



**NOS. 139 - 140 PARROCK STREET
GRAVESEND, KENT**

PROPOSED RESIDENTIAL DEVELOPMENT

NOISE IMPACT ASSESSMENT

Report No. MRL/100/2289.1v1
July 2026

**NOS. 139 - 140 PARROCK STREET
GRAVESEND, KENT**

PROPOSED RESIDENTIAL DEVELOPMENT

NOISE IMPACT ASSESSMENT

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1.0 INTRODUCTION

- 1.1 MRL Acoustics Limited was commissioned by Bengal Foods Ltd to assess the impact of noise on a proposed residential development scheme at Nos. 139 – 140 Parrock Street, Gravesend, Kent.
- 1.2 The proposal comprises the erection of a four-storey infill extension; four-storey rear extension; two-storey extension above existing first floor with mansard roof with windows front and rear to No. 140; and the conversion of an existing 4- bedroom dwelling.
- 1.3 The proposed development scheme will create 11 no. self-contained flats across 2 no. linked buildings with the ground floor level of No. 139 Parrock Street being retained as an Indian Restaurant.
- 1.4 The Local Authority has imposed the following condition relating to noise:-

“6. Noise Transmission Between Restaurant and Flats

No development approved by this permission shall be commenced until a noise impact assessment has been carried out and submitted to and approved in writing by the Local Planning Authority demonstrating that:

- The internal ambient noise levels in all habitable rooms of the proposed residential dwellings shall not exceed the guideline L_{Aeq} values found in Table 4 of BS 8233 : 2014.*
- The maximum internal noise levels in all habitable rooms should not exceed 45dB L_{Amax} more than 10 times per night in accordance with the PPG and the WHO Guidelines for Community Noise.”*

- 1.5 The assessment has therefore included:-

- Measurements of the existing ambient noise climate at the front of the site overlooking Parrock Street over a full 24-hour period for road traffic noise, general street noise and any commercial noise;

- Measurements of the existing ambient noise climate at the rear of the site for a representative period for road traffic noise and any commercial noise from building services plant;
- Assessment of the noise impact on the development in accordance with the National Planning Policy Framework; the Noise Policy Statement For England; the WHO Guidelines; BS 8233 : 2014; and ProPG : Planning & Noise – May 2017;
- Recommendation of an appropriate noise mitigation scheme for the new dwellings, if necessary;
- Recommendation for a scheme of suitable sound insulation upgrading measures for the party floor separating the commercial ground floor restaurant and the proposed 1st floor flats above.

1.6 This report outlines our findings and our recommendations.

1.7 All recommendations are given for acoustic reasons only and compliance with other requirements (e.g. fire protection/structural integrity, etc.) must be checked by other specialist members of the design team.

1.8 The noise survey and report were carried out and prepared by Matthew Lawrence who has over 30 years' experience in the acoustic industry and an MSc and Diploma in Acoustics & Noise Control, and who is a Member of the Institute of Acoustics (IOA).

1.9 MRL Acoustics Ltd is also a member of the Association of Noise Consultants (ANC).

1.10 Noise levels referred to in the text have been rounded to the nearest whole decibel (dB), as fractions of decibels are imperceptible.

1.11 An explanation of the various noise units, indices and acoustical terms used in this report is provided in Appendix I.

2.0 DESCRIPTION OF THE SITE

- 2.1 The site is located along the eastern side of Parrock Street, Gravesend, approximately 35m to the north of the junction with Waterloo Street and consists of an existing restaurant at No. 139 Parrock Street on the ground floor and 1st floor levels and the 2nd floor level above that.
- 2.2 No. 140 Parrock Street is an existing 2-storey house with a loft level and is completely detached from No. 139 Parrock Street.
- 2.3 There is a large pay-and-display car park located approximately 40m distance to the north-west of the site and there are existing residential properties located directly adjacent on either side to the site and also directly opposite. To the rear of the site are residential gardens belonging to the nearby dwellings in Peacock Street.
- 2.4 This part of Parrock Street is fairly quiet with intermittent levels of passing road traffic and pedestrians with most of the road traffic using the Lord Street junction located to the north of the car park. The site location is shown on the plan below:-

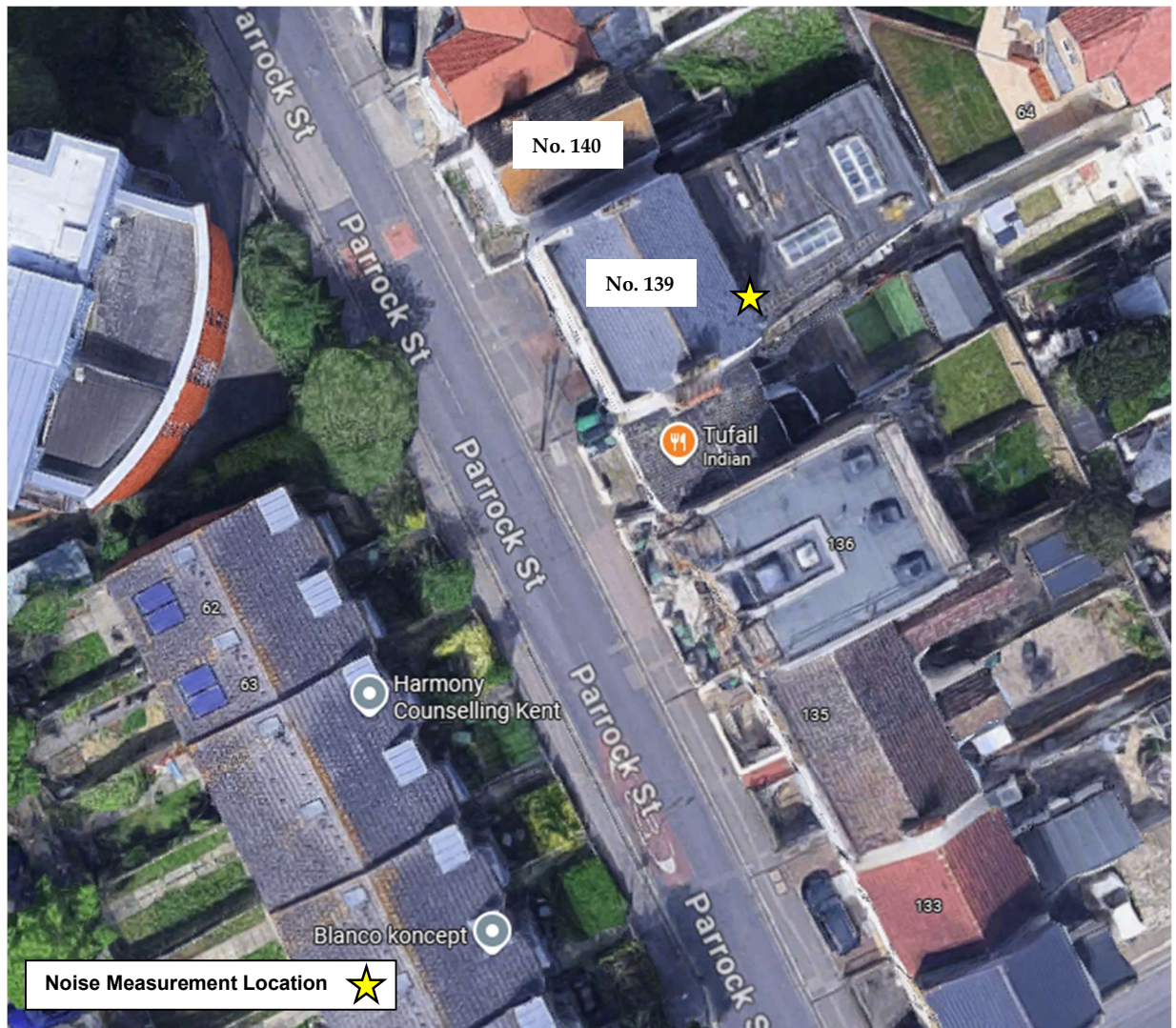


3.0 NOISE LEVEL SURVEY

- 3.1 A noise level survey was carried out at the front elevation of the site over a full 24-hour period from 11:30 hours on Thursday 2nd July until 12:30 hours on Friday 3rd July 2026 in order to establish the general daytime and night-time ambient noise climate of the area in terms of road traffic noise and any commercial noise impacting upon the site.
- 3.2 The noise measurements were undertaken at 2nd floor window level at the front elevation of No. 139 Parrock Street in order to represent the noise climate that will be experienced at the façade of the new dwellings that will be most exposed to the highest levels of environmental noise.
- 3.3 The noise monitoring location is shown on the site plan below:-



- 3.4 The noise survey was carried out using a Rion NA-28 'Class 1' Sound Level Meter (serial no. 01291241) fitted within an environmental weather-proof case. The calibration level of the meter was checked before and after the survey to a level of 94.0 dB with a Rion NC-74 sound calibrator (serial no. 35094450) with no variation in the levels observed.
- 3.5 The microphone was mounted out of a 2nd floor level window on a metal boom fixed onto a tripod, approximately 1m distance away from the building façade, and was fitted with a Rion WS-15 weather-proof windshield at all times.
- 3.6 The noise measurements consisted of consecutive 15-minute samples of noise over a continuous 24-hour period.
- 3.7 Once the 24-hour noise level survey at the Parrock Street elevation was completed, a second shorter noise survey was conducted at the rear elevation of No. 139 Parrock Street from a 2nd floor level window overlooking the rooftop plant serving the restaurant and adjacent to the kitchen extract ductwork fixed onto the rear wall of the building.
- 3.8 This second noise survey was carried out between 20:00 hours and 22:00 hours on Friday 3rd July 2026. The restaurant was trading over the evening period and we understand that the rooftop plant was operating at typical operational capacity.
- 3.9 The microphone was mounted out of a 2nd floor level window on a metal boom fixed onto a tripod, approximately 1m distance away from the building façade.
- 3.10 The noise measurements consisted of consecutive 15-minute samples of noise over a continuous 2-hour period.
- 3.11 The noise measurement location is shown on the plan overleaf.



3.12 Details of the equipment used during the noise level surveys are shown in Table 1. Current calibration certificates for the equipment can be provided if required.

Table 1: Details of Equipment Used During Noise Surveys

Equipment Description	Manufacturer	Type/Number	Serial Number	Date of Expiration of Calibration	Calibration Certification Number
Sound Level Meter	Rion	Type NA-28	01291241	02/07/2028	TCRT24/1484
Microphone	Rion	UC-59	01683	02/07/2028	TCRT24/1484
Pre-Amplifier	Rion	NH-23	81273	02/07/2028	TCRT24/1484
Calibrator	Rion	Type NC-74	35094450	02/07/2028	TCRT24/1480

- 3.13 The weather conditions were measured on-site using a Kestrel 2000 hand-held weather meter and supported by weather data from the Meteorological Office weather app relating to local weather conditions for this area. The weather conditions for the survey were generally warm and dry with a light breeze throughout and are shown in Table 2 below:-

Table 2: Weather Conditions During Noise Survey

Date	Temperature (°C)		Wind Speed (m/s)	Wind Direction	Rainfall (mm)	Cloud Cover (%)	Acceptable Conditions
	Day	Night					
02/07/2026	25	14	1.1	SW	0	10	Yes
03/07/2026	26	-	1.3	SW	0	20	Yes

- 3.14 The noise survey was carried out in general accordance with the requirements outlined in BS 7455 – 1 : 2003 for environmental noise surveys.
- 3.15 The measured results are 'façade' levels as the microphone was within 3.5m of a reflective surface (other than the ground) and therefore a -2.5 dB façade correction is applicable to the measured results to convert them to 'free-field' levels in order to assess the noise impact in accordance with BS 8233 : 2014.

Results

- 3.16 The measured 'façade' levels are detailed in Appendix II at the end of this report and the corrected 'free-field' levels are summarised in Table 3 below:-

Table 3: Corrected 'Free-Field' Noise Levels

Location	Time Period	Noise Levels (dB)		
		L _{Aeq}		L _{Amax} (Average)
		Day (07:00 – 23:00)	Night (23:00 – 07:00)	Night (23:00 – 07:00)
Front Elevation	24-Hours	51	43	58
Rear Elevation	2-Hours	45	-	-

4.0 ASSESSMENT OF NOISE IMPACT

National Planning Policy Framework (NPPF)

4.1 National Government Guidance is available in the form of the National Planning Policy Framework (NPPF) – December 2024. The NPPF sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.

4.2 Paragraph 187 of Section 15 of the NPPF, 'Conserving and enhancing the natural environment' provides general guidance regarding planning and noise. It states:-

"Planning policies and decisions should contribute to and enhance the natural and local environment by:-

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- 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. Development should, wherever possible,

help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.”

4.3 Paragraph 198 of Section 15 of the NPPF, ‘Conserving and enhancing the natural environment’ goes on to state:-

“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;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”

The Noise Policy Statement for England 2010 (NPSE)

4.4 The NPSE sets out the long term vision for government noise policy which is 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.”

4.5 This is supported by the following aims:-

“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.”

4.6 The first aim of the NPSE should be read in the context of Government policy on sustainable development indicating that significant adverse effects on health and quality of life should be avoided while accommodating the principles of sustainable development.

4.7 The second aim of the NPSE is applicable where the impact falls between LOAEL and SOAEL (see Section 4.9 below) requiring that all reasonable measures to mitigate and minimise adverse impacts on health and quality of life be implemented while accommodating the principles of sustainable development. This does not imply that any adverse effects cannot occur.

4.8 The third aim of the NPSE is to actively improve health and quality of life through effective management of noise within the context of Government policy on sustainable development wherever it is possible and reasonable to do so.

4.9 The NPSE applies the following concepts adapted from toxicology:-

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

- 4.10 It should be noted that there are no numerical values for these concepts defined in the NPSE. There is also no single objective noise-based measure that defines Observed Effect Levels that is applicable to all sources of noise in all situations and consequently, the levels are likely to be different for different noise sources, for different receptors and at different times.
- 4.11 Table 4 below summarises the noise exposure hierarchy outline above, based on the likely average response:-

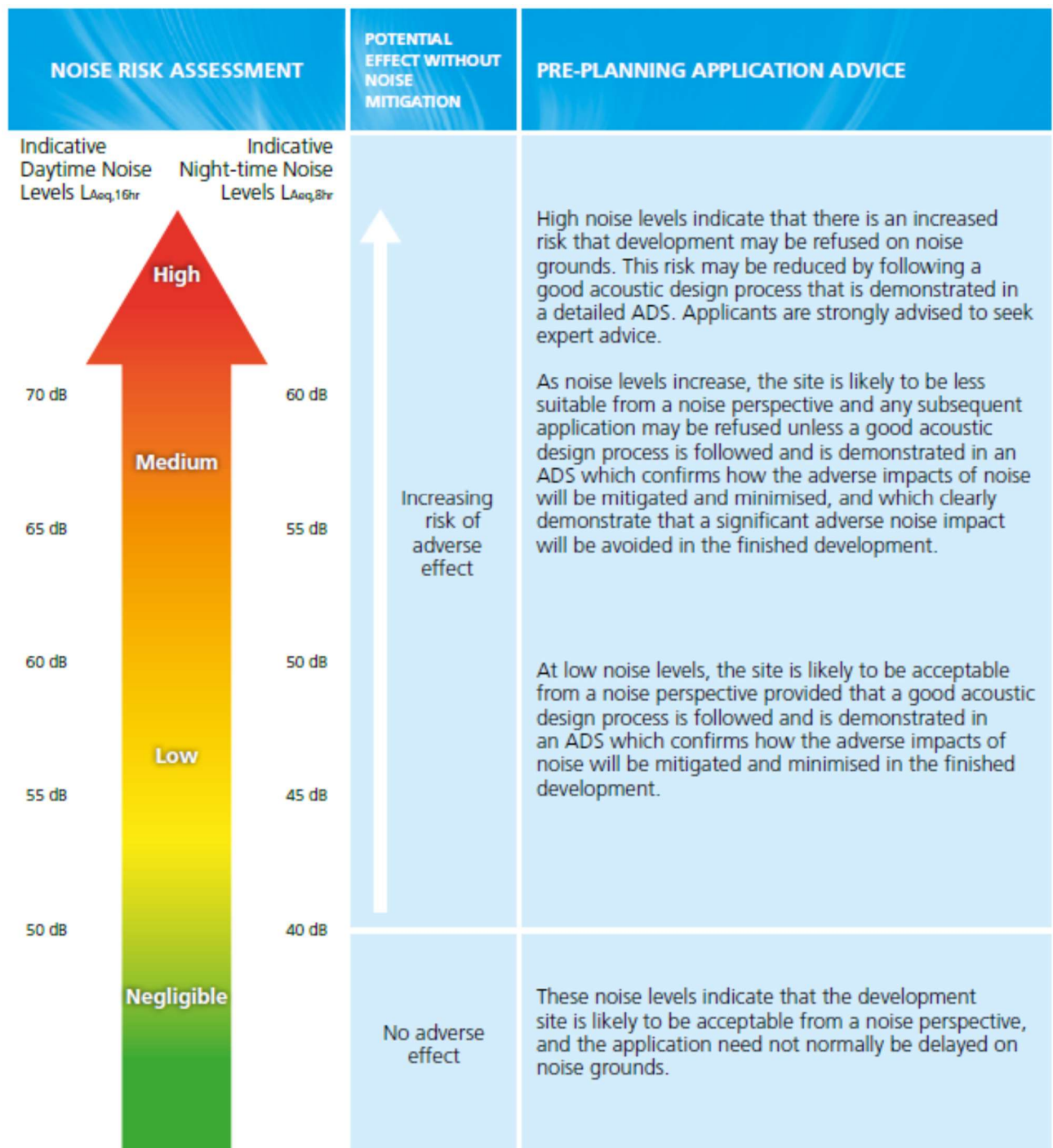
Table 4: Noise Exposure Hierarchy + Likely Average Response

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not Intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required

Perception	Examples of Outcomes	Increasing Effect Level	Action
Lowest Observed Adverse Effect Level			
Noticeable and Intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Professional Practice Guidance On Planning & Noise (ProPG)

- 4.12 The Professional Practice Guidance on Planning and Noise (ProPG) has been produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England. The National Planning Policy Framework (NPPF) encourages improved standards of design. The CIEH, IOA and the ANC have worked together to produce this guidance which encourages better acoustic design for new residential development and aims to protect people from the harmful effects of noise.
- 4.13 This ProPG provides advice for Local Planning Authorities (LPAs) and developers, and their respective professional advisers. It aims to complement Government planning and noise policy and guidance. In particular, it 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.
- 4.14 Based on the measured free-field indicative daytime noise level of 51 dB L_{Aeq} (16-Hour) and the free-field indicative night-time noise level of 43 dB L_{Aeq} (8-Hour), the site can be classified as being of 'Low' Risk according to Figure 1 of the ProPG document.
- 4.15 Figure 1 of the ProPG document and also Figure 2 of the ProPG document indicating the internal noise level guidelines are reproduced on the following pages.

**Figure 1 Notes:**

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- 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".
- $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.
- An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F} > 60$ dB means the site should not be regarded as negligible risk.

Figure 1. Stage 1– Initial Site Noise Risk Assessment

ACTIVITY	LOCATION	07:00 – 23:00 HRS	23:00 – 07:00 HRS
Resting	Living room	35 dB $L_{Aeq,16\text{ hr}}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16\text{ hr}}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16\text{ hr}}$	30 dB $L_{Aeq,8\text{ hr}}$ 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 45dB $L_{Amax,F}$ 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 (see Appendix A).

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 (see Section 3.D).

Figure 2. ProPG Internal Noise Level Guidelines (additions to BS8233:2014 shown in blue)

British Standard 8233 : 2014

- 4.16 Guidance on acoustic design goals for new residential developments is set out in British Standard 8233 : 2014 '*Guidance on sound insulation and noise reduction for buildings*'. The World Health Organisation '*Guidelines for Community Noise*' and the ProPG guidance generally concurs with the recommendations of BS 8233 : 2014. The criteria are summarised in Table 5 below:-

Table 5: BS 8233 Recommended Acoustic Design Criteria

Location	Internal Noise Levels	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Living Room	35 dB L _{Aeq}	-
Dining Room	40 dB L _{Aeq}	-
Bedroom	35 dB L _{Aeq}	30 dB L _{Aeq}
Garden	Desired Limit Not Exceeding 50 dB L _{Aeq} Upper limit of 55 dB L _{Aeq}	

Assessment of Noise Impact

- 4.17 The results of the noise level survey indicate that at the noise monitoring position at the front of the site fronting onto Parrock Street, the site is exposed to a daytime external noise level of 51 dB L_{Aeq}.
- 4.18 For the night-time period, the front part of the site is exposed to an external noise level of 43 dB L_{Aeq} and an average maximum noise level of 58 dB L_{Amax}.
- 4.19 Allowing -15 dB attenuation for an open window, based on the measured daytime noise level of 51 dB L_{Aeq}, the resultant internal noise level within habitable rooms during the daytime will be 36 dB L_{Aeq} (51 dB – 15 dB).

- 4.20 For the night-time period, allowing -15 dB attenuation for an open window, based on the measured night-time noise level of 43 dB L_{Aeq} , the resultant internal noise level within bedrooms will be 28 dB L_{Aeq} (43 dB – 15 dB).
- 4.21 Therefore, with windows open, the internal noise limits outlined within BS 8233 : 2014 of 35 dB L_{Aeq} within living rooms and bedrooms during the daytime will be exceeded by only 1 dB(A).
- 4.22 The internal noise criteria of 40 dB L_{Aeq} within dining rooms during the daytime will be achieved with the windows open.
- 4.23 At night-time with the windows open the 30 dB L_{Aeq} criteria in bedrooms will also be achieved.
- 4.24 For the rear elevation, the measured evening noise level was 45 dB L_{Aeq} . Therefore, with windows open, the internal noise climate will be approximately 30 dB L_{Aeq} (45 dB – 15 dB) which indicates that the internal noise criteria of 35 dB L_{Aeq} within habitable rooms during the daytime should also be achieved.
- 4.25 We understand that the kitchen extract fan and associated building services plant will not operate after 11pm most nights of the week and therefore a full night-time noise assessment for BS 8233 : 2014 is not considered to be applicable for the habitable rooms at the rear of the site.
- 4.26 Therefore, due to the very slight exceedance of 1 dB(A) of the internal noise criteria for living rooms and bedrooms on the front elevation facing onto Parrock Street during the daytime period with the windows open, it is considered that only a very basic scheme of noise mitigation measures is required in order to fully protect the amenity of the future residents to achieve both the daytime and night-time internal noise levels.
- 4.27 Our recommendations are set out in Section 5.0.

5.0 RECOMMENDED SCHEME OF NOISE MITIGATION MEASURES

5.1 Table 6 below provides information on the typical sound insulation performance of various glazing specifications:-

Table 6: Sound Insulation of Typical Windows

Description	Weighted Sound Reduction Index, R_w
Any type of window in a facade when partially open	15
Single glazed windows (4mm glass)	29
Single glazed windows (6mm glass)	31
Double glazed units (4-20-4)	33
Double glazed units (4-20-6)	35
Double glazed units (6-20-6)	36
Double glazed units (4-16-6.4mm laminated glass)	39
Secondary glazed windows (4-100-4)	35 - 40
Secondary glazed windows (6-200-6)	40 - 45

5.2 Therefore, **for all living rooms, dining rooms and bedrooms on all elevations of the proposed flats**, we would recommend that the glazing should consist of minimum construction of 4m glass – nominal 20mm air gap – 4mm glass.

5.3 Based on the measured daytime external noise level and the typical Sound Reduction Index for the recommended glazing (4/20/4), we have calculated that the external daytime noise climate of 51 dB L_{Aeq} should be attenuated to around 21 dB L_{Aeq} in lounges, dining rooms and bedrooms with the windows closed.

5.4 Based on the measured night-time external noise level and the typical Sound Reduction Index for the recommended glazing (4/20/4), we have calculated that the external night-time

noise climate of 43 dB L_{Aeq} should be attenuated to around 13 dB L_{Aeq} in bedrooms with the windows closed.

- 5.5 Standard slot-frame trickle-vents **should not** be fitted to the windows outlined above. If trickle-vent are fitted they should be acoustically rated with a minimum sound reduction performance level of **at least 35 dB $D_{n,e,w} + C_{tr}$ with the vent open.**

Night-time Maximum Noise Levels

- 5.6 With regard to individual event maximum noise levels BS 8233 states:-

“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.”

- 5.7 The WHO Guidelines for Community Noise give a specific maximum internal noise level of 45 dB L_{Amax} that should not normally be exceeded more than 10 -15 times per night.
- 5.8 The ProPG guidance states that in noise-sensitive rooms at night, e.g. bedrooms, individual noise events (from all sources) should not normally exceed 45 dB L_{Amax} more than 10 times per night as this represents a threshold below which the effects of individual noise events on sleep can be regarded as negligible.
- 5.9 If we therefore remove the 10 no. highest measured L_{Amax} noise levels obtained between 23:00 – 07:00 hours from the results table shown in Appendix II, the 11th highest recorded night-time level is 59 dB L_{Amax} (allowing for the -2.5 dB(A) façade correction).
- 5.10 External maximum noise levels of 59 dB(A) would result in internal maximum levels of approximately 29 dB(A) with the bedroom windows closed (based on 4mm glass – 20mm air gap – 4mm glass configuration). With the windows open, the resulting internal maximum noise level would be 44 dB L_{Amax} .

- 5.11 The detailed noise survey results in Appendix II indicate that for the rest of the night-time period, the maximum levels did not exceed the 11th highest recorded level of 59 dB(A).
- 5.12 Therefore, for this particular development scheme, the WHO criteria and ProPG guidance limits for L_{Amax} levels at night should be achieved with windows open.
- 5.13 As the recommended scheme of noise mitigation measures is based on the higher levels of external daytime and night-time noise measured at the front part of the site overlooking Parrock Street, then it is considered that the scheme of measures will also be suitable for the rear elevation of the site where the ambient noise climate is significantly lower.
- 5.14 However, we would recommend that the ventilation requirements are checked with the Local Authority Building Control Officer at an early stage.

External Areas

- 5.15 We understand that for this particular development scheme, there is one small external private amenity space at the rear of the site.
- 5.16 The external outdoor noise climate at the rear of the site during the late evening period was measured as being 45 dB L_{Aeq} .
- 5.17 This measured noise level is considered to be representative of the typical noise climate at the rear of the site as the rear elevations of the buildings are well screened from any road traffic noise from Parrock Street and any other local roads.
- 5.18 The measured noise climate for the rear private amenity space is 5 dB(A) below the desired level of 50 dB L_{Aeq} and 10 dB(A) below the upper limit of 55 dB L_{Aeq} outlined within BS 8233 and the WHO Guidelines.
- 5.19 It can be concluded that no specific scheme of noise mitigation measures is required for any proposed external amenity spaces.

6.0 COMMERCIAL TO RESIDENTIAL PARTY FLOOR SOUND INSULATION

- 6.1 The acoustic performance requirements for party walls and party floors for dwellings formed by material change of use and for purpose-built dwellings are stated within Requirement E1 of Approved Document E (2003 Edition) of the Building Regulations.

Party Walls

- 6.2 For *airborne* sound insulation of party walls (i.e. resistance to the transmission of speech, music noise, television noise etc) the minimum acceptable level of sound insulation performance in terms of the Weighted Standardised Level Difference plus spectrum adaptation term ($D_{nT,w} + C_{tr}$) is **43 dB $D_{nT,w} + C_{tr}$ for dwellings formed by material change of use** and **45 dB $D_{nT,w} + C_{tr}$ for purpose-built dwellings**.
- 6.3 Higher values of $D_{nT,w} + C_{tr}$ indicate better airborne sound insulation performance.

Party Floors

- 6.4 The required minimum acceptable level of *airborne* sound insulation for party floors in buildings is 43 dB ($D_{nT,w} + C_{tr}$) for dwellings formed by material change of use and 45 dB ($D_{nT,w} + C_{tr}$) for purpose-built dwellings.
- 6.5 Higher values of $D_{nT,w} + C_{tr}$ indicate better airborne sound insulation performance.
- 6.6 The required level of *impact* sound insulation performance for party floors in terms of the Weighted Standardised Impact Sound Pressure Level ($L'_{nT,w}$) is a value of no higher than **64 dB $L'_{nT,w}$ for dwellings formed by material change of use** and **62 dB $L'_{nT,w}$ for purpose-built dwellings**.
- 6.7 Lower values of $L'_{nT,w}$ indicate better impact sound insulation performance.

- 6.8 From the information provided to us, the existing separating floor between the ground floor restaurant and the 1st floor level consists of the following construction:-
- 20mm thick timber floorboards;
 - Timber floor joists with no insulation between the joists;
 - Plasterboard linings to the underside of the joists.
- 6.9 For situations such as this where there is residential accommodation above a commercial unit, Part E does not require any specific impact sound insulation performance level and therefore there is no need to assess the impact sound insulation for the party floor separating the ground floor commercial premises and the proposed 1st floor flats above.
- 6.10 After the 24-hour noise survey had been completed, a sound insulation test was carried out on the party floor to determine the existing level of airborne sound insulation. This involved generating a high noise level in a 1st floor level room (source room) and then measuring the difference in noise levels below in the restaurant area (receive room).
- 6.11 The testing was carried out generally in accordance with the requirements of the BS EN ISO 140-4:1998: “Field Measurements of Airborne Sound Insulation between Rooms”. All the relevant procedures described in Annex B of Approved Document E of the Building Regulations have been followed.
- 6.12 Pink noise was produced at high volume in the source room and the resultant diffuse sound field was measured in the source room using a ‘sweeping microphone’ method and the transmitted sound was measured using the same method in the receiver room. The source was then moved to a new position and further source room and receiver room measurements were taken. Therefore, a total number of two source room and two receiver room measurements were collected. Measurements were taken for a minimum of thirty seconds at each position in the source and receiver rooms. Testing was carried out with all source room and receiver room doors and windows closed.

- 6.13 The results of the sound testing indicated that the existing party floor has an airborne sound insulation level of approximately 34 dB R_w .
- 6.14 Based on our historic noise data for a typical Indian Restaurant (measured inside the Shozna Restaurant, Rochester) of 76 dB L_{Aeq} , we have calculated that the resultant noise level in the 1st floor flats above will be approximately 39 dB L_{Aeq} .
- 6.15 Ideally, the noise climate in the 1st floor flats needs to be 35 dB L_{Aeq} maximum in order to achieve the internal noise criteria for living rooms and bedrooms during the daytime period outlined in BS 8233.
- 6.16 Therefore, in order to increase the airborne sound insulation of the party floor between the ground floor restaurant and the proposed 1st floor level flats above, we would recommend the following scheme of upgrading measures:-
- The existing timber floorboards in the 1st floor level should be removed and at least 100mm thick dense mineral wool insulation (minimum density of at least 45 kg/m³) fitted between the joists;
 - The 1st floor level flooring should then be either re-laid or replaced with 18mm thick OSB Deck;
 - The 18mm OSB Deck should then be over-boarded with 22mm thick T&G chipboard with a minimum 8mm thick bonded resilient layer on the back, eg. Reduc, DeckFon 26T, etc. or any other similar floating floor system;
 - Any timber floating floor system should be fitted with the appropriate flanking strips around all floor perimeters in each room to ensure that the floor is fully isolated from the perimeter walls to prevent impact sound transmission flanking down the walls.
 - The ceiling in the restaurant area below should be inspected to check that the underside of the timber floor joists is lined with at least 2 no. layers of plasterboard for both acoustic requirements and also for fire separation;

- Any damaged areas, holes, gaps, etc. must be repaired and made good with suitable dense material, plasterboard, etc. If the existing ceilings below consist of only 1 no. layer of plasterboard, then they should be under-boarded with 12.5mm thick Fireline board or 12.5mm thick SoundBloc plasterboard, or an additional layer of plasterboard fitted between the joists from above.

- 6.17 Using our INSUL sound prediction software, we have calculated that the above works to the party floor should provide an airborne sound reduction of approximately 49 dB R_w .
- 6.18 We have then re-calculated the noise impact in the 1st floor flats using the SRI levels of the upgraded party floor and the results indicate a resultant noise impact level of 30 dB L_{Aeq} in the proposed 1st floor flats. The noise calculations for the party floor are shown below.
- 6.19 Therefore, the recommended scheme of upgrading measures outlined above should comfortably achieve the internal noise criteria outlined in BS 8233 for habitable rooms for the 16-hour daytime period and will just about achieve the internal criteria for the 8-hour night-time period, bearing in mind that the restaurant closes at 12 midnight at the latest.

Restaurant Noise Levels + 1st Floor Flats : Party Floor Calculations																		
	SUB					MAIN			Octave Bands									
Address	F-weight	T-weight	AP Sub	Over	Under	F-weight	T-weight	AP Main	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
1st Floor Source Levels																		
1	A	F	98.0	----	----	Z	F	103.6	87.6	99.7	97.7	95.4	92.3	89.3	88.6	86.1		
2	A	F	99.7	----	----	Z	F	105.9	93.2	102.4	99.6	97.7	93.5	90.0	90.1	87.1		
3	A	F	98.1	----	----	Z	F	104.3	89.6	100.5	99.3	94.8	91.6	89.5	88.8	86.0		
4	A	F	98.3	----	----	Z	F	104.4	90.5	100.3	99.3	95.7	91.7	89.8	88.8	86.0		
5	A	F	100.1	----	----	Z	F	105.4	90.2	99.7	101.3	97.5	93.6	91.4	90.0	86.9		
6	A	F	102.1	----	----	Z	F	106.3	91.0	99.5	101.6	99.9	94.5	93.9	93.5	90.5		
7	A	F	100.4	----	----	Z	F	104.8	91.9	99.4	99.0	97.2	94.7	93.3	90.8	86.6		
Average			99.8			105.0			90.9	100.3	99.9	97.2	93.3	91.4	90.4	87.3		
Ground Floor Receive Levels																		
8	A	F	66.8	----	----	Z	F	79.6	70.6	77.1	74	61.7	50.2	38.9	35.9	29.2		
9	A	F	64.3	----	----	Z	F	77.4	73	72.4	70.5	62.7	49.8	40.3	34.2	26.4		
10	A	F	65.4	----	----	Z	F	78.7	71.3	76.1	71.8	61.7	50.3	39	35	29		
11	A	F	64.5	----	----	Z	F	77.2	71.5	73.7	70.3	62.3	49.9	39.9	33.5	25		
Average			65.4			78.3			71.7	75.2	71.9	62.1	50.1	39.6	34.7	27.7		
Party Floor SRI			34.4	Rw		26.7			19.2	25.1	28.0	35.1	43.2	51.8	55.7	59.6		
Restaurant Noise Levels			75.9	dB(A)					68.6	67.5	71.7	73.8	72.3	67	60.8	53.3		
Resultant Noise In 1st Floor Flat									49.4	42.4	43.7	38.7	29.1	15.2	5.1	-6.3		
														=			39.2	dB(A)
Upgraded Party Floor SRI									19.0	27.0	40.0	47.0	53.0	51.0	56.0	60.0		
Restaurant Noise Levels			75.9	dB(A)					68.6	67.5	71.7	73.8	72.3	67	60.8	53.3		
Resultant Noise In 1st Floor Flat									49.6	40.5	31.7	26.8	19.3	16.0	4.8	-6.7		
														=			30.3	dB(A)

Sound Insulation Prediction (v10.0.4)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within $R_w \pm 3$ dB

Date: 05/07/2026

Job Name:

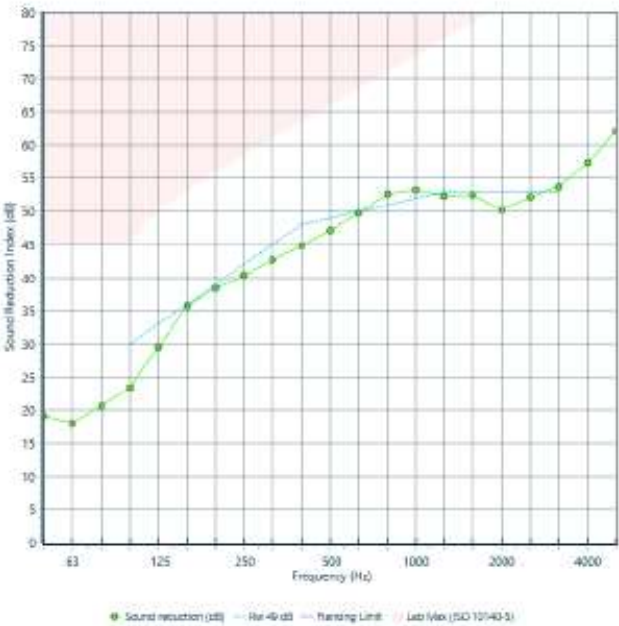


R_w 49 dB
 C -2 dB
 C_{tr} -8 dB

System description

Panel 1: 1 x 20 mm Flooring Particle Board + 1 x 4 mm Rubber + 1 x 15.1 mm OSB (Oriented Strand Board)
Frame: Timber stud (200 mm x 45 mm), Stud spacing 600 mm, Cavity Width 200 mm + 100 mm Rockwool (40kg/m3)
Panel 2: 2 x 12.5 mm Gyproc Wallboard 12.5mm
Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 46.4 kg/m², Mass-air-mass resonant frequency = 38 Hz

freq.(Hz)	R(dB)	Roct (dB)
50	19	
63	18	19
80	21	
100	23	
125	30	27
160	36	
200	38	
250	40	40
315	43	
400	45	
500	47	47
630	50	
800	53	
1000	53	53
1250	52	
1600	53	
2000	50	51
2500	52	
3150	54	
4000	57	56
5000	62	



7.0 SUMMARY AND CONCLUSIONS

- 7.1 The impact of noise has been assessed for the proposed residential development scheme at Nos. 139 - 140 Parrock Street, Gravesend, Kent.
- 7.2 The results of the noise level survey and assessment indicate that the development site is exposed to moderate levels of external environmental noise during the daytime period and modest levels of noise during the night-time period mainly due to noise from road traffic passing the front of the site along Parrock Street.
- 7.3 The rear of the site is exposed to very low levels of building services plant noise from the ground floor restaurant from several items of plant located on a flat roof area, however, the plant noise is not adversely affecting the ambient noise climate and is almost inaudible, even when assessed at the rear façade of No. 139 Parrock Street where the kitchen extract flue is located.
- 7.4 An appropriate noise mitigation scheme has been recommended for the new dwellings which should provide sufficient noise attenuation to meet the required internal acoustic criteria and fully protect the amenity of future residents in accordance with the standards outlined in the WHO Guidance, BS 8233 : 2014 and the ProPG guidance document.
- 7.5 A scheme of suitable upgrading measures to the party floor separating the ground floor restaurant premises and the proposed 1st floor flats above has been provided that will achieve the airborne sound insulation requirements of the Local Authority planning condition and provide a suitable high level of airborne sound insulation that will ensure the restaurant noise should not adversely affect the proposed residential amenity above.

APPENDIX I – NOISE UNITS AND INDICES

a) Sound Pressure Level and the decibel (dB)

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120 dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

b) Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kilohertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20,000 Hz. However, the upper frequency limit gradually reduces as a person gets older.

c) A-weighting

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters and is denoted dB(A) or dBLA.

d) Glossary of Terms

When a noise level is constant and does not fluctuate over time, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices, including statistical parameters, are used. The indices used in this report are described below:-

L_{Aeq} The A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. L_{Aeq} is the level of a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period.

L_{Amax} The maximum A-weighted noise level recorded during the monitoring period.

L_{A10} The A-weighted noise level exceeded for 10% of the specified time period. L_{A10} is most often used as a measure of traffic noise.

L_{A90} The A-weighted noise level exceeded for 90% of the specified time period. L_{A90} is used as a measure of 'background noise'.

SEL The 'sound exposure level' of a single event (such as a passing train) and is the L_{Aeq} value of the whole event normalised to a 1 second period level of a sound.

L_{PA}	The A-weighted sound pressure level.
L_{WA}	The A-weighted sound power level.
R_W	The weighted laboratory measured sound reduction of an element describing the sound transmitted through that element.
NR	A graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves.
RT	Measured reverberation time in receiver room in seconds.
RT_0	Standard reverberation time of 0.5 seconds.
Bg	The receiver room background noise level, L_{eq} .
T_{mf}	The reverberation time (RT60) is the time taken for the sound pressure level (SPL) to reduce by 60 dB when the sound source is instantaneously cut off. Rooms with many hard surfaces are very reverberant and have long reverberation times. Rooms with many acoustically absorbent finishes tend to have short reverberation times because the sound decays rapidly. T_{mf} is the RT60 within a space averaged across the 500 Hz, 1 kHz and 2 kHz octave bands. These are the frequencies used for speech and by controlling reverberation at these frequencies, speech intelligibility can be improved.
D	Level difference, effectively $D = \text{source level} - (\text{receiver level corrected for background level})$.
D_{nT}	Standardised level difference, standardised to a receiver room reverberation time of 0.5 seconds, $D_{nT} = D + 10 \log (RT/RT_0)$.
$D_{nT,w}$	Weighted standardised level difference, a single figure generated by comparing the D_{nT} with a reference curve. The reference curve is shifted in 1 dB steps until the sum of adverse deviation of the test curve, compared to the reference curve, is as large as possible, but no more than 32.0 dB. The value of the shifted reference curve at 500

Hz is taken as the $D_{nT,w}$. N.B. As $D_{nT,w}$ for airborne transmission represents a level difference, an improvement generates a larger figure.

C_{tr} A 'spectrum adaptation term' used to correct the $D_{nT,w}$ in order to reflect low frequency performance of the wall or floor tested.

L Level, effectively L = receiver level corrected for background level.

L'_{nT} Standardised level, standardised to a receiver room reverberation time of 0.5 seconds, $L'_{nT} = L - 10 \log (RT/RT_0)$.

$L'_{nT,w}$ Weighted standardised level, a single figure generated by comparing the L'_{nT} with a reference curve. The reference curve is shifted in 1 dB steps until the sum of adverse deviation of the test curve, compared to the reference curve, is as large as possible, but no more than 32.0 dB. The value of the shifted reference curve at 500 Hz is taken as the $L'_{nT,w}$. N.B. As $L'_{nT,w}$ for impact transmission represents an absolute level, an improvement generates a smaller figure.

APPENDIX II – RESULTS OF NOISE LEVEL SURVEY

Date: Thursday 2nd July - Friday 3rd July 2026

Equipment: Rion NA-28 'Class 1' sound level meter, Rion NC-74 acoustic calibrator, environmental weather case, Rion WS-15 windshield, microphone, tripod

Weather: Generally warm and dry with a light breeze throughout

Results: All results in dB(A)

Table A1: Results of 24-Hour Ambient Noise Level Survey – Parrock Street Elevation

Date	Time	Run Time	Leq	Lmax	L10	L90	SPL Time Weighting	Frequency Weighting
02/07/2026	11:30	00:15:00	54.70	69.00	60.50	50.30	Fast	A
02/07/2026	11:45	00:15:00	52.70	64.60	57.90	47.80	Fast	A
02/07/2026	12:00	00:15:00	54.80	65.40	60.10	48.90	Fast	A
02/07/2026	12:15	00:15:00	54.90	69.60	61.10	50.20	Fast	A
02/07/2026	12:30	00:15:00	55.20	66.20	60.50	49.40	Fast	A
02/07/2026	12:45	00:15:00	56.70	76.60	61.10	49.40	Fast	A
02/07/2026	13:00	00:15:00	55.60	74.50	60.60	48.80	Fast	A
02/07/2026	13:15	00:15:00	55.20	72.60	61.40	49.10	Fast	A
02/07/2026	13:30	00:15:00	54.60	69.90	60.20	48.10	Fast	A
02/07/2026	13:45	00:15:00	55.90	75.70	60.80	48.60	Fast	A
02/07/2026	14:00	00:15:00	54.70	69.80	60.00	49.20	Fast	A
02/07/2026	14:15	00:15:00	55.40	68.40	60.60	49.80	Fast	A
02/07/2026	14:30	00:15:00	55.70	72.50	60.00	48.20	Fast	A
02/07/2026	14:45	00:15:00	54.20	72.90	59.80	47.00	Fast	A
02/07/2026	15:00	00:15:00	54.00	67.40	60.10	48.00	Fast	A
02/07/2026	15:15	00:15:00	54.60	76.90	59.30	49.10	Fast	A
02/07/2026	15:30	00:15:00	54.20	68.00	59.60	48.10	Fast	A
02/07/2026	15:45	00:15:00	54.00	68.50	59.50	46.90	Fast	A
02/07/2026	16:00	00:15:00	53.40	67.00	59.50	47.10	Fast	A
02/07/2026	16:15	00:15:00	54.00	64.10	59.30	43.80	Fast	A
02/07/2026	16:30	00:15:00	52.30	72.10	59.10	46.80	Fast	A
02/07/2026	16:45	00:15:00	52.90	64.60	58.80	45.80	Fast	A
02/07/2026	17:00	00:15:00	54.20	65.80	58.50	43.60	Fast	A
02/07/2026	17:15	00:15:00	53.10	72.00	59.10	45.40	Fast	A
02/07/2026	17:30	00:15:00	53.40	65.40	58.30	43.50	Fast	A
02/07/2026	17:45	00:15:00	51.20	71.60	56.30	44.40	Fast	A
02/07/2026	18:00	00:15:00	52.40	66.30	57.90	43.30	Fast	A
02/07/2026	18:15	00:15:00	47.70	61.90	53.30	40.00	Fast	A
02/07/2026	18:30	00:15:00	51.30	65.10	56.10	39.00	Fast	A
02/07/2026	18:45	00:15:00	51.90	66.80	57.20	38.40	Fast	A
02/07/2026	19:00	00:15:00	51.20	65.60	56.00	39.10	Fast	A
02/07/2026	19:15	00:15:00	49.60	61.80	54.20	37.70	Fast	A
02/07/2026	19:30	00:15:00	49.00	60.60	54.00	37.30	Fast	A

Date	Time	Run Time	Leq	Lmax	L10	L90	SPL Time Weighting	Frequency Weighting
02/07/2026	19:45	00:15:00	48.30	61.40	55.70	36.50	Fast	A
02/07/2026	20:00	00:15:00	49.60	63.70	54.40	35.00	Fast	A
02/07/2026	20:15	00:15:00	52.00	64.60	56.50	36.00	Fast	A
02/07/2026	20:30	00:15:00	48.70	62.40	53.00	33.70	Fast	A
02/07/2026	20:45	00:15:00	45.80	58.90	51.90	32.20	Fast	A
02/07/2026	21:00	00:15:00	44.70	57.80	50.90	28.60	Fast	A
02/07/2026	21:15	00:15:00	44.40	58.50	53.30	29.60	Fast	A
02/07/2026	21:30	00:15:00	43.10	58.40	49.70	28.60	Fast	A
02/07/2026	21:45	00:15:00	42.60	57.60	49.70	28.40	Fast	A
02/07/2026	22:00	00:15:00	40.30	58.40	49.40	33.50	Fast	A
02/07/2026	22:15	00:15:00	40.90	60.20	49.90	31.20	Fast	A
02/07/2026	22:30	00:15:00	38.10	57.80	44.90	31.50	Fast	A
02/07/2026	22:45	00:15:00	36.00	58.70	44.60	32.20	Fast	A
02/07/2026	23:00	00:15:00	38.60	56.70	47.20	30.10	Fast	A
02/07/2026	23:15	00:15:00	38.30	55.90	42.70	30.30	Fast	A
02/07/2026	23:30	00:15:00	38.00	56.50	46.50	29.90	Fast	A
02/07/2026	23:45	00:15:00	40.60	58.30	48.80	29.90	Fast	A
03/07/2026	00:00	00:15:00	39.40	57.70	49.10	28.80	Fast	A
03/07/2026	00:15	00:15:00	40.00	57.10	46.80	29.30	Fast	A
03/07/2026	00:30	00:15:00	39.70	58.20	48.30	32.00	Fast	A
03/07/2026	00:45	00:15:00	39.90	57.40	46.90	33.20	Fast	A
03/07/2026	01:00	00:15:00	40.60	57.60	48.60	36.10	Fast	A
03/07/2026	01:15	00:15:00	41.00	60.00	50.70	35.40	Fast	A
03/07/2026	01:30	00:15:00	41.30	61.10	51.40	33.10	Fast	A
03/07/2026	01:45	00:15:00	42.00	58.70	49.40	33.40	Fast	A
03/07/2026	02:00	00:15:00	42.90	57.80	50.30	35.30	Fast	A
03/07/2026	02:15	00:15:00	44.10	58.60	50.90	35.40	Fast	A
03/07/2026	02:30	00:15:00	42.70	60.10	54.00	32.80	Fast	A
03/07/2026	02:45	00:15:00	42.60	61.70	49.90	34.50	Fast	A
03/07/2026	03:00	00:15:00	43.60	61.10	49.70	34.20	Fast	A
03/07/2026	03:15	00:15:00	43.10	63.50	51.10	32.90	Fast	A
03/07/2026	03:30	00:15:00	43.70	64.10	51.00	33.20	Fast	A
03/07/2026	03:45	00:15:00	42.40	61.70	54.60	32.90	Fast	A
03/07/2026	04:00	00:15:00	40.90	60.60	54.60	33.80	Fast	A
03/07/2026	04:15	00:15:00	42.30	62.20	56.80	38.90	Fast	A
03/07/2026	04:30	00:15:00	42.90	62.60	57.30	40.90	Fast	A
03/07/2026	04:45	00:15:00	43.50	64.70	56.20	40.10	Fast	A
03/07/2026	05:00	00:15:00	45.00	61.90	55.30	40.00	Fast	A
03/07/2026	05:15	00:15:00	46.10	62.20	55.20	39.30	Fast	A
03/07/2026	05:30	00:15:00	48.30	62.40	55.70	38.50	Fast	A
03/07/2026	05:45	00:15:00	47.40	61.00	55.30	38.20	Fast	A
03/07/2026	06:00	00:15:00	48.60	61.90	55.70	38.30	Fast	A
03/07/2026	06:15	00:15:00	50.20	62.50	55.40	40.30	Fast	A
03/07/2026	06:30	00:15:00	50.70	62.00	55.90	40.60	Fast	A
03/07/2026	06:45	00:15:00	52.70	64.60	58.30	40.90	Fast	A
03/07/2026	07:00	00:15:00	54.10	67.40	59.30	41.20	Fast	A
03/07/2026	07:15	00:15:00	54.20	75.10	58.80	41.90	Fast	A
03/07/2026	07:30	00:15:00	56.60	74.20	61.30	42.20	Fast	A
03/07/2026	07:45	00:15:00	55.50	76.70	60.40	43.00	Fast	A

Date	Time	Run Time	Leq	Lmax	L10	L90	SPL Time Weighting	Frequency Weighting
03/07/2026	08:00	00:15:00	54.90	77.40	60.60	43.30	Fast	A
03/07/2026	08:15	00:15:00	55.00	71.70	61.00	43.80	Fast	A
03/07/2026	08:30	00:15:00	55.80	72.00	61.20	44.80	Fast	A
03/07/2026	08:45	00:15:00	55.90	71.70	61.40	49.30	Fast	A
03/07/2026	09:00	00:15:00	54.80	69.10	60.50	49.20	Fast	A
03/07/2026	09:15	00:15:00	54.70	67.10	60.70	49.80	Fast	A
03/07/2026	09:30	00:15:00	54.70	70.40	60.60	49.60	Fast	A
03/07/2026	09:45	00:15:00	56.10	76.50	62.40	50.20	Fast	A
03/07/2026	10:00	00:15:00	54.40	70.50	60.20	47.80	Fast	A
03/07/2026	10:15	00:15:00	53.00	66.30	59.20	47.50	Fast	A
03/07/2026	10:30	00:15:00	55.40	72.80	61.50	49.00	Fast	A
03/07/2026	10:45	00:15:00	54.60	70.60	61.00	47.10	Fast	A
03/07/2026	11:00	00:15:00	54.40	74.10	60.20	48.70	Fast	A
03/07/2026	11:15	00:15:00	54.20	69.20	60.70	47.30	Fast	A
03/07/2026	11:30	00:15:00	53.80	67.40	58.40	48.70	Fast	A
03/07/2026	11:45	00:15:00	53.90	68.60	57.70	47.20	Fast	A
03/07/2026	12:00	00:15:00	54.10	67.10	58.80	48.00	Fast	A
03/07/2026	12:15	00:15:00	55.20	69.20	59.90	48.30	Fast	A

Table A2: Results of Ambient Noise Level Survey – Rear Elevation

Date	Time	Run Time	Leq	Lmax	L10	L90	SPL Time Weighting	Frequency Weighting
03/07/2026	20:00	00:15:00	44.2	59.0	46.6	29.8	Fast	A
03/07/2026	20:15	00:15:00	45.4	60.4	49.0	33.3	Fast	A
03/07/2026	20:30	00:15:00	47.3	62.3	50.0	31.5	Fast	A
03/07/2026	20:45	00:15:00	42.2	54.1	46.5	30.0	Fast	A
03/07/2026	21:00	00:15:00	45.6	59.8	49.3	30.5	Fast	A
03/07/2026	21:15	00:15:00	44.3	59.1	48.9	30.5	Fast	A
03/07/2026	21:30	00:15:00	45.7	58.2	50.9	30.0	Fast	A
03/07/2026	21:45	00:15:00	45.5	56.7	47.8	32.7	Fast	A