



168C Whitley
Wood,
Reading RG2
8LQ

Plant Noise Assessment

May 2024



Ref: 24-13309

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1. Executive Summary

A plant noise assessment has been carried out for the proposed installation at **168C Whitney Wood Road, Reading, RG2 8LQ** due to the proposed extension of operation of an existing plant installation.

The proposal is to extend the operating hours of the existing plant installation at the site to 0700hrs - 2100hrs.

The report assesses, through on-site noise measurements, the impact of the proposed plant on the surrounding noise sensitive receptors.

The results of the assessment have identified:

- The plant as proposed would achieve an initial rating of a low impact at most. **However, the noise level generated would not achieve the requirements of the Local Authority.**
- Further mitigation measures have been suggested in order to achieve the requirements of the Local Authority:
 - Operating the extractor fan at a lower fan speed
 - Installing an acoustically attenuated duct termination for the extract fan
- **Subject to the installation of appropriate mitigation measures to achieve 4 dBA reduction in noise levels, the proposal will meet the requirement of the Local Authority.**

Achievement of the target noise criteria will ensure compliance with the aims of the NPPF and the PPG in that it will avoid noise from giving rise to significant adverse impacts on health or quality of life on nearby noise sensitive receptors.

2. Introduction

This report has been prepared to assess the impact of plant noise from **168C Whitney Wood Road, Reading, RG2 8LQ** due to the proposed extension of operation of an existing plant installation.

The proposal is to extend the operating hours of the existing plant installation at the site to 0700hrs - 2100hrs.

The report assesses, through on-site noise measurements, the impact of the proposed plant on the surrounding noise sensitive receptors.

A glossary of acoustic terminology is provided in **Appendix 1**.

Plant at the site comprises one extract fan ducted externally to a duct termination at 8m elevation. The location of the proposed development site is provided in **Figure 2.1**.

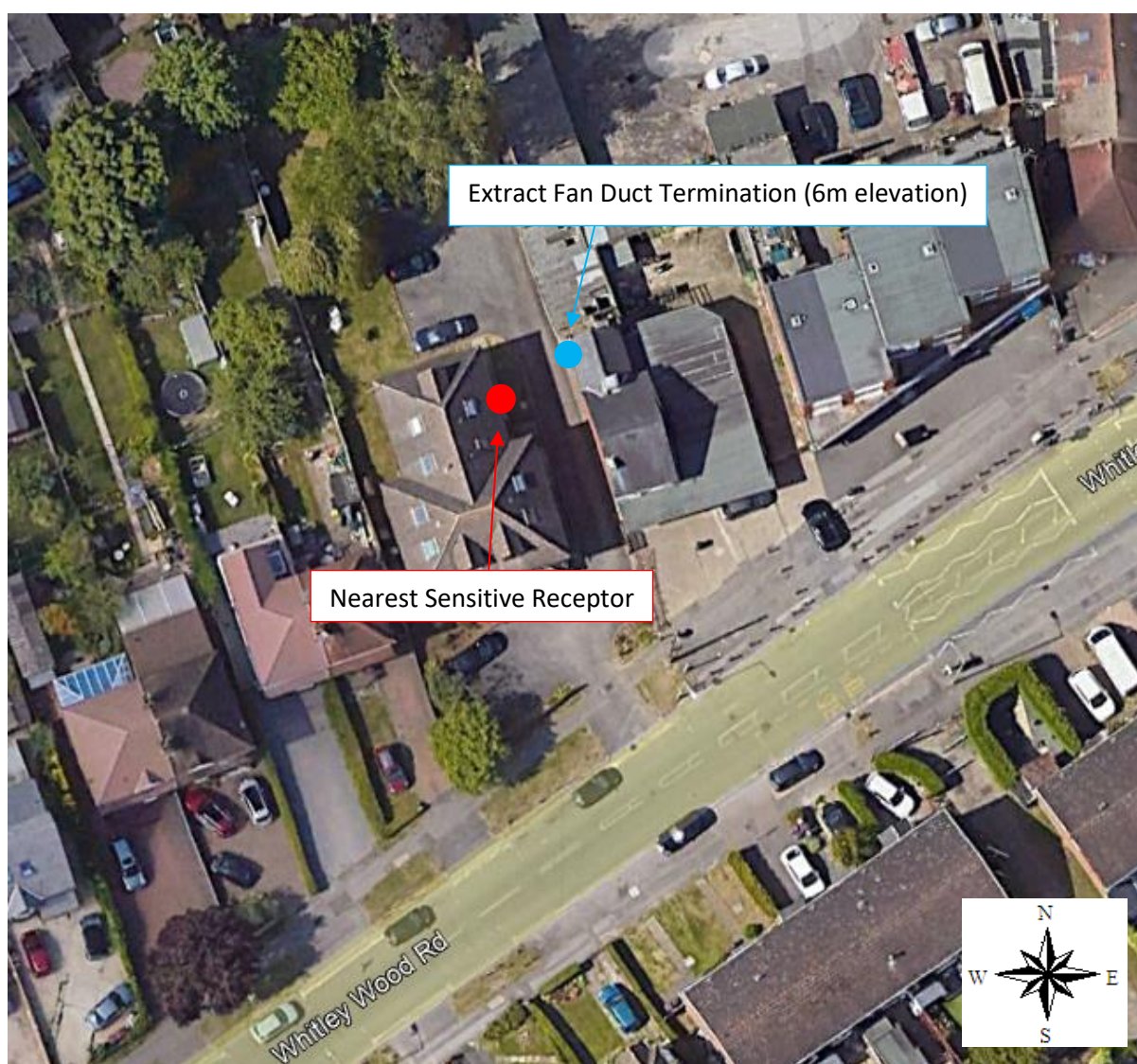


Figure 2.1: Site Location

3. Planning Policy

3.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was released in March 2012 and last updated in December 2023. The purpose of the planning system is to contribute to the achievement of sustainable development and to encourage good design. There are three dimensions to sustainable development: economic, social and environmental.

Central to the NPPF, paragraph 10 states: *'At the heart of the National Planning Policy Framework is a presumption in favour of [permitting] sustainable development'*. This is expanded upon in paragraph 11, where it is stated:

'...For decision-taking this means:

- *approving development proposals that accord with an up-to-date development plan without delay; or*
- *where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:*
 - *the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*
 - *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole'*

Paragraph 174 states *'Planning policies and decisions should contribute to and enhance the natural and local environment by... preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of... noise pollution...'*.

Paragraph 185 states: *'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

- *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 (see Explanatory Note to the Noise Policy Statement for England (DEFRA)).*
- *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*
- *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'*

3.2. Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) aims to *'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'.*

3.3. Local Planning Policy

The site is located within the administrative boundary of Reading Borough Council. Reading Borough Council usually apply the following criteria to plant installations:

“The specific sound level of the plant/equipment hereby approved, (LAeq,TR) (with reference to BS:4142) as measured at a point 1 metre external to the nearest noise sensitive facade shall be at least 10dB below the pre-existing background sound level, LA90,T when all plant/equipment (or any part of it) is in operation. The rating level, LAr,Tr (specific sound level plus any adjustment for the characteristic features of the sound) as measured at a point 1 metre external to the nearest noise-sensitive façade (habitable window of a dwelling) shall not exceed the pre-existing background sound level, LA90,T when all plant/equipment (or any part of it) is in operation.”

4. Guidance Documents

4.1. Planning Practice Guidance for Noise

The Planning Practice Guidance for Noise (PPG-Noise) was published in March 2014 and last updated in July 2019. The PPG provides advice on how to determine the noise impact on development:

'Plan-making and decision making need to take account of the acoustic environment and in doing so consider:

- *whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.*

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy.'

The document goes on to provide a definition for the levels of noise exposure at which an effect may occur:

'Significant observed adverse effect level: *this is the level of noise exposure above which significant adverse effects on health and quality of life occur.*

Lowest observed adverse effect level: *this is the level of noise exposure above which adverse effects on health and quality of life can be detected.*

No observed effect level: *this is the level of noise exposure below which no effect at all on health and quality of life can be detected.'*

It is important to understand that as the PPG-Noise does not provide any advice with respect to specific noise levels/ limits for different sources of noise, it is appropriate to consider other sources of advice and guidance documents when considering whether new developments would be sensitive to the prevailing acoustic environment.

4.2. British Standard 4142:2014

British Standard 4142:2014 "Methods for rating and assessing industrial and commercial sound" provides a method for the measurement and rating of industrial type noise sources and background noise levels outside dwellings. The rating level (defined in the BS) is used to rate the noise source outside residential dwellings (this is defined as the "specific sound level").

The rating level is determined by assessing the character of the noise and applying an acoustic feature correction if appropriate. Corrections are applied for the tonality and intermittency of the noise source which can both make noise more noticeable.

The initial assessment described in BS 4142 to determine whether an adverse impact is likely is based on establishing the difference between the rating level and the background noise level outside the

residential property of interest. The British Standard states that the following points should be considered:

- *'Typically, the greater this difference, the greater the magnitude of the impact.'*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- *A difference of around +5 dB 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.'*

Where it is considered that the initial assessment of the impact needs to be modified due to the context in which the noise is occurring, BS 4142 suggests that all pertinent factors are taken into consideration, including:

- 1) *'The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.'*

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.

Where residual sound ¹levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.

- 2) *The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound, to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it.*

¹ The residual sound is defined as the ambient sound level at the assessment location in the absence of the specific sound source.

3) *The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:*

- i) facade insulation treatment;*
- ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*
- ii) acoustic screening.'*

There is also a requirement within BS 4142:2014 to consider the uncertainty in the measurement and assessment procedure and it is stated that *'The level of uncertainty associated with a measurement of sound level depends upon a number of factors, including:*

- a) the complexity of the sound source and the level of variability in sound emission from the source;*
- b) the complexity and level of variability of the residual acoustic environment;*
- c) the level of residual sound in the presence of the specific sound at the measurement location;*
- d) the location(s) selected for taking the measurements;*
- e) the distance between sources of sound and the measurement location and intervening ground conditions;*
- f) the number of measurements taken;*
- g) the measurement time intervals;*
- h) the range of times when the measurements have been taken;*
- i) the range of suitable weather conditions during which measurements have been taken;*
- j) the measurement method and variability between different practitioners in the way the method is applied;*
- k) the level of rounding of each measurement recorded; and*
- l) the instrumentation used.'*

The most important factor to consider when addressing uncertainty is the extent to which it would influence the overall conclusions of the assessment.

5. Baseline Noise Levels

In order to determine the baseline noise levels in the vicinity of the proposed plant, measurements have been carried out in order to characterise the existing noise climate during the most sensitive times of operation over a six-day period. Noise at the site was dominated by road traffic noise from Whitney Wood Road.

The noise measurements utilised a Norsonic 140 Type 1 Precision Sound Level Meter with a current certificate of calibration, the full list of equipment is detailed in **Appendix 3**. Before and after the measurement period the equipment was calibrated in order to ensure that the equipment had remained within reasonable calibration limits (± 0.5 dB). Noise Measurements were carried out in consecutive 5 minutes periods with a 1 second resolution.

Measurements were carried out between 1100 hrs on Thursday 2nd May 2024 and 1155 hrs on Tuesday 7th May 2024.

During the noise measurement survey weather was generally overcast but dry, with a slight southeasterly breeze of 2 m/s. No precipitation was recorded and cloud cover was 100% during both setup and collection of the equipment.

Noise measurements were carried out over a six-day period at Measurement Positions 1 (MP1) in a free field location 1.5m above the flat roof of the adjacent building in a location representative of the nearest sensitive receptor.

The noise monitoring position is shown in **Figure 5.1**.

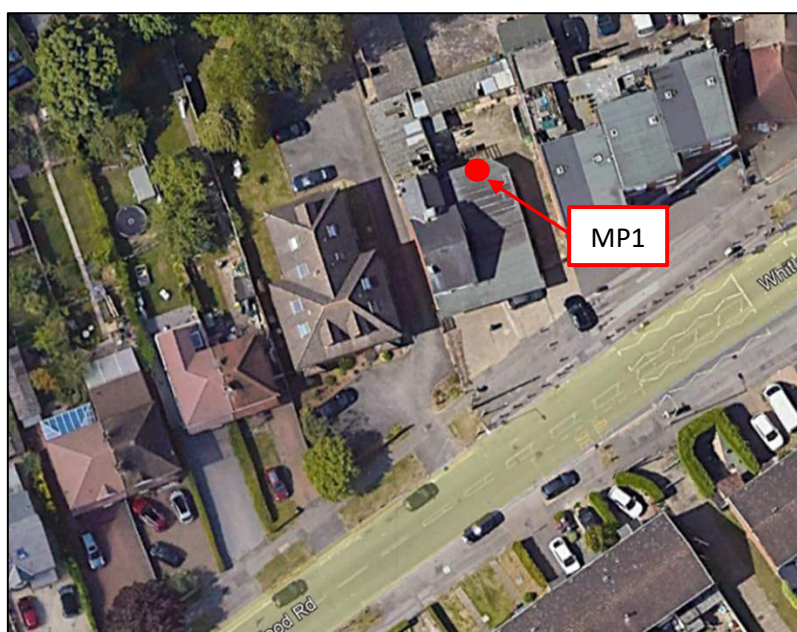


Figure 5.1: Noise Monitoring Location

Table 5.1 below displays a summary of the measured noise levels and detailed measurement results are presented in **Appendix 4**.

Measurement Position	Period (hours)	L _{Aeq,T} (dB)	Typical L _{A90} (dB)
MP1	Daytime (0700-2300)	55	46
	Night-time (2300-0700)	51	39

Table 5.1: Summary of Free Field Semi-Permanent Noise Levels

Note: The average noise levels stated are logarithmic for L_{Aeq}. The typical L_{A90} is the most commonly exceeded L_{A90,5min} during the assessment time period (a detailed assessment is provided in Appendix 3).

6. Plant Noise Levels

6.1. Plant Noise Levels

The plant noise levels have been obtained by measurement on 10th May 2024.

Measurement of noise from the extract fan was taken at 3m distance from the duct termination, at ground level

The noise measurements utilised a Svantek 977 Type 1 Precision Sound Level Meter with a current certificate of calibration, the full list of equipment is detailed in **Appendix 3**. Before and after the measurement period the equipment was calibrated in order to ensure that the equipment had remained within reasonable calibration limits (+/- 0.5 dB).

The results of the noise measurement survey are summarised in **Table 6.1**.

Plant Reference	Distance from Source (m)	Measurement Period (minutes)	Measured Noise Level L _{Aeq,T} (dB)	Commentary
Extract Fan	3	1	49	Fan was just barely audible therefore L _{A90} was taken as representative of noise output due to other noise sources affecting measurement. Fan 3m from measurement position

Table 6.1: Summary of Plant Noise Measurements

6.1.1. Plant Noise Levels – Penalties

The plant noise levels and operating conditions have been assessed by Syntegra in line with the advice provided within BS 4142:2014 and the following penalties will be added:

- Tonality: 0 dB (see **Appendix 5**)
- Impulsivity: 0 dB
- Noticeable feature (e.g. hum, whine, hiss): +0 dB (determined by the subjective method whilst on site).

The total penalty for the plant noise level features will therefore be +0 dB.

6.2. Receptor Noise Levels

The future plant noise levels at the nearest noise sensitive receptors have been predicted using standard acoustic formulae based on the measured noise levels and are detailed in **Table 6.2**.

	Receptor
	Adjacent residential property
Extract Fan	
Sound Pressure Level at 2.5m from Source (L_{Aeq} dB)	49
Distance to Nearest Habitable Room Window (approx.)	7m
Distance Correction (dB)	-9
Predicted Total Noise Level at Receptor (L_{Aeq} dB)	40

Table 6.2: Predicted Plant Noise Levels

7. Plant Noise Assessment

The background noise level and plant noise data presented in **Sections 5** and **6** has been utilised to determine the noise impact at the nearest noise sensitive receptor when assessed using the methodology in BS 4142:2014. The aim is to meet the requirements of the Local Authority which is to be at least 10 dB below the background noise level.

Table 7.1 below summarises the BS 4142 assessment procedure carried out for the site.

Results	Nearest Noise Sensitive Receptor (R1)	Relevant Clauses of BS 4142:2014	Commentary
Measured Ambient Sound Level	55	7.3.2	Refer to Table 5.1
Residual Sound Level	55	7.3.3	<i>The ambient noise level without the plant operating.</i> Refer to Table 5.1
Typical Background Sound Level L _{A90} (dB)	46	8.1, 8.2	Refer to Table 5.1
Specific Sound Level	40	9.1, 9.2	Refer to Table 6.2
Acoustic Feature Correction	0	9.2	Refer to Section 6.1.1
Rating Level L _{Ar} (dB)	40	9.1	Specific Sound Level + Acoustic Feature Correction
Excess of Rating over Background Sound Level	-6	11	
	Assessment indicates a likelihood of low adverse impact at most	11	
Achievement of Local Authority Criteria	No	n/a	10 dB below L _{A90}

Table 7.1: BS 4142 Assessment

Table 7.1 identifies that an assessment in line with BS 4142 indicates that **the plant noise is not likely to cause adverse impacts upon the residents at the nearest noise sensitive receptor. However, the level of noise generated will not achieve the requirements of the local authority.**

7.1. Context of the Noise Source

BS 4142 advises that the “context” of the noise needs to be considered to determine the results of the assessment.

In consideration of the context of the noise source, the plant would not be expected to cause any adverse impacts on the health or quality of life of the nearest noise sensitive receptors.

7.2. Consideration of Uncertainty

The assessment has considered uncertainty by taking a cautious approach in terms of the likely noise levels from the activities and by taking conservative losses for the distance attenuation. The cautious approach means that the noise impact is more likely to be overstated, as opposed to understated, although it is not likely that the predicted noise levels would be significantly different from those stated within the report. Overall, it is unlikely that the conclusions of the assessment would be changed as a result of any uncertainty in the assessment process.

8. Mitigation

From the results of the BS 4142 assessment, a modest level of sound attenuation is required in order to reduce the noise impact of the plant. The level of attenuation required is 4 dBA.

8.1. Operational Settings

A potential noise mitigation option would be to review the operational settings of the plant. It is possible that the extract fans may be controllable by a frequency inverter and it may be that a change to the operational settings of the plant can assist in reducing the noise levels. Setting the unit to run at a lower fan speed should reduce the noise output significantly and achieve the required level of noise reduction.

8.2. Duct Attenuation

A replacement termination louvre/grille or additional ducted attenuator could be installed for the extract duct which may assist in reducing the levels of noise emitted from the extract termination at roof height.

In order to ensure that the mitigation measures are suitable, a specialist company such as IAC², Caice³ and Wakefield Acoustics⁴ should be contacted. A competent person must install any attenuator or acoustic enclosure to ensure that it operates effectively.

A BS4142 assessment including the mitigation measures has been provided in **Table 8.1** to demonstrate compliance with the criteria of the local authority.

² <http://www.iacacoustics.com>

³ <http://www.caice.co.uk/home>

⁴ <https://www.wakefieldacoustics.co.uk/>

Results	Nearest Noise Sensitive Receptor (R1)	Relevant Clauses of BS 4142:2014	Commentary
Measured Ambient Sound Level	55	7.3.2	Refer to Table 5.1
Residual Sound Level	55	7.3.3	<i>The ambient noise level without the plant operating.</i> Refer to Table 5.1
Typical Background Sound Level L _{A90} (dB)	46	8.1, 8.2	Refer to Table 5.1
Specific Sound Level	36	9.1, 9.2	Refer to Table 6.2
Acoustic Feature Correction	0	9.2	Refer to Section 6.1.1
Rating Level L _{Ar} (dB)	36	9.1	Specific Sound Level + Acoustic Feature Correction
Excess of Rating over Background Sound Level	-10	11	
	Assessment indicates a likelihood of low adverse impact at most	11	
Achievement of Local Authority Criteria	Yes	n/a	10 dB below L _{A90}

Table 8.1: BS 4142 Assessment with mitigation installed

9. Conclusion

A plant noise assessment has been carried out for the proposed installation at **168C Whitney Wood Road, Reading, RG2 8LQ** due to the proposed extension of operation of an existing plant installation.

The proposal is to extend the operating hours of the existing plant installation at the site to 0700hrs - 2100hrs.

The report assesses, through on-site noise measurements, the impact of the proposed plant on the surrounding noise sensitive receptors.

The results of the assessment have identified:

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- Further mitigation measures have been suggested in order to achieve the requirements of the Local Authority:
 - Operating the extractor fan at a lower fan speed
 - Installing an acoustically attenuated duct termination for the extract fan
- **Subject to the installation of appropriate mitigation measures to achieve 4 dBA reduction in noise levels, the proposal will meet the requirement of the Local Authority.**

Achievement of the target noise criteria will ensure compliance with the aims of the NPPF and the PPG in that it will avoid noise from giving rise to significant adverse impacts on health or quality of life on nearby noise sensitive receptors.

10. Appendix 1: Glossary of Acoustic Terminology

Term	Description
'A'-Weighting	<i>This is the main way of adjusting measured sound pressure levels to take into account human hearing, and our uneven frequency response.</i>
Decibel (dB)	<i>This is a tenth (deci) of a bel. The decibel can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation. Decibels are not an absolute unit of measurement but are an expression of ratio between two quantities expressed in logarithmic form.</i>
$L_{Aeq,T}$	<i>The equivalent steady sound level in dB containing the same acoustic energy as the actual fluctuating sound level over the given period, T. T may be as short as 1 second when used to describe a single event, or as long as 24 hours when used to describe the noise climate at a specified location. $L_{Aeq,T}$ can be measured directly with an integrating sound level meter.</i>
L_{A10}	<i>The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 10 per cent of a given time and is the L_{A10T}. The L_{A10} is used to describe the levels of road traffic noise at a particular location.</i>
L_{A50}	<i>The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 50 per cent of a given time and is the L_{A50T}.</i>
L_{A90}	<i>The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 90 per cent of a given time and is the L_{A90T}. The L_{A90} is used to describe the background noise levels at a particular location.</i>
L_{Amax}	<i>The 'A'-weighted maximum sound pressure level measured over a measurement period.</i>

11. Appendix 2: Professional Statement

David Yates

David Yates is a full member of the Institute of Acoustics (MIOA) and has 15 years' experience in acoustic consultancy. David has particular expertise in environmental noise providing acoustic consultancy for residential and mixed use planning applications, plant noise and vibration, construction noise and the design of acoustic, noise and vibration control. David is also experienced in providing sound insulation testing and design advice. David is familiar with the application of all relevant standards associated with his work, including but not limited to, BS 4142, BS 8233, BS 7445, BS 6472, BS 5228, BS 140 series, BS 16283 series and BS 717 series. David manages the acoustic department and is responsible for maintaining Syntegra's ANC membership.

Jake Willmott MSc MIOA

Jake Willmott is an Acoustic Consultant with 5 years' experience in consultancy. He previously graduated from Solent University with a Masters' Degree in Applied Acoustics having previously worked in technical roles in the music industry for 7 years. Jake's experience covers residential and commercial planning, design of noise mitigations, investigation and resolution of noise complaints, night-time economy noise issues (including licensing), computer modelling, and industrial noise assessment. Jake is a corporate member of the Institute of Acoustics.

12. Appendix 3: List of Equipment

Equipment Type	Manufacturer	Serial Number	Calibration Certification Number	Date of Last Calibration Check
Nor-140 Type 1 Sound Level Meter	Norsonic	1406389	TCRT21/1767	November 2021
Nor-1225 Microphone	Norsonic	225519	TCRT21/1767	November 2021
Nor-1209 Preamplifier	Norsonic	20598	TCRT21/1767	November 2021
Nor-1251 Sound Calibrator	Norsonic	35115	TCRT22/1700	November 2022
SVAN 977A	Svantek	67915	TCRT22/1687	November 2022
7052E Microphone	ACO PACIFIC	70760	TCRT22/1687	November 2022
SV12L Preamplifier	Svantek	73668	TCRT22/1687	November 2022
SV36 Sound Calibrator	Svantek	73463	TCRT22/1680	November 2022

13. Appendix 4: Detailed Noise Measurement Results

Measured Noise levels – MP1 – 02/05/2024

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
1100-1200	53	67	54	51
1200-1300	53	67	54	52
1300-1400	53	73	54	52
1400-1500	54	73	54	53
1500-1600	55	77	56	53
1600-1700	55	71	56	54
1700-1800	55	67	55	54
1800-1900	55	82	55	54
1900-2000	53	65	53	52
2000-2100	52	67	53	51
2100-2200	51	68	52	48
2200-2300	56	72	53	48
2300-0000	59	69	65	43
0700-2300	54	71	54	52
2300-0700	59	69	65	43

Measured Noise levels – MP1 – 03/05/2024

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	44	66	48	39
0100-0200	43	63	46	40
0200-0300	46	68	49	41
0300-0400	49	67	51	47
0400-0500	52	68	54	48
0500-0600	56	71	56	54
0600-0700	57	69	58	56
0700-0800	59	73	59	58
0800-0900	58	76	59	56
0900-1000	58	67	59	57
1000-1100	57	75	58	56
1100-1200	57	72	58	56
1200-1300	57	82	58	56
1300-1400	57	73	57	56
1400-1500	58	77	58	56
1500-1600	57	76	58	56
1600-1700	56	74	58	54
1700-1800	55	75	56	54
1800-1900	54	70	55	54
1900-2000	55	73	55	54
2000-2100	53	72	54	52
2100-2200	55	88	55	51

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
2200-2300	50	68	51	48
2300-0000	48	70	50	47
0700-2300	56	74	57	55
2300-0700	52	68	51	46

Measured Noise levels – MP1 – 04/05/2024

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	45	64	47	42
0100-0200	50	81	49	42
0200-0300	42	63	44	37
0300-0400	45	63	46	39
0400-0500	47	68	49	43
0500-0600	51	72	52	47
0600-0700	52	67	53	50
0700-0800	53	66	54	51
0800-0900	54	80	56	52
0900-1000	55	77	56	53
1000-1100	55	76	55	53
1100-1200	54	74	56	53
1200-1300	56	75	60	53
1300-1400	55	83	57	53
1400-1500	55	89	58	53
1500-1600	55	78	57	52
1600-1700	53	73	53	52
1700-1800	53	81	55	52
1800-1900	53	73	54	52
1900-2000	52	69	53	51
2000-2100	52	71	53	50
2100-2200	52	69	52	51
2200-2300	50	69	52	49
2300-0000	48	66	49	47
0700-2300	54	75	55	52
2300-0700	49	68	49	43

Measured Noise levels – MP1 – 05/05/2024

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	47	68	49	44
0100-0200	45	65	47	43
0200-0300	45	66	48	40
0300-0400	47	68	49	44
0400-0500	47	65	49	45
0500-0600	48	70	50	46



Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0600-0700	49	65	50	47
0700-0800	50	66	51	48
0800-0900	52	70	53	49
0900-1000	54	74	56	52
1000-1100	56	74	57	55
1100-1200	55	71	56	54
1200-1300	56	84	56	54
1300-1400	58	84	57	53
1400-1500	54	71	55	53
1500-1600	55	81	55	53
1600-1700	53	67	54	52
1700-1800	54	74	54	53
1800-1900	53	75	55	52
1900-2000	52	69	53	50
2000-2100	51	69	52	49
2100-2200	51	64	52	48
2200-2300	50	75	51	47
2300-0000	46	69	48	44
0700-2300	54	73	54	51
2300-0700	47	67	49	44

Measured Noise levels – MP1 – 06/05/2024

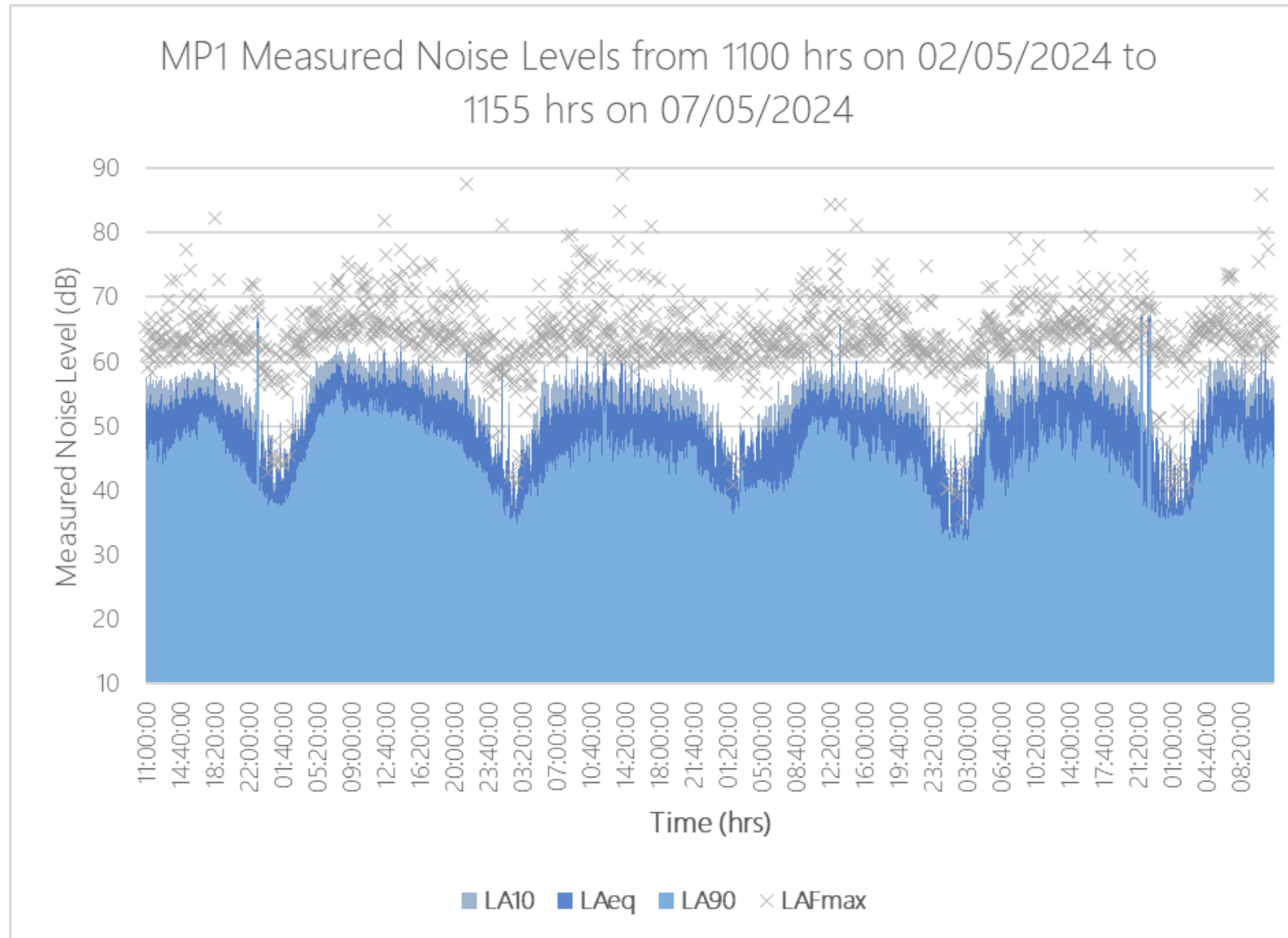
Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	44	64	48	36
0100-0200	41	63	45	34
0200-0300	41	66	43	33
0300-0400	43	62	45	34
0400-0500	47	65	49	46
0500-0600	55	72	56	52
0600-0700	51	65	53	50
0700-0800	51	74	52	49
0800-0900	55	79	57	52
0900-1000	55	76	57	53
1000-1100	55	78	55	52
1100-1200	56	70	57	55
1200-1300	56	72	57	55
1300-1400	56	68	57	55
1400-1500	56	71	57	54
1500-1600	57	73	57	56
1600-1700	56	80	56	54
1700-1800	55	73	55	53
1800-1900	53	72	55	52
1900-2000	53	73	53	52



Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
2000-2100	52	77	54	51
2100-2200	61	73	67	49
2200-2300	61	70	67	47
2300-0000	45	68	48	38
0700-2300	56	74	57	52
2300-0700	49	66	48	40

Measured Noise levels – MP1 – 07/05/2024

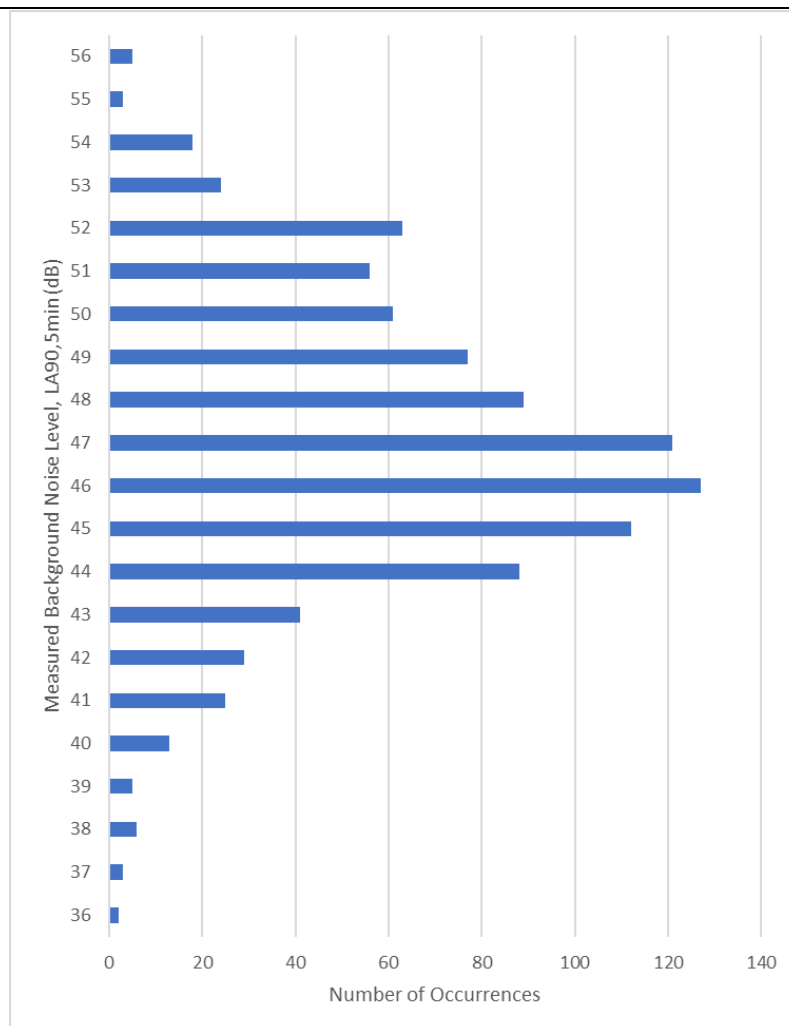
Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	44	66	46	37
0100-0200	41	62	44	37
0200-0300	43	65	45	38
0300-0400	48	67	51	44
0400-0500	51	68	53	47
0500-0600	55	69	56	53
0600-0700	56	74	57	55
0700-0800	56	74	57	54
0800-0900	55	69	56	53
0900-1000	52	67	54	51
1000-1100	55	86	57	51
1100-1200	55	80	57	52
0700-2300	55	75	56	52
2300-0700	51	67	50	44



13.1. Typical Background Noise Level Analysis for BS 4142:2014 Assessment

MP1 - Daytime (0700 hrs – 2300 hrs)

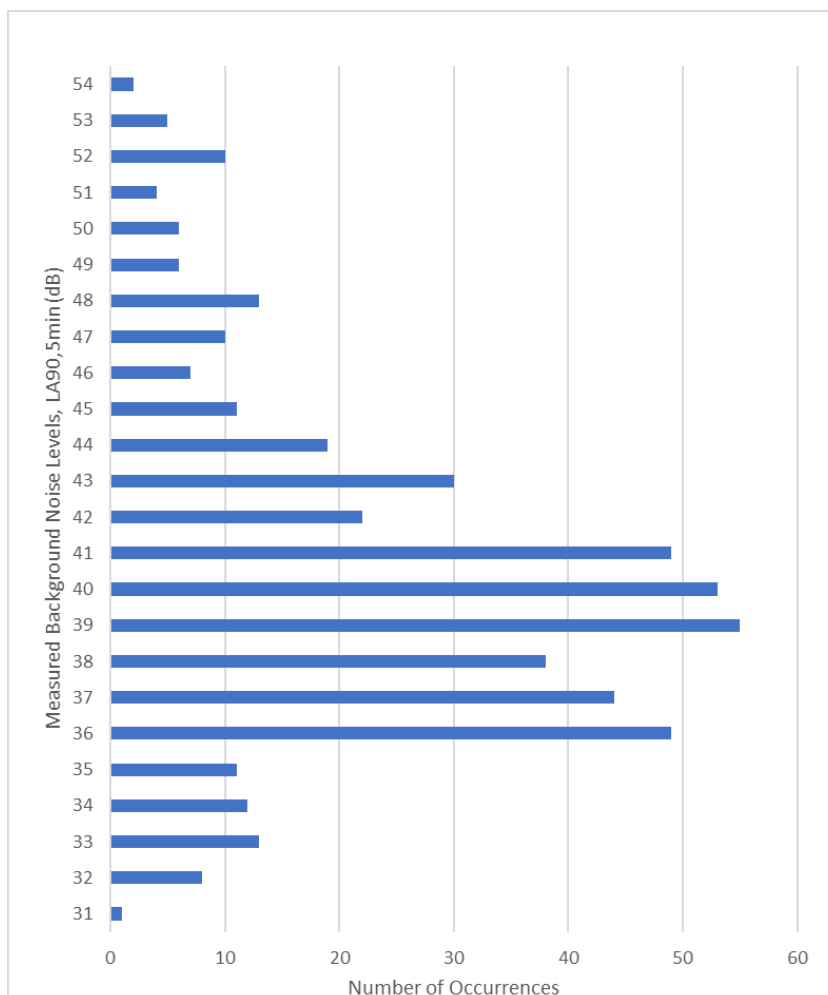
Measured $L_{A90,5min}$ (dB)	Number of Occurrences
36	2
37	3
38	6
39	5
40	13
41	25
42	29
43	41
44	88
45	112
46	127
47	121
48	89
49	77
50	61
51	56
52	63
53	24
54	18
55	3
56	5



Note: The row marked in bold is the chosen Typical L_{A90} for the BS 4142 plant noise assessment.

MP1 – Night-time (2300 hrs – 0700 hrs)

Measured L _{A90,5min} (dB)	Number of Occurrences
31	1
32	8
33	13
34	12
35	11
36	49
37	44
38	38
39	55
40	53
41	49
42	22
43	30
44	19
45	11
46	7
47	10
48	13
49	6
50	6
51	4
52	10
53	5
54	2



Note: The row marked in bold is the chosen Typical L_{A90} for the BS 4142 plant noise assessment.