

Hareshill Road North South Heywood

Condition Discharge Report

32648/RP1

5 December 2025

For:

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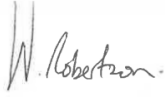
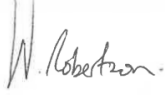
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Document Control

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3	05/12/2025	Minor amendments to wording			
			Will Robertson Consultant BSc(Hons), AMIOA	Jake Howarth Senior Associate BEng(Hons), MIOA	
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1.0 Introduction

Hann Tucker Associates Limited (Hann Tucker) has been commissioned by Northstone Development Limited to provide a Noise Impact Assessment relating to the discharge of Condition 24 for a site in Heywood, Greater Manchester.

The site was granted outline permission (16/01399/HYBR) and has since had the Condition 24 wording amended (24/01254/ANM). The wording of Condition 24 is as follows:

“No development shall take place on any residential phase of development until a scheme of noise mitigation measures has been submitted to and approved in writing by the Local Planning Authority, demonstrating that all residential units within that particular phase of development shall achieve the following internal and external noise levels:

- 35 dB(A) Leq (16 hour) in the bedrooms between the daytime hours 7 am and 11pm to protect daytime resting;*
- 30 dB(A) Leq (8 hour) in the bedrooms between the night-time hours of 11pm and 7am;*
- 35 dB(A) Leq (16 hour) in the living room/s between the daytime hours of 7 am and 11pm;*
- 40 dB(A) Leq (16 hour) in any dining rooms during daytime hours;*
- Noise in private external amenity areas shall aim to achieve the guideline values given in BS8233:2014 and ProPG or the lowest practicable levels in accordance with BS8233:2014 and ProPG; to a maximum of 58 dB(A) Leq (16 hour);*
- Maximum instantaneous sound levels should not exceed 45 dB(A) Lmax, fast measured (based on a five-minute logging interval) in bedrooms more than 10 times per night.*

Where the internal residential criteria set out above will only be met with windows closed, an appropriate means of alternative ventilation will be proposed for the affected rooms in the noise mitigation scheme. All works which form part of the approved scheme shall be completed before the residential units within that phase are occupied and retained thereafter.”

With reference to the above, baseline noise conditions have been established by means of a detailed noise survey, presented herein. The findings have subsequently been used to develop an acoustic strategy for the site, suitable for the discharge of Condition 24.



Measures required to mitigate noise impacts for the proposed development (when operational) have been discussed in context with relevant national & local planning policies, design standards and good practice guides.

2.0 Acoustic Terminology

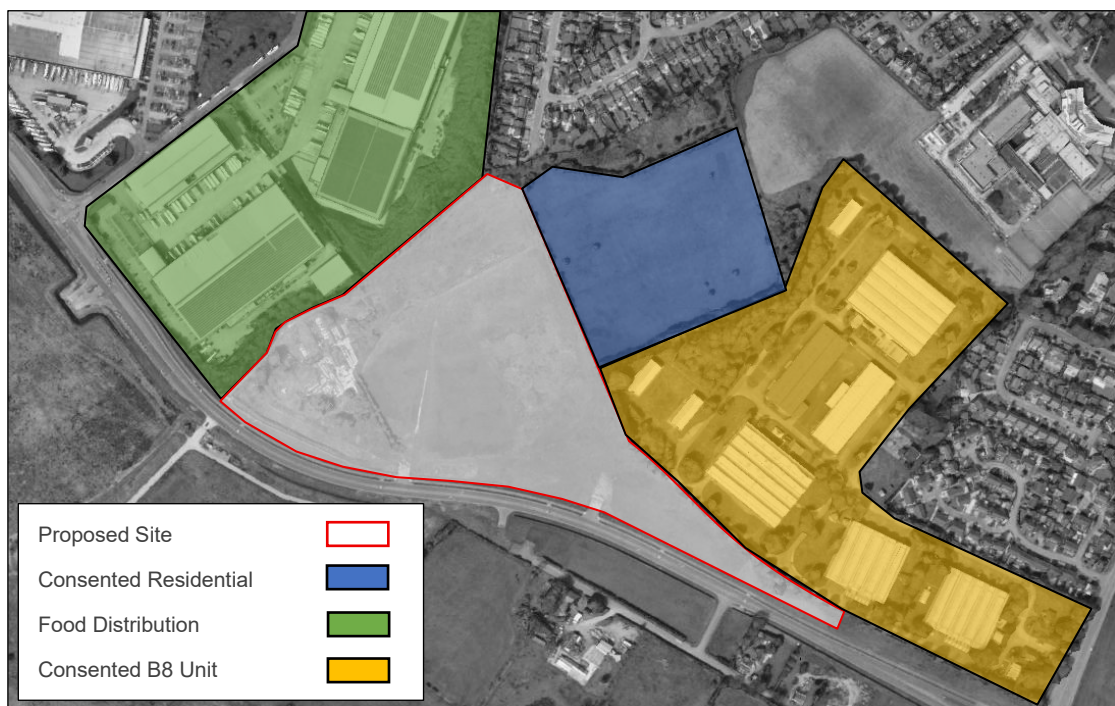
For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

3.0 Site Description

The site is bounded by Hareshill Road and Queen Elizabeth II Way along the southern boundary.

To the east, a proposed Class B8 distribution and storage facility has been granted planning permission (ref 22/01410/FUL) along with houses related to a separate stage of the wider residential development in the area. To the west and northwest are industrial units associated with Yearsley Food Group as well as multiple other more distant industrial units.

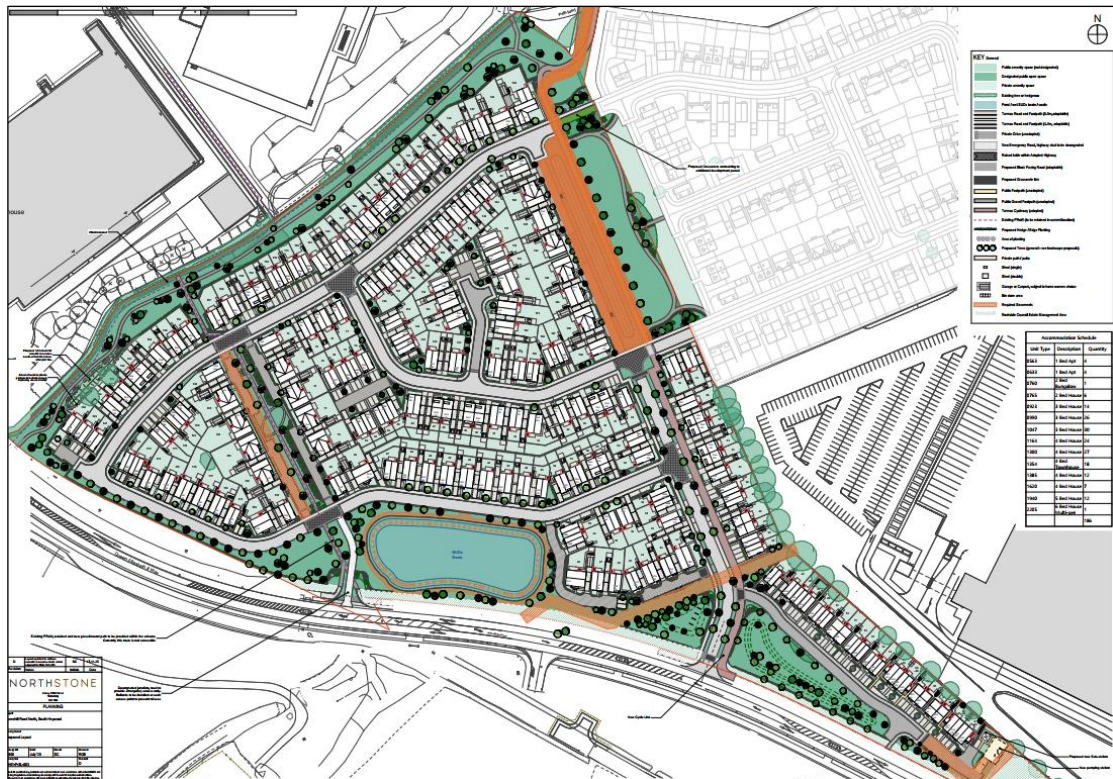
The Yearsley Food Group units have associated plant to the rear that generate plant noise that impacts the site. The site in relation to its immediate surroundings is shown on the plan below.



Plan Showing Site Plan (©Google Earth 2025)

4.0 Proposed Development

The site is proposing to introduce 186 new houses and associated gardens. The project proposals for the site are shown in the plan below.



Plan showing Project Proposals (Northstone Development Ltd)

5.0 Environmental Noise Survey

5.1 Procedure

Fully automated environmental noise monitoring was undertaken by Will Robertson BSc(Hons) TechIOA from approximately 11:30 hours on Friday 10 October 2025 to 12:15 hours on Monday 13 October 2025, to establish full daytime and night-time noise levels over a typical weekday and weekend period. Measurements were taken continuously of the A-weighted (dBA) L_{90} , L_{eq} , and L_{max} sound pressure levels over discrete 2 and 15-minute periods.

Additional attended measurements were performed between on both set-up and collection of the unattended sound level meters with the purpose of establishing specific noise levels associated with the operation of nearby industrial units.



5.2 Measurement Positions

The noise level measurements were undertaken at 5No positions as described in the table below.

Position	Type	Description
MP1	Unattended	To the south of the site, approx. 2m from the nearside edge of Queen Elizabeth II Way. Microphone in free-field conditions approx. 3 m above ground attached to a lamppost.
MP2	Unattended	To the north of the site, approx. 60m from the nearside edge of Gloucester Avenue. Microphone in free-field conditions approx. 3 m above ground attached to Heras fencing.
A	Attended	To the northwest of the site, approximately 52m from the Yearsley Food chiller plant. 1.5m above ground attached to a tripod.
B	Attended	To the northwest of the site, approximately 55m from the Yearsley Food chiller plant. 1.5m above ground attached to a tripod.
C	Attended	To the northwest of the site, approximately 40m from the Yearsley Food roof. 1.5m above ground attached to a tripod.

The positions are shown on the plan below.



Plan Showing Measurement Positions (©Google Earth 2025)



5.3 Weather Conditions

For the unattended survey between Friday 10 October 2025 and Monday 13 October 2025, local weather reports indicated no notable periods of prolonged and/or heavy rainfall, with temperatures ranging from 5°C (night) to 14°C (day) and wind speeds less than 5 m/s. During our time on site, skies were overcast, wind conditions were light, and road surfaces were largely dry. During the attended survey on both set-up and collection, the weather was generally clear and dry with no periods of rainfall and light wind conditions.

5.4 Instrumentation

The instrumentation used during the survey is presented in the table below:

Position	Description	Manufacturer	Type	Serial Number	Calibration
1	Sound Level Meter	Larson Davis	LxT	4086	Calibration on 28/05/2024
2	Sound Level Meter	Larson Davis	LxT	4569	Calibration on 28/02/2025
	Preamp	PCB	PRML x TL1	42842	Calibration on 28/02/2025
	Microphone	PCB	377B02	318357	Calibration on 28/02/2025
A and B C on 13/10/2025	Sound Level Meter	Larson Davis	LxT	5104	Calibration on 28/02/2025
	Preamp	PCB	PRML x TL1	69922	Calibration on 28/02/2025
	Microphone	PCB	377B02	317684	Calibration on 28/02/2025
C on 10/10/2025	Sound Level Meter	Brüel and Kjær	2250	3025254	Calibration on 21/02/2024
	Type 1 Calibrator	Brüel and Kjær	4231	2308993	Calibration on 13/02/2025
1, 2, A, and B C on 13/10/2025	Type 1 Calibrator	Larson Davis	CAL200	3083	Calibration on 28/02/2025

Each sound level meter, including the extension cable, was calibrated prior to and on completion of the surveys. No significant changes were found to have occurred (no more than 0.1 dB).



Each sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. Each microphone was fitted with a windshield.

5.5 Results

The results have been plotted on Time History Graphs 32648/TH1 to 32648/TH2 enclosed presenting the 15-minute A-weighted (dBA) L_{90} , L_{eq} and L_{max} levels at each measurement position throughout the duration of the survey.

In order to compare the results of our survey with the relevant guidelines it is necessary to convert the measured $L_{Aeq(15\text{-minute})}$ noise levels into single figure daytime $L_{Aeq(16\text{-hour})}$ (07:00-23:00 hours) and night-time $L_{Aeq(8\text{-hour})}$ (23:00-07:00 hours) levels.

A summary of the results, as used to inform subsequent assessments against current guidelines, is presented in the table below. The L_{A90} values presented are the 'representative' levels determined through statistical analysis of the 15-minute readings in line with BS 4142. L_{Amax} values are the '10th highest' 2-minute value in line with Approved Document O (Part O) requirements.

Position	Date	Daytime (07:00 – 23:00 hrs)		Night-time (23:00 – 07:00 hrs)		
		$L_{Aeq,16hr}$	Typical L_{A90}	$L_{Aeq,8hr}$	Typical L_{A90}	L_{Amax}
1	10/10/2025	78 ^[1]	53	72	52	94
	11/10/2025	76		71		93
	12/10/2025	75		73		94
	13/10/2025	79 ^[1]		-		-
2	10/10/2025	51 ^[1]	41	46	39	59
	11/10/2025	48		45		55
	12/10/2025	47		48		57
	13/10/2025	51 ^[1]		-		-

[1] Full measurement period not captured



The following table summarises noise levels recorded at each of the attended measurement positions.

Position	Date	Period	Sound Pressure Level (dB)		
			L _{Aeq,T}	L _{A90,T}	L _{Amax,T}
A	13/10/2025	11:00-11:15	43	41	58
B		11:15-11:30	43	42	61
		12:00-12:15	43	40	55
C	10/10/2025	12:00-12:15	53	52	62
	13/10/2025	11:45-11:55	53	51	66

As displayed in the table above, the L_{Aeq} and L_{A90} are nearly identical in positions A, B and C. This is in line with the characteristics of plant noise and demonstrates that the measured levels captured are dominated by the plant associated with Yearsley Foods.

5.6 Discussion of Noise Climate

5.6.1 Environmental Noise

Due to the nature of the survey, i.e. unattended, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period.

However, upon set-up of the unattended sound level meters on Friday 10 October 2025, directly opposite Measurement Position 1, ground works involving digging and jackhammering were being undertaken. This was heard across the entire site and resulted in measurements in only 1 No attended position being carried out initially. It was discussed with site operatives that the works would not be carried out across the weekend and as such the surveying period was appropriate. There was noted to be a ground water pump located on the adjacent site that ran for the duration of the survey which has artificially raised the background noise level in this Position 1. However, the pump was noted to not impact the ambient noise levels, L_{Aeq} , as these levels were dictated by road traffic noise.

At the end of the survey period the noise climate was noted to be dominated by road traffic noise to the south as well as plant noise to the west of the site associated with the rooftop plant as well as the ground floors chillers which were notably quieter. It was noted that the demolition of the industrial site to the east was intermittently in progress, but no site works dominated the noise climate for the time on site.



5.6.2 Plant Noise

As mentioned above, plant noise to the west of the site associated with the rooftop plant as well as the ground floors chillers (which were notably quieter) ran for the duration of the time on site. There were not noted to be any tonal characteristics, however, due to the nature of the plant items they are deemed to be intermittent, although this was not obvious for the duration of the surveying period.

At times it was noted that the road noise “masked” the noise generated by the ground floor chillers to the north of the site.

Given the context of the site (i.e. the historical industrial use of the area), the plant noise is considered to be part of the existing ambient noise levels on the site. However, given this type of noise can be disturbing the site should incorporate suitable mitigation measures to protect residential amenity.

6.0 Acoustic Modelling

Using the results of survey, a 3D noise model has been created in CadnaA® to predict the incident noise levels upon each elevation of the proposed development.

Proposed acoustic fencing to the south of the development as well as within the consented Class B8 Unit boundary has been considered within the model.

Screenshots of the model to provide further context are provided below.



Screenshot of CadnaA model predicted road noise impact during the daytime (07:00-23:00)



Screenshot of CadnaA model predicted road noise impact during the nighttime (23:00-07:00)

This model has then been used to assess the different noise impacts across the proposed development, as well as informing the proposed glazing specifications detailed in the following sections.

7.0 Industrial Noise Impacts

7.1 Existing Industrial Sources

The associated activities and plant noise from the Yearsley Food sites have been captured during the attended measurements. From the on-site observations, measurements, and subsequent noise modelling it is determined that the noise levels are unlikely to exceed 53 dBA at the proposed residential receptors to the, worst-affected, west perimeter of the site.

To verify the modelling, receptors in the same locations are measured during the E3P survey of the Yearsley Food plant items were also modelled. The calculated results were comparable to the noise levels measured by EP3. As such, the survey and modelling undertaken is considered to represent the existing levels of plant noise impacting the site.



7.2 Future Industrial Sources

To the east of the site is a proposed Use Class B8 storage and distribution site. A noise assessment was conducted by Waterman Group (Document Reference 20647106-WAT-XX-XX-RP-N-710001_S5_P03) in which noise limits for the adjacent site were set to the site being assessed within this report. The following limits are imposed as follows:

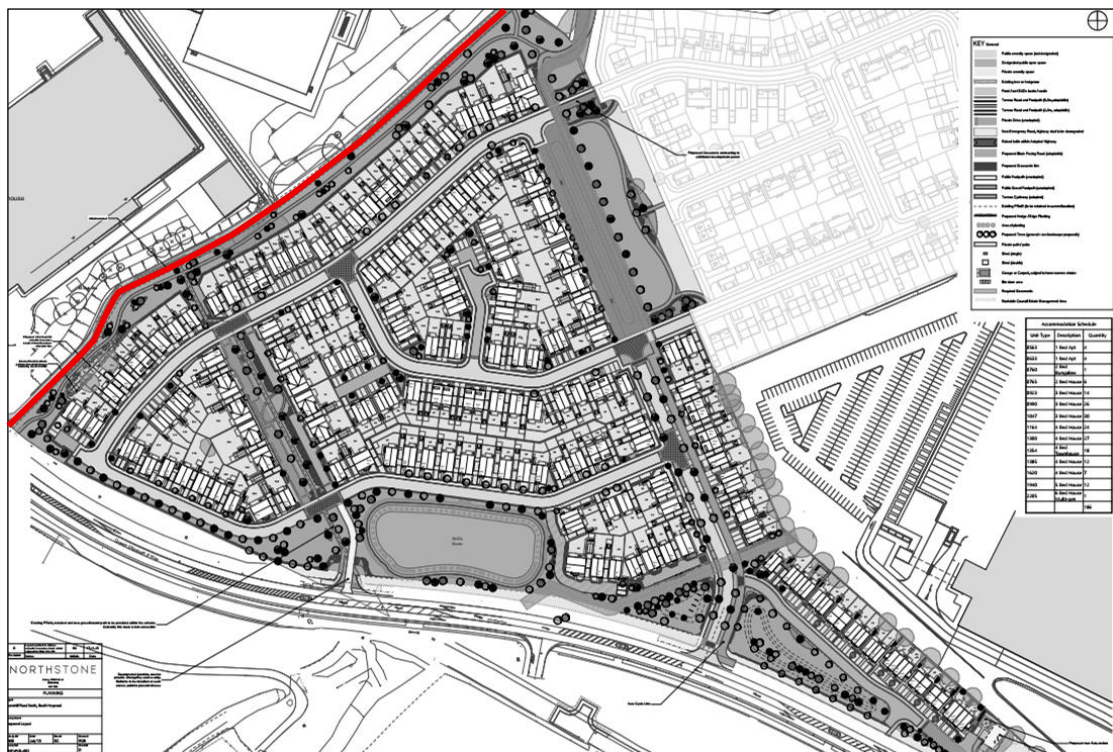
Plant Noise Emissions ($L_{A,T}$, dB)	
Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
52	48

The above limits have been considered within the noise modelling and subsequent assessment. However, it will be the responsibility of the operator of the unit to comply with the above. It is understood this is being achieved through the use of acoustic screens by the developer of the storage and distribution site.

7.3 Mitigating Existing Plant Noise

With a view to limiting the level of plant noise affecting the proposed dwellings, several modelling scenarios were developed to assess the benefit of introducing an acoustic barrier between the Yearsley Food site and the proposed dwellings. The scenarios considered were:

- No barrier provided.
- With a 2.5m high barrier in the location indicated below.
- With a 3.5m high barrier in the location indicated below.



Mark-up Showing Location of Modelled Barrier

Detailed calculations were undertaken for the most impacted plots to each of the Yearsley Food sites. These were:

- Plot 138
- Plot 158.

The calculated noise levels incident on the proposed facades are provided below:

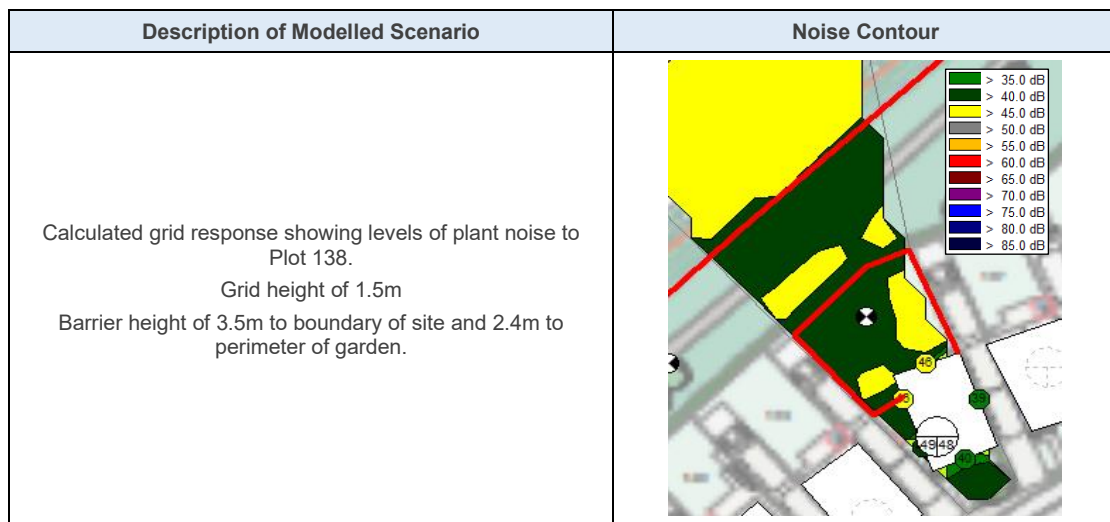
Plot	Barrier Height	Receiver Height	Calculated Plant Noise Level
138	0	1.5	46
		3.0	49
	2.5	1.5	46
		3.0	49
	3.5	1.5	46
		3.0	49
158	0	1.5	51
		3.0	52
	2.4	1.5	51
		3.0	52
	3.5	1.5	51
		3.0	52



Based on the above, it is clearly demonstrated that a barrier to the west of the site is unlikely to be an effective option for controlling plant noise to the proposed dwellings, unless it is unfeasibly tall. Therefore, to protect the internal amenity, suitable glazing, ventilation and overheating provisions will be required to the façades facing Yearsley Foods.

To present this visually, and to investigate the impact of localised garden fencing, the table below provides calculated noise contours for Plot 138 with a description of the modelled scenario.

Description of Modelled Scenario	Noise Contour
Calculated grid response showing levels of plant noise to Plot 138. Grid height of 1.5m Barrier height of 0m to boundary of site and 0m to perimeter of garden.	
Calculated grid response showing levels of plant noise to Plot 138. Grid height of 1.5m Barrier height of 3.5m to boundary of site and 0m to perimeter of garden.	



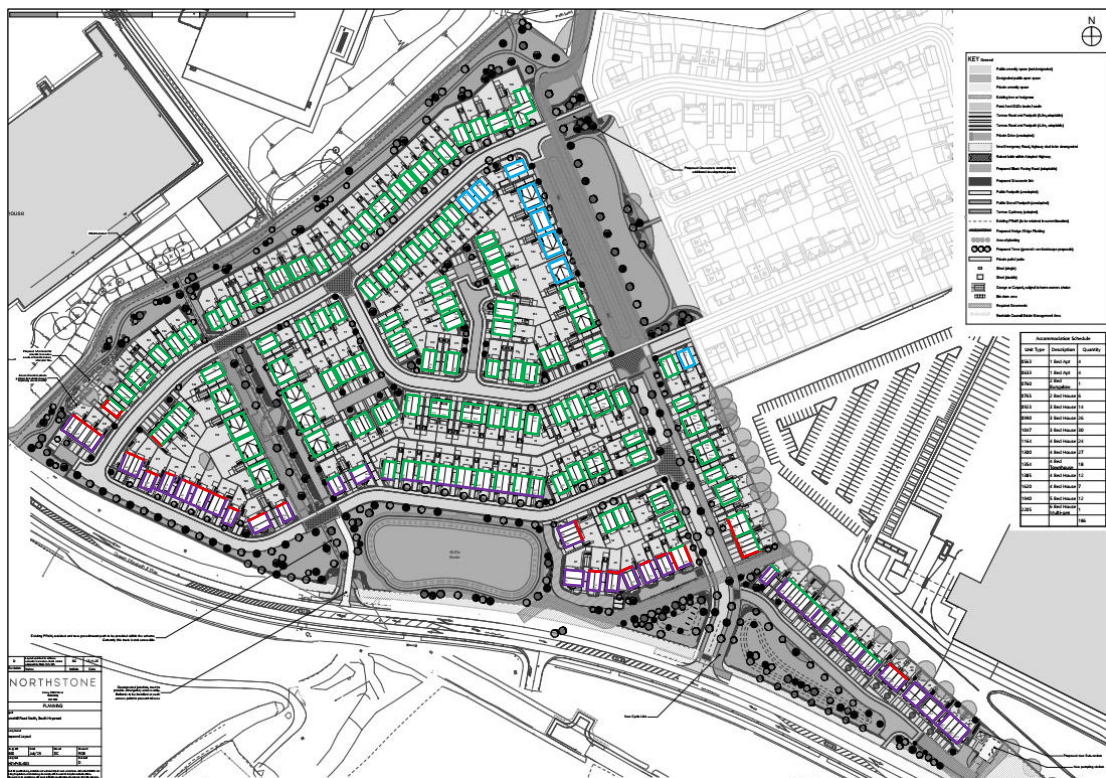
Based on the above, providing screens to the perimeter of the site and the perimeter of the gardens are expected to be ineffective in controlling plant noise from Yearsley Foods.

This is due to either the plant being at high level or there already being a significant amount of screening provided by earth bunds.

8.0 Incident Noise Levels

Using the model in Section 6.0, the following table and associated mark-ups outline the free-field incident noise levels across the development. For purposes of any subsequent assessment, these zones are considered to be the “Façade Zones”).

Façade zone	Calculated incident noise levels		
	Daytime $L_{Aeq,16h}$ (dB)	Night $L_{Aeq,8h}$ (dB)	10 th Highest Night $L_{max,2min}$ (dB)
A - Purple	62-66	59-63	67-74
B - Red	59-61	56-58	
C - Green	≤ 60	≤ 56	≤ 66
D - Blue		<49	<64



Façade Zone Mark-up (Northstone Ltd)

9.0 Achieving Internal Noise Levels

There are 3No ventilation conditions applicable to proposed residential dwellings. These are Background Ventilation as described in Approved Document F (Part F), Overheating as described in Approved Document O (Part O), and Purge Ventilation (odour and smells).

9.1 Purge Ventilation

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

As such, acoustic conditions are generally not a concern during purge ventilation.

9.2 Background Ventilation Condition

9.2.1 Criteria

With reference to the acoustic standards and guidelines as reviewed in Appendix B, the external noise intrusion levels from environmental sources should be controlled so as to not exceed the following criteria.



Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 – 07:00
Resting	Living Rooms	35 dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB ^[1] L_{Amax}

[1] regular noise events such as trains, aircraft (10th highest)

Note: For this site the $L_{Aeq,T}$ noise parameter alone is considered to be sufficient given the character of the noise climate we have measured. This is consistent with Section 2.2.2 of The World Health Organisation Environmental Noise Guidelines for the European Region and Note 4 of Section 7.7.2 of BS8233:2014).

9.2.2 Outline Specifications

Based on the prevailing noise climate at the site, open windows as a means of background ventilation would not be suitable across the development. As such an alternative means of background ventilation would need to be provided.

Allowance should be made to provide appropriate sound insulation solutions as required including, where necessary, suitably specified glazing and attenuated ventilators/mechanical ventilation systems. Preliminary calculations have been carried out to determine the likely façade sound insulation performance requirements for each façade. Calculation methods follow those outlined in BS 8233:2014 Section G.2 and are based on the following:

- Conventional brick/block cavity external wall
- 29m³ approximate room volume (4m x 3m x 2.4m)
- window area to 38% of the external wall in each room.
- Reverberation time of 0.5 seconds.

From the results of the assessment, the following minimum preliminary acoustic performance specifications are recommended. These are intended for planning use only, and detailed design stage octave band acoustic specifications will need to be developed for tender.

Façade Zone		Façade Element	Preliminary Minimum Sound Reduction Specification
A	Purple	Window	34 dB $R_w + C_{tr}$
		Ventilator	40 dB $D_{new} + C_{tr}$



Façade Zone		Façade Element	Preliminary Minimum Sound Reduction Specification
B	Red Bedroom	Window	30 dB $R_w + C_{tr}$
		Ventilator	36 $D_{new} + C_{tr}$
	Red Living/Dining	Window	27 dB $R_w + C_{tr}$
		Ventilator	33 $D_{new} + C_{tr}$
C	Green	Window	27 dB $R_w + C_{tr}$
		Ventilator	33 $D_{new} + C_{tr}$
D	Blue	Window	27 dB $R_w + C_{tr}$
		Ventilator	33 $D_{new} + C_{tr}$

9.2.3 Example Glazing Configurations

Example glazing configurations commensurate with achieving the sound insulation specifications noted in Section 9.2.2 are given below.

Glazing Specification, $R_w + C_{tr}$ (dB)	Example Configuration
34	Up-rated double-glazed system e.g. 6/16/8.8 mm.
30	double glazed system e.g. 10/16/4 mm.
27	double glazed system e.g. 6/16/6 mm.

9.2.4 Example Ventilation Solutions

Example ventilation solutions commensurate with achieving the elemental sound insulation performances noted in Section 9.2.2 are discussed below.

Ventilator Specification, $D_{new} + C_{tr}$ (dB)	Example Configuration
34-42	Acoustic trickle vent per habitable room, or a mechanically assisted supply & extract solution (e.g. local MVHR).
33	1 x 2,500mm ² standard hit-miss trickle vent per habitable room, or a mechanically assisted supply & extract solution (e.g. local MVHR).

The preliminary performance specifications included above are based on the provision of either full MVHR for rooms or 1no. ventilator only per habitable room as required. If additional numbers of ventilators are required to achieve the ventilation rates, the performance requirement for the individual ventilators will need to increase.



The table below provides guidance on the increase in performance specification required for additional numbers of ventilators.

Number of Ventilators	Performance Increase on Ventilator Specifications Stated Above
1	+0 dB
2	+3 dB
3	+5 dB
4	+6 dB

9.3 Overheating Condition

Approved Document O 'Overheating' (ADO) was released in December 2021 and came into effect in England on 15 June 2022. It sets out the suitable methodologies to limit unwanted solar gains in summer and provide adequate means to remove heat from the indoor environment. Requirement O1(2)(a) contains criteria relating to noise with Sections 3.2 to 3.4 of ADO stating the following:

"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 (11pm to 7am).

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

- a) 40 dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).*
- b) 55 dB L_{AFmax} , more than 10 times a night (between 11pm and 7am)."*

Further to the above, the acoustic requirements of ADO relates to bedrooms and night and does not consider daytime hours or other living spaces.

To assess overheating ADO sets out 2 ways this can be done: These are by either using the simplified method or through dynamic thermal modelling (i.e. a TM59 assessment). For an acoustic assessment suitable to accompany a Planning Application, the simplified method is often used as it splits England into "Moderate" and "High" risk zones depending on the location of the site and provides "minimum free areas" for window openings in bedrooms. These are as follows:



- 13% of the floor area for “High Risk” locations
- 4% of the floor area for “Moderate Risk” locations

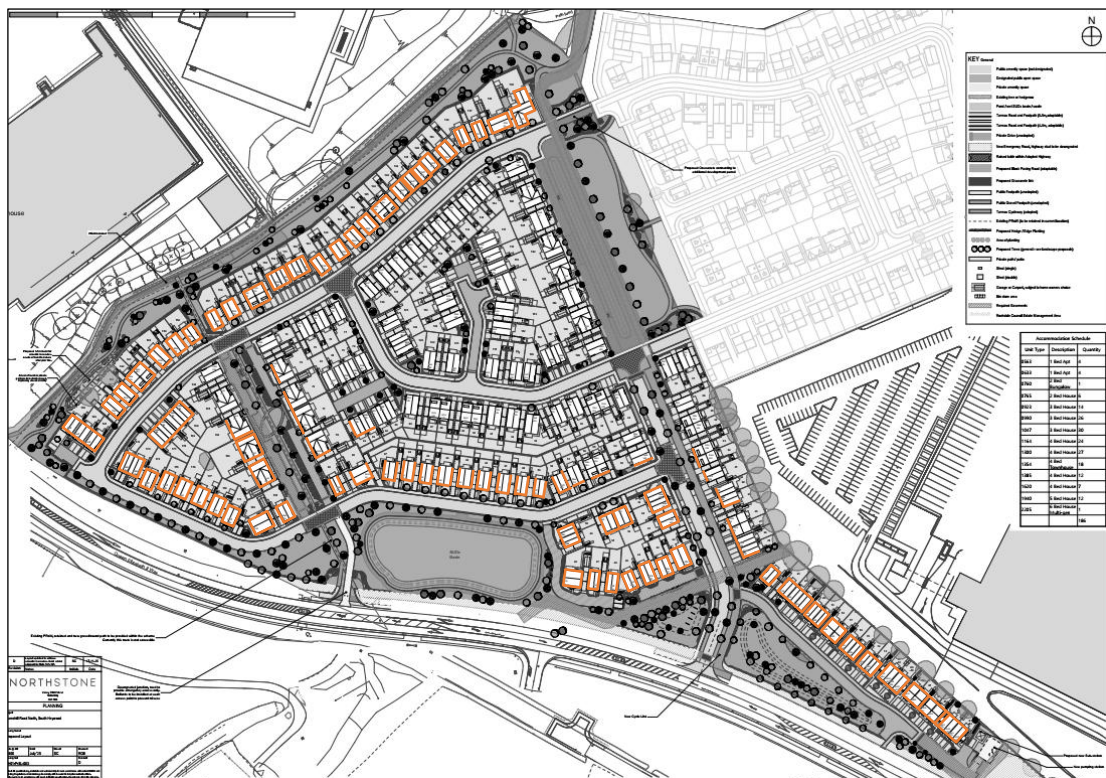
Based on the minimum free areas noted above, the IoA & ANC guidance note “Demonstrating Compliance with the Noise Requirements of Approved Document O” sets out the external noise levels above which the simplified method cannot be used and alternative overheating strategy should be developed. These are shown below:

Zone	Risk Category	Incident Noise Level (dB)		Notes
		L _{Aeq,8h}	L _{AFmax,2min}	
Orange	High	>44	>59	Open windows based on simplified model not suitable. Detailed modelling via TM59 assessment advised. Limited area opening windows or closed windows may be required to comply with AD-O.
	Moderate	>49	>64	

The site is located in Heywood and therefore falls into the “Moderate” risk category.

Based on the table above, the following figure shows the locations in which the external noise is above the point at which the simplified ADO model can be used and detailed modelling thermal modelling and a subsequent acoustic assessment is advisable to show compliance with Requirement O1(2)(a). Where a facade is not highlighted opening windows as a means of overheating control should be suitable from an acoustic perspective without a more detailed assessment.

Following on site measurements of the proposed glazing systems, assuming windows are not opened more than a quarter of the way overnight to combat overheating and considering security, a level difference of 13 dB was measured. Referencing the measured level difference provided by this glazing type, the following overheating mark-up is presented overleaf.



Façade Zone Mark-up (Northstone Ltd)

At this stage, bedrooms should be designed to avoid or severely restrict the reliance on opening windows to satisfy overheating targets in the **Orange** zones highlighted above. This can be achieved by use of solar rated glazing, external shutters or fenestration design subject to a detailed overheating assessment (TM59). In addition, mitigation measures in the form of attenuated or plenum windows, attenuated louvres or vents for overheating and sound attenuating balconies may be suitable. These methods for reducing solar gains can be assisted with mechanical ventilation, such as MVHR or overheating fans.

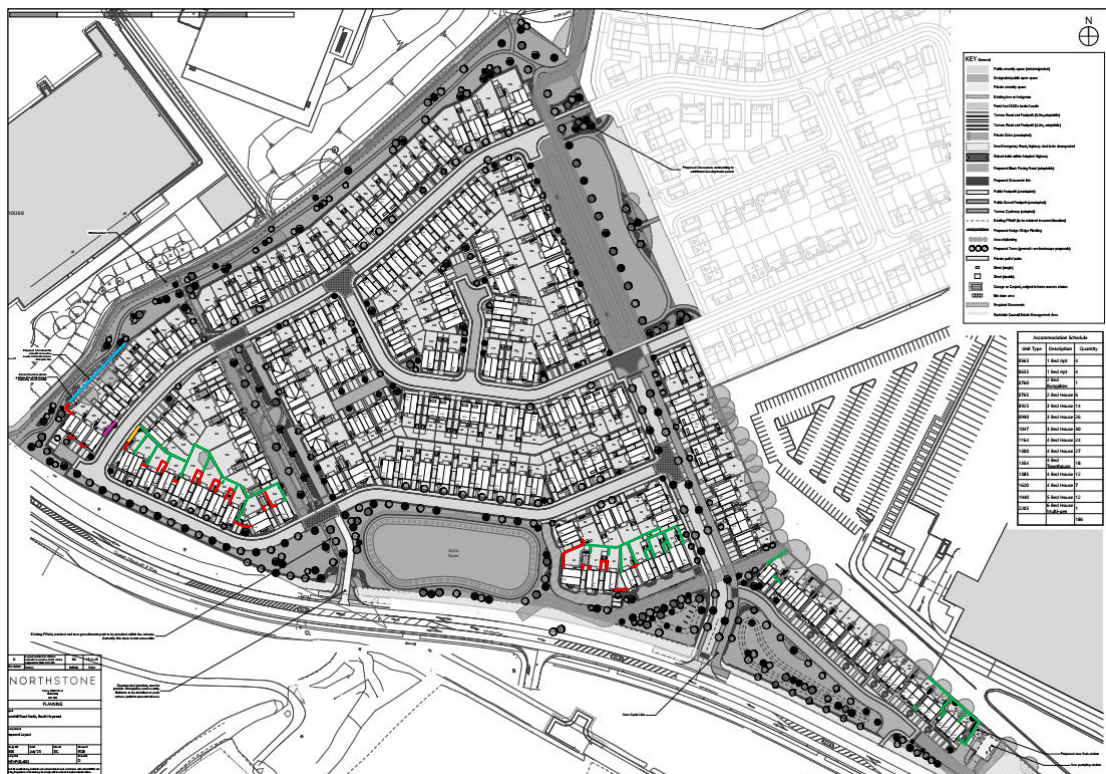
Where mechanical systems are required, the noise output from these should be assessed in line with the guidance set out in Approved Document O.

10.0 External Amenity Areas

Noise levels in external amenity areas should be below 58 dB $L_{Aeq,16hr}$, as stated in Condition 24.

The table and associated mark-up below detail the fence heights required to achieve the above criterion in each garden. Where a fence is not specified, the fence height should be 1.8-metres.

Fencing Zone	Fence Height
A - Red	3m
B - Green	2.4m
C - Pink	Sloping from 3m to 2.4m
D - Orange	Sloping from 2.7m to 2.4m
E - Blue	1.8m on top of new artificial earth bund with a height of 1.5m (Total height of 3.3m)



Plan of fence heights to meet garden noise level criteria

It should be noted that the southwest fence of Plot 165 remains at a level of 3m until it abuts the 1.8-metre fence on the top of the earth bund.

The above suggested solutions are subject to the approval of the Local Authority.



Further to the above, it should be noted that BS8233:2014 states: *“In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”* As this development is part of the Heywood South Masterplan, it is expected that the efficient use of this land has already been considered by the Local Authority.

Considering the above fence height mark-up, it is suggested that the noise levels within the proposed gardens should meet the requirements of Condition 24.

11.0 Operational Noise Impacts

11.1 Fixed Plant & Equipment

Based on the results of the noise survey and the requirements of the Local Authority, we propose that the following plant noise emission criteria be achieved incident at the nearest noise sensitive residential windows, in free-field conditions, with all plant operating simultaneously.

Location	Plant Noise Emission Criteria ($L_{Aeq,T}$, dB)	
	Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
North of the site	41	39
South of the site	53	52

Noise shall be assessed in accordance with BS 4142:2014 with corrections applied for any plant emitting noise of a tonal or irregular quality. The above limits shall be subject to the final approval of the Local Authority.

It has been noted that the latest revision of plans includes a new pumping station and substation to the southeast of the site. These should be designed to meet the plant noise limits for the south of the site at the nearest residential window.



12.0 Conclusions

A detailed environmental noise survey has been undertaken in order to establish the currently prevailing environmental noise climate around the site.

The environmental noise impact upon the proposed dwellings has been assessed with reference to the wording of Condition 24.

Appropriate target internal noise levels have been proposed. These are achievable using conventional mitigation measures.

Preliminary acoustic performance specifications for the external building fabric elements have been recommended such that appropriate internal noise levels should be achieved. These are intended for planning use only, and detailed design stage octave band acoustic specifications will need to be developed for tender.

The noise modelling has demonstrated that noise levels should fall within the criterion in external amenity spaces with the fence heights as presented in Section 10.0.

The assessment shows the site, subject to appropriate mitigation measures, is suitable for residential development in terms of noise and should achieve the requirements of Condition 24.

Appendix A

Acoustic Terminology

The acoustic terms used in this report are defined as follows:

dB	Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).
dBA	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.
L _{90,T}	L ₉₀ is the noise level exceeded for 90% of the period <i>T</i> (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.
L _{eq,T}	L _{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, <i>T</i> .
L _{max}	L _{max} is the maximum sound pressure level recorded over the period stated. L _{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L _{eq} noise level.
L _p	Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).
L _w	Sound Power Level (SWL) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Appendix B

Planning Policies, Standards & Guidance

B.1 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published in March 2010 (i.e. before the NPPF). The NPSE is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting out the long term vision of Government noise policy which is to:

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

That vision is supported by the following NPSE noise policy aims which are reflected in three of the four aims of planning policies and decisions in paragraph 123 of the NPPF (see paragraph 8.2 (b) below):

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.”*

The Explanatory Note to the NPSE has three concepts for the assessment of noise in this country:

NOEL – No Observed Effect Level

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

LOAEL – Lowest Observable 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.

None of these three levels are defined numerically and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent an SOAEL for noise is acknowledged in the NPSE and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

The NPSE concludes by explaining in a little more detail how the LOAEL and SOAEL relate to the three NPSE noise policy aims listed above. It starts with the aim of avoiding significant adverse effects on health and quality of life, then addresses the situation where the noise impact falls between the LOAEL and the SOAEL when *“all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development.”* The final aim envisages pro-active management of noise to improve health and quality of life, again taking into account the guiding principles of sustainable development which include the need to minimise travel distance between housing and employment uses in an area.

B.2 National Planning Policy Framework (NPPF)

The following paragraphs are from the NPPF (published December 2023):

198. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.

In doing so they should:

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

199. 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.”

Paragraph 185 also references the Noise Policy Statement for England (NPSE). This document does not refer to specific noise levels but instead sets out three aims:

- “Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

B.3 Planning Practice Guidance on Noise

Planning Practice Guidance (PPG) under the NPPF has been published by the Government as a web based resource at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. This includes specific guidance on Noise although, like the NPPF and NPSE the PPG does not provide any quantitative advice. It seeks to illustrate a range of effect levels in terms of examples of outcomes as set out in the following table:

Perception	Examples of Outcomes	Increasing effect level	Action
Not noticeable	No effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance.	Observed Adverse Effect	Mitigate and reduce to a minimum

Perception	Examples of Outcomes	Increasing effect level	Action
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable hard, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

B.4 World Health Organisation

The current Environmental Noise Guidelines 2018 for the European Region (ENG) supersede the Guidelines for Community Noise from 1999 (CNG). Nevertheless, the ENG recommends that all CNG indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) remain valid.

A summary of the guidance from the ENG and CNG is shown in the table below.

Source	CNG guideline indoors all sources	ENG guideline outdoors noise from specific source only
Road traffic noise	35 $L_{Aeq, 16h}$	53 dB L_{den}
	30 $L_{Aeq, 8h}$	45 dB L_{night}
Railway noise	35 $L_{Aeq, 16h}$	54 dB L_{den}
	30 $L_{Aeq, 8h}$	44 dB L_{night}
Aircraft noise	35 $L_{Aeq, 16h}$	45 dB L_{den}
	30 $L_{Aeq, 8h}$	40 dB L_{night}

With regard to single-event noise indicators, Section 2.2.2 of the WHO Environmental Noise Guidelines 2018 state:

“In many situations, average noise levels like the L_{den} or L_{night} indicators may not be the best to explain a particular noise effect. Single-event noise indicators – such as the maximum sound pressure level ($L_{A,max}$) and its frequency distribution – are warranted in specific situations, such as in the context of night-time railway or aircraft noise events that can clearly elicit awakenings and other physiological reactions that are mostly determined by $L_{A,max}$. Nevertheless, the assessment of the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative. The guidelines therefore make no recommendations for single-event noise indicators.”

B.5 British Standard BS8233: 2014

British Standard 8233: 2014 “Guidance on sound insulation and noise reduction for buildings” provides guidance for the control of noise in and around buildings.

Internal Areas

BS8233:2014 Section 7.7.2 titled “Internal ambient noise levels for dwellings” states:

“In general for steady external noise sources, it is desirable that internal ambient noise levels do not exceed the following guideline values:

Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Note 1 The above table provides recommended levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Groundborne noise is assessed separately and is not included as part of these targets, as human response to groundborne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

Note 2 The levels shown in the above table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the levels recommended in the above table.

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 or New Year's Eve.

Note 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values.

Note 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level.

If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.

Note 6 Attention is drawn to the Building Regulations.

Note 7 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 still achieved.”

External Amenity Areas

BS8233:2014 Section 7.7.3.2 titled “Design criteria for external noise” states:

“For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}^1$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens, and terraces, which might be intended to be used for relaxation. In high-noise areas consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space.”

B.6 ProPG : Planning & Noise : 2017

The primary goal of the ProPG is to assist the delivery of sustainable development by promoting good health and well-being through the effective management of noise. It seeks to do that through encouraging a good acoustic design process in and around proposed new residential development having regard to national policy on planning and noise. It is applicable to noise from existing transport sources (noting that good professional practice should have regard to any reasonably foreseeable changes in existing and/or new sources of noise). The recommended approach is also considered suitable where some industrial or commercial noise contributes to the acoustic environment provided that is “not dominant”.

This ProPG advocates a systematic, proportionate, risk based, 2-stage, approach. The approach encourages early consideration of noise issues, facilitates straightforward

accelerated decision making for lower risk sites, and assists proper consideration of noise issues where the acoustic environment is challenging.

The two sequential stages of the overall approach are:

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

The four key elements to be undertaken in parallel during Stage 2 of the recommended approach are:

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

The ProPG considers suitable guidance on internal noise levels found in “BS8233:2014: Guidance on sound insulation and noise reduction for buildings”. Table 4 in Section 7.7.2 of the standard suggests that “in general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values”. The standard states (Section 7.7.1) that “occupants are usually more tolerant of noise without a specific character” and only noise without such character is considered in Table 4 of the standard.

Activity	Location	07:00 – 23:00 Hours	23:00 – 07:00 Hours
Resting	Living Room	35dB $L_{Aeq,16hr}$	-
Dining	Dining Room / Area	40dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq,16hr}$	30dB $L_{Aeq,16hr}$ 45dB $L_{Amax,F}$

NOTE 1 the Table provides recommended internal L_{Aeq} target levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

NOTE 2 The internal L_{Aeq} target levels shown in the Table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with

high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the L_{Aeq} target levels recommended in the Table.

NOTE 3 These internal L_{Aeq} target levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.

NOTE 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A).

NOTE 5 Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7.

NOTE 6 Attention is drawn to the requirements of the Building Regulations.

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10dB, they are likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form (See Section 3.D).

B.7 Building Regulations Approved Document O

Building Regulations Approved Document O relates to setting standards for overheating in new residential buildings. It aims to protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures.

Requirement O1 of Approved Document O is met by designing and constructing the building to achieve both of the following:

- a. Limiting unwanted solar gains in summer.
- b. Providing an adequate means of removing excess heat from the indoor environment.

Sections 3.2 to 3.4 of this document relate to noise and state the following:

“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 (11pm to 7am).

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

- a. 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).
- b. 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).

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.

NOTE: *Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020).*

B.8 British Standard 4142:2014 + A1:2019

When setting plant noise emission criteria reference is commonly made to BS 4142:2014 “Methods for rating and assessing industrial and commercial sound”.

The procedure contained in BS 4142:2014 provides an assessment of the likely effects of sound on people when comparing the specific noise levels from the source with representative background noise levels. Where the noise contains “a tone, impulse or other characteristic”

then various corrections can be added to the specific (source) noise level to obtain the “rating level”.

BS 4142 states that: *“The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs”. An estimation of the impact of the specific noise can be obtained by the difference of the rating noise level and the background noise level and considering the following:*

- *“Typically, the greater this difference, the greater the magnitude of the impact.”*
- *“A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.”*
- *“A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.”*
- *“The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”*

The determination of the “rating level” and the “background level” are both open to interpretation, depending on the context.

Appendix C

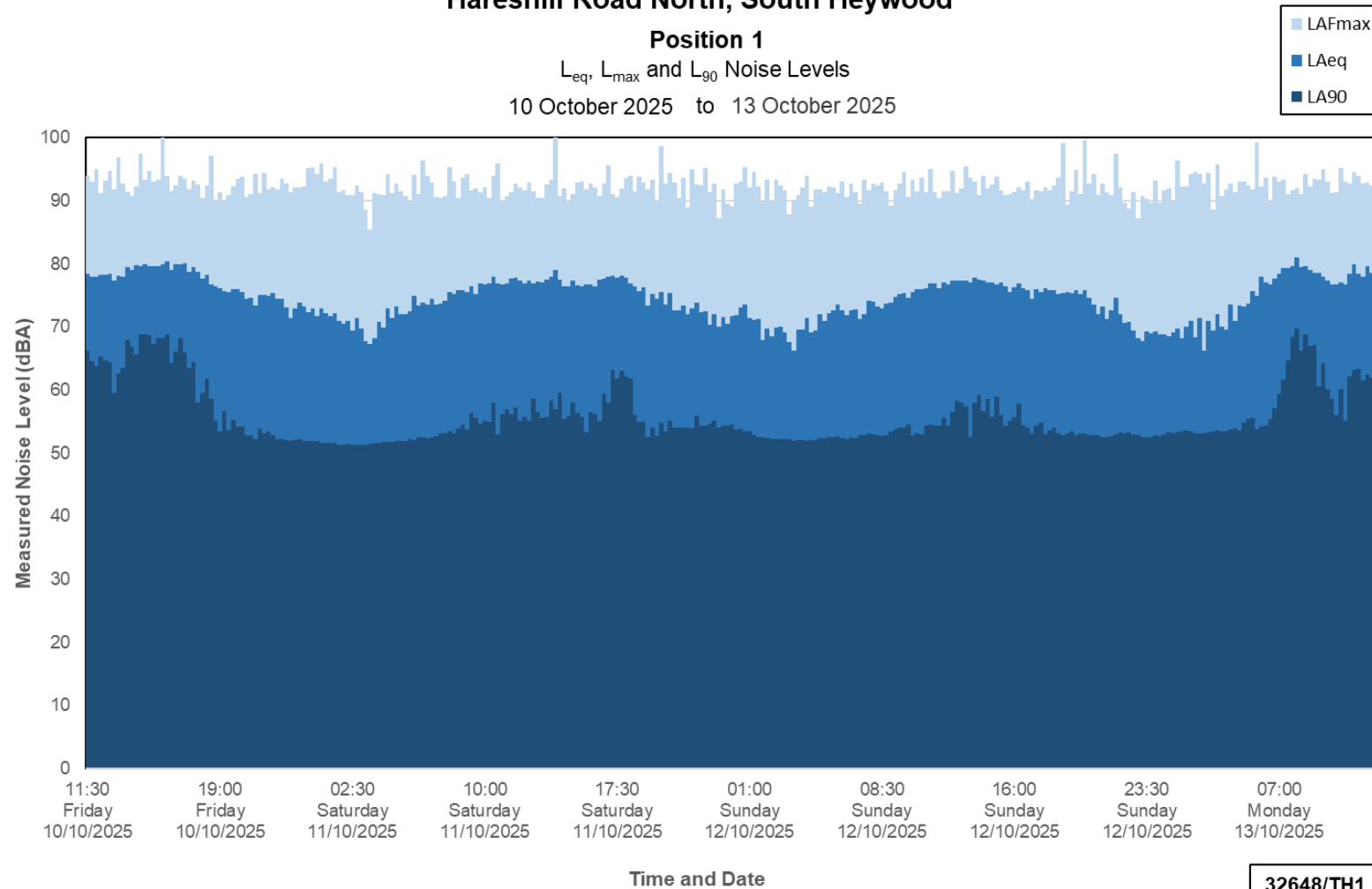
Time History Graphs

Hareshill Road North, South Heywood

Position 1

L_{eq} , L_{max} and L_{90} Noise Levels

10 October 2025 to 13 October 2025



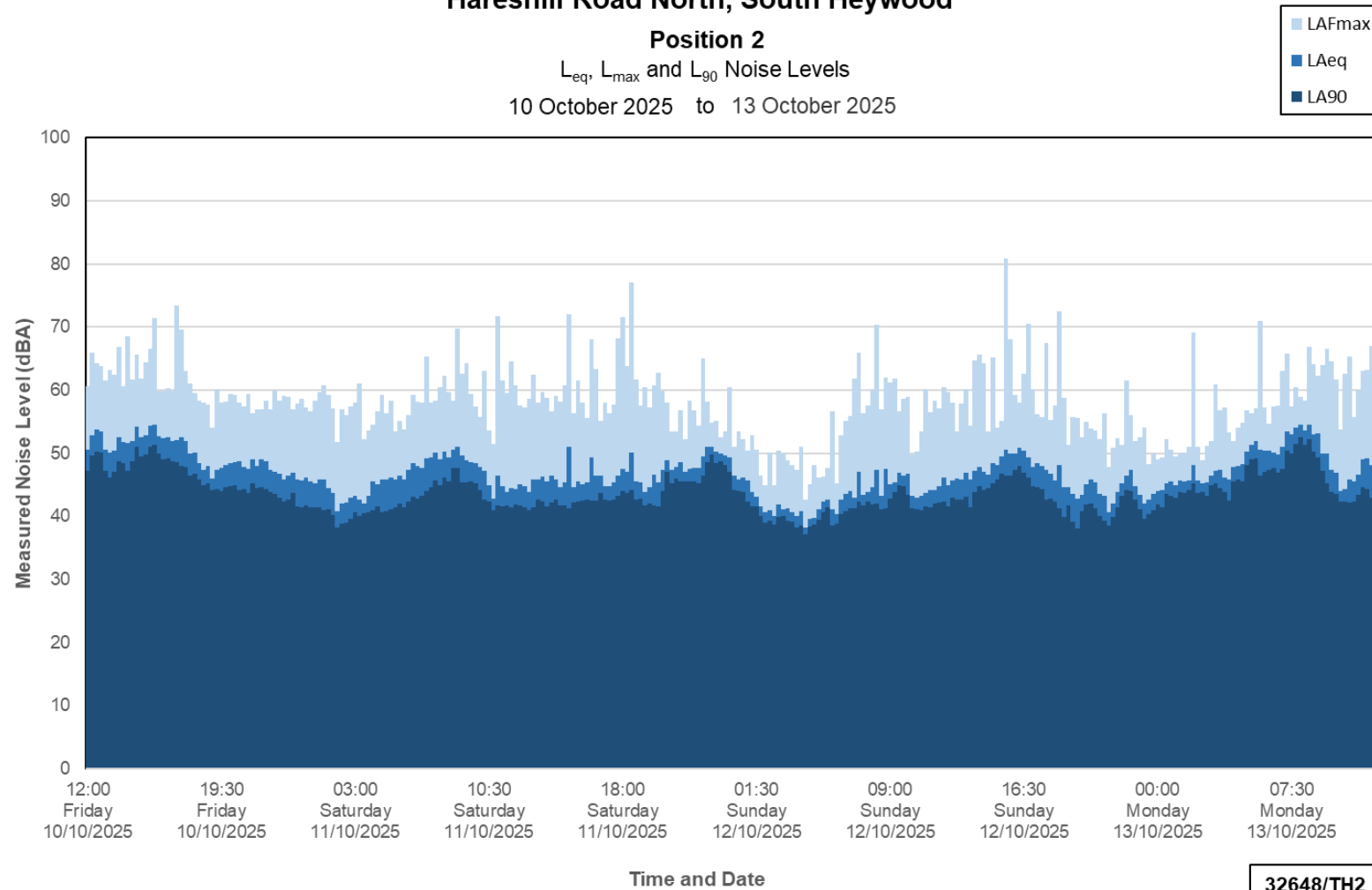
32648/TH1

Hareshill Road North, South Heywood

Position 2

L_{eq} , L_{max} and L_{90} Noise Levels

10 October 2025 to 13 October 2025



32648/TH2