

Phoenix Ironworks

Condition 20(a) - Noise Impact
Assessment
Eric Wright Construction

Job No: 1044457
Doc ref: 220010-CDL-XX-XX-T-Z-0045251
Revision: ~~P02~~P03
Revision date: ~~23-January-2026~~26 March 2026

Project title	Phoenix Ironworks	Job number
Report title	Condition 20(a) - Noise Impact Assessment	1044457
Classification	Client Confidential	

Document revision history

Revision ref	Issue date	Purpose of issue / description of revision
P01	14 November 2025	First Issue
P02	23 January 2026	Minor text amendments to executive summary
P03	26 March 2026	Revised following comments received from Manchester City Council

Document validation (latest issue)

	26/03/2026
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Signed by: m.pimlott

Signed by: m.pimlott

Signed by: r.turner

Executive summary

A Noise Impact Assessment has been undertaken by Cundall to demonstrate compliance with the design stage requirements of Planning Condition 20(a) attached to the Development. This condition requires the preparation of an acoustically insulating scheme to ensure that residential accommodation is adequately protected against noise from the local traffic network, with due consideration also given to the interdependency of overheating and acoustics.

An additional noise survey was undertaken by Cundall to inform this assessment; however, the measurements obtained were lower than expected due to longstanding nearby road closures that have reduced local traffic noise levels. To ensure a robust and reasonable worst-case assessment, previous long-term (i.e., including rush-hour) survey data collected by Sandy Brown in support of the original application has therefore been adopted as the basis for analysis.

A scheme of sound insulation performance requirements has been developed for the external façade to achieve the internal ambient noise level targets set out in BS 8233:2014 and the Manchester City Council Noise Policy Guidance. These requirements are expected to be met in all habitable rooms when windows are closed.

With regard to Approved Document O (ADO), the overheating assessment has demonstrated that windows can remain closed for the majority of bedrooms at night-time; consequently, the internal noise limits are not applicable in these cases. For remaining bedrooms which are exposed to lower night-time external noise levels of below 50 dB LAeq,T, a partially open window is predicted to result in internal ambient noise levels that comply with the ADO open window LAeq,T and LAFmax criteria.

In relation to the Acoustic Ventilation and Overheating (AVO) guidance, a Level 2 AVO assessment has been completed. Since the submission of the original Sandy Brown Noise Impact Assessment in support of the planning application, the current design has been enhanced to incorporate Mechanical Ventilation with Heat Recovery (MVHR) with a boost mode, and additional purge fans where required. With these additional mitigation measures in place, the overheating analysis demonstrates a significant reduction in both the duration and frequency of overheating events requiring open-window cooling, and therefore a notable improvement in internal noise conditions.

Although the AVO guidance does not define a quantitative noise level threshold, in Cundall's professional judgement, the expected daytime noise impact within habitable rooms is below the Significant Observed Adverse Effect Level (SOAEL) in all instances.

In accordance with Condition 20(b) requirements, it is confirmed that future validation testing will be undertaken as part of the pre-completion testing schedule to verify compliance with the specified in-situ noise criteria.

Condition 20(a) evidence

With respect the of Condition 20(a) requirements (reproduced below in *blue italics*), the following bullet points identify the relevant acoustic evidence presented within this Noise Impact Assessment:

“20) Notwithstanding the Acoustic Report by Sandy Brown stamped as received by the City Council, as Local Planning Authority, on the 13 June 2023, prior to the first occupation of the development a scheme for acoustically insulating the proposed residential accommodation against noise from the local traffic network shall be submitted for approval in writing by the City Council, as Local Planning Authority. The approved noise insulation scheme shall be completed before the first occupation of the development.”

- Details of the noise insulation scheme to be adopted for the scheme are provided in **Section 4.2** and **Section 0**. These identify:
 - A requirement for enhanced MVHR to be provided for ventilation purposes and to reduce duration of overheating condition;
 - Minimum sound insulation performance requirements for external glazing; and
 - Acceptable build-up proposals for external walls.

“The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account.

Any resultant changes to building fabric need to be in accordance with the overheating criteria set out in the Acoustic Report by Sandy Brown stamped as received by the City Council, as Local Planning Authority, on the 13 June 2023”

- An assessment considered the interdependence between internal acoustics and overheating is provided in **Section 4.4**. This identifies:
 - Compliance with Approved Document O noise limit requirements (**Section 4.4.1**) ; and
 - AVO Assessment summary demonstrating effects considered the ‘SOAEL’ will be avoided (**Section 4.4.3**).

“Noise survey data must include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary.”

- Noise survey data is provided in **Section 3.2.3**. This data includes
 - Morning rush hour period
 - Evening rush-hour period
 - Full night-time duration

“The following noise criteria will be required to be achieved:

Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB L Amax,F by more than 15 times)

Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

Gardens and terraces (daytime) 55 dB LAeq”

- Minimum sound insulation requirements for external glazing are presented in **Table 4-1Table 41**. These have considered the above internal ambient noise level criteria.

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1.0

Introduction

1.0 Introduction

Cundall has been commissioned by Eric Wright Construction to prepare a Noise Impact Assessment with a view to demonstrating compliance with design stage requirements of Condition 20(a)¹ attached to the approved decision notice for the proposed residential-led mixed-use Phoenix Ironworks development at Jersey Street, Manchester (hereafter referred to as 'the Development').

1.1 Application site and surroundings

The development is to deliver 256 residential units (use Class C3) with ground floor commercial space (Use Class E), within a building of varied height ranging from 5 storeys to 10 storeys, and cycle and disabled car parking provision. The site is bounded by Naval Street to the north, Poland Street to the east, Jersey Street to the south and Radium Street to the west. The Site is surrounded by a mix of industrial and residential uses.

The adjacent land uses surrounding the site include:

- 1. 41 Bengal Street residential buildings to the west
- 2. New Little Mill, Sawmill Court and NQ4 residential buildings to the south-west
- 3. Flint Glass residential south of the office building
- 4. Beehive Mill and 4 Naval Street office spaces to the west
- 5. 23 Radium Street commercial unit to the west adjacent to the site
- 6. 97 Jersey Street commercial unit to the south-west corner of the site
- 7. Flint Glass Works office space to the south
- 8. George Leigh Street commercial units
- 9. City Court trading estate to the north-east – proposed as a future residential site.
- 10. Eliza Yard and Jersey Wharf future residential buildings to the east

Figure 1-1 identifies the red line boundary (red), existing residential developments (green), proposed residential developments (blue) and light commercial/industrial units (orange).

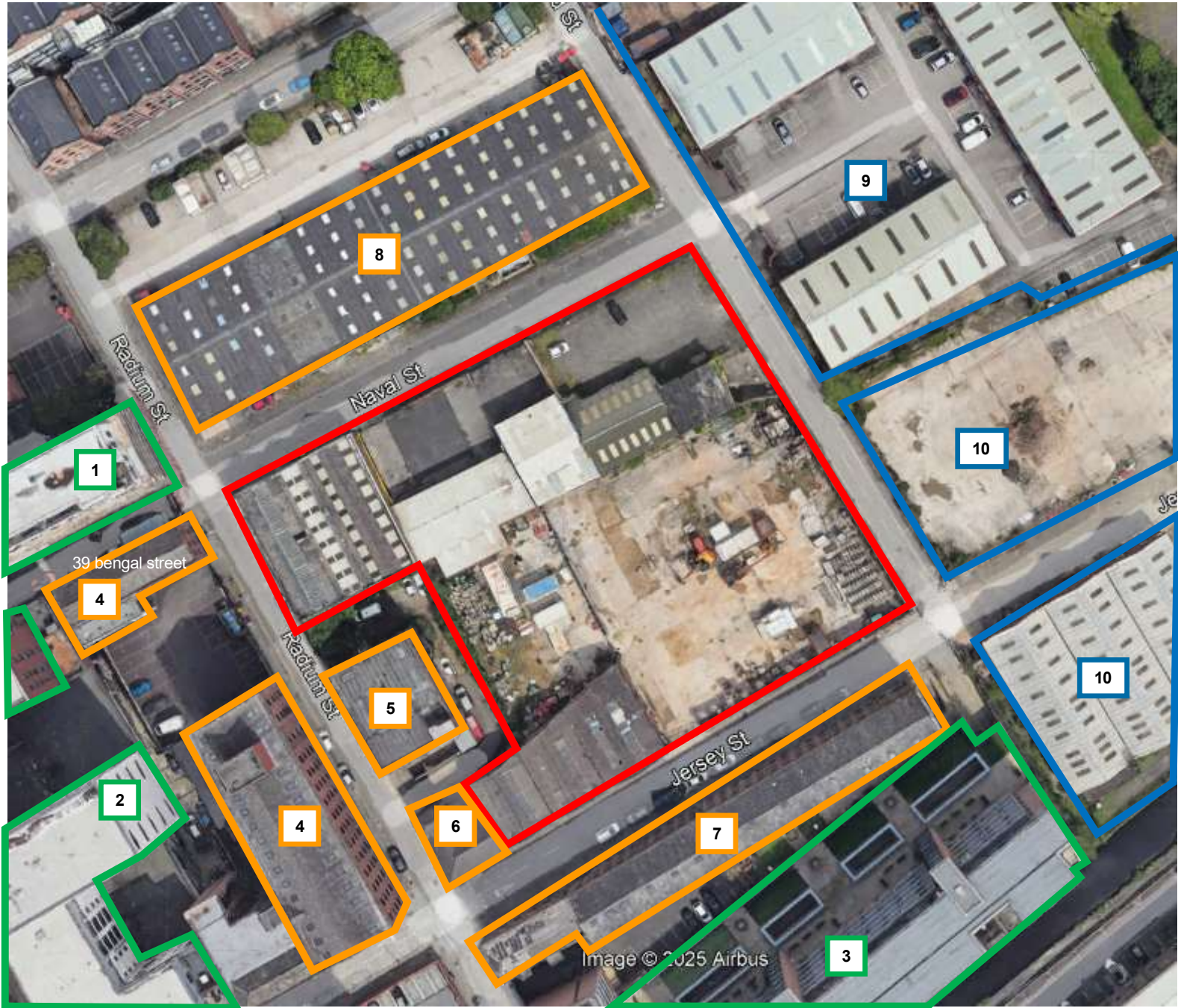


Figure 1-1: Development site and nearest residential noise-sensitive receptors

¹ Application number: 137346/FO/2023

1.2 Revision P03 report update

This P03 revision of the report has been updated in response to email comments received from Jennifer Atkinson on 26 February 2026.

The amendments made to the report are summarised below:

- **Section 4.4.1** – Confirmation is provided that the proposed MVHR systems will be designed such that internal noise levels within habitable dwellings do not exceed 35 dB L_{Aeq,T}, including during instances where MVHR units are operating in ‘boost’ mode.
- **Section 4.4.1** – Confirmation is provided that calculated night-time noise levels incident at courtyard-facing dwellings are expected to result in internal noise levels of <35 dB L_{Aeq,T}. The calculated façade noise levels themselves have not changed; this amendment corrects a previous error in which a non-residential amenity space was inadvertently considered within the assessment of habitable rooms.
- **Section 4.4.2** – Additional guidance is provided regarding the hourly duration and distribution of calculated open-window overheating conditions for a worst-case habitable room on the Poland Street façade.

2.0

Condition 20 requirements

2.0 Condition 20 requirements

2.1 Condition 20

Condition 20 requires the preparation of an acoustically insulating scheme to ensure that residential accommodation is adequately protected against noise from the local traffic network, with due consideration also given to the interdependency of overheating and acoustics.

20) Notwithstanding the Acoustic Report by Sandy Brown stamped as received by the City Council, as Local Planning Authority, on the 13 June 2023, prior to the first occupation of the development a scheme for acoustically insulating the proposed residential accommodation against noise from the local traffic network shall be submitted for approval in writing by the City Council, as Local Planning Authority. The approved noise insulation scheme shall be completed before the first occupation of the development.

The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account.

Any resultant changes to building fabric need to be in accordance with the overheating criteria set out in the Acoustic Report by Sandy Brown stamped as received by the City Council, as Local Planning Authority, on the 13 June 2023

Noise survey data must include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. The following noise criteria will be required to be achieved: Bedrooms (night time - 23.00 - 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB L Amax,F by more than 15 times)

Living Rooms (daytime - 07.00 - 23.00) 35 dB LAeq

Gardens and terraces (daytime) 55 dB LAeq

(b) Prior to the first occupation of the development, a verification report will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non-conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. A verification report and measures shall be agreed until such a time as the development complies with part (a) of this planning condition.

Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority, and thereafter retained and maintained in situ.

Reason: To secure a reduction in noise from traffic or other sources in order to protect future residents from noise disturbance pursuant to policies SP1, H1 and DM1 of the Core Strategy (2007) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995)

It is confirmed that in accordance with part (b) requirements, future validation testing will be undertaken as part of the pre-completion testing schedule at a later to verify compliance with the specified in-situ noise criteria.

2.2 Additional guidance on overheating

The following subsections provide a summary of the relevant acoustic guidance considered applicable to the assessment of the interdependency between acoustics and overheating.

2.2.1 Building Regulations Approved Document O

Approved Document O (ADO) was published on 15 December 2021 as part of the government’s Building Regulations. It covers two overheating mitigation requirements for new residential buildings (Requirement O1):

- a. Limiting unwanted solar gains in summer;
- b. Providing an adequate means to remove heat from the indoor environment.

The aim of the requirements is to “...*protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures*”.

Compliance can be demonstrated by using one of the following methods:

- The simplified method, as set out in Section 1 of the document;
- The dynamic thermal modelling method, as set out in Section 2 of the document.

The requirement O1(2) of the document states that in meeting the requirement O1 as per above “...*account must be taken of the safety of any occupant, and their reasonable enjoyment of the residence*...”. This is also in regard to noise assessments.

Paragraph 3.2 to 3.4 of the document states in regard to noise and overheating assessment that:

3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11 pm to 7 am);

3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits

- a. 40 dB LAeq,T, averaged over 8 hours (between 11 pm and 7 am)*
- b. 55 dB LAFmax, more than 10 times a night (between 11 pm and 7 am);*

3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants’ Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.

Table 1 of ‘The Guide to Demonstrating Compliance with the Noise Requirements of Approved Document O’ (v1.1 November 2024) published by Acoustic & Noise Consultants with the Institute of Acoustics sets thresholds for external noise levels at which detailed dynamic thermally modelling must be undertaken, as reproduced below.

Parameter	Moderate risk location (i.e. outside of Greater London)
dBA LAeq,8h, averaged over 8 hours (between 11 pm and 7 am)	50 dB
dBA LAFmax, more than 10 times a night (between 11 pm and 7am)	65 dB

Table 2-12-1: ADO thresholds for external noise levels

Where passive means to remove heat (e.g. opening windows, ventilation louvres) conflict with acceptable internal noise levels, alternative mechanical means of cooling may need to be introduced. This analysis will be used by the design team to develop a suitable overheating strategy for the residential uses of the proposed development.

2.2.2 Acoustic Ventilation and Overheating (AVO) Guide

The Acoustic Ventilation and Overheating (AVO) Guide (January 2020, v1.1) provides a framework for assessing the acoustic implications of ventilation strategies and overheating mitigation measures in residential developments. The guidance recognises that the need for increased ventilation or purge cooling can result in greater reliance on open windows, which in turn elevates internal noise levels.

The AVO Guide therefore outlines principles to help practitioners balance acoustic comfort with compliance under relevant building, planning and environmental requirements.

A key aspect of the document is its focus on qualitative rather than prescriptive criteria when considering noise during overheating conditions. Importantly, the AVO Guide states:

No quantitative guidance regarding the combined effect of level and duration for the overheating condition is included in the current version of this document.

The Guide acknowledges that there is currently insufficient evidence to establish firm numerical limits for internal noise during varying periods of overheating conditions. As such, it stresses that professional judgement must be applied when evaluating the likely outcome in terms of the likely average response of those affected and noise exposure hierarchy classification.

3.0

Environmental noise surveys

3.0 Environmental noise surveys

3.1 Planning submission and Cundall verification measurements

A Noise Impact Assessment (NIA) was undertaken by Sandy Brown (ref: 22132-R05-B, dated 15 June 2023) in support of the initial planning application, and is referenced in the conditional approval notice. The Sandy Brown NIA includes details of both attended and unattended baseline noise measurements carried out in proximity to the site.

Cundall has since conducted additional daytime and night-time noise surveys with the aim of validating the baseline values presented in the Sandy Brown NIA. However, due to road closures related to ongoing construction works near the site, the measured noise levels were lower than those recorded by Sandy Brown and are considered less representative of the future noise climate once the Development is complete.

Accordingly, for the purposes of the environmental noise assessment presented herein, the Sandy Brown noise measurement data has been used to ensure a robust and representative assessment.

3.2 Sandy Brown Noise Impact Assessment

The following sub-section provides a summary of the Sandy Brown NIA measurements, as referenced within the conditional approval notice for the Development

3.2.1 Date and time

Timings of the Sandy Brown baseline noise surveys are summarised below:

- Long-term monitoring
 - Position L: 12:35 on 21 April 2022 to 14:50 on 25 April 2022
- Short-term monitoring
 - Position 1: 13:00 – 14:00 on 25 April 2022
 - Position 2: 14:05 – 14:35 on 25 April 2022

3.2.2 Measurement locations

Two measurement locations were chosen at representative positions as described in [Table 3-1:Table 3-1](#): and marked in [Figure 3-1Figure 3-1](#).

Ref.	Description	Observations
L	Carried out under free field conditions, using a tripod with the microphone placed 1.4 m from the ground and 5 m away from reflective surfaces	The dominant noise sources observed at the site during the survey were from road traffic on Radium Street, Naval Street and Jersey Street, and distant construction works.
1	Measurements were carried out with the microphone mounted on a tripod approximately 1.2 m above the ground level, and 1 m from the building facades.	Less significant noise sources included occasional noise from pedestrians, distant road traffic on Oldham Road, and distant plant noise from surrounding commercial units.
2		

Table 3-13-4: Measurement locations and observations



Figure 3-13-4: Approximate measurement locations (reproduced from Figure 1 of Sandy Brown PNR)

3.2.3 Measurement results

Summaries of the average ambient noise levels recorded during the long-term (Positions L) and short-term (Positions 1 & 2) are detailed [Table 3-2Table 3-2](#) and [Table 3-3Table 3-3](#), respectively. All values were measured as free-field in dBA.

Long-term monitoring position	Date	Daytime (07:00 – 23:00) LAeq,16hr dB	Night-time (23:00 – 07:00) LAeq,16hr dB
L (long-term)	21/04/2022	-	48
	22/04/2022	53	48
	23/04/2022	51	48
	24/04/2022	50	47

Table 3-23-2: Summary of noise measurement data – long term unattended measurements

Position / Date	Start time	LAeq,5min dB	LAfmax,5min dB
1	13:05	62	78
	13:10	64	80
	13:15	60	74
	13:20	64	84
	13:25	62	81
	13:30	59	77
	13:35	61	79
	13:40	61	76
	13:45	60	79
	13:50	62	79
	13:55	60	77
2	14:05	65	75
	14:10	65	78
	14:15	62	76
	14:20	62	74
	14:25	64	78
	14:30	67	88

Table 3-33-3: Summary of noise measurement data – short-term attended measurements

4.0

External noise intrusion

4.0 External noise intrusion

4.1 Noise modelling results

In order to determine road traffic noise propagation across the Development, a 3D model has been produced by Cundall using SoundPLAN v9.1 acoustic modelling software. This model is capable of accurately determining sound propagation by taking into account variations in topography, barrier attenuation provided by existing landscaping and buildings, and distance attenuation.

Road traffic noise sources within the 3D noise model have been calibrated based upon the daytime and night-time L_{Aeq} results presented in Section 3.2.3.

Calculated $L_{Aeq,T}$ façade noise impacts are provided in [Figure 4-4](#)Figure 44, below:

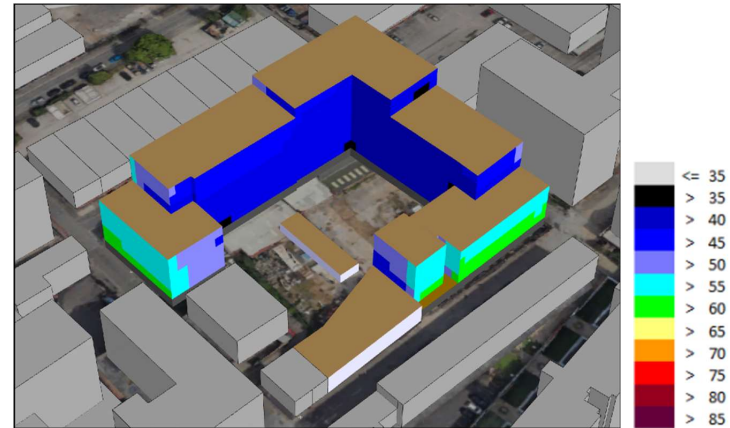


Figure 4-14-1: Predicted Daytime free-field noise levels from road traffic – View from North East

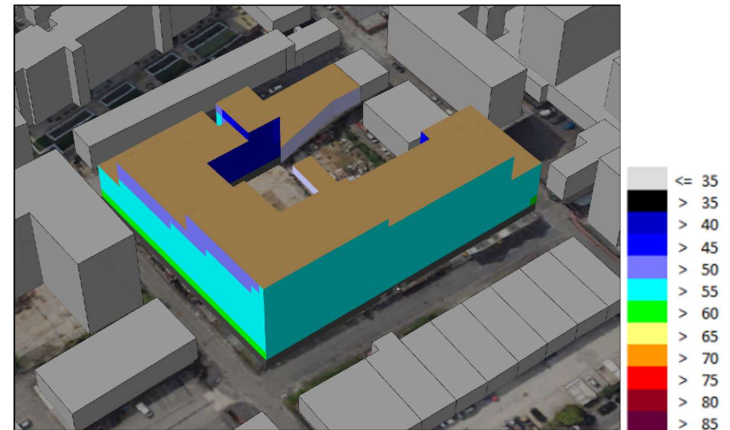


Figure 4-24-2: Predicted Daytime free-field noise levels from road traffic – View from South West

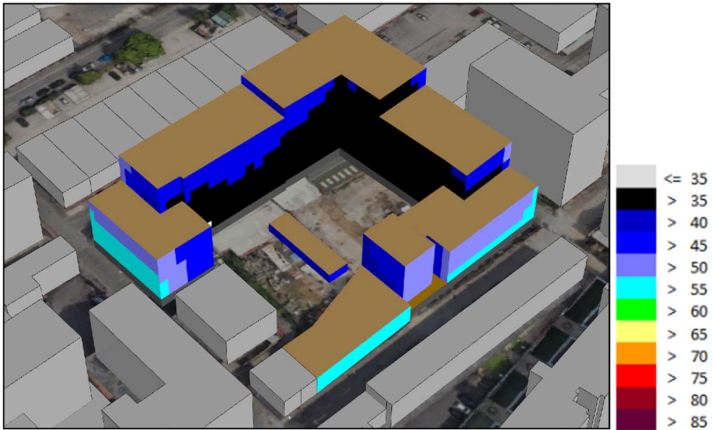


Figure 4-34-3: Predicted Night-time free-field noise levels from road traffic – View from North East

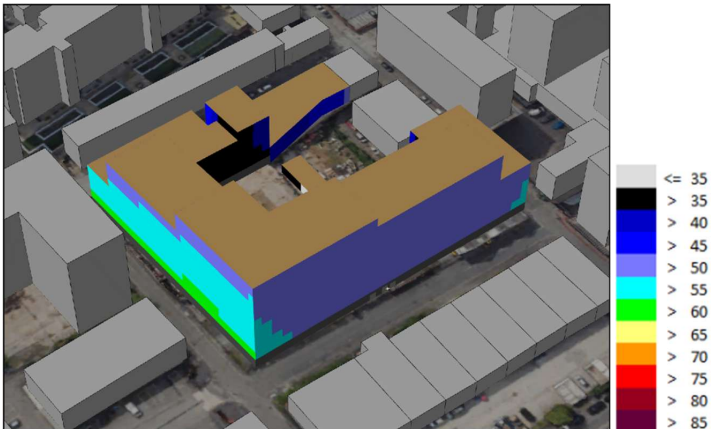


Figure 4-44-4: Predicted Night-time free-field noise levels from road traffic – View from South West

Levels presented above and referred to in the following sub-sections are ‘free-field’ values at 1 m from the building façade.

4.2 Ventilation systems (whole dwelling ventilation)

It is a requirement of the building regulations that ‘whole dwelling ventilation’ (previously known as ‘background’ ventilation) is provided in dwellings.

Ventilation to habitable rooms will be provided by a Mechanical Ventilation Heat Recovery (MVHR) system ducted to the external façade.

As ‘whole dwelling ventilation’ will be provided by a mechanical system, the only time windows will be required to be open for the purposes of ventilation will be for occasional control of overheating (discussed in Section 4.4) and ‘purge’ ventilation. With respect to noise levels during purge ventilation the ProPG states the following:

‘It should also be noted that the internal noise level guidelines are generally not applicable under “purge ventilation” conditions as defined by Building Control Approved Document F, as this should only occur occasionally (e.g. to remove odour from painting and decorating or from burnt food).’

It is therefore not considered necessary to further consider noise levels during purge ventilation conditions and using windows for this purpose is unlikely to result in any significant adverse effects.

4.2.1 Minimum glazing requirements

For buildings with attenuated ductwork supply/extract paths, the weakest elements of the external elevation are typically the glazing. The specification of glazing is therefore considered to be the primary factor in determining the internal ambient noise level within noise sensitive areas due to noise ingress from outside.

Whilst the predicted propagation of L_{Aeq} values has been modelled, typical $L_{AF,max}$ values are less than 15 dB higher than the average noise levels. As such, the night-time L_{Aeq} levels represent the most stringent factor in determining the façade specification.

Calculation procedures for determining the glazing attenuation ($R_w + C_{tr}$) are as described in the “*more rigorous calculation method*” outlined in BS 8233:2014. Based on the worst-case incident noise levels and considering rooms with the internal ambient noise level targets (IANL), the following table presents the required sound insulation required to see the IANL are achievable. Full details of the external noise intrusion calculations are available at request.

Zone	Predicted external free-field noise level on façade – maximum in the zone (dB)	Internal noise criteria	Minimum sound insulation
All habitable rooms	$60 L_{Aeq,T}$	$\leq 30 L_{Aeq,T}$	$R_w + C_{tr}$ 28 dB For example: 4 mm pane 6 to 20 mm cavity 6 mm pane
	$69 L_{AF,max}$	$\leq 45 L_{AF,max}$	

Table 4-14-1: Required minimum sound insulation performances for all facades

4.2.2 Proposed glazing systems

All proposed glazing systems to noise-sensitive spaces are rated minimum **28 $R_w + C_{tr}$** and would therefore be considered compliant with the minimum acoustic requirements specified above in [Table 4-1](#)Table 41.

All glazing should be well sealed when closed. It is imperative that frames / non-glazed curtain walling components do not compromise the performance of the glazing. No gaps should be visible around the frame from the exterior.

4.3 External wall

To control noise break-in from outside, it is considered good practice for the external wall panel construction to provide a sound reduction at least 10 dB above that of the glazing values given above.

External walls to habitable rooms adopt the principles of type EW01 (with minor variation to EW02 to EW04 for projecting brickwork) as detailed in [Figure 4-5](#)[Figure 45](#) overleaf.

The expected sound insulation performance provided all systems is expected to be greater than 10 dB above the minimum glazing performance requirements and proposals would therefore be considered acceptable from an acoustic perspective.

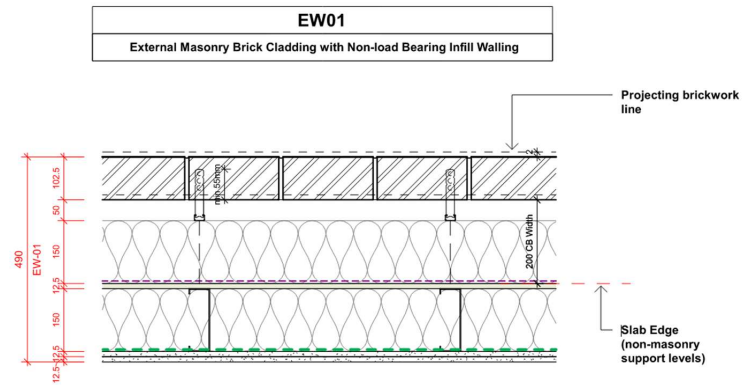


Figure 4-5: External wall types to residential areas

4.4 Overheating assessment

4.4.1 Approved Document O

A TM59 thermal comfort evaluation undertaken by Ameon Consulting (ref: 240010-AME-XX-XX-RP-Z-5000013) has determined that for summertime overheating, the requirements of Approved Document O will be satisfied with windows fully closed and the MVHR systems operating for the full night-time assessment periods between the hours of 11pm and 7am.

Accordingly, internal noise levels in bedrooms will be less than 30 dB $L_{Aeq,T}$ due to external noise ingress and less than 35-40 dB $L_{Aeq,T}$ due to MVHR systems operating in boost mode (as a worst-case scenario) [achieved through careful design of room-side MVHR attenuation measures.](#)

Exceptions to this general condition occur to bedrooms located on the façades of the inner courtyard, where night-time ambient noise levels are less than 50-45 dB $L_{Aeq,T}$ (i.e. the black or darker blue shaded areas depicted in [Figure 4-3](#)[Figure 43](#) and [Figure 4-4](#)[Figure 44](#). In these areas, a partially open window will result in external noise ingress being less than 38-35 dB $L_{Aeq,T}$ in the bedrooms at night.

As such, internal ambient noise levels in bedrooms at night will be less than 40 dB $L_{Aeq,T}$ in all instances and will therefore comply with the noise requirements for Approved Document O.

4.4.2 AVO Guide assessment

Where an AVO Guide Level 2 assessment is required for transportation noise sources, Table 3-3 of the AVO document presents a summary of the assessment of adverse effect based on internal ambient noise level and duration.

The AVO Guide risk criteria are summarised below, with corresponding external free-field façade levels also defined. This is based on the openable area required to mitigate overheating providing an external to internal noise reduction of 10 dB (opening area typically equivalent to 4% of floor area).

AVO risk category	Internal ambient noise levels $L_{Aeq,day}$ (07:00 – 23:00)	Corresponding external free-field façade level if windows are partially open $L_{Aeq,daytime}$ (07:00 – 23:00)
High Risk	>50 dB	>60 dB
Medium to Low	36 to 50 dB	45 to 60 dB
Negligible	≤ 35 dB	≤ 45 dB

Table 4-24-2: AVO Guidance for noise assessment of noise from transport noise sources relating to overheating condition

Whilst Table 3-3 of AVO provides no quantitative guidance regarding the combined effect of level and duration for the overheating condition, the outcome is summarised qualitatively in Figure 3-2 of the AVO Guide, as reproduced below.

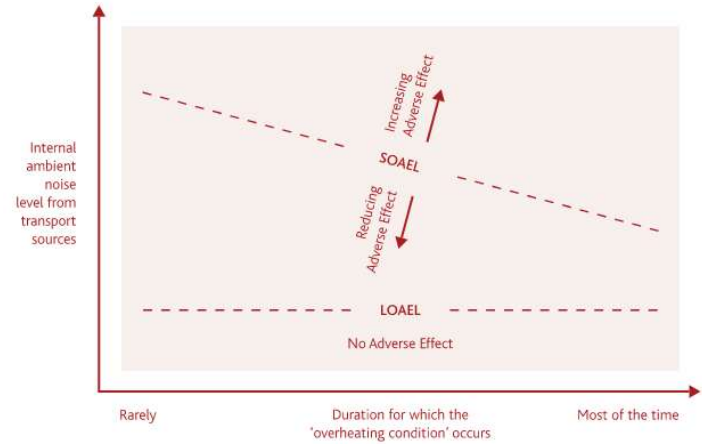


Figure 4-6: Figure 3-2 of AVO Guide

The RIBA Stage 3 Sandy Brown Noise Impact Assessment submitted in support of the planning application included a detailed evaluation of the predicted internal noise levels within living rooms during the daytime when windows are opened to control overheating, along with an assessment of the

frequency with which those windows would need to be open throughout the summer months for each façade and floor level.

To mitigate the predicted “Increasing Adverse Effects” from the Stage 3 analysis, MVHR systems have been incorporated with additional boost mode and, in some instances, additional purge fans included. Additionally, for rooms on façades and floor levels where the external noise levels allow, additional opening windows have been allowed for, increasing the natural ventilation provision.

~~The~~[Based on the revised-revised](#) TM59 thermal comfort evaluation undertaken at RIBA 4 [has identified that with the enhanced ventilation provisions incorporated, windows would only need to be opened for the following percentage of the summertime period:](#)

~~Jersey Street~~ — 25%

~~Poland Street~~ — 23%

~~Naval Street~~ — 26%

~~Radium Street~~ — 24%, [Table 4-343 details the predicted daytime overheating hours for the worst-case affected habitable plot \(Plot 03.105\) on the Poland Street elevation most exposed to road traffic noise \(up to 49 dB \$L_{Aeq,T}\$ internally during the day\). These represent periods during which windows may be opened for thermal comfort. A time history plot of number of daytime overheating hours is also provided in Figure 4-747.](#)

Month	Total daytime hours overheating	Maximum hours per day	Average Hours Per day	Percentage
January	0	0	0.0	0.00%
February	0	0	0.0	0.00%
March	0	0	0.0	0.00%
April	0	0	0.0	0.00%
May	28	13	0.9	5.65%
June	71	11	2.4	14.79%
July	261	16	8.4	52.62%
August	301	16	9.7	60.69%
September	0	0	0.0	0.00%
October	0	0	0.0	0.00%
November	0	0	0.0	0.00%
December	0	0	0.0	0.00%
Annually	661	-	1.8	11.32%

Table 4-3: [Daytime overheating assessment to Poland Street Plot 03.105](#)

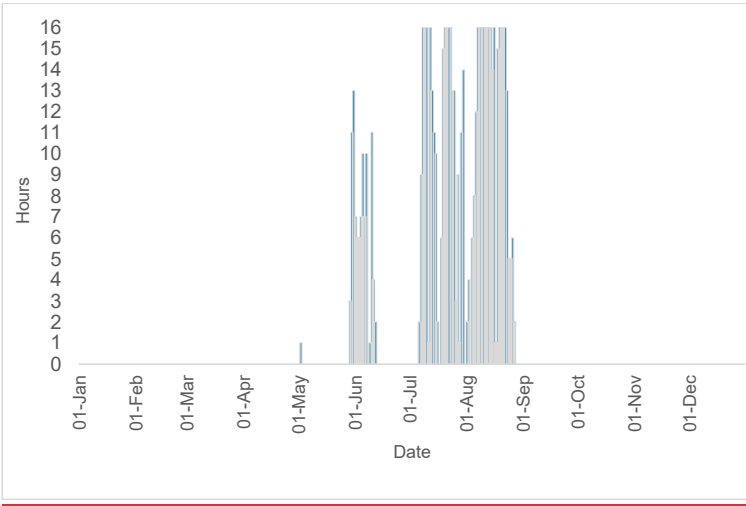


Figure 4-7. Time history plot of daily daytime overheating condition to Poland Street Plot 03.105

The results indicate that overheating conditions are limited to the summer period, with no overheating predicted between September and April. The occurrence of overheating is therefore confined to four months of the year, primarily during the peak summer months of July and August.

Across the year as a whole, a total of 661 hours of overheating are predicted, which equates to approximately 11.3% of daytime hours annually. Outside of the peak summer months, the frequency of overheating is comparatively low, with May and June averaging less than 2.5 hours per day.

It should also be noted that the results presented relate to a worst-case habitable room scenario. As such, the predicted overheating hours represent a conservative assessment and are likely to overestimate the duration for the majority of dwellings within the development.

Overall, the analysis demonstrates that the periods during which open windows may be required for overheating mitigation are limited in duration and largely restricted to peak summer conditions, with the remainder of the year expected to operate under closed-window conditions where the building façade provides appropriate attenuation of external noise.

Accordingly, the duration for which the overheating condition relies on openable windows has significantly reduced compared to the analysis undertaken at RIBA 3.

The external noise levels have not changed from those predicted in the RIBA 3 assessment. Therefore, internal noise levels with a single openable window would equally remain the same as predicted in the RIBA 3 assessment.

Where living rooms on the façades of Jersey Street, Poland Street and Naval Street now include two openable windows to increase the natural ventilation rates, the internal ambient noise levels would increase by up to 3 dB, due to the addition noise ingress path.

The living rooms on the façade of Naval Street remain with a single openable window and therefore noise levels inside these rooms will be consistent with the RIBA Stage 3 assessment.

The worst case predicted internal ambient noise levels during overheating conditions are 49 dB $L_{Aeq,T}$ which may occur on Level 1 of the Poland Street façade. These levels remain in the ‘Amber’ risk category of AVO, but are only predicted to occur for around 23% of the summer period.

4.4.3 AVO assessment summary

The following bullet points present a summary of the Level 2 AVO assessment:

- During the more sensitive night-time period, bedrooms either do not require opening windows, or are expected to be compliant with ADO internal ambient noise criteria (see Section 4.4.1).
- The results of the RIBA Stage 4 overheating analysis demonstrate a significant improvement over the pre-mitigated RIBA Stage 3 assessment.
- The overall duration of daytime periods when overheating conditions occur is low, especially outside of peak summertime months of July and August.
- The worst-case predicted internal ambient noise level during overheating conditions is 49 dB $L_{Aeq,T}$, which is below the AVO 'high risk' category.
- The Planning Policy Guidance on Noise (PPG[N]) states that local authority planning policies can include noise standards applicable to various forms of proposed development and locations within their area. However, the PPG(N) advises that care should be taken to avoid these standards being applied as rigid thresholds, as specific circumstances may justify some variation.

Considering the above, and in the absence of any specific quantitative guidance regarding the combined effect of noise level and duration under overheating conditions, an illustration of Cundall's interpretation of the daytime condition within the AVO framework is provided in Figure 4.8.

Given the very low overheating risk and hence the limited periods during which windows would need to be opened to mitigate overheating during the day, internal noise levels within residential receptors at all façades are predicted to remain below the Significant Observed Adverse Effect Level (SOAEL) and above the Lowest Observed Adverse Effect Level (LOAEL). On this basis, the internal noise environment is considered to be suitable for occupants.

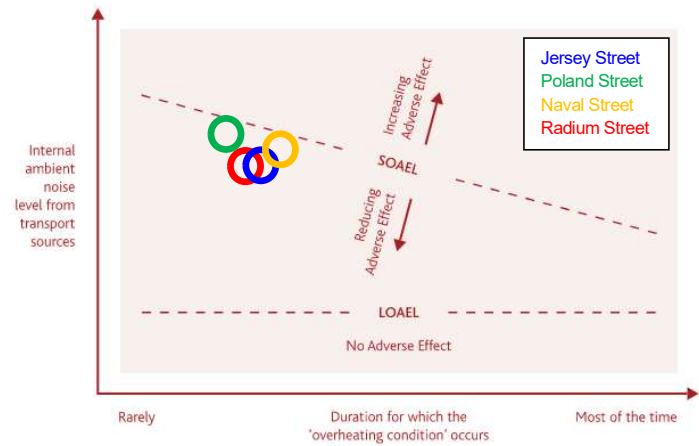


Figure 4.8-7: Cundall RIBA 4 AVO Level 2 analysis (daytime)

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