

Enbloc Projects

Nitrogen Generation Plant, Coopervision Speedwell Close

Noise Assessment

Report No. 25-0043-0 R01

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Close

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Report No.:
25-0043-0 R01

Date:
04 April 2025

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0 Noise Report Audit Sheet

This initiative was developed and has been approved for use by representatives of the Hampshire and IOW Environmental Control Advisory Committee (ECAC) and Institute of Acoustics Southern Branch.

Client Brief

Brief Description	Design Input
Noise assessment for new plant to accompany planning application	Sound insulation / attenuation specification for plant room building elements

Liaison performed with LA

Liaison with LA (Name/Date)	Principles Agreed
Andre Pires, 04/04/2025	Design to 5 dB below background. 0 dB below background acceptable where background levels are low.

Checklist	Page No(s)	Compliance		
		Y	N	NA
Full site description/map provided	6-8	Y		
Site history provided	12	Y		
Current and potential future acoustic environment identified	6-8	Y		
Identification of relevant legislative framework	9-11	Y		
Conceptual model fully justified	16-18	Y		
Inclusion of reporting elements of BS4142:2014 (Para 12 a to j)		Y		
Monitoring data fully representative	12-15	Y		
Raw data presented	12-15	Y		
ADS included (where ProPG relevant)				NA
Calculations and assumptions fully presented and justified	17-19	Y		
Uncertainty assessment provided	20-21	Y		
Clear recommendations and conclusions	21	Y		
Executive summary included	21	Y		

Professional Statement - This report has been prepared independent of influence by the person(s) or instructing party, such that the technical content can be relied upon without knowingly containing altered, manipulated, fabricated or misrepresented data and it has been interpreted using reasonable care, professional knowledge and skill. The report adheres with the principles required by the Institute of Acoustics in their Code of Conduct, and the work is within the author's (including secondary author if relevant) own area of knowledge and expertise. Where opinions have been expressed these represent true and complete professional opinions on the matters to which they refer.

Signed



Position Senior Consultant

Dated 04/04/2025



1 Introduction

It is proposed to add nitrogen generation plant at the Coopervision Speedwell Close in the School Lane industrial estate at Chandler's Ford (SO53 4BT). The plant will be housed in a new building in the rear yard. Sustainable Acoustics has been commissioned by Enbloc Projects to undertake a noise assessment.

A previous noise surveys was undertaken by Sustainable Acoustics in 2020 for the Coopervision sites at the School Lane industrial estate, and this has been supplemented with a new background noise survey was undertaken over night between 24th and 25th March 2025 to confirm current background noise levels for use in the assessment.

1.1 Context

The site location is shown in Figure 1.



Figure 1: Site location plan



Coopervision Speedwell Close is towards the south of the School Lane industrial estate. The proposed plant location is at the south east corner of the site as indicated in Figure 1 and Figure 2.

The nearest Noise Sensitive Receptors (NSR) are residential properties on Castle Lane and Thirstane Firs, which indicated on Figure 1. Coopervision has existing plant, including air compressors similar to those proposed at the rear of the Speedwell Close site and at the west side of the Warrior Close site.

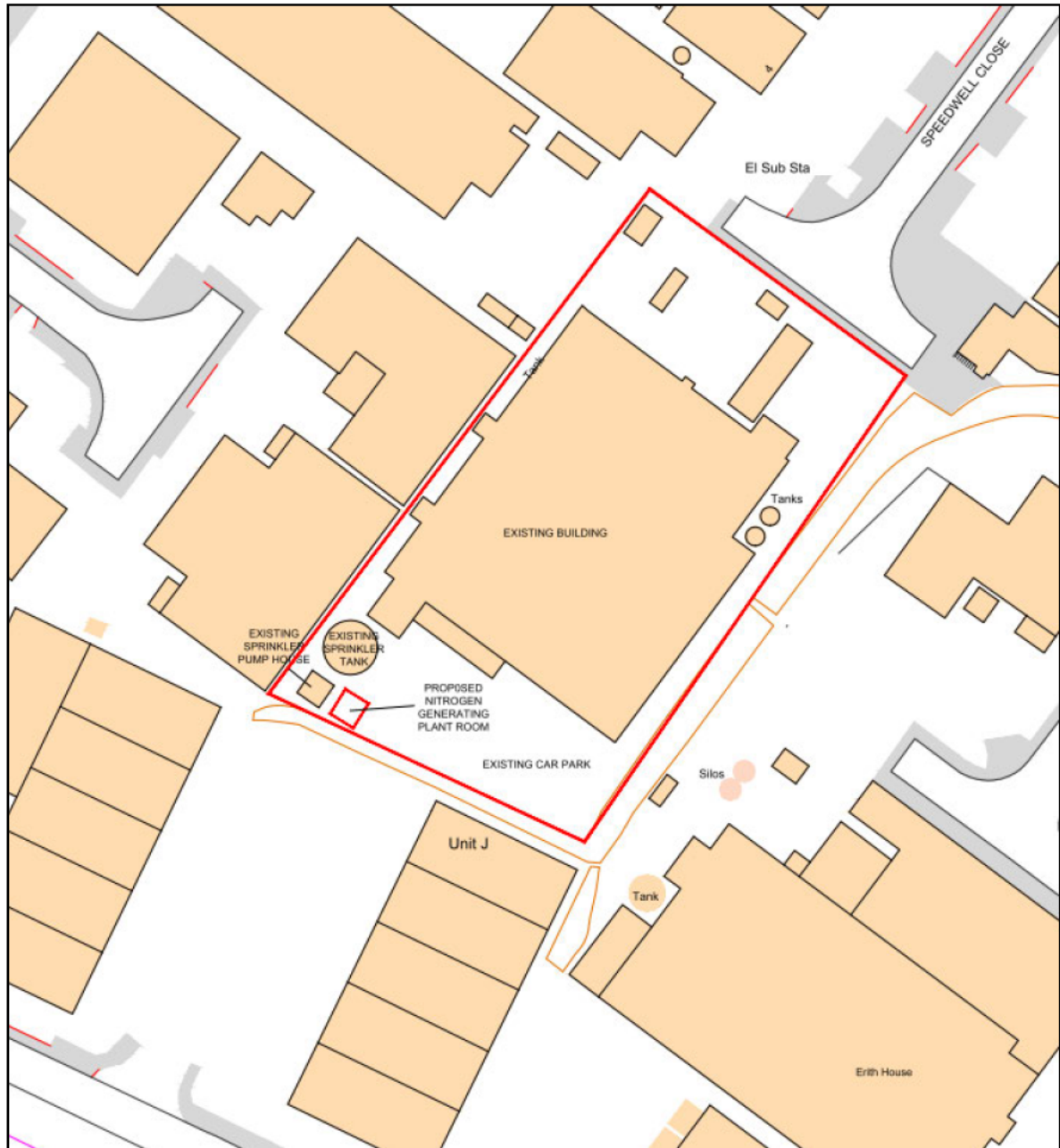


Figure 2: Proposed site layout and position of new Plant

The proposed plant and building are shown in Figure 3 below:

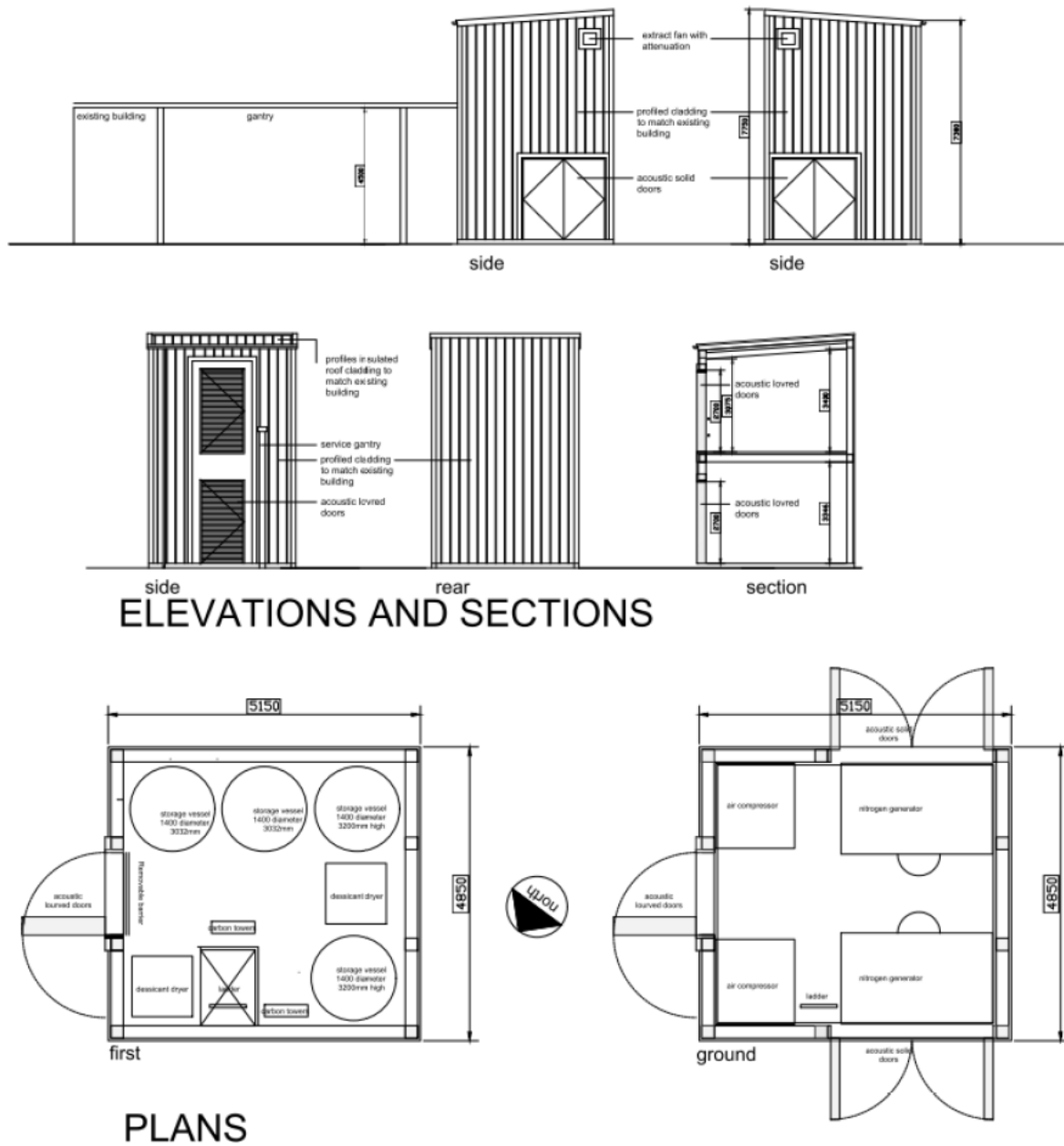


Figure 3: Proposed plans for Nitrogen Generation Plant



2 Planning and Assessment Guidance

Further information on the national policy and guidance is provided in Appendix 1 of this report.

2.1 Summary of national planning guidance

National planning policy is provided in the National Planning Policy Framework (NPPF), revised in December 2024, which supports a presumption in favour of sustainable development, unless the adverse impacts of that development would outweigh the benefits when assessed against the policies in the Framework, taken as a whole. Policy on noise implications from paragraph 198 is to *“mitigate and reduce to a minimum adverse impact”* and to *“avoid significant adverse impacts on health and quality of life”*.

Further information is given in Planning Policy Guidance on Noise (last updated July 2019), in which it is stated that *“good acoustic design needs to be considered early in the planning process”*.

Examples of outcomes of given; at the Lowest Observed Adverse Effect Level (LOAEL), *“Noise can be heard and causes small changes in behaviour, attitude or other physiological response”*.

Policy on noise is further qualified in the Noise Policy Statement for England (NPSE) where policy vision is set out 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”*.

2.2 British Standard BS 4142: 2014

Commercial and industrial noise sources are normally assessed using the methodology in the British Standard BS 4142: 2014, *Methods for rating and assessing industrial and commercial sound*. The standard describes methods for rating and assessing sound of an industrial and/or commercial nature, to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

The sound from the industrial/commercial source is rated by taking into account the sound level of the source, known as the specific sound level, and its characteristics, such as tonal, impulsive or intermittency of the source, and applying an appropriate correction to give the rating level of the sound source. To gain an initial estimate of the potential impacts of the sound source, it is compared to the background noise level, and the level by which the rating level exceeds the background noise level indicates the following potential impacts:



Difference	Assessment
Around 10 dB or more	Likely to be an indication of a significant adverse impact, depending on the context
Around 5 dB	Likely to be an indication of an adverse impact, depending on the context
0 dB or less	An indication of the specific sound source having a low impact, depending on the context

Table 1: BS 4142 Initial Estimate of Impact of the Specific Sound

The standard suggests that where an initial estimate of the impact needs to be modified due to the context, all pertinent factors should be taken into consideration, including:

- 1) The absolute level of the sound;
- 2) The character and level of the residual sound compared to the character and level of the specific sound;
- 3) The sensitivity of the receptor.

The current edition of the standard also requires that the potential impact of uncertainty should be reported, and that reasonably practicable steps are taken to reduce the level of uncertainty.

In determining the background sound level, it is stated in the commentary to paragraph 8.1 that *“it is important to ensure values that are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods”*.

At section 11 In relation to the absolute level of sound, it is noted that *“Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.”*

2.3 British Standard BS 8233:2014

The British Standard BS 8233:2014 ‘Guidance on Sound insulation and noise reduction for buildings’ provides guidance on noise levels from sources without specific character in the built environment. For dwellings, the criteria are based on the recommendations of the World Health Organisation.

The criteria (summarised in Table 2) are for desirable levels of steady state, “anonymous” noise in unoccupied spaces within dwellings, from sources such as road traffic, mechanical services and other continuously running plant.



Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB L _{Aeq} , 16 hour	-
Dining	Dining room/area	40 dB L _{Aeq} , 16 hour	-
Sleeping (daytime resting)	Bedroom	35 dB L _{Aeq} , 16 hour	30 dB L _{Aeq} , 8 hour

Table 2: Internal Ambient Noise Level

The standard also recommends that for traditional external amenity areas, such as gardens, it is desirable that external noise levels do not exceed 50 dB L_{Aeq, T}.

It is recognised that the above criteria are indented for 'anonymous' sources of noise and therefore cannot be directly compared with other noise sources with more identifiable character, such as industrial or commercial noise from an identifiable source.

2.4 Local Planning Policy

The site falls within the remit of Eastleigh Borough Council.

Relevant policy on noise is Policy DM8, Pollution:

"1. Development will not be permitted if it is likely to cause loss of amenity or impact on public health or other unacceptable environmental impacts through:

...

c. noise or vibration"

2.4.1 Correspondence with Local Authority

Andre Pires, Pollution Control Manager, Planning and Environment – Pollution, at Eastleigh Borough Council confirmed on 1st April 2025 that the local authority generally request to design to rating levels of 5dB below the background noise level, and that in cases where background noise levels are low it may be acceptable to design to equal to or below the background noise level.

3 Survey

A previous sound level survey was undertaken in 2020 at a property on Castle Lane. Further surveys have been undertaken overnight between 24th and 25th March 2025 at positions representative of properties on Castle Lane and Thirstane Firs, to confirm current background noise levels. The measurement positions used are shown below:

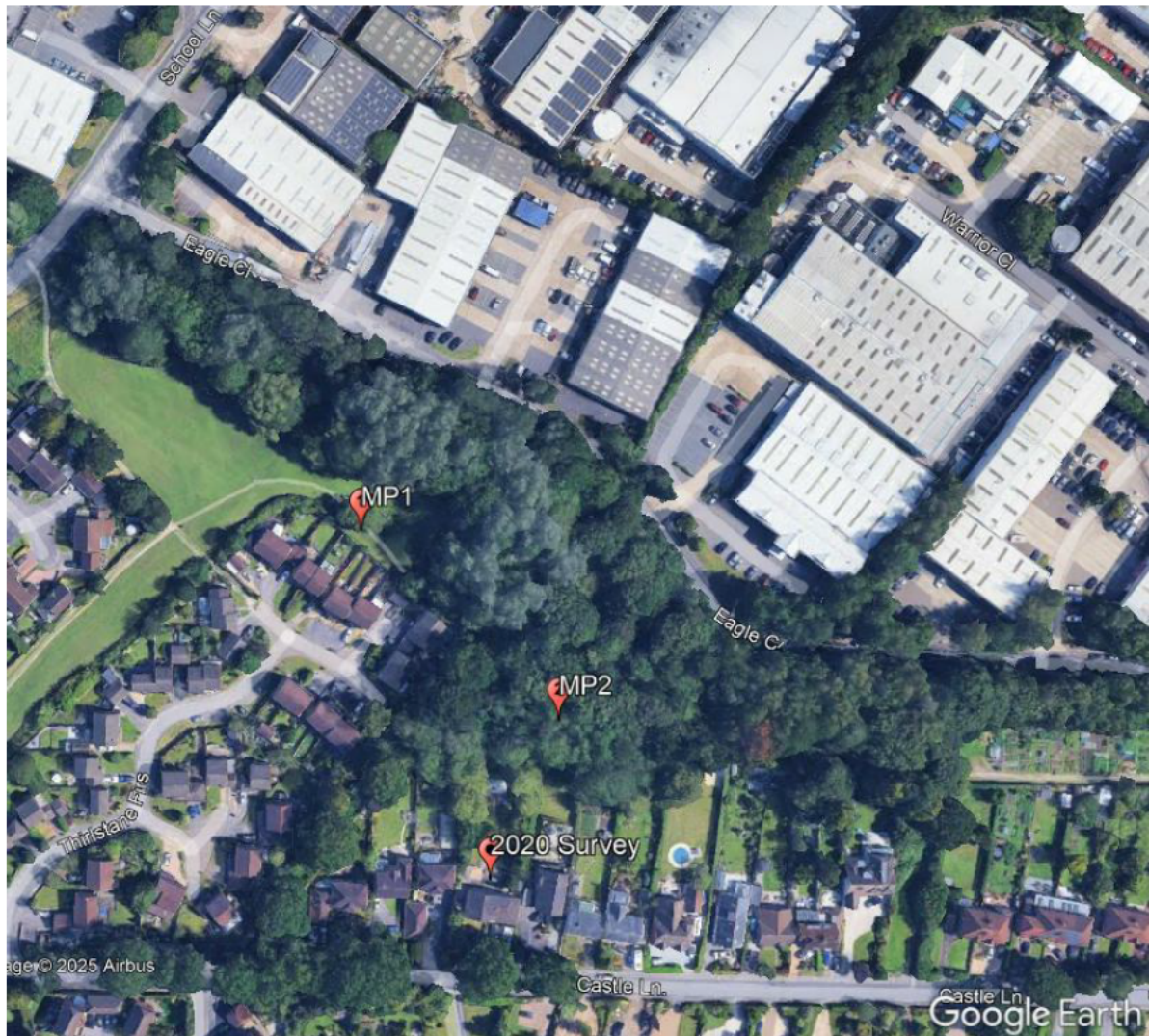


Figure 4: Measurement positions

3.1 2020 Survey for Castle Lane properties

A previous environmental sound level was undertaken to gather data for background and ambient sound levels at the back of a nearby residential property on Castle Lane, as part of a series of noise surveys undertaken between Friday 17th and Tuesday 21st January 2020 for the purposes of a separate noise investigation concerning plant at the Coopervision Warrior Close facility, (Sustainable Acoustics Report 19-0126-0 R01). In that assessment it was determined that the



compressor noise was likely to be below the measured background sound level at the property and therefore unlikely to have raised the underlying background noise level by more than 1 dB.

A logging sound level meter was setup at the rear of the residential property on Castle Lane as shown in Figure 4, at the height of the first-floor window and a distance of 1m from the façade. The monitor recorded 1/3 octave frequency bands in 5min periods, in addition to statistical parameters. Weather conditions during this period were mild, and whilst there was a moderate south-westerly wind on the 17th, this reduced to relatively calm conditions overnight, with light northerly wind and no precipitation from the morning of 18th onwards.

The measurement instrumentation used for this survey is shown in Appendix 2. Prior to and on completion of the surveys the calibration of the sound level meters was checked with the field calibrator and no change occurred.

The results are shown in Figure 5. These have been corrected to free-field levels by subtracting 3 dB. Table 3 below gives a summary of measured ambient and background sound levels during the measurement period.

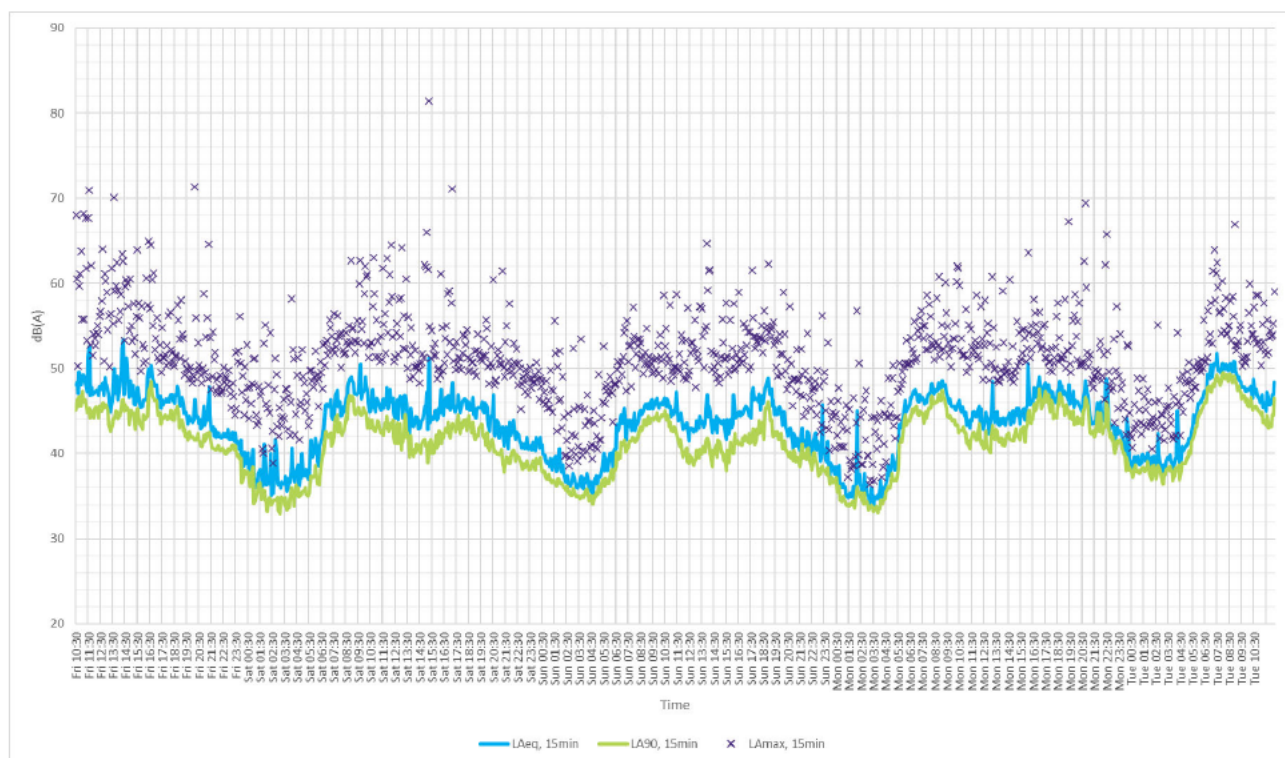


Figure 5: Measured sound levels at Castle Lane in 2020 (Free-field)



		Ambient noise level, dB L _{Aeq}		Background noise level, dB L _{A90, 15 min}	
		Range (15 min)	Period	Range	Typical ¹
Daytime	07:00-23:00	40 - 53	47	38 - 50	41
Evening	19:00-23:00	40 - 49	44	38 - 47	40
Night	23:00-07:00	34 - 49	41	33 - 48	35
Middle of Night	01:00-05:00	34 - 45	37	33 - 38	34

¹ Typical background noise level shown is 20th percentile from statistical analysis.

Table 3: Acoustic parameters measured between 17th to 21st January 2020 at Castle Lane (Free-field)

The typical minimum background sound level during the day is approximately 41 dB L_{A90, 15 min}, falling to approximately 34 dB L_{A90, 15 min} in the middle of the night. The statistical distribution of background sound levels, following the approach taken in BS 4142:2014 has been determined for each period as shown in Appendix 3.

An attended measurement was also taken at a position in the wooded area towards the rear of properties on Castle Lane on 19th at 23:35 (Sunday evening) for observations as part of this survey, which confirmed the same background sound levels at this position as at the monitoring position (38 dB L_{A90} at this time).

3.2 2025 Survey for Castle Lane and Thirstane Firs

Two unattended logging sound level meters were setup between 24th and 25th March 2025 at positions MP1 and MP2 to capture the quietest period overnight. The microphone at MP1 was at a height of approximately 4m above ground to represent first floor level windows at Thirstane Firs. The microphone at MP2 was at a height of approximately 1.5m above the top of a mound of earth and approximately level with the upper floor window of the nearest property on Castle Lane. The positions are shown in Figure 4. Sound levels and statistical parameters were measured in 15-minute intervals with a 1-minute time history. The microphone was fitted with an outdoor windshield.

Details of equipment used, and calibration details are shown in Appendix 2. Prior to and on completion of the survey the calibration of the microphones and sound level meters was checked with the field calibrator and a drift of less than 0.1dB observed.

Weather during the survey period was cool and calm, with temperatures up to approximately 2°C and wind speeds of 0 m/s. There was light fog.

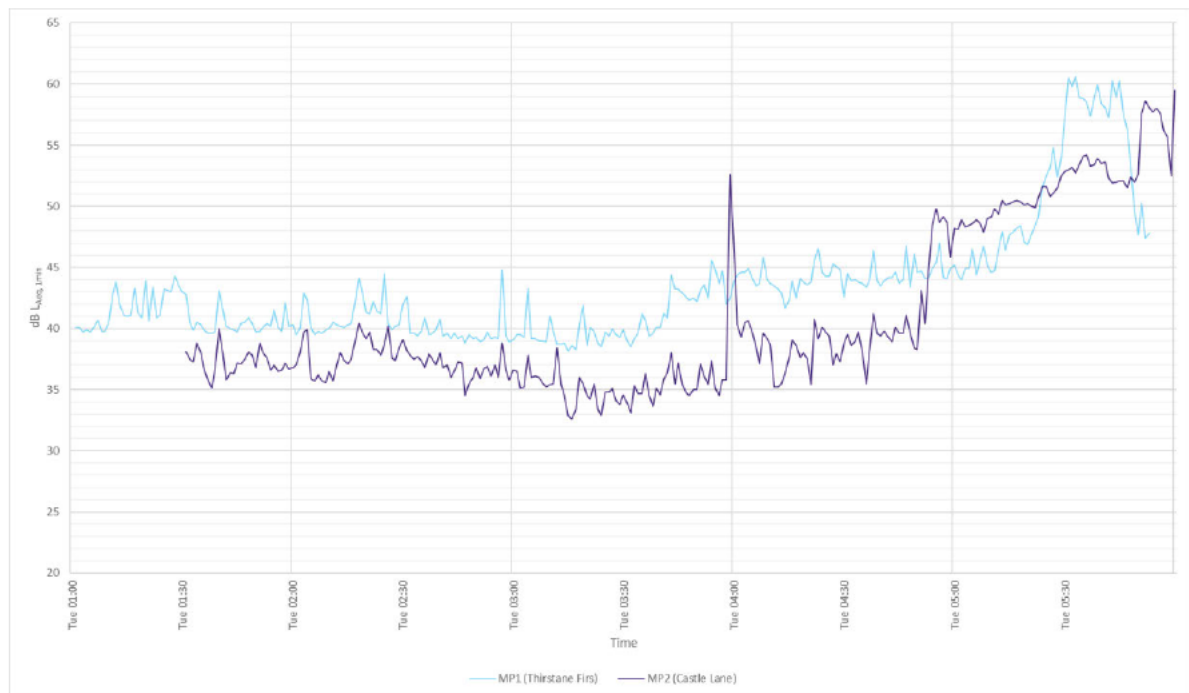


Figure 6: Measured ambient $L_{Aeq,1min}$ sound levels 2025

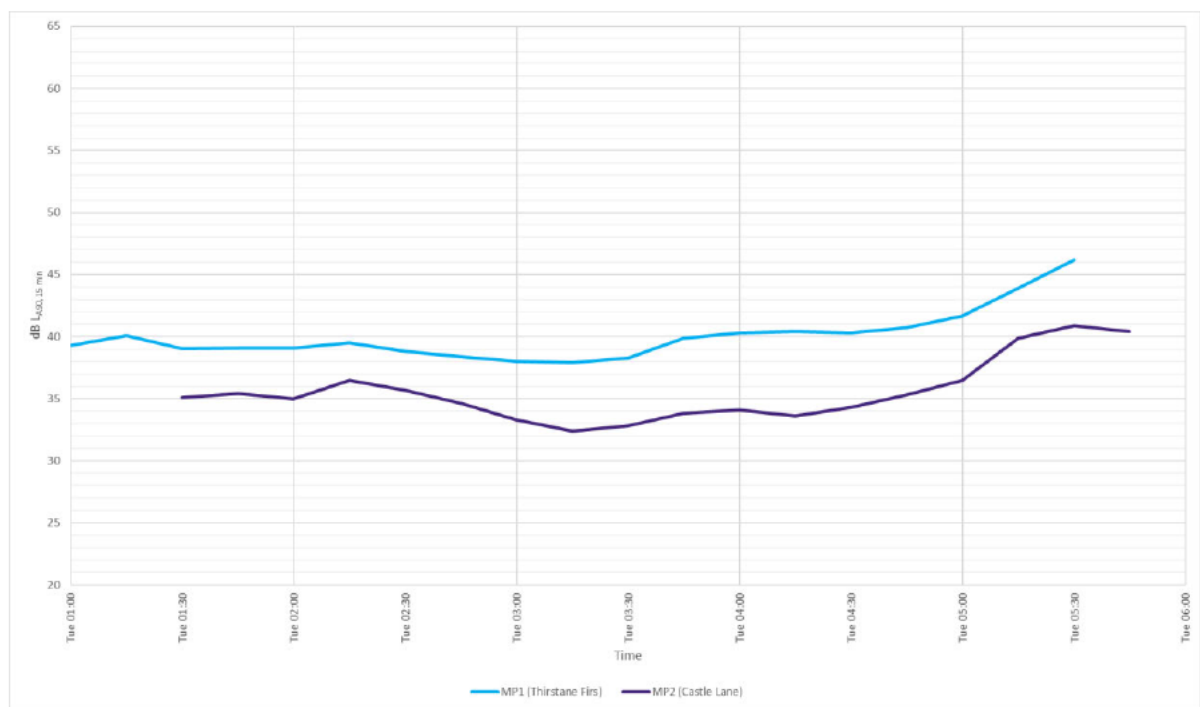


Figure 7: Measured background $L_{A90,15min}$ sound levels 2025

Observations were made between 01:00 and 02:00. Sound levels were controlled by plant on the School Lane industrial estate and distant road traffic. Sound from existing compressors at the rear of Coopervision Speedwell Close and Warrior Close were discernible. A rise in the 100Hz 1/3



octave band (and to a less extent in the 50 Hz octave band) is detectable, which can be associated with existing plant at Coopervision Speedwell Close. Plant and loading activity at a site at the corner of School Lane and Reliant Close was also discernable at times.

It can be seen that the background sound levels at MP2 (representing Castle Lane) at the night time low are approximately 34 dB L_{A90} , which is the same as that found from the 2020 survey. At MP1 (representing Thirstane Firs) the lowest background sound level is 38 dB L_{A90} .

4 Plant Noise Assessment

4.1 Source data

The main noise generating plant are the two compressor units proposed and a periodic air discharge. The manufacturer has supplied data for two similar compressor models to those proposed as shown in Appendix 4. These have a specified noise level of 76 and 78 dB(A) at 1m from the workstation position. The sound power level for the proposed unit has been calculated by taking a logarithmic average of the two data sets provided and considering a conformal surface at 1m from the proposed unit with dimensions of approximately 1.3m x 1.4m x 2m. This is a sound power level of approximately 94 dBA.

The manufacturer does not have noise measurement data for the associated air discharge event, however, a similar events have been observed and measured by Sustainable Acoustics in March 2021 for some temporary compressors installed at Coopervision Speedwell Close (Atlas Copco ZT160VSD-FF units with CDE-400R dryers). These indicate an increase in the high frequency bands above 1.6kHz during the event, as shown in Figure 8. The event is understood to occur for a period of up to 10 second, typically every 10-15mins. The 15-minute L_{eq} has therefore been calculated by assuming two 10 second events could occur in any 15 minute period for each of the two units (i.e. 4 events for two units in 15 minutes).

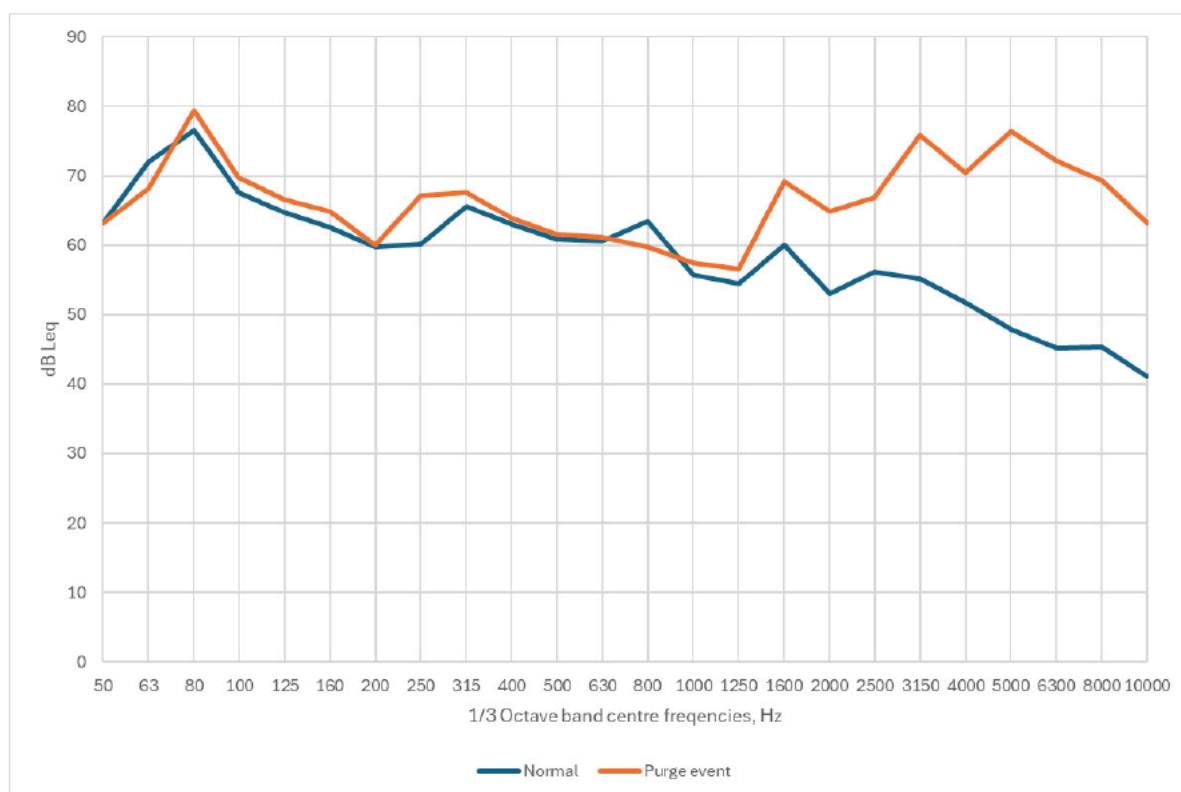


Figure 8: Measured noise levels at 3m from similar plant

4.2 Predicted noise levels

The internal reverberant sound pressure level as at 15 minute L_{eq} has been calculated taking account of the volume of the proposed plant room and proposed sound absorptive wall linings as shown below:

Description	Notes	dBA	63	125	250	500	1000	2000	4000	8000
Source data	GA_75_VSD_Plus	75.9	71.0	74.0	77.0	73.0	71.0	66.0	64.0	61.0
	GA_90_VSD_Plus	77.8	71.0	74.0	78.0	76.0	73.0	68.0	64.0	61.0
	Proposed unit	77.0	71.0	74.0	77.5	74.8	72.1	67.1	64.0	61.0
Correction for similar unit for discharge event & 15min Leq calculation.	Normal	69.5	78.0	70.2	67.5	66.4	64.5	62.1	57.3	49.0
	Purge event	82.2	79.8	72.3	70.7	67.2	62.9	72.1	79.7	74.3
	15min LAeq with Purge event of duration (sec): 20	71.0	78.1	70.4	67.7	66.5	64.6	63.0	64.2	58.3
	Correction to 'normal':	12	0	0	0	0	0	1	7	9
Apply correction to proposed units	e 2x10sec purge events in 15mins	78.5	71.0	74.0	77.5	74.8	72.1	68.1	71.0	70.0
	Lw	95.5	88.0	91.0	94.5	91.8	89.1	85.1	88.0	87.0
Internal sound power level	x2 sets of units	98.5	91.0	94.0	97.5	94.8	92.1	88.1	91.0	90.0
Calculate internal reverberant level	RT		1.0	0.7	0.3	0.3	0.3	0.3	0.3	0.3
	RT correction		0.0	-1.5	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
	Volume correction	151	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
	rev level		85.6	83.2	84.7	84.5	81.8	79.1	75.1	78.0
	Rev to free	3	82.6	80.2	81.7	81.5	78.8	76.1	72.1	75.0



The sound propagation to the nearest residential receptors has then been modelled in IMMI 2024 implementing ISO 1996-2: 2024, taking account sound insulation of the proposed building elements, directivity, topography and screening from existing buildings, distance and ground absorption. The model assumes hard ground on the industrial estate and soft ground between Eagle Close and the receptors. The topography includes the large earth bunds between the site and properties on Eagle Close.

The proposed building construction (embedded mitigation in the design) includes the following assumptions:

Building element	Sound reduction (or insertion loss for attenuators), dB								
	R _w	63	125	250	500	1000	2000	4000	8000
Façade and roof: Outer metal cladding (and any internal lining panel) with surface mass of not less than 10kg/m ² , 100mm mineral wool slab, perforated metal inner lining	32	18	19	22	29	31	40	50	50
Louvres to front façade: Acoustic louvres typically 300mm deep (IAC Model R used as example)	14	5	7	11	12	13	14	12	9
Ventilation openings in side façade: acoustic louvre at least 300mm deep or attenuator*	n/a	3	5	10	12	13	14	12	9

Table 4: Sound attenuation of building elements

*if ventilation fans are proposed they should be specified or attenuated to have a sound power level of less than 65 dBA and it is assumed that they are not ducted directly to any of the plant units. This may require increased silencer specification than shown.

The predicted noise level at 4m above ground are shown in Figure 9. The predicted noise levels are 24 dB L_{Aeq, 15 min} at Thirstane Firs and 15 dB L_{Aeq, 15 min} at Castle Lane.

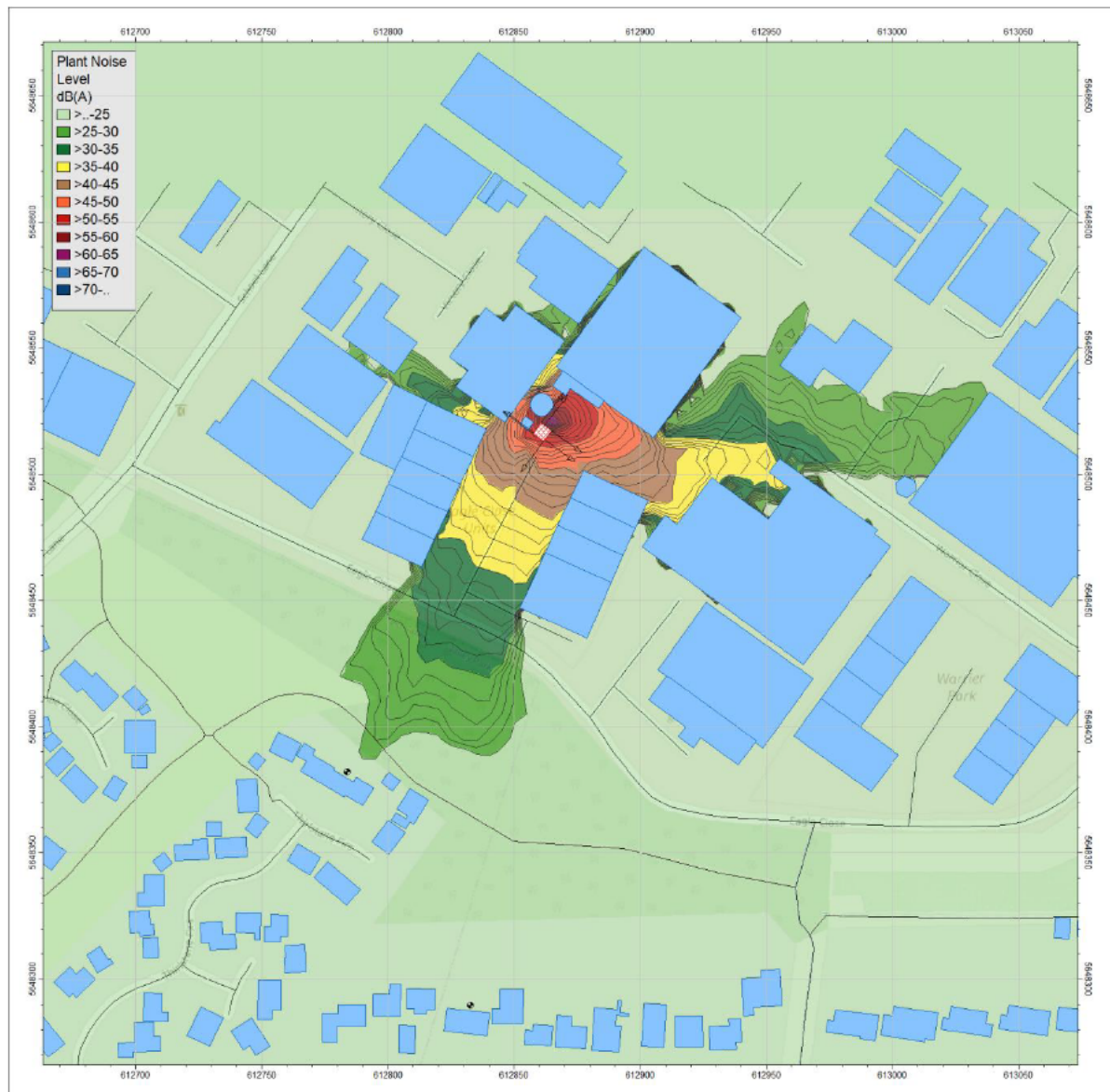


Figure 9: Predicted daytime noise level contours (4m above ground)

The predicted noise levels at the NSR's for ground and first floor level, for daytime and night-time periods, and for the public right of way are shown in the table below:

4.3 Assessment

An assessment following the methodology in BS 4142: 2014 is shown in Table 5 below. The assessment considers noise levels at 4m above ground at night as this will be the worst time period and noise levels are likely to be higher at first floor level than at ground floor level due to screening from local topography. People are likely to be sleeping in their bedrooms at first floor level at night.



Discharge events from similar compressor types at Coopervision Warrior Close were not discernible during the recent sound survey, however specific noise data is not available, it is assumed that these events could be just perceptible at neighbouring residential properties, and therefore a penalty of 3dB has been applied as per section 9 of BS 4142:2014. Based on findings from previous surveys and the recent sound level survey, it is considered possible that some tonality will be just perceptible. A further penalty of 2 dB has therefore been applied. It is not considered reasonable to apply an additional penalty for other sound characteristics as the plant is similar to exiting sound sources from the School Lane industrial estate. The plant runs continuously and therefore no penalty for intermittency is appropriate. A total penalty of 5 dB has therefore been applied.

Location	Predicted Specific level, dB LAeq	Rating level, dB LAeq	Background level, dB LA90	Initial Assessment	Assessment of impact
				level (rating - background)	
Thristane Firs	24	29	38	-9	Low
Castle Lane	15	20	34	-14	Low

Table 5: BS4142 assessment

It can be seen that the predicted rating levels are significantly below the background sound level and meet the Local Authorities recommended criterion of 5 dB below the background sound level. Taking the attenuation through a partially open window as approximately 13 dBAⁱ, the internal noise level contribution from the plant would therefore be less than 16 dB LAeq, 15 min inside the nearest residential properties, which is very low and unlikely to be noticeable in context, further suggesting an adverse impact on amenity is unlikely. With reference to the noise exposure hierarchy described in national Planning Policy Guidance on Noise (as summarised in Appendix 1 at section 2.2), the assessment suggests that there is unlikely to be an observable adverse effect and is therefore considered to be a NOAEL (no observable adverse effect level).

4.4 Uncertainty

4.4.1 Background Sound Level

The background sound level chosen is representative of the quietest periods at night and based on several days monitoring in 2020 and confirmed with recent monitoring during calm conditions. Calibrated Class 1 sound level meters mean measured noise levels are likely to be highly accurate and repeatable. The background sound level is therefore considered to be representative with a reasonable degree of confidence.

4.4.2 Predicted Plant Sound Levels

Manufacturers source data has been used, however, it has been identified that this does not include all operation cycles (principally a periodic air discharge event). Experience and

ⁱAcoustics, Ventilation and Overheating, Residential Design Guide (2020 Version 1.1) suggests 13 dB in Appendix C.



measurements taken for other similar plant has therefore been used to estimate the noise level for these events. The character of sound from the proposed plant has also been based on other similar plant. There is therefore a degree of uncertainty to the manufacturers data, estimated to be within in range of up to +5dB.

Standard prediction methodology (ISO 1996-2) has been used, which should be considered reliable.

4.4.3 Effect of Uncertainty

There is some uncertainty in any complex calculations and analysis, however, the effects of uncertainty have minimised as far as possible in line with industry guidance. It is still possible that the noise assessment has under or over predicted the noise impact of the proposed plant, however, it is considered that the extent by which the predicted plant noise level is lower than the target noise level is large enough that the assessment of impact is unlikely to change.

5 Summary and Conclusion

An assessment has been undertaken for the proposed Nitrogen Generation Plant at Coopervision Speedwell Close in the School Lane industrial estate at Chandler's Ford.

A background sound level survey has been undertaken between 24th and 25th March 2025 to confirm background noise levels at the nearest noise sensitive receptors, which are at Thirstane Firs and Castle Lane. The survey has confirmed background sound levels are similar to those measured by Sustainable Acoustics in 2020 at Castle Lane. The background sound levels used for the purposes of this assessment are 38 dB L_{A90} at properties on Thirstane Firs and 34 dB L_{A90} at the rear of properties on Castle Lane.

Noise level from the proposed plant have been modelled. The noise levels are predicted to be approximately 9 dB below the background sound level, according to methodology in BS 4142, assuming the plant room is designed to meet the proposed specification in Table 4 of this report. This has been assessed to have a low impact at nearest residential properties. The assessment suggests that there is unlikely to observable effects (NOAEL) at all receptor positions and therefore meet the requirements of national and local planning policy.



Appendix 1 Policy and Guidance on Noise



A2.1 National Planning Policy Framework

Current planning policy is based on the National Planning Policy Framework (NPPF), revised in Dec 2024, which supports a presumption in favour of sustainable development, unless the adverse impacts of that development would outweigh the benefits when assessed against the policies in the Framework, taken as a whole.

The noise implications of development are recognised at paragraph 198, where it is stated that planning policies and decisions should:

- *“mitigate and reduce to a minimum potential adverse impacts from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life²”*
- *“Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason”*

The Government’s objective is to significantly boost the supply of homes, but puts in place protections for existing business in paragraph 200:

“Planning policies and decisions should ensure that new development can be “integrated effectively with existing business and community facilities (such as places of worship, pubs, music venues and sports clubs)”. Existing businesses 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.”

A2.2 NATIONAL PLANNING POLICY GUIDANCE ON NOISE (JULY 2019)

The newly refreshed guidance says *“Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset”*. It also says noise can override other planning concerns, where justified, *“although it is important to look at noise in the context of the wider characteristics of a development proposal”*. It makes clear that *“As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy”*.

It is stated that as exposure *“crosses the ‘lowest observed adverse effect’ level boundary above which the noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising*

² See Explanatory Note to the Noise Policy Statement for England.



those effects (taking account of the economic and social benefits being derived from the activity causing the noise)”.

This indicates that below the Lowest Observable Adverse Effect Level upper threshold (LOAEL) would be considered acceptable. The noise exposure hierarchy is set out in a table which suggest that at a LOAEL that is *“present and intrusive”* that the action should be to mitigate and reduce to a minimum.

Above this is considered to be an Observable Adverse Effect (OAE). It makes clear that when the effect becomes significant (SOAEL) that it should be avoided. This guidance is consistent with the policy within NPSE.

It also talks of a positive soundscape *“where natural sounds”* are more prominent than background noise from manmade sources. The guidance indicates that this can be considered to be tranquillity in terms of identifying areas that justify being protected or improved.

Further government advice on how planning can manage potential noise impacts in new development is given in PPG: Noise³. The table below summarises the noise exposure hierarchy, based on the likely average response of those affected:

³ <https://www.gov.uk/guidance/noise--2>



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

A2.3 Noise Policy Statement for England

Paragraph 198 of the NPPF also refers to advice on adverse effects of noise given in the Noise Policy Statement for England⁴ (NPSE). This document sets out a policy vision 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”.

To achieve this vision the Statement sets the following three aims:

⁴ Department for Environment, Food and Rural Affairs, *Noise Policy Statement for England*, London, 2010



“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.”*



Appendix 2 Instrumentation



Equipment	Type	Serial Number	Calibration	
			Date	Certificate no
MP1				
Svantek Class 1 Sound Analyser	977	99707	11/12/24	Factory Cal
Microphone	MK255	25397	12/02/24	Factory Cal
Preamplifier	SV 12L	164816	12/02/24	Factory Cal
MP2				
Svantek Class 1 Sound Analyser	977	99705	06/12/24	Factory Cal
Microphone	MK255	24172	06/12/24	Factory Cal
Preamplifier	SV 12L	164834	06/12/24	Factory Cal
Calibrator				
Svantek SV33	SV33	155583	16/12/24	1506564-5

Table A 1: Measurement instrumentation for 2025 survey

Equipment	Type	Serial Number	Calibration (prior to survey)	
			Date	Certificate no
Evening measurements:				
Svantek Class 1 Sound and Vibration Analyser	958A	34551	05/04/19	05042019
Microphone	7052E	55952	20/02/19	20022019
Preamplifier	SV 12L	33537	05/04/19	05042019
Monitor at residential property & on site:				
Rion Class 1 sound level meter	NA-28	00170246	27/03/19	33127
Preamplifier	NH-23	60254	27/03/19	33127
Microphone	UC-59	00299	27/03/19	33129
Calibrator:				
Svantek SV33	SV33	58228	24/05/19	14013087-1

Table A 2: Measurement instrumentation used in 2020 survey



Appendix 3 Statistical Analysis of Background Sound Levels

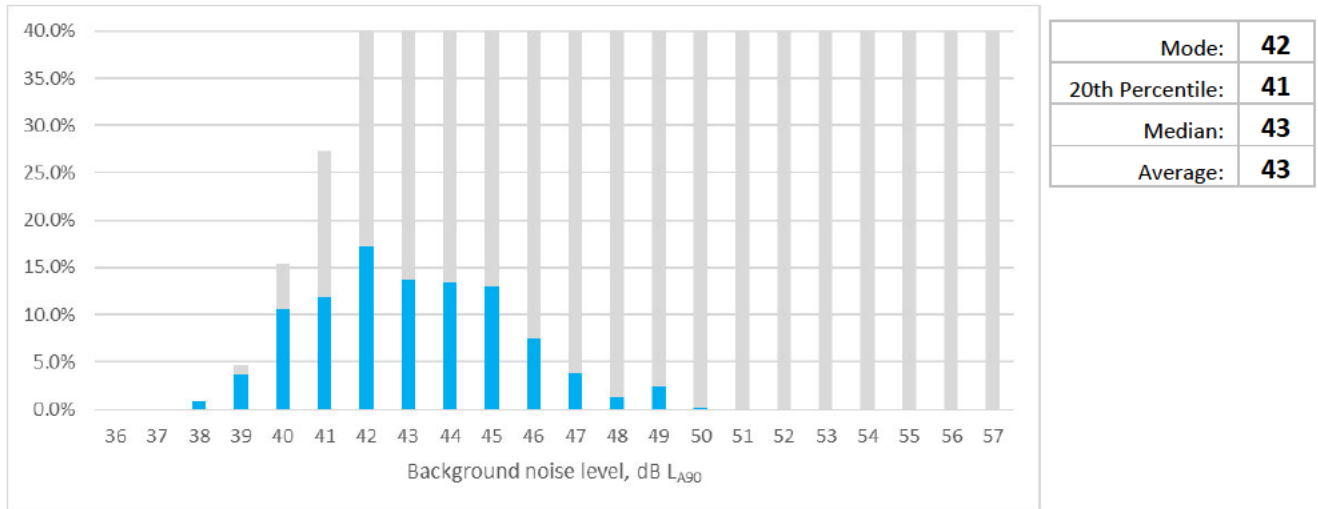


Figure A 1: Statistical analysis of L_{A90} at Castle Lane in 2020 – Daytime 07:00-19:00

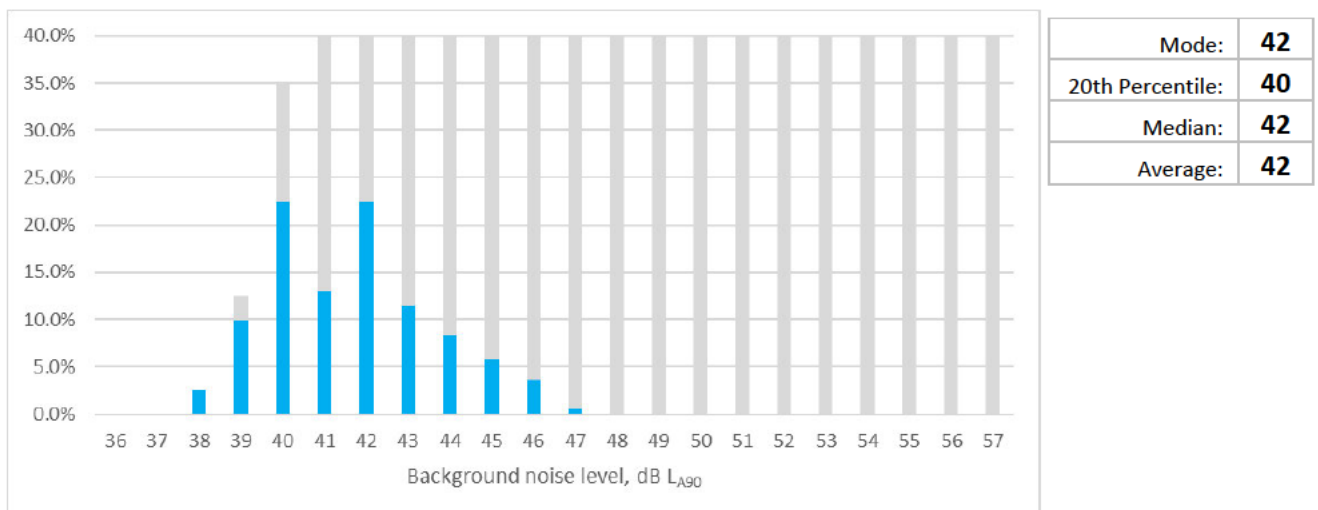


Figure A 2: Statistical analysis of L_{A90} at Castle Lane in 2020 – Evening 19:00-23:00

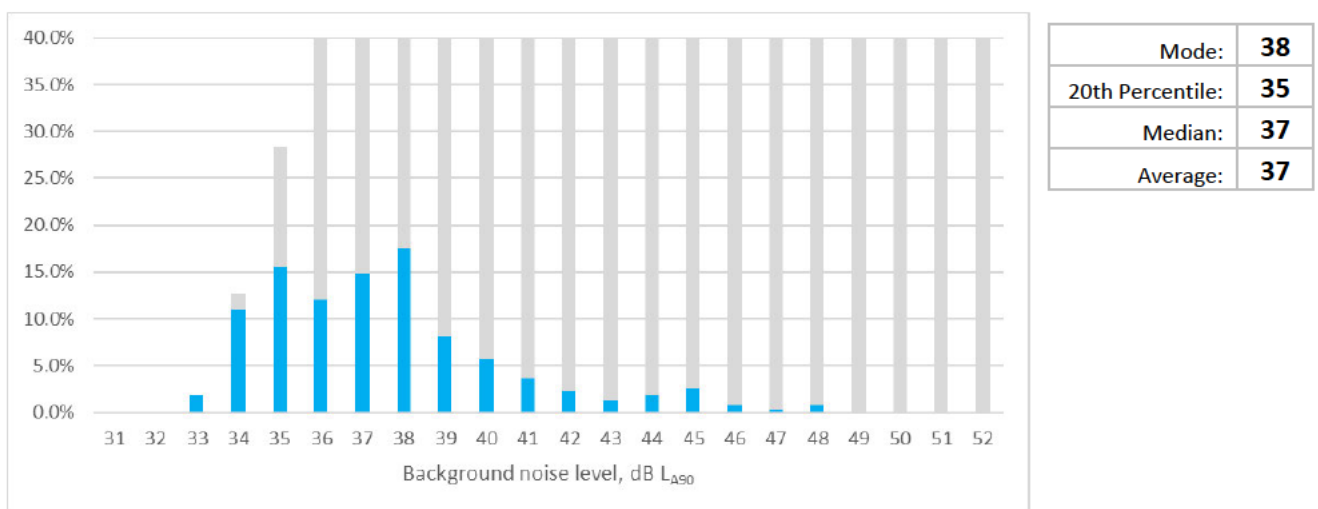


Figure A 3: Statistical analysis of L_{A90} at Castle Lane in 2020 – Night-time 23:00-07:00

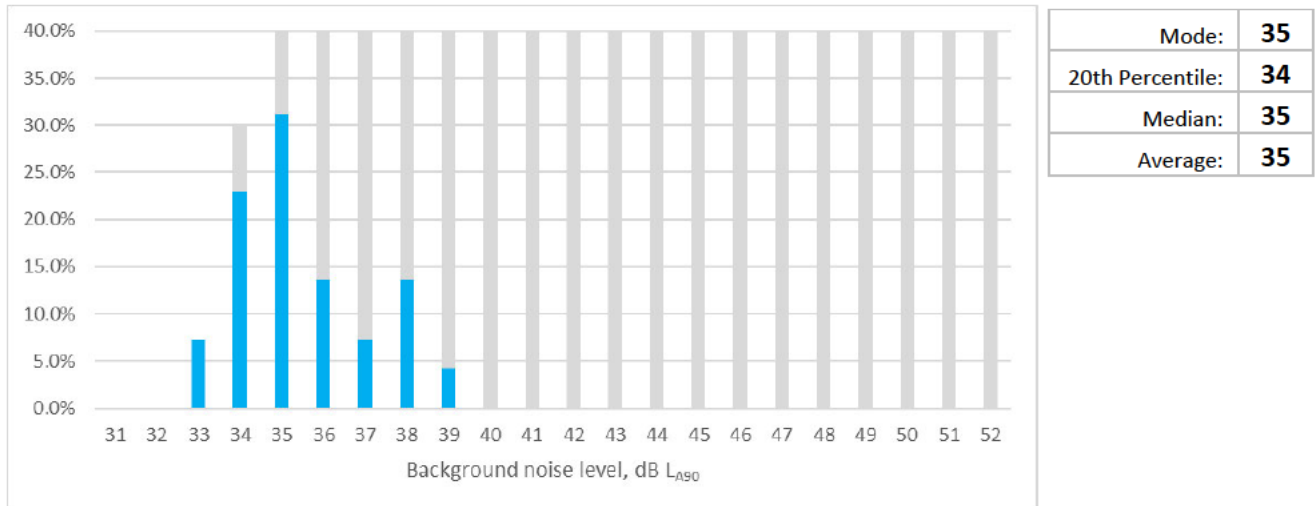


Figure A 4: Statistical analysis of L_{A90} at Castle Lane in 2020 – Middle of Night 01:30-05:00

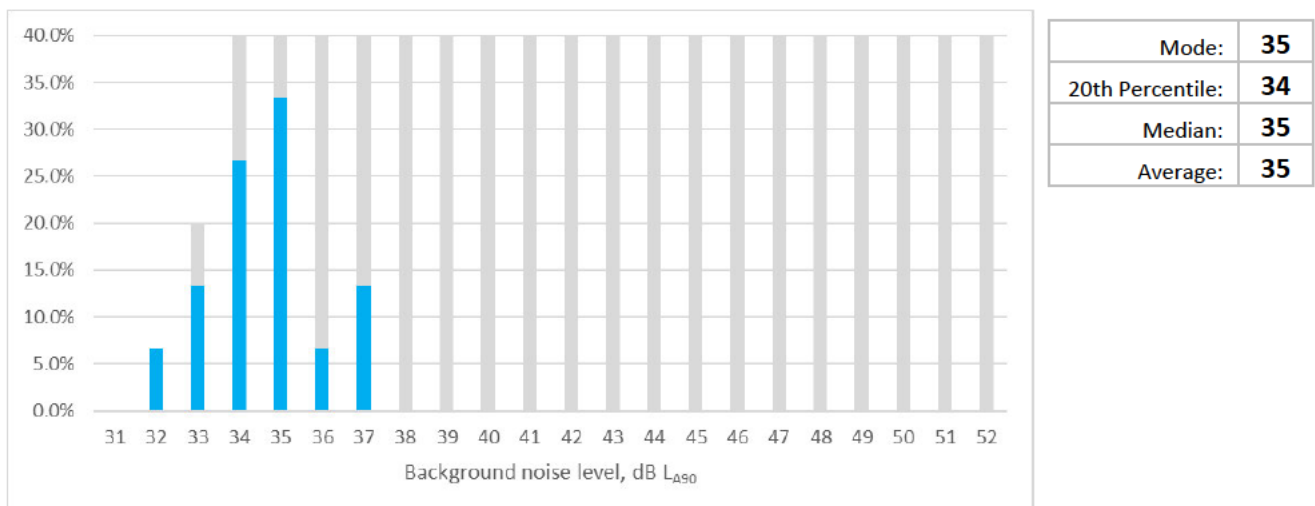


Figure A 5: Statistical analysis of L_{A90} towards Castle Lane in 2025 – Middle of Night 01:30-05:00

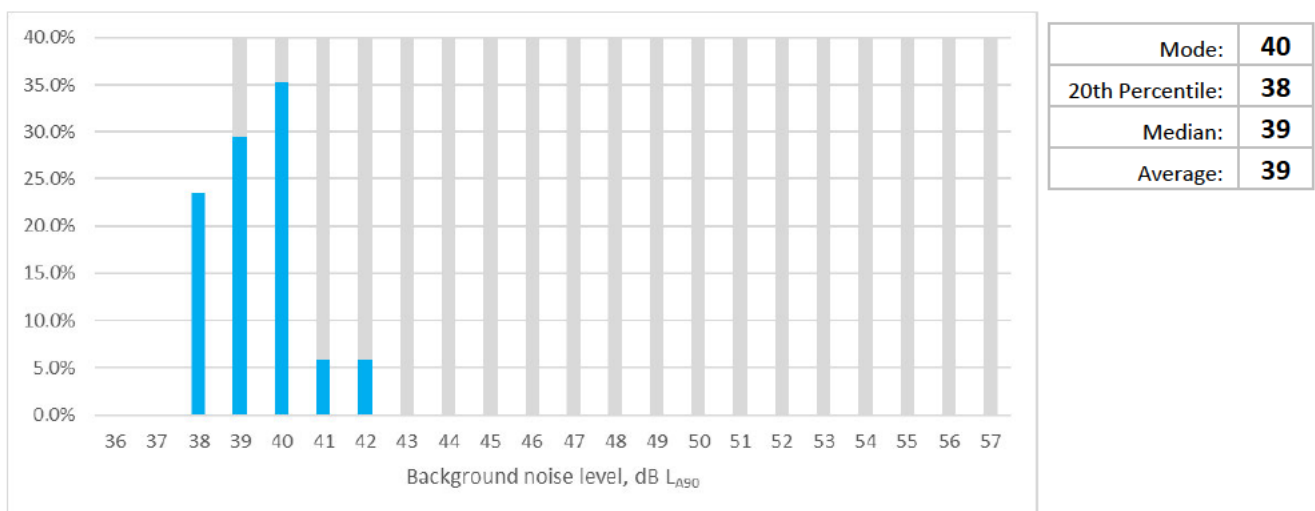


Figure A 6: Statistical analysis of L_{A90} at Thirstane Firs – Middle of Night 01:30-05:00



Appendix 4 Manufacturers Data



Industrial Air Division

09/2018

Stationary compressors:

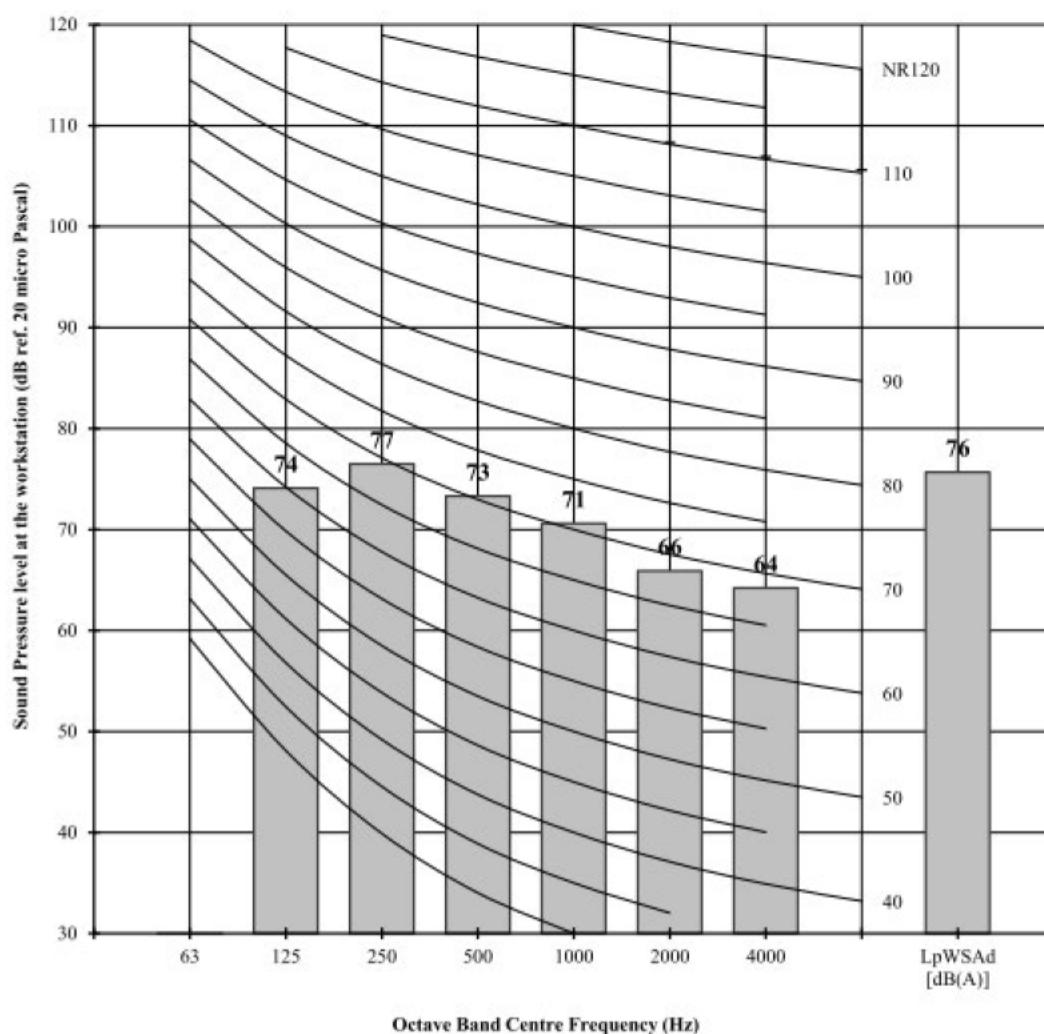
GA75VSD+

Noise level curve

Microphone Distance: 1m-at the work station

Place: FREE FIELD

NOISE ANALYSIS IN 1/1 - OCTAVE BANDS



A-weighted emission sound pressure level at the workstation, L_{pWSAd} , according ISO 2151:2004 using ISO 9614/2 (Intensity scanning), uncertainty +3dB

The unit is running at 3150 rpm and 7 bar working pressure at 20°C ambient temperature

Eventual noise from discharge line, accessories and/or ancillary equipment is not included !



Industrial Air Division

09/2018

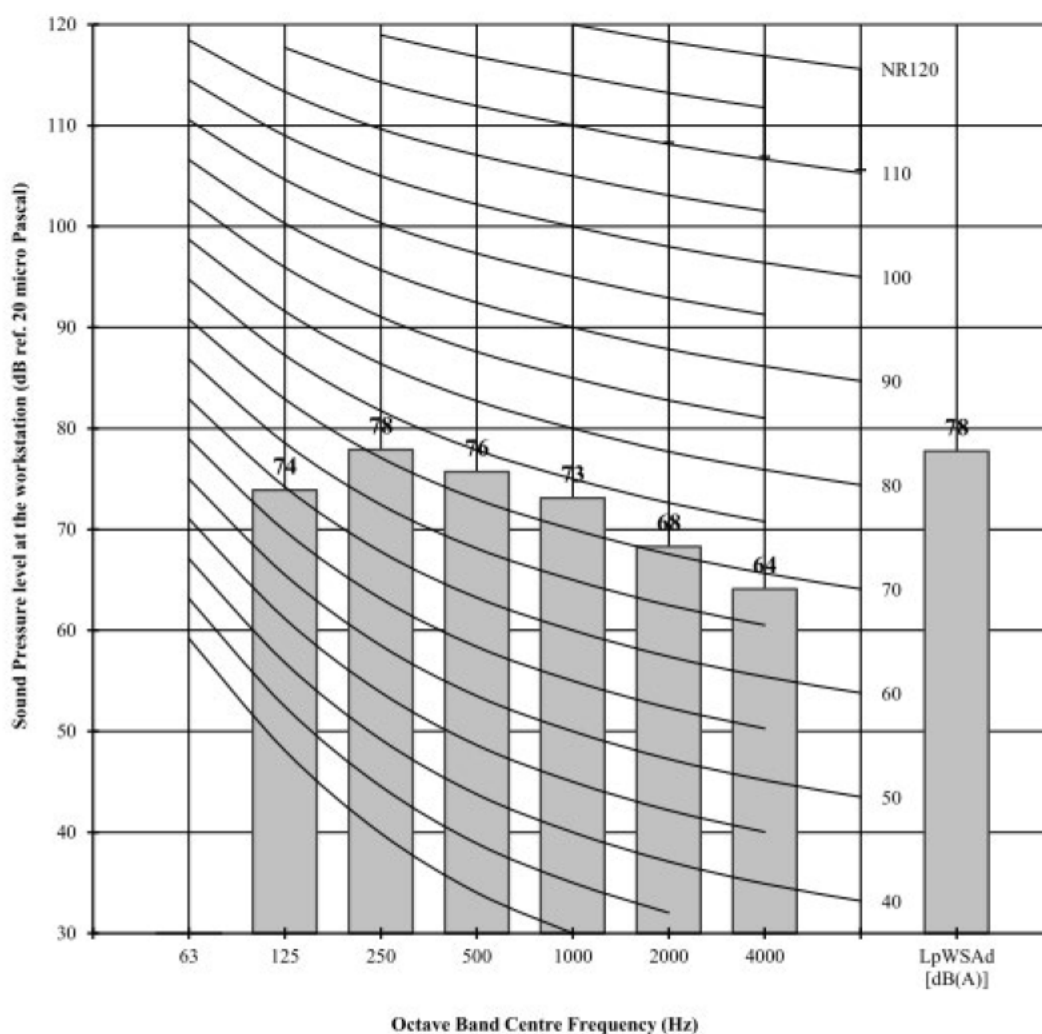
Stationary compressors:

GA90VSD+

Noise level curve

Microphone Distance: 1m-at the work station
Place: FREE FIELD

NOISE ANALYSIS IN 1/1 - OCTAVE BANDS



A-weighted emission sound pressure level at the workstation, L_{pWSAd} , according ISO 2151:2004 using ISO 9614/2 (Intensity scanning), uncertainty +3dB

The unit is running at 3666 rpm and 7 bar working pressure at 20°C ambient temperature

Eventual noise from discharge line, accessories and/or ancillary equipment is not included !



Appendix 5 Acoustic Terminology



Environmental Noise

Environmental noise is normally described in terms of the single figure A-weighted sound pressure level, in decibels (dB). The A-weighting corresponds to the frequency sensitivity of the ear and, therefore, provides an approximation to the subjective response to sound at different frequencies. When a sound level is expressed in this way, the units can be denoted dB(A).

When sound is time varying, it is convenient to express the sound level using an indicator, or descriptor that takes account of this variation. Two types of indicator are in common use, the equivalent continuous sound level and the statistical indicators.

Equivalent continuous sound level

$L_{Aeq, T}$: This indicator provides the overall noise exposure to time varying sound and is the energy average of the sound over a specified time period. It is the notional steady level that would, over a given period of time, deliver the same sound energy as the actual fluctuating sound over the same period. It is denoted $L_{eq, T}$, or, if A-weighted, $L_{Aeq, T}$, where T is the time period of interest.

Statistical indicators

The statistical indicators are also single figure descriptors, but provide additional information on the temporal variation of the noise level with time. The indicators are expressed as the sound level exceeded for a specified percentage of the time period of interest and the most commonly used are described below:

- $L_{A90, T}$: the A-weighted noise level exceeded for 90% of the time period T. This indicator is representative of the noise level occurring in the absence of short-term events and is used in the UK to represent the background noise level.
- $L_{Amax, T}$: the maximum A-weighted noise level that occurred during the time period T. It usually includes an additional subscript, slow (s) or fast (f), ie $L_{Amax, slow, T}$ or $L_{Amax, fast, T}$ which denotes the response time used in the analysis algorithm. The fast response tracks the maximum level of a rapidly changing sound more accurately than the slow response and the value is generally higher for impulsive or transient sounds.