



AIRTIGHT & NOISECHECK LIMITED

Gate 2 Meadows Farm | Ervills Road | Worlds End | Hampshire | PO7 4QU

Phone: 034 5066 6966 Email: office@airtightnoisecheck.co.uk

NOISE IMPACT ASSESSMENT FOR

BROCKHAMPTON DEVELOPMENTS LTD
C/O PARK ROAD SOUTH/WEST STREET/BROCKHAMPTON LANE
HAVANT
HAMPSHIRE

SITE ADDRESS

PARK ROAD SOUTH/WEST STREET/BROCKHAMPTON LANE
HAVANT
HAMPSHIRE

Acoustic Engineer:

Date: 11th – 12th December 2024

Michael Vine

AIRTIGHT & NOISECHECK BUILDING ACOUSTIC TESTING

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Customer Name:

Date: 11th – 12th December 2024

Brockhampton Developments Ltd
C/O Park Road South/West Street/Brockhampton Lane
Havant
Hampshire

Site Address:

Park Road South/West Street/Brockhampton Lane
Havant
Hampshire

Acoustic Engineer:

Mr. Michael Vine – MIOA

Equipment used:

Norsonic Environmental Analyser 140 BS EN IEC 61672-1 2013 Class 1 – Associated frequency analyser to BS EN IEC 61260: 1996 Class 1 – serial 1407126 – calibration due March 2026

Measurement Microphone (Nor 1225) – Serial Number 305215 – calibration due March 2026

Acoustic Calibrator - (Type 1251) – Serial No 31652, Calibration due November 2025

Measurement Procedure:

The external ambient noise levels were recorded for a 24-hour period in one external location between Wednesday 11th & Thursday 12th December 2024 to measure the existing noise levels at the front boundary of the proposed site. This is the façade that faces the local road network & pedestrian area of Havant Town Centre. Further spot measurements were also taken at the rear of the buildings where the plant for neighbouring premises is located.

The client is proposing adding 2 additional floors above the current mixed-use buildings to create 24no residential dwellings, under Class AB – PD rights. This will consist of 13 x flats at 2nd floor level at 11 x flats at 3rd floor level.

PD RIGHT FOR THE CONSTRUCTION OF NEW HOMES

The Order also introduces four new permitted development rights, as Classes AA, AB, AC and AD of Part 20 of Schedule 2 of the 2015 Order, **which subject to prior approval**, permit the construction of new self-contained homes by allowing additional storeys to be constructed on free standing blocks and on buildings in a terrace in certain commercial uses, and in mixed uses with an element of housing together with necessary engineering works. They also allow additional storeys to be constructed on existing houses which are detached or in a terrace (which includes semi-detached houses) to create new self-contained homes. The new rights apply to buildings built after 1 July 1948 and before 5th March 2018 and the additional storeys must be built in the principal part of the building.

Class AB (new dwelling-houses on terraced buildings in commercial or mixed use)

Class AB permits the construction of new flats on top of terrace buildings (including semi-detached buildings) in the same commercial or mixed uses with an element of residential rehearsed above. Up to two storeys may be added if the existing building is two or more storeys tall above ground level, or one additional storey where the building consists of one storey.

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Executive Summary:

Airtight & Noisecheck Ltd were instructed by Brockhampton Developments Ltd to undertake a detailed Noise Impact Assessment (NIA) at Park Road South/West Street/Brockhampton Lane. A prior approval notice pursuant to permitted development rights Class AB is to be submitted to construct 24 new dwellings at 2nd & 3rd floor level with the ground & 1st remaining as commercial use. There will be 13 at 2nd floor level at 11 at 3rd floor level.

The noise levels were measured for a 24hour period at the rear (Northern) boundary of the site.

The external noise levels were measured at the Northeast façade in order to assess the road traffic & also some sample measurements of the constant plant in operation at the rear of the site including plant serving Domino's pizza and a further unit located to the South, all of which were monitored. The road traffic is the dominant noise source in operation, and the plant was not intrusive. The client has no control over the plant in operation and therefore all mitigation will be done at the receptor location, and the absolute level of reduction will be applied.

The noise levels & calculations indicate that there is no reason to suggest that the future residents of the proposed dwellings will be adversely affected by the noise emissions created by the commercial & external sources. The measures to be implemented to the glazing, ventilation system & façade will ensure the internal acoustic criteria can be achieved.

There is no reason to suggest that the future residents of the proposed residential development will be adversely affected by the noise emissions apparent in the immediate area.

The proposed façade and glazing measures will ensure a suitable internal acoustic criterion and strike a balance between noise, ventilation & overheating which is an essential design aspect of such projects. A good acoustic design has already been implemented into the scheme with a limited number of bedrooms being located on the front façade and therefore being screened from the dominant noise source in operation. So, the client has already taken steps to reduce the impact on the proposed residential scheme.

Most of the bedrooms will be screened from the road network and thus exposed to lower noise levels due to natural screening offered by the building fabric and extra distance to the dwellings.

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Assessment Criteria:

The National Planning Policy Framework (NPPF) came into effect in March 2012 and was updated in December 2024. It replaced other documents such as PPG24. The NPPF provides several objectives and aims that are directed towards avoiding significant adverse impacts and reducing others on quality of life and health. This document states that:

Paragraph 187 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. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, considering relevant information such as river basin management plans.

Paragraph 198 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 impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes, and nature conservation.

Paragraph 200 - Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

The Planning Practice Guidance has guidance on noise, date 22nd July 2019 and also has the noise hierarchy table as shown below. Paragraphs 009 & 011 are referenced later in this report.

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Response	Examples of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

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 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 NPSE (Noise Policy Statement for England) states the following aims with respect to noise policy:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of the 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.*

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PROPG: PLANNING & NOISE (2017) NEW RESIDENTIAL DEVELOPMENT [PROPG 2017]

The ProPG Planning & Noise document was published in 2017, its development supported by the Institute of Acoustics, the Association of Noise Consultants, and the Chartered Institute of Environmental Health. The aim of the document is to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England.

ProPG advocates a systematic, proportionate risk-based, 2 stage approach which:

1. Encourages early consideration of noise issues;
2. Facilitates straightforward accelerated decision making for lower risk sites;
3. Assists proper consideration of noise issues where the acoustic environment is challenging.

A summary of the overall ProPG approach is included in Appendix B. The two sequential stages of the overall approach are:

1. Stage 1 – an initial noise risk assessment of the proposed development site; and
2. Stage 2 – a systematic consideration of four key elements.

The four key elements to be undertaken in parallel during Stage 2 are:

1. Element 1 – demonstrating a “Good Acoustic Design Process”;
2. Element 2 – observing internal “Noise Level Guidelines”;
3. Element 3 – undertaking an “External Amenity Area Noise Assessment”; and
4. Element 4 – consideration of “Other Relevant Issues”.

The approach is underpinned by the preparation and delivery of an “Acoustic Design Statement” [ADS]. The ADS is intended to conclude in the provision of one of the following four recommendations to the decision maker:

1. Planning consent may be granted without any need for noise conditions;
2. Planning consent may be granted subject to the inclusion of suitable noise conditions;
3. Planning consent should be refused on noise grounds in order to avoid significant adverse effects (“avoid”); or
4. Planning consent should be refused on noise grounds in order to prevent unacceptable adverse effects (“prevent”).

The overall ProPG 2017 approach is intended for implementation with projects at an earlier stage than the subject of this report. This report provides a full noise mitigation strategy for the site, rather than an initial recommendation to the decision maker.

ProPG 2017 contains the most up to date guidance available on industry-wide adopted best-practise interpretation of relevant guidance regarding acceptable internal and external noise levels i.e. BS8233:2014 and WHO Guidelines.

WHO GUIDELINES FOR COMMUNITY NOISE (1999)

The guidance in this document recommends design criteria for internal noise levels within residential and commercial buildings. A summary of the recommended guidance is shown in Table 2.1. **Table 2.1 – Excerpt from WHO [dB ref. 20µPa]**

Criterion	Environment	Design range LAeq, T dB
Maintain speech intelligibility, avoid moderate annoyance, daytime & evening	Living Rooms	35
Prevent sleep disturbance, night time	Bedrooms	30

This guidance also states:

For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB LAmax more than 10-15 times a night (Vallet & Vernet 1991)

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For outdoor living areas, it is stated that:

To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55dB LAeq on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50dB LAeq. Where it is practical and feasible, the lower outdoor sound level should be considered the maximum desirable sound level for new development.

BS8233:2014 GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

The guidance in this document indicates acceptable noise levels for various activities within residential dwellings. A summary of the recommended guidance is shown in the following table as listed in BS8233: 2014

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB LAeq, 16 hour	-
Dining	Dining Room	40 dB LAeq, 16 hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq, 16 hour	30 dB LAeq, 8 hour

Acoustic Design Statement:

It is clear that the site is situated close to a relatively busy area with some noise sources in proximity of the building. Robust mitigation measures will be put in place to ensure the impact of the external & internal noise will not have an adverse impact on the future residential dwellings. These measures that are already apparent include:

1. A robust glazing system offering minimum sound reduction of 36dB sound reduction is installed at the building and protects the residents from the external noise emissions
2. Alternative ventilation system installed to all dwellings to ensure suitable ventilation when windows are closed
3. Good orientation – noise sensitive bedrooms located to the rear so exposed to lower noise levels and options to naturally ventilate dwellings during the night time period
4. Rear facades recessed so further screened from noise sources

The above measures are a clear indication of the sound reduction measures to be implemented to the building fabric & proposed internal layout to reduce the potential impact of the noise sources in operation.

Based on the measured noise levels, the proposed mitigation measures, the location of the development and the type of noise apparent it is anticipated that the noise will fall at The NOEL value (No adverse effect level) and maybe towards the LOAEL (Lowest observed adverse effect level) and as such the noise should not have a detrimental effect on the future residents providing adequate measures are implemented to the building fabric & elements. For noise sources at the LOAEL, it is anticipated that the noise will be noticeable but not intrusive if suitable mitigation measures are implemented to the development.

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1 Objective:

1.1 To determine the noise levels associated over a 24hour period at the proposed residential facade of the development. The noise levels associated with the Northeast facade facing the noise source were measured to ensure that the future residents of the proposed scheme will not be adversely affected by the noise emissions created in the immediate area. The site currently comprises of commercial units at ground & 1st floor. A prior approval notice pursuant to permitted development rights has been submitted to erect 2 x new floors at 2nd & 3rd floor level to create 24 x dwellings, with 13 at 2nd floor level and 11 at 3rd floor level.

1.2 This assessment uses guidance in The Town and Country Planning (General Permitted Development) (England) (Amendment) (No. 2) Order 2020

Permitted development

AB. — (1) Development consisting of works for the construction of new dwellinghouses immediately above the topmost storey on a terrace building to which sub-paragraph(2) applies, where that development comprises—

(a) up to two additional storeys, in the case of an existing building consisting of two or more storeys;
(b) one additional storey, in the case of an existing building consisting of one storey,
together with any development under sub-paragraph (3).

(2) This sub-paragraph applies to a building which is—

(a) used for any purpose within Class A1 (shops), Class A2 (financial and professional services), Class A3 (restaurants and cafes) or Class B1(a) (offices) of the Schedule to the Use Classes Order, or as a betting office, pay day loan shop or launderette;
(b) in a mixed use combining—
 (i) two or more uses within paragraph (a); or
 (ii) a use falling within Class C3 (dwellinghouses) of the Schedule to the Use Classes Order, together with one or more uses within paragraph (a).
(3) Development consisting of any or all—

(a) engineering operations reasonably necessary to construct the additional storeys and new dwellinghouses;
(b) works for the replacement of existing plant or installation of additional plant on the roof of the extended building reasonably necessary to service the new dwellinghouses;
(c) works for the construction of appropriate and safe access to and egress from the new dwellinghouses and existing premises, including means of escape from fire, via additional external doors or external staircases;
(d) works for the construction of storage, waste, or other ancillary facilities reasonably necessary to support the new dwellinghouses.

The condition relating to noise is:

AB.2. —(1) Where any development under Class AB is proposed, development is permitted subject to the condition that before beginning the development, the developer must apply to the local planning authority for prior approval of the authority as to—

(h) impacts of noise from any commercial premises on the intended occupiers of the new dwellinghouses;

So, whilst the noise associated with the road traffic does not form part of the commercial noise sources, good practice would suggest suitable mitigation from, such noise sources but they should not lead to any refusal by way of noise as they do not form part of the commercial noise sources apparent at the site.

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2 Calibration:

2.1 The measurement microphones were calibrated before and after testing in each measurement location and there were no drifts recorded during the assessments.

3 Site Layout & Microphone Position:

3.1 The junction of Park Road South, West Street & Brockhampton Lane is located in the centre of Havant Town, with Park Road South being the busy through road, located to the East of the proposed scheme. West Street is a quieter road and is located to the North, with Brockhampton Lane located to the West. The proposed scheme is located above the commercial terrace of buildings located on the corner. These will remain at ground & 1st floor level.

3.2 The building is a large, terraced building with a car park located at the rear and commercial units located at Ground & 1st floors. The building wraps around the corner of the roads listed above.

3.3 The building is located in the centre of Havant Town, with the main pedestrian area located to the East of Park Road South. The immediate area is predominantly mixed-use buildings with both existing and new residential and mixed-use buildings located nearby.

3.3 The dwellings will be located at 2nd & 3rd floor & commercial units at Ground & 1st floor level. The microphone was located:

- 1- Northeast façade (front) of the site with the microphone approximately 6metres from ground floor level & 8metres from the centre of Park Road South. It was positioned circa 1m from the façade so a -3dB reduction has been applied for reflection.

4 Weather Conditions:

4.1 The weather was dry & relatively cold during the measurement procedures, the temperatures ranged between 6 - 7degrees on Wednesday and 6-8degrees on Thursday. There was no wind or rain during the measurement procedure.

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5 External Results:

5.1 The purpose of this measurement procedure was to calculate the noise levels apparent at the noise sensitive facades and ensure suitable mitigation measures are implemented so that the requirements of BS8233 & WHO can be met. The night time L_{Amax} values have also been derived so that they can be mitigated against.

Table 1 - L_{Aeq} & L_{Amax} Values – Front & Side of building:

Mic Location	L_{Aeq} 16hour Value	Reduction needed for BS8233 compliance	L_{Aeq} 8hour Value	Reduction for BS8233 compliance	L_{Amax} value – night time	Reduction for WHO compliance
ML 1 – Front Facade	70dBA	35dB	64dBA	34dB	81dBA	36dB

The above results include the -3dB acoustic feature correction for reflection from the façade.

6 Results Conclusion:

6.1 The levels of reduction apparent for the noise associated with the site is listed in the table above. The highest level of sound reduction shown above is 36dBA for the scheme (L_{Amax}) and 35dBA for (L_{Aeq}). It is clear that the rear elevations will be exposed to lower noise levels, but the same glazing is to be installed throughout the building, which meets the sound reduction levels shown above and thus ensure a very good internal acoustic criterion. It is anticipated that all residents will be able to naturally ventilate their dwellings with open windows for periods of the day time and night time but the introduction of the MVHR system (or wall mounted acoustic vents) will allow the dwellings to be ventilated during periods whereby the windows are closed.

6.2 The WHO guidelines for community noise - 2000 state that the internal L_{Amax} level (night time) should not exceed 45dB(A). If it exceeds this level on a regular basis, then sleep disturbance may be caused. This is the internal level that should be achieved.

7 Building Specifications:

7.1 It is anticipated that a system 4 ventilation system will be incorporated into the scheme with MVHR with summer bypass or similar systems implemented to the scheme. This should ensure the dwellings are ventilated when the windows are closed. Some possible products are:

Make	Model	Type
Vent-Axia	Sentinel Kinetic Plus	Whole House Ventilation
Zehnder	ComfoAir Q600 MVHR - 471502023	Whole House Ventilation

7.2 If an MVHR system is to be installed then it will have to be located in a location that will not impact on the noise sensitive bedrooms. It could be located in the common area or above a communal staircase for instance. It will need regular maintenance so an access panel will be required. It is recommended that the system is located away from the noise sensitive bedrooms and situated above or inside a purpose-built area within the communal area. Please note – this type of installation may be excessive for this development.

Another option could be:

Make	Model	Type
Titon Direct	Sonair F+	Wall mounted acoustic Ventilation

7.3 Façade Detail – The building façade comprises of: - cavity brick wall construction. This system should achieve a sound reduction of between 50-52dB $D_{nT,w} + C_{tr}$ 'Code of Practice BS8233: 2014, Page 60 – Table E.1B – Airborne sound insulation of walls and partitions'.

7.4 Roof Detail – The roof detail comprises of a flat roof system, with a plasterboard ceiling internally. This system should offer in excess of 43dB sound insulation.

7.5 Windows - The proposed windows to be used is unknown but standard double-glazed systems offer a sound reduction of between 30-35dB. A level of 36dBA has been determined from the various calculations (should exceed requirements) and thus the specifications listed below will offer this level of reduction.

Possible Units	Thickness	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	Overall reduction
SG Solaglass 10-12-12	34mm	30	32	36	36	40	48	39-3=36dB
SG Solaglass 6.4-9-10.4	25.8mm	27	28	35	45	50	56	40-4=36dB

7.6 There are many other suitable products, and the client will have to show compliance for the windows before installation, the manufacturer will have the acoustic data for the windows.

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8 Results – Rear Façade & Summary:

8.1 There are various units of plant in operation at the rear of the site, they are not dominant in as much that the road noise is still audible, but they were the units serving Domino's pizza – some located at ground floor, and some located at 1st floor (extraction unit). There was also another unit serving a neighbouring unit located at ground floor level. All units at ground floor will be screened from the proposed flats due to the flats being set back from the rear façade. The extraction will be visible to some of the dwellings, but the majority will be situated further away. The plant apparent at the rear is:

Plant	Noise Level	Distance to Dwellings	Reduction due to distance	Screened	Reduction due to screening	Level at façade
GF Unit	62dBA @2m	12m	-16dB	Yes	-5dB	41dBA
GF Domino's	56dBA @3m	12m	-12dB	Yes	-5dB	39dBA
1 st Floor Domino's	56dBA @4m	5m	-2dB	No	0dB	54dBA

8.2 The above table relates to the activity located to the rear of the site. All measurements were taken on site with all plant in operation. The results indicate that the noise emissions produced at the rear of the site are audible but should not lead to a change in behaviour, in addition, suitable mitigation measures will be applied to the windows facing the noise source to reduce the impact even more. The lowest 3min LA90 value was measured at 35dBA, therefore leading to an absolute sound reduction of 19dBA for the extraction system, and between 4-6dB for the ground floor units. It is also anticipated that the plant will be switched off during the night time period and therefore the dwellings can be afforded natural ventilation by way of open windows. This also illustrates that the commercial noise to the rear is not the dominant noise source in operation.

8.3 The mitigation measures listed within this report are very robust and comprehensive. They have been implemented throughout the site and the future residents will be able to enjoy a good standard of living. Based on the measured levels & the comprehensive glazing already installed, the internal criteria of BS8233: 2014 should be met within the noise sensitive dwellings at the proposed development. The proposed mitigation will ensure that the statement set by the local authority for rail traffic can be achieved.

8.4 Based on the measured values, the extensive configuration of the proposed upper floors and the robust and comprehensive mitigation measures already afforded to the building fabric it is clear that the future residents of the proposed scheme will not be adversely affected by the noise sources in operation.

8.5 Planning ProPG states that a good acoustic design process is a vital part of new developments. The client has taken steps to ensure that the future occupants are protected from the noise source, these steps include:

- 1- A robust glazing system offering minimum sound reduction of 36dB sound reduction is installed at the building and protects the residents from the external noise emissions
- 2- Alternative ventilation system installed to all dwellings to ensure suitable ventilation when windows are closed
- 3- Good orientation – noise sensitive bedrooms located to the rear so exposed to lower noise levels and options to naturally ventilate dwellings during the night time period
- 4- Rear facades recessed so further screened from the noise sources

8.6 The measures taken by the client, should ensure the future residents will not be adversely affected by the noise sources associated with the immediate area.

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8.7 The proposed measures indicate that the development follows the approach recommended in the PPG Guidance (Paragraph 009) regarding the closure of windows which states: *“The agent of change will also need to define clearly the mitigation being proposed to address any potential significant adverse effects that are identified. Adopting this approach may not prevent all complaints from the new residents/users about noise or other effects but can help to achieve a satisfactory living or working environment and help to mitigate the risk of a statutory nuisance being found if the new development is used as designed (for example, keeping windows closed and using alternative ventilation systems when the noise or other effects are occurring).”*

8.8 Paragraph 011 of the same guidance states: Noise impacts may be partially offset if residents have access to one or more of:

- a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling.
- a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced if this area is exposed to noise levels that result in significant adverse effects.
- a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or
- a relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5-minute walking distance).

8.9 The proposed scheme ensures that some of the bullet points shown above have been implemented as part of the application. There are quieter facades/rooms as part of the application that are screened from the noise sources. In addition to the orientation of the dwellings, further measures also include installing alternative ventilation measures to all dwellings to ensure suitable levels of ventilation when the windows are closed, but all residents will have the ability to open their windows at their own discretion.

8.10 Based on the measured noise levels, the proposed mitigation measures, the location of the development and the type of noise apparent it is anticipated that the noise will fall between The NOEL value (No adverse effect level) and the LOAEL (Lowest observed adverse effect level) and as such the noise should not have a detrimental effect on the future residents. For noise sources at the LOAEL, it is anticipated that the noise will be noticeable but not be intrusive due to the suitable mitigation measures implemented to the development.

8.11 Based on the measured levels and the installed glazing specification offering a sound reduction of 36dBA then the following internal levels would be achieved for entire site using the levels measured at the front elevation:

Room	External Level	Sound Reduction of windows	Internal Level	Criteria Met
Lounge	70dBA	36dB	34dBA	Yes
Bedroom – LAeq	64dBA	36dB	28dBA	Yes
Bedroom - LAmax	81dBA	36dB	45dBA	Yes

8.12 The levels above indicate that the internal levels can be achieved with the windows closed. The table below shows the calculated single figure values of the bedrooms to the rear (lounges at the front) with windows open to indicate the levels apparent during periods of the day time and night time whereby the dwellings can be naturally ventilated against transportation noise.

Room & period	External Value	Reduction offered by screening	Reduction offered by open window	Calculated Internal Value
Bedroom - Night	64dBA	-15dB	-13dB	36dBA

8.13 The levels shown in the table above indicate that a good standard of living can be achieved with open windows for the bedrooms located to the rear, during the day time and parts of the night time period without leading to a change in behavior. The MVHR system will be implemented during other times when the windows are closed.

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8.14 The internal noise levels as listed on BS8233: 2014 can be achieved on all elevations with windows closed. During the periods when windows remain closed, it is expected that alternative means of ventilation will be utilised. The rooms located on the rear facades can enjoy a reasonable acoustic criterion with windows open for long periods of the day time and night time periods.

8.15 The measures proposed at the site ensures that the future residents of the proposed scheme will be adequately protected from the external noise sources in operation at the site. In addition, the installation of the alternative ventilation system with summer bypass will ensure the dwellings will be adequately ventilated during the periods when the windows are closed, the noise levels generated should not exceed the guidance provided in BS8233: 2014 in noise sensitive rooms.

8.16 Based on the robust mitigation measures to be installed to the scheme and the acoustic design of the dwellings, it is anticipated that the future residents of the scheme can open their windows at their own discretion for periods of the day time and night time if they desire, to strike the balance between noise, ventilation, and overheating. The balance between noise, ventilation and overheating is an essential part of the design and it is anticipated that this can be achieved in all dwellings in this project.

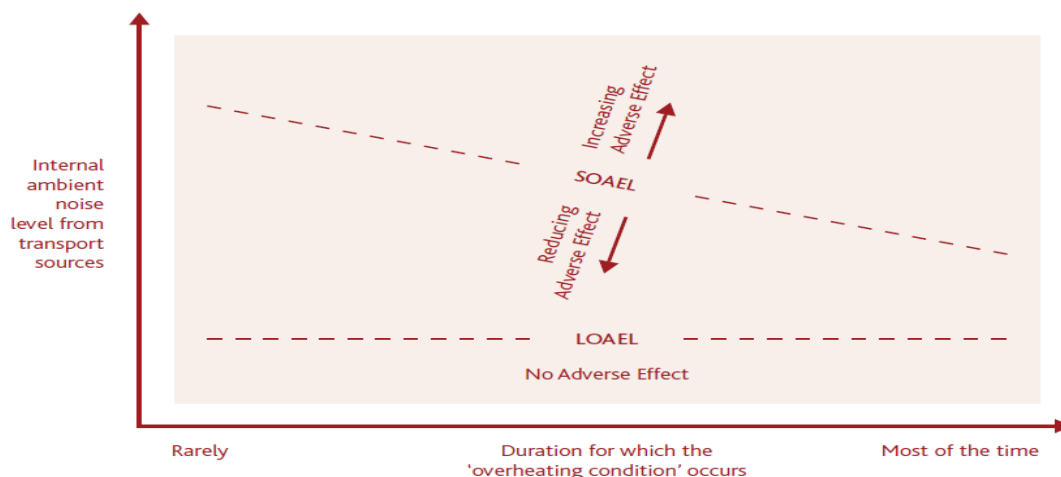
8.17 The levels shown in the table above indicate that a reasonable standard of living can be achieved with open windows. Even if this is for shorter periods of time, it will ensure a balance is struck between noise, overheating & ventilation for the new dwellings.

8.18 Table 3.3 – Guidance for level 2 assessment of noise from transport services in the ANC AVO guide states that ‘Noise causes a material change in behaviour e.g., having to keep windows closed most of the time’ if the following levels are exceeded for longer periods of time:

Internal ambient noise levels		
L _{Aeq} 16hour 0700-2300	L _{Aeq} 8hour 2300-0700	Individual noise events 2300-0700
>50dB	>42dB	Normally exceeds 65dB L _{AmaxT}

8.19 Using the above guidance (sliding scale as shown in the diagram below) the calculated internal levels at the rear facades with the windows open are also shown on the previous page. It is anticipated that the future occupants will accept an increase in the noise levels for periods of time to ensure good thermal comfort for the dwellings. The levels at the front façades are just below these values, so the period of time these windows are opened may be less, but then the alternative ventilation system can ensure suitable levels of ventilation for the dwellings.

Figure 3-2 Qualitative guidance on combined effect of internal ambient noise level and duration for the overheating situation



AIRTIGHT & NOISECHECK LIMITED ACOUSTICS TESTING

APPENDIX

Continuous equivalent noise level, LAeq — The steady noise level (usually in dBA) which, over the period of time under consideration, contains the same amount of sound energy as the time varying noise.

LAmx - The maximum value that the A-weighted sound pressure level reaches during a measurement period.

dB (A) — The A-weighted sound pressure level.

Decibel (dB) — A unit used for many acoustic qualities to indicate the level of sound with respect to a reference level.

A-weighting — A frequency weighting that relates to the response of the human ear.

Background noise level — Prevailing noise level in a specified environment measured in the absence of the noise being studied.

Habitable Room — A room used for sleeping or recreation/relaxation

D_{ne,w} Weighted element normalised level difference — A single-number quantity which characterises the airborne sound insulation of a small building elements.

EPU — Environmental Protection Unit

R_w Weighted sound reduction index — A single-number quantity which characterises the airborne sound insulation of a material or building element measured in the laboratory.

LA₁₀ — The A-weighted noise level exceeded for 10% of the measurement duration.

LA₉₀ - The A-weighted noise level exceeded for 90% of the measurement duration.

British Standards & associated documents:

Code of Practice: BS8233: 2014 - Sound Insulation and noise reduction for buildings.

World Health Organization (WHO) - Guidelines for Community Noise.

2021 No. 814

TOWN AND COUNTRY PLANNING, ENGLAND

The Town and Country Planning (General Permitted Development etc.) (England) (Amendment) (No. 2) Order 2021

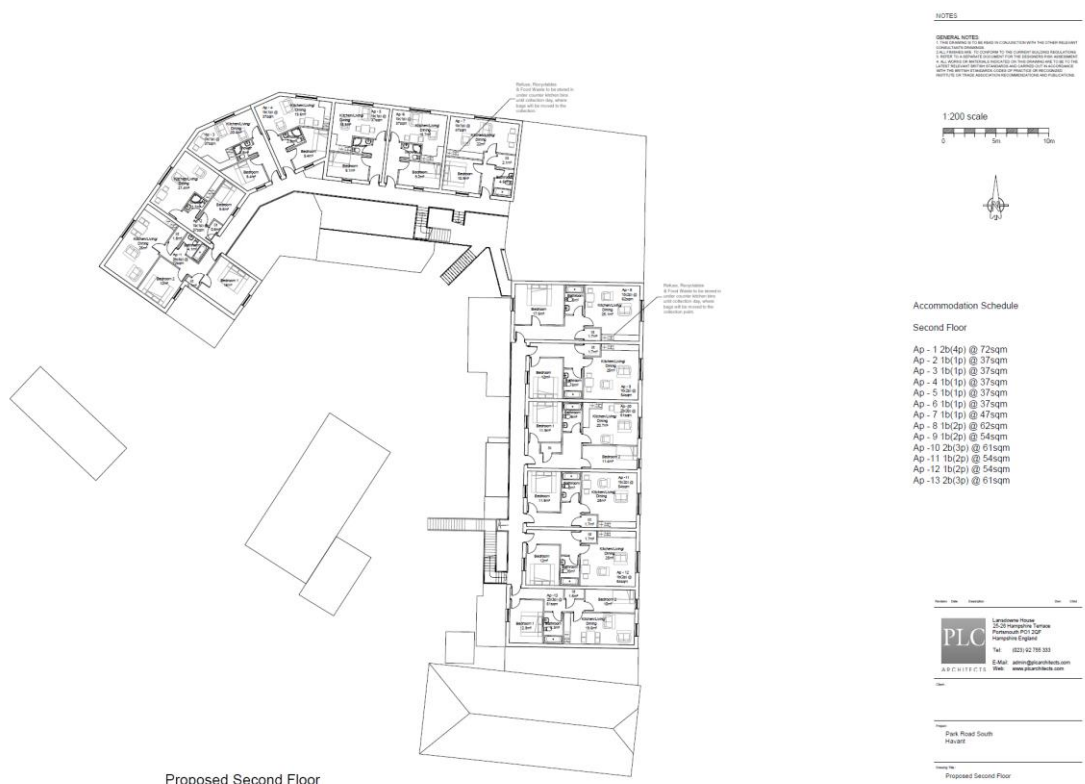
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13 Google Earth:

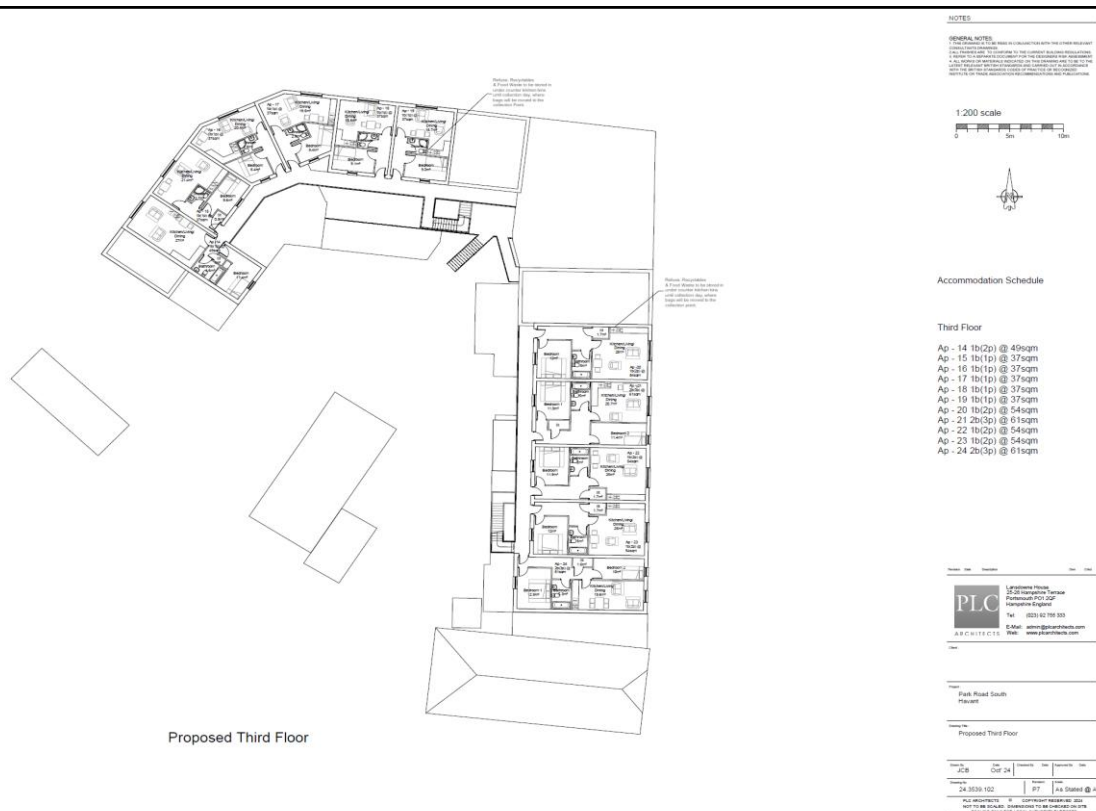


AIRTIGHT & NOISECHECK LIMITED ACOUSTICS TESTING

14 Site Plans:



Proposed Second Floor



Proposed Third Floor

AIRTIGHT & NOISECHECK LIMITED ACOUSTICS TESTING

Time Period	LAeq	LAmx
(2024/12/11 10:15:02.00)	85.3	
(2024/12/11 10:18:02.00)	70.6	
(2024/12/11 10:21:02.00)	69.4	
(2024/12/11 10:24:01.00)	72.5	
(2024/12/11 10:27:02.00)	71.1	
(2024/12/11 10:30:02.00)	71.6	
(2024/12/11 10:33:02.00)	70.3	
(2024/12/11 10:36:02.00)	71.1	
(2024/12/11 10:39:02.00)	70.6	
(2024/12/11 10:42:02.00)	71.8	
(2024/12/11 10:45:02.00)	69.7	
(2024/12/11 10:48:02.00)	69.4	
(2024/12/11 10:51:02.00)	71.5	
(2024/12/11 10:54:02.00)	70.7	
(2024/12/11 10:57:02.00)	71.3	
(2024/12/11 11:00:02.00)	70.2	
(2024/12/11 11:03:02.00)	69.3	
(2024/12/11 11:06:02.00)	69.4	
(2024/12/11 11:09:02.00)	72.9	
(2024/12/11 11:12:02.00)	70.5	
(2024/12/11 11:15:02.00)	71.6	
(2024/12/11 11:18:02.00)	72.2	
(2024/12/11 11:21:02.00)	71.6	
(2024/12/11 11:24:02.00)	70.1	
(2024/12/11 11:27:02.00)	70.3	
(2024/12/11 11:30:02.00)	70.8	
(2024/12/11 11:33:02.00)	74.7	
(2024/12/11 11:36:02.00)	70.4	
(2024/12/11 11:39:02.00)	70.7	
(2024/12/11 11:42:02.00)	70.3	
(2024/12/11 11:45:02.00)	69.1	
(2024/12/11 11:48:02.00)	71.3	
(2024/12/11 11:51:02.00)	70.6	
(2024/12/11 11:54:02.00)	69.6	
(2024/12/11 11:57:02.00)	78.1	
(2024/12/11 12:00:02.00)	71	
(2024/12/11 12:03:02.00)	69.5	
(2024/12/11 12:06:02.00)	71.7	
(2024/12/11 12:09:02.00)	70.7	
(2024/12/11 12:12:02.00)	71.9	
(2024/12/11 12:15:02.00)	71	

(2024/12/11 12:18:02.00)	71.6	
(2024/12/11 12:21:02.00)	71.9	
(2024/12/11 12:24:02.00)	72.3	
(2024/12/11 12:27:02.00)	71.1	
(2024/12/11 12:30:02.00)	69.2	
(2024/12/11 12:33:02.00)	70.5	
(2024/12/11 12:36:02.00)	70.8	
(2024/12/11 12:39:02.00)	72.6	
(2024/12/11 12:42:02.00)	71.9	
(2024/12/11 12:45:02.00)	73.8	
(2024/12/11 12:48:02.00)	71.9	
(2024/12/11 12:51:02.00)	69.3	
(2024/12/11 12:54:02.00)	70.4	
(2024/12/11 12:57:02.00)	70.1	
(2024/12/11 13:00:02.00)	73	
(2024/12/11 13:03:02.00)	70.8	
(2024/12/11 13:06:02.00)	70.5	
(2024/12/11 13:09:02.00)	70.5	
(2024/12/11 13:12:02.00)	70.5	
(2024/12/11 13:15:02.00)	70	
(2024/12/11 13:18:02.00)	69.8	
(2024/12/11 13:21:02.00)	70.6	
(2024/12/11 13:24:02.00)	69.7	
(2024/12/11 13:27:02.00)	70.1	
(2024/12/11 13:30:02.00)	70.9	
(2024/12/11 13:33:02.00)	72.2	
(2024/12/11 13:36:02.00)	69.1	
(2024/12/11 13:39:02.00)	69.8	
(2024/12/11 13:42:02.00)	69.8	
(2024/12/11 13:45:02.00)	68.4	
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(2024/12/11 13:54:02.00)	70.5	
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(2024/12/11 14:00:02.00)	69.5	
(2024/12/11 14:03:02.00)	70.5	
(2024/12/11 14:06:02.00)	69	
(2024/12/11 14:09:02.00)	68.8	
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(2024/12/11 14:21:02.00)	71.4	
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(2024/12/11 14:27:02.00)	71.5	

(2024/12/11 14:30:02.00)	70.9	
(2024/12/11 14:33:02.00)	79.7	
(2024/12/11 14:36:02.00)	71.9	
(2024/12/11 14:39:02.00)	73	
(2024/12/11 14:42:02.00)	72.9	
(2024/12/11 14:45:02.00)	70.7	
(2024/12/11 14:48:02.00)	69.3	
(2024/12/11 14:51:02.00)	74.2	
(2024/12/11 14:54:02.00)	72.8	
(2024/12/11 14:57:02.00)	71.6	
(2024/12/11 15:00:02.00)	71.4	
(2024/12/11 15:03:02.00)	69.8	
(2024/12/11 15:06:02.00)	70.6	
(2024/12/11 15:09:02.00)	72.2	
(2024/12/11 15:12:02.00)	70.7	
(2024/12/11 15:15:02.00)	70.8	
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(2024/12/11 15:27:02.00)	69.8	
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(2024/12/11 15:33:02.00)	70.7	
(2024/12/11 15:36:02.00)	70.7	
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(2024/12/11 16:12:02.00)	69.4	
(2024/12/11 16:15:02.00)	70.8	
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(2024/12/11 17:24:02.00)	71.2	
(2024/12/11 17:27:02.00)	74.1	
(2024/12/11 17:30:02.00)	69.4	
(2024/12/11 17:33:02.00)	70.3	
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(2024/12/11 17:48:02.00)	70.6	
(2024/12/11 17:51:02.00)	69.4	
(2024/12/11 17:54:02.00)	69.4	
(2024/12/11 17:57:02.00)	69.6	
(2024/12/11 18:00:02.00)	69.4	
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(2024/12/11 18:06:02.00)	69.4	
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(2024/12/11 18:21:02.00)	70.1	
(2024/12/11 18:24:02.00)	70.1	
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(2024/12/11 18:48:02.00)	72.4	
(2024/12/11 18:51:02.00)	71.6	

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(2024/12/11 18:57:02.00)	71.9	
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(2024/12/11 19:09:02.00)	72.5	
(2024/12/11 19:12:02.00)	69.3	
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(2024/12/11 20:15:02.00)	71.3	
(2024/12/11 20:18:02.00)	72.1	
(2024/12/11 20:21:02.00)	70.6	
(2024/12/11 20:24:02.00)	71	
(2024/12/11 20:27:02.00)	70.1	
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(2024/12/11 20:33:02.00)	70.5	
(2024/12/11 20:36:02.00)	72.2	
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(2024/12/11 20:42:02.00)	70.1	
(2024/12/11 20:45:02.00)	71.1	
(2024/12/11 20:48:02.00)	72.5	
(2024/12/11 20:51:02.00)	68.4	
(2024/12/11 20:54:02.00)	70.1	
(2024/12/11 20:57:02.00)	67.5	
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(2024/12/11 21:06:02.00)	70.1	
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(2024/12/11 21:12:02.00)	69.8	
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(2024/12/11 21:24:02.00)	70.3	
(2024/12/11 21:27:02.00)	69.5	
(2024/12/11 21:30:02.00)	69.7	
(2024/12/11 21:33:02.00)	70.5	
(2024/12/11 21:36:02.00)	69	
(2024/12/11 21:39:02.00)	70.7	
(2024/12/11 21:42:02.00)	68.2	
(2024/12/11 21:45:02.00)	68.3	
(2024/12/11 21:48:02.00)	70.2	
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(2024/12/11 21:57:02.00)	67.6	
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(2024/12/11 22:06:02.00)	71	
(2024/12/11 22:09:02.00)	70.2	
(2024/12/11 22:12:02.00)	69.2	
(2024/12/11 22:15:02.00)	67.2	
(2024/12/11 22:18:02.00)	67	
(2024/12/11 22:21:02.00)	68.5	
(2024/12/11 22:24:02.00)	67.4	
(2024/12/11 22:27:02.00)	67.6	
(2024/12/11 22:30:02.00)	67.6	
(2024/12/11 22:33:02.00)	69	
(2024/12/11 22:36:02.00)	70	
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(2024/12/11 22:42:02.00)	73.1	
(2024/12/11 22:45:02.00)	67.7	
(2024/12/11 22:48:02.00)	68.6	
(2024/12/11 22:51:02.00)	69.8	
(2024/12/11 22:54:02.00)	67.4	
(2024/12/11 22:57:02.00)	68.2	
(2024/12/11 23:00:02.00)	65.3	76.3
(2024/12/11 23:03:02.00)	68.3	78.7
(2024/12/11 23:06:02.00)	67.2	76.2
(2024/12/11 23:09:02.00)	69.5	83
(2024/12/11 23:12:02.00)	65.5	75.4
(2024/12/11 23:15:02.00)	65.7	79.6

(2024/12/11 23:18:02.00)	67.9	77.4
(2024/12/11 23:21:02.00)	65.4	75.2
(2024/12/11 23:24:02.00)	66.4	82.1
(2024/12/11 23:27:02.00)	68.6	86.8
(2024/12/11 23:30:02.00)	65.5	75.8
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(2024/12/11 23:36:02.00)	68	78
(2024/12/11 23:39:02.00)	62.6	77.7
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(2024/12/11 23:48:02.00)	62.6	74.2
(2024/12/11 23:51:02.00)	65.5	80.5
(2024/12/11 23:54:02.00)	63	77.1
(2024/12/11 23:57:02.00)	65.3	75.2
(2024/12/12 00:00:02.00)	64.1	83.3
(2024/12/12 00:03:02.00)	64.3	74.3
(2024/12/12 00:06:02.00)	68.7	79
(2024/12/12 00:09:02.00)	68	75.6
(2024/12/12 00:12:02.00)	62.9	75
(2024/12/12 00:15:02.00)	67.5	83.2
(2024/12/12 00:18:02.00)	64.7	76.3
(2024/12/12 00:21:02.00)	61.5	76.8
(2024/12/12 00:24:02.00)	62.1	74.8
(2024/12/12 00:27:02.00)	64.5	79.5
(2024/12/12 00:30:02.00)	66.8	81.6
(2024/12/12 00:33:02.00)	64	77.2
(2024/12/12 00:36:02.00)	62.9	76.2
(2024/12/12 00:39:02.00)	60	75
(2024/12/12 00:42:02.00)	61	74.7
(2024/12/12 00:45:02.00)	59.3	78.1
(2024/12/12 00:48:02.00)	62.6	83
(2024/12/12 00:51:02.00)	59.8	73
(2024/12/12 00:54:02.00)	58.1	71.5
(2024/12/12 00:57:02.00)	63.4	79.2
(2024/12/12 01:00:02.00)	60.9	77.3
(2024/12/12 01:03:02.00)	60.1	75.6
(2024/12/12 01:06:02.00)	61.2	74.3
(2024/12/12 01:09:02.00)	58.8	73.6
(2024/12/12 01:12:02.00)	60.1	76
(2024/12/12 01:15:02.00)	60.6	74.4
(2024/12/12 01:18:02.00)	56.8	70.6
(2024/12/12 01:21:02.00)	69.4	86.6
(2024/12/12 01:24:02.00)	65.9	80.6
(2024/12/12 01:27:02.00)	61.1	73.7

(2024/12/12 01:30:02.00)	64.1	79.4
(2024/12/12 01:33:02.00)	52.4	68.3
(2024/12/12 01:36:02.00)	60.2	74.5
(2024/12/12 01:39:02.00)	64.4	78.5
(2024/12/12 01:42:02.00)	64.3	80
(2024/12/12 01:45:02.00)	59.1	74.9
(2024/12/12 01:48:02.00)	42	52.2
(2024/12/12 01:51:02.00)	58.1	74.9
(2024/12/12 01:54:02.00)	54.2	69.7
(2024/12/12 01:57:02.00)	64.6	80.5
(2024/12/12 02:00:02.00)	62.3	74.9
(2024/12/12 02:03:02.00)	59	76.6
(2024/12/12 02:06:02.00)	40.6	45.3
(2024/12/12 02:09:02.00)	64.3	81.3
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(2024/12/12 02:18:02.00)	62	78.9
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(2024/12/12 02:24:02.00)	60	76.3
(2024/12/12 02:27:02.00)	62.9	77
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(2024/12/12 03:09:02.00)	44.9	59.3
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(2024/12/12 03:24:02.00)	56.5	74.3
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