

BATTLE STREET, READING

NOISE ASSESSMENT

Technical Report: R8986-2 Rev 1

Date: 12th September 2022

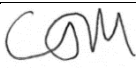
For: HCC Property Services – C/o Mace Ltd
Anglo St James House
39a Southgate Street
Winchester
SO23 9EH

24 Acoustics Document Control Sheet

Project Title: Battle Street, Reading - Noise Assessment

Report Ref: R8986-2 Rev 1

Date: 12th September 2022

	Name	Position	Signature	Date
Prepared by	Miles Hodge BSc (Hons) AMIOA	Consultant		12/09/2022
Reviewed by	Chris McConnell BSc MSc MIOA	Senior Consultant		12/09/2022
Approved By	Stephen Gosling BEng MIOA	Principal Consultant		12/09/2022
For and on behalf of 24 Acoustics Ltd				

Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed By	Approved By
0	Approved for issue	Miles Hodge	Chris McConnell	Stephen Gosling
1	Minor update to site description	Miles Hodge	Chris McConnell	Stephen Gosling

DISCLAIMER

This report was completed by 24 Acoustics Ltd on the basis of a defined programme of work and terms and conditions agreed with the Client. The report has been prepared with all reasonable skill, care and diligence within the terms of the Contract with the Client and taking into account the project objectives, the agreed scope of works, prevailing site conditions and the degree of resources allocated to the project.

24 Acoustics Ltd accepts no responsibility whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works.

This report is issued in confidence to the Client and 24 Acoustics Ltd has no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

Unless specifically assigned or transferred within the terms of the agreement, 24 Acoustics Ltd retains all copyright and other intellectual property rights, on and over the report and its contents.

© 24 Acoustics Ltd 2022

CONTENTS	PAGE
1.0 INTRODUCTION	4
2.0 SITE DESCRIPTION	4
3.0 STANDARDS AND GUIDANCE	5
4.0 ENVIRONMENTAL NOISE SURVEY	9
5.0 ASSESSMENT AND RECOMMENDED MITIGATION MEASURES	12
6.0 CONCLUSIONS	15
REFERENCES	16
FIGURES	17
APPENDIX A – ACOUSTIC TERMINOLOGY	19
APPENDIX B – ENVIRONMENTAL NOISE MEASUREMENTS	20

1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been appointed by HCC Property Services, C/o Mace Ltd, to undertake a noise impact assessment for the proposed development at Battle Street, Reading.
- 1.2 The primary source of noise affecting the site is road noise from Oxford Road, Bedford Road and Chatham Street. Accordingly, this noise impact assessment has included:
- Environmental noise monitoring;
 - Consideration of noise arising from road traffic noise;
 - Assessment of noise levels within the proposed dwellings;
 - Consideration of noise mitigation measures.
- 1.3 This report presents the results of the assessment, following environmental noise measurements and site observations undertaken between 27th April and 5th May 2021.
- 1.4 All sound pressure levels quoted in this report are in dB relative to 20 µPa. A glossary of the acoustic terminology used in this report is provided in Appendix A.

2.0 SITE DESCRIPTION

- 2.1 The site is located on the now demolished Central Pool and Battle Street car park. The site is bounded by Battle Street to the north and Bedford Road to the east. To the west the site is bounded by the properties on George Street & James Street with properties on Oxford Road to the south.
- 2.2 The neighbouring properties on George Street and James Street are mainly residential with mainly commercial properties on Oxford Road.
- 2.3 An aerial view of the existing site and surrounding uses is provided in Figure 1.
- 2.4 The redevelopment of the site will result in the clearance and taking up of existing hardstanding and structures from the site; erection of seven buildings, up to four storeys in height, containing 49 affordable dwellings (Class C3 use), 13 supported living flats (Class C2 residential institution use), and older persons day centre (Class E(f)); and associated roadways, car parking, open space and other infrastructure. The proposed site layout is described in Figure 2.

3.0 STANDARDS AND GUIDANCE

National Planning Policy Framework and Noise Policy Statement for England

3.1 Paragraph 185 of the National Planning Policy Framework (NPPF) [Reference 1] states that planning policies and decisions 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;
- 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.

3.2 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims.

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

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 3.4 The National Planning Practice Guidance (NPPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The NPPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The NPPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social, and environmental dimensions of the proposed development.
- 3.5 The NPPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system.
- 3.6 The NPPG also expands on the 'agent of change' principle and provides guidance on how the risk of conflict between new development and existing businesses can be addressed, including where mitigation is required. It is relevant to note that the Agent of Change applies under the condition of a likely significant adverse impact.
- 3.7 The NPPF, NPSE and NPPG documents do not refer to specific noise criteria. For residential developments 24 Acoustics considers that the spirit of the requirements of the NPPF and NPSE will be complied with if criteria from British Standard 8233: 2014 and guidance from the World Health Organisation are adopted for internal noise levels within dwellings.

Professional Practice Guidance on Planning & Noise (ProPG)

- 3.8 The Professional Practice Guidance on Planning and Noise (ProPG) [Reference 4] was published jointly by the Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health in May 2017. The guidance relates to the consideration of existing sources of transportation noise upon proposed new residential development and strives to:
- Advocate full consideration of the acoustic environment from the earliest possible stage of the development control process;
 - Encourage the process of good acoustic design in and around new residential developments;
 - Outline what should be taken into account in deciding planning applications for new noise-sensitive developments;

- Improve understanding of how to determine the extent of potential noise impact and effect; and
- Assist the delivery of sustainable development.

3.9 The guidance describes a recommended approach for new residential development, which includes four key elements of the assessment process, identified below:

- i. Good acoustic design process;
- ii. Internal noise level guidelines;
- iii. External amenity area noise assessment;
- iv. Assessment of other relevant issues.

3.10 It is important to note that the guidance in ProPG does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

BS 8233:2014 and WHO Guidelines

3.11 BS 8233:2014 [Reference 5] provides design guidance for dwelling houses, flats and rooms in residential use and recommends that internal noise levels in dwellings do not exceed 35 dB $L_{Aeq,16 \text{ hour}}$ in living rooms and bedrooms during the day, 40 dB $L_{Aeq, 16 \text{ hour}}$ in dining rooms during the day and 30 dB $L_{Aeq, 8 \text{ hour}}$ in bedrooms at night.

3.12 The standard states that the above limits apply to steady external noise sources without specific character, and also states the following:

"Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate."

3.13 BS 8233:2014 also notes that "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."

3.14 Although the guidelines have no formal standing, the World Health Organisation (WHO) provides guidance on desirable internal noise levels to minimise the risk of sleep disturbance. The WHO 2000 guidelines [Reference 6] suggest internal night-time noise levels not exceeding 30 dB $L_{Aeq, 8 \text{ hour}}$ or regularly (10 – 15 times per night) exceeding 45 dB $L_{Amax,f}$ for 'a good night's sleep'.

- 3.15 BS 8233:2014 suggests an upper guideline value of 55 dB $L_{Aeq,16 \text{ hour}}$ for noise levels in external amenity spaces such as gardens. This is considered an aspirational limit and BS 8233 also states that development should not be prohibited on the basis of noise levels within external amenity areas.

BS 4142

- 3.16 BS 4142:2014 [Reference 7] provides a method for rating the effects of industrial and commercial sound on residential areas. The standard advocates a comparison between the typical measured L_{A90} background noise level and L_{Aeq} noise level from the source being considered. For rating purposes if the noise source is tonal, intermittent or otherwise distinctive in character, a rating correction of up to 15 dBA is applied.
- 3.17 The standard states that a difference between the rating level and the background level of around +10 dBA is an indication of a significant adverse impact, depending on the context and a difference of around +5 dBA is likely to be an indication of an adverse impact again depending on the context. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact (depending upon the context).

Local Authority Guidance

- 3.18 Reading Borough Council's Local Plan, 2019 [Reference 8] states the following in policy EN16: Pollution and Water Resources:

"Proposals for development that are sensitive to the effects of noise or light pollution will only be permitted in areas where they will not be subject to high levels of such pollution, unless adequate mitigation measures are provided to minimise the impact of such pollution."

- 3.19 Policy EN17: Noise Generating Equipment states the following:

"Where noise generating equipment is proposed, the noise source specific level (plant noise level) should be at least 10 dBA below the existing background level as measured at the nearest noise sensitive receptor."

Approved Document E and Client Requirements – Sound Insulation

- 3.20 Approved Document E "Resistance to the Passage of Sound" (2003) [Reference 9] of the Building Regulations sets out the sound insulation performance standards for party floors and party walls within residential developments.

- 3.21 The party floors above the Day Centre should be designed to achieve an enhanced airborne sound insulation performance of $55 \text{ dB } D_{nT,w} + C_{tr}$, which is 10 dB better than the minimum performance requirement under Approved Document E.

Day Care Centre

- 3.22 Based on relevant guidance documents, including BS 8233: 2014 and Health Technical Memorandum 08-01: Acoustics (HTM 08-01) [Reference 10], an upper daytime internal noise level of $40 \text{ dB } L_{Aeq,1 \text{ hour}}$ is considered appropriate for rooms within the day care centre.

Summary

- 3.23 The impact of noise upon the proposed residential development has been assessed using the following criteria from BS 8233: 2014:

- $35 \text{ dB } L_{Aeq,16 \text{ hour}}$ daytime noise level for bedrooms and living rooms;
- $30 \text{ dB } L_{Aeq,16 \text{ hour}}$ night-time noise level for bedrooms;
- $45 \text{ dB } L_{Amax, f}$ night-time noise levels in bedrooms for regular events;
- $55 \text{ dB } L_{Aeq, 16 \text{ hour}}$ noise levels in gardens.

- 3.24 An upper daytime internal noise level of $40 \text{ dB } L_{Aeq,1 \text{ hour}}$ has been adopted for rooms within the day care centre, based on relevant design guidance.

- 3.25 Based on Reading Borough Council's criteria, a target of 10 dB below the existing background noise level at the nearest noise sensitive receptor will be applicable to new building services plant associated with the scheme, when assessed under BS 4142: 2014.

4.0 ENVIRONMENTAL NOISE SURVEY

- 4.1 Environmental noise surveys were undertaken between 27th April and 5th May 2021 to determine the prevailing noise levels around the site. Measurements were undertaken using the following equipment:

- | | |
|--|------------|
| • 1 x Rion precision sound level meter | Type NL-52 |
| • 1 x Rion precision sound level meter | Type NL-31 |
| • Brüel & Kjær acoustic calibrator | Type 4231 |

- 4.2 Long-term noise monitoring equipment was located on east and southern boundaries of the site at a height of approximately 2 m above local grade level. The long-term survey locations 1 and 2 are described below and shown in Figure 1.

- Location 1 - Eastern corner of the site, overlooking Bedford Road
- Location 2 - Southern part of the site, overlooking Oxford Road

- 4.3 Noise measurements were undertaken in samples of 5 minutes in terms of the octave-band and A-weighted L_{eq} , L_{90} and $L_{max,f}$ parameters. Measurements were made in accordance with BS 7445:1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use" [Reference 11].
- 4.4 The instruments' calibration was verified before and after the surveys in accordance with the manufacturer's instructions and no significant drift in calibration was recorded. Calibration of 24 Acoustics' equipment is traceable to National Standards.
- 4.5 All instrumentation was fitted with environmental weather shields during the surveys. Weather conditions during the surveys were mainly fine and dry with wind speeds generally below 5 m/s.
- 4.6 A summary of the measured noise levels at both long-term measurement locations are provided in Tables 1 & 2 below and shown graphically in Appendix B.

Date	Daytime (07:00 - 23:00) dB L_{Aeq} , 16 hour	Night Time (23:00 - 07:00)	
		dB L_{Aeq} , 8 hour	dB $L_{Amax, f}$ (typical)
Tuesday 27/4/2021	65	59	74
Wednesday 28/4/2021	68	60	71
Thursday 29/4/2021	66	58	72
Friday 30/4/2021	65	59	75
Saturday 1/5/2021	65	58	70
Sunday 2/5/2021	65	57	73
Monday 3/5/2021	66	60	74
Tuesday 4/5/2021	65	58	71
Wednesday 5/5/2021	64	-	-
Representative	66	59	72

Table 1: Ambient Noise Levels at Location 1 (Eastern Boundary)

Date	Daytime (07:00 - 23:00) dB LAeq, 16 hour	Night Time (23:00 – 07:00)	
		dB LAeq, 8 hour	dB LAmax, f (typical)
Tuesday 27/4/2021	66	61	76
Wednesday 28/4/2021	68	62	77
Thursday 29/4/2021	66	61	76
Friday 30/4/2021	68	61	77
Saturday 1/5/2021	67	61	75
Sunday 2/5/2021	66	62	76
Monday 3/5/2021	68	63	79
Tuesday 4/5/2021	67	-	-
Representative	67	62	76

Table 2: Ambient Noise Levels at Location 2 (Southern Boundary)

- 4.7 24 Acoustics determines the typical maximum noise event to be the tenth highest value during the measurement period.
- 4.8 The dominant noise source at both long-term noise measurement locations was road noise, from Bedford Road affecting Location 1 and from Oxford Road affecting Location 2.
- 4.9 Additional short-term noise measurements were undertaken at the northern boundary of the site (overlooking Battle Street) at an approximate height of 1.5 m. Ambient noise levels at this location were in the order of 55 dB LAeq, 30 mins during the daytime.
- 4.10 From the results of the noise survey, the background noise levels representative of the nearest noise sensitive residential receptors to the site are:
- Daytime (07:00 to 23:00 hours): 48 dB LA90, 1 hour
 - Night-time (23:00 to 07:00 hours): 33 dB LA90, 15 mins

5.0 ASSESSMENT AND RECOMMENDED MITIGATION MEASURES

Internal Noise Levels and Noise Mitigation to Residential Dwellings

- 5.1 The following calculations are based on the room dimensions and window areas as shown on the planning drawings provided by HCC Property Services in July 2022. If there are any future changes to the room layouts, room volumes or elevations, these calculations should be revised accordingly.
- 5.2 For calculation purposes, it has been assumed that the external wall (non-glazed) constructions would achieve a minimum sound insulation performance of 52 dB R_w.
- 5.3 Background ventilation is to be provided to all habitable rooms within each plot by a combined mechanical ventilation and heat pump system which will provide supply and extract ventilation plus heating and cooling. Inlet and exhaust louvres will be installed on the façades of each plot.
- 5.4 Ventilation systems should allow for adequate ventilation to meet background ventilation requirements as per Part F of the Building Regulations [Reference 12].
- 5.5 The minimum acoustic requirements for glazing apply to all new habitable rooms. Different specifications of glazing will be required in different zones of the residential section of the development as described in Table 3.

Zone	Required Glazing Type	
	Living Rooms	Bedrooms
A (All Floors)	GL1	GL2
B (All Floors)	GL1	

Table 3: Required glazing types

- 5.6 The indicative glazing specifications for each glazing type are described in Table 4.

Glazing Type	Minimum Octave (Hz) Band Sound Reduction Index, dB					
	125	250	500	1k	2k	4k
GL1	24	20	25	35	38	35
GL2	24	25	31	42	44	49

Table 4: Indicative Glazing Sound Insulation Specifications

5.7 In making a comparison with the values in Table 4, it is important that the glazing figures used are the result of tests in accordance with ISO 10140, Part 2: 2010. The quoted minimum sound reduction specifications must be achieved by the entire glazing system as a whole, including frames, seals, any insulated panels and not just the glass. The requirements also apply to any external doors to habitable rooms.

5.8 For guidance, the following glazing configurations would be capable of achieving the required sound reduction performance if installed properly (i.e. with appropriate frames and seals, etc.):

Glazing Type GL1 (Minimum 31 dB R_w):

- 4 mm glass / 12 mm cavity (minimum) / 4 mm glass (or equivalent)

Glazing Type GL2 (Minimum 37 dB R_w):

- 6 mm glass / 12 mm cavity (minimum) / 6.4 mm Stadip Silence (or equivalent)

5.9 It is considered that with the proposed mitigation measures as detailed above, suitable internal noise levels can be achieved for the proposed dwellings.

5.10 The mechanical ventilation systems shall be designed to not exceed internal noise levels of NR 30 in living rooms and NR 25 in bedrooms.

Noise Levels in External Amenity Areas

5.11 Gardens are proposed to the rear of Blocks B, C & D, with the proposed buildings providing acoustic screening from Oxford Road and Battle Street. A proposed shared amenity space is to be located in the middle of Block A which is also acoustically screened from the Bedford Road and Oxford Road.

5.12 Based on the measured noise levels around the site, and the screening provided by the proposed buildings, noise levels within the gardens at the proposed site would be in the order of 55 dB $L_{Aeq, 16 \text{ hour}}$ or lower.

Day Care Centre – Internal Noise Levels

5.13 Based on measurements undertaken at Location 3, it would be feasible to achieve suitable noise levels within the day care centre with ventilation provided by openable windows.

- 5.14 It is understood that mechanical ventilation will also be provided in the form of heat recovery units (HRUs) in the ceiling void.
- 5.15 The heat recovery ventilation systems shall be designed to meet suitable criteria for internal noise levels, based on relevant design guidance, e.g. HTM 08-01 and BS 8233. This is to be developed during detailed design.

Plant Noise Limits

- 5.16 The measured background noise levels at night are low, so when determining the plant noise criteria in accordance with BS 4142:2014, it is considered appropriate to impose an upper threshold of 25 dB $L_{Aeq, 15 \text{ min}}$ for night-time operation.
- 5.17 On this basis, Table 5 sets out the maximum external plant noise levels for the daytime and night-time operation periods, applicable to the cumulative noise from all new building services plant associated with the scheme. These values are to be achieved outside the most affected noise sensitive properties.

Location	Maximum Plant Noise Rating Level	
	Daytime (07:00 – 23:00 hours) dB $L_{Aeq, 1 \text{ hour}}$	Night-time (23:00 to 07:00) dB $L_{Aeq, 15 \text{ mins}}$
George Street and James Street to the West of the Site	38	25
Battle Street to the North of the Site	38	25

Table 5: Recommended Maximum External Plant Noise Levels

- 5.18 The proposed plant will be attenuated where required to meet the plant noise limits set out in Table 5, to be specified during detailed design stage.

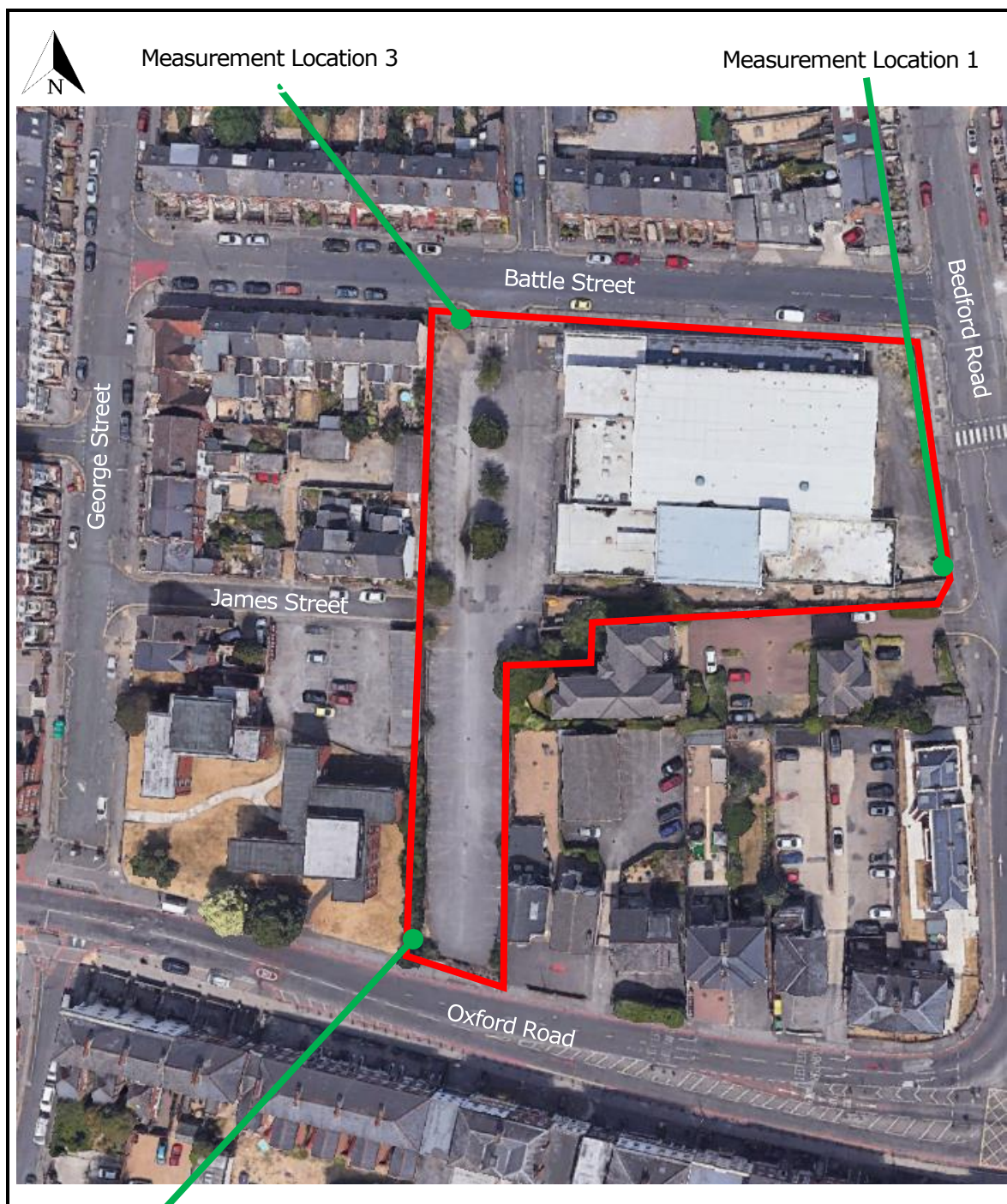
5.19

6.0 CONCLUSIONS

- 6.1 24 Acoustics Ltd has been instructed by HCC Property Services, C/o Mace Ltd to undertake a noise impact assessment to of the proposed development at Battle Street, Reading.
- 6.2 This report has addressed the impact of noise from nearby roads on the proposed development.
- 6.3 Environmental noise measurements have been undertaken at the site to determine existing noise levels during daytime and night-time periods.
- 6.4 Calculations have been completed to determine mitigation measures such that acceptable internal noise levels would be achieved within the properties in accordance with defined criteria (BS 8233:2014 and WHO). Suitable external noise levels can also be achieved within the garden areas of the proposed development.
- 6.5 Internal noise levels withing the day care centre will be acceptable, based on the measured external noise levels and proposed ventilation strategy.
- 6.6 It is therefore concluded that, with the recommended measures, an acceptable internal and external noise environment can be achieved within the development.
- 6.7 External plant noise limits have been established for cumulative noise from all plant associated with the scheme, applicable at the nearest sensitive properties.

REFERENCES

1. Department for Communities and Local Government. National Planning Policy Framework, Revised July 2021.
2. DEFRA. Noise Policy Statement for England, 2010.
3. Department of Communities and Local Government. National Planning Practice Guidance, July 2019.
4. Association of Noise Consultants, Institute of Acoustics, Chartered Institute of Environmental Health. Professional Practice Guidance on Planning and Noise, May 2017.
5. British Standards Institution. British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings, 2014.
6. World Health Organisation. Guidelines for Community Noise, 2000.
7. British Standards Institution. British Standard 4142. Method for Rating Industrial and Commercial Sound, 2014+A1:2019.
8. Reading Borough Council. Reading Borough Local Plan, 2019.
9. Building Regulations. Approved Document E – Resistance to the Passage of Sound, 2003.
10. Department of Health. Health Technical Memorandum 08-01: Acoustics, 2008
11. British Standards Institution. British Standard 7445:1991 Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use, 1991.
12. Building Regulations. Approved Document F -Ventilation, 2021.



Measurement Location 2

Project: Battle Street, Reading	Title: Aerial View and Measurement Locations		 24Acoustics
DWG No: Figure 1	Scale: N.T.S.	Rev: 0	
Date: July 2022	Drawn By: MH	Job No: 8986	



Project: Battle Street, Reading	Title: Proposed Site Plan and Mitigation Zones All Floors		 24Acoustics
DWG No: Figure 2	Scale: N.T.S.	Rev: 0	
Date: July 2022	Drawn By: MH	Job No: 8986	

APPENDIX A – ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dB is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dB. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

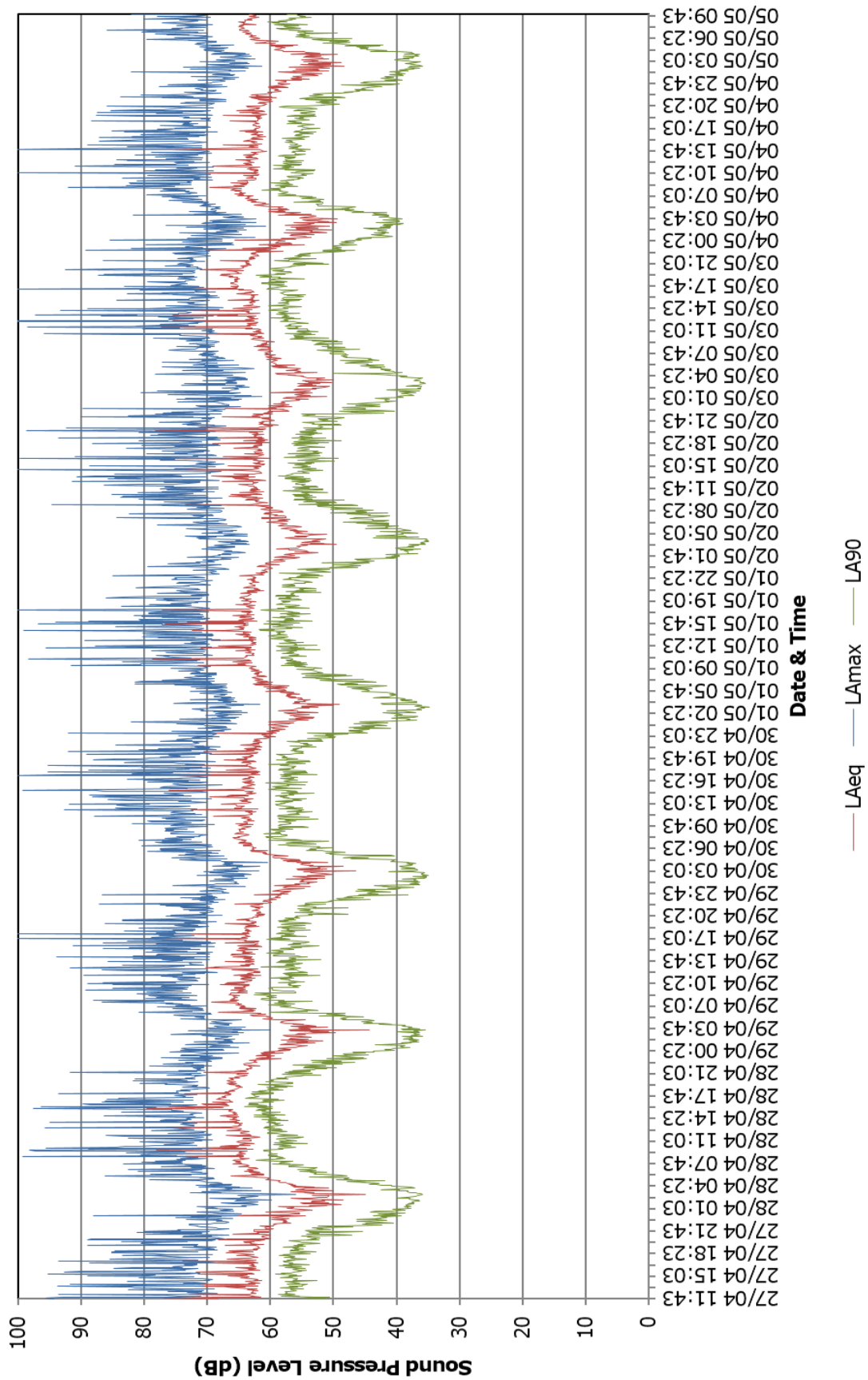
This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B – ENVIRONMENTAL NOISE MEASUREMENTS

Battle Street, Reading - Location 1 Environmental Noise Measurements - 27th April to 5th May 2021



Battle Street, Reading - Location 2
Environmental Noise Measurements - 27th April to 4th May 2021

