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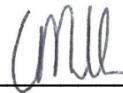
Technical Report

Reference: N&V – R3228

SEVEN SISTERS MARKET – NOISE IMPACT ASSESSMENT

Issue Date: 15th December 2022

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1. BACKGROUND

The Transport for London (TfL) Noise and Vibration Team has been tasked by the TfL Built Environment Team to undertake a noise impact assessment to support a planning application for the proposed redevelopment at 249A High Road (the Site) near to Seven Sisters London Underground Station.

The purpose of the assessment is to determine whether the levels of noise generated at the Site are likely to have an impact on the surrounding noise sensitive receptors (NSR). Unattended sound measurements have been completed at the Site to characterise the existing typical sound environment over the assessment periods.

The measured sound levels have been assessed in line with local and national planning policy guidance and relevant standards.

Details of the assessment methodology used, together with the results of the survey undertaken and the subsequent conclusions and recommendations drawn, are presented in this report.

A glossary of acoustic terms and their meanings has been included in **APPENDIX A**.

2. THE SITE LAYOUT

An aerial photograph of the Site is shown below in **Figure 1**. Survey measurement positions (MP) and the nearest noise sensitive receptors (NSR) are also annotated.

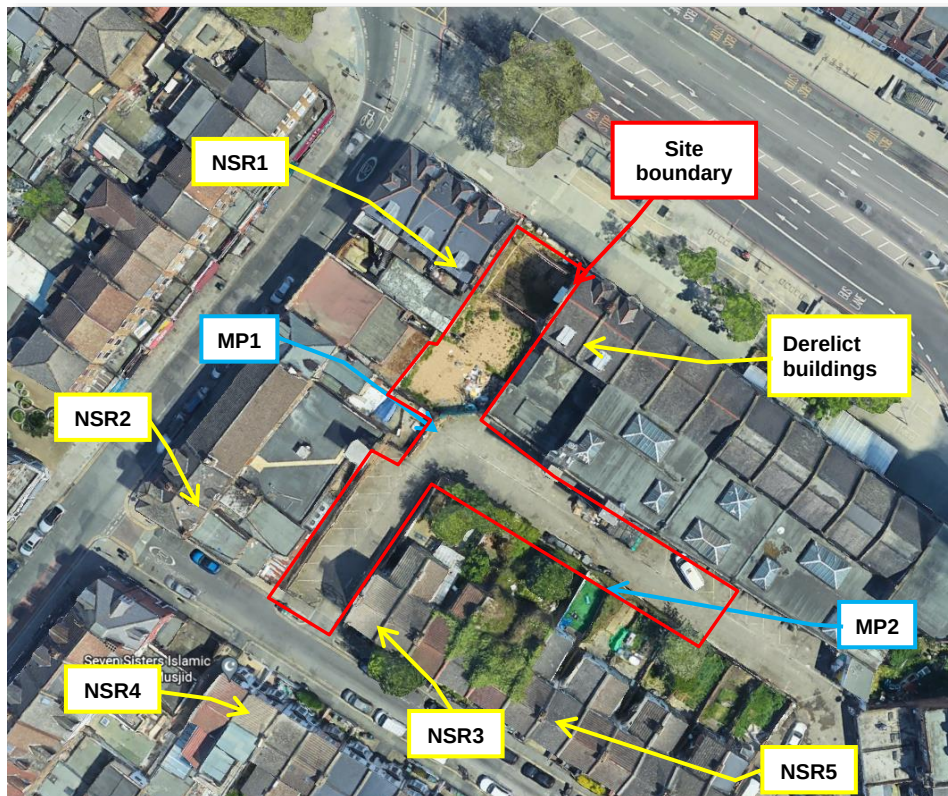


Figure 1 – Satellite view (Google Maps, 2022) of Site showing measurement positions and noise sensitive receptors

The following NSRs have been identified:

- NSR1: 257A-D High Road;
- NSR2: 9-11 West Green Road;
- NSR3: 20-28 Suffield Road;
- NSR4: 37 Suffield Road; and
- NSR5: 8-18 Suffield Road.

It is understood that the buildings occupying 247 to 249 High Road, as shown in **Figure 1**, are derelict and there are no plans for these properties to be redeveloped into a habitable condition.



3. SCOPE OF NOISE ASSESSMENT

Potential noise sources have been assessed within this report and the guidance/standards listed in a following section (**Section 5**) will be used to assess the potential impact.

The different sources of noise, generated by the Site, that could impact surrounding receptors are as follows:

- Patron Noise;
- Plant Noise; and/or
- Refuse Collection.

There is currently limited information related to technical specification and siting of mechanical plant, therefore a rating level design criteria has been proposed for the plant to achieve.

The noise associated with deliveries and refuse collection is an existing noise source for the Seven Sisters Indoor Market and other commercial properties nearby, therefore, the assessment of noise from refuse collection has been scoped out and will be controlled via conditions limiting the servicing hours.



4. EMBEDDED MITIGATION

The Site has a Management Plan which will be adhered to. The following is an extract from the plan:

Music & Events

Tenants are encouraged to ensure noise is kept to a reasonable level so as not to disturb the local residents or other traders. Any live events within the Temporary Outdoor Market will be agreed with the market manager and local authority prior to taking place and a sound engineer will be on site to measure noise levels and ensure disturbance is kept to a minimum.

Management of the market during local football match days.

On local match days the market management will deploy additional security and limit site capacity to maintain a safe and enjoyable environment. The market manager and security team will monitor the site and quickly address any issues arising in the operation of the market.

Alcohol / Premises License

The market management must be pragmatic about alcohol on site. Whilst it is envisaged that this site will not serve alcohol, individual traders may seek licenses.

The market manager will be on site throughout the hours of operation to ensure compliance with licensing and other requirements, and to make sure good practice is maintained. This provides a single point of contact on-site, who can quickly address any issues arising in the operation of the building.

The following mitigation which is inherent in the design has been included within this assessment:

- Layout of container units to be facing away from the majority of NSRs;
- A pergola with a polycarbonate roof covering large sections of the Site reducing line of sight for the majority of NSRs;
- Where possible, soft surfaces/furnishings will be included to ensure that noise reflections will be minimised: and
- the proposed use of passive ventilation where possible and the siting of extracts to face away from NSRs.



5. STANDARDS, GUIDANCE AND ASSESSMENT METHODOLOGY

NATIONAL PLANNING POLICY

NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2021) sets out the government's planning policies for England and how these are expected to be applied. It was revised in 2018 following a review of the 2012 document and was updated in July 2021.

The revised NPPF comments on noise in the following ways:

Paragraph 174: *Planning policies and decisions should contribute to and enhance the natural and local environment by:*

e) 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.

Paragraph 185: *Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site 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 the quality of life; and

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

NOISE POLICY STATEMENT FOR ENGLAND

The Noise Policy Statement for England (NPSE) (Department for Environment, Food and Rural Affairs, March 2010) seeks to clarify the underlying principles and aims in existing policy documents, legislation and guidance that relate to noise. The statement applies to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise.

The statement sets out the long-term vision of the government's noise policy, which is to "promote good health and a good quality of life through the effective management of noise within the context of policy on sustainable development".

The guidance promotes the effective management and control of noise, within the context of Government policy on sustainable development and thereby aims to:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and



- Where possible, contribute to the improvements of health and quality of life.

The statement adopts established concepts from toxicology that are currently being applied to noise impacts. The concept details noise levels, at which the effects of an exposure may be classified into a specific category. The classification categories as detailed within NPSE are as follows:

- No Observed Effect Level (NOEL) - the level below which no effect can be detected. Below this level no detectable effect on health and quality of life due to noise can be established;
- Lowest Observed Adverse Effect Level (LOAEL) - the level above which adverse effects on health and quality of life can be detected; and
- Significant Observed Adverse Effect Level (SOAEL) - the level above which significant adverse effects on health and quality of life occur.

It is recognised that SOAEL does not have a single objective noise-based level that is applicable to all sources of noise in all situations and therefore the SOAEL is likely to be different for different sources, receptors and at different times of the day.

PLANNING PRACTICE GUIDANCE

The National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities & Local Government, 2019) expands on the use of SOAEL:

“If the exposure is above this level the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused.”

The NPPG also goes on to identify unacceptable noise exposure:

“At the highest extreme, noise exposure would cause extensive and sustained changes in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be prevented from occurring.”

REGIONAL AND LOCAL POLICY

THE LONDON PLAN

The Spatial Development Strategy (SDS), otherwise known as The London Plan (LP) (Greater London Authority, 2021), was adopted in March 2021 and looks to “serve as a blueprint for the future development and sustainable, inclusive growth of our city.”

The Greater London Authority (GLA) principal purposes are:

- promoting economic development and wealth creation in Greater London;



- promoting social development in Greater London; and
- promoting the improvement of the environment in Greater London.

The LP mentions that it *“is legally part of each of London’s Local Planning Authorities’ Development Plan and must be taken into account when planning decisions are taken in any part of Greater London.”*

The applicable policies to this assessment are taken from The LP and reproduced below:

Policy D13 Agent of Change

- A) The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance-generating uses in a sensitive manner when new development is proposed nearby.*
- C) New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.*

Policy D14 Noise

- A) In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:*
- 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);*
 - 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.*



HARINGEY'S LOCAL PLAN: STRATEGIC POLICIES

The London Borough of Haringey's Local Plan (HLP) (London Borough of Haringey, 2017) was adopted in March 2013 and updated in 2017. It covers policies with regards to development until 2026. The HLP outlines how the Council will “*address local and strategic development needs including housing, employment, leisure, and retail provision.*”

The HLP has the following policies that are relevant to this application and reproduced below:

SP10:TOWN CENTRES

Protecting and enhancing Haringey's Town Centres

The District Town Centres of Bruce Grove/Tottenham High Road, Crouch End, Green Lanes, Muswell Hill and West Green Road/Seven Sisters will continue to be supported and strengthened as important shopping and service centres to meet people's day-to-day needs. The Council will take a proactive partnership approach to reinvigorating these town centres, widening their role and offer, developing their identities, improving the public realm and accessibility to them.

HARINGEY: DEVELOPMENT MANAGEMENT

Haringey's Development Management Development Plan Document (DPD) (London Borough of Haringey, 2017) was adopted by the council in July 2017. It gives “*effect to Haringey's spatial strategy and the key objectives of the Strategic Policies Local Plan by supporting proposals that contribute to the delivery of sustainable development in accordance with the strategy, and providing a clear framework for resisting development that would be at odds with the Local Plan.*”

The DPD has following policies that are relevant to this application and reproduced below:

POLICY DM23

Noise and Vibration

D The Council will seek to ensure that new noise sensitive development is located away from existing or planned sources of noise pollution. Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact.

E A noise assessment will be required to be submitted if the proposed development is a noise sensitive development, or an activity with the potential to generate noise.

STANDARDS AND GUIDANCE

BRITISH STANDARD 7445

British Standard 7445 Part 1 (British Standard Institution, 2003) defines the basic quantities to be used for the description of noise in community environments and describes basic procedures for the determination of these quantities.



The methods and procedures described in this British Standard are intended to be applicable to sounds from all sources, individually and in combination, which contribute to the total noise at a site.

British Standard 7445 Part 2 (British Standards Institution, 1991) describes methods for the acquisition of data which provide descriptors that enable:

- a) a description of the environmental noise in a specified area of land to be made in a uniform way; and
- b) the compatibility of any land use activity or projected activity to be assessed with respect to existing or predicted noise.

Using the data as a basis, authorities may establish a system for selecting the appropriate land use, as far as levels of noise are concerned, for a specified area, or the sources of noise - existing or planned - which are acceptable with respect to land use, existing or planned.

BRITISH STANDARD 4142

British Standard 4142:2014+A1:2019 (BS 4142) (British Standards Institution, 2019) describes methods for rating and assessing sound of an industrial and/or commercial nature. The method uses outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident. The method is suitable for the purpose of assessing sound at proposed new dwellings or premises used for residential purposes.

The method of assessment requires that the existing external background sound level, L_{A90} , be subtracted from the predicted specific sound level plus any adjustment for the characteristic features of the sound.

Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level.

Where such features are present at the assessment location, an acoustic character correction is required. The corrected specific sound level is the Rating Level.

BS 4142 states that typically the greater the difference between the Rating Level and the background sound level, the greater the magnitude of the impact:

- a difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- a difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- the lower the rating level is, relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant 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.

BRITISH STANDARD 8233

British Standard 8233 (BS 8233) (British Standards Institute, 2014) provides design criteria for external areas that are used for amenity space, such as gardens and patios. It is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$. The standard further states that:

“However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”

INSTITUTE OF ENVIRONMENTAL MANAGEMENT & ASSESSMENT: GUIDELINES FOR ENVIRONMENTAL NOISE IMPACT ASSESSMENT

The Institute of Environmental Management & Assessment (IEMA) Guidelines on Environmental Noise Impact Assessment (Institute of Environmental Management & Assessment, 2014) presents guidelines to assist in the assessment of the impact of potential new noise sources.

As there are no recognised assessment methodologies with relation to noise from patron noise, Table 1 summarises the ‘Degree of Effect Matrix’ and ‘Effect Descriptors’ from the IEMA guidelines. Due to the NSRs being residential dwellings, the importance/sensitive of the receptor has been assumed to be high.

Relative Change in Noise Level, dB(A)	Magnitude / Scale of Change	Significance	NPSE Effect Descriptor
2.9 or less	Negligible	None	NOEL
3 to 4.9	Small	Moderate	LOAEL
5 to 9.9	Medium	Substantial	
10.0 or more	Large	Very Substantial	SOAEL

Table 1 – Impact Scale for Comparison of Baseline Scenario to Future Scenario

INSTITUTE OF ACOUSTICS GOOD PRACTICE GUIDE ON THE CONTROL OF NOISE FROM PUBS AND CLUBS

The Good Practice Guide on the Control of Noise from Pubs and Clubs (Institute of Acoustics, 2003) provides guidance on the assessment and control of noise affecting noise-sensitive properties, from the public and private use of public houses, clubs, hotels, discotheques, restaurants and other similar premises. The document notes the following main noise sources likely to cause disturbance from such venues:



- music, singing and speech, both amplified and non-amplified, originating from inside buildings;
- activities within gardens and play areas;
- people in general;
- use of car parks and access roads; and
- plant and machinery.

Although the document does not set any specific criteria for entertainment noise it recommends the following:

“for premises where entertainment takes place on a regular basis, music and associated sources should not be audible inside noise sensitive property at any time.”

“For the purposes of this document, noise may be considered not audible or inaudible when it is at a low enough level such that it is not recognisable as emanating from the source in question and does not alter the perception of the ambient noise environment that would prevail in the absence of the source in question.”



6. MEASUREMENT METHODOLOGY

Measurements were carried out in general accordance with the requirements of the following BS 4142 and BS 7445.

An unattended environmental acoustic survey was carried out within the site boundary at two locations (MP1 and MP2) between Friday 11th November 2022 and Wednesday 16th November 2022 to obtain full daytime sound levels during a representative weekday and the weekend. The unattended sound level meters (SLM) were installed within the boundary of the site and the locations are presented in **Figure 1**.

The microphone at MP1 was set to a height of approximately 2.4 m above local ground level under free-field conditions and was representative of the nearest noise sensitive receptors NSR1, NSR2, NSR3 and NSR4.

The microphone at MP2 was set to a height of approximately 1.8 m under free-field conditions above local ground level and was representative of the nearest noise sensitive receptors NSR5.

The SLMs were set to:

- record audio for one minute every hour so that extraneous noise sources could be identified; and
- log continuously over 15-minute periods measuring linear octave band and A-weighted sound parameters L_{eq} , L_{Fmax} , L_{10} and L_{90} .

The majority of data did not include any unusual acoustic events that occurred during the measurement period. In some cases (normally periods that exceeded 65 dB $L_{Aeq,15mins}$), it was not always possible to identify, through the audio recordings, the cause of spikes that occurred. Nevertheless, the data was considered a fair representation of the typical acoustic environment at the relevant measurement locations.

Photos of the measurement positions are provided in **APPENDIX C**.



7. EQUIPMENT AND METEOROLOGY

The equipment used to carry out the survey is detailed in **Table 2**. The microphones were fitted with windshields. The SLMs were field checked for calibration before and after their respective measurement periods and no variation in level was observed. The equipment is subject to manufacturers' certificates of periodic verification within one year for the field calibrator and two years for sound level and vibration meters. Copies of these certificates are available upon request.

Item	Manufacturer	Type	Serial Number	Calibration Date
Sound Level Meter	01dB	Fusion	10758 (MP1)	29/07/2021
Sound Level Meter	01dB	Fusion	12501 (MP2)	23/03/2022
Calibrator	Svantek	SV36	79807	20/02/2022

Table 2 – Survey Equipment

Periods of wind and rain during the unattended measurements were identified using open source meteorological data from a weather station located at London City Airport¹. Periods that contained precipitation or wind speeds above 5 m/s (as per the recommendations in BS:4142) are excluded from the analysis due to their influence on the ambient conditions. The meteorological data for the survey period is presented in **APPENDIX D**.

¹ Data accessed at <https://www.wunderground.com/history/daily/gb/london/EGLC> on 18/11/2022



8. SURVEY RESULTS

Unattended Survey

At MP1, the sound climate consisted of road traffic noise from Great Cambridge Road (A10) and West Green Road (A504). Infrequent slow moving road traffic from Suffield Road was also observed. Additionally, there was pedestrian noise from High Road and infrequent aviation noise.

Mechanical plant at the rear of the supermarket located on West Green Road was observed but it was noted that there was no noise emanating from it. It appeared that the mechanical plant may be associated with cooling and therefore likely to be active during warmer months.

At MP2, the sound climate was similar to MP1 but the road traffic noise was less noticeable. The position was located along an access road whereby other commercial properties access.

Presented below are the lowest hourly ambient and typical background sound levels throughout the whole survey at MP1 and MP2. The data excludes periods whereby weather conditions were not conducive. The $L_{A90,15mins}$ has been derived taking an arithmetic average of the 15 minutes periods within that hour.

Time	MP1		MP2	
	$L_{Aeq,1hr}$ (dB)	$L_{A90,15mins}$ (dB)	$L_{Aeq,1hr}$ (dB)	$L_{A90,15mins}$ (dB)
07:00	56	44	54	43
08:00	56	44	54	43
09:00	57	46	55	45
10:00	56	46	54	45
11:00	59	46	58	45
12:00	57	47	56	46
13:00	58	47	55	46
14:00	58	47	55	46
15:00	58	47	56	46
16:00	54	47	54	46
17:00	57	47	55	46
18:00	59	47	57	46
19:00	58	47	57	46
20:00	58	47	57	46
21:00	58	47	56	46
22:00	58	46	55	45

Table 3 – Results of hourly meteorologically filtered broadband sound levels at MP1 and MP2

Statistical analysis of the background sound levels, data were excluded to account for unfavourable weather conditions. Statistical distributions of the background sound levels ($L_{A90,15mins}$), measured during the daytime (07:00 to 23:00), are presented below in **Figure 2** and **Figure 3** for MP1 and MP2, respectively.

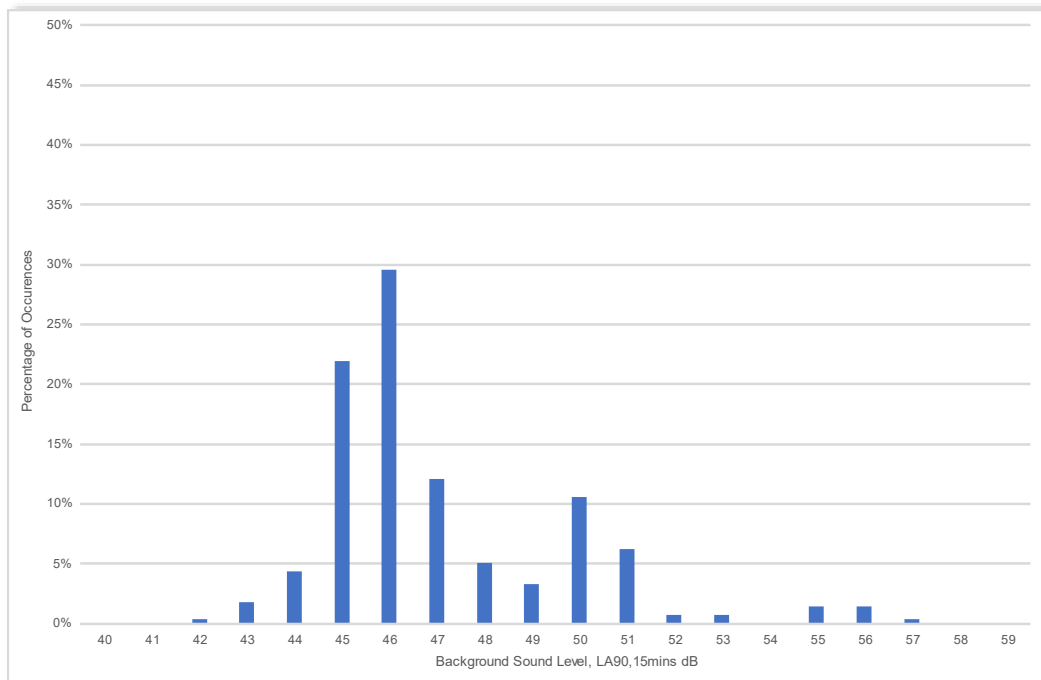


Figure 2 – Statistical distribution of metrology filtered background sound levels (LA90,15mins dB) at MP1

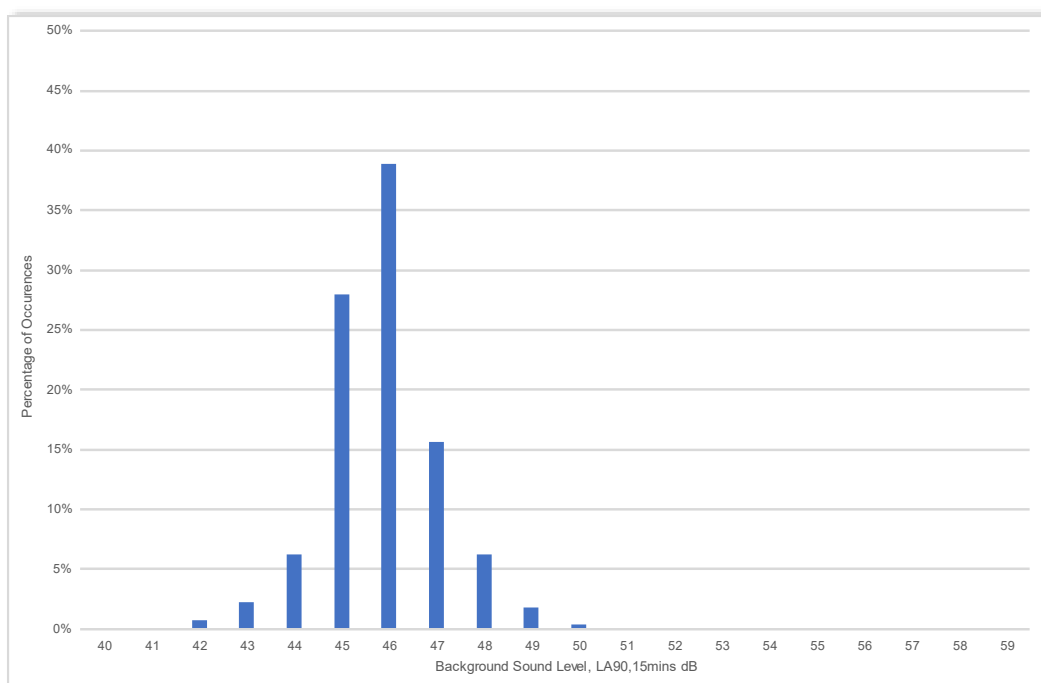


Figure 3 – Statistical distribution of metrology filtered background sound levels (LA90,15mins dB) at MP2

The full time history of the unattended measurements is provided in **APPENDIX E**. The time history plots show periods that were excluded from the analysis due to unfavourable meteorological conditions.

Strategic Noise Map

Defra has published a strategic noise map data that gives a snapshot of the estimated noise from major road and rail sources across England in 2017. The



contours are based on a grid height of 4 metres and provide an indicative noise level in 5 dB ranges for the noise contribution from road traffic in terms of $L_{Aeq,16hrs}$.

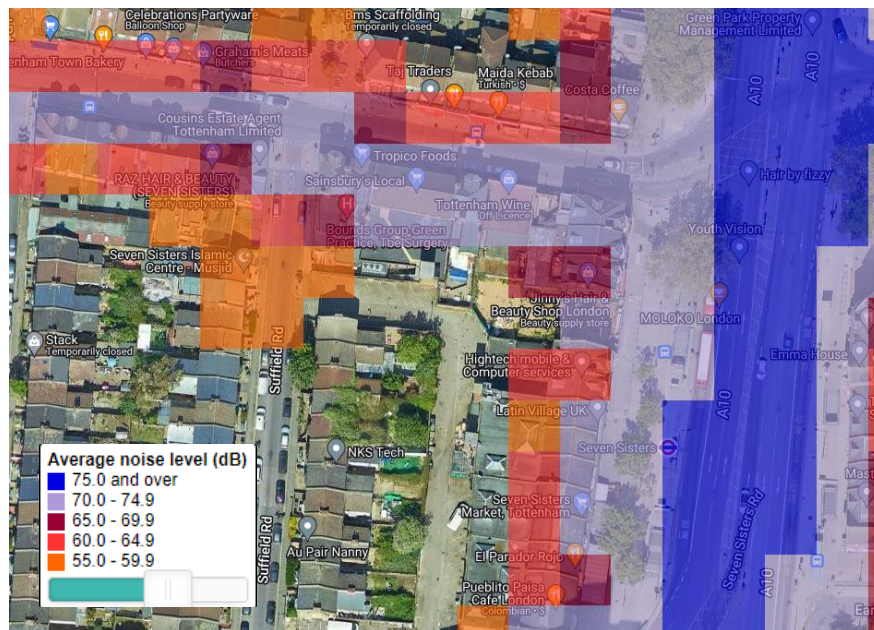


Figure 4 – Round 3 Noise Contours Daytime Road Noise ($L_{Aeq,16hr}$) taken from the England Noise and Air Quality (Extrium, 2017)

Comparing the measured baseline sound levels with the strategic noise map show that the measured levels are below those predicted in the strategic noise map.



9. NOISE ASSESSMENT

Noise Model

Environmental noise mapping software, Cadna-A (version 2023 build 195.5312), has been used to build a 3D model of the Site along with the potential noise sources. The following general calculation parameters have been applied along with various assumed worst-case variables:

- Noise predictions to follow the procedures set out in ISO 9613-2 (International Standard, 1996);
- The existing ground topography set to a relative ground level of 0 m across the whole site;
- Default ground absorption whereby $G = 0$;
- All buildings are reflective whereby $G = 0$;
- Maximum order of reflections set to 3;
- All noise predictions at the residential dwellings have been made at a point 1 metre in front of the most exposed window and the worst-case height (i.e. where receptors have line-of-sight of the Site);
- The noise model includes existing barriers such as existing buildings and walls surrounding the properties;
- The containers with the proposed units have been assumed to provide screening and effectively modelled as a building; and
- The pergola contains a polycarbonate roof and has been modelled as a floating reflective barrier and acoustically semi-transparent.

Patron Noise Assessment

As discussed in the guidance review section of this report, there are no standardised assessment methodologies associated with the noise from patrons and their relative subjective effect on humans.

As such, the IEMA Guidelines have been used as the basis of this assessment to establish the likely changes in ambient sound levels and their likely associated noise impacts and subjective significance.

To assess the noise generated by patrons, three separate area sources with a relative ground height of 1.5 metres have been modelled. The area sources have an assumed occupancy, spread and activities which is explained below.

Noise Model Input Assumptions

To facilitate an appropriate prediction from patron noise based on occupancy, a relevant source noise level is required. ANSI/ASA S3.5 (1997) *Methods for Calculation of the Speech Intelligibility Index* (American National Standard & Acoustical Society of America, 2020) provides sound levels measured at 1 metre for different conditions of unisex speech. The American Standard gives levels for “Normal”, “Raised”, “Loud” and “Shout”.



In this case for the Market, it has been assumed that 50% of all occupants will have a continuous conversation with a “Raised” voice over an hour period. As the Site will not be serving alcohol, only a “Raised” voice has been considered as it is more likely that occupants will be more mindful and respectful of their surroundings than if they were under the influence of alcohol.

The following source level has been used within the noise model.

Type	L _{Aeq,5mins} (dB)	Sound level, dB L _{Zeq,T} , at Octave Band Centre Frequency, Hz					
		250	500	1k	2k	4k	8k
Unisex – Raised Voice	62	61	66	63	57	52	43

Table 4 – Source noise level for patrons

The spread of the occupants over the Site has been weighted according to the number of units and the number of informal seating per area.

The full occupancy limit of the Site is 500 people. Therefore, five different modelling scenarios were applied with an occupancy of 100, 200, 300, 400 and 500. These scenarios have then been assigned to a relevant time period for a typical day according to the use of the facilities

Time	Estimated Occupancy
07:00	100
08:00	100
09:00	100
10:00	200
11:00	200
12:00	300
13:00	300
14:00	200
15:00	200
16:00	100
17:00	100
18:00	200
19:00	300
20:00	500
21:00	400
22:00	300

Table 5 – Estimated hourly site occupancy

Noise Model Outputs

Based on the above assumptions, a noise model output has been produced based on the five different scenarios. The noise contours show the free-field dB L_{Aeq,1hr} noise level at a relative ground height of 3.6 metres which is considered representative of a first-floor level. The receiver points are at various heights depending on the most exposed window for the NSR.

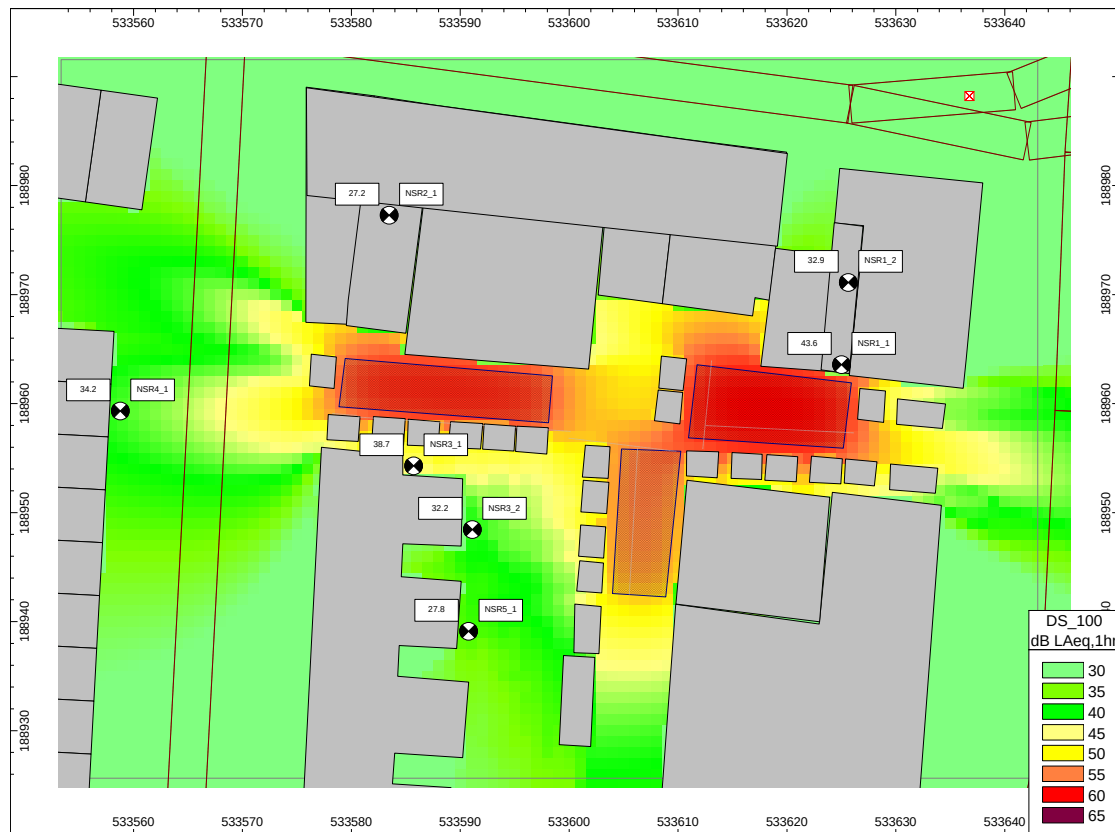


Figure 5 – Noise contour grid ($L_{Aeq,1hr}$ dB) for an occupancy of 100

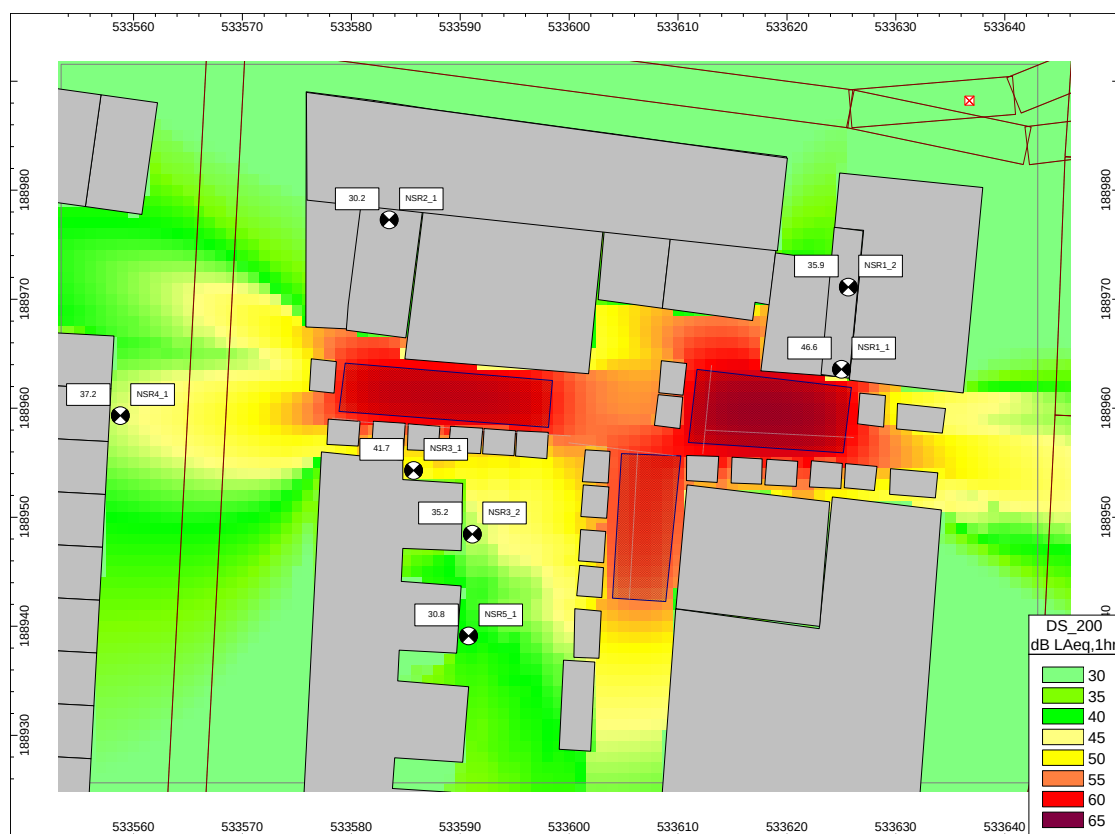


Figure 6 – Noise contour grid ($L_{Aeq,1hr}$ dB) for an occupancy of 200

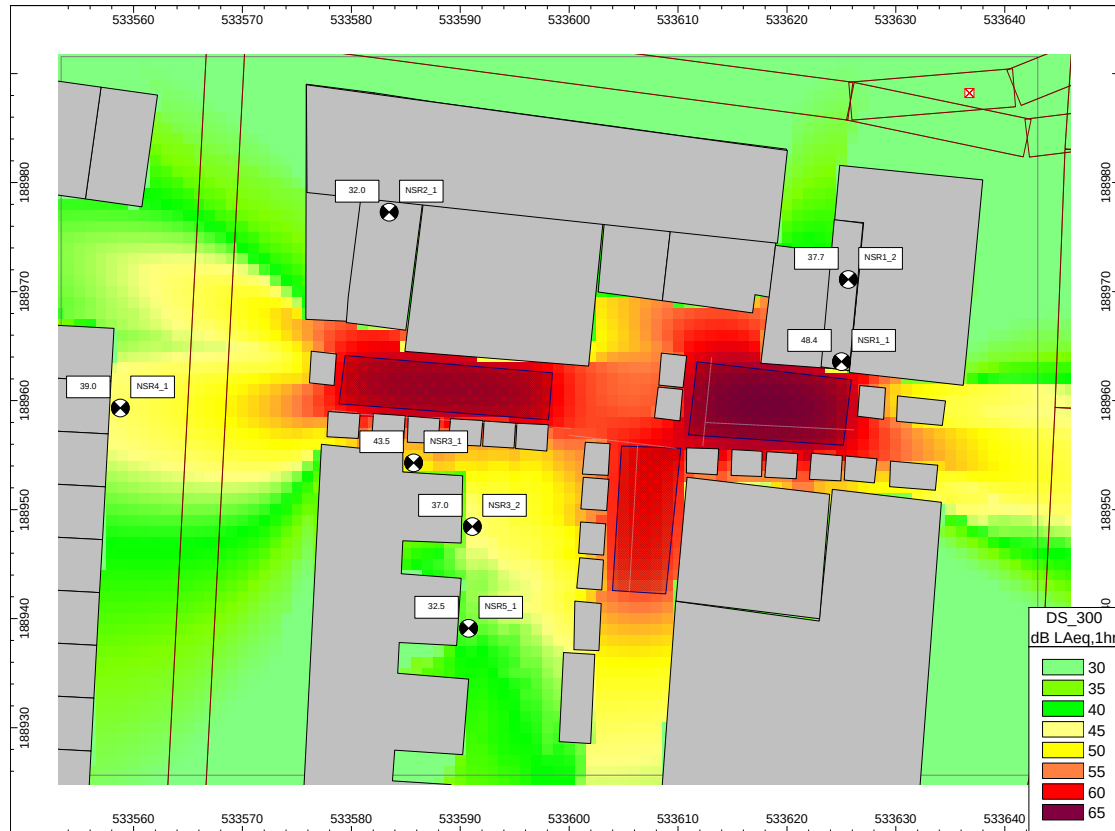


Figure 7 – Noise contour grid (L_{Aeq,1hr} dB) for an occupancy of 300

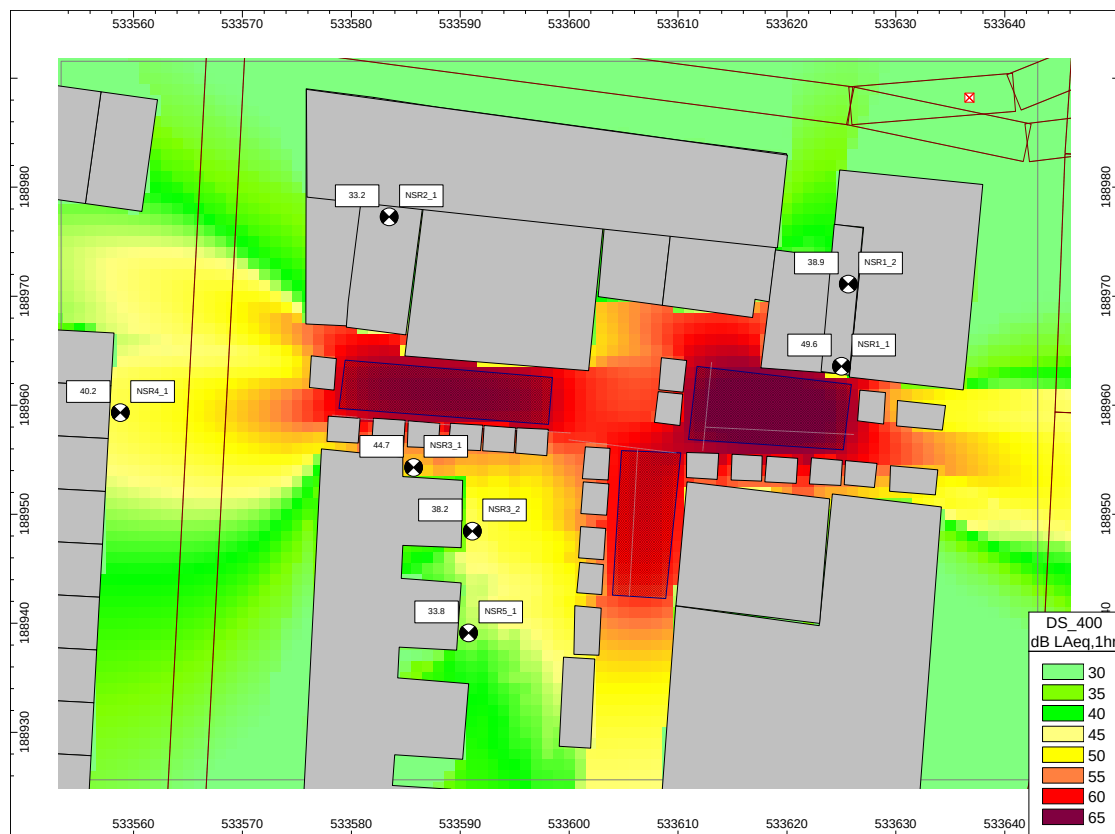


Figure 8 – Noise contour grid (L_{Aeq,1hr} dB) for an occupancy of 400

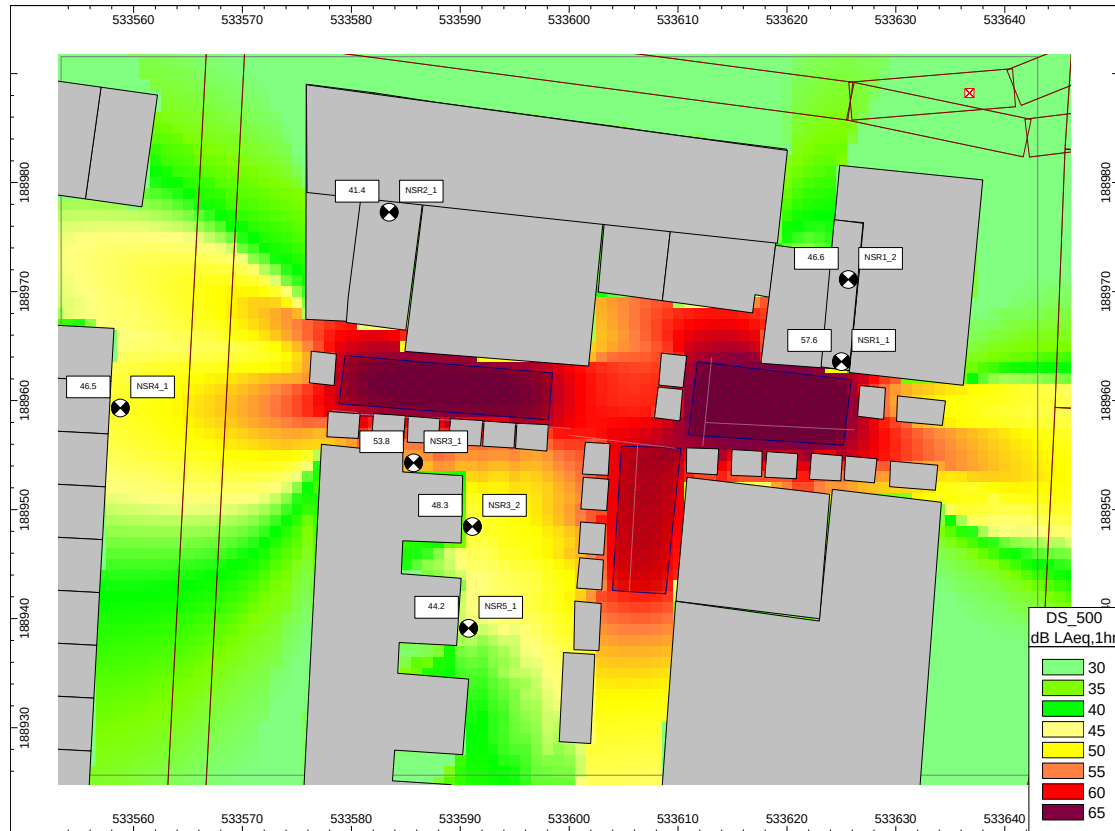


Figure 9 – Noise contour grid (L_{Aeq,1hr} dB) for an occupancy of 500

Additionally, a noise contour plot has been produced to show the noise levels based on external amenity areas. The figure below shows the free-field dB L_{Aeq,1hr} noise level at a relative ground height of 1.25 metres which is considered representative of a user in the space.

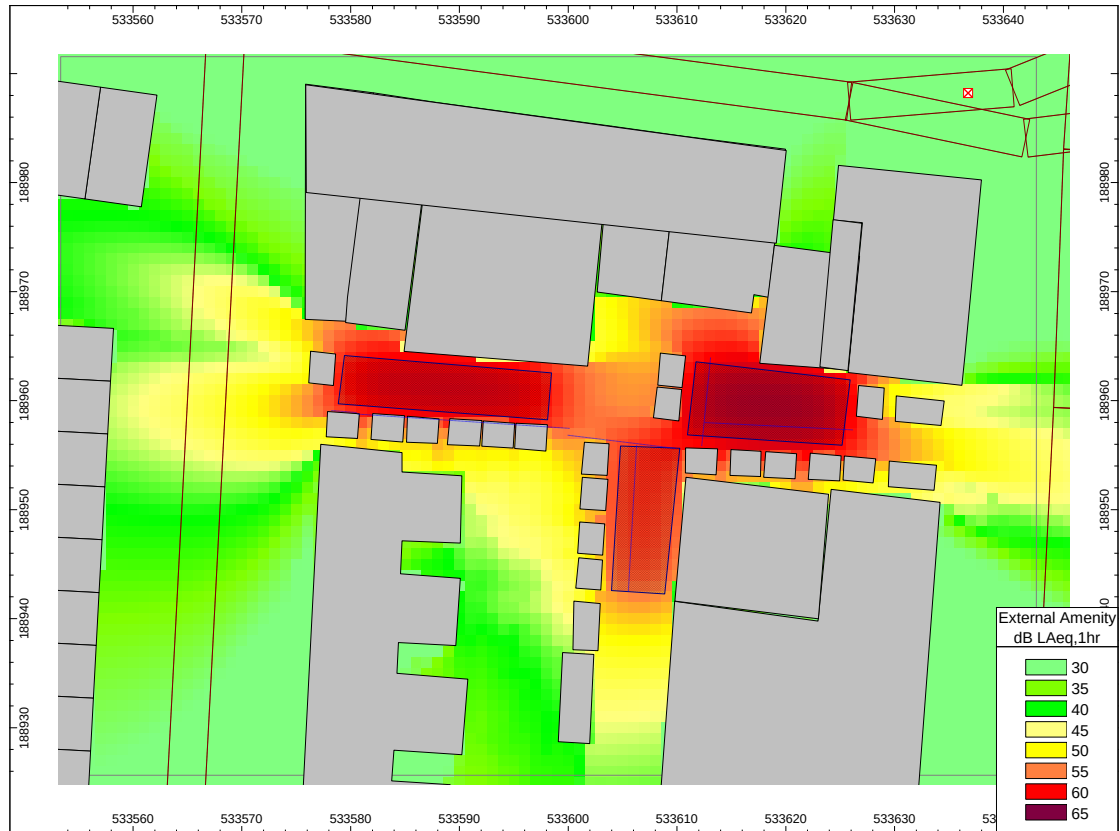


Figure 10 – External Amenity Noise contour grid ($L_{Aeq,1hr}$ dB) for an occupancy of 500

Evaluation

Based on the predicted patron noise level at the nearest façade to the NSRs (see Figures 6 to 10) and the existing ambient sound levels acquired during the baseline survey (i.e. lowest $L_{Aeq,1h}$ for a corresponding period), a change in noise level has been predicted. The following Tables (Tables 6 to 10) present the assessment using the magnitude/significance criteria described in ANSI/ASA S3.5 for NSR1 to NSR5, respectively..

Time	dB $L_{Aeq,1hr}$				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
07:00	56.0	50.6	57.1	1.1	Negligible / None
08:00	56.0	50.6	57.1	1.1	Negligible / None
09:00	57.0	50.6	57.9	0.9	Negligible / None
10:00	56.0	53.6	58.0	2.0	Negligible / None
11:00	59.0	53.6	60.1	1.1	Negligible / None
12:00	57.0	55.4	59.3	2.3	Negligible / None
13:00	58.0	55.4	59.9	1.9	Negligible / None
14:00	58.0	53.6	59.3	1.3	Negligible / None
15:00	58.0	53.6	59.3	1.3	Negligible / None
16:00	54.0	50.6	55.6	1.6	Negligible / None
17:00	57.0	50.6	57.9	0.9	Negligible / None
18:00	59.0	53.6	60.1	1.1	Negligible / None
19:00	58.0	55.4	59.9	1.9	Negligible / None



Time	dB L _{Aeq,1hr}				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
20:00	58.0	57.6	60.8	2.8	Negligible / None
21:00	58.0	56.6	60.4	2.4	Negligible / None
22:00	58.0	55.4	59.9	1.9	Negligible / None

Table 6 – Assessment of Change in Noise Level predicted at NSR1

Time	dB L _{Aeq,1hr}				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
07:00	56.0	34.4	56.0	0.0	Negligible / None
08:00	56.0	34.4	56.0	0.0	Negligible / None
09:00	57.0	34.4	57.0	0.0	Negligible / None
10:00	56.0	37.4	56.1	0.1	Negligible / None
11:00	59.0	37.4	59.0	0.0	Negligible / None
12:00	57.0	39.2	57.1	0.1	Negligible / None
13:00	58.0	39.2	58.1	0.1	Negligible / None
14:00	58.0	37.4	58.0	0.0	Negligible / None
15:00	58.0	37.4	58.0	0.0	Negligible / None
16:00	54.0	34.4	54.0	0.0	Negligible / None
17:00	57.0	34.4	57.0	0.0	Negligible / None
18:00	59.0	37.4	59.0	0.0	Negligible / None
19:00	58.0	39.2	58.1	0.1	Negligible / None
20:00	58.0	41.4	58.1	0.1	Negligible / None
21:00	58.0	40.4	58.1	0.1	Negligible / None
22:00	58.0	39.2	58.1	0.1	Negligible / None

Table 7 – Assessment of Change in Noise Level predicted at NSR2

Time	dB L _{Aeq,1hr}				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
07:00	56.0	45.3	56.4	0.4	Negligible / None
08:00	56.0	45.3	56.4	0.4	Negligible / None
09:00	57.0	45.3	57.3	0.3	Negligible / None
10:00	56.0	48.3	56.7	0.7	Negligible / None
11:00	59.0	48.3	59.4	0.4	Negligible / None
12:00	57.0	50.1	57.8	0.8	Negligible / None
13:00	58.0	50.1	58.6	0.6	Negligible / None
14:00	58.0	48.3	58.4	0.4	Negligible / None
15:00	58.0	48.3	58.4	0.4	Negligible / None
16:00	54.0	45.3	54.5	0.5	Negligible / None
17:00	57.0	45.3	57.3	0.3	Negligible / None
18:00	59.0	48.3	59.4	0.4	Negligible / None
19:00	58.0	50.1	58.6	0.6	Negligible / None
20:00	58.0	53.8	59.4	1.4	Negligible / None
21:00	58.0	51.3	58.8	0.8	Negligible / None



Time	dB L _{Aeq,1hr}				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
22:00	58.0	50.1	58.6	0.6	Negligible / None

Table 8 – Assessment of Change in Noise Level predicted at NSR3

Time	dB L _{Aeq,1hr}				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
07:00	56.0	37.2	56.1	0.1	Negligible / None
08:00	56.0	37.2	56.1	0.1	Negligible / None
09:00	57.0	37.2	57.0	0.0	Negligible / None
10:00	56.0	40.2	56.1	0.1	Negligible / None
11:00	59.0	40.2	59.1	0.1	Negligible / None
12:00	57.0	41.9	57.1	0.1	Negligible / None
13:00	58.0	41.9	58.1	0.1	Negligible / None
14:00	58.0	40.2	58.1	0.1	Negligible / None
15:00	58.0	40.2	58.1	0.1	Negligible / None
16:00	54.0	37.2	54.1	0.1	Negligible / None
17:00	57.0	37.2	57.0	0.0	Negligible / None
18:00	59.0	40.2	59.1	0.1	Negligible / None
19:00	58.0	41.9	58.1	0.1	Negligible / None
20:00	58.0	46.6	58.3	0.3	Negligible / None
21:00	58.0	43.2	58.1	0.1	Negligible / None
22:00	58.0	41.9	58.1	0.1	Negligible / None

Table 9 – Assessment of Change in Noise Level predicted at NSR4

Time	dB L _{Aeq,1hr}				Magnitude / Significance
	Baseline	Patron Noise	Total Noise	Change in Noise Level	
07:00	54.0	37.1	54.1	0.1	Negligible / None
08:00	54.0	37.1	54.1	0.1	Negligible / None
09:00	55.0	37.1	55.1	0.1	Negligible / None
10:00	54.0	40.1	54.2	0.2	Negligible / None
11:00	58.0	40.1	58.1	0.1	Negligible / None
12:00	56.0	41.9	56.2	0.2	Negligible / None
13:00	55.0	41.9	55.2	0.2	Negligible / None
14:00	55.0	40.1	55.1	0.1	Negligible / None
15:00	56.0	40.1	56.1	0.1	Negligible / None
16:00	54.0	37.1	54.1	0.1	Negligible / None
17:00	55.0	37.1	55.1	0.1	Negligible / None
18:00	57.0	40.1	57.1	0.1	Negligible / None
19:00	57.0	41.9	57.1	0.1	Negligible / None
20:00	57.0	44.2	57.2	0.2	Negligible / None
21:00	56.0	43.1	56.2	0.2	Negligible / None
22:00	55.0	41.9	55.2	0.2	Negligible / None

Table 10 – Assessment of Change in Noise Level predicted at NSR5



The table above demonstrates that the magnitude/significance of predicted noise levels as a result of patrons using the market during typical occupancy and worst-case operational times would likely be Negligible/None.

In light of the above and in accordance with the NPSE, the predicted noise levels would be classified as the NOEL, No Observed Effect Level.

With regards to the external amenity assessment, the balcony that overlooks the development at NSR1 is predicted for a worst-case scenario to be 57.6 dB $L_{Aeq,1hr}$. However, this is based on some robust assumptions that the occupancy is at 500 and that 50% of occupants are continually speaking. Given that the pre-existing ambient sound levels from MP1 range from 56 to 59 dB $L_{Aeq,1hr}$, in all likelihood, there would not be a significant change in noise level.

For NSR3 and NSR5 that have gardens at the rear, the screening provided by the existing garden walls, design/layout of the containers and the roof of the pergola, the noise levels in the rear gardens are expected to be below 50 dB $L_{Aeq,1hr}$ in most cases. MP2 shows that the pre-existing ambient sound levels range from 54 to 57 dB $L_{Aeq,1hr}$.

Plant Noise

The proposed ventilation and extract strategy is a mixture of passive and mechanical ventilation. It is not currently known the mechanical plant to be used. Therefore, a design range has been provided along with the relevant NOEL and LOAEL based on the lowest measured free-field background sound levels.

Receptor	Measurement Position	Lowest Measured Background Sound Level, dB $L_{A90,15min}$	Typical Measured Background Sound Level dB $L_{A90,15min}$	Design Range of Rating Sound Level, dB $L_{A,Tr}$	
				NOEL	LOAEL
All	MP1 & MP2	42	45	< 32	32 to 47

Table 11 – Design range of Rating Sound Level of all proposed mechanical plant

All reasonable endeavours will be carried out to achieve the NOEL where it is practicable and feasible. However, where this is not possible, the mechanical plant will be designed such that the LOAEL is not exceeded and so that the ambient sound level does not increase in magnitude when patron noise is additionally considered.

Refuse Collection

As discussed within Section 2, the operational noise from the refuse collection has not been assessed due to it being a pre-existing activity. However, to ensure that there is a minimal impact, guidance from the Department for Transport's Quiet Delivery Scheme (QDS) has been included. The QDS is primarily aimed to provide good practice for deliveries of goods to business outside normal delivery hours providing techniques to reduce noise and disturbance to residences. Relevant guidance has been reproduced below and included as a form of best practice for the site.



The Delivery Point

- *Ensure delivery bay doors, gates and shutters are well maintained to minimise noise when opening and closing;*
- *Ensure the delivery point and surrounding areas are clear of obstructions so vehicles can manoeuvre easily;*
- *Where possible, prepare all empty handling units, salvage and returns behind closed doors. Check they are in the correct condition and position and at the right height before taking them out. This will minimise outdoor activity and unnecessary noise;*
- *Think about how to minimise contact between hard surfaces, particularly metal on metal, during the unloading/loading processes. For example, use rubber matting and buffering material on doors;*
- *Service any delivery equipment in advance to minimise noise;*
- *Make sure the delivery point is ready for the vehicle before it arrives – gates and doors should be open to avoid the vehicle idling;*
- *Make sure the driver knows the precise location of your delivery point and is aware of any local access issues; and*
- *Ensure staff do not shout or whistle to get the attention of the driver.*

The driver

- *Plan ahead to ensure you know the location of the delivery point and the appropriate access route;*
- *Adjust or restrict routings for evening/night-time deliveries to avoid housing areas;*
- *If early for your delivery slot, do not wait near residential property and switch off the engine;*
- *As you approach the site and manoeuvre your vehicle into position, remain aware of the effect noise levels can have on local residents;*
- *Do not sound your horn;*
- *Reversing alarms should be switched off or modified for white noise, if not subject to health and safety requirements or localised risk assessment issues (e.g. proximity to a cycle route). Use a qualified banksman instead, if available;*
- *Engines should be switched off immediately when not manoeuvring, however, try to minimise start-ups and avoid over-revving;*
- *Refrigeration equipment should be switched off in advance of arrival at premises;*
- *If the radio is on, ensure the cab windows are closed and switch the radio off before opening the door;*
- *Minimise the frequency of opening and closing vehicle doors, and do so quietly;*
- *Allow extra time if needed to unload as quietly as possible. Take particular care to minimise rattle from metal-on-metal contact when moving roll cages;*



- *Where practical, notify staff at the delivery point in advance of arrival to ensure they are ready for you;*
- *If opening a gate/cellar flap/roller shutter door to gain access, do so gently and as little as possible;*
- *Lower flaps on tail-lifts carefully and quietly;*
- *Do not whistle or shout to get the attention of store employees;*
- *When moving gates, locks and load restraint bars ensure they are placed gently in their resting position/stowage point – do not drop or drag them on the ground;*
- *When safe to do so, use sidelights rather than headlights while off-road and manoeuvring, to minimise light intrusion;*
- *Minimise excessive air brake noise;*
- *When working in the vehicle load space avoid banging cages into the vehicle walls;*
- *When finished unloading/loading, close up the vehicle quietly; and*
- *Show the same consideration when leaving the site as when arriving.*

Summary of Noise Impacts

The noise assessment presented in this section shows that with careful consideration of the design and use of embedded mitigation that there will be minimal adverse impacts from the Site. This is therefore in line with part D and E of Policy D23 from the Haringey Development Management Document. This also shows consideration has been given to Policy D13 and D14 from the London Plan.

The Site will form a part of reinvigorating and enhance the surrounding areas of Seven Sisters Underground Station and therefore will fall under Policy SP10 from Haringey's Local Plan.

When comparing the predicted noise levels to the existing noise levels taken from the strategic noise mapping, there will be a negligible contribution of noise from the Site activities.



10. CONCLUSION

The Transport for London (TfL) Noise and Vibration team has been instructed by the TfL Built Environment Team to undertake a noise impact assessment to support a planning application for the proposed redevelopment at 249A High Road (the Site) near to Seven Sisters London Underground Station.

The different sources of noise generated by the Site that could impact surrounding receptors are as follows:

- Patron Noise;
- Plant Noise; and/or
- Refuse Collection.

An unattended environmental acoustic survey was carried out within the site boundary at two locations between Friday 11th November 2022 and Wednesday 16th November 2022 to obtain full daytime sound levels during a representative weekday and the weekend.

The sound climate consisted of road traffic noise from Great Cambridge Road (A10) and West Green Road (A504). Infrequent slow moving road traffic from Suffield Road was also observed. Additionally, there was pedestrian noise from High Road and infrequent aviation noise.

Environmental noise mapping software, Cadna-A, has been used to build a 3D model of the Site along with the potential noise sources.

Based on the predictions from the noise model and the pre-existing ambient sound levels from the survey, a change in noise level has been predicted and a subsequent assessment based on the magnitude / significance has been presented.

The report demonstrates that the magnitude/significance of predicted noise levels as a result of patrons using the market during typical occupancy and worst-case operational times will be Negligible/None. In light of the above and in accordance with the NPSE, the predicted noise levels would be classified as the NOEL, No Observed Effect Level.

The proposed ventilation and extract strategy is a mixture of passive and mechanical ventilation. It is not currently known what mechanical plant will be installed on the Site. Therefore, a design range has been provided along with the relevant NOEL and LOAEL. All reasonable endeavours will be carried out to achieve the NOEL where it is practicable and feasible. However, where this is not possible, the mechanical plant will be designed such that the LOAEL is not exceeded and so that the ambient sound level does not increase in magnitude when patron noise is additionally considered

The operational noise from the refuse collection has not been assessed due to it being a pre-existing activity. However, to ensure that there is a minimal impact, guidance from the Department for Transport's Quiet Delivery Scheme (QDS) has been included.

The noise assessment presented shows that with careful consideration of the design and use of embedded mitigation that there will be minimal adverse impacts from the



Site. This is therefore in line with part D and E of Policy D23 from the Haringey Development Management Document and also shows consideration has been given to Policy D13 and D14 from the London Plan.

The Site is intended to form part of reinvigoration and enhancement of the area surrounding Seven Sisters Underground Station and therefore will fall under Policy SP10 from Haringey's Local Plan.

When comparing the predicted noise levels to the existing noise levels taken from the strategic noise mapping, there will be a negligible contribution of noise from Site activities.



APPENDIX A – ACOUSTIC TERMINOLOGY

The definitions below have been reproduced from Section 3 of the “Terms and definitions” within BS 4142.

ambient sound

totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far.

ambient sound level, $L_a = L_{Aeq,T}$

equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T .

background sound level, $L_{A90,T}$

A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T , measured using time weighting, F , and quoted to the nearest whole number of decibels.

equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$

value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, $T = t_2 - t_1$, has the same mean-squared sound pressure as a sound that varies with time.

rating level, $L_{Ar,Tr}$

specific sound level plus any adjustment for the characteristic features of the sound.

residual sound

ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.

residual sound level, $L_r = L_{Aeq,T}$

equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T .



APPENDIX B – References

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APPENDIX C - Photos



Figure 11 – Measurement position 1 (MP1) near to noise sensitive receptor (NSR1)

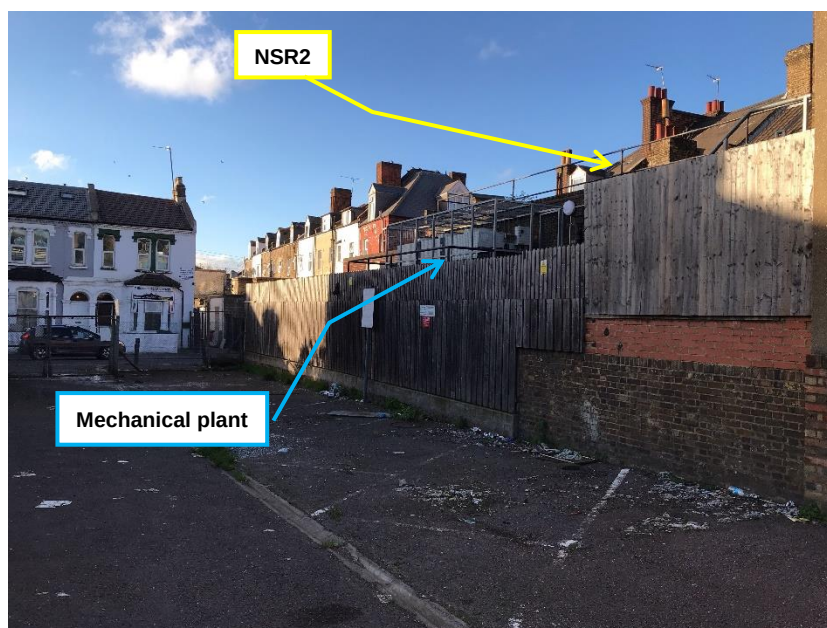


Figure 12 – Mechanical plant from supermarket



Figure 13 – Measurement position 2 (MP2) near to noise sensitive receptor (NSR5)



Figure 14 – NSR3 and NSR4



Figure 15 – Mechanical plant from existing properties



APPENDIX D – Meteorological Data

Date & Time	Temperature (°C)	Humidity	Wind Direction	Wind Speed (m/s)	Condition
11/11/2022 11:00	16 °C	72 %	SSW	6 m/s	Cloudy
11/11/2022 11:30	16 °C	72 %	SSW	7 m/s	Cloudy
11/11/2022 12:00	16 °C	72 %	SSW	7 m/s	Mostly Cloudy
11/11/2022 12:30	16 °C	72 %	SSW	5 m/s	Cloudy
11/11/2022 13:00	16 °C	72 %	SSW	6 m/s	Mostly Cloudy
11/11/2022 13:30	16 °C	72 %	SW	4 m/s	Mostly Cloudy
11/11/2022 14:00	16 °C	72 %	SW	4 m/s	Mostly Cloudy
11/11/2022 14:30	16 °C	72 %	SW	5 m/s	Mostly Cloudy
11/11/2022 15:00	16 °C	72 %	VAR	4 m/s	Mostly Cloudy
11/11/2022 15:30	15 °C	77 %	SSW	4 m/s	Mostly Cloudy
11/11/2022 16:00	15 °C	77 %	S	3 m/s	Mostly Cloudy
11/11/2022 16:30	14 °C	82 %	SSW	4 m/s	Mostly Cloudy
11/11/2022 17:00	14 °C	77 %	SSW	3 m/s	Cloudy
11/11/2022 17:30	14 °C	82 %	SSW	4 m/s	Cloudy
11/11/2022 18:00	14 °C	77 %	SSW	4 m/s	Cloudy
11/11/2022 18:30	14 °C	77 %	SSW	4 m/s	Cloudy
11/11/2022 19:00	13 °C	82 %	SSW	3 m/s	Mostly Cloudy
11/11/2022 19:30	13 °C	77 %	SW	4 m/s	Mostly Cloudy
11/11/2022 20:00	13 °C	77 %	SSW	3 m/s	Fair
11/11/2022 20:30	12 °C	82 %	SSE	1 m/s	Fair
11/11/2022 21:00	12 °C	82 %	S	3 m/s	Fair
11/11/2022 21:30	11 °C	88 %	S	2 m/s	Fair
11/11/2022 22:00	11 °C	88 %	SSE	2 m/s	Fair
11/11/2022 22:30	11 °C	88 %	SSE	2 m/s	Mostly Cloudy
11/11/2022 23:00	11 °C	94 %	ESE	2 m/s	Cloudy
11/11/2022 23:30	11 °C	94 %	ESE	2 m/s	Cloudy
12/11/2022 00:00	11 °C	94 %	E	2 m/s	Cloudy
12/11/2022 00:30	11 °C	94 %	ESE	3 m/s	Mostly Cloudy
12/11/2022 01:00	10 °C	94 %	ESE	4 m/s	Mostly Cloudy
12/11/2022 01:30	10 °C	94 %	ESE	4 m/s	Fair
12/11/2022 02:00	10 °C	100 %	SE	1 m/s	Mostly Cloudy
12/11/2022 02:30	11 °C	94 %	VAR	1 m/s	Mostly Cloudy
12/11/2022 03:00	11 °C	94 %	ESE	3 m/s	Cloudy
12/11/2022 03:30	11 °C	94 %	ESE	3 m/s	Cloudy
12/11/2022 04:00	11 °C	94 %	E	3 m/s	Cloudy
12/11/2022 04:30	11 °C	94 %	E	4 m/s	Cloudy
12/11/2022 05:00	11 °C	94 %	E	4 m/s	Cloudy
12/11/2022 05:30	12 °C	94 %	ESE	3 m/s	Cloudy
12/11/2022 06:00	12 °C	94 %	ESE	3 m/s	Mostly Cloudy
12/11/2022 06:30	12 °C	94 %	SSE	1 m/s	Mostly Cloudy
12/11/2022 07:00	12 °C	94 %	SSE	2 m/s	Cloudy
12/11/2022 07:30	13 °C	88 %	SSE	2 m/s	Mostly Cloudy
12/11/2022 08:00	13 °C	88 %	SE	3 m/s	Cloudy
12/11/2022 08:30	13 °C	88 %	SE	2 m/s	Cloudy
12/11/2022 09:00	13 °C	94 %	SE	2 m/s	Cloudy
12/11/2022 09:30	13 °C	94 %	SE	3 m/s	Mostly Cloudy
12/11/2022 10:00	14 °C	88 %	SSE	2 m/s	Mostly Cloudy
12/11/2022 10:30	14 °C	88 %	SE	3 m/s	Cloudy
12/11/2022 11:00	14 °C	88 %	SSE	3 m/s	Mostly Cloudy
12/11/2022 11:30	14 °C	88 %	ESE	4 m/s	Mostly Cloudy
12/11/2022 12:00	15 °C	82 %	SE	4 m/s	Partly Cloudy
12/11/2022 12:30	15 °C	82 %	ESE	4 m/s	Partly Cloudy
12/11/2022 13:00	15 °C	82 %	ESE	3 m/s	Fair



Date & Time	Temperature (°C)	Humidity	Wind Direction	Wind Speed (m/s)	Condition
12/11/2022 13:30	16 °C	77 %	ESE	2 m/s	Fair
12/11/2022 14:00	16 °C	77 %	ESE	3 m/s	Fair
12/11/2022 14:30	16 °C	82 %	ESE	3 m/s	Fair
12/11/2022 15:00	15 °C	82 %	SE	3 m/s	Haze
12/11/2022 15:30	14 °C	88 %	ESE	3 m/s	Fair
12/11/2022 16:00	14 °C	82 %	ESE	3 m/s	Fair
12/11/2022 16:30	12 °C	94 %	ESE	3 m/s	Fair
12/11/2022 17:00	12 °C	94 %	ESE	3 m/s	Fair
12/11/2022 17:30	12 °C	94 %	ESE	3 m/s	Fair
12/11/2022 18:00	12 °C	94 %	E	3 m/s	Fair
12/11/2022 18:30	11 °C	94 %	E	3 m/s	Fair
12/11/2022 19:00	11 °C	94 %	E	2 m/s	Fair
12/11/2022 19:30	11 °C	100 %	E	3 m/s	Fair
12/11/2022 20:00	11 °C	94 %	ENE	3 m/s	Mist
12/11/2022 20:30	11 °C	94 %	E	3 m/s	Mist
12/11/2022 21:00	11 °C	100 %	E	3 m/s	Fog
12/11/2022 21:30	11 °C	100 %	E	3 m/s	Fog
12/11/2022 22:00	11 °C	100 %	ESE	3 m/s	Fog
12/11/2022 22:30	11 °C	100 %	E	3 m/s	Mist
12/11/2022 23:00	12 °C	100 %	E	2 m/s	Mist
12/11/2022 23:30	12 °C	100 %	ESE	2 m/s	Cloudy
13/11/2022 00:00	12 °C	100 %	SE	3 m/s	Mist
13/11/2022 00:30	12 °C	100 %	ESE	3 m/s	Mist
13/11/2022 01:00	12 °C	100 %	ESE	3 m/s	Mist
13/11/2022 01:30	12 °C	100 %	SE	3 m/s	Mist
13/11/2022 02:00	12 °C	100 %	SE	2 m/s	Mist
13/11/2022 02:30	12 °C	100 %	SE	3 m/s	Mist
13/11/2022 03:00	12 °C	94 %	ESE	3 m/s	Mist
13/11/2022 03:30	12 °C	94 %	S	2 m/s	Mist
13/11/2022 04:00	12 °C	94 %	E	2 m/s	Mist
13/11/2022 04:30	12 °C	94 %	ESE	3 m/s	Mist
13/11/2022 05:00	11 °C	100 %	E	3 m/s	Fog
13/11/2022 05:30	11 °C	100 %	E	3 m/s	Fog
13/11/2022 06:00	11 °C	100 %	E	3 m/s	Mist
13/11/2022 06:30	11 °C	100 %	E	4 m/s	Fog
13/11/2022 07:00	11 °C	100 %	ESE	4 m/s	Mist
13/11/2022 07:30	11 °C	100 %	E	3 m/s	Fog
13/11/2022 08:00	11 °C	94 %	E	3 m/s	Fog
13/11/2022 08:30	10 °C	100 %	E	4 m/s	Fog
13/11/2022 09:00	10 °C	100 %	E	4 m/s	Fog
13/11/2022 09:30	11 °C	100 %	ESE	3 m/s	Fog
13/11/2022 10:00	11 °C	100 %	ESE	1 m/s	Fog
13/11/2022 10:30	11 °C	100 %	ENE	3 m/s	Fog
13/11/2022 11:00	11 °C	100 %	ENE	3 m/s	Mist
13/11/2022 11:30	11 °C	100 %	E	4 m/s	Cloudy
13/11/2022 12:00	12 °C	94 %	E	4 m/s	Cloudy
13/11/2022 12:30	12 °C	94 %	E	2 m/s	Cloudy
13/11/2022 13:00	12 °C	94 %	ESE	4 m/s	Mostly Cloudy
13/11/2022 13:30	12 °C	94 %	E	3 m/s	Mostly Cloudy
13/11/2022 14:00	13 °C	88 %	ESE	2 m/s	Mostly Cloudy
13/11/2022 14:30	12 °C	94 %	E	3 m/s	Haze
13/11/2022 15:00	12 °C	100 %	E	4 m/s	Mist
13/11/2022 15:30	12 °C	100 %	E	4 m/s	Fog
13/11/2022 16:00	12 °C	100 %	E	4 m/s	Mist
13/11/2022 16:30	12 °C	100 %	ESE	3 m/s	Mist



Date & Time	Temperature (°C)	Humidity	Wind Direction	Wind Speed (m/s)	Condition
13/11/2022 17:00	12 °C	94 %	E	4 m/s	Mist
13/11/2022 17:30	12 °C	94 %	E	4 m/s	Mist
13/11/2022 18:00	12 °C	94 %	E	3 m/s	Mist
13/11/2022 18:30	12 °C	94 %	ESE	2 m/s	Mist
13/11/2022 19:00	11 °C	100 %	E	2 m/s	Mist
13/11/2022 19:30	11 °C	100 %	E	3 m/s	Fog
13/11/2022 20:00	11 °C	100 %	E	3 m/s	Fog
13/11/2022 20:30	11 °C	100 %	E	3 m/s	Fog
13/11/2022 21:00	10 °C	100 %	E	3 m/s	Fog
13/11/2022 21:30	10 °C	100 %	E	3 m/s	Fog
13/11/2022 22:00	10 °C	100 %	E	4 m/s	Fog
13/11/2022 22:30	10 °C	100 %	E	1 m/s	Mist
13/11/2022 23:00	10 °C	94 %	VAR	1 m/s	Mist
13/11/2022 23:30	9 °C	100 %	VAR	1 m/s	Mist
14/11/2022 00:00	10 °C	94 %	NNE	1 m/s	Mist
14/11/2022 00:30	10 °C	100 %	ENE	2 m/s	Mist
14/11/2022 01:00	10 °C	100 %	E	2 m/s	Fog
14/11/2022 01:30	9 °C	100 %	E	4 m/s	Fog
14/11/2022 02:00	9 °C	100 %	E	2 m/s	Mist
14/11/2022 02:30	10 °C	100 %	ENE	2 m/s	Mist
14/11/2022 03:00	10 °C	100 %	ENE	1 m/s	Mist
14/11/2022 03:30	10 °C	94 %	E	4 m/s	Fog
14/11/2022 04:00	10 °C	94 %	E	3 m/s	Fog
14/11/2022 04:30	9 °C	100 %	E	2 m/s	Mist
14/11/2022 05:00	9 °C	100 %	E	3 m/s	Fog
14/11/2022 05:30	10 °C	100 %	E	1 m/s	Fog
14/11/2022 06:00	10 °C	100 %	VAR	1 m/s	Fog
14/11/2022 06:30	10 °C	100 %	ESE	1 m/s	Fog
14/11/2022 07:00	10 °C	100 %	VAR	1 m/s	Fog
14/11/2022 07:30	10 °C	100 %	E	2 m/s	Fog
14/11/2022 08:00	10 °C	100 %	E	4 m/s	Fog
14/11/2022 08:30	10 °C	100 %	VAR	1 m/s	Fog
14/11/2022 09:00	10 °C	100 %	WSW	2 m/s	Fog
14/11/2022 09:30	10 °C	100 %	W	1 m/s	Fog
14/11/2022 10:00	10 °C	100 %	SW	2 m/s	Fog
14/11/2022 10:30	10 °C	100 %	WSW	1 m/s	Fog
14/11/2022 11:00	10 °C	100 %	VAR	0 m/s	Fog
14/11/2022 11:30	11 °C	100 %	ENE	2 m/s	Fog
14/11/2022 12:00	11 °C	100 %	VAR	1 m/s	Mist
14/11/2022 12:30	11 °C	100 %	VAR	1 m/s	Mist
14/11/2022 13:00	11 °C	100 %	N	1 m/s	Cloudy
14/11/2022 13:30	12 °C	100 %	ENE	1 m/s	Mostly Cloudy
14/11/2022 14:00	12 °C	100 %	E	1 m/s	Mostly Cloudy
14/11/2022 14:30	12 °C	94 %	E	2 m/s	Partly Cloudy
14/11/2022 15:00	12 °C	94 %	ENE	3 m/s	Mostly Cloudy
14/11/2022 15:30	12 °C	94 %	E	2 m/s	Mostly Cloudy
14/11/2022 16:00	13 °C	94 %	E	4 m/s	Cloudy
14/11/2022 16:30	13 °C	94 %	ESE	2 m/s	Mostly Cloudy
14/11/2022 17:00	13 °C	94 %	ESE	3 m/s	Cloudy
14/11/2022 17:30	13 °C	94 %	E	3 m/s	Cloudy
14/11/2022 18:00	12 °C	100 %	ESE	3 m/s	Haze
14/11/2022 18:30	12 °C	100 %	E	2 m/s	Mist
14/11/2022 19:00	13 °C	94 %	E	2 m/s	Mostly Cloudy
14/11/2022 19:30	13 °C	94 %	ESE	2 m/s	Cloudy
14/11/2022 20:00	13 °C	94 %	SW	4 m/s	Cloudy



Date & Time	Temperature (°C)	Humidity	Wind Direction	Wind Speed (m/s)	Condition
14/11/2022 20:30	13 °C	88 %	WSW	4 m/s	Mostly Cloudy
14/11/2022 21:00	13 °C	88 %	WSW	5 m/s	Mostly Cloudy
14/11/2022 21:30	13 °C	82 %	WSW	5 m/s	Cloudy
14/11/2022 22:00	12 °C	82 %	SW	7 m/s	Cloudy
14/11/2022 22:30	12 °C	77 %	WSW	4 m/s	Mostly Cloudy
14/11/2022 23:00	11 °C	82 %	SW	3 m/s	Fair
14/11/2022 23:30	11 °C	76 %	SSW	3 m/s	Fair
15/11/2022 00:00	11 °C	76 %	SSE	2 m/s	Fair
15/11/2022 00:30	10 °C	82 %	SE	1 m/s	Fair
15/11/2022 01:00	10 °C	82 %	VAR	3 m/s	Fair
15/11/2022 01:30	11 °C	76 %	SSE	3 m/s	Fair
15/11/2022 02:00	11 °C	76 %	SSE	3 m/s	Fair
15/11/2022 02:30	11 °C	76 %	SSE	3 m/s	Fair
15/11/2022 03:00	11 °C	76 %	SSE	4 m/s	Fair
15/11/2022 03:30	11 °C	82 %	SE	4 m/s	Mostly Cloudy
15/11/2022 04:00	11 °C	82 %	SE	4 m/s	Fair
15/11/2022 04:30	11 °C	88 %	SE	4 m/s	Fair
15/11/2022 05:00	11 °C	88 %	SE	4 m/s	Partly Cloudy
15/11/2022 05:30	12 °C	82 %	SSE	4 m/s	Mostly Cloudy
15/11/2022 06:00	12 °C	82 %	SSE	5 m/s	Light Rain
15/11/2022 06:30	13 °C	77 %	SSE	6 m/s	Mostly Cloudy
15/11/2022 07:00	12 °C	82 %	SSE	6 m/s	Partly Cloudy
15/11/2022 07:30	12 °C	82 %	SSE	6 m/s	Mostly Cloudy
15/11/2022 08:00	12 °C	88 %	SSE	6 m/s	Light Rain
15/11/2022 08:30	12 °C	88 %	SSE	6 m/s	Light Rain
15/11/2022 09:00	12 °C	88 %	SSE	6 m/s	Light Rain
15/11/2022 09:30	12 °C	94 %	SSE	6 m/s	Light Rain
15/11/2022 10:00	12 °C	94 %	SE	5 m/s	Light Rain
15/11/2022 10:30	12 °C	94 %	SSE	6 m/s	Light Rain
15/11/2022 11:00	12 °C	94 %	SSE	6 m/s	Light Rain
15/11/2022 11:30	12 °C	94 %	SSE	6 m/s	Light Rain
15/11/2022 12:00	13 °C	88 %	SSE	6 m/s	Light Rain
15/11/2022 12:30	13 °C	88 %	SSE	6 m/s	Light Rain
15/11/2022 13:00	13 °C	94 %	S	7 m/s	Light Drizzle
15/11/2022 13:30	14 °C	82 %	S	4 m/s	Partly Cloudy
15/11/2022 14:00	14 °C	82 %	SSW	7 m/s	Fair
15/11/2022 14:30	14 °C	77 %	SSW	7 m/s	Fair
15/11/2022 15:00	14 °C	77 %	SSW	6 m/s	Fair
15/11/2022 15:30	13 °C	82 %	SSW	4 m/s	Fair
15/11/2022 16:00	13 °C	82 %	SSW	4 m/s	Mostly Cloudy
15/11/2022 16:30	13 °C	82 %	SW	3 m/s	Mostly Cloudy
15/11/2022 17:00	12 °C	88 %	SSW	3 m/s	Fair
15/11/2022 17:30	12 °C	88 %	SSE	3 m/s	Light Rain
15/11/2022 18:00	12 °C	82 %	SSW	4 m/s	Fair
15/11/2022 18:30	12 °C	77 %	SSW	4 m/s	Fair
15/11/2022 19:00	11 °C	82 %	VAR	3 m/s	Partly Cloudy
15/11/2022 19:30	11 °C	82 %	VAR	5 m/s	Fair
15/11/2022 20:00	11 °C	82 %	SSW	4 m/s	Fair
15/11/2022 20:30	10 °C	82 %	SSW	4 m/s	Fair
15/11/2022 21:00	10 °C	82 %	S	3 m/s	Fair
15/11/2022 21:30	10 °C	82 %	SSE	3 m/s	Partly Cloudy
15/11/2022 22:00	10 °C	82 %	SSE	4 m/s	Fair
15/11/2022 22:30	10 °C	82 %	SSE	4 m/s	Partly Cloudy
15/11/2022 23:00	10 °C	82 %	SSE	4 m/s	Fair
15/11/2022 23:30	10 °C	82 %	S	4 m/s	Fair



Date & Time	Temperature (°C)	Humidity	Wind Direction	Wind Speed (m/s)	Condition
16/11/2022 00:00	10 °C	76 %	S	4 m/s	Fair
16/11/2022 00:30	10 °C	76 %	S	4 m/s	Fair
16/11/2022 01:00	9 °C	87 %	SSW	4 m/s	Partly Cloudy
16/11/2022 01:30	9 °C	82 %	S	3 m/s	Fair
16/11/2022 02:00	9 °C	87 %	S	3 m/s	Fair
16/11/2022 02:30	10 °C	82 %	S	3 m/s	Light Rain
16/11/2022 03:00	9 °C	87 %	S	4 m/s	Fair
16/11/2022 03:30	9 °C	87 %	S	3 m/s	Fair
16/11/2022 04:00	9 °C	87 %	S	4 m/s	Light Rain
16/11/2022 04:30	9 °C	87 %	S	4 m/s	Light Rain
16/11/2022 05:00	9 °C	87 %	SSE	4 m/s	Mostly Cloudy
16/11/2022 05:30	9 °C	87 %	SSE	4 m/s	Fair
16/11/2022 06:00	9 °C	87 %	S	4 m/s	Light Rain
16/11/2022 06:30	9 °C	87 %	SSE	3 m/s	Light Rain
16/11/2022 07:00	9 °C	93 %	SE	3 m/s	Light Rain
16/11/2022 07:30	9 °C	93 %	SE	4 m/s	Mostly Cloudy
16/11/2022 08:00	9 °C	93 %	SE	3 m/s	Light Rain
16/11/2022 08:30	9 °C	93 %	SSE	3 m/s	Light Rain
16/11/2022 09:00	10 °C	87 %	SSE	2 m/s	Light Rain
16/11/2022 09:30	10 °C	94 %	SSE	2 m/s	Fair
16/11/2022 10:00	11 °C	82 %	S	3 m/s	Fair
16/11/2022 10:30	11 °C	82 %	SSE	3 m/s	Fair
16/11/2022 11:00	11 °C	82 %	S	4 m/s	Fair
16/11/2022 11:30	12 °C	72 %	S	4 m/s	Fair
16/11/2022 12:00	12 °C	77 %	S	4 m/s	Fair
16/11/2022 12:30	12 °C	77 %	S	5 m/s	Fair

Table 12 – Meteorological data taken from London City Airport weather station



APPENDIX E – Sound Level Data

TIME HISTORY OF SOUND LEVELS AT MP1

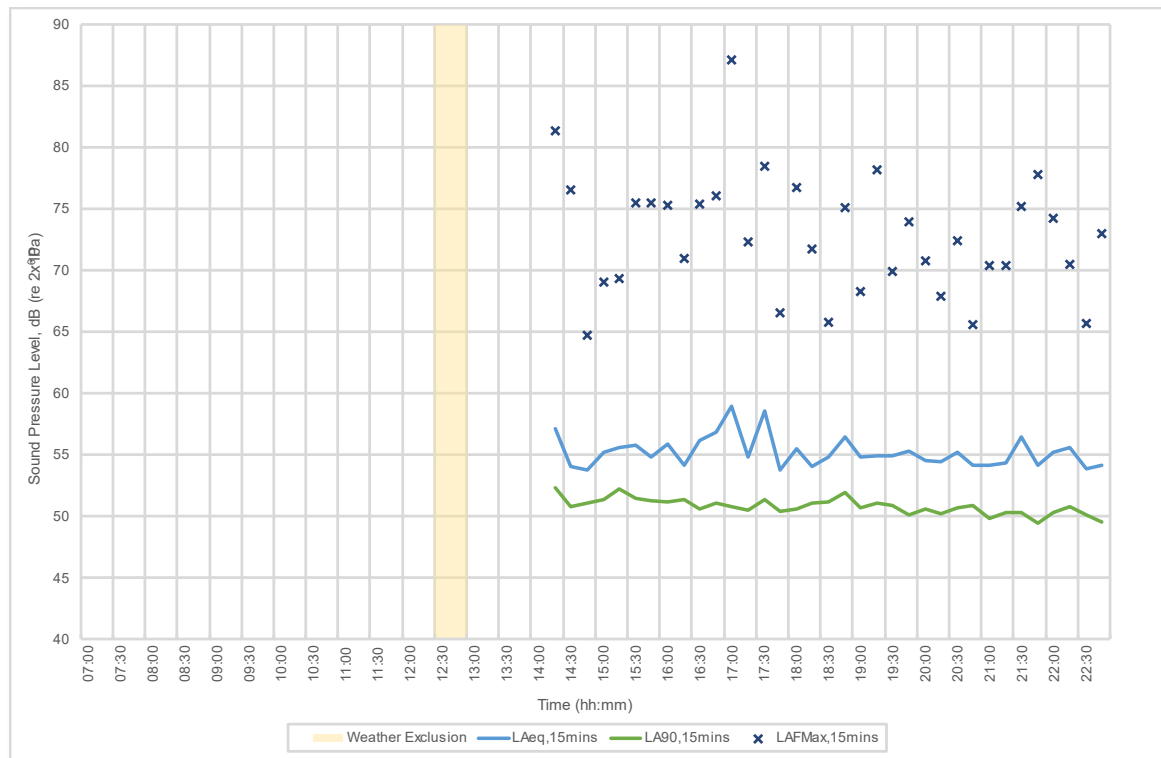


Figure 16 – Time history at MP1 on 11/11/2022

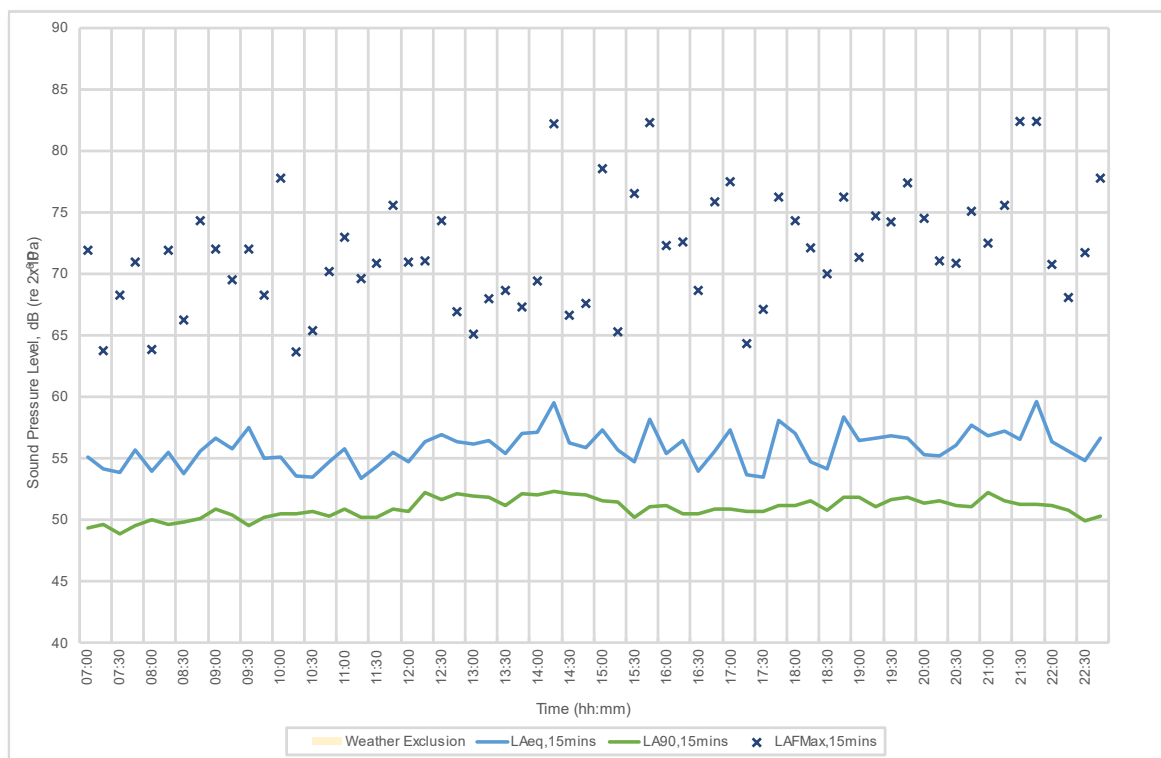


Figure 17 – Time history at MP1 on 12/11/2022

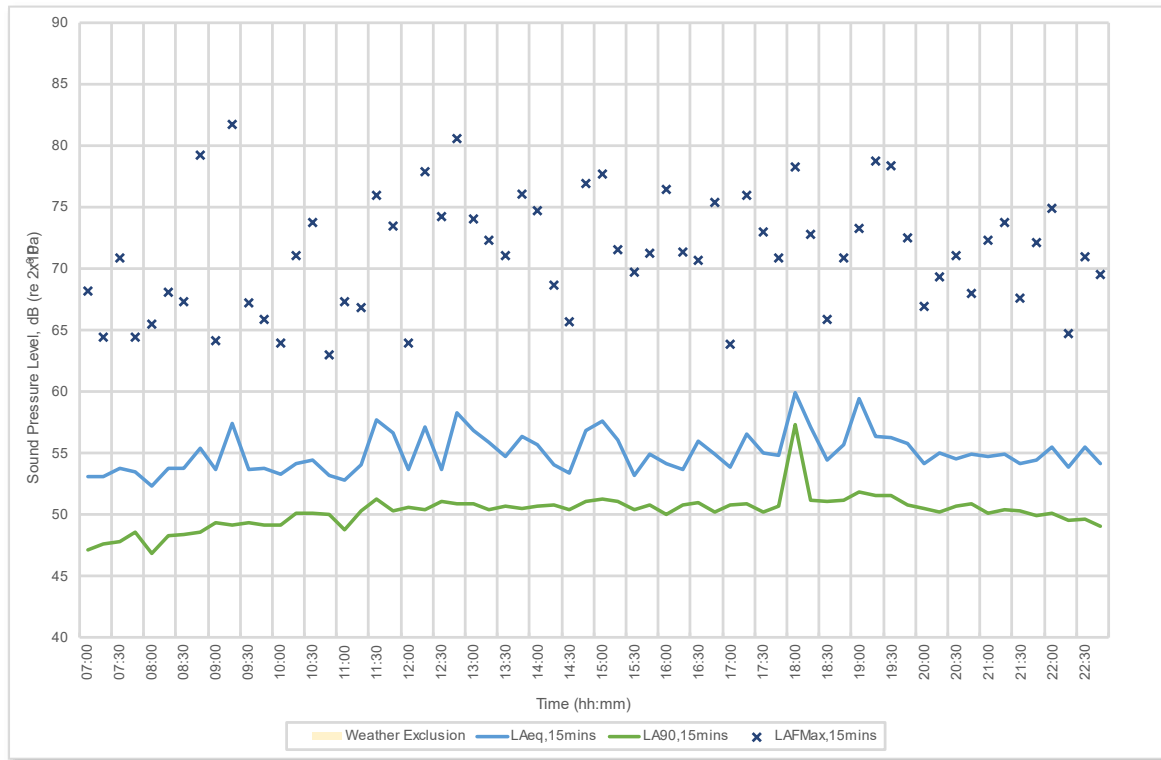


Figure 18 – Time history at MP1 on 13/11/2022

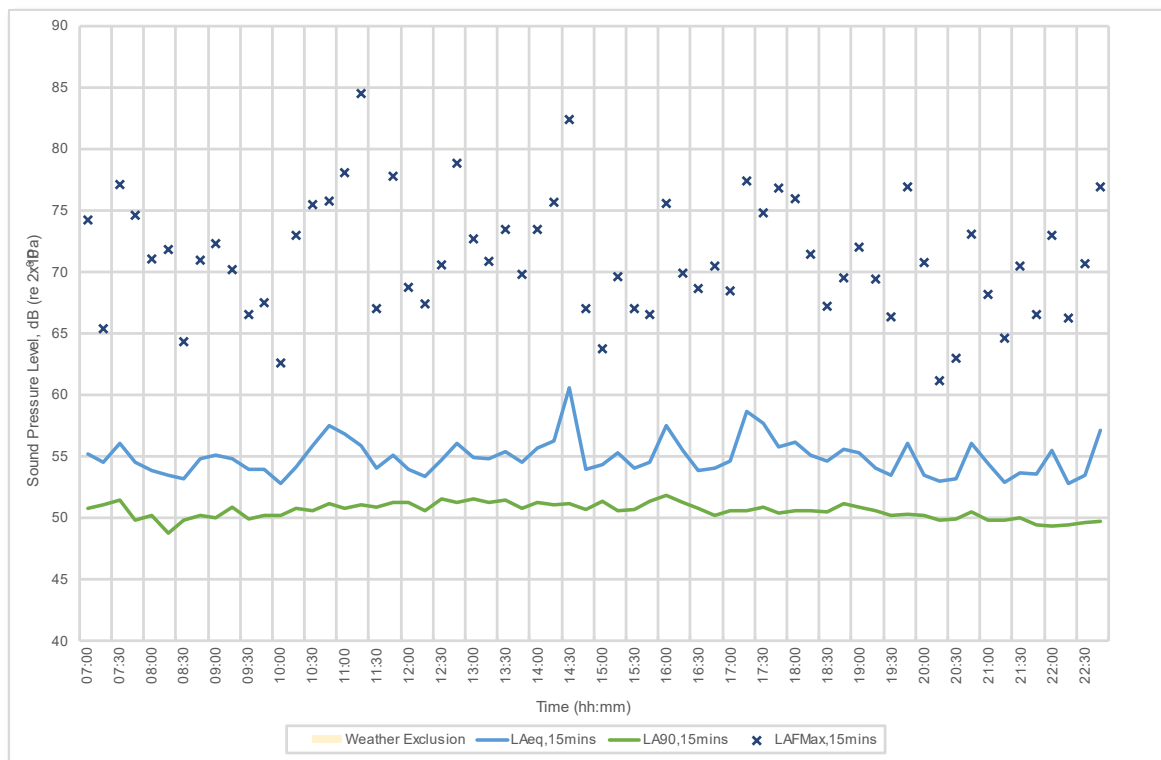


Figure 19 – Time history at MP1 on 14/11/2022

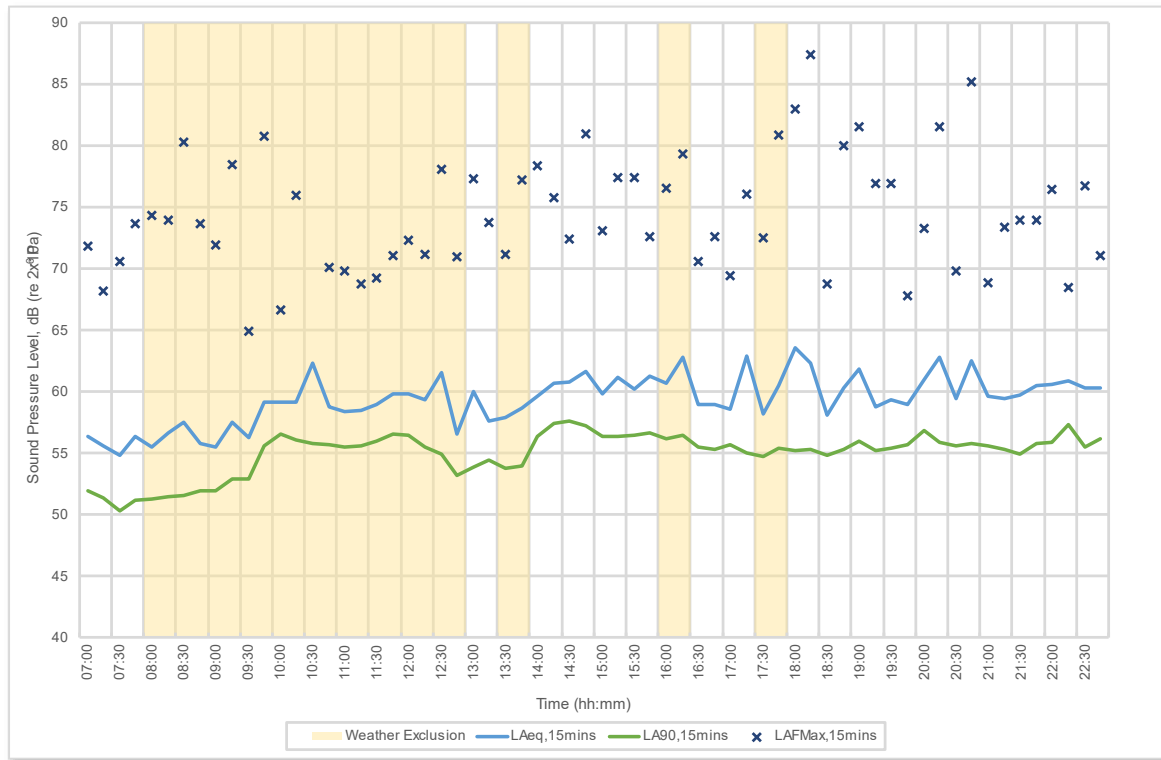


Figure 20 – Time history at MP1 on 15/11/2022

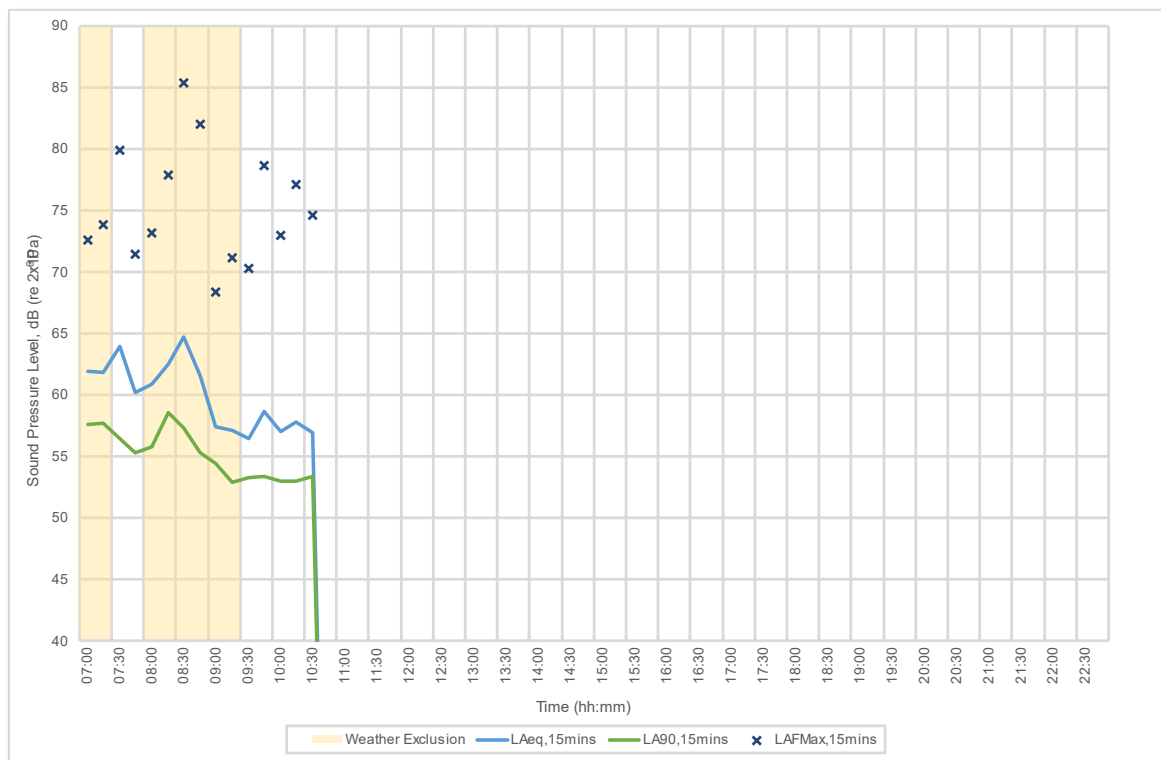


Figure 21 – Time history at MP1 on 16/11/2022



TIME HISTORY OF SOUND LEVELS AT MP2

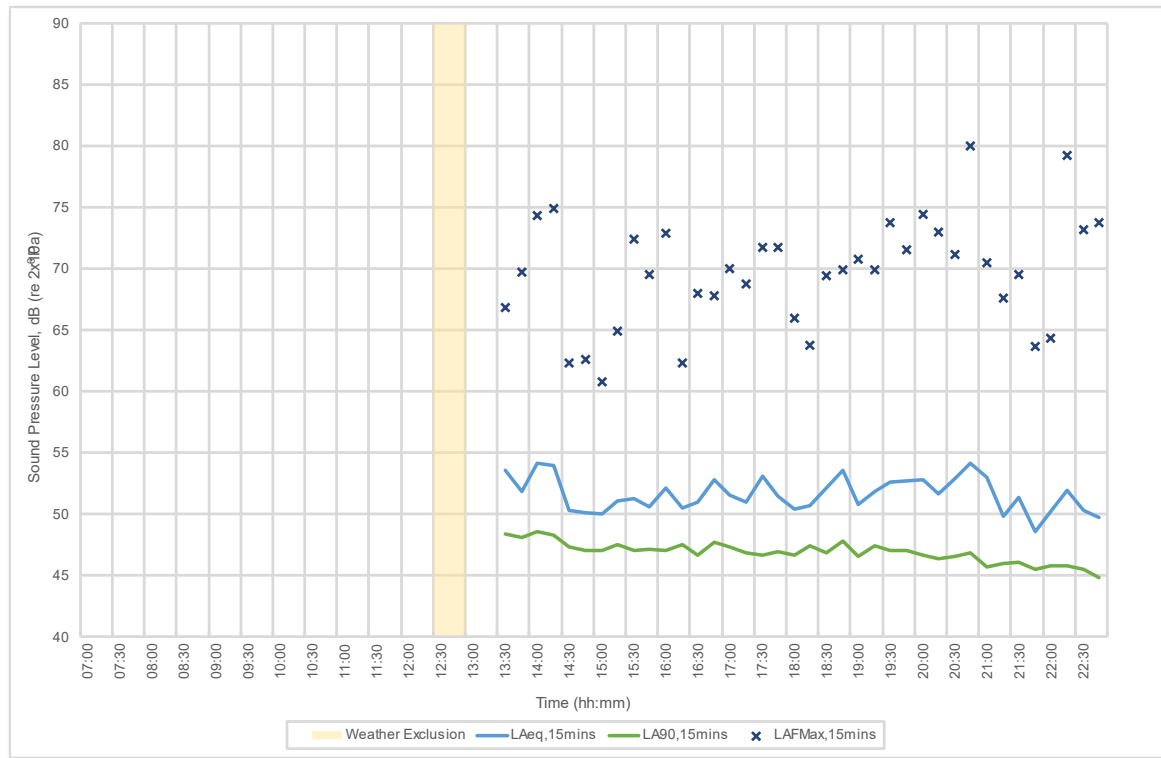


Figure 22 – Time history at MP2 on 11/11/2022

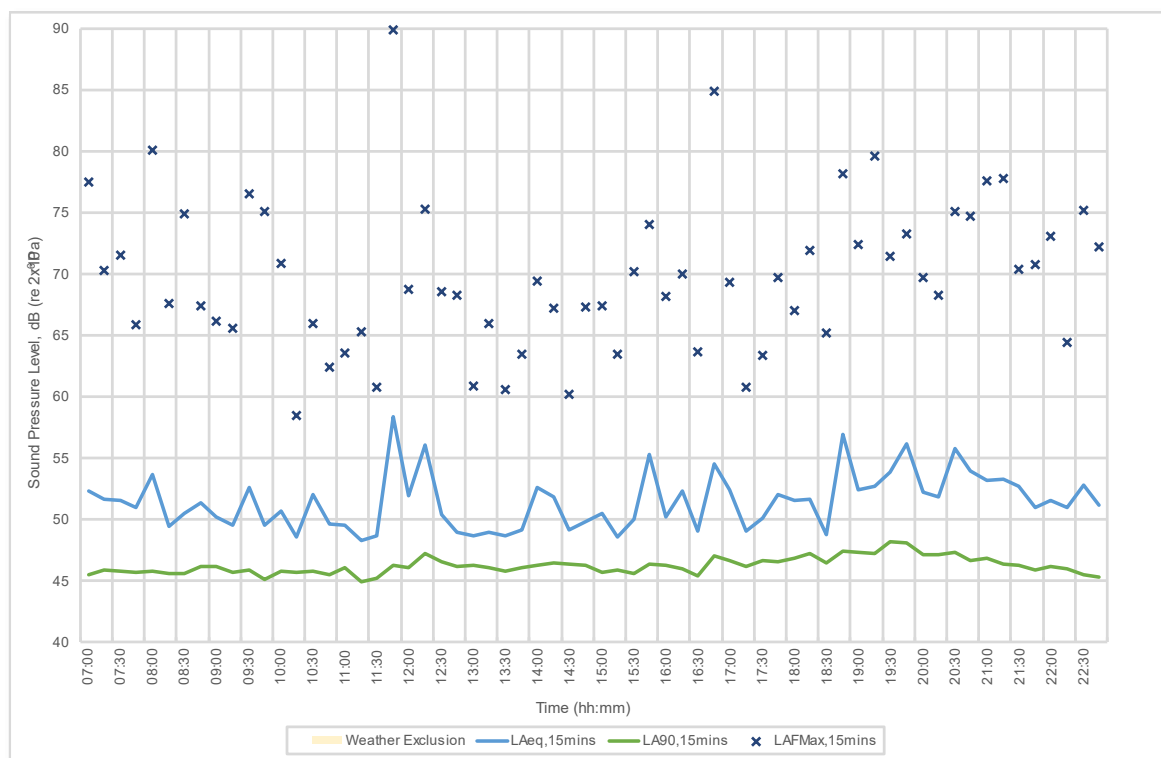


Figure 23 – Time history at MP2 on 12/11/2022

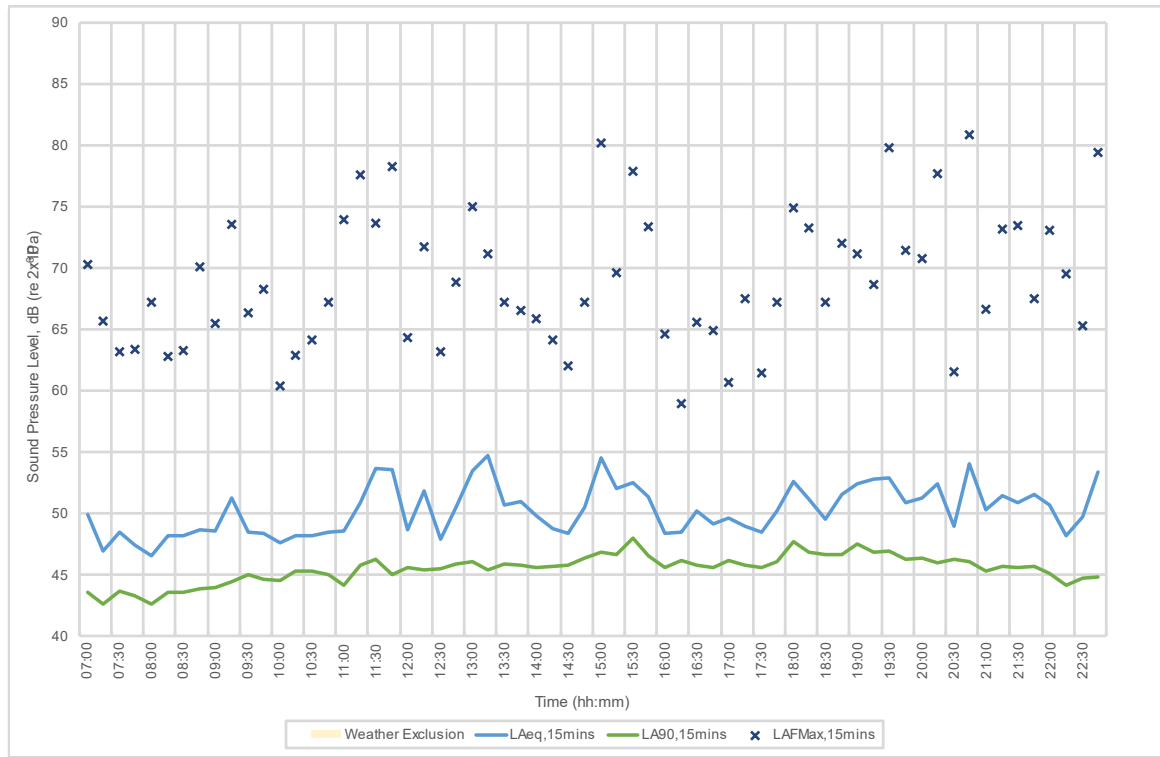


Figure 24 – Time history at MP2 on 13/11/2022

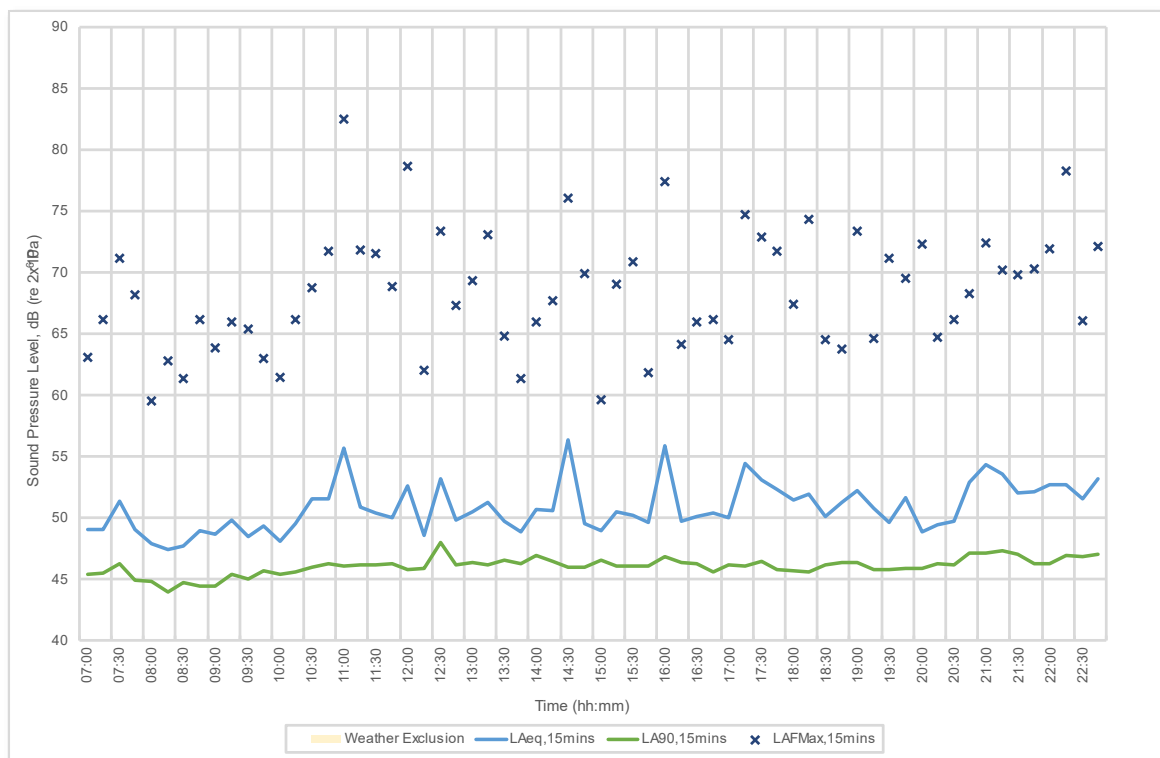


Figure 25 – Time history at MP2 on 14/11/2022

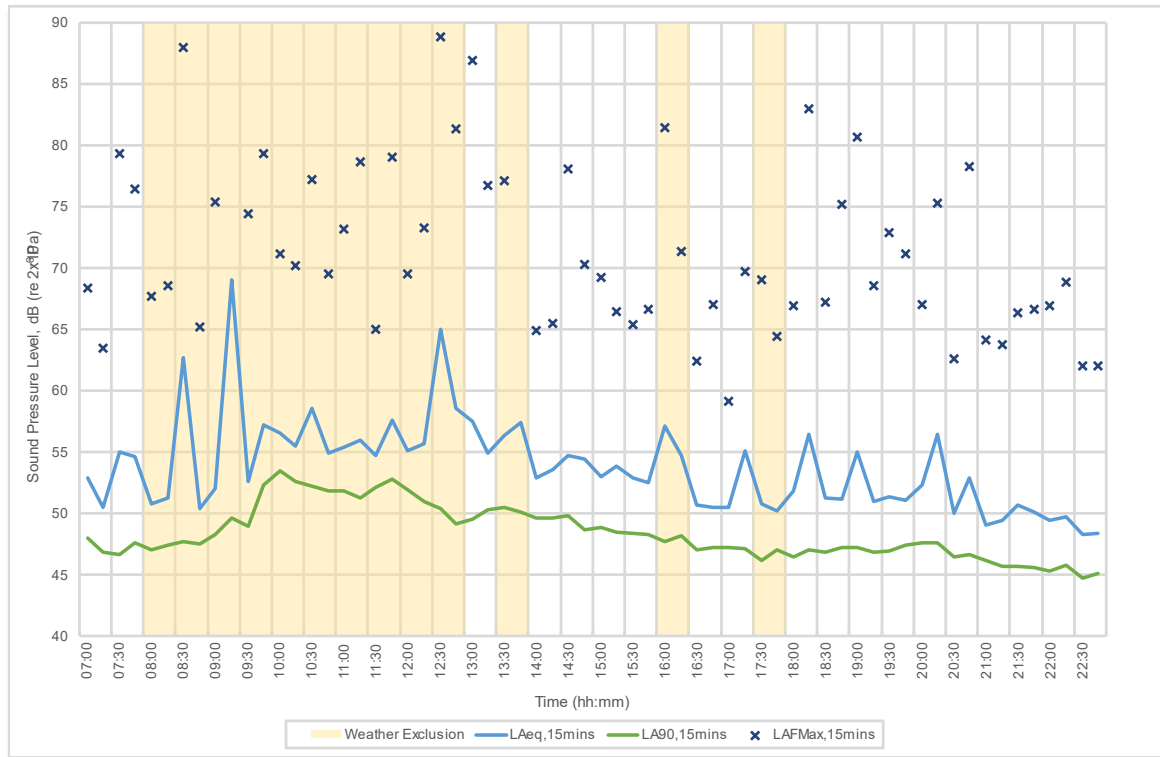


Figure 26 – Time history at MP2 on 15/11/2022

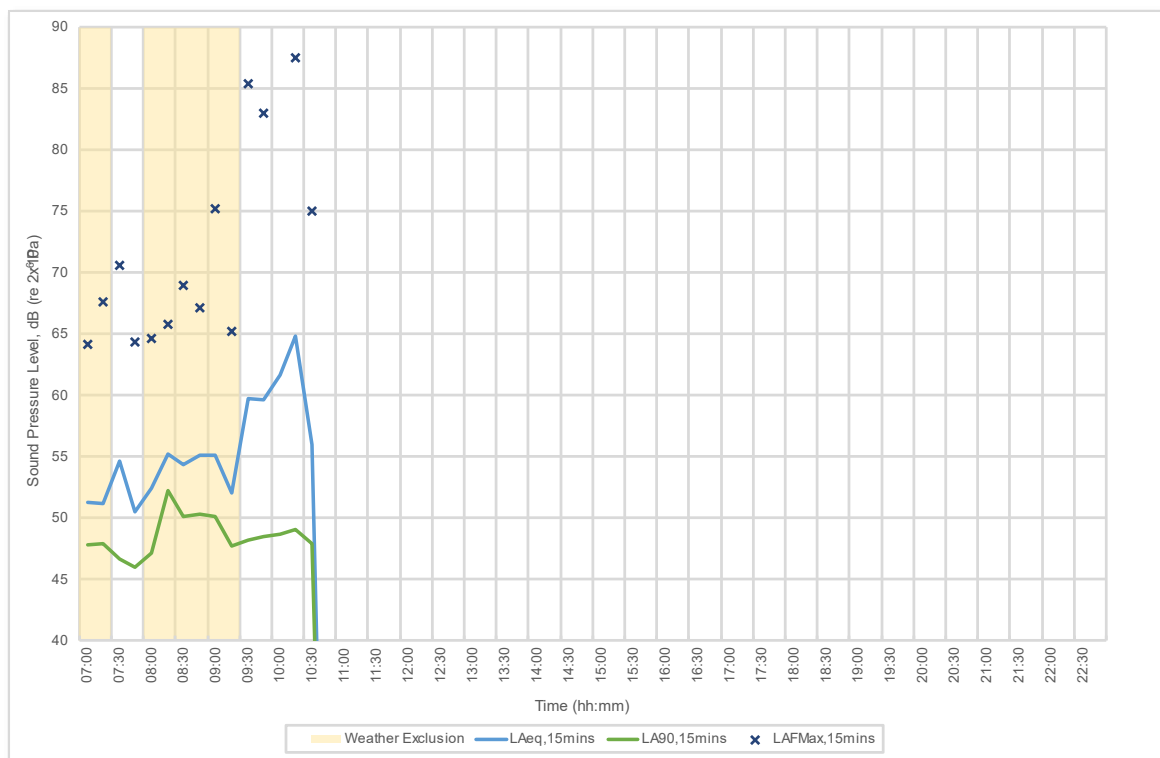


Figure 27 – Time history at MP2 on 16/11/2022



BROADBAND AND OCTAVE BAND SOUND LEVELS MP1

Presented below is the hourly A-weighted $L_{eq,1hr}$ and L_{90} (arithmetic mean of the 15 minute periods within that hour) along with the linear octave band sound levels in terms of $L_{eq,1hour}$.

Date	Time	$L_{Aeq,1hr}$ (dB)	$L_{A90,15mins}$ (dB)	Sound level, dB $L_{Zeq,1hr}$, at Octave Band Centre Frequency, Hz							
				63	125	250	500	1k	2k	4k	8k
11/11/2022	15:00	59	48	62	56	53	49	48	44	39	30
	16:00	59	48	62	57	53	50	48	44	38	30
	17:00	61	48	63	57	53	52	51	47	42	33
	18:00	59	48	62	57	52	49	49	46	42	33
	19:00	59	48	62	57	53	51	48	44	39	35
	20:00	59	48	60	54	51	51	49	45	40	31
	21:00	58	47	61	54	50	48	48	43	37	26
	22:00	58	47	61	54	52	51	48	43	37	30
12/11/2022	07:00	59	47	60	55	52	50	48	44	38	32
	08:00	58	47	59	53	49	48	48	44	37	30
	09:00	59	47	60	56	52	49	48	44	44	41
	10:00	58	47	64	58	51	48	48	44	38	29
	11:00	61	47	61	55	51	50	51	48	43	37
	12:00	60	48	61	54	51	49	49	47	42	34
	13:00	58	47	61	54	52	51	47	42	36	28
	14:00	59	48	61	56	53	51	49	44	37	29
	15:00	60	47	60	56	55	51	49	46	42	33
	16:00	59	47	61	56	52	50	48	45	44	33
	17:00	59	48	61	55	52	49	48	47	44	35
	18:00	61	48	61	55	52	49	51	49	39	32
	19:00	61	49	61	57	53	52	50	47	43	34
	20:00	60	48	60	56	53	52	50	46	39	31
	21:00	60	48	61	54	52	51	49	47	42	34
	22:00	59	47	59	54	52	52	49	44	38	30
13/11/2022	07:00	56	44	57	50	47	45	47	42	35	26
	08:00	56	44	58	51	47	45	46	42	35	27
	09:00	57	46	59	52	50	48	47	43	36	29
	10:00	56	46	59	52	49	46	47	42	35	29
	11:00	59	46	64	55	50	47	49	47	37	30
	12:00	57	47	60	54	50	47	47	45	35	27
	13:00	60	47	61	57	53	50	49	48	39	33
	14:00	58	47	61	56	52	49	47	43	37	28
	15:00	60	48	62	57	52	48	50	48	41	35
	16:00	57	47	60	54	50	48	47	43	37	30
	17:00	57	47	61	55	51	47	46	43	38	28
	18:00	61	49	65	56	52	51	50	49	43	36
	19:00	61	48	61	56	53	53	51	46	42	36
	20:00	59	47	60	53	50	50	48	45	40	32
	21:00	58	47	59	53	50	50	48	44	38	30
	22:00	59	46	60	53	50	50	48	44	40	32
14/11/2022	07:00	58	47	62	54	52	48	47	43	39	33
	08:00	56	46	61	54	50	47	46	42	37	28
	09:00	58	47	62	54	51	47	46	44	40	30
	10:00	58	47	60	52	49	47	47	45	38	29
	11:00	59	47	61	55	51	48	48	46	42	34
	12:00	58	48	61	55	51	48	48	44	38	30
	13:00	58	48	61	55	53	49	47	43	36	29
	14:00	60	47	61	55	52	49	50	48	37	29
	15:00	58	47	61	54	51	48	47	43	37	29



Date	Time	L _{Aeq,1hr} (dB)	L _{A90,15mins} (dB)	Sound level, dB L _{Zeq,1hr} , at Octave Band Centre Frequency, Hz							
				63	125	250	500	1k	2k	4k	8k
	16:00	59	48	61	56	53	50	48	47	37	31
	17:00	60	47	61	57	53	49	49	47	39	29
	18:00	59	47	61	55	52	49	48	46	41	32
	19:00	58	47	61	56	52	49	48	45	40	31
	20:00	58	47	60	54	50	49	47	43	38	31
	21:00	59	48	60	53	51	51	49	44	38	31
	22:00	60	48	60	53	50	49	49	47	40	33
15/11/2022	07:00	61	48	64	57	53	51	49	47	43	41
	08:00	Weather exclusion									
	09:00	Weather exclusion									
	10:00	Weather exclusion									
	11:00	Weather exclusion									
	12:00	Weather exclusion									
	13:00	61	52	65	58	54	52	53	52	49	40
	14:00	62	51	66	58	53	51	53	48	42	37
	15:00	62	50	65	57	53	51	53	46	39	33
	16:00	54	47	59	54	51	48	46	42	37	31
	17:00	60	51	64	56	52	51	55	48	38	26
	18:00	65	49	63	56	52	51	56	51	39	33
	19:00	63	49	63	59	55	52	54	46	37	33
16/11/2022	20:00	63	49	62	56	54	53	55	47	36	29
	21:00	61	48	60	53	50	48	53	45	35	27
	22:00	61	48	60	54	49	48	54	45	32	24
	07:00	56	46	59	53	52	48	48	47	42	33
	08:00	Weather exclusion									
	09:00	63	48	59	53	53	53	54	54	52	46
	10:00	66	50	63	57	53	53	53	57	53	53
	11:00	Weather exclusion									



BROADBAND AND OCTAVE BAND SOUND LEVELS MP2

Date	Time	L _{Aeq,1hr} (dB)	L _{A90,15mins} (dB)	Sound level, dB L _{Zeq,1hr} , at Octave Band Centre Frequency, Hz							
				63	125	250	500	1k	2k	4k	8k
11/11/2022	14:00	59	48	62	55	52	50	47	44	39	36
	15:00	57	47	59	54	51	48	46	42	37	29
	16:00	58	47	60	55	52	49	47	43	38	31
	17:00	58	47	61	55	52	48	47	44	38	31
	18:00	58	47	61	55	51	49	47	44	40	31
	19:00	58	47	61	56	52	49	47	43	40	35
	20:00	59	47	58	52	51	51	49	44	39	30
	21:00	57	46	58	52	49	49	47	42	36	27
	22:00	57	45	57	52	50	49	46	42	36	30
12/11/2022	07:00	58	46	60	55	51	48	47	43	37	32
	08:00	58	46	58	51	48	48	47	45	36	30
	09:00	57	46	57	53	51	48	46	42	37	29
	10:00	56	46	64	57	50	47	45	41	36	28
	11:00	60	46	59	53	50	49	49	47	42	37
	12:00	59	47	58	53	50	48	48	46	42	34
	13:00	55	46	57	52	49	46	44	39	34	27
	14:00	57	46	59	55	52	48	46	42	35	27
	15:00	58	46	58	55	54	49	46	43	39	28
	16:00	58	46	58	53	51	48	47	44	43	33
	17:00	57	47	59	53	51	48	46	43	39	31
	18:00	59	47	59	54	51	48	49	47	37	32
	19:00	60	48	59	55	52	51	49	46	42	33
	20:00	60	47	58	54	51	52	49	46	39	31
	21:00	59	46	58	53	50	50	48	45	40	32
	22:00	58	46	57	52	51	50	47	42	37	29
13/11/2022	07:00	54	43	56	48	47	44	45	41	35	29
	08:00	54	43	55	49	46	44	44	40	33	26
	09:00	55	45	59	54	50	46	45	40	34	29
	10:00	54	45	57	50	48	44	44	40	33	28
	11:00	58	45	63	55	49	46	48	47	36	30
	12:00	56	46	57	52	48	45	46	44	33	24
	13:00	59	46	59	56	52	49	47	46	38	33
	14:00	55	46	58	53	50	46	45	41	35	26
	15:00	59	47	61	56	51	48	48	46	41	36
	16:00	55	46	58	53	49	46	45	40	34	25
	17:00	55	46	58	53	50	46	44	41	37	27
	18:00	57	47	58	53	51	48	47	43	38	30
	19:00	58	47	59	54	50	49	47	45	41	34
	20:00	58	46	58	52	50	50	47	44	41	31
	21:00	57	46	57	52	49	50	46	42	37	30
	22:00	57	45	57	51	49	49	46	43	38	31
14/11/2022	07:00	56	46	59	52	50	47	45	41	37	32
	08:00	54	44	58	51	48	45	43	40	35	25
	09:00	55	45	58	52	50	46	44	41	36	27
	10:00	56	46	58	51	48	46	46	44	38	29
	11:00	58	46	59	53	51	48	48	46	41	34
	12:00	57	46	59	53	50	48	47	44	39	31
	13:00	56	46	59	53	52	48	45	41	34	26
	14:00	59	46	59	53	51	47	48	47	36	29
	15:00	56	46	59	53	50	47	45	41	36	29
	16:00	58	46	59	55	52	49	47	46	36	30
	17:00	59	46	59	55	53	48	48	46	37	26
	18:00	57	46	58	53	51	48	46	44	38	27



Date	Time	L _{Aeq,1hr} (dB)	L _{A90,15mins} (dB)	Sound level, dB L _{Zeq,1hr} , at Octave Band Centre Frequency, Hz							
				63	125	250	500	1k	2k	4k	8k
	19:00	57	46	59	54	52	48	46	42	38	33
	20:00	57	46	57	52	49	48	46	42	37	31
	21:00	59	47	57	52	51	52	48	44	38	32
	22:00	59	47	58	52	50	49	48	46	39	33
15/11/2022	07:00	60	47	63	56	52	50	48	45	42	41
	08:00	Weather exclusion									
	09:00	Weather exclusion									
	10:00	Weather exclusion									
	11:00	Weather exclusion									
	12:00	Weather exclusion									
	13:00	59	50	60	54	52	51	51	50	48	43
	14:00	60	49	65	57	53	50	49	46	43	38
	15:00	59	49	63	56	53	50	48	44	40	36
	16:00	54	47	59	54	51	48	46	42	37	31
	17:00	56	47	59	55	52	49	49	47	39	29
	18:00	59	47	59	55	52	50	48	46	41	34
	19:00	59	47	61	56	54	50	47	42	38	34
	20:00	60	47	60	55	54	52	49	44	37	30
	21:00	56	46	57	52	49	47	46	42	36	28
	22:00	55	45	56	52	48	46	45	40	33	28
16/11/2022	07:00	56	46	59	53	52	48	48	47	42	33
	08:00	Weather exclusion									
	09:00	63	48	59	53	53	53	54	54	52	46
	10:00	67	49	59	56	54	54	54	57	54	53
	11:00	Weather exclusion									