SYNTEGRA CONSULTING

17 York Way, London, N7 9QG

Noise Impact Assessment

July 2023

Ref: 23-10942 NIA Rev A

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Revision	-	
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1. Executive Summary

An assessment has been carried out of the present noise climate at **17 York Way, London, N7 9QG** and the impact of that noise on the proposed development. The proposed scheme involves upwards re-provision of an existing public house with new residential accommodation above.

Noise at the site is dominated by road traffic noise from the nearby junction.

The assessment is based on the results of a noise measurement survey that has been carried out over a four-day period at the proposed development site and has considered the advice of local and national planning policy and best practice guidance.

The initial site risk assessment identified that the site has a high risk in terms of noise.

Good acoustic design has been shown by consideration of the sound insulation of the building envelope to ensure residents are adequately protected from noise.

It has been identified that the requirements of the Local Authority in respect of internal noise levels can only be achieved through careful consideration of the building envelope. We note that this does not necessitate that the windows be sealed shut but requires that an alternate primary means of ventilating the properties is provided (as defined by the Building Regulations Approved Document F). The construction assumptions that have led to this conclusion are:

- **The façade build-up will be a standard brick and block construction (or equivalent) to achieve an R_w of approximately 55 dB.**
- **For the North and East Facades:**
    - **A typical double glazing system in a 6/14/6 configuration (or equivalent) will be installed to give a Sound Reduction Index (SRI) of 36 dB R_w.**
    - **Appropriately specified acoustic trickle vents, with a $D_{n,e,w}$ of at least 42 dB, or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.**
- **For the West Facade:**
    - **A typical double-glazing system in a 4/14/6 configuration (or equivalent) will be installed to give a Sound Reduction Index (SRI) of 34 dB R_w.**
    - **Appropriately specified acoustic trickle vents, with a $D_{n,e,w}$ of at least 40 dB, or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.**
- **Purge ventilation (as defined by ADF) through open windows.**
- **Mitigations of Overheating (where required) through means other than open windows.**

Additionally, an initial assessment of internal sound insulation has been carried out and it has been identified that the Local Authority criteria that noise break-in from entertainment noise sources should not exceed NR25 can be met through design of the floor construction separating residential and commercial uses at the site.

Overall, it has been shown that, through careful consideration of the building envelope construction and internal sound insulation, the proposed development should avoid future residents being exposed to harmful levels of noise. It can therefore be concluded that significant adverse impacts on the health or quality of life of those future residents would be avoided, in line with the aims of the NPPF, NPSE and PPG-Noise and the Local Authority.

2. Introduction

This report has been prepared to support the planning application for the proposed development at **17 York Way, London, N7 9QG**. The proposed scheme involves upwards re-provision of an existing public house with new residential accommodation above.

The report assesses, through on-site noise measurements, the impact of the existing noise climate on the proposed development.

A glossary of acoustic terminology is provided in **Appendix 1**.

The site is located in an area of mixed commercial and residential use. The location of the proposed development site is provided in **Figure 2.1** and the proposed site layouts are provided in **Figure 2.2**.

Figure 2.1: Site Location

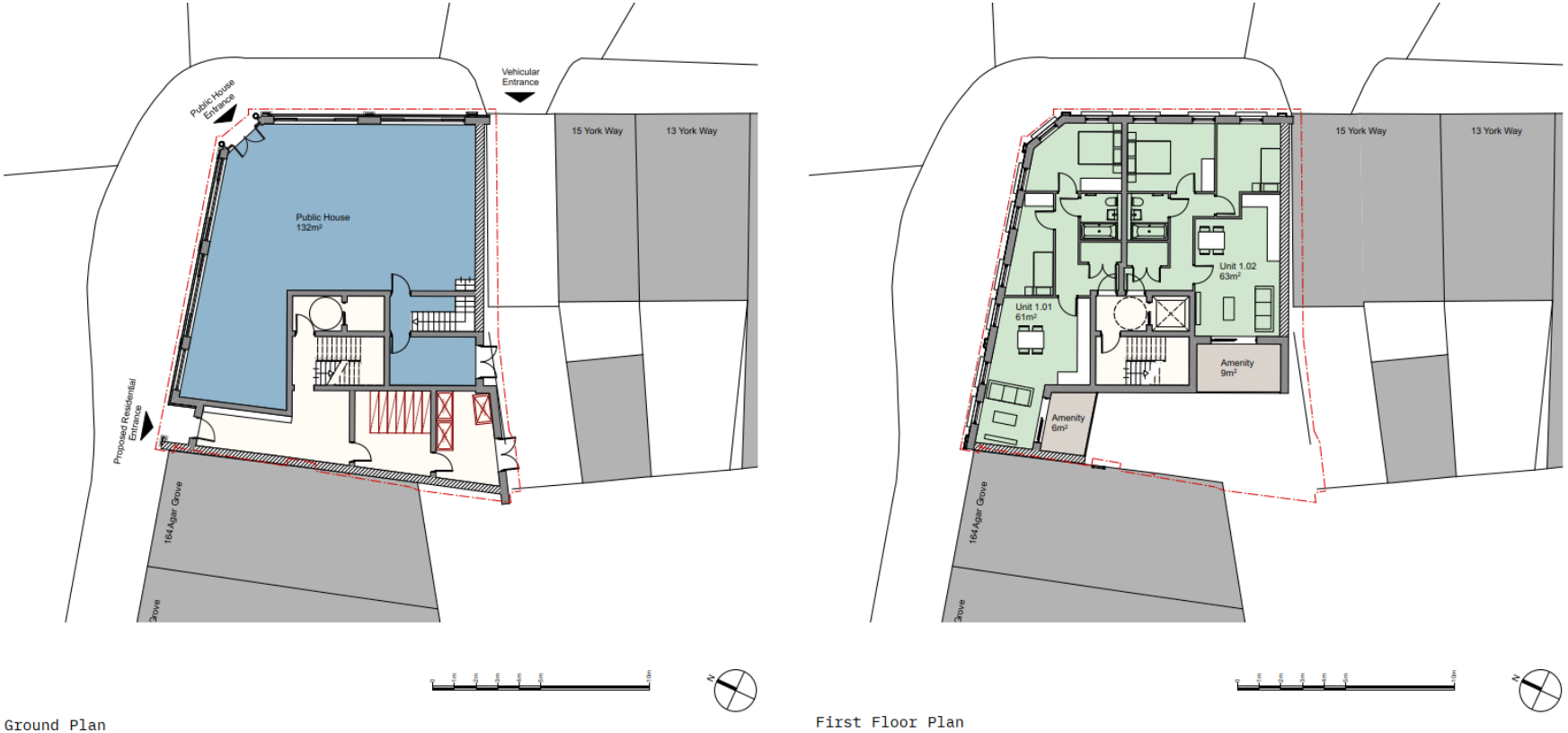


Figure 2.2: Proposed Site Layouts (GF and 1F)

Second Floor Plan

Third Floor Plan

Figure 2.2: Proposed Site Layouts (2F and 3F)

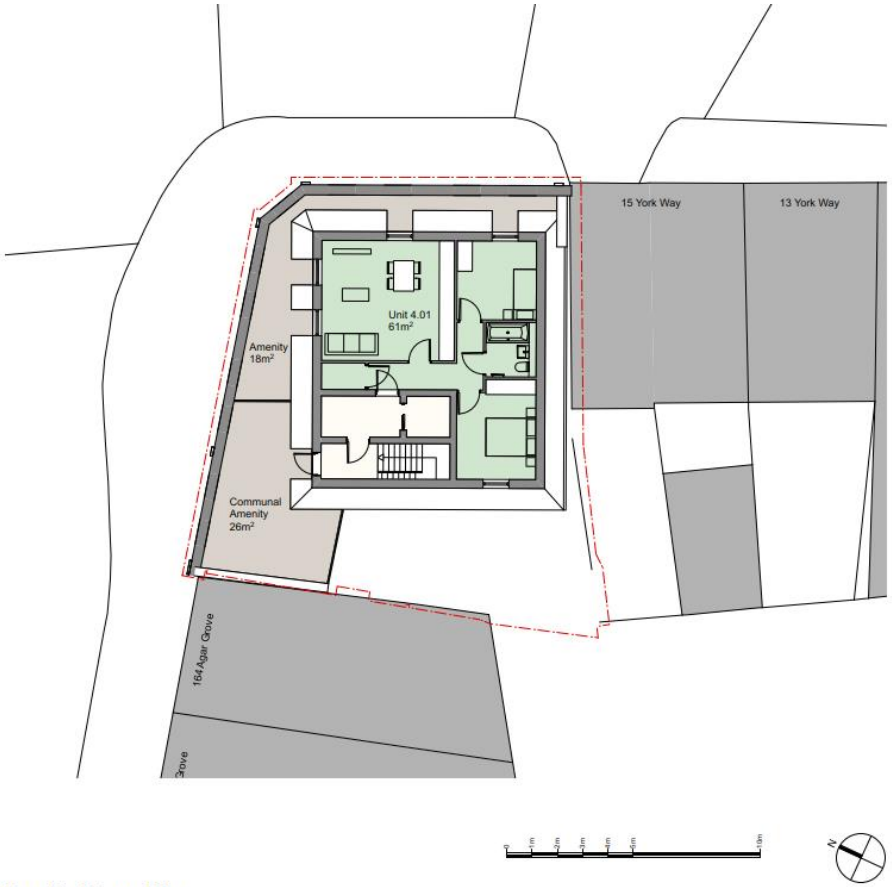


Figure 2.2: Proposed Site Layouts (4F)

3. Planning Policy

3.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was released in March 2012 and last updated in July 2021. The purpose of the planning system is to contribute to the achievement of sustainable development and to encourage good design. There are three dimensions to sustainable development: economic, social and environmental.

Central to the NPPF, paragraph 10 states: *'At the heart of the National Planning Policy Framework is a **presumption in favour of** **[permitting]** **sustainable development**'*. This is expanded upon in paragraph 11, where it is stated:

*'…For **decision-taking** this means:*

- *approving development proposals that accord with an up-to-date development plan without delay; or*
- *where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:*
    - *the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*
    - *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole'*

Paragraph 174 states '*Planning policies and decisions should contribute to and enhance the natural and local environment by… preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of… noise pollution…*'.

Paragraph 185 states: '*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:*

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

3.2. Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) aims to '*through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

- *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 improvement of health and quality of life'*

3.3. **Local Planning Policy**

The site is located within the administrative boundary of the London Borough of Camden.

London Borough of Camden Local Plan (2017) sets noise break-in criteria for entertainment noise.

The document stipulates that entertainment noise break-in to residential properties should not exceed NR25. NR25 is set out in **Table 3.1.**

	Octave band centre frequency, dB R_w						
	63 Hz	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**
Entertainment Noise Break-in Criteria (NR25)	55	44	35	29	25	22	20

Table 3.1: Entertainment Noise Break-in Criteria

Other criteria from the local plan can be satisfied by meeting the requirements of the ProPG Planning and Noise, which is detailed in **Section 4**.

4. Guidance Documents

4.1. Planning Practice Guidance for Noise

The Planning Practice Guidance for Noise (PPG-Noise) was published in March 2014 and last updated in July 2019. The PPG provides advice on how to determine the noise impact on development:

'Plan-making and decision making need to take account of the acoustic environment and in doing so consider:

- *whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.*

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy.'

The document goes on to provide a definition for the levels of noise exposure at which an effect may occur:

*'**Significant observed adverse effect level:** this is the level of noise exposure above which significant adverse effects on health and quality of life occur.*

***Lowest observed adverse effect level:** this is the level of noise exposure above which adverse effects on health and quality of life can be detected.*

***No observed effect level:** this is the level of noise exposure below which no effect at all on health and quality of life can be detected.'*

It is important to understand that as the PPG-Noise does not provide any advice with respect to specific noise levels/ limits for different sources of noise, it is appropriate to consider other sources of advice and guidance documents when considering whether new developments would be sensitive to the prevailing acoustic environment.

4.2. Professional Practice Guidance on Planning & Noise.

The Professional Practice Guidance (ProPG) on Planning and Noise for New Residential Development was published in May 2017 by the Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and Chartered Institute of Environmental Health (CIEH). The document has been produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England and provides numerical acoustic standards in line with the objectives of the Government's planning and noise policy. As a collaboration between the ANC, IOA and CIEH the document has been designed to encourage a good acoustic design process and aims to protect people from the harmful effects of noise.

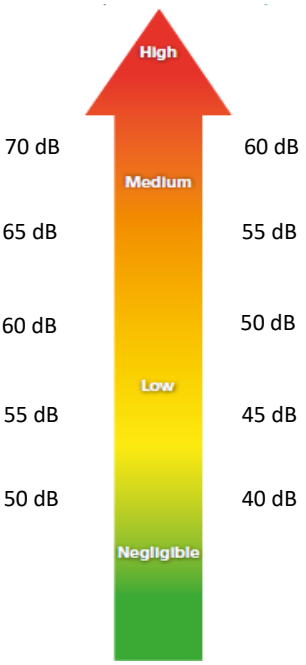
The ProPG notes that it '*does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy on which users should take their own advice as appropriate'.*

The ProPG advocates a two-stage approach, first providing an initial noise risk assessment of the proposed development site before undertaking a systematic approach to the noise impact assessment. The results of the initial noise risk assessment are an indication as to how detailed the noise impact assessment will need to be in order to satisfactorily assess all acoustic challenges.

4.2.1. Stage 1: Initial Site Noise Risk Assessment

The initial noise risk assessment compares the site noise levels (which can be obtained by measurement or prediction, or a combination of the two, as appropriate) against a risk scale and determines the risk of adverse effects from noise at the site. The purpose of the initial noise risk assessment is to provide an indication of the level of acoustic challenges at the site. In general, the higher the level of risk identified, the greater the level of detail that will be required within the noise impact assessment in order to satisfactorily demonstrate that adverse impacts will be minimised to an acceptable level.

The initial risk assessment and associated notes are provided in Figure 1 of the ProPG and reproduced in **Table 4.1**.

Noise Risk Assessment		**Potential Effect Without Noise Mitigation**	**Pre-Planning Application Advice**
Indicative Daytime Noise Levels, $L_{Aeq,16hr}$	**Indicative Night-time Noise Levels, $L_{Aeq,8hr}$**		
		Increasing risk of adverse effect No adverse effect	High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed Acoustic Design Statement (ADS). Applicants are strongly advised to seek expert advice. As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development. At low noise levels, the site is likely be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development. These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

Notes:

a. Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.

b. Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is "not dominant".

c. $L_{Aeq,16hr}$ is for daytime 0700 hrs – 2300 hrs, $L_{Aeq,8hr}$ is for night-time 2300 hrs – 0700 hrs.

d. An indication that there may be more than 10 noise events at night (2300 hrs – 0700 hrs) with $L_{Amax,F}$ > 60 dB means that the site should not be regarded as negligible risk.

Table 4.1: Stage 1: Initial Site Risk Assessment

Where sites are exposed to industrial or commercial noise that is considered to be "dominant" then an assessment in line with BS 4142:2014 '*Methods for rating and assessing industrial and commercial sound'* should be carried out.

4.2.2. Stage 2: Full Assessment

4.2.2.1. **Stage 2: Element 1 – Good Acoustic Design Process**

Following a good acoustic design process is an implicit part of achieving good design as required by Government planning and noise policy. It is imperative that acoustic design is considered at an early stage of the development process and the aim should be to avoid "unreasonable" acoustic conditions and prevent "unacceptable" acoustic conditions.

Good acoustic design does not simply mean compliance with the recommended internal and external noise criteria. Instead, an integrated solution should be provided whereby the optimal acoustic outcome is achieved, without design compromises that will adversely affect living conditions and the quality of life of residents or other sustainable design objectives and requirements.

A good acoustic design should consider (in this order):

- *'Maximising the spatial separation of noise sources and receptors.*
- *Investigating the necessity and feasibility of reducing existing noise levels and relocating existing noise sources.*
- *Using topography and existing structures (that are likely to last the expected life of the noise-sensitive scheme) to screen the proposed development site from significant sources of noise.*
- *Incorporating noise barriers as part of the scheme to screen the proposed development site from significant sources of noise.*
- *Using the layout of the scheme to reduce noise propagation across the site.*
- *Using the orientation of buildings to reduce the noise exposure of noise-sensitive rooms.*
- *Using the building envelope to mitigate noise to acceptable levels.'*

4.2.2.2. **Stage 2: Element 2 – Internal Noise Level Guidelines**

The ProPG contains Figure 2, which is a table with associated notes drawing on the advice contained within BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings'*, the World Health Organization's Guidelines for Community Noise 1999 (WHO guidelines) and current best practice. This table is reproduced in **Table 4.2**.

Activity	Location	07:00 – 23:00	23:00 – 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB $L_{Amax,F}$ (Note 4)

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

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

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

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

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

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

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

Table 4.2: ProPG Internal Noise Level Guidelines

4.2.2.3. **Stage 2: Element 3 – External Amenity Area Noise Assessment**

The ProPG considers the advice provided within BS 8233:2014 and the PPG-Noise in respect of external amenity areas, and presents the following advice, which is selected from both documents, in order to carry out a full assessment of noise levels:

i. *'If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.'*

ii. *'The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$.'*

iii. *'These guideline values may not be achievable in all circumstances where development might*

be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces.'

iv. *'Whether or not external amenity spaces are an intrinsic part of the overall design, consideration of the need to provide access to a quiet or relatively quiet external amenity space forms part of a good acoustic design process'*

v. *'Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g. garden or balcony) then that impact may be partially offset if the residents are provided, through the design of the development or the planning process, with access to:*

- *A relatively quiet façade (containing openable windows to habitable rooms) or a relatively quiet externally ventilated space (i.e. an enclosed balcony) as part of their dwelling; and/or*
- *a relatively quiet alternative or additional external amenity space for sole use by a household, (e.g. a garden, roof garden or large open balcony in a different, protected, location); and/or*
- *a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or*
- *a relatively quiet, protected, publically accessible, external amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5-minute walking distance). The local planning authority could link such provision to the definition and management of Quiet Areas under the Environmental Noise Regulations.'*

4.2.2.4. **Stage 2: Element 4 – Assessment of Other Relevant Issues**

The final element of Stage 2 is an assessment of '*other relevant issues*' and the ProPG suggests that the following issues are considered before making any final conclusions with respect to noise impacts:

i. *'compliance with relevant national and local policy'*

ii. *'magnitude and extent of compliance with ProPG'*

iii. *'likely occupants of the development'*

iv. *'acoustic design v. unintended adverse consequences'*

v. *'acoustic design v. wider planning objectives'.*

The ProPG notes that '*not all of the issues listed above will arise in every planning application and some may already have been addressed as an inherent part of good acoustic design. In addition, LPAs* [Local Planning Authorities] *may wish to add other relevant issues depending on local circumstances and priorities.'*

4.3. **Acoustics, Ventilation and Overheating Residential Design Guide**

The Acoustics, Ventilation and Overheating Residential Design Guide (AVOG) was published in January 2020 by the Association of Noise Consultants (ANC). The document has been produced to provide practitioners with guidance on how to determine the impact of internal noise levels during both normal (background) ventilation conditions and during overheating conditions. It is recognised that a slightly relaxed set of noise criteria is appropriate during periods of overheating, and this is readily accepted by residents of dwellings to counterbalance the discomfort of overheating and exposure to noise through opening windows. The document suggests a balanced approach, protecting against significant impacts of noise exposure whilst allowing for slightly relaxed criteria. This in practice means

that windows can be opened on more occasions to mitigate overheating (when compared to normal background ventilation conditions) without creating an unacceptable significant impact from exposure to noise.

4.4. **Approved Document F**

The Building Regulations Approved Document F (ADF) is concerned with ventilation in dwellings. Three types of ventilation are covered in the document, which are listed below and their interaction with the internal noise level criteria presented in Tables 3.3, 3.4 and 3.6 are presented:

- Whole dwelling (background) ventilation – the internal noise level criteria should be achieved with the ventilation system in operation (e.g. window or trickle vent open, or mechanical ventilation system operational).
- Extract ventilation to remove water vapour and indoor air pollutants where they are produced in significant quantities (e.g. kitchens, utility rooms and bathrooms) – internal noise level criteria are only appropriate for habitable rooms (e.g. living rooms and bedroom) so are not normally applicable.
- Purge ventilation to rapidly dilute air pollutants and water vapour when necessary, in habitable rooms – this is normally only for a very short period of time as required and internal noise level criteria are therefore not applicable.

4.5. **Approved Document O**

The Building Regulations Approved Document O (ADO) is a new Approved Document (coming into force June 2022) concerned with overheating in dwellings. In terms of noise criteria, the document suggests that when internal noise levels at night would be above a certain level, open windows would not be suitable for mitigating overheating. These levels are:

- 40 dB $L_{Aeq,8hrs}$ (2300 hrs – 0700 hrs)
- 55 dB L_{AFmax} more than 10 times per night (2300 hrs – 0700 hrs).

5. Baseline Noise Levels

In order to determine the extent to which the site is currently affected by noise, a detailed measurement study has been carried out at the site. Measurements have been carried out in order to characterise the existing noise climate over a four-day period. Noise at the site was dominated by traffic noise from the nearby junction with Brewery Way.

The noise measurements utilised a Svantek 307 Type 1 Precision Sound Level Meter with a current certificate of calibration, the full list of equipment is detailed in **Appendix 3**. Before and after the measurement period the equipment was calibrated in order to ensure that the equipment had remained within reasonable calibration limits (+/- 0.5 dB). Noise Measurements were carried out in consecutive 5 minutes periods with a 1 second resolution.

Measurements were carried out between 1230 hrs on Thursday 22nd June 2023 and 1345 hrs on Sunday 25th June 2023 at which point the survey was terminated by battery failure of the equipment.

During the noise measurement survey weather was generally warm and dry with temperatures between 14°C at night and 25°C during the day. Wind speeds were between 2-4 m/s from a generally southerly direction. Cloud cover was 50% during both setup and collection of the survey equipment. No precipitation was recorded over the survey period at nearby weather stations.

Noise measurements were carried out over a four-day period at Measurement Position 1 (MP1) in a free field location on the existing flat roof of the pub, overlooking York Way at 1.5m elevation from the rooftop.

The noise monitoring positions are shown in **Figure 5.1**.

Figure 5.1: Noise Monitoring Location

Table 5.1 below displays a summary of the measured noise levels and detailed measurement results are presented in **Appendix 4**.

Measurement Position	Period (hours)	$L_{Aeq,T}$ (dB)	L_{Amax} (dB)
MP1	Daytime (0700 – 2300)	71	89
	Night-time (2300 – 0700)	57	80

Table 5.1: Summary of Free Field Semi-Permanent Noise Levels

Note: The average noise levels stated are logarithmic for L_{Aeq}. The $L_{Amax,F}$ noise levels stated are the arithmetic average of the hourly noise levels during the daytime (0700 hrs – 2300 hrs) and the 10th highest $L_{Amax,F,5min}$ noise level at night (2300 hrs – 0700 hrs), as noted

5.1. Receptor Noise Levels

In order to determine the future noise levels across the site, a propagation calculation was undertaken using standard acoustic formulae and the following assumptions:

- The main noise source is road traffic noise from the nearby junction, and road traffic noise sources act as line sources.
- MP1 and the proposed north façade are 10m from the centre point of the road.
- The proposed west façade is 15m from the centre point of the road.
- Maximum noise levels are generated by a point source.

The predicted noise level for the proposed residential properties at first floor level is provided in **Table 5.2**.

Assessment Location	Daytime $L_{Aeq,16hr}$ (dB)	Night-time $L_{Aeq,8hr}$ (dB)	Night-time L_{Amax} (dB)
North and East Facades	71	57	80
West Facade	69	55	76

Table 5.2: Predicted Noise Levels

6. Initial Site Risk Assessment

The initial site risk assessment has been carried out by comparing the results of the noise measurement survey against the criteria presented in **Table 4.1**. The outcome of the initial site risk assessment is presented in **Table 6.1**.

Measurement Position	Daytime Ambient Noise Level $L_{Aeq,16hr}$ (dB)	Initial Noise Risk Assessment (Daytime)	Night-time Ambient Noise Level $L_{Aeq,8hr}$ (dB)	Initial Noise Risk Assessment (Night-time)
MP1	71	High	57	Medium

Table 6.1: Initial Site Risk Assessment

The results of the initial site risk assessment based on the measured noise levels indicate that the site has a high risk in terms of noise. The initial site risk assessment can therefore conclude that the site has a high risk in terms of noise. The pre-application advice associated with this risk category is:

High: '*High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed Acoustic Design Statement (ADS). Applicants are strongly advised to seek expert advice.'*

7. Full Assessment

7.1. Good Acoustic Design

Good acoustic design has been shown by use of the building envelope to attenuate noise.

7.2. Internal Noise Level Assessment

Note 5 of **Table 4.2** suggests that internal noise levels should ideally be achieved in as many properties as possible with windows open. Due to the relatively high noise levels present at the site, those habitable rooms on the majority of facades and elevations will not be able to achieve the requirement with windows open, and therefore the sound insulation of the building façade will be required to mitigate noise levels. In carrying out our assessment, Syntegra have therefore made the following assumptions:

- The façade build-up will be a standard brick and block construction (or equivalent) to achieve an R_w of approximately 55 dB.
- For the North and East Facades:
    - A typical double-glazing system in a 6/14/6 configuration (or equivalent) will be installed to give a Sound Reduction Index (SRI) of 36 dB R_w.
    - Appropriately specified acoustic trickle vents, with a $D_{n,e,w}$ of at least 42 dB, or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.
- For the West Facade:
    - A typical double-glazing system in a 4/14/6 configuration (or equivalent) will be installed to give a Sound Reduction Index (SRI) of 34 dB R_w.
    - Appropriately specified acoustic trickle vents, with a $D_{n,e,w}$ of at least 40 dB, or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.
- Purge ventilation (as defined by ADF) through open windows.
- Mitigations of Overheating (where required) through means other than open windows.

Table 7.1 identifies the likely L_{Aeq} and L_{Amax} internal noise levels, assuming windows closed, utilising the *Simple Calculation Method* described in BS 8233:2014. It can be seen that habitable rooms on all facades will achieve the requirements of the ProPG and AVOG with closed windows.

Assessment Location	Period (hrs)	External Noise Levels (dB) (ref. Table 5.2)	Sound Reduction from Glazing (dBA)	Internal Noise Levels (dB)	Compliance with Criteria		
					BS 8233	ProPG	AVOG / ADO
Ambient Noise Level L_{Aeq} (dB)							
North and East Facades	Daytime (0700 – 2300)	71	36	35	✓	✓	n/a
	Night-time (2300 – 0700)	57	36	21	✓	✓	✓
West Facade	Daytime (0700 – 2300)	69	34	35	✓	✓	n/a
	Night-time (2300 – 0700)	55	34	21	✓	✓	✓
Maximum Noise Level L_{AFmax} (dB)							
North and East Facades	Night-time (2300 – 0700)	80	36	44	n/a	✓	✓
West Facade	Night-time (2300 – 0700	76	34	42	n/a	✓	✓

Table 7.1: Internal Noise Levels

7.3. Assessment of Other Relevant Issues

The assessment has shown that a reasonable internal noise environment can be achieved, in line with the requirements of the Local Authority, BS 8233 and the ProPG through careful consideration of the building envelope and ventilation requirements. Whilst it would be ideal to achieve the internal level criteria with open windows, it is common to achieve the criteria relying on closed windows in noisier areas. Such as an approach is advocated in the PPG-Noise.

Overall, it has been shown that, through careful consideration of the building envelope construction, the proposed development should avoid future residents being exposed to harmful levels of noise. It can therefore be concluded that significant adverse impacts on the health or quality of life of those future residents would be avoided, in line with the aims of the NPPF, NPSE and PPG-Noise.

8. Internal Sound Insulation

The sound insulation of walls and floors between adjacent dwellings should be designed to achieve the requirements of the Building Regulations Approved Document E (2010) *Resistance to the passage of sound* (ADE). For new build properties, the requirements are:

- Airborne Sound Insulation of walls separating dwellings must be at least 45 dB $D_{nT,w} + C_{tr}$.
- Airborne Sound Insulation of floors separating dwellings must be at least 45 dB $D_{nT,w} + C_{tr}$.
- Impact Sound Insulation of floors separating dwelling must not be greater than 62 dB $L'_{nT,w}$.

The London Borough of Camden set a criteria of NR25 within dwellings for entertainment noise.

We understand that the current roof construction at the site is:

- 200mm concrete, insulation board, waterproof membrane (determined by visual inspection)

As a worst case is has been assumed that noise levels within the bar area of the Newmarket Ale House below the residential properties will not exceed 91 dB L_{Aeq} with some low frequency content. An assumed noise profile in octave bands based on another similar venue is provided in **Table 8.1**.

An example construction that would allow the development to meet the NR25 noise criteria is provided in **Table 8.2** and the sound reduction performance of the floor, in octave bands, is provided in **Table 8.3.**

	Octave band centre frequency, dB							A Weighted
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Noise in Bar area	90	90	85	85	85	85	85	91

Table 8.1: Proposed Noise Level in Bar

Partition Reference	Plan of Partition	Description of Partition	R_w [C_{tr}] (dB)
Separating Floor between Residential and Commercial		100mm concrete, 10mm resilient layer, 200mm concrete (existing)	58 [-4]

Table 8.2: Example Floor Construction

	Octave band centre frequency, dB R_w							A Weighted
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Performance of example Floor Construction	48	49	49	57	63	68	73	85

Table 8.3: Performance of Example Floor Construction, Octave Bands

Based on the noise profile and the predicted sound insulation performance of the example floor construction, a calculation of noise break-in through the floor of the 1st floor residential properties. The result of the calculation is provided in **Table 8.4**.

	Octave band centre frequency, dB R_w							A Weighted
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Noise in Bar area	90	90	85	85	85	85	85	91
Performance of example floor construction	48	49	49	57	63	68	73	-
Predicted noise level in first floor residential properties	40	28	23	15	9	4	-1	**20**
Criteria (NR25)	55	44	35	29	25	22	20	-
Compliance with Criteria	✓	✓	✓	✓	✓	✓	✓	-

Table 8.4: Predicted Noise Break-in from Bar to First Floor Flats

It is important to note that, as with any construction project, the ability to meet the specification will rely upon the quality of the built structure. As such the works should be carried out to a high standard of workmanship to ensure that any sound insulation measures are not breached, for example by installing a rigid connection across an isolated connection (such as resilient bars or floating floors). Additionally, any joints between different walls and the party wall and the ceiling/floor should be carefully filled with acoustic mastic.

9. Conclusion

An assessment has been carried out of the present noise climate at **17 York Way, London, N7 9QG** and the impact of that noise on the proposed development. The proposed scheme involves upwards re-provision of an existing public house with new residential accommodation above.

The assessment is based on the results of a noise measurement survey that has been carried out over a four-day period at the proposed development site and has considered the advice of local and national planning policy and best practice guidance.

The initial site risk assessment identified that the site has a high risk in terms of noise.

Good acoustic design has been shown by consideration of the sound insulation of the building envelope to ensure residents are adequately protected from noise.

It has been identified that the requirements of the Local Authority in respect of internal noise levels can only be achieved through careful consideration of the building envelope. We note that this does not necessitate that the windows be sealed shut but requires that an alternate primary means of ventilating the properties is provided (as defined by the Building Regulations Approved Document F). The construction assumptions that have led to this conclusion are:

- **The façade build-up will be a standard brick and block construction (or equivalent) to achieve an R_w of approximately 55 dB.**
- **For the North and East Facades:**
    - **A typical double-glazing system in a 6/14/6 configuration (or equivalent) will be installed to give a Sound Reduction Index (SRI) of 36 dB R_w.**
    - **Appropriately specified acoustic trickle vents, with a $D_{n,e,w}$ of at least 42 dB, or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.**
- **For the West Facade:**
    - **A typical double-glazing system in a 4/14/6 configuration (or equivalent) will be installed to give a Sound Reduction Index (SRI) of 34 dB R_w.**
    - **Appropriately specified acoustic trickle vents, with a $D_{n,e,w}$ of at least 40 dB, or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.**
- **Purge ventilation (as defined by ADF) through open windows.**
- **Mitigations of Overheating (where required) through means other than open windows.**

Additionally, an initial assessment of internal sound insulation has been carried out and it has been identified that the Local Authority criteria that noise break-in from entertainment noise sources should not exceed NR25 can be met through design of the floor construction separating residential and commercial uses at the site.

Overall, it has been shown that, through careful consideration of the building envelope construction and internal sound insulation, the proposed development should avoid future residents being exposed to harmful levels of noise. It can therefore be concluded that significant adverse impacts on the health or quality of life of those future residents would be avoided, in line with the aims of the NPPF, NPSE and PPG-Noise and the Local Authority.

10. Appendix 1: Glossary of Acoustic Terminology

Term	Description
'A'-Weighting	*This is the main way of adjusting measured sound pressure levels to take into account human hearing, and our uneven frequency response.*
Decibel (dB)	*This is a tenth (deci) of a bel. The decibel can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation. Decibels are not an absolute unit of measurement but are an expression of ratio between two quantities expressed in logarithmic form.*
$L_{Aeq,T}$	*The equivalent steady sound level in dB containing the same acoustic energy as the actual fluctuating sound level over the given period, T. T may be as short as 1 second when used to describe a single event, or as long as 24 hours when used to describe the noise climate at a specified location. $L_{Aeq,T}$ can be measured directly with an integrating sound level meter.*
L_{A10}	*The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 10 per cent of a given time and is the L_{A10T}. The L_{A10} is used to describe the levels of road traffic noise at a particular location.*
L_{A50}	*The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 50 per cent of a given time and is the L_{A50T}.*
L_{A90}	*The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 90 per cent of a given time and is the L_{A90T}. The L_{A90} is used to describe the background noise levels at a particular location.*
L_{Amax}	*The 'A'-weighted maximum sound pressure level measured over a measurement period.*

11. Appendix 2: Professional Statement

David Yates

David Yates is a full member of the Institute of Acoustics (MIOA) and has over ten years' experience in acoustic consultancy. David has particular expertise in environmental noise providing acoustic consultancy for residential and mixed-use planning applications, plant noise and vibration, construction noise and the design of acoustic, noise and vibration control. David is also experienced in providing sound insulation testing and design advice. David is familiar with the application of all relevant standards associated with his work, including but not limited to, BS 4142, BS 8233, BS 7445, BS 6472, BS 5228, BS 140 series, BS 16283 series and BS 717 series. David manages the acoustic department and is responsible for maintaining Syntegra's ANC membership.

12. Appendix 3: List of Equipment

Equipment Type	Manufacturer	Serial Number	Calibration Certification Number	Date of Last Calibration Check
SV36 Sound Calibrator	Svantek	73463	TCRT22/1680	November 2022
SV307A Sound Level Meter	Svantek	116136	1502047-2	March 2022
ST30A Microphone	Svantek	114596	1502047-2	March 2022

13. Appendix 4: Detailed Noise Measurement Results

Measured Noise levels – MP1

Time	$L_{Aeq,T}$ (dB)	$L_{AF(max)}$ (dB)	L_{A10} (dB)	L_{A90} (dB)
1200-1300	90	115	64	52
1300-1400	64	88	64	54
1400-1500	65	92	65	54
1500-1600	64	98	64	54
1600-1700	67	86	63	52
1700-1800	64	91	64	52
1800-1900	64	90	63	52
1900-2000	64	87	63	52
2000-2100	59	84	62	50
2100-2200	60	85	62	49
2200-2300	60	85	61	49
2300-0000	59	86	59	46
1200-2300	**80**	**91**	**63**	**52**
2300-0000	**59**	**86**	**59**	**46**

22/06/2023

Time	$L_{Aeq,T}$ (dB)	$L_{AF(max)}$ (dB)	L_{A10} (dB)	L_{A90} (dB)
0000-0100	57	76	59	44
0100-0200	58	86	57	41
0200-0300	53	70	56	40
0300-0400	51	69	55	40
0400-0500	60	90	58	42
0500-0600	60	81	59	44
0600-0700	57	87	62	49
0700-0800	63	94	63	53
0800-0900	65	91	65	55
0900-1000	66	91	66	54
1000-1100	64	88	65	57
1100-1200	63	88	66	56
1200-1300	63	88	65	56
1300-1400	63	94	66	55
1400-1500	65	86	66	53
1500-1600	63	96	65	55
1600-1700	69	96	67	59
1700-1800	65	90	69	56
1800-1900	75	97	74	63
1900-2000	71	92	68	58
2000-2100	65	88	66	59

Time	$L_{Aeq,T}$ (dB)	$L_{AF(max)}$ (dB)	L_{A10} (dB)	L_{A90} (dB)
2100-2200	64	79	62	50
2200-2300	65	96	61	49
2300-0000	60	84	61	48
0700-2300	**67**	**91**	**66**	**56**
2300-0700	**58**	**80**	**58**	**44**

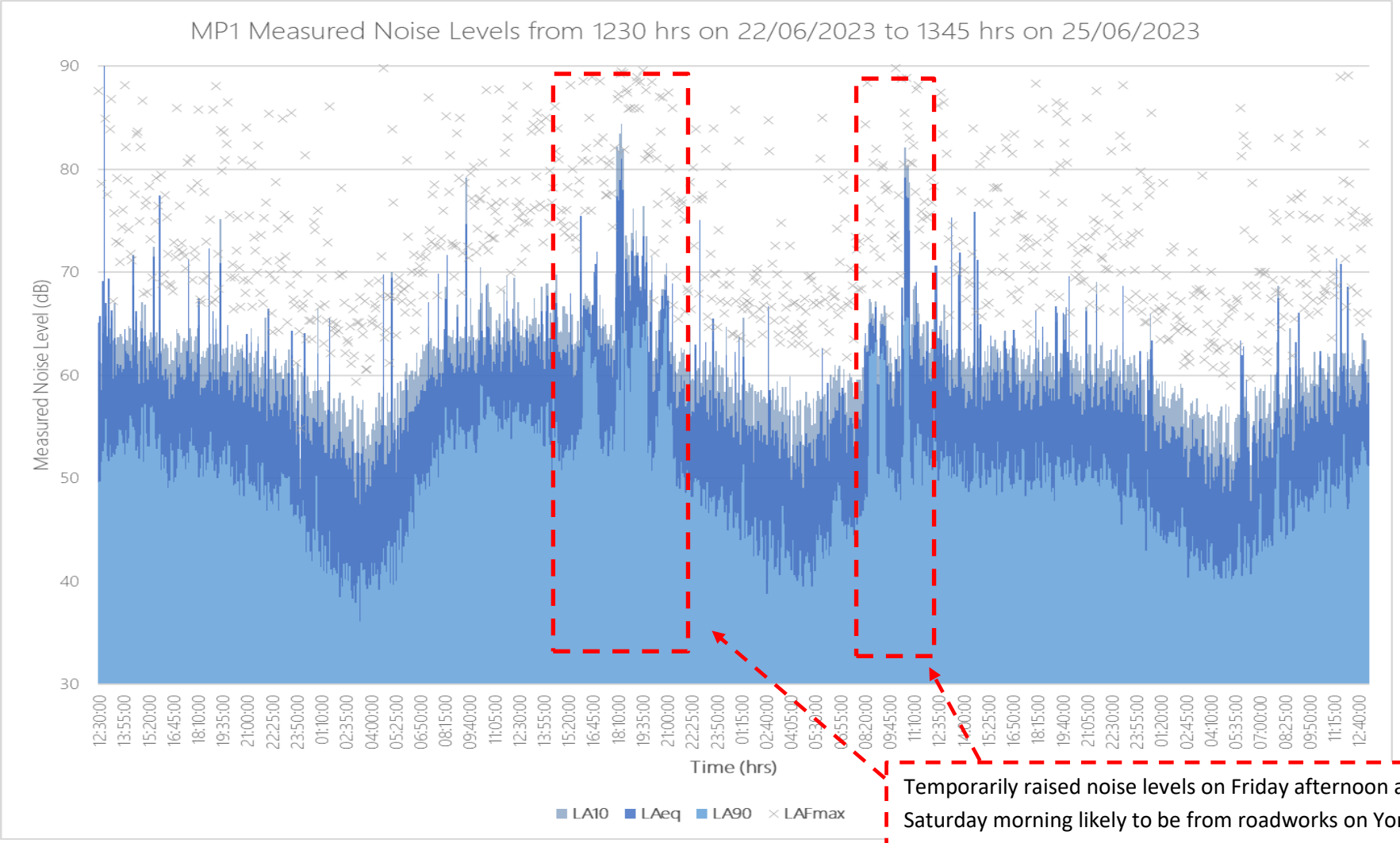
23/06/2023

Time	$L_{Aeq,T}$ (dB)	$L_{AF(max)}$ (dB)	L_{A10} (dB)	L_{A90} (dB)
0000-0100	58	86	60	47
0100-0200	58	70	59	45
0200-0300	58	85	59	43
0300-0400	54	75	57	43
0400-0500	53	70	56	41
0500-0600	56	85	57	43
0600-0700	56	80	59	47
0700-0800	56	79	60	46
0800-0900	63	88	65	57
0900-1000	63	90	63	52
1000-1100	73	89	71	55
1100-1200	64	91	64	53
1200-1300	66	97	64	52
1300-1400	67	92	62	51
1400-1500	67	99	63	51
1500-1600	61	82	62	51
1600-1700	61	83	62	51
1700-1800	59	88	62	51
1800-1900	61	87	62	50
1900-2000	63	92	63	51
2000-2100	62	85	62	51
2100-2200	62	88	62	51
2200-2300	59	88	61	49
2300-0000	61	80	61	49
0700-2300	**65**	**89**	**63**	**51**
2300-0700	**57**	**79**	**58**	**45**

24/06/2023

Time	$L_{Aeq,T}$ (dB)	$L_{AF(max)}$ (dB)	L_{A10} (dB)	L_{A90} (dB)
0000-0100	60	86	60	46
0100-0200	55	79	58	45
0200-0300	54	72	57	44
0300-0400	53	79	56	42
0400-0500	51	68	55	41
0500-0600	55	86	56	42
0600-0700	57	79	57	44
0700-0800	54	83	59	47
0800-0900	60	83	59	47
0900-1000	59	78	60	48
1000-1100	58	84	61	50
1100-1200	64	91	63	50
1200-1300	61	83	62	52
1300-1400	61	81	62	52
0700-1400	**60**	**83**	**61**	**49**
2300-0000	**56**	**78**	**57**	**43**

25/06/2023


MP1 Measured Noise Levels from 1230 hrs on 22/06/2023 to 1345 hrs on 25/06/2023
Measured Noise Level (dB)
90
80
70
60
50
40
30
12:30:00
13:55:00
15:20:00
16:45:00
18:10:00
19:35:00
21:00:00
22:25:00
23:50:00
01:10:00
02:35:00
04:00:00
05:25:00
06:50:00
08:15:00
09:40:00
11:05:00
12:30:00
13:55:00
15:20:00
16:45:00
18:10:00
19:35:00
21:00:00
22:25:00
23:50:00
01:15:00
02:40:00
04:05:00
05:30:00
06:55:00
08:20:00
09:45:00
11:10:00
12:35:00
14:00:00
15:25:00
16:50:00
18:15:00
19:40:00
21:05:00
22:30:00
23:55:00
01:20:00
02:45:00
04:10:00
05:35:00
07:00:00
08:25:00
09:50:00
11:15:00
12:40:00
Time (hrs)
LA10
LAeq
LA90
LAFmax
Temporarily raised noise levels on Friday afternoon and Saturday morning likely to be from roadworks on York Way.