



Project No. 22356

Land at 135-137 Whitworth Road, Rochdale

Noise Impact Assessment

Mr Shafqat Siddiq



Revision	Date	Prepared By	Reviewed By	Comments
V1	02/09/25	Bailey Hoare	Jonathon Hill	First Issue

The report has been prepared in good faith by enevo, with all reasonable skill and care, based on information provided or available at the time of its preparation and within the scope of work agreement with the Client. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above. The report is provided for the sole use of the named Client and is confidential to them and their professional advisors. No responsibility is accepted to other parties

Limitations to this Report

This report entails a physical investigation of the site with a sufficient number of sample measurements to provide quantitative information concerning the type and degree of noise affecting the site. The objectives of the investigation have been limited to establishing sources of noise material to carrying out an appropriate assessment.

The number and duration of noise measurements have been chosen to give reasonably representative information on the environment within the agreed time, and the locations of measurements have been restricted to the areas unoccupied by building(s) that are easily accessible without undue risk to our staff.

As with any sampling, the number of sampling points and the methods of sampling and testing cannot preclude the existence of “hotspots” where noise levels may be significantly higher than those actually measured due to previously unknown or unrecognised noise emitters. Furthermore, noise sources may be intermittent or fluctuate in intensity and consequently may not be present or may not be present in full intensity for some or all of the survey duration.



1.0 Introduction

Details of Instruction

Mr Shafqat Siddiq appointed enevo to carry out a noise impact assessment for the proposed shop with residential flats above development at Land at 135-137 Whitworth Road, Rochdale.

The noise assessment has been conducted with reference to the National Planning Policy Framework and the appropriate British Standards, recognised guidance & reference documents relevant to this site.

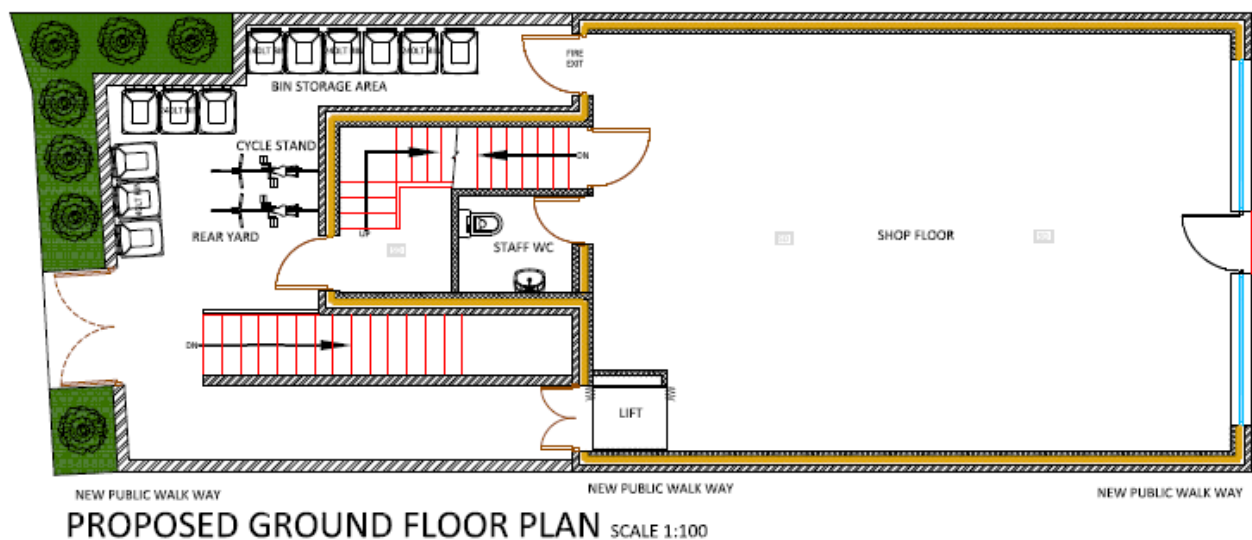
This report describes a noise survey of the site and the subsequent analysis to determine the noise environment of the proposed development. It then compares the results with the adopted criteria and, where applicable, recommendations are made with respect to the design of the development.

To support this document a glossary of technical terminology is included in Appendix A.

Site Conditions

The site is an area on unused land with a public footpath running through the centre. The site is bound by residential and commercial properties to the north, Whitworth Road and residential and commercial properties to the east, a public house to the south and residential properties to the west. The proposals are to build a 3-storey property with shop on the ground floor and 2 flats on first and second floor. Figure 1 below shows the proposed ground floor.

Figure 1
Proposed Ground Plan





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Noise Sensitive Receptors

Noise contributions have been considered at the following Noise Sensitive Receptors (NSRs) based on their proximity to the site:

- NSR1 – Proposed Development.

2.0 Guidance

National Policy

National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. At the heart of the NPPF is a presumption in favour of sustainable development. It requires Local Plans to be consistent with the principles and policies set out in the NPPF with the objective of contributing to the achievement of sustainable development.

The NPPF states that the planning system has three overarching objectives in achieving sustainable development including a requirement to *"contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

Paragraph 180 of the NPPF states:

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

...

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability."

Additionally, Paragraph 191 of the NPPF 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:

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..."

Noise Policy Statement for England

The 'Noise Policy Statement for England' sets out the following vision for ongoing noise policy:

"Promote good health and a quality of life through the effective management of noise within the context of Government policy on sustainable development."

This vision should be achieved through the following Noise Policy 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.”

To achieve this vision, the Noise Policy Statement sets 3 noise levels to be defined by the assessor:

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.

The Noise Policy Statement considers that noise levels above the SOAEL would be seen to have, by definition, significant adverse effects and would be considered unacceptable. Where the assessed noise levels fall between the LOAEL and the SOAEL noise levels, the Policy Statement requires that:

“...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development... This does not mean that such adverse effects cannot occur.”

Where noise levels are below the LOAEL, it is considered there will be no adverse effect. Once noise levels are below the NOEL, there will be no observable change.

British Standards and Guidance Documents

Approved Document F1 – Means of Ventilation

Whilst not directly related to the acoustic performance and noise impact assessment covered within this report, Table 1.7 of the approved document provides the following guidance with respect to minimum passive ventilator space installed within the external façade of spaces:

Table 1
Minimum Passive Ventilator Space with External Facades

Room	Minimum equivalent area of background ventilators for dwellings with multiple floors	Minimum equivalent area of background ventilators for single-storey dwellings
Habitable Rooms	8000mm ²	10000mm ²
Kitchen	8000mm ²	10000mm ²
Utility Room	No minimum	No minimum
Bathroom	4000mm ²	4000mm ²
Sanitary accommodation	No minimum	No minimum

ANC Green Book: Environmental Noise Measurement Guide

The ANC Green Book provides practical guidance around the measurement and analysis of environmental sound. Areas which are covered include the preparation, execution and reporting of site survey work. It also outlines a number of industry standard practices for the determination of L_{Amax} as a design case.

British Standard (BS) 7445-1:2003 – Description and Measurement of Environmental Noise – Part 1: Guide to Quantities and Procedures

This document defines the basic quantities to be used for the description of noise in community environments and describes basic procedures for the determination of these quantities.

The methods and procedures described in this British Standard are intended to be applicable to sounds from all sources, individually and in combination, which contribute to the total noise at a site. This British Standard does not specify limits for environmental noise.

BS 4142:2014+A1:2019 Method for rating and assessing industrial and commercial sound

BS 4142:2014+A1:2019 describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

BS 8233:2014 – Guidance of Sound Insulation and Noise Reduction in Buildings

BS 8233:2014 provides a methodology to calculate the noise levels entering a building through facades and façade elements. It also provides details of appropriate measures for sound insulation between dwellings and recommended internal noise levels which are provided for a variety of situations.

ISO 9613 Attenuation of Sound During Propagation Outdoors

ISO 9613 presents a calculation methodology for the determination of the attenuation of sound outdoors. The methodology enables the prediction the levels of environmental noise at a distance from a variety of sources.

3.0 Assessment Methodology

Potential Sources of Environmental Noise

The following sources of noise are considered in the context of this site:

Table 2
Assessment Methodology

Assessment Type	Relevant Assessment Methodology
Amenity on Potential Occupants	BS 8233:2014
Fixed Plant	BS 4142:2014+A1:2019

Selection of Noise Criteria

With reference to the guidance detailed in Section 2 the following criteria have been selected to determine the threshold of effect levels in the context of the National Planning Policy Framework and Noise Policy Statement for England.

Table 3
Assessment Criteria: BS 8233:2014

Effect Level	Criteria	Justification
LOAEL	Internal Noise Levels within site below 35 dB $L_{Aeq, 16hr}$ / 30 dB $L_{Aeq, 8hr}$ / 45 dB L_{AFMax}	Noise Levels within BS 8233:2014 criteria
SOAEL	Internal Noise Levels within site exceed 40 dB $L_{Aeq, 16hr}$ / 35 dB $L_{Aeq, 8hr}$ / 50 dB L_{AFMax}	None – Planning guidance requires that impacts must be reduced below the SOAEL through mitigation, with adverse impacts above the LOAEL but below the SOAEL being mitigated as far as is reasonable

With reference to the guidance within BS 8233:2014, the ProPG and the 'ANC Green Book: Environmental Noise Measurement Guide' (ANC, 2019), the predicted internal levels have been assessed against the following criteria:

- $L_{Aeq, 16hr}$ (Daytime) – internal levels must not exceed 35dB $L_{Aeq, 16hr}$;
- $L_{Aeq, 8hr}$ (Night-time) – internal levels must not exceed 30dB $L_{Aeq, 8hr}$;
- L_{AFMax} (Typical) – 10th highest L_{Amax} noise levels must not exceed 45dB L_{AFMax} ;

Table 4
Assessment Criteria: BS 4142:2014+A1:2019

Effect Level	Criteria	Justification
LOAEL	Free-field external noise levels at adjacent sensitive receptor locations within +5 dB of representative daytime background noise level	Noise levels +5 dB above background are considered an indication of where adverse noise impacts may occur in the context of BS 4142. Noise levels below this level are an indication that it is less likely that the specific sound source will have an adverse impact
SOAEL	Free-field external noise levels at adjacent sensitive receptor above +10 dB of representative daytime background noise level	None – Planning guidance requires that impacts must be reduced below the SOAEL through mitigation, with adverse impacts above the LOAEL but below the SOAEL being mitigated as far as is reasonable

4.0 Environmental Noise Survey

Noise measurements were undertaken externally during both the daytime and night-time. The measurements were taken from 19th of August 2025.

Survey Methodology and Locations

The equipment used during this survey is listed below in Table 5 and have been calibrated before and after the measurement duration and no significant drift was found to have occurred (>0.2dB). The noise monitoring equipment has been calibrated to a traceable standard within the 24 months before the survey.

Table 5
Noise Monitoring Equipment

Equipment	Serial Number
Nti XL3 Sound Level Meter	01397
Nti XL3 Sound Level Meter	01405

Two measurement locations have been surveyed in order to establish both the ambient and background noise levels at the site. Location 1was at a height of 1.7m and Location at 1.2m Figure 2 below shows the measurement locations in relation the proposed site.

Figure 2
Noise Monitoring Locations



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Survey Results

All weather showed no precipitation and low wind speeds under 5 m/s.

Table 6 below, shows the results of the survey. Full survey results are available on request.

Table 6
Summary of Measured Noise Levels – dB

Location	Date	Period	Time (h)	L _{Aeq, T}	L _{A90}	L _{AfMax}
1	19/08/2025	Daytime	1030-1230	63.0	54.6	91.2
	19/08/2025	Night-time	2300-0000	57.6	43.7	77.4
2	19/08/2025	Daytime	1030-1315	70.6	58.7	102.3
	19/08/2025	Night-time	2300-0000	66.2	46.4	89.9

Observations on Site

The existing noise environment is dominated by road traffic noise from Whitworth Road.

BS 4142:2014+A1:2019 Background (L_{A90}) Statistical Analysis

In accordance with the methodology detailed in Section 8 of BS 4142:2014+A1:2019, representative background noise levels have been determined through statistical analysis of all 15-minute samples and are expressed as integers (with 0.5 dB being rounded up).

Due to the shorter measurement lengths that were undertaken at the development site due to safety issues the lowest measure background noise level has been selected. The lowest measured daytime background at locations 1 and 2 recorded were 54 dB L_{A90} and 57 dB L_{A90}. The lowest measured night-time background at locations 1 and 2 recorded were 37 dB L_{A90} and 38 dB L_{A90}.

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5.0 Noise Modelling Methodology

Data Sources

A noise model for this assessment has been created using CadnaA modelling suite and the noise model has been based on the spatial settings and data sources identified in the Table below.

Table 7
Noise Model Input Data

Model Parameter	Scenario	Data Source	Assumptions
Site Plans	All	Proposed Plans 01 Drg. No. 00176 (Core Architectural Studio March 2025)	Existing Surrounding Buildings assumed at 8.5m (2 Storey)
Ground Heights	All	Environment Agency Open Data LiDAR Digital Terrain Model (2m Resolution)	None
Ground Absorption	All	N/A	Hard ground conditions on and off site (G=0), roads hard ground conditions (G=0)
Reflections	All	N/A	3 rd order reflections

Source Noise Assumptions

Noise Model Validation

The noise models developed to support this assessment have been validated based on the highest measured daytime ($L_{Aeq,16h}$), and night-time ($L_{Aeq,8h}$, $L_{Af,Max}$) at both locations. This has been completed to allow for an accurate estimation of the noise level impacting upon the facades of the proposed residential development. Table 8-10 below presents a summary of the validation exercise.

Table 8
Daytime Modelled vs. Monitored Results, dB

Monitoring Period	Monitored L_{Aeq} , dB	Modelled L_{Aeq} , dB	Difference
Location 1	63.0	63.0	0.0
Location 2	70.6	70.6	0.0

Table 9
Night-time Modelled vs. Monitored Results, dB

Monitoring Period	Monitored L_{Aeq} , dB	Modelled L_{Aeq} , dB	Difference
Location 1	57.6	57.6	0.0
Location 2	66.2	66.2	0.0

Table 10
Night-time Maximum Modelled vs. Monitored Results, dB

Monitoring Period	Monitored L_{Aeq} , dB	Modelled L_{Aeq} , dB	Difference
Location 1	72.1	70.3	+1.8
Location 2	79.7	79.7	0.0

As can be seen from the tables above the modelled results have been suitably verified being below ± 3 dB of the monitored noise levels.

Fixed Plant

At the current design stage, there is no fixed M&E strategy for the development. However, for the purposes of presenting a robust assessment and to give an indication of the development's potential operational noise output, indicative fixed plant limits have been determined on the basis of the cumulative operation of all development associated fixed plant not exceeding background (L_{A90}). For the purposes of modelling, a point source has been located on the eastern façade of the proposed unit at 3m above ground level. However, there are currently no plans to have external plant.

N.b. In accordance with ISO 9613-1, where spectral content of assessed noise sources is not available, such as indicative fixed plant limits, the attenuation terms for 500Hz are applied to determine noise contributions at adjacent sensitive receptor locations.

Indicative fixed plant limits are presented in Table 11, below:

Table 11
Fixed Plant Noise Limits

Time Period	Operational Noise Output L_{WA} , dB (cumulative)
Daytime	66.9
Night-time	49.9

6.0 Residential Assessment

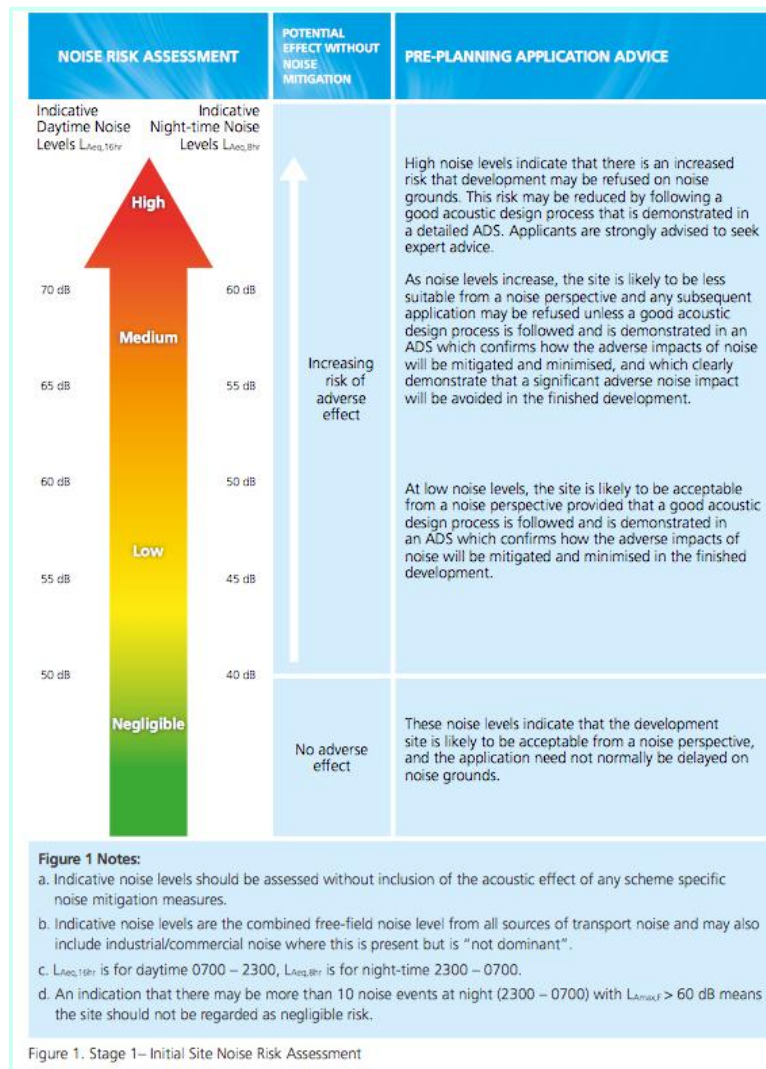
Site Noise Risk Assessment

Following the guidance provided by the ProPG, the site has been through an initial assessment to establish the risk of noise adversely affecting the proposed development on the site. This risk assessment assists in quantifying whether further consideration of noise impact is required. This may lead into mitigation measures required to ensure that the principles of good acoustic design are met.

The noise risk assessment matrix, presented in Figure 3 below, shows that the site is at risk of a low to medium risk of adverse effect based on the measured noise levels across the site.

Figure 3

Stage 1 – Initial Site Noise Risk Assessment



Predicted Internal Noise Levels – Open Windows

Internal ambient noise levels have been assessed in the most exposed habitable rooms on each façade on each floor with windows open.

A nominal correction has been applied to the measured noise levels to account for a partially open window. The results of the assessment are present in Table 12.

Table 12
Assessment of Noise Break-in Levels – Open Windows

Apartment	Room	External Noise Level			Internal Noise Level		
		L _{Aeq} , 16hr	L _{Aeq} , 8hr	L _{Af} Max	L _{Aeq} , 16hr	L _{Aeq} , 8hr	L _{Af} Max
1	Living Room	46.7	--	--	31.7	--	--
	Kitchen	40.9	--	--	25.9	--	--
	Bedroom 1	56.7	52.3	76.2	41.7	37.3	61.2
	Bedroom 2	56.7	52.3	76.3	41.7	37.3	62.3
2	Living Room	44.4	--	--	29.4	--	--
	Kitchen	40.3	--	--	25.3	--	--
	Bedroom 1	55.7	51.3	72.9	40.7	36.3	57.9
	Bedroom 2	55.6	51.2	73.0	40.6	36.3	58.0

As shown in Table 10 above, the attenuation provided by an open window is not sufficient to meet the internal ambient noise level criteria provided in BS 8233:2014 and the maximum level criteria recommended by enevo at all floors on both facades.

In-Façade Mitigation

Based upon the results of the above assessment, an alternative glazing and ventilation strategy will be required to ensure that the internal ambient noise levels fall below the BS 8233:2014 criteria in the proposed dwellings.

Calculations have been undertaken in accordance with the procedure set out in Annex G of BS 8233:2014 to determine suitable solutions for the site.

Site plans and elevations have been provided by Core Architectural Studio.

Table 13 presents a summary of suitable proposed specifications. Please note the list below is not exhaustive and other suitable options that meet the proposed octave band performance requirements can be selected.

Table 13
Example Glazing and Ventilation Strategy

Ref	Building Element	Specification	Minimum Recommended Sound Reduction Performance						R _w + C _{tr}	D _{ne,w}
			125	250	500	1000	2000	4000		
1	Glazing	Pilkington 10mm / (6-16mm) / 4mm	24.0	21.0	32.0	37.0	42.0	48.0	35 (-2; -6)	--

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	Ventilation	Zehnder Greenwood 5000EAW.AC2	39.9	37.9	31.8	46.7	53.3	40.2	--	42
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Please note, consideration for the requirements of Part F of the Building Regulations has been given to support the assessment of acoustic suitability only. Part F compliance should be determined through consultation with a qualified ventilation specialist.

Annex G Calculations aren't limited to the impact of proposed glazing and ventilation. The external wall is also included within the calculations. To account for this the calculation, includes the performance afforded by a typical cavity wall and a typical roof construction for the dwellings on the second floor.

Predicted Internal Noise Levels – Closed Windows

Following the incorporation of the glazing and ventilation specification set out in Table 13, Table 14 presents the results of the assessment for any rooms that exceeded the adopted criteria.

Table 14
Assessment of Noise Break-in Levels – Closed Windows

Apartment	Room	Internal Noise Level		
		L _{Aeq, 16hr}	L _{Aeq, 8hr}	L _{AfMax}
1	Living Room	14.3	--	--
	Kitchen	10.7	--	--
	Bedroom 1	24.2	20.3	43.6
	Bedroom 2	25.4	21.5	44.9
2	Living Room	12.6	--	--
	Kitchen	11.8	--	--
	Bedroom 1	25.1	21.1	42.1
	Bedroom 2	26.5	22.6	43.8

Table 12 above shows that with the inclusion of the proposed glazing and ventilation strategy, the internal noise levels meet the BS 8233 internal ambient criteria and enevo recommended maximum criteria and therefore, is below the LOAEL for this assessment.

Fixed Plant Assessment

The opening hours of the proposed takeaway restaurant will be during daytime hours and the plant will be turned off before 2300. Therefore, the proposed extractor fan has only been assessed against the daytime representative background noise level.

Due to the operational (tonal) characteristics of the fixed plant not being known yet and to account for any adverse acoustic characteristics, a correction of +4 dB has been applied to determine the rating level (L_{A,rTr}) in accordance with BS 4142:2014+A1:2019. The correction is based upon the fixed plant potentially having a clearly perceptible tone at the nearest NSRs which is often attributed to such noise sources.

The results of this assessment are presented in the table, overleaf.

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Table 15

Assessment of Fixed Plant Noise Impact at NSRs, dB

NSR	Façade	Existing Measured Background (L_{A90})		Predicted Noise Rating Level (L_{Ar+Tr})		BS 4142:2014+A1:2019 Difference between Rating Level and Background	
		Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
1	East	57	38	19.7	<5.0	-37.3	-33.0
	West	54	37	54.0	37.0	0.0	0.0

As shown in the table above, providing the cumulative noise output of all external fixed plant is kept within the previously determined limits (presented in Table 11), the operation of the proposed fixed plant scheme will be at most equal to background noise levels during the daytime and night-time reference periods, inclusive of a +4 dB character correction for uncertainty. The predicted plant noise contributions during both the daytime and night-time are below the LOAEL

7.0 Conclusion

Mr Shafqat Siddq appointed enevo to carry out a noise impact assessment for the proposed shop with residential flats above development at Land at 135-137 Whitworth Road, Rochdale.

The noise assessment has been conducted with reference to the National Planning Policy Framework and the appropriate British Standards, recognised guidance & reference documents relevant to this site.

This report describes a noise survey of the site and the subsequent analysis to determine the noise environment of the proposed development. It then compares the results with the adopted criteria and, where applicable, recommendations are made with respect to the design of the development.

Residential Noise Assessment - Internal

This assessment shows that the attenuation afforded by the proposed glazing and ventilation strategy is sufficient to meet BS 8233:2014 internal ambient noise level criteria and enevo recommended criteria for internal maximum levels with the windows closed an alternative source of suitable ventilation provided.

Fixed Plant Assessment

This assessment shows that providing the cumulative noise output of all external fixed plant is kept within the previously determined limits (presented in Table 11), the operation of the proposed fixed plant scheme will be at most equal to background noise levels during the daytime and night-time reference periods, inclusive of a +4 dB character correction for uncertainty. The predicted plant noise contributions during both the daytime and night-time are below the LOAEL

Appendix A

Glossary of Acoustic Terminology

"A" Weighting (dB(A)) – The human ear does not respond uniformly to different frequencies. "A" weighting is commonly used to simulate the frequency response of the ear. It is used in the assessment of the risk of damage to hearing due to noise.

Decibel (dB) – The range of audible sound pressures is approximately 2×10^{-5} Pa to 200 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB. Mathematically: Sound Pressure Level (dB) = $20 \log \{p(t) / P_0\}$ where $P_0 = 2 \times 10^{-5}$ Pa

Frequency (Hz) – The number of cycles per second, for sound this is subjectively perceived as pitch.

$L_{eq}(T)$ – The equivalent continuous sound level. It is that steady sound level which would produce the same energy over a given time period T as a specified time varying sound.

$L_{Amax}(T)$ – The maximum RMS A-weighted sound pressure level occurring within a specified time period.

LAE or SEL – A measure of A-weighted sound energy used to describe noise events such as the passing of a train or aircraft; it is the A-weighted sound pressure level which, if occurring over a period of one second, would contain the same amount of A-weighted sound energy as the event.

$L_{A90,T}$ Background noise level – The A-weighted sound pressure level of the residual noise in decibels exceeded for 90% of a given time interval.

Octave Band – A range of frequencies defined by an upper limit which is twice the lower limit. Octave bands are identified by their centre frequency.

RW (dB) – The weighted sound reduction incorporates a correction for the ear's response and has been derived in accordance with BS 5821:1984.

Specific Noise – The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.

Rating Level – $L_{Ar,T}$ The specific noise level plus any adjustment for the character of the noise.

Ambient Noise – Totally encompassing sound in a given situation at any given time composed of noise from many sources, near and far.

Residual Noise – The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed.