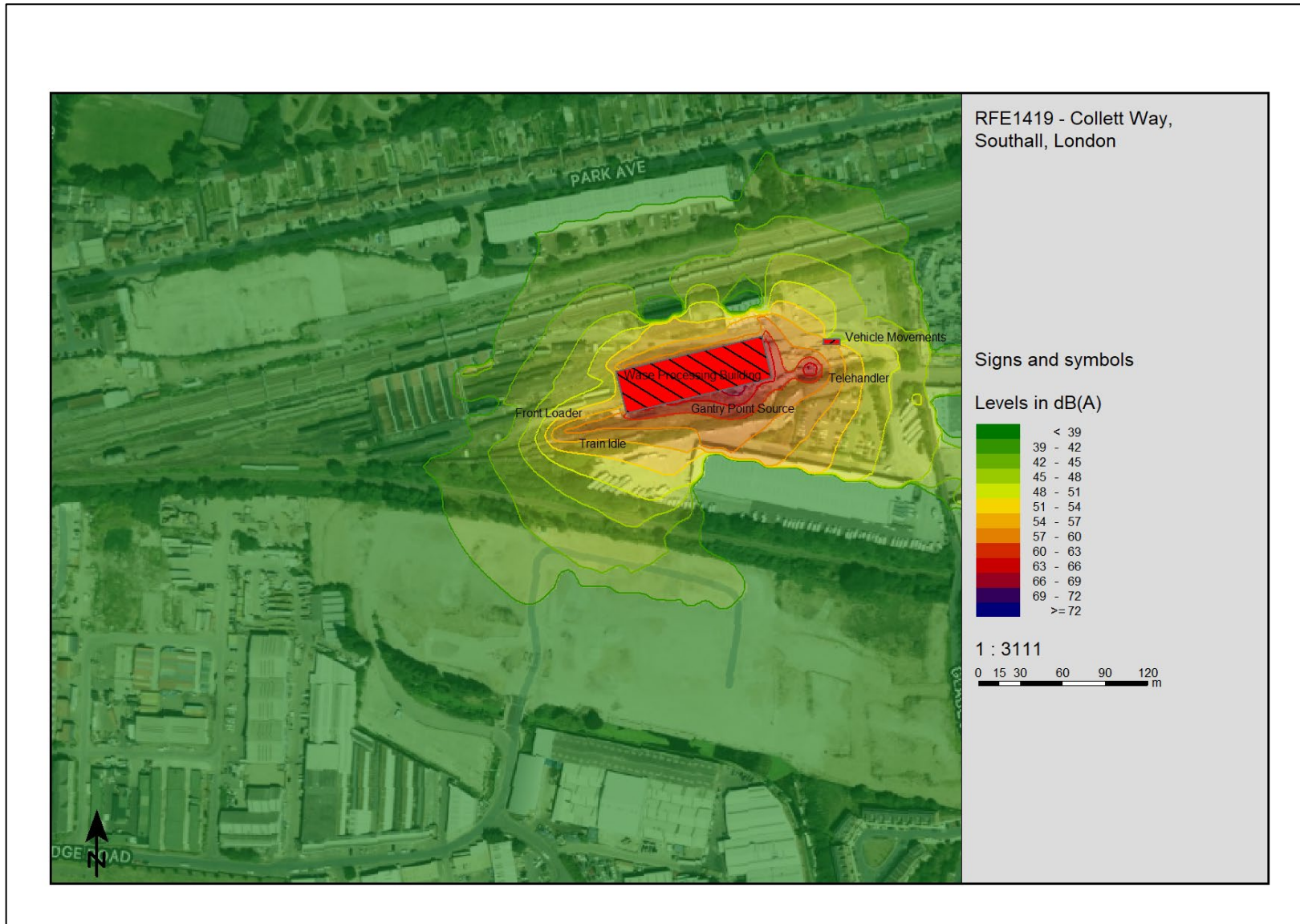
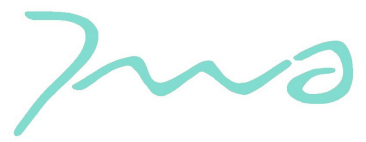


Figure A12: Night-time Sound Contour Plot

Note: Contour calculated at a height of 4.0m at 5m grid distances.



APPENDIX B: TABLES

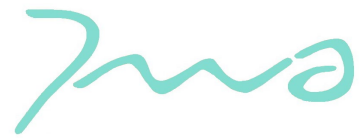


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Friday 17 th November 2023	07:00	80.8	65.4	51.3
	07:15	80.4	64.1	49.9
	07:30	81.2	63.0	50.3
	07:45	81.2	64.1	50.2
	08:00	78.8	63.1	50.6
	08:15	79.5	63.4	50.6
	08:30	79.9	64.9	51.0
	08:45	80.1	64.5	50.7
	09:00	80.5	63.8	51.5
	09:15	79.2	62.7	50.8
	09:30	80.0	64.4	48.6
	09:45	80.4	63.9	48.8
	10:00	79.8	63.8	48.2
	10:15	78.8	61.5	48.5
	10:30	81.3	63.2	48.0
	10:45	79.2	63.9	46.9
	11:00	81.1	63.7	46.9
	11:15	78.9	62.0	46.4
	11:30	81.8	64.5	45.7
	11:45	81.4	65.1	45.6
	12:00	81.5	64.5	46.5
	12:15	86.3	63.3	46.8
	12:30	80.7	63.5	46.5
	12:45	80.3	64.4	46.2
	13:00	81.1	64.4	47.3
	13:15	80.0	63.8	45.7
	13:30	83.1	63.9	46.7
	13:45	80.1	62.8	46.1
	14:00	80.7	63.5	46.8
	14:15	80.4	63.6	47.4
14:30	80.9	64.5	46.8	
14:45	81.0	63.1	45.8	
15:00	80.2	65.0	45.7	
15:15	80.7	63.5	46.5	
15:30	81.0	64.0	47.1	
15:45	80.0	63.8	47.5	
16:00	81.0	63.2	48.0	
16:15	81.2	64.0	48.4	
16:30	84.3	64.0	48.9	
16:45	79.8	62.9	49.6	
17:00	79.8	64.7	48.4	
17:15	80.9	63.1	48.2	
17:30	81.8	65.5	48.7	

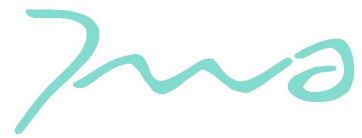


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Friday 17 th November 2023	17:45	80.5	62.4	48.6
	18:00	80.6	66.4	48.9
	18:15	80.3	64.3	49.3
	18:30	80.0	64.9	49.2
	18:45	81.0	64.1	49.4
	19:00	80.5	64.4	49.4
	19:15	80.0	63.2	50.1
	19:30	81.1	64.6	51.0
	19:45	80.2	63.0	51.2
	20:00	80.2	63.7	51.1
	20:15	79.2	63.2	50.9
	20:30	79.7	61.8	50.5
	20:45	80.9	63.6	50.7
	21:00	80.5	63.5	50.4
	21:15	80.0	63.2	49.9
	21:30	81.7	61.5	49.3
	21:45	81.3	62.4	49.2
	22:00	79.6	62.6	48.7
	22:15	80.0	62.3	47.9
	Saturday 18 th November 2023	22:30	79.3	60.4
22:45		80.2	63.6	47.3
23:00		79.3	59.7	46.5
23:15		78.6	61.4	46.6
23:30		77.9	58.6	45.2
23:45		73.5	56.7	44.4
00:00		72.2	53.5	44.3
00:15		75.7	55.0	43.8
00:30		73.5	52.4	44.6
00:45		72.3	51.2	43.5
01:00		78.4	56.4	42.4
01:15		54.9	43.3	41.4
01:30		67.4	45.3	41.9
01:45		67.6	48.3	42.6
02:00		70.3	47.8	43.9
02:15		78.3	56.1	43.4
02:30		84.0	66.2	44.3
02:45		73.4	49.4	43.1
03:00		66.3	44.9	43.0
03:15		61.5	46.5	43.2
03:30	59.0	47.1	44.2	
03:45	64.3	48.2	44.2	
04:00	76.3	57.2	45.5	
04:15	69.0	51.6	45.1	

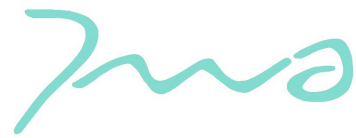


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Saturday 18 th November 2023	04:30	74.1	56.8	44.3
	04:45	79.1	56.4	44.6
	05:00	70.6	50.3	44.7
	05:15	77.0	58.3	46.0
	05:30	76.7	56.7	46.2
	05:45	76.8	57.0	46.7
	06:00	76.3	57.5	47.6
	06:15	80.5	61.3	48.1
	06:30	80.0	62.1	49.0
	06:45	78.8	61.6	49.5
	07:00	80.7	61.4	49.2
	07:15	79.5	61.0	50.7
	07:30	78.3	60.7	49.7
	07:45	79.2	61.8	49.8
	08:00	83.6	63.1	50.1
	08:15	81.2	63.9	50.5
	08:30	80.0	63.3	50.7
	08:45	80.8	63.4	50.4
	09:00	80.9	63.8	50.2
	09:15	78.4	61.1	49.4
	09:30	82.0	63.4	50.1
	09:45	79.6	62.7	50.0
	10:00	80.2	64.1	50.0
	10:15	80.8	64.5	50.1
	10:30	79.7	64.5	49.8
	10:45	80.9	62.6	49.1
	11:00	81.9	65.1	49.6
	11:15	80.6	63.6	49.6
	11:30	80.9	63.0	49.3
	11:45	81.2	64.1	48.9
12:00	82.1	64.7	49.2	
12:15	79.2	63.4	49.2	
12:30	80.5	65.1	49.8	
12:45	79.4	63.0	50.0	
13:00	79.6	63.6	50.0	
13:15	80.2	62.4	49.6	
13:30	81.4	64.2	49.5	
13:45	82.1	63.8	49.5	
14:00	80.7	65.2	49.4	
14:15	80.9	63.2	49.1	
14:30	80.6	63.0	48.6	
14:45	81.3	64.5	48.7	
15:00	82.5	63.6	49.0	



Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Saturday 18 th November 2023	15:15	79.7	63.0	49.5
	15:30	79.6	62.6	49.7
	15:45	80.3	63.4	49.3
	16:00	80.4	63.9	49.8
	16:15	80.6	62.6	49.5
	16:30	81.4	65.4	50.0
	16:45	80.8	64.2	49.7
	17:00	78.7	62.3	49.8
	17:15	80.6	64.2	49.5
	17:30	81.0	64.4	49.2
	17:45	84.7	65.1	48.7
	18:00	81.4	64.9	49.1
	18:15	80.8	63.2	49.1
	18:30	81.1	64.4	49.1
	18:45	80.0	63.1	49.0
	19:00	78.9	64.1	49.3
	19:15	80.5	65.0	48.9
	19:30	79.9	63.3	48.8
	19:45	82.6	63.7	48.2
	20:00	81.0	63.5	49.7
	20:15	80.6	61.9	49.6
	20:30	80.7	63.9	48.0
	20:45	91.5	65.0	47.7
	21:00	85.1	63.5	47.1
	21:15	79.6	61.5	47.8
	21:30	80.9	63.6	47.3
	21:45	78.7	60.6	47.3
	22:00	80.2	62.2	46.7
	22:15	79.5	62.4	46.6
	22:30	80.9	61.7	47.1
22:45	80.3	62.6	46.5	
23:00	80.2	61.0	46.4	
23:15	79.9	61.7	46.1	
23:30	80.4	60.9	45.8	
23:45	80.9	61.2	45.3	
Sunday 19 th November 2023	00:00	78.9	59.0	45.5
	00:15	71.6	54.1	45.3
	00:30	69.0	51.6	44.9
	00:45	72.1	53.7	44.7
	01:00	69.5	52.2	44.2
	01:15	75.6	49.2	43.8
	01:30	63.6	45.7	43.7
	01:45	Missing Data		

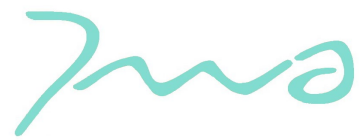


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Sunday 19 th November 2023	02:00	Missing Data		
	02:15	58.3	46.9	42.7
	02:30	61.0	45.2	42.8
	02:45	57.6	44.7	42.8
	03:00	61.4	45.8	43.6
	03:15	55.5	44.7	43.3
	03:30	55.5	44.4	42.9
	03:45	58.5	44.8	42.8
	04:00	55.6	44.8	43.0
	04:15	54.8	45.0	43.5
	04:30	56.0	45.5	43.4
	04:45	59.5	46.5	43.9
	05:00	78.7	55.6	44.3
	05:15	82.6	60.1	44.4
	05:30	79.3	57.4	44.9
	05:45	78.4	57.0	45.7
	06:00	79.8	59.2	46.1
	06:15	75.4	55.3	47.4
	06:30	73.3	57.7	48.1
	06:45	77.7	57.4	48.1
	07:00	77.4	57.4	48.2
	07:15	80.3	58.2	48.3
	07:30	79.5	58.9	48.6
	07:45	77.0	58.2	48.6
	08:00	74.8	57.7	49.0
	08:15	80.9	61.2	49.3
	08:30	80.1	61.4	48.3
	08:45	80.2	62.3	47.9
	09:00	81.9	62.7	48.1
	09:15	79.9	61.8	48.3
09:30	82.8	63.5	49.4	
09:45	81.5	62.8	49.2	
10:00	82.9	62.6	49.5	
10:15	82.5	64.0	49.3	
10:30	82.0	63.2	49.0	
10:45	79.9	63.5	49.3	
11:00	83.6	63.5	48.6	
11:15	81.3	62.9	48.3	
11:30	83.2	64.2	48.1	
11:45	81.2	63.5	48.4	
12:00	81.1	62.4	49.3	
12:15	81.3	63.2	47.9	
12:30	80.0	63.8	48.8	

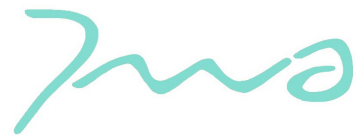


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Sunday 19 th November 2023	12:45	81.5	62.7	49.2
	13:00	81.0	63.1	48.5
	13:15	81.1	62.0	48.1
	13:30	80.9	62.7	48.8
	13:45	82.8	65.9	48.6
	14:00	81.4	61.9	48.5
	14:15	81.7	64.5	49.0
	14:30	81.8	64.8	48.7
	14:45	82.3	63.8	48.4
	15:00	82.9	63.9	49.3
	15:15	81.8	63.3	50.6
	15:30	80.6	62.8	50.7
	15:45	80.9	64.8	50.5
	16:00	82.5	63.9	49.7
	16:15	80.6	63.9	50.1
	16:30	79.8	62.6	49.9
	16:45	81.9	65.0	49.4
	17:00	81.3	64.2	49.8
	17:15	80.7	63.5	49.9
	17:30	80.3	62.8	48.6
	17:45	79.8	64.3	48.2
	18:00	81.3	64.7	48.3
	18:15	80.8	62.3	48.1
	18:30	80.9	64.8	48.8
	18:45	81.1	64.7	48.8
	19:00	93.0	66.3	48.9
	19:15	85.4	62.5	49.3
	19:30	82.2	64.1	49.3
	19:45	81.3	63.5	48.3
	20:00	82.1	63.7	48.1
20:15	81.2	62.3	48.3	
20:30	83.3	63.8	47.6	
20:45	80.4	62.9	47.6	
21:00	80.0	63.4	47.8	
21:15	81.1	62.8	47.2	
21:30	82.2	62.5	46.5	
21:45	79.5	60.6	46.9	
22:00	79.4	61.4	46.6	
22:15	81.5	62.9	46.3	
22:30	79.2	60.7	45.7	
22:45	80.1	60.7	45.1	
23:00	79.1	57.7	45.1	
23:15	71.5	56.8	45.9	



Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Sunday 19 th November 2023	23:30	78.5	58.0	44.1
	23:45	77.1	58.4	43.4
Monday 20 th November 2023	00:00	79.0	58.9	43.2
	00:15	70.6	52.5	42.4
	00:30	73.6	52.4	41.5
	00:45	70.4	48.2	41.5
	01:00	70.3	49.9	41.4
	01:15	55.9	44.1	41.0
	01:30	69.0	47.2	40.9
	01:45	74.0	50.5	41.0
	02:00	76.8	53.2	40.8
	02:15	50.5	42.0	40.7
	02:30	53.7	42.5	40.5
	02:45	64.0	44.0	40.7
	03:00	67.4	46.3	40.8
	03:15	60.5	44.6	41.1
	03:30	71.3	54.9	42.5
	03:45	77.3	55.1	43.1
	04:00	68.2	46.7	43.1
	04:15	60.8	46.8	44.0
	04:30	74.1	56.1	46.0
	04:45	80.0	59.1	46.4
05:00	79.1	56.9	47.3	
05:15	79.6	58.9	48.7	
05:30	77.4	59.5	49.0	
05:45	78.3	59.7	49.9	
06:00	80.8	63.0	50.9	
06:15	79.5	60.8	51.1	
06:30	79.7	62.3	51.5	
06:45	80.1	62.0	50.8	
07:00	80.1	64.4	50.4	
07:15	80.8	62.4	50.4	
07:30	82.6	63.7	50.1	
07:45	79.7	62.7	49.0	
08:00	80.7	62.5	49.1	
08:15	79.2	63.5	48.7	
08:30	80.2	64.0	48.9	
08:45	80.7	64.0	50.4	
09:00	79.7	63.0	48.9	
09:15	79.5	62.7	47.6	
09:30	80.4	64.8	47.8	
09:45	80.6	63.5	46.9	
10:00	80.6	63.7	46.9	

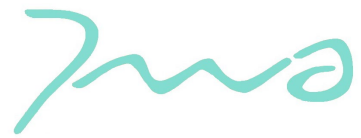


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Monday 20 th November 2023	10:15	78.9	62.7	45.8
	10:30	80.7	64.8	45.9
	10:45	81.4	64.6	46.6
	11:00	81.0	63.7	45.6
	11:15	84.6	64.2	51.0
	11:30	83.4	65.9	53.3
	11:45	80.9	67.0	53.8
	12:00	82.3	65.6	53.6
	12:15	79.5	62.9	53.5
	12:30	83.0	65.0	47.3
	12:45	81.2	64.4	47.1
	13:00	80.9	64.6	47.5
	13:15	85.3	65.9	46.3
	13:30	80.6	64.9	45.9
	13:45	80.7	63.2	46.0
	14:00	81.9	66.8	46.9
	14:15	81.0	62.9	45.5
	14:30	80.2	63.1	45.7
	14:45	80.3	64.7	46.1
	15:00	81.2	66.3	45.6
	15:15	80.6	62.3	45.1
	15:30	82.2	62.3	45.7
	15:45	76.2	58.0	50.9
	16:00	79.4	64.9	54.2
	16:15	79.3	62.9	47.3
	16:30	81.7	64.3	47.3
	16:45	80.9	62.8	46.2
	17:00	80.1	61.8	47.2
	17:15	80.5	63.5	46.9
	17:30	81.2	65.4	47.0
17:45	81.2	62.7	46.9	
18:00	80.0	63.4	46.3	
18:15	81.5	64.4	46.5	
18:30	80.9	64.7	47.4	
18:45	81.3	64.0	46.4	
19:00	81.1	66.0	46.5	
19:15	81.2	64.4	45.9	
19:30	81.7	65.0	45.5	
19:45	80.2	61.5	45.3	
20:00	82.2	66.7	45.7	
20:15	85.0	65.1	45.2	
20:30	81.4	63.4	44.9	
20:45	80.9	64.3	44.9	

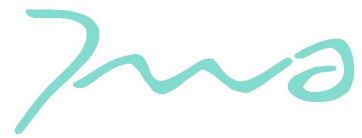


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Monday 20 th November 2023	21:00	82.9	63.9	44.4
	21:15	84.3	65.3	44.1
	21:30	82.0	63.5	43.4
	21:45	80.7	63.5	43.1
	22:00	82.1	64.1	42.6
	22:15	80.9	62.9	42.5
	22:30	80.1	63.0	41.6
	22:45	81.3	64.2	43.2
	23:00	79.6	59.2	43.6
	23:15	80.5	60.4	43.6
	23:30	80.7	61.8	43.6
	23:45	79.8	58.1	40.0
	Tuesday 21 st November 2023	00:00	81.4	59.0
00:15		77.5	51.8	39.7
00:30		74.2	55.8	39.6
00:45		80.3	55.2	38.8
01:00		82.2	63.0	39.2
01:15		59.9	41.4	37.8
01:30		58.0	40.5	37.6
01:45		80.7	59.1	37.7
02:00		79.1	47.1	37.4
02:15		73.4	53.7	37.1
02:30		75.1	56.2	37.4
02:45		70.0	46.8	36.6
03:00		78.3	58.7	36.7
03:15		82.5	64.1	38.2
03:30		76.5	51.6	38.7
03:45		82.1	65.2	38.4
04:00		80.0	57.2	38.2
04:15		78.8	50.0	38.6
04:30		80.3	57.1	43.3
04:45		80.1	60.4	43.5
05:00		80.1	61.1	44.1
05:15		74.9	57.7	41.9
05:30		80.4	61.3	42.9
05:45		79.5	59.8	43.7
06:00	80.8	64.2	44.2	
06:15	79.6	59.9	44.5	
06:30	81.9	63.7	44.8	
06:45	83.0	64.3	46.1	
07:00	81.3	65.2	46.2	
07:15	81.5	64.4	46.7	
07:30	82.5	65.8	46.0	

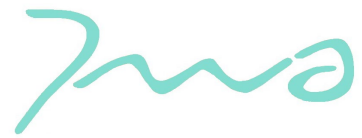


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Tuesday 21 st November 2023	07:45	81.6	65.2	46.3
	08:00	81.0	63.7	46.7
	08:15	86.5	64.7	47.3
	08:30	81.6	65.0	47.2
	08:45	81.6	64.8	46.8
	09:00	82.4	65.6	46.5
	09:15	81.4	65.2	48.1
	09:30	81.5	64.8	46.8
	09:45	81.5	64.8	45.9
	10:00	81.6	65.6	46.5
	10:15	80.2	62.0	45.1
	10:30	81.5	65.8	46.0
	10:45	82.3	64.2	45.2
	11:00	81.7	65.9	45.7
	11:15	80.7	64.6	45.1
	11:30	82.6	65.2	45.7
	11:45	81.7	64.4	46.0
	12:00	82.0	64.4	46.1
	12:15	85.3	64.8	44.4
	12:30	82.9	65.3	43.7
	12:45	80.3	61.9	44.7
	13:00	84.2	65.9	47.3
	13:15	80.1	63.5	45.9
	13:30	81.2	64.9	46.2
	13:45	79.7	63.6	46.2
	14:00	81.9	66.6	46.8
	14:15	80.3	64.6	46.3
	14:30	82.3	66.5	47.1
	14:45	81.5	65.1	46.5
	15:00	81.4	65.2	45.5
15:15	81.0	61.9	45.5	
15:30	80.4	64.5	46.1	
15:45	81.1	63.3	46.0	
16:00	80.9	64.8	45.4	
16:15	81.3	62.3	45.6	
16:30	81.0	63.9	45.7	
16:45	80.6	64.5	45.5	
17:00	92.7	64.6	45.1	
17:15	79.9	61.5	45.2	
17:30	80.8	64.5	45.0	
17:45	81.6	61.6	44.2	
18:00	79.7	63.6	44.3	
18:15	80.3	62.3	44.5	

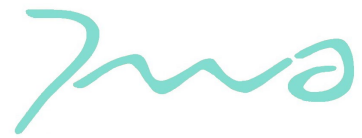


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Tuesday 21 st November 2023	18:30	81.0	63.8	44.6
	18:45	80.7	63.6	44.6
	19:00	80.1	64.0	44.5
	19:15	79.6	64.1	44.8
	19:30	80.4	63.4	44.8
	19:45	80.8	63.7	44.1
	20:00	81.5	63.8	43.1
	20:15	82.1	63.3	42.9
	20:30	80.4	62.9	43.1
	20:45	81.9	63.7	43.0
	21:00	79.8	63.0	42.8
	21:15	79.8	62.5	42.7
	21:30	86.6	65.5	41.8
	21:45	80.6	61.5	41.5
	22:00	80.0	62.3	42.3
	22:15	79.3	60.9	41.7
	22:30	79.8	61.3	41.8
	22:45	82.2	60.3	41.9
	23:00	79.3	61.8	41.8
	23:15	80.5	62.9	48.9
23:30	80.4	62.0	48.3	
23:45	72.6	55.9	40.8	
Wednesday 22 nd November 2023	00:00	82.8	61.9	45.9
	00:15	74.2	57.9	40.5
	00:30	74.2	53.5	39.5
	00:45	79.6	57.0	39.5
	01:00	72.7	56.1	38.4
	01:15	75.5	53.9	39.2
	01:30	49.4	39.4	37.8
	01:45	71.9	49.2	37.7
	02:00	77.0	60.9	37.9
	02:15	79.2	60.0	37.5
	02:30	72.8	42.6	37.1
	02:45	83.8	66.5	36.6
	03:00	74.4	55.0	37.2
	03:15	63.1	42.3	37.1
	03:30	76.2	57.0	37.6
03:45	74.8	53.7	39.0	
04:00	80.0	60.8	39.5	
04:15	78.4	58.3	40.2	
04:30	79.5	56.3	40.7	
04:45	80.5	61.4	41.1	
05:00	67.1	53.3	42.1	

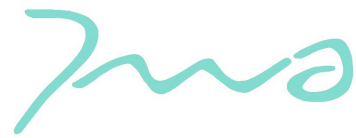


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Wednesday 22 nd November 2023	05:15	75.9	55.8	42.8
	05:30	79.2	59.8	43.3
	05:45	79.4	60.5	44.0
	06:00	79.1	61.5	46.7
	06:15	79.2	59.1	47.6
	06:30	80.3	63.3	47.5
	06:45	80.3	62.6	47.6
	07:00	80.0	63.5	48.4
	07:15	81.7	64.1	48.5
	07:30	82.4	65.1	49.6
	07:45	79.7	62.2	49.6
	08:00	81.3	64.5	50.4
	08:15	80.8	64.6	50.7
	08:30	79.4	63.2	50.4
	08:45	81.5	64.1	50.8
	09:00	81.3	64.6	50.3
	09:15	78.7	61.9	49.8
	09:30	78.5	63.4	49.2
	09:45	80.3	63.8	49.3
	10:00	81.0	64.5	49.3
	10:15	79.2	63.2	50.1
	10:30	80.9	63.6	50.6
	10:45	80.0	64.1	50.2
	11:00	81.5	63.9	50.2
	11:15	80.3	64.5	50.2
	11:30	82.2	64.2	49.2
	11:45	85.8	64.6	49.0
	12:00	80.4	63.4	48.8
	12:15	80.7	64.6	50.0
	12:30	80.1	63.8	50.5
12:45	80.2	64.6	50.9	
13:00	80.6	65.1	50.4	
13:15	80.4	64.3	48.9	
13:30	81.1	63.5	49.3	
13:45	80.3	63.5	49.0	
14:00	81.2	66.3	49.5	
14:15	79.6	64.6	49.3	
14:30	80.3	64.6	49.2	
14:45	80.7	63.6	49.1	
15:00	80.4	65.3	48.9	
15:15	80.2	62.3	48.2	
15:30	80.9	64.1	48.5	
15:45	86.1	64.7	49.4	

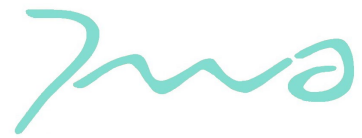


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Wednesday 22 nd November 2023	16:00	80.6	65.2	49.5
	16:15	81.5	63.2	49.1
	16:30	81.9	64.4	49.3
	16:45	82.2	63.5	49.1
	17:00	80.9	64.6	48.6
	17:15	79.8	64.0	48.3
	17:30	80.8	63.1	47.9
	17:45	80.9	64.2	47.2
	18:00	79.5	61.8	47.1
	18:15	81.6	64.3	47.5
	18:30	81.0	64.3	47.3
	18:45	80.8	63.2	47.1
	19:00	79.6	62.9	47.5
	19:15	80.3	64.1	47.6
	19:30	81.3	63.2	47.9
	19:45	80.9	63.7	47.9
	20:00	81.5	64.2	48.7
	20:15	79.6	63.5	48.1
	20:30	79.7	62.8	47.9
	20:45	80.3	62.7	47.8
	21:00	81.1	65.3	47.9
	21:15	80.0	64.3	48.0
	21:30	81.7	63.3	47.7
	21:45	78.8	60.7	47.6
	22:00	79.4	62.2	48.1
	22:15	81.9	63.6	46.9
	22:30	80.1	62.5	46.8
	22:45	81.4	64.0	46.3
	23:00	79.2	60.3	46.9
	23:15	78.4	59.6	46.7
23:30	81.7	61.7	44.9	
23:45	74.9	57.6	43.9	
Thursday 23 rd November 2023	00:00	79.5	59.5	43.8
	00:15	75.1	58.6	44.4
	00:30	74.2	53.6	42.8
	00:45	74.5	54.0	42.1
	01:00	74.8	55.2	42.0
	01:15	80.5	56.5	42.3
	01:30	76.9	51.3	42.4
	01:45	76.2	56.0	42.4
	02:00	82.5	65.7	42.6
	02:15	71.3	48.5	41.5
	02:30	74.5	57.6	41.7

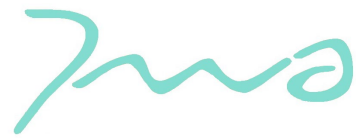


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Thursday 23 rd November 2023	02:45	80.8	51.1	41.8
	03:00	72.3	53.3	42.0
	03:15	76.1	56.9	42.1
	03:30	65.8	47.0	42.2
	03:45	66.4	46.6	42.6
	04:00	77.3	55.7	43.5
	04:15	75.7	56.3	44.0
	04:30	79.6	61.0	44.5
	04:45	70.5	54.7	44.8
	05:00	71.8	55.4	45.6
	05:15	77.7	59.4	47.0
	05:30	78.5	58.5	47.1
	05:45	79.3	60.0	47.5
	06:00	81.1	63.5	48.7
	06:15	78.2	58.8	49.6
	06:30	80.7	64.0	50.1
	06:45	80.0	63.2	50.1
	07:00	82.8	63.9	49.8
	07:15	80.6	63.9	49.4
	07:30	80.3	63.7	49.7
	07:45	80.0	64.5	48.7
	08:00	80.7	64.8	49.5
	08:15	80.2	62.2	49.8
	08:30	81.7	63.2	49.1
	08:45	80.7	64.1	48.8
	09:00	81.9	64.4	48.7
	09:15	82.3	63.6	47.9
	09:30	80.3	62.0	48.6
	09:45	80.3	63.4	48.7
	10:00	79.1	63.0	48.8
10:15	79.9	63.8	48.6	
10:30	80.9	64.3	48.7	
10:45	74.9	57.3	48.2	
11:00	80.5	64.2	50.1	
11:15	81.9	64.6	49.3	
11:30	81.3	64.6	49.6	
11:45	82.8	65.8	48.0	
12:00	83.8	63.3	48.4	
12:15	80.3	62.8	48.2	
12:30	76.8	59.9	49.2	
12:45	80.9	63.1	49.5	
13:00	80.3	62.5	49.5	
13:15	80.7	63.3	49.6	

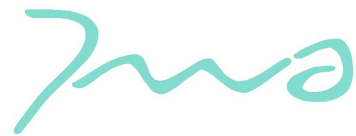


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Thursday 23 rd November 2023	13:30	81.7	64.8	49.2
	13:45	80.3	62.7	48.9
	14:00	80.9	64.0	48.8
	14:15	80.1	63.9	50.1
	14:30	82.5	65.4	49.6
	14:45	81.7	64.3	49.3
	15:00	82.1	66.4	49.0
	15:15	82.2	64.3	50.6
	15:30	79.6	62.9	50.0
	15:45	81.8	65.4	49.8
	16:00	80.0	65.1	50.3
	16:15	81.8	65.4	50.2
	16:30	80.9	64.1	50.3
	16:45	81.7	65.7	50.5
	17:00	82.1	66.3	50.9
	17:15	80.3	64.3	50.2
	17:30	81.5	65.4	50.0
	17:45	80.4	63.2	49.9
	18:00	79.9	63.1	49.0
	18:15	79.8	61.9	48.8
	18:30	78.9	60.1	48.8
	18:45	80.1	60.0	49.1
	19:00	80.4	65.1	49.4
	19:15	80.1	64.3	49.6
	19:30	81.7	65.7	49.2
	19:45	80.5	63.5	48.8
	20:00	81.3	64.4	48.6
	20:15	80.3	63.7	48.5
	20:30	80.4	62.6	47.9
	20:45	80.3	63.7	47.9
21:00	81.3	65.6	47.4	
21:15	80.5	64.4	47.4	
21:30	79.3	60.4	46.8	
21:45	80.8	63.0	47.1	
22:00	81.0	63.4	46.2	
22:15	80.5	64.3	45.3	
22:30	81.5	63.5	44.0	
22:45	81.8	64.8	43.2	
23:00	80.6	63.4	43.6	
23:15	80.7	61.2	42.4	
23:30	79.5	60.3	42.2	
23:45	80.6	61.1	45.6	

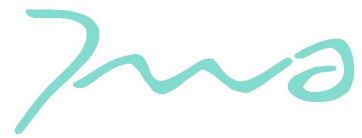


Table B1: Sound Monitoring Results, LT1

Date of Meas.	Start Time	Measured Sound Levels, dB		
		L _{Amax,F}	L _{Aeq,15min}	L _{A90,15min}
Friday 24 th November 2023	00:00	73.4	57.0	43.0
	00:15	76.8	59.3	41.3
	00:30	78.7	57.9	41.6
	00:45	79.1	53.9	40.5
	01:00	86.0	57.3	40.1
	01:15	78.3	55.3	40.4
	01:30	52.2	41.1	39.6
	01:45	77.8	58.5	39.9
	02:00	84.0	66.6	39.6
	02:15	56.2	41.2	39.5
	02:30	76.8	48.1	40.0
	02:45	77.3	55.0	39.7
	03:00	71.3	53.1	39.4
	03:15	74.0	54.9	39.3
	03:30	81.7	65.0	39.8
	03:45	80.8	59.4	40.4
	04:00	80.2	59.9	40.0
	04:15	75.2	56.7	39.9
	04:30	79.4	56.4	40.7
	04:45	71.8	57.8	42.4
05:00	74.9	55.7	43.7	
05:15	79.8	57.5	43.4	
05:30	81.9	62.6	44.3	
05:45	81.1	61.3	44.3	
06:00	80.8	64.2	44.1	
06:15	79.6	60.6	46.5	
06:30	80.3	63.8	45.8	
06:45	81.5	63.8	45.7	

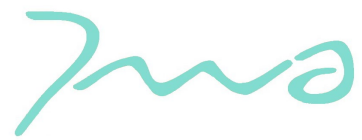


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Friday 17 th November 2023	07:15	0.0	0.4	3.7	95.6	0.0	-	-
	07:30	0.1	0.4	3.6	95.7	0.0	172.8	SSE
	07:45	0.0	0.5	3.5	95.7	0.0	74.1	ENE
	08:00	0.1	0.7	3.6	95.7	0.0	272.5	W
	08:15	0.1	0.6	3.7	95.9	0.0	237.9	SW
	08:30	0.2	0.5	4.0	96.0	0.0	229.7	SW
	08:45	0.0	0.6	4.3	96.0	0.0	220.9	SSW
	09:00	0.3	0.9	4.6	96.1	0.0	232.9	SW
	09:15	0.2	0.9	5.0	96.1	0.0	239.0	SW
	09:30	0.2	1.0	5.4	95.9	0.0	237.1	SW
	09:45	0.3	0.7	5.7	95.8	0.0	240.3	SW
	10:00	0.3	0.9	6.1	95.3	0.0	235.9	SW
	10:15	0.4	1.1	6.7	93.9	0.0	226.9	SW
	10:30	0.3	1.1	7.4	90.8	0.0	239.2	SW
	10:45	0.2	1.1	7.9	86.9	0.0	263.7	WSW
	11:00	0.4	1.5	8.6	81.4	0.0	230.2	SW
	11:15	0.5	1.8	9.2	76.9	0.0	230.8	SW
	11:30	0.4	1.7	10.3	73.2	0.0	254.4	WSW
	11:45	0.5	1.9	10.8	70.0	0.0	241.2	SW
	12:00	0.6	1.7	10.8	69.6	0.0	230.7	SW
	12:15	0.5	1.4	10.6	70.5	0.0	239.4	SW
	12:30	0.7	2.0	10.9	69.1	0.0	232.1	SW
	12:45	0.5	1.5	10.9	69.4	0.0	238.6	SW
	13:00	0.6	1.5	10.8	71.3	0.0	231.2	SW
	13:15	0.5	1.5	10.6	70.3	0.0	237.0	SW
	13:30	0.4	1.3	11.0	68.6	0.0	235.5	SW
	13:45	0.5	1.2	10.7	70.6	0.0	239.9	SW
	14:00	0.7	1.9	11.0	70.1	0.0	231.3	SW
	14:15	0.7	1.6	10.7	71.8	0.0	224.7	SSW
	14:30	0.7	1.8	10.3	74.2	0.0	223.6	SSW
	14:45	0.5	1.2	10.1	76.1	0.0	227.6	SW
	15:00	0.4	0.9	9.9	76.9	0.0	225.7	SW
	15:15	0.3	1.0	9.8	77.8	0.0	224.4	SSW
	15:30	0.2	0.7	9.5	79.0	0.0	227.0	SW
15:45	0.0	0.4	9.2	80.3	0.0	-	-	
16:00	0.1	0.4	9.0	81.9	0.0	202.4	S	
16:15	0.3	0.9	8.7	83.1	0.0	217.1	SSW	
16:30	0.1	0.4	8.6	83.2	0.0	212.0	SSW	
16:45	0.1	0.4	8.3	83.9	0.0	212.9	SSW	
17:00	0.1	0.4	8.1	84.5	0.0	177.1	SSE	
17:15	0.0	0.4	7.8	85.0	0.0	196.3	S	
17:30	0.1	0.4	7.4	85.6	0.0	204.8	SSW	
17:45	0.0	0.3	6.8	85.8	0.0	-	-	
18:00	0.1	0.6	6.7	87.5	0.0	76.2	ENE	

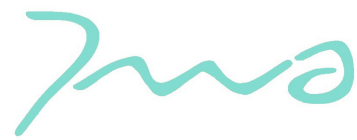


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Friday 17 th November 2023	18:15	0.0	0.3	6.8	88.6	0.0	-	-
	18:30	0.1	0.4	7.0	89.6	0.0	41.9	NNE
	18:45	0.0	0.4	7.2	89.9	0.0	68.1	ENE
	19:00	0.0	0.3	7.1	90.0	0.0	-	-
	19:15	0.0	0.3	7.0	90.2	0.0	-	-
	19:30	0.0	0.4	7.0	90.8	0.0	271.7	W
	19:45	0.0	0.4	6.9	91.2	0.0	274.9	W
	20:00	0.0	0.3	7.0	91.4	0.0	-	-
	20:15	0.0	0.3	7.0	91.5	0.0	-	-
	20:30	0.0	0.3	7.1	91.5	0.0	-	-
	20:45	0.0	0.3	7.1	91.3	0.0	-	-
	21:00	0.0	0.4	7.2	91.1	0.0	212.7	SSW
	21:15	0.0	0.3	7.3	90.9	0.0	-	-
	21:30	0.1	0.5	7.5	90.6	0.0	224.5	SSW
	21:45	0.1	0.6	7.6	90.1	0.0	211.9	SSW
	22:00	0.1	0.5	7.7	89.9	0.0	213.8	SSW
	22:15	0.3	0.9	7.8	89.1	0.0	215.8	SSW
	22:30	0.4	1.6	8.0	88.0	0.0	213.3	SSW
	22:45	0.3	0.9	8.1	87.2	0.0	222.8	SSW
	23:00	0.4	1.0	8.1	87.1	0.0	218.8	SSW
	23:15	0.2	0.9	8.2	86.5	0.0	221.3	SSW
	23:30	0.2	1.1	8.1	86.9	0.0	221.1	SSW
	23:45	0.3	1.0	8.2	86.6	0.0	216.4	SSW
	Saturday 18 th November 2023	00:00	0.2	0.9	8.3	86.5	0.1	208.8
00:15		0.2	0.7	8.2	87.7	0.0	223.2	SSW
00:30		0.2	1.0	8.1	88.8	0.0	224.5	SSW
00:45		0.1	0.8	8.1	88.9	0.0	286.8	W
01:00		0.2	1.1	8.0	89.2	0.0	298.3	WNW
01:15		0.3	1.2	8.0	89.4	0.0	317.2	NW
01:30		0.2	0.9	8.1	89.8	0.0	280.3	W
01:45		0.2	0.9	8.0	90.8	0.0	306.6	WNW
02:00		0.2	0.8	8.0	92.2	0.0	301.4	WNW
02:15		0.1	0.7	8.0	92.9	0.0	278.2	W
02:30		0.2	0.8	8.0	93.6	0.0	297.8	WNW
02:45		0.2	0.8	8.2	94.2	0.0	317.7	NW
03:00		0.3	1.1	8.4	94.5	0.0	3.3	N
03:15		0.2	1.2	8.5	94.7	0.0	272.4	W
03:30		0.4	2.0	8.8	95.0	0.0	220.1	SSW
03:45		0.4	1.4	9.1	95.2	0.0	218.1	SSW
04:00		0.4		9.3	95.3	0.0	215.8	SSW
04:15	0.4	1.5	9.5	95.6	1.1	225.3	SW	
04:30	0.4	1.4	9.6	95.7	0.6	234.7	SW	
04:45	0.5	1.7	9.8	95.9	0.0	228.2	SW	
05:00	0.5	1.4	10.0	96.2	0.0	223.2	SSW	

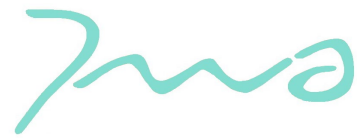


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Saturday 18 th November 2023	05:15	0.6	2.0	10.3	96.4	0.0	224.6	SSW
	05:30	0.7	2.5	10.5	96.3	0.0	224.9	SSW
	05:45	0.8	2.6	10.8	96.2	0.0	222.7	SSW
	06:00	0.9	2.4	10.9	96.2	0.0	221.1	SSW
	06:15	0.9	2.7	11.0	96.0	0.0	223.6	SSW
	06:30	0.9	2.4	11.2	95.7	0.0	224.4	SSW
	06:45	0.9	2.5	11.3	95.5	0.0	225.6	SW
	07:00	0.8	2.6	11.3	95.4	0.0	223.5	SSW
	07:15	0.8	2.5	11.3	95.6	0.5	231.4	SW
	07:30	0.9	3.0	11.5	95.9	0.1	226.0	SW
	07:45	0.8	2.3	11.7	96.2	0.0	223.6	SSW
	08:00	1.0	2.7	11.8	96.3	0.1	227.4	SW
	08:15	0.9	2.3	12.0	96.5	0.0	230.1	SW
	08:30	1.0	3.0	12.2	96.7	0.0	222.8	SSW
	08:45	0.9	2.3	12.3	96.7	0.0	227.9	SW
	09:00	0.9	2.4	12.6	96.8	0.0	227.3	SW
	09:15	0.9	2.4	12.9	97.1	0.0	219.7	SSW
	09:30	0.9	2.5	13.1	97.3	0.0	221.1	SSW
	09:45	0.8	2.3	13.3	97.4	0.0	225.7	SW
	10:00	0.9	2.4	13.5	97.6	0.0	221.4	SSW
	10:15	0.9	2.2	13.7	97.6	0.0	225.3	SW
	10:30	1.0	2.3	13.9	97.6	0.0	220.9	SSW
	10:45	0.9	2.0	13.9	97.4	0.0	224.9	SSW
	11:00	0.8	2.3	13.8	97.2	0.0	230.5	SW
	11:15	0.7	1.9	13.9	97.2	0.0	232.5	SW
	11:30	0.7	2.4	14.0	97.2	0.0	233.7	SW
	11:45	0.8	1.9	14.2	97.0	0.0	227.6	SW
	12:00	0.8	2.2	14.2	96.8	0.0	229.7	SW
	12:15	0.7	2.1	14.3	96.8	0.0	234.2	SW
	12:30	0.8	2.2	14.3	96.7	0.0	232.7	SW
	12:45	0.8	2.5	14.4	96.5	0.0	236.9	SW
	13:00	0.8	1.9	14.4	96.0	0.0	231.9	SW
	13:15	0.9	2.1	14.4	95.2	0.0	227.9	SW
	13:30	0.8	2.2	14.4	94.4	0.0	233.5	SW
	13:45	0.9	2.1	14.5	93.6	0.0	226.7	SW
	14:00	0.6	1.5	14.5	93.4	0.0	229.1	SW
14:15	0.8	2.1	14.4	92.9	0.0	229.9	SW	
14:30	0.7	2.2	14.4	91.6	0.0	235.2	SW	
14:45	0.8	2.1	14.5	90.4	0.0	229.5	SW	
15:00	0.7	2.1	14.5	90.0	0.0	234.4	SW	
15:15	0.8	2.4	14.3	89.5	0.0	226.5	SW	
15:30	0.8	2.0	14.2	89.5	0.0	226.9	SW	
15:45	0.6	1.9	14.2	89.4	0.0	237.1	SW	
16:00	0.7	1.8	14.1	89.5	0.0	226.9	SW	

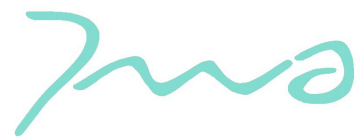


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Saturday 18 th November 2023	16:15	0.7	1.7	14.0	89.5	0.0	229.8	SW
	16:30	0.8	1.7	14.0	89.5	0.0	227.7	SW
	16:45	0.8	2.4	13.9	89.6	0.0	228.2	SW
	17:00	1.0	2.5	13.9	89.6	0.0	230.5	SW
	17:15	0.8	2.4	13.9	89.5	0.0	234.8	SW
	17:30	0.9	2.7	13.9	89.3	0.0	234.7	SW
	17:45	1.0	2.8	13.9	88.9	0.0	230.8	SW
	18:00	0.9	2.4	13.9	88.5	0.0	232.3	SW
	18:15	0.8	2.3	13.9	88.4	0.0	229.4	SW
	18:30	0.7	2.3	13.9	88.8	0.0	231.5	SW
	18:45	1.0	2.9	13.8	88.2	0.0	226.4	SW
	19:00	0.9	2.3	13.8	87.4	0.0	234.9	SW
	19:15	0.8	2.4	13.9	87.2	0.0	230.7	SW
	19:30	0.7	1.8	13.8	87.5	0.0	231.4	SW
	19:45	0.7	1.9	13.7	87.5	0.0	234.1	SW
	20:00	0.8	2.1	13.7	87.5	0.0	230.5	SW
	20:15	0.9	2.3	13.6	87.6	0.0	235.2	SW
	20:30	0.9	2.3	13.5	87.2	0.0	233.2	SW
	20:45	0.8	2.0	13.5	86.6	0.0	237.7	SW
	21:00	0.8	2.1	13.5	85.7	0.0	239.8	SW
	21:15	0.9	2.5	13.3	84.0	0.0	235.8	SW
	21:30	1.0	3.2	13.2	83.5	0.0	231.0	SW
	21:45	1.0	2.5	13.1	83.1	0.0	235.6	SW
	22:00	0.9	2.3	13.0	83.2	0.0	233.9	SW
	22:15	1.0	3.0	12.8	83.9	0.0	232.2	SW
	22:30	1.1	2.6	12.7	84.0	0.0	235.6	SW
	22:45	1.1	2.9	12.6	84.3	0.0	230.9	SW
	23:00	1.2	3.0	12.4	84.0	0.0	229.7	SW
23:15	1.0	2.4	12.2	83.4	0.0	231.3	SW	
23:30	0.8	2.3	12.1	84.2	0.0	237.8	SW	
23:45	0.8	2.6	12.0	84.4	0.0	231.8	SW	
Sunday 19 th November 2023	00:00	0.9	2.5	11.7	84.5	0.0	227.8	SW
	00:15	1.0	2.3	11.7	84.0	0.0	231.3	SW
	00:30	0.8	1.9	11.6	84.0	0.0	236.9	SW
	00:45	0.9	2.6	11.4	84.4	0.0	229.8	SW
	01:00	1.0	3.1	11.4	84.1	0.0	236.0	SW
	01:15	1.0	2.4	11.4	84.2	0.0	230.8	SW
	01:30	1.0	2.4	11.4	83.7	0.0	234.9	SW
	01:45	1.2	2.8	11.3	83.3	0.0	226.6	SW
	02:00	1.0	2.5	11.3	83.3	0.0	231.7	SW
	02:15	1.0	2.6	11.3	83.1	0.0	230.8	SW
	02:30	1.0	2.5	11.4	82.3	0.0	229.1	SW
	02:45	1.1	2.7	11.4	81.6	0.0	230.0	SW
03:00	1.1	3.0	11.4	81.7	0.0	234.6	SW	

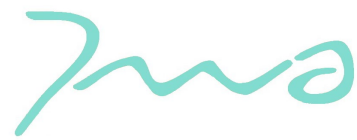


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Sunday 19 th November 2023	03:15	1.2	3.0	11.3	82.0	0.0	231.7	SW
	03:30	1.0	2.9	11.3	81.7	0.0	239.6	SW
	03:45	1.1	2.7	11.4	81.9	0.0	236.0	SW
	04:00	1.1	2.5	11.4	81.7	0.0	234.4	SW
	04:15	1.1	2.4	11.4	82.1	0.0	235.7	SW
	04:30	1.2	3.0	11.4	82.2	0.0	231.9	SW
	04:45	1.1	2.3	11.3	82.3	0.0	228.7	SW
	05:00	0.9	2.4	11.2	82.3	0.0	237.8	SW
	05:15	0.9	2.8	11.3	82.1	0.0	230.8	SW
	05:30	1.1	2.7	11.2	81.6	0.0	229.7	SW
	05:45	1.0	2.7	11.5	80.9	0.0	234.0	SW
	06:00	1.2	4.3	11.6	80.1	0.0	238.3	SW
	06:15	1.1	3.4	11.7	79.6	0.0	233.9	SW
	06:30	1.1	3.0	11.7	78.9	0.0	240.7	SW
	06:45	1.1	2.8	11.5	79.0	0.0	238.7	SW
	07:00	1.1	3.0	11.4	79.0	0.0	235.6	SW
	07:15	0.9	2.6	11.3	78.4	0.0	239.3	SW
	07:30	0.8	2.2	11.1	78.0	0.0	234.2	SW
	07:45	0.8	3.0	11.0	77.7	0.0	234.2	SW
	08:00	1.0	2.7	11.1	77.1	0.0	236.4	SW
	08:15	1.0	3.1	11.3	77.0	0.0	237.1	SW
	08:30	1.3	3.7	11.5	76.6	0.0	234.8	SW
	08:45	1.1	2.7	11.7	75.9	0.0	232.0	SW
	09:00	1.2	3.5	11.9	76.0	0.0	238.5	SW
	09:15	1.2	3.4	12.1	76.5	0.0	234.9	SW
	09:30	1.2	4.3	12.2	75.7	0.0	240.5	SW
	09:45	1.3	2.9	12.5	75.3	0.0	238.5	SW
	10:00	1.0	2.9	12.5	76.6	0.0	240.1	SW
	10:15	1.2	3.4	12.9	75.0	0.0	238.4	SW
	10:30	1.3	3.7	13.4	72.4	0.0	235.7	SW
	10:45	1.5	4.2	13.3	70.4	0.0	233.5	SW
	11:00	1.5	4.5	13.5	68.3	0.0	238.5	SW
	11:15	1.3	4.0	13.6	67.6	0.0	238.8	SW
	11:30	1.3	3.6	13.8	68.2	0.0	236.6	SW
11:45	1.2	3.5	13.8	69.7	0.0	245.4	SW	
12:00	1.4	4.4	13.7	70.4	0.0	232.7	SW	
12:15	1.5	4.8	13.8	71.0	0.0	234.5	SW	
12:30	1.1	3.2	13.7	71.3	0.0	242.2	SW	
12:45	1.4	4.3	13.7	71.3	0.0	234.0	SW	
13:00	1.3	3.8	13.9	70.6	0.0	238.3	SW	
13:15	1.3	3.3	13.8	71.0	0.0	232.4	SW	
13:30	1.1	3.8	13.7	72.1	0.0	238.7	SW	
13:45	1.2	2.7	13.8	72.6	0.0	235.2	SW	
14:00	1.0	2.8	13.8	72.8	0.0	238.7	SW	

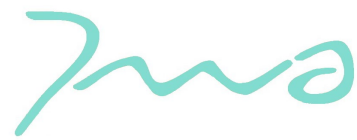


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Sunday 19 th November 2023	14:15	1.3	3.5	13.9	73.0	0.0	232.7	SW
	14:30	1.1	4.4	13.9	73.4	0.0	240.6	SW
	14:45	1.1	3.7	14.0	73.1	0.0	238.7	SW
	15:00	1.3	4.5	13.9	74.5	0.0	235.6	SW
	15:15	1.1	4.4	13.7	75.9	0.0	239.4	SW
	15:30	1.0	3.0	13.5	77.5	0.0	239.9	SW
	15:45	0.8	2.2	13.4	76.4	0.0	248.0	WSW
	16:00	1.0	2.8	13.6	75.4	0.0	241.5	SW
	16:15	1.0	2.8	13.2	79.2	0.0	234.8	SW
	16:30	1.0	3.3	12.6	84.7	0.0	242.2	SW
	16:45	1.0	2.8	12.4	84.7	0.0	235.2	SW
	17:00	0.8	2.5	12.3	85.2	0.0	239.2	SW
	17:15	0.9	3.3	12.1	84.6	0.0	243.7	SW
	17:30	0.9	3.2	12.2	81.2	0.0	241.1	SW
	17:45	1.0	3.2	12.4	79.1	0.0	238.6	SW
	18:00	0.8	3.3	12.5	79.0	0.0	243.6	SW
	18:15	0.8	2.7	12.3	81.0	0.0	241.1	SW
	18:30	0.9	3.2	12.2	80.2	0.0	241.5	SW
	18:45	0.9	3.3	12.1	79.9	0.0	244.4	SW
	19:00	1.0	3.1	12.0	80.6	0.0	244.3	SW
	19:15	0.9	2.7	11.8	81.8	0.0	241.8	SW
	19:30	1.1	3.6	11.6	83.2	0.0	238.9	SW
	19:45	1.0	3.4	11.4	83.2	0.0	243.4	SW
	20:00	0.8	2.5	11.4	81.7	0.0	242.4	SW
	20:15	0.8	2.5	11.4	81.6	0.0	243.1	SW
	20:30	0.9	2.9	11.4	81.0	0.0	240.5	SW
	20:45	0.9	2.6	11.4	80.8	0.0	240.2	SW
	21:00	0.7	2.1	11.2	81.5	0.0	238.1	SW
	21:15	0.8	2.3	11.1	81.5	0.0	232.3	SW
	21:30	0.7	2.5	11.1	80.7	0.0	246.5	SW
	21:45	0.9	2.9	11.3	80.5	0.0	240.8	SW
	22:00	0.9	2.8	11.3	81.1	0.0	244.0	SW
22:15	0.8	2.3	11.1	82.0	0.0	237.6	SW	
22:30	0.9	3.2	11.0	82.3	0.0	240.3	SW	
22:45	0.8	1.9	11.0	81.2	0.0	240.5	SW	
23:00	0.9	2.4	11.1	80.9	0.0	238.1	SW	
23:15	1.0	2.3	11.0	82.3	0.0	240.8	SW	
23:30	0.7	2.1	10.6	86.1	0.0	237.2	SW	
23:45	0.8	2.3	10.4	84.7	0.0	236.9	SW	
Monday 20 th November 2023	00:00	0.8	2.3	10.5	83.6	0.0	235.2	SW
	00:15	0.7	2.1	10.5	83.0	0.0	235.6	SW
	00:30	0.7	1.8	10.2	82.9	0.0	241.7	SW
	00:45	0.7	1.6	10.0	83.1	0.0	233.7	SW
	01:00	0.6	2.0	9.8	83.6	0.0	233.3	SW

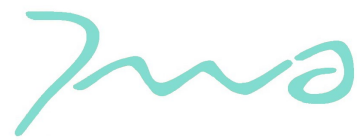


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Monday 20 th November 2023	01:15	0.6	1.7	9.6	83.9	0.0	235.7	SW
	01:30	0.6	2.2	9.5	84.4	0.0	231.9	SW
	01:45	0.6	1.4	9.4	84.9	0.0	233.7	SW
	02:00	0.6	1.3	9.2	85.5	0.0	231.5	SW
	02:15	0.6	1.4	9.1	86.1	0.0	232.7	SW
	02:30	0.6	1.5	9.0	86.6	0.0	237.7	SW
	02:45	0.6	1.3	8.9	86.8	0.0	229.5	SW
	03:00	0.6	1.7	8.9	86.8	0.0	230.5	SW
	03:15	0.6	1.3	8.8	86.5	0.0	227.8	SW
	03:30	0.7	1.5	8.6	87.1	0.0	226.2	SW
	03:45	0.7	1.6	8.6	87.2	0.0	229.4	SW
	04:00	0.7	1.6	8.4	87.4	0.0	221.2	SSW
	04:15	0.7	1.7	8.3	87.3	0.0	228.1	SW
	04:30	0.5	1.0	8.2	87.0	0.0	218.6	SSW
	04:45	0.5	1.3	8.0	87.3	0.0	220.0	SSW
	05:00	0.6	2.0	7.9	87.3	0.0	226.0	SW
	05:15	0.8	1.8	7.9	87.4	0.0	226.4	SW
	05:30	0.6	1.4	7.9	87.4	0.0	225.5	SW
	05:45	0.7	1.5	7.9	87.1	0.0	229.2	SW
	06:00	0.6	1.3	7.9	86.9	0.0	222.1	SSW
	06:15	0.7	1.7	8.1	86.6	0.0	218.4	SSW
	06:30	0.5	1.4	8.5	85.9	0.0	227.9	SW
	06:45	0.4	1.1	8.6	85.3	0.0	229.7	SW
	07:00	0.5	1.4	8.7	85.2	0.0	219.7	SSW
	07:15	0.6	1.8	8.8	85.7	0.0	227.0	SW
	07:30	0.6	1.8	8.8	86.7	0.0	224.2	SSW
	07:45	0.2	1.1	8.8	87.7	0.0	213.2	SSW
	08:00	0.2	0.9	8.8	88.6	0.0	210.8	SSW
	08:15	0.0	0.6	8.6	89.5	0.0	208.8	SSW
	08:30	0.0	0.2	8.6	90.4	0.0	-	-
	08:45	0.0	0.4	8.7	91.1	0.0	272.9	W
	09:00	0.0	0.4	8.9	91.5	0.0	86.7	ENE
	09:15	0.1	0.6	9.0	92.2	0.0	75.7	ENE
	09:30	0.2	0.8	9.2	92.9	0.0	327.9	NW
	09:45	0.1	0.8	9.3	93.2	0.0	69.8	ENE
	10:00	0.2	0.9	9.5	93.3	0.0	347.1	NNW
	10:15	0.4	1.1	9.6	93.2	0.0	327.4	NW
	10:30	0.3	1.4	9.7	92.5	0.0	309.1	WNW
	10:45	0.4	1.7	9.9	91.7	0.0	312.8	WNW
	11:00	0.6	2.2	10.3	89.0	0.0	282.5	W
11:15	0.6	3.0	10.7	85.1	0.0	290.1	W	
11:30	0.6	2.3	11.5	81.4	0.0	326.5	NW	
11:45	0.8	2.8	11.5	79.6	0.0	316.2	NW	
12:00	0.9	3.1	11.1	79.1	0.0	322.3	NW	

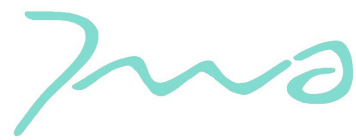


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Monday 20 th November 2023	12:15	0.7	2.4	10.9	79.5	0.0	324.8	NW
	12:30	0.6	3.1	11.6	77.5	0.0	313.6	WNW
	12:45	0.6	2.6	11.7	75.5	0.0	330.3	NW
	13:00	0.6	2.1	11.8	74.6	0.0	331.2	NW
	13:15	0.8	4.1	11.8	74.0	0.0	302.2	WNW
	13:30	0.7	2.9	11.8	73.4	0.0	299.0	WNW
	13:45	0.7	2.7	11.8	73.1	0.0	309.5	WNW
	14:00	0.6	2.4	11.9	73.2	0.0	325.0	NW
	14:15	0.6	2.0	12.0	72.3	0.0	294.8	WNW
	14:30	0.4	2.0	12.0	72.5	0.0	319.1	NW
	14:45	0.4	2.2	11.7	73.3	0.0	307.6	WNW
	15:00	0.5	2.1	11.5	74.0	0.0	303.7	WNW
	15:15	0.4	3.1	11.4	75.0	0.0	340.2	NNW
	15:30	0.3	1.7	11.4	75.9	0.0	276.2	W
	15:45	0.3	1.9	11.4	75.8	0.0	267.0	WSW
	16:00	0.2	1.3	11.4	76.7	0.0	251.2	WSW
	16:15	0.3	2.0	11.3	77.5	0.0	283.0	W
	16:30	0.5	2.5	11.2	79.2	0.0	297.8	WNW
	16:45	0.8	3.5	10.9	83.2	0.0	270.0	W
	17:00	0.4	2.0	10.5	86.3	0.0	265.3	WSW
	17:15	0.3	2.0	10.4	87.1	0.0	258.4	WSW
	17:30	0.4	1.9	10.3	88.0	0.0	244.0	SW
	17:45	0.2	1.2	10.2	89.2	0.0	244.8	SW
	18:00	0.3	1.4	10.1	89.9	0.0	269.0	WSW
	18:15	0.3	1.7	10.2	90.2	0.0	246.0	SW
	18:30	0.2	1.3	10.2	90.2	0.0	257.5	WSW
	18:45	0.2	0.6	10.3	90.2	0.0	236.3	SW
	19:00	0.3	1.1	10.4	90.1	0.0	237.3	SW
	19:15	0.3	2.0	10.5	89.6	0.0	257.0	WSW
	19:30	0.4	2.6	10.5	89.0	0.0	270.0	WSW
	19:45	0.7	3.0	10.7	87.3	0.0	302.7	WNW
	20:00	0.7	2.6	10.8	84.3	0.0	307.0	WNW
20:15	0.9	3.4	10.9	82.1	0.0	316.7	NW	
20:30	0.9	2.5	10.8	81.7	0.0	327.2	NW	
20:45	0.9	3.0	10.7	82.1	0.0	324.1	NW	
21:00	0.7	2.5	10.7	81.8	0.0	332.2	NW	
21:15	0.6	2.6	10.6	81.4	0.0	300.6	WNW	
21:30	0.6	2.1	10.5	81.0	0.0	307.1	WNW	
21:45	0.6	1.8	10.5	81.1	0.0	311.0	WNW	
22:00	0.6	2.0	10.4	81.9	0.0	321.7	NW	
22:15	0.4	1.8	10.4	82.2	0.0	328.6	NW	
22:30	0.3	1.5	10.4	82.6	0.0	327.4	NW	
22:45	0.4	1.8	10.4	82.8	0.0	329.9	NW	
23:00	0.6	2.3	10.4	83.2	0.0	333.3	NW	

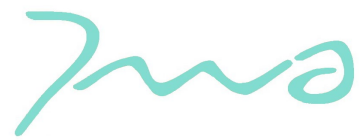


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Monday 20 th November 2023	23:15	0.6	2.5	10.5	84.1	0.0	323.0	NW
	23:30	0.5	1.7	10.4	85.0	0.0	310.3	WNW
	23:45	0.6	2.7	10.4	86.3	0.0	319.1	NW
Tuesday 21 st November 2023	00:00	0.6	1.8	10.3	87.6	0.0	329.2	NW
	00:15	0.5	1.7	10.1	89.9	0.0	333.3	NW
	00:30	0.5	1.6	10.1	90.9	0.0	334.7	NW
	00:45	0.5	2.0	10.1	91.4	0.0	329.1	NW
	01:00	0.5	2.0	10.1	92.2	0.0	335.3	NW
	01:15	0.5	2.0	10.1	92.9	0.0	333.6	NW
	01:30	0.4	2.0	10.0	93.8	0.0	349.1	NNW
	01:45	0.5		10.2	94.6	0.0	340.5	NNW
	02:00	0.3	1.4	10.5	95.0	0.0	343.3	NNW
	02:15	0.5	1.9	10.4	94.9	0.0	356.8	NNW
	02:30	0.5		10.5	94.7	-	343.0	NNW
	02:45	0.4	1.0	10.4	94.5	0.0	348.6	NNW
	03:00	0.5	1.3	10.4	94.2	0.0	339.6	NNW
	03:15	0.6	1.9	10.5	93.7	0.0	340.6	NNW
	03:30	0.6	2.3	10.6	93.7	0.0	339.5	NNW
	03:45	0.9	2.5	10.4	93.9	0.0	339.0	NNW
	04:00	0.7	2.2	10.0	93.6	0.0	336.9	NW
	04:15	0.7	2.1	10.0	92.8	0.0	353.0	NNW
	04:30	0.6	2.5	10.0	92.8	0.0	355.9	NNW
	04:45	0.8	3.1	9.9	92.8	0.0	349.5	NNW
	05:00	0.8	2.8	9.8	92.8	0.0	337.1	NW
	05:15	0.8	2.9	9.7	93.0	0.0	350.7	NNW
	05:30	0.6	2.0	9.6	92.8	0.0	345.4	NNW
	05:45	0.6	2.1	9.5	92.5	0.0	347.9	NNW
	06:00	0.9	2.6	9.4	90.7	0.0	342.3	NNW
	06:15	0.9	3.2	9.5	88.6	0.0	340.2	NNW
	06:30	0.9	2.7	9.4	87.3	0.0	357.8	NNW
06:45	0.9	3.3	9.4	86.7	0.0	337.1	NW	
07:00	0.9	2.3	9.2	86.9	0.0	345.2	NNW	
07:15	0.8	2.7	9.2	86.3	0.0	349.9	NNW	
07:30	0.9	2.4	9.2	85.5	0.0	342.3	NNW	
07:45	0.7	2.1	9.2	85.5	0.0	346.6	NNW	
08:00	0.8	2.5	9.3	85.1	0.0	350.0	NNW	
08:15	0.7	2.7	9.3	85.3	0.0	346.8	NNW	
08:30	0.7	2.8	9.4	85.3	0.0	343.4	NNW	
08:45	0.7	2.1	9.4	84.9	0.0	350.7	NNW	
09:00	0.7	2.9	9.4	84.8	0.0	353.3	NNW	
09:15	0.9	3.4	9.5	84.9	0.0	352.8	NNW	
09:30	0.9	2.4	9.6	85.5	0.0	339.7	NNW	
09:45	0.7	2.6	9.7	86.0	0.0	354.1	NNW	
10:00	0.6	1.8	9.8	86.4	0.0	338.1	NNW	

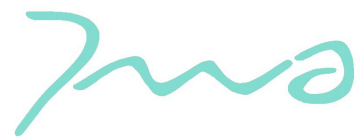


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Tuesday 21 st November 2023	10:15	0.8	2.4	9.9	87.0	0.0	341.2	NNW
	10:30	0.6	2.5	9.7	88.8	0.0	327.2	NW
	10:45	0.6	3.1	9.8	89.3	0.0	348.3	NNW
	11:00	0.6	2.2	9.9	89.3	0.0	343.9	NNW
	11:15	0.6	2.6	10.3	89.1	0.0	337.8	NNW
	11:30	0.6	1.9	10.4	89.6	0.0	344.5	NNW
	11:45	0.5	1.8	10.4	91.1	0.0	347.9	NNW
	12:00	0.5	1.5	10.6	91.9	0.0	336.1	NW
	12:15	0.5	1.7	10.7	92.2	0.0	336.8	NW
	12:30	0.6	2.2	10.8	91.8	0.0	345.8	NNW
	12:45	0.5	1.8	11.0	91.8	0.0	353.1	NNW
	13:00	0.6	2.8	10.9	92.9	0.0	348.9	NNW
	13:15	1.1	3.4	10.7	91.7	0.0	346.0	NNW
	13:30	0.9	2.8	10.7	90.4	0.0	346.7	NNW
	13:45	1.1	3.4	10.4	91.5	0.0	345.3	NNW
	14:00	1.0	3.1	10.0	91.0	0.0	353.4	NNW
	14:15	1.1	3.7	9.9	91.0	0.0	347.6	NNW
	14:30	1.0	3.2	9.9	89.5	0.0	341.5	NNW
	14:45	1.1	3.0	9.7	87.9	0.0	347.2	NNW
	15:00	1.0	5.2	9.8	85.6	0.0	345.5	NNW
	15:15	0.9	2.9	9.9	84.0	0.0	0.3	N
	15:30	1.0	3.3	9.8	83.4	0.0	346.9	NNW
	15:45	0.9	2.6	9.8	82.9	0.0	346.7	NNW
	16:00	0.9	2.9	9.8	82.6	0.0	345.8	NNW
	16:15	1.0	2.5	9.6	80.8	0.0	349.6	NNW
	16:30	0.8	2.2	9.3	82.0	0.0	340.4	NNW
	16:45	0.6	2.1	9.0	82.9	0.0	347.1	NNW
	17:00	0.7	2.3	8.7	83.7	0.0	348.4	NNW
	17:15	0.7	2.2	8.6	83.2	0.0	339.4	NNW
	17:30	0.8	2.0	8.5	83.1	0.0	348.9	NNW
	17:45	0.7	2.4	8.5	83.2	0.0	344.2	NNW
	18:00	0.7	2.1	8.5	83.1	0.0	349.3	NNW
18:15	0.6	1.8	8.5	83.3	0.0	351.8	NNW	
18:30	0.7	2.1	8.5	83.6	0.0	355.9	NNW	
18:45	0.6	1.7	8.5	83.6	0.0	343.4	NNW	
19:00	0.6	1.8	8.5	83.7	0.0	345.9	NNW	
19:15	0.6	2.1	8.6	83.8	0.0	352.9	NNW	
19:30	0.7	2.0	8.6	83.7	0.0	346.5	NNW	
19:45	0.7	2.5	8.7	83.7	0.0	344.1	NNW	
20:00	0.7	2.6	8.6	83.6	0.0	349.8	NNW	
20:15	0.7	3.1	8.6	83.8	0.0	359.4	NNW	
20:30	0.6	2.0	8.5	83.8	0.0	345.5	NNW	
20:45	0.7	3.5	8.5	83.6	0.0	344.9	NNW	
21:00	0.6	1.6	8.4	83.9	0.0	345.4	NNW	

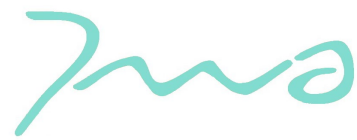


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Tuesday 21 st November 2023	21:15	0.6	2.0	8.4	84.3	0.0	358.3	NNW
	21:30	0.6	1.8	8.3	84.7	0.0	2.0	N
	21:45	0.5	2.1	8.1	85.3	0.0	347.6	NNW
	22:00	0.5	1.5	8.0	86.1	0.0	339.4	NNW
	22:15	0.5	1.2	7.9	86.6	0.0	344.6	NNW
	22:30	0.5	1.8	7.9	86.7	0.0	347.0	NNW
	22:45	0.7	2.0	7.9	86.6	0.0	347.2	NNW
	23:00	0.6	1.9	7.8	86.5	0.0	347.8	NNW
	23:15	0.6	1.8	7.6	86.5	0.0	358.3	NNW
	23:30	0.4	1.4	7.4	87.0	0.0	351.6	NNW
	23:45	0.4	1.3	7.2	87.9	0.0	342.3	NNW
Wednesday 22 nd November 2023	00:00	0.5	1.2	6.9	88.5	0.0	357.8	NNW
	00:15	0.5	1.1	6.7	89.2	0.0	350.3	NNW
	00:30	0.2	1.1	6.5	89.7	0.0	341.3	NNW
	00:45	0.1	0.7	6.2	90.4	0.0	341.0	NNW
	01:00	0.3	0.8	6.2	91.1	0.0	346.2	NNW
	01:15	0.2	1.3	6.3	91.5	0.0	348.5	NNW
	01:30	0.2	0.7	6.3	91.6	0.0	348.6	NNW
	01:45	0.1	1.1	6.3	91.7	0.0	358.1	NNW
	02:00	0.2	0.9	6.3	91.8	0.0	350.9	NNW
	02:15	0.1	0.7	6.3	91.9	0.0	356.6	NNW
	02:30	0.2	0.8	6.3	91.8	0.0	351.6	NNW
	02:45	0.0	0.6	6.3	91.7	0.0	99.6	E
	03:00	0.0	0.6	6.2	91.8	0.0	331.3	NW
	03:15	0.1	0.6	6.1	91.9	0.0	283.7	W
	03:30	0.0	0.5	5.9	92.0	0.0	282.4	W
	03:45	0.0	0.4	5.7	92.2	0.0	293.6	WNW
	04:00	0.1	0.7	5.5	92.4	0.0	275.6	W
	04:15	0.0	0.4	5.3	92.6	0.0	275.3	W
	04:30	0.0	0.3	5.1	92.8	0.0	-	-
	04:45	0.0	0.2	5.4	93.5	0.0	-	-
	05:00	0.0	0.2	5.5	93.7	0.0	-	-
	05:15	0.0	0.3	5.6	94.0	0.0	-	-
	05:30	0.0	0.3	5.6	94.1	0.0	-	-
	05:45	0.0	0.3	5.6	94.2	0.0	-	-
	06:00	0.0	0.4	5.5	94.2	0.0	233.6	SW
	06:15	0.2	0.5	5.4	94.4	0.0	212.5	SSW
	06:30	0.1	0.6	5.3	94.5	0.0	214.6	SSW
	06:45	0.1	0.8	5.3	94.7	0.0	197.8	S
	07:00	0.1	0.6	5.4	94.8	0.0	192.8	S
	07:15	0.0	0.5	5.5	94.9	0.0	231.1	SW
07:30	0.1	0.6	5.7	95.0	0.0	240.5	SW	
07:45	0.3	0.7	5.7	95.0	0.0	214.4	SSW	
08:00	0.2	0.8	5.8	95.0	0.0	235.5	SW	



Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Wednesday 22 nd November 2023	08:15	0.1	0.6	5.9	94.9	0.0	226.5	SW
	08:30	0.2	0.9	6.1	94.7	0.0	221.9	SSW
	08:45	0.2	0.7	6.3	94.3	0.0	229.3	SW
	09:00	0.2	0.7	6.5	93.9	0.0	236.8	SW
	09:15	0.3	0.7	6.9	93.1	0.0	226.6	SW
	09:30	0.3	0.8	7.1	91.4	0.0	226.9	SW
	09:45	0.5	1.1	7.3	89.4	0.0	218.9	SSW
	10:00	0.4	1.0	7.4	87.9	0.0	226.7	SW
	10:15	0.4	1.2	7.4	87.2	0.0	226.9	SW
	10:30	0.4	1.1	7.5	86.8	0.0	233.7	SW
	10:45	0.4	1.2	7.8	86.1	0.0	231.7	SW
	11:00	0.5	1.3	8.0	85.1	0.0	246.9	SW
	11:15	0.6	1.5	8.4	83.5	0.0	238.9	SW
	11:30	0.4	1.6	8.7	81.3	0.0	238.8	SW
	11:45	0.5	1.3	9.0	80.2	0.0	234.0	SW
	12:00	0.6	1.8	9.1	79.1	0.0	234.2	SW
	12:15	0.5	1.6	9.3	79.2	0.0	237.4	SW
	12:30	0.6	2.3	9.5	79.1	0.0	242.1	SW
	12:45	0.5	2.6	9.6	79.2	0.0	241.0	SW
	13:00	0.7	1.6	9.7	79.1	0.0	233.1	SW
	13:15	0.6	1.8	9.8	79.4	0.0	244.2	SW
	13:30	0.6	1.7	9.9	79.9	0.0	239.5	SW
	13:45	0.5	2.2	9.9	80.5	0.0	248.6	WSW
	14:00	0.5	1.6	9.9	81.1	0.0	246.4	SW
	14:15	0.5	1.5	10.0	81.4	0.0	244.1	SW
	14:30	0.4	1.4	10.1	82.0	0.0	249.2	WSW
	14:45	0.5	1.4	10.1	82.3	0.0	234.3	SW
	15:00	0.3	1.5	10.0	82.9	0.0	234.8	SW
	15:15	0.4	1.3	10.1	83.5	0.0	242.7	SW
	15:30	0.5	2.1	10.1	84.0	0.0	239.4	SW
	15:45	0.4	1.1	10.2	84.3	0.0	230.1	SW
	16:00	0.4	1.6	10.3	84.7	0.0	232.2	SW
	16:15	0.4	1.4	10.3	85.1	0.0	245.9	SW
16:30	0.4	1.5	10.3	85.5	0.0	243.6	SW	
16:45	0.3	1.4	10.4	85.9	0.0	240.6	SW	
17:00	0.4	1.5	10.4	86.3	0.0	244.3	SW	
17:15	0.4	1.6	10.5	86.6	0.0	240.6	SW	
17:30	0.3	1.3	10.6	86.5	0.0	235.3	SW	
17:45	0.3	1.2	10.6	86.8	0.0	238.2	SW	
18:00	0.3	1.2	10.6	86.9	0.0	235.9	SW	
18:15	0.4	1.2	10.7	87.1	0.0	226.6	SW	
18:30	0.3	0.7	10.7	86.9	0.0	224.5	SSW	
18:45	0.4	1.0	10.6	87.1	0.0	237.6	SW	
19:00	0.4	0.8	10.4	87.9	0.0	231.9	SW	

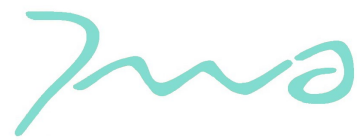


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Wednesday 22 nd November 2023	19:15	0.4	1.1	10.0	88.7	0.0	229.8	SW
	19:30	0.4	1.0	9.8	89.5	0.0	235.4	SW
	19:45	0.5	1.4	9.7	90.1	0.0	241.8	SW
	20:00	0.5	1.3	9.5	90.7	0.0	231.3	SW
	20:15	0.5	1.3	9.3	91.3	0.0	226.1	SW
	20:30	0.5	1.3	9.1	91.8	0.0	225.1	SW
	20:45	0.4	1.0	9.1	92.0	0.0	222.0	SSW
	21:00	0.5	1.1	9.1	92.3	0.0	245.4	SW
	21:15	0.4	1.9	9.0	92.5	0.0	245.3	SW
	21:30	0.4	1.2	8.9	92.8	0.0	221.6	SSW
	21:45	0.3	0.8	8.8	93.0	0.0	219.8	SSW
	22:00	0.3	0.8	8.6	93.4	0.0	219.5	SSW
	22:15	0.4	0.8	8.5	93.7	0.0	224.3	SSW
	22:30	0.3	1.1	8.5	94.0	0.0	240.5	SW
	22:45	0.3	1.0	8.6	94.1	0.0	222.6	SSW
	23:00	0.3	0.8	8.5	94.2	0.0	220.6	SSW
	23:15	0.4	1.0	8.5	94.4	0.0	230.4	SW
	23:30	0.2	0.9	8.4	94.2	0.0	258.1	WSW
	23:45	0.2	0.9	8.2	94.4	0.0	218.0	SSW
	Thursday 23 rd November 2023	00:00	0.2	1.1	8.2	94.6	0.0	231.6
00:15		0.2	1.6	8.2	94.7	0.0	235.1	SW
00:30		0.2	1.0	8.2	94.9	0.0	223.5	SSW
00:45		0.2	0.8	8.2	95.0	0.0	217.6	SSW
01:00		0.1	0.7	8.0	95.0	0.0	211.1	SSW
01:15		0.2	1.1	8.3	95.4	0.0	225.5	SW
01:30		0.2	1.5	8.6	95.4	0.0	266.1	WSW
01:45		0.5	2.3	9.1	95.5	0.0	259.3	WSW
02:00		0.4	2.2	9.5	95.0	0.0	240.7	SW
02:15		0.6	2.4	9.9	94.1	0.0	248.0	WSW
02:30		0.4	1.9	10.0	93.3	0.0	238.3	SW
02:45		0.5	1.2	10.4	92.7	0.0	237.5	SW
03:00		0.4	1.2	10.4	91.9	0.0	235.8	SW
03:15		0.4	1.6	10.3	91.9	0.0	230.3	SW
03:30		0.5	1.2	10.2	92.0	0.0	243.4	SW
03:45		0.4	1.5	10.2	92.0	0.0	239.6	SW
04:00		0.4	2.0	10.2	92.2	0.0	239.6	SW
04:15		0.5	1.5	10.4	92.1	0.0	246.4	SW
04:30		0.5	1.4	10.4	92.0	0.0	243.3	SW
04:45		0.5	1.7	10.3	91.8	0.0	242.0	SW
05:00	0.4	1.2	10.2	91.8	0.0	238.8	SW	
05:15	0.5	1.9	10.0	91.9	0.0	242.9	SW	
05:30	0.5	1.2	10.0	91.9	0.0	231.7	SW	
05:45	0.6	2.4	10.0	91.9	0.0	237.5	SW	
06:00	0.6	2.5	10.0	91.9	0.0	246.8	SW	

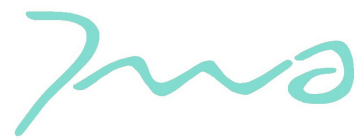


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Thursday 23 rd November 2023	06:15	0.5	2.2	9.9	92.0	0.0	245.9	SW
	06:30	0.6	1.7	9.8	92.2	0.0	239.8	SW
	06:45	0.6	2.1	9.8	92.4	0.0	243.4	SW
	07:00	0.5	1.4	9.8	92.6	0.0	241.4	SW
	07:15	0.6	1.6	10.0	92.8	0.0	237.7	SW
	07:30	0.6	2.8	10.3	92.4	0.0	247.9	WSW
	07:45	0.6	2.3	10.4	91.8	0.0	243.8	SW
	08:00	0.6	2.1	10.7	91.0	0.0	245.3	SW
	08:15	0.6	1.6	10.8	90.3	0.0	247.1	SW
	08:30	0.5	1.9	11.0	89.6	0.0	243.7	SW
	08:45	0.6	1.7	11.1	88.9	0.0	245.5	SW
	09:00	0.8	3.4	11.3	87.9	0.0	247.5	WSW
	09:15	0.7	2.1	11.4	87.4	0.0	242.0	SW
	09:30	0.6	2.0	11.5	87.0	0.0	242.0	SW
	09:45	0.5	2.6	11.4	86.8	0.0	251.2	WSW
	10:00	0.5	1.9	11.4	86.2	0.0	245.1	SW
	10:15	0.6	2.3	11.6	84.9	0.0	246.7	SW
	10:30	0.8	3.1	11.4	83.7	0.0	253.3	WSW
	10:45	0.6	2.2	11.5	83.4	0.0	248.2	WSW
	11:00	0.7	2.2	11.6	83.0	0.0	243.7	SW
	11:15	0.7	2.5	12.2	80.3	0.0	245.2	SW
	11:30	0.7	3.6	13.2	76.4	0.0	252.8	WSW
	11:45	0.7	2.7	13.6	74.5	0.0	250.7	WSW
	12:00	0.7	2.3	13.8	73.5	0.0	252.2	WSW
	12:15	0.9	3.6	13.7	73.7	0.0	242.7	SW
	12:30	0.8	3.4	13.9	73.0	0.0	250.6	WSW
	12:45	0.9	3.6	14.1	71.5	0.0	249.4	WSW
	13:00	0.7	2.8	14.2	71.1	0.0	247.3	SW
	13:15	0.8	3.4	14.3	71.1	0.0	247.2	SW
	13:30	1.0	3.0	14.2	71.3	0.0	242.7	SW
	13:45	0.8	3.1	14.3	70.8	0.0	241.7	SW
	14:00	0.8	3.9	14.3	70.5	0.0	241.7	SW
	14:15	0.9	2.7	14.2	70.8	0.0	242.8	SW
	14:30	0.8	2.7	14.2	70.8	0.0	240.8	SW
14:45	0.8	2.2	14.2	70.8	0.0	240.3	SW	
15:00	0.7	2.9	14.0	71.4	0.0	249.2	WSW	
15:15	0.7	5.1	13.8	71.4	0.0	245.5	SW	
15:30	0.7	2.9	13.6	72.3	0.0	246.7	SW	
15:45	0.7	2.0	13.2	74.0	0.0	244.1	SW	
16:00	0.6	2.8	12.7	76.4	0.0	245.0	SW	
16:15	0.7	2.2	12.4	77.6	0.0	243.5	SW	
16:30	0.6	2.3	12.1	79.1	0.0	244.0	SW	
16:45	0.6	1.7	11.8	80.2	0.0	241.7	SW	
17:00	0.7	2.5	11.6	81.0	0.0	245.5	SW	

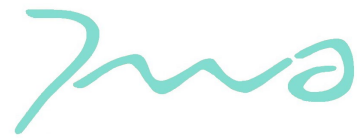


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Thursday 23 rd November 2023	17:15	1.0	2.4	11.5	81.3	0.0	239.8	SW
	17:30	0.9	2.5	11.4	81.9	0.0	244.1	SW
	17:45	0.9	2.8	11.2	82.6	0.0	247.4	SW
	18:00	0.9	2.6	11.1	83.5	0.0	242.0	SW
	18:15	0.7	3.3	10.9	84.5	0.0	247.6	WSW
	18:30	0.7	2.7	10.8	85.0	0.0	253.6	WSW
	18:45	0.7	2.7	10.9	85.1	0.0	248.5	WSW
	19:00	0.8	3.0	10.8	85.5	0.0	243.8	SW
	19:15	0.7	3.0	10.8	85.9	0.0	245.0	SW
	19:30	0.7	2.6	11.0	85.9	0.0	250.1	WSW
	19:45	0.8	3.4	11.0	85.8	0.0	242.7	SW
	20:00	0.8	2.8	11.0	86.2	0.0	246.5	SW
	20:15	0.7	2.8	10.9	86.9	0.0	241.2	SW
	20:30	0.7	3.0	10.8	87.4	0.0	242.2	SW
	20:45	0.6	2.6	10.8	87.8	0.0	243.4	SW
	21:00	0.7	2.4	10.8	88.2	0.0	243.5	SW
	21:15	0.5	2.6	10.8	88.3	0.0	240.9	SW
	21:30	0.6	2.1	10.9	88.3	0.0	237.0	SW
	21:45	0.4	2.2	10.9	88.3	0.0	240.0	SW
	22:00	0.4	1.9	10.8	89.0	0.0	242.5	SW
	22:15	0.5	2.2	10.9	89.3	0.0	244.2	SW
	22:30	0.6	2.7	11.2	89.1	0.0	281.6	W
	22:45	1.0	3.3	11.7	87.3	0.0	322.1	NW
	23:00	0.8	3.2	11.7	85.2	0.0	333.5	NW
	23:15	0.9	3.1	11.6	82.0	0.0	331.5	NW
	23:30	0.8	2.5	11.5	81.7	0.0	325.3	NW
	23:45	0.5	2.6	11.1	82.7	0.0	332.2	NW
	Friday 24 th November 2023	00:00	0.6	2.0	10.8	83.2	0.0	342.1
00:15		0.7	2.8	10.6	81.7	0.0	344.0	NNW
00:30		0.8	2.9	10.6	79.6	0.0	337.4	NW
00:45		0.8	2.5	10.5	77.6	0.0	349.0	NNW
01:00		0.7	2.4	10.5	74.3	0.0	341.1	NNW
01:15		0.6	1.9	10.4	73.5	0.0	340.7	NNW
01:30		0.5	2.7	10.1	73.0	0.0	348.8	NNW
01:45		0.8	2.6	10.4	71.5	0.0	323.2	NW
02:00		0.7	3.2	10.5	69.8	0.0	326.5	NW
02:15		0.6	2.6	10.2	69.9	0.0	303.2	WNW
02:30		0.6	2.7	9.9	70.2	0.0	260.0	WSW
02:45		0.4	1.9	9.8	70.3	0.0	265.8	WSW
03:00		0.6	2.7	9.8	70.1	0.0	274.7	W
03:15		0.6	3.5	9.8	68.4	0.0	276.9	W
03:30		0.5	3.3	9.8	67.7	0.0	280.8	W
03:45		0.7	2.9	9.9	67.2	0.0	285.9	W
04:00	0.5	2.7	9.8	67.5	0.0	271.6	W	

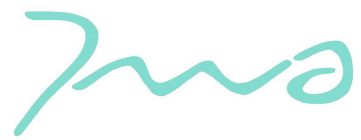


Table B2: Measured Weather Data During Unattended Sound Monitoring Period

Date of Meas.	End Time	Average Wind Speed m/s	Max Wind Gust m/s	Average Temp °C	Relative Humidity %	Precipitation mm	Wind Direction degrees	Wind Direction
Friday 24 th November 2023	04:15	0.6	2.8	9.8	67.3	0.0	291.1	W
	04:30	0.8	3.3	9.9	67.3	0.0	294.2	WNW
	04:45	0.7	2.7	9.8	67.6	0.0	287.1	W
	05:00	0.7	2.9	9.8	67.5	0.0	301.7	WNW
	05:15	0.7	2.6	9.8	67.2	0.0	316.5	NW
	05:30	0.8	4.5	9.8	66.7	0.0	329.6	NW
	05:45	0.8	2.8	9.7	67.0	0.0	320.9	NW
	06:00	0.9	3.3	9.6	68.2	0.0	352.5	NNW
	06:15	0.8	3.5	9.5	69.8	0.0	326.0	NW
	06:30	0.7	3.1	9.4	70.8	0.0	325.6	NW
	06:45	0.5	1.9	9.2	71.5	0.0	342.8	NNW
	07:00	0.7	3.4	9.2	71.2	0.0	328.3	NW



Table B3: Summary of Attended Daytime Sound Measurements – Thursday 9th November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST1	09/11/2023	11:40	15	71.1	52.8	47.8	Distant road traffic drives L _{A90} ; distant train passes audible; birdsong;
ST2		12:04	15	82.9	66.7	51.6	Frequent train passes; local vehicle passes; nearby construction works include continuous sound from generator that influences L _{A90} levels. Distant road traffic drive L _{A90}
ST3		12:28	15	81.2	65.6	52.8	Frequent train passes; Nearby Hoover from garage on Park Avenue; Local vehicle passes on Park Avenue.
ST4		12:45	15	78.8	62.3	50.3	Distant road traffic; frequent train passes, including an engineering train pass; Road traffic passes on Park Avenue.

Table B3 (ctd.): Summary of Attended Daytime Sound Measurements – Thursday 9th November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST1	09/11/2023	13:10	15	68.5	53.4	48.6	As previous. Nearby road sweeper can be heard for c. 3 minutes.
ST2		13:31	15	72.9	53.9	48.4	As above. Nearby construction sound lower and generator off.
ST3		13:54	15	81.0	67.8	53.9	Light rainfall during period for approximately 6 minutes; Nearby jet wash increases L _{A90} for period.
ST4		14:11	15	75.4	61.2	50.7	As previous. 1 no. engineering train pass.



Table B3 (ctd.): Summary of Attended Daytime Sound Measurements – Thursday 9th November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST1	09/11/2023	14:38	15	67.5	55.7	49.3	Nearby road sweeper continuous for first 10 minutes of period. When off, sound levels drop by c. 4 dB; Distant aircraft rumble; pedestrians talking past meter.
ST2		15:04	15	74.0	54.5	47.8	Construction sound not audible and distant road traffic drives the L _{A90} sound levels
ST3		15:26	15	82.9	68.3	54.3	As previous period with jet wash driving L _{A90} . Frequent road traffic passes on Park Avenue.
ST4		15:45	15	77.9	61.4	50.0	As previous noted.

Table B4: Summary of Attended Night-time Sound Measurements – Thursday 23rd November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST5	23/11/2023	23:00	15	73.9	57.7	41.3	Distant road traffic drives the night-time L _{A90} sound levels; there are frequent high speed train passes; An engineering train stops and idles for c. 1.5 minutes, increasing the L _{A90} sound levels; road traffic can be heard on park Avenue.
ST2		23:21	15	72.9	52.1	41.0	Distant road traffic drives L _{A90} levels; other sources include local car movements past sound level meter and pedestrians passing on foot.
ST1		23:41	15	65.0	45.2	40.6	Distant road traffic drives L _{A90} sound levels; trains passes can be heard; reverse alarms and distant bangs can be heard coming from industrial estate.



Table B4 (ctd.): Summary of Attended Night-time Sound Measurements – Thursday 23rd November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST5	24/11/2023	00:04	15	77.7	53.9	37.3	Distant road traffic still dominates the background L _{A90} sound levels but is noted to be lower; a passing diesel train passes at 00:08hrs.
ST2		00:23	15	59.0	44.5	39.1	Distant road traffic drives background L _{A90} . Less local car passes and pedestrians passing in this period.
ST1		00:42	15	81.1	50.2	39.0	Distant road traffic drives L _{A90} levels; 1 no. local lorry pass; distant reverse alarm from industrial estate.

Table B4 (ctd.): Summary of Attended Night-time Sound Measurements – Thursday 23rd November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST5	24/11/2023	01:05	15	72.6	50.4	34.7	Wind in trees and road traffic.
ST2		01:25	15	76.3	45.9	38.6	Distant road traffic; nearby door slams.
ST1		01:45	15	73.3	43.9	37.9	Distant road traffic. No vehicle passes in period. No industrial sound.



Table B4 (ctd.): Summary of Attended Night-time Sound Measurements – Thursday 23rd November 2023

Monitoring Location	Date	Start Time	Duration	Measured Sound Levels, dB			Observations
				L _{Amax, F}	L _{Aeq, T}	L _{A90, T}	
ST5	24/11/2023	02:06	15	73.1	54.7	33.6	Distant road traffic.
ST2		02:28	15	74.4	50.9	42.8	Distant road traffic dominates background L _{A90} sound levels for the c. 5 minutes. A lorry idling in the adjacent HGV park increases sound levels after 5 minutes.
ST1		02:48	15	57.7	39.7	38.2	Distant road traffic.