140 CAERLEON ROAD, NEWPORT

NOISE REPORT FOR PLANNING

Acoustics Report A2170 R01a

26th February 2025

Report for:	Kiveo Properties Ltd
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1 Introduction

Ion Acoustics is appointed by Kiveo Properties to advise on environmental noise affecting the proposed conversion of 140 Caerleon Road to residential use. The building was formerly offices, but will be converted and extended to become specialised supported housing consisting of five care units, and one additional unit for overnight accommodation for caregivers.

140 Caerleon Road is on the corner of Caerleon Road and Morden Road in Newport. Caerleon Road is a busy high street that leads directly from Junction 25 of the M4 motorway, to the north of the site. Morden Road, which runs east to west of the property is a residential street.

This report details a noise assessment and describes:

- A baseline noise survey to determine external noise incident on the Caerleon Road and Morden Road elevations;
- Planning guidance and acoustic criteria; and,
- Consideration of noise and overheating
- The noise assessment and specification of the sound insulation required to elements of the building envelope (windows and vents).

2 Scheme Details

Figure 1 shows the location of the development site and nearby roads.

Figure 1: Aerial view of the site © Google Maps.

The building is on the corner of Caerleon Road and Morden Road. Caerleon Road is a busy high street with mixed retail and residential units. Morden Road is a residential street without significant traffic. During the survey it was noted that traffic levels on Caerleon Road were consistently quite high, most likely due to the proximity to the M4 motorway and the route being a link road to the centre of Newport.

2.1 Proposed Scheme

The proposed scheme comprises the conversion of the ground and first floors, with an extension added to the rear of the property. There will be five self-contained flats in total, the proposed site plan is shown in Figure 2.

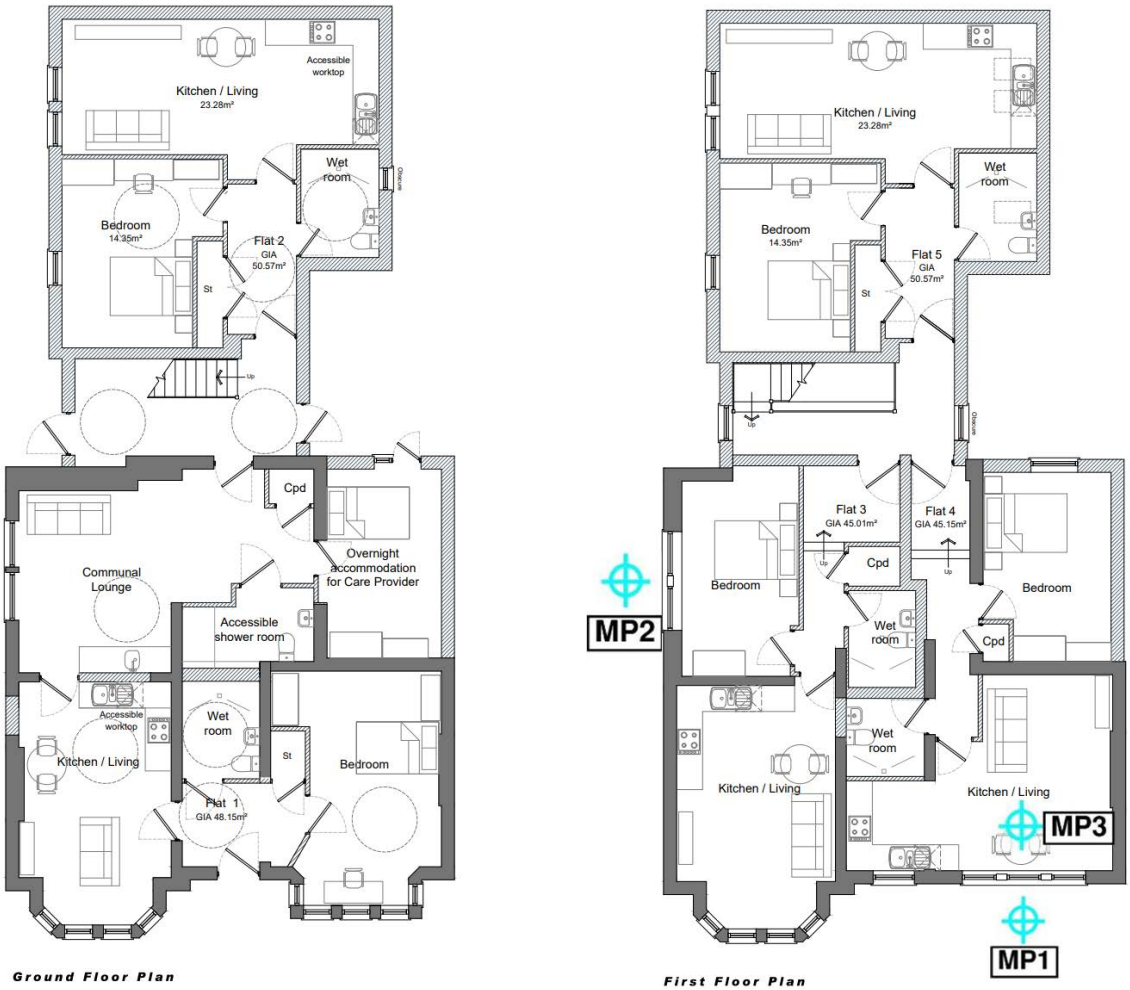


Figure 2: Proposed Site Plan

3 Planning Guidance and British Standards

Welsh Government advice on noise is available in the guidance document Technical Advice Note (TAN) 11 from 1997.

3.1 Technical Advice Note 11: Noise (1997) (TAN 11)

The current planning guidance in respect of planning and noise in Wales is TAN 11. This uses Noise Exposure Categories (NECs) to classify proposed residential developments in to one of four categories. The document is from 1997 but a letter from the Welsh Government was written in 2015 to update the references and reiterate various issues.

In section 10, TAN 11 states:

Local planning authorities should consider whether proposals for new noise-sensitive development would be incompatible with existing activities, taking into account the likely level of noise exposure at the time of the application and any increase that may reasonably be expected in the foreseeable future. Such development should not normally be permitted in areas which are, or are expected to become, subject to unacceptably high levels of noise and should not normally be permitted where high levels of noise will continue throughout the night.

In Annex A it is stated:

A1. When assessing a proposal for residential development near a source of noise, local planning authorities should determine into which of the four noise exposure categories (NECs) (Table 1) the proposed site falls, taking account of both day and night-time noise levels. Local planning authorities should then have regard to the advice in the appropriate NEC.

Therefore, in principle, the site should be assessed using the Noise Exposure Categories and these are defined separately for Road, Rail and Aircraft Noise. The Noise Exposure Categories for road traffic noise are given in Table 1 below.

Table 1: TAN11 Noise Exposure Categories

NEC	Road Traffic Noise	Planning Advice
A	<55 dB L_{Aeq} Daytime <45 dB L_{Aeq} Night-time*	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	55 - 63 dB L_{Aeq} Daytime 45 – 57 dB L_{Aeq} Night-time*	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	63 - 72 dB L_{Aeq} Daytime 57 – 66 dB L_{Aeq} Night-time*	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	> 72 dB L_{Aeq} Daytime > 66 dB L_{Aeq} Night-time*	Planning permission should normally be refused.
Daytime 07-23.00 hours, Night-time is 23.00 to 07.00 hours * For Night-time noise levels (23.00 to 07.00 hours) where individual noise events regularly exceed 82 dB L_{Amax} (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the $L_{Aeq\ 8hr}$ values (except if the $L_{Aeq\ 8hr}$ value already puts the site in NEC D.		

In 2022, the Welsh Government published a draft of a revised TAN 11 for consultation[1]. The consultation ended in January 2023, but at the time of writing a new version has not been published.

3.2 Internal Noise Criteria – BS 8233:2014

TAN 11 does not provide advice on internal noise limits. Advice on those is given in BS 8233: 2014 and in World Health Organisation (WHO) Guidance "Guidelines for Community Noise", 1999.

Noise limits for dwellings are usually set in terms of two noise parameters: the ambient level L_{Aeq} and the maximum level, L_{AFmax}. The L_{AFmax} is the highest noise level in a given period and is determined by individual events such as a vehicle pass-bys. An L_{AFmax} limit is usually only applied at night, when sleep disturbance is most likely to be an issue. The L_{Aeq} is defined as the steady-state noise level which has the same energy as the actual time-varying noise over the same time period. It is effectively the average noise level.

Appropriate internal noise levels are recommended in BS 8233:2014 (shown in Table 2).

Table 2: Indoor Ambient Noise Levels from BS 8233: 2014

Activity	Location	Day (07:00 to 23:00)	Night (23:00 to 07:00)
Resting	Living rooms	35 dB $L_{Aeq,\ 16\ hour}$	
Dining	Dining room/area	40 dB $L_{Aeq,\ 16\ hour}$	
Sleeping - night Resting - day	Bedrooms	35 dB $L_{Aeq,\ 16\ hour}$	30 dB $L_{Aeq,\ 8\ hour}$

WHO Guidelines propose internal limits of L_{Aeq} 35dB for living/dining rooms and L_{Aeq} 30dB / 45 dB L_{AFmax} inside a bedroom at night.

The internal noise criteria in BS 8233:2014 are followed by a number of notes. Those relevant to this scheme are reproduced below:

> *"Note 3: These 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 on 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."*
>
> *"Note 5: If relying on closed windows to meet the guide values, there needs to be appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level."*
>
> *"Note 6: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions achieved."*

1 https://www.gov.wales/revised-planning-guidance-relation-air-quality-noise-and-soundscape

The guidance detailed within the ProPG[2] appends the guidance of BS8233 with the inclusion of the 45dB L_{AFmax} criterion and states *'For a reasonable standard in noise-sensitive rooms at night (e.g. bedrooms) individual noise events should not normally exceed 45dB L_{AFmax} more than 10 times a night'.* ProPG was prepared to provide guidance in England, but can be used in Wales as non-mandatory guidance.

The noise limits proposed for this assessment are stated below for bedrooms and living rooms. It is noted that BS 8233 differentiates between living rooms and dining rooms, and living rooms have a more onerous internal noise limit than dining rooms. In most cases, living rooms are also dining rooms and therefore the more onerous limit is adopted.

The noise limits proposed for this study are therefore as stated below.

- All Rooms Daytime: L_{Aeq} 35 dB (07.00 to 23.00 hours)
- Bedrooms at Night: L_{Aeq} 30 dB (23.00 to 07.00 hours), and events not normally exceeding L_{AFmax} 45dB.

3.3 Ventilation and Overheating: AVOG

The Acoustics, Ventilation, and Overheating Guidance (AVOG) was published by the Association of Noise Consultants (ANC) in January 2020[3]. AVOG is guidance for acoustic practitioners and others involved in planning, developing, designing, and commissioning new dwellings to achieve an appropriate balance of internal noise levels, ventilation, and overheating control regarding external transportation noise. It seeks to encourage an assessment of these issues at the planning stage. It is not mandatory guidance, but represents current best practices for assessing the issue. In particular, AVOG advises considering when noise levels are such that it is reasonable to control overheating with openable windows and when it may be too noisy. The new Part O Building Regulations refer to internal noise levels in bedrooms under conditions controlling overheating (e.g. open windows) but that only applies to new buildings and is not relevant to this development.

It is generally accepted that some degree of elevated noise is accepted when residents choose to open windows, especially for overheating control. The ANC AVOG suggests internal ambient noise levels of L_{Aeq} 50dB during the day and L_{Aeq} 42dB during the night are acceptable limits with the windows open to control overheating; however, it acknowledges that there is a greater risk of disturbance in proximity to these thresholds. A guidance value in AVOG was also given for individual maxima of events of L_{AFmax} 65 dB.

4 Noise Survey

A noise survey was carried out from Thursday 11th to Friday 12th July 2024. The noise survey was carried out by using logging sound level meters to determine external noise levels incident on the Caerleon Street and Morden Road elevations. The meters were unattended except for set up and collection. Photos of the noise monitoring locations are provided in Appendix A.

Two Rion NL52 sound level meters with Type WS15 windshields were used and calibrated with a Brüel & Kjær Type 4231 calibrator at the start and end of the survey. No significant drift in calibration was noted on collection. The meters were set up to log various noise indices (L_{Aeq},

2 ProPG: Planning & Noise – New Residential Development: Main Guidance https://www.ioa.org.uk/publications/propg
3 https://www.association-of-noise-consultants.co.uk/acoustics-ventilation-and-overheating-guidance-released/

$L_{Amax,F}$, L_{A90}, L_{A01}, L_{A10}) in consecutive 10-minute periods. The meters were set up to record loud events and to record a minute of audio in every 10-minute sample. The recordings have been used to determine the source of the noise. Noises heard set up and collection heard were people talking on the street and traffic noise largely from Caerleon Road.

In addition, to the logging measurements, a single 10-minute sample of noise levels inside the 1st floor room with windows shut was taken on Friday 12th July. This was done to assess the effectiveness of the existing windows.

5 Noise Survey Results

The noise monitoring data has been plotted as time history charts showing the variation in noise levels. These are shown in Figures 3 and 4 for the two elevations. Tabulated Data is provided in Appendix B. The time history charts and the tabulated data represent the measured values, that is, they include the reflecting effect of the façade which is expected to increase noise levels by 3dB compared to the "free-field" values (in the absence of the façade reflection).

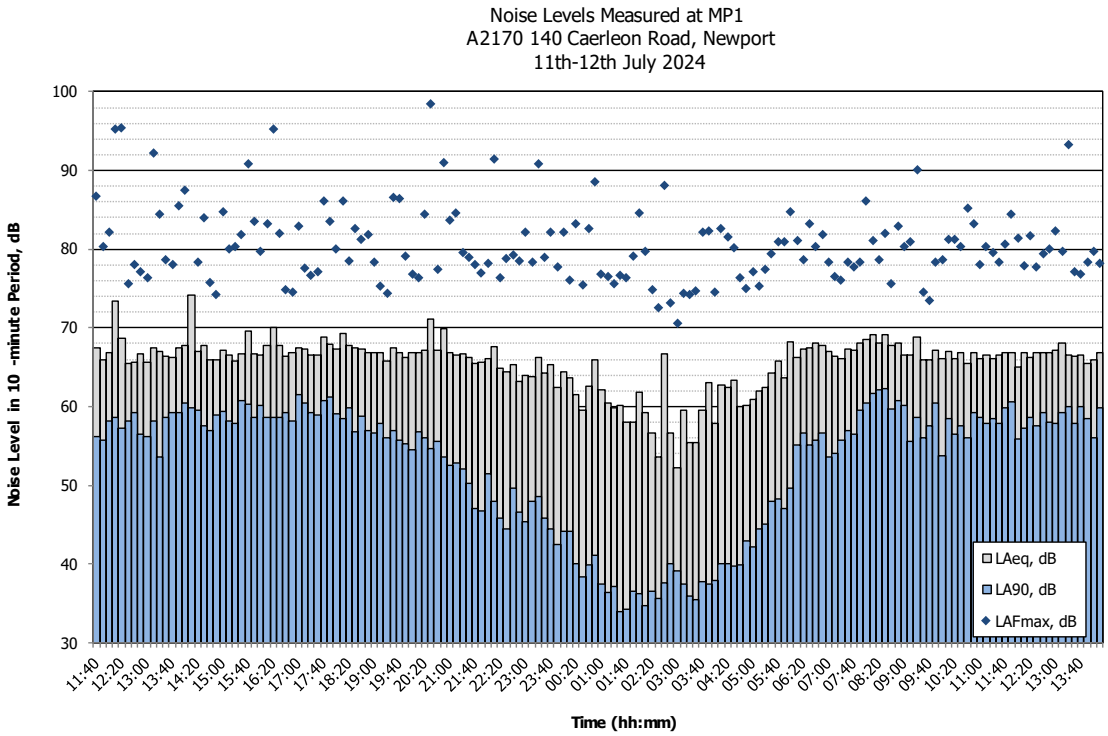


Figure 3 – Time History Plot Caerleon Road (Façade Levels)

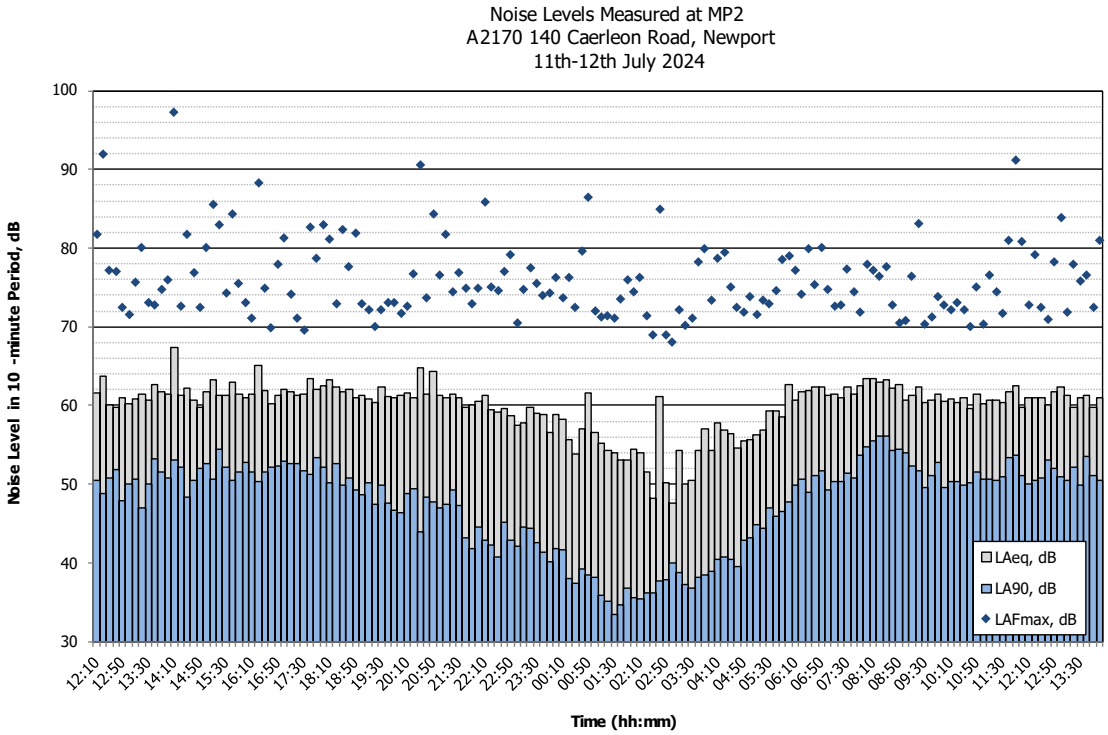


Figure 4 – Time History Plot Morden Road (Façade Levels)

As is to be expected there is the normal diurnal pattern of traffic noise with a rush-hour peak at around 08.30. Both monitors show similar patterns, with Morden Road having lower levels as it is less exposed to Caerleon Road. There are a few periods of increased noise levels throughout the night. Audio files have been played back to identify the sources of noise and during these periods, these louder periods can be attributed to vehicles with loud exhausts passing the site.

Noise levels have been averaged over the daytime (07.00 – 23.00) and night-time periods (23.00 – 07.00) for comparison with the TAN 11 noise exposure categories; these are summarised in Table 3. The measurements included the reflecting effect of the façade, so for the tabulated values, 3 dB has been subtracted so that the data represents the free-field or incident levels which can be used in the façade calculations and compared with the Tan 11 noise exposure categories.

Table 3: External (Free-field) Noise Levels Caerleon Road Elevation

Day	Period	Duration	L_{Aeq}, dB	L_{AFmax}, dB*
Thursday 11th July	Day (11:40 to 23:00)	11.6 hrs	64.5	-
	Night (23:00 to 07:00)	8 hrs	60.4	83.5
Friday 12th July	Day (07:00 to 14.10)	8.15	64.0	
* L_{Amax} + 1 Standard Deviation.				

Table 4: External (Free-field) Noise Morden Road Elevation

Day	Period	Duration	L_{Aeq}, dB	L_{AFmax}, dB*
Thursday 11th July	Day (12:10 to 23:00)	10.75 hrs	61.7	-
	Night (23:00 to 07:00)	8 hrs	57.8	78.8
Friday 12th July	Day (07:00 to 14.00)	8 hrs	61.4	
*L_{Amax} + 1 Standard Deviation.				

The noise climate is predominately dominated with traffic noise for both measurement positions. Noise levels on the Morden Road elevation are approximately 3dB lower which indicates that most of the noise incident on this elevation is from Caerleon Road and traffic on Morden Road makes only a minor contribution.

Noise levels on both Caerleon and Morden are in Noise Exposure Category B during the day and NEC C at night.

5.1 Design Noise Levels

The values in Tables 3 and 4 are summarised below in Table 5, with averaged daytime L_{Aeq} values from Thursday and Friday.

Table 5: Design Noise Levels (free field)

Location	Period	L_{Aeq}, dB	L_{AFmax}, dB*
Caerleon Road	Day (07:00 to 23:00)	64.5	-
	Night (23:00 to 07:00)	60.4	83.5
Morden Road	Day (07:00 to 14.10)	61.6	-
	Night (23:00 to 07:00)	57.8	78.8
*L_{Amax} + 1 Standard Deviation.			

5.2 Internal Measurements

The results of the 10-minute internal measurement is given below and compared with the 10-external measurement taken immediately before.

Table 6: External (free-field) and Internal noise level comparison

Measurement	Time	Noise Level
Caerleon Road External (free field) dB $L_{Aeq,\ 10\ minutes}$	14:10 – 14:20	63.9 dB L_{Aeq}
Internal dB L_{Aeq}	14:31 – 14:41	34.2 dB L_{Aeq}
Difference		29.7 dB L_{Aeq}

It can be seen that the existing double-glazed windows already provide good sound insulation.

6 Sound Insulation Scheme: External Building Envelope

6.1 Sound Insulation Methodology

Sound insulation calculations for the residential rooms have then been prepared in accordance with BS EN 12354-3 to determine the sound insulation required to control internal noise levels to meet the noise limits discussed earlier in the report. To design the building envelope sound insulation, spectral values are required. The measurements were made in octave frequency bands to determine these.

6.2 Existing glazing

It was noted that the property already has double glazed uPVC windows installed on the first floor. It is possible to calculate the expected 16-hour and 8-hour internal noise levels by subtracting the measured insulation from the external levels. The calculation is set out below.

Table 7 Derivation of Internal Noise Levels

	Noise Levels L_{eq} in Octave Frequency Bands							dB L_{Aeq}
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Daytime External Level (Façade) dB L_{Aeq}	71.5	64.1	66	62.6	64.2	58.6	54.7	67.4
Night-time External Level (Façade) dB L_{Aeq}	63.9	57.4	60.3	58.4	60.8	54.2	49	63.3
Measured Sound Insulation D, dB	33.2	28.6	27.6	32	37.2	31.2	30.4	--
Daytime Internal Level dB $L_{Aeq, 16h}$	38.3	35.5	38.4	30.6	27	27.4	24.3	35.0
Night Internal Level dB $L_{Aeq, 8h}$	30.7	28.8	32.7	26.4	23.6	23	18.6	30.3

It can be seen that already with windows closed noise levels can meet the proposed noise targets. Therefore, we suggested the existing windows are retained. The ground floor is currently boarded up but similar double glazed windows would be suitable.

6.3 New Glazing

The new extension will have new windows on Morden Road. Noise levels are quieter on this elevation and the extension is also further back from the noise monitoring position. Therefore, standard thermal double glazing will be suitable for the new elevation, e.g.: 4/16/4 mm double glazing.

6.4 Background ventilation

It was noted during the survey that the existing spaces do not have trickle vents. Normally background ventilation, usually using trickle vents, would be required to comply with Part F of the Building Regulations. An alternative would be to use a MVHR system (mechanical ventilation with heat recovery).

For the rooms with existing windows, it is assumed that new in-wall trickle vents can be provided. As the internal are already just on the limit, noise levels transmitted via the trickle vents would need to be approximately 10dB below the appropriate limit so that there is no significant increase in noise. In order to meet this requirement without compromising internal noise levels it is recommended that in-wall trickle vents rated at $D_{ne,w}$ 43dB, such as the Titon / Ryton AAC125HP are used on the front elevation (assuming one vent is provided per room). On the side elevation to Morden Road the requirement could be reduced by 3dB, that is $D_{ne,w}$ 40 dB again assuming

one vent per room. On the new extension it is possible that window head trickle vents could be provided. These should have the same specification (40 dB $D_{n,ew}$) assuing one vent per room.

If more than one vent is required per room the acoustic requirement for the trickle vent would need to be increase by 10log(N) where N is the number of vents required. For example, for two vents per room the vent requirement needs to increase by 3dB.

6.5 Overheating Control

With windows open for overheating control (assuming 13dB attenuation as set out in AVOG. The results with windows open are compared with the AVOG limits in Tables 7 and 8 for Caerleon Road and Morden Road respectively.

Table 8: Noise levels with open window attenuation Caerleon Road

Measurement Period	External Noise Level (Free field)	Internal level with window open (13dB Attenuation)	AVOG Limit
Daytime (16hr)	64.5 dB L_{Aeq}	51.3 dB L_{Aeq}	50dB
Night-time (8hr)	60.4 dB L_{Aeq}	47.4 dB L_{Aeq}	42dB
Night-time (8hr)	83.5 dB L_{AMax}	70.5 dB L_{AMax}	65dB

Table 9: Noise levels with open window attenuation Morden Road

Measurement Period	External Noise Level (Free field)	Internal level with window open (13dB Attenuation)	AVOG Limit
Daytime (16hr)	61.6 dB L_{Aeq}	48.6 dB L_{Aeq}	50dB
Night-time (8hr)	57.8 dB L_{Aeq}	44.8 dB L_{AMax}	42dB
Night-time (8hr)	78.8 dB L_{AMax}	65.8 dB L_{AMax}	65dB

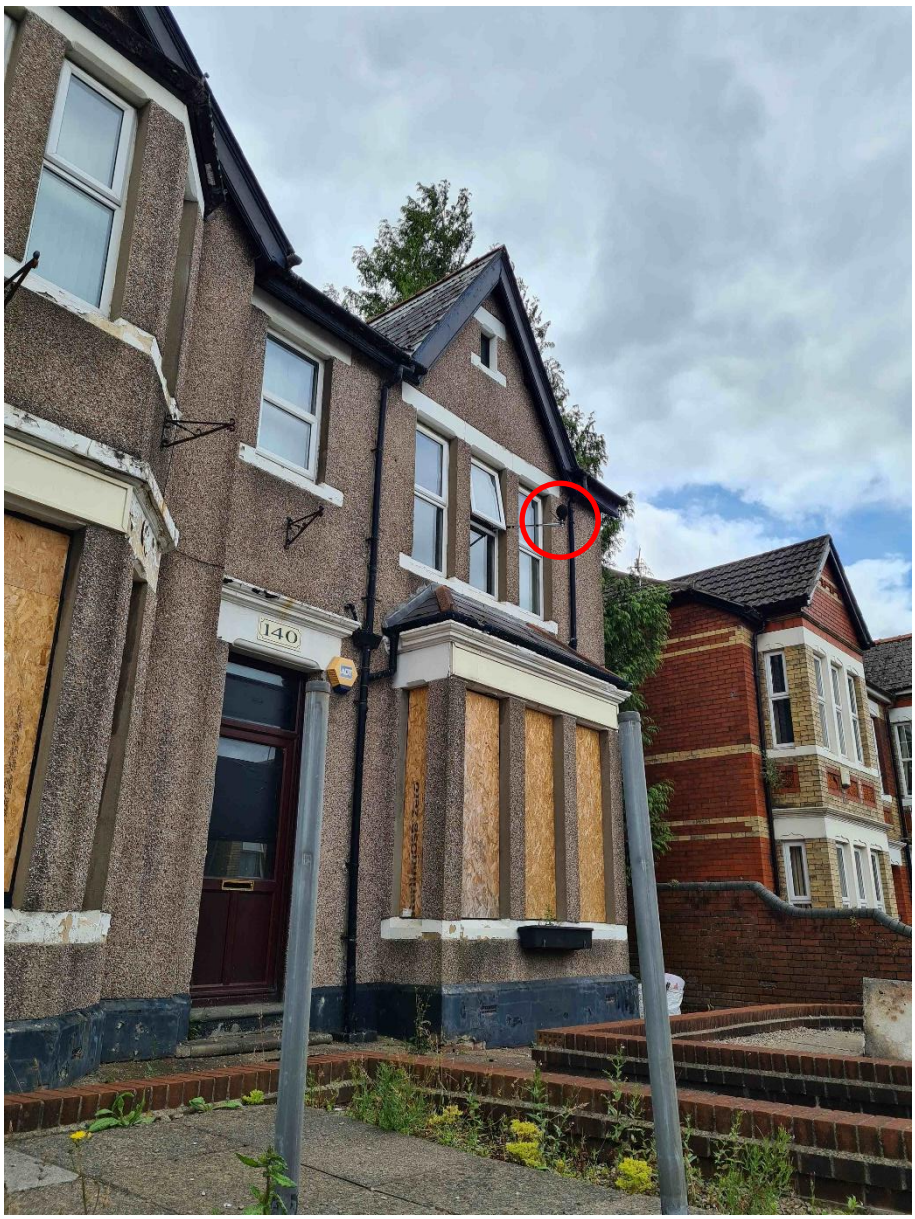
These levels are above the limits from AVOG for the night-time period in respect of both elevations and in respect of the daytime elevation for Caerleon Road. Therefore, the ventilation and overheating strategy would need to ensure that openable windows are not relied on to control overheating. Overheating is potentially less of an issue during the night, but in any case, alternative means of ventilation will need to be provided. It is noted that the windows do not need to be fixed closed. The Morden Road elevation faces north and therefore it is assumed that overheating is less of an issue.

We note that as this is a change of use, the requirements of Building Regulation Part O in respect of overheating noise do not apply.

7 Summary

This report provides a noise assessment for the proposed change of use for 140 Caerleon Road. The external noise levels on the Caerleon Road and Morden Road elevations have been measured and the findings used to determine the building envelope sound insulation requirements and implications on ventilation. The existing glazing provides adequate sound insulation; however, it is recommended that trickle ventilation rated at $D_{n,e,w}$ 43dB is provided. Openable windows cannot be relied upon for overheating control on the Caerleon Road elevation and therefore some alternative means of ventilation and overheating control will be required.

Caerleon Road



Morden Road

Caerleon Road Data

Time	L_{Aeq} dB	$L_{Amax,F}$ dB	L_{AF90} dB	Time	L_{Aeq} dB	$L_{Amax,F}$ dB	L_{AF90} dB
11/07/2024 11:40	67.5	86.8	56.2	11/07/2024 19:40	66.9	86.4	55.7
11/07/2024 11:50	66.0	80.3	55.7	11/07/2024 19:50	66.2	79.1	55.3
11/07/2024 12:00	66.8	82.2	58.2	11/07/2024 20:00	66.9	76.9	54.5
11/07/2024 12:10	73.4	95.3	58.6	11/07/2024 20:10	66.8	76.4	56.8
11/07/2024 12:20	68.7	95.4	57.3	11/07/2024 20:20	67.1	84.5	56.0
11/07/2024 12:30	65.5	75.6	58.1	11/07/2024 20:30	71.1	98.5	54.6
11/07/2024 12:40	65.7	78.1	59.2	11/07/2024 20:40	67.2	77.5	55.6
11/07/2024 12:50	66.7	77.1	56.5	11/07/2024 20:50	69.9	91.0	53.6
11/07/2024 13:00	65.6	76.4	56.2	11/07/2024 21:00	66.9	83.7	52.6
11/07/2024 13:10	67.4	92.2	58.2	11/07/2024 21:10	66.5	84.6	52.9
11/07/2024 13:20	67.0	84.5	53.6	11/07/2024 21:20	66.7	79.5	52.1
11/07/2024 13:30	66.4	78.6	58.6	11/07/2024 21:30	66.3	79.0	50.2
11/07/2024 13:40	66.2	78.1	59.3	11/07/2024 21:40	65.5	78.1	47.1
11/07/2024 13:50	67.5	85.5	59.2	11/07/2024 21:50	65.7	77.0	46.8
11/07/2024 14:00	67.8	87.5	60.4	11/07/2024 22:00	66.1	78.2	51.5
11/07/2024 14:10	74.1	102.7	59.8	11/07/2024 22:10	67.6	91.4	48.0
11/07/2024 14:20	67.0	78.3	59.6	11/07/2024 22:20	64.8	76.3	45.9
11/07/2024 14:30	67.8	84.0	57.6	11/07/2024 22:30	64.4	78.8	44.5
11/07/2024 14:40	66.0	75.7	56.9	11/07/2024 22:40	65.4	79.2	49.6
11/07/2024 14:50	65.9	74.3	58.9	11/07/2024 22:50	63.2	78.5	46.6
11/07/2024 15:00	67.1	84.8	59.4	11/07/2024 23:00	63.9	82.1	45.3
11/07/2024 15:10	66.6	80.0	58.2	11/07/2024 23:10	63.8	78.3	47.9
11/07/2024 15:20	65.8	80.3	57.9	11/07/2024 23:20	66.3	90.8	48.5
11/07/2024 15:30	66.7	81.8	60.8	11/07/2024 23:30	64.3	78.9	45.8
11/07/2024 15:40	69.6	90.8	60.3	11/07/2024 23:40	65.3	82.1	44.4
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11/07/2024 16:30	67.8	82.0	58.6	12/07/2024 00:30	59.5	75.4	38.3
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11/07/2024 18:50	66.9	81.8	57.0	12/07/2024 02:50	56.6	73.1	40.1
11/07/2024 19:00	66.9	78.4	56.6	12/07/2024 03:00	52.2	70.6	39.1
11/07/2024 19:10	66.8	75.3	57.9	12/07/2024 03:10	59.5	74.4	37.4
11/07/2024 19:20	65.8	74.4	56.1	12/07/2024 03:20	55.5	74.3	35.9
11/07/2024 19:30	67.5	86.6	56.9	12/07/2024 03:30	55.5	74.7	35.5

Time	L_{Aeq} dB	$L_{Amax,F}$ dB	L_{AF90} dB	Time	L_{Aeq} dB	$L_{Amax,F}$ dB	L_{AF90} dB
12/07/2024 03:40	59.6	82.1	37.7	12/07/2024 11:40	66.8	80.6	59.9
12/07/2024 03:50	63.0	82.3	37.5	12/07/2024 11:50	66.8	84.4	60.6
12/07/2024 04:00	57.9	74.5	37.9	12/07/2024 12:00	65.1	81.4	55.9
12/07/2024 04:10	62.8	82.6	40.1	12/07/2024 12:10	66.8	77.9	57.3
12/07/2024 04:20	62.4	81.5	40.0	12/07/2024 12:20	66.2	81.7	58.6
12/07/2024 04:30	63.4	80.2	39.8	12/07/2024 12:30	66.8	77.8	57.5
12/07/2024 04:40	60.0	76.3	39.9	12/07/2024 12:40	66.9	79.4	59.2
12/07/2024 04:50	60.2	75.0	42.9	12/07/2024 12:50	66.8	80.1	58.0
12/07/2024 05:00	60.9	77.2	42.2	12/07/2024 13:00	67.1	82.3	57.9
12/07/2024 05:10	62.0	75.3	44.5	12/07/2024 13:10	68.0	79.8	59.2
12/07/2024 05:20	62.5	77.4	45.0	12/07/2024 13:20	66.6	93.3	60.0
12/07/2024 05:30	64.3	79.4	47.9	12/07/2024 13:30	66.4	77.2	57.9
12/07/2024 05:40	65.8	80.9	48.3	12/07/2024 13:40	66.6	76.9	60.0
12/07/2024 05:50	63.6	80.9	47.0	12/07/2024 13:50	65.5	78.3	58.5
12/07/2024 06:00	68.2	84.7	49.6	12/07/2024 14:00	66.0	79.7	56.0
12/07/2024 06:10	66.2	81.1	55.2	12/07/2024 14:10	66.9	78.2	59.8
12/07/2024 06:20	67.3	78.6	56.7	12/07/2024 14:20	0.0	0.0	0.0
12/07/2024 06:30	67.5	83.2	55.1				
12/07/2024 06:40	68.1	80.3	55.8				
12/07/2024 06:50	67.7	81.9	56.6				
12/07/2024 07:00	67.0	78.3	53.6				
12/07/2024 07:10	66.4	76.6	54.0				
12/07/2024 07:20	66.1	76.1	55.8				
12/07/2024 07:30	67.3	78.3	56.9				
12/07/2024 07:40	67.1	77.7	56.5				
12/07/2024 07:50	68.0	78.4	59.6				
12/07/2024 08:00	68.6	86.1	60.5				
12/07/2024 08:10	69.2	81.1	61.6				
12/07/2024 08:20	68.0	78.7	62.1				
12/07/2024 08:30	69.1	82.0	62.3				
12/07/2024 08:40	67.7	75.6	59.7				
12/07/2024 08:50	68.1	82.9	60.7				
12/07/2024 09:00	66.6	80.4	60.1				
12/07/2024 09:10	66.5	81.0	55.6				
12/07/2024 09:20	68.9	90.1	58.7				
12/07/2024 09:30	65.9	74.5	56.0				
12/07/2024 09:40	66.0	73.5	57.6				
12/07/2024 09:50	67.2	78.3	60.5				
12/07/2024 10:00	66.1	78.7	53.8				
12/07/2024 10:10	67.0	81.2	58.4				
12/07/2024 10:20	66.1	81.2	56.5				
12/07/2024 10:30	66.8	80.3	57.5				
12/07/2024 10:40	65.5	85.2	56.0				
12/07/2024 10:50	66.9	83.2	59.3				
12/07/2024 11:00	66.1	78.1	58.6				
12/07/2024 11:10	66.5	80.3	57.8				
12/07/2024 11:20	66.1	79.5	58.5				
12/07/2024 11:30	66.5	78.4	57.9				

Morden Road

Time	L_{Aeq} dB	$L_{Amax,F}$ dB	L_{AF90} dB	Time	L_{Aeq} dB	$L_{Amax,F}$ dB	L_{AF90} dB
11/07/2024 12:10	61.6	81.7	50.4	11/07/2024 20:10	61.6	72.6	48.8
11/07/2024 12:20	63.7	92.0	48.8	11/07/2024 20:20	60.9	76.7	49.4
11/07/2024 12:30	60.1	77.2	50.7	11/07/2024 20:30	64.7	90.6	44.0
11/07/2024 12:40	59.7	77.0	51.9	11/07/2024 20:40	61.4	73.6	48.4
11/07/2024 12:50	60.9	72.4	47.9	11/07/2024 20:50	64.3	84.3	47.8
11/07/2024 13:00	60.2	71.5	50.0	11/07/2024 21:00	61.2	76.5	46.9
11/07/2024 13:10	60.8	75.6	50.6	11/07/2024 21:10	60.9	81.8	47.4
11/07/2024 13:20	61.5	80.1	47.0	11/07/2024 21:20	61.5	74.4	49.2
11/07/2024 13:30	60.7	73.1	50.0	11/07/2024 21:30	61.0	76.8	47.2
11/07/2024 13:40	62.6	72.7	53.2	11/07/2024 21:40	59.7	74.9	43.1
11/07/2024 13:50	61.7	74.7	51.6	11/07/2024 21:50	60.0	72.9	41.8
11/07/2024 14:00	61.4	76.0	50.8	11/07/2024 22:00	60.5	74.9	44.6
11/07/2024 14:10	67.3	97.3	53.0	11/07/2024 22:10	61.3	85.8	42.8
11/07/2024 14:20	61.2	72.6	52.1	11/07/2024 22:20	59.4	75.0	42.3
11/07/2024 14:30	62.2	81.7	48.4	11/07/2024 22:30	59.1	74.6	40.8
11/07/2024 14:40	60.6	76.8	50.4	11/07/2024 22:40	59.6	77.0	45.2
11/07/2024 14:50	59.8	72.4	52.0	11/07/2024 22:50	58.7	79.2	42.9
11/07/2024 15:00	61.8	80.0	52.6	11/07/2024 23:00	57.4	70.5	42.1
11/07/2024 15:10	63.2	85.6	50.6	11/07/2024 23:10	57.8	74.8	44.6
11/07/2024 15:20	61.3	83.0	54.4	11/07/2024 23:20	59.8	77.5	44.4
11/07/2024 15:30	61.3	74.3	52.2	11/07/2024 23:30	59.0	75.5	42.6
11/07/2024 15:40	62.9	84.3	50.4	11/07/2024 23:40	58.9	74.0	41.4
11/07/2024 15:50	61.4	75.5	51.5	11/07/2024 23:50	56.6	74.3	40.1
11/07/2024 16:00	61.0	73.0	52.8	12/07/2024 00:00	58.9	76.2	41.8
11/07/2024 16:10	61.4	71.1	51.6	12/07/2024 00:10	58.3	73.6	41.7
11/07/2024 16:20	65.1	88.3	50.3	12/07/2024 00:20	55.7	76.3	38.0
11/07/2024 16:30	61.9	74.9	51.5	12/07/2024 00:30	53.8	72.4	37.4
11/07/2024 16:40	60.2	69.9	52.1	12/07/2024 00:40	57.0	79.6	39.2
11/07/2024 16:50	61.3	78.0	52.3	12/07/2024 00:50	61.6	86.5	38.5
11/07/2024 17:00	62.1	81.3	52.9	12/07/2024 01:00	56.6	72.0	38.1
11/07/2024 17:10	61.8	74.1	52.6	12/07/2024 01:10	55.2	71.3	35.9
11/07/2024 17:20	61.2	71.1	52.6	12/07/2024 01:20	54.2	71.4	35.1
11/07/2024 17:30	61.5	69.6	51.7	12/07/2024 01:30	54.0	71.1	33.4
11/07/2024 17:40	63.4	82.7	51.2	12/07/2024 01:40	53.1	73.5	34.7
11/07/2024 17:50	62.1	78.7	53.3	12/07/2024 01:50	53.0	76.0	36.7
11/07/2024 18:00	62.5	82.9	52.1	12/07/2024 02:00	54.5	74.4	35.5
11/07/2024 18:10	63.2	81.1	50.1	12/07/2024 02:10	54.0	76.3	35.4
11/07/2024 18:20	62.3	72.9	52.6	12/07/2024 02:20	51.6	71.4	36.2
11/07/2024 18:30	61.7	82.3	49.9	12/07/2024 02:30	48.2	68.9	36.2
11/07/2024 18:40	62.0	77.6	50.8	12/07/2024 02:40	61.1	85.0	37.7
11/07/2024 18:50	60.9	81.9	49.3	12/07/2024 02:50	50.2	69.0	37.9
11/07/2024 19:00	61.3	72.9	48.6	12/07/2024 03:00	47.6	68.1	40.0
11/07/2024 19:10	60.8	72.2	50.2	12/07/2024 03:10	54.2	72.1	38.7
11/07/2024 19:20	60.3	70.0	47.5	12/07/2024 03:20	50.0	70.2	37.3
11/07/2024 19:30	62.3	72.1	49.9	12/07/2024 03:30	50.5	71.1	36.8
11/07/2024 19:40	61.1	73.0	47.6	12/07/2024 03:40	54.2	78.2	38.1
11/07/2024 19:50	61.0	73.1	46.6	12/07/2024 03:50	57.0	79.9	38.5
11/07/2024 20:00	61.3	71.7	46.4	12/07/2024 04:00	54.2	73.4	38.9