

Activity Noise Assessment

April 2023



Ref: 23-10813
ANA

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1. Executive Summary

A plant noise assessment has been carried out for the proposed installation at **Page Green Road, London N15 4PG**.

The proposed installation includes a single vehicle wash-bay with planned drive-through operation, enclosed on all other sides and including a solid roof. The wash bay will contain a jet-washer driven by a compressor that is housed in a cupboard on one side of the bay. The pressure washer and vacuum cleaner are likely to be in use up to approximately 60 minutes per day, from 0800 hrs to 1830 hrs Monday to Friday, 0900 hrs to 1700 hrs Saturdays and 1000 hrs to 1700 hrs on Sundays and Bank Holidays.

The results of the assessment have identified that the plant as proposed would be below the level where a *low impact* at most may be expected upon the residents at the nearest noise sensitive receptors. Taking into account the likely times and duration of use of the equipment alongside the predicted noise levels, it has been identified that significant adverse impacts are unlikely at the nearest noise sensitive receptors.

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 the proposed vehicle washing bay area of the proposed vehicle rental premises at **Page Green Road, London N15 4PG**.

The proposed installation includes a single vehicle wash-bay with planned drive-through operation, enclosed on all other sides and including a solid roof. The wash bay will contain a jet-washer driven by a compressor that is housed in a cupboard on one side of the bay. The pressure washer and vacuum cleaner are likely to be in use up to approximately 60 minutes per day, from 0800 hrs to 1830 hrs Monday to Friday, 0900 hrs to 1700 hrs Saturdays and 1000 hrs to 1700 hrs on Sundays and Bank Holidays.

The site is located in an area of mixed residential and commercial use. There is residential on the site boundary to the north, on the opposite side of a raised railway overpass. In other directions the site is bounded by commercial units to the east and west, and a school playing field to the south. The site is currently in use as a storage yard, vehicle maintenance business and scrap metal recycling site. The noise climate is dominated by tool use from adjacent commercial sites and railway noise from the two railways running across the site and along the boundary.

The nearest noise sensitive receptors from the wash bay are to south of the site, approximately 20m from the proposed installation.

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**.

The location of the proposed development is provided in **Figure 2.1**.

The proposed site layout with the wash bay location is provided in **Figure 2.2**.

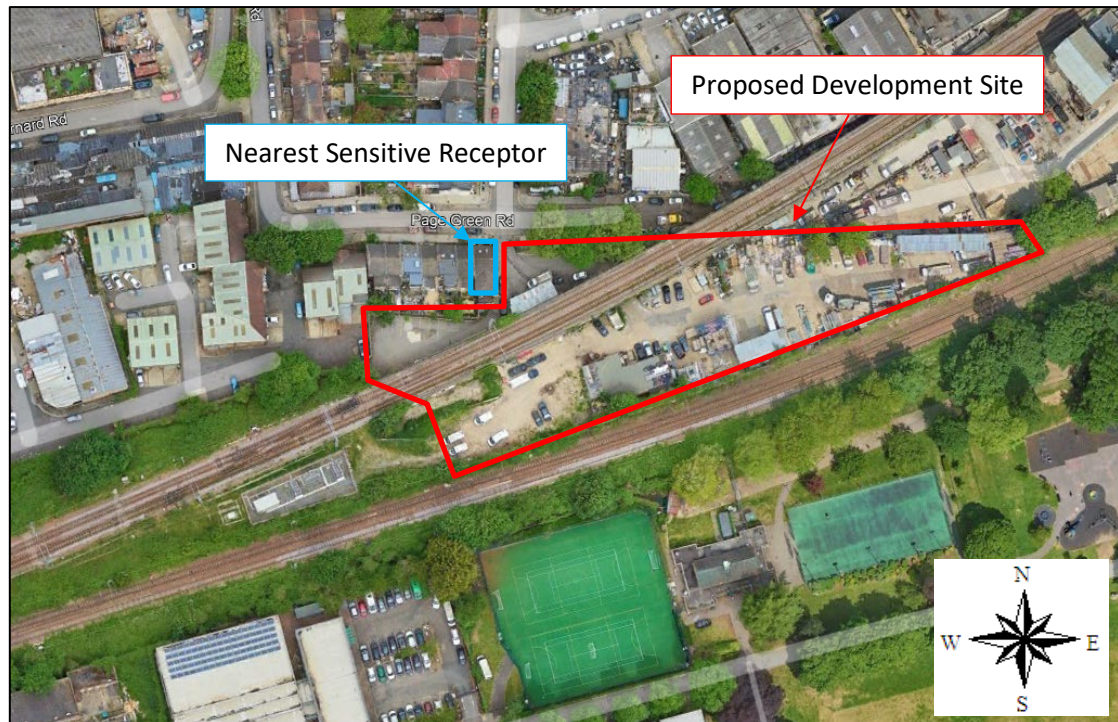


Figure 2.1: Site Location

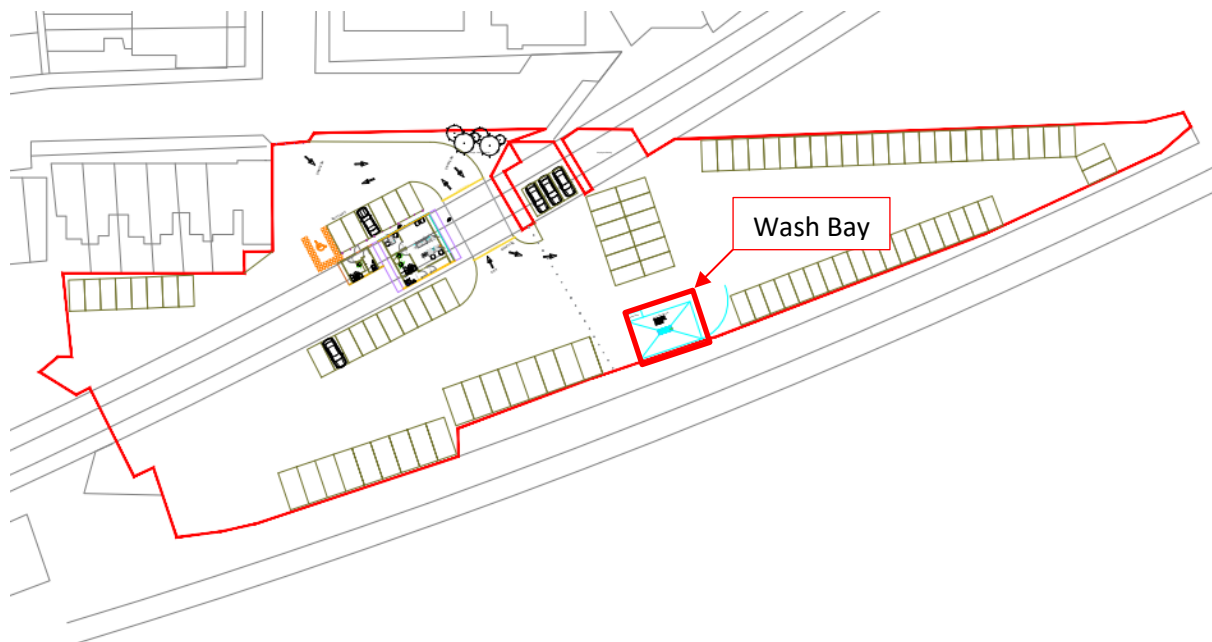


Figure 2.2: Proposed Site Layout

3. Planning Policy

3.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was released in March 2012 and last updated in July 2021. 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 impact 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 the London Borough of Harringey.

The Local Authority sets out a goal to improve noise quality within its area of jurisdiction but does not set a specific target level relating to plant and activity noise.

This leaves national planning policy as set out in the NPPF and NPSE as the guiding framework and BS4142 as the appropriate assessment methodology.

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.*

- 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.'*

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

5. Baseline Noise Levels

In order to determine the baseline noise levels in the vicinity of the nearest noise sensitive receptors, measurements have been carried out in order to characterise the existing noise climate during the most sensitive times of operation over a 3-day period. The noise climate is dominated by noise from the two railway lines when trains are passing and is otherwise comprised of noise from the commercial uses currently on the site.

The noise measurements utilised a Svantek 977 Type 1 Precision Sound Level Meter with current certificates 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 1200 hrs on Friday 14th April 2023 and 1200 hrs on Monday 17th April 2023.

During the noise measurement survey, the temperature reached a high of 16°C during the day, dropping to a low of approximately 6°C overnight. Wind speeds were generally low throughout the survey (approximate 0-2 m/s). Wind direction was predominantly southerly. Cloud cover was noted to be 100% at the start of the survey and 10% at the end of the survey. No precipitation was recorded in the local area during the survey period.

Noise measurements were carried out at Measurement Position 1 (MP1) in a facade location, approximately 1.5m above ground level just to the south of the railway overpass which bisects the site. A secure location was not available closer to the residential properties on the northern site boundary. The position was chosen to be representative of noise levels in the area generally as it is a similar distance from the dominant noise source (the railway line). The nearest residential property is similarly exposed to noise from the nearby railway line and commercial noise sources which dominate the noise sources both north and south of the railway line when trains are not passing. The noise monitoring position is shown in **Figure 5.1**.

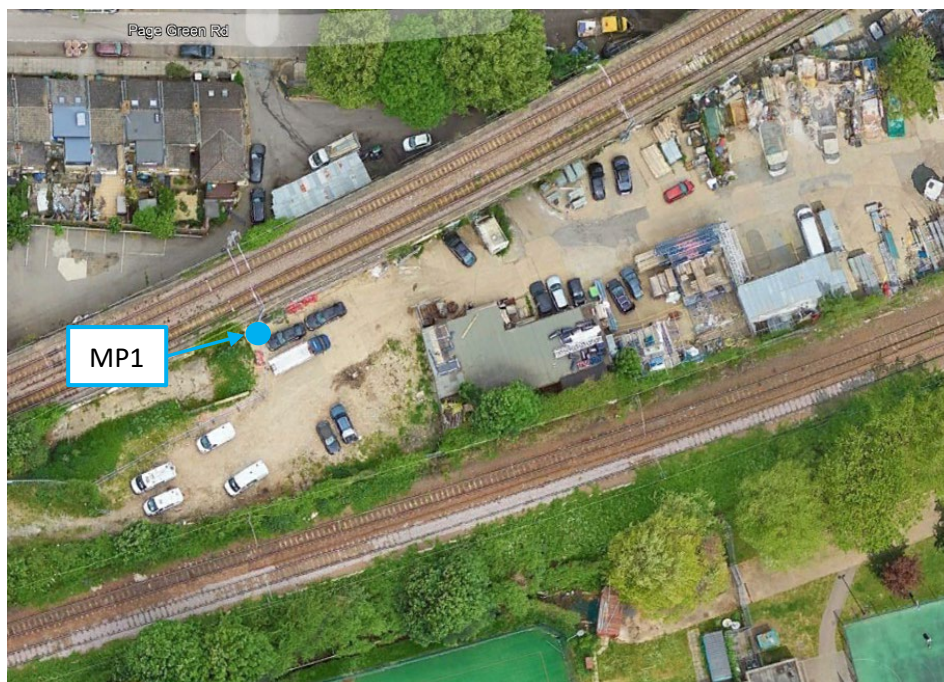


Figure 5.1: Noise Monitoring Location

A -1.5 dB façade correction has been added to the measured noise levels because the measurement position was approximately 0.5m from the surface of the railway overpass. **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 Background Noise Level L_{A90} (dB)
MP1	Daytime (07:00-23:00)	63	39
	Night-time (23:00-07:00)	55	31

Table 5.1: Summary of Façade Corrected 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 measured $L_{A90,5min}$ during the assessment time period (a detailed assessment is provided in Appendix 4).

6. Plant Noise Levels

6.1. Plant Noise Levels

The plant noise levels of an existing wash-bay have been obtained by measurement at a similar Enterprise Car Hire operation in Slough, Berkshire which has a wash bay partial enclosure that is identical to the proposed operations.

Noise measurements were carried out of the vacuum cleaner and jet washer in use cleaning a car. A series of measurements were made surrounding the wash-bay in order to predict the noise emissions from each façade of the enclosure. Noise from the roof was assumed to be similar to noise from the closed Compressor Façade, as the wall construction is similar to the roof construction.

We note that as the proposed bay at this site is not intended for 'drive through' operation the exit will be fully enclosed.

The noise measurements utilised a Norsonic 140 Type 1 Precision Sound Level Meter with a current certificate of calibration. 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**.

Measurement Position	Distance from Source (m)	Measurement Period (minutes)	Measured Noise Level $L_{Aeq,T}$ (dB)	Calculated Sound Power Level L_{WA} (dB)
Wash-bay Entrance/Exit	1	30 seconds	74	82
Compressor Façade	1	30 seconds	65	73

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
- Intermittency: +3 dB for the potential on/off nature of the units.

The total penalty for the plant noise level features will therefore be +3 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** for the wash bay exit. Syntegra have assumed a very worst case 25% on-time within any hour (15 minutes per hour), providing a -6 dB reduction.

We note that as the closest receptors are on the opposite side of the railway overpass, noise levels will be determined by noise emanating from the entrance of the bay. Therefore, this has been used as the basis for the predicted noise levels.

The receptor is fully screened from the wash bay therefore a -10 dB screening correction has been applied.

	Receptor
	R1
Entrance to Wash Bay	
Sound Power Level (L_{Aw} dB)	82
On-time Correction (dB)	-6
Distance to Nearest Habitable Room Window (approx.)	50m
Distance Correction (dB)	-34
Sound Power to Sound Pressure Level Conversion (dB)	-8
Screening Correction	-10
Predicted Noise Level at Receptor (L_{Aeq} dB)	24

Table 6.2: Predicted Activity 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 assessment has been carried for daytime hours only due to the proposed opening hours.

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

Results	R1	Relevant Clauses of BS 4142:2014	Commentary
Measured Ambient Sound Level	63	7.3.2	Refer to Table 5.1
Residual Sound Level	63	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)	39	8.1, 8.2	Refer to Table 5.1
Specific Sound Level	24	9.1, 9.2	Refer to Table 6.2
Acoustic Feature Correction	+3	9.2	Refer to Section 6.1.1
Rating Level L_{Ar} (dB)	27	9.1	Specific Sound Level + Acoustic Feature Correction
Excess of Rating over Background Sound Level	-12	11	
	Assessment indicates below a low impact	11	

Table 7.1: BS 4142 Assessment

Table 7.1 identifies that an assessment in line with BS 4142 indicates that **the plant noise would be below the level where a low impact may be expected upon the residents at the nearest noise sensitive receptors.**

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.

The assessment has demonstrated that the predicted noise levels will be below the level of the existing ambient and background noise levels at the identified noise sensitive receptors. Due to the proposed times of operation (daytime hours only with no early mornings or evenings) and the limited duration of operations, adverse impacts would be very unlikely, even under the worst-case assessment criteria utilised.

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. Conclusion

A plant noise assessment has been carried out for the proposed installation at **Page Green Road, London N15 4PG**.

The proposed installation includes a single vehicle wash-bay with planned drive-through operation, enclosed on all other sides and including a solid roof. The wash bay will contain a jet-washer driven by a compressor that is housed in a cupboard on one side of the bay. The pressure washer and vacuum cleaner are likely to be in use up to approximately 60 minutes per day, from 0800 hrs to 1830 hrs Monday to Friday, 0900 hrs to 1700 hrs Saturdays and 1000 hrs to 1700 hrs on Sundays and Bank Holidays.

The results of the assessment have identified that the plant as proposed would be below the level where a *low impact* at most may be expected upon the residents at the nearest noise sensitive receptors. Taking into account the likely times and duration of use of the equipment alongside the predicted noise levels, it has been identified that significant adverse impacts are unlikely at the nearest noise sensitive receptors.

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.

9. 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>

10. Appendix 2: Professional Statement

David Yates

David Yates is a full member of the Institute of Acoustics (MIOA) and has over ten 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.

11. Appendix 3: List of Equipment

Equipment Type	Manufacturer	Serial Number	Calibration Certification Number	Date of Last Calibration Check
SVAN 977A	Svantek	67915	36313	November 2020
7052E Microphone	ACO PACIFIC	70760	36312	November 2020
SV12L Preamplifier	Svantek	73668	36313	November 2020
SV36 Sound Calibrator	Svantek	73463	TCRT21/1765	November 2021

12. Appendix 4: Detailed Noise Measurement Results

Measured Noise levels – MP1 – 14.04.2023

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
1200-1300	59	97	56	47
1300-1400	57	79	58	46
1400-1500	57	81	56	45
1500-1600	61	82	61	46
1600-1700	54	82	55	44
1700-1800	55	81	56	43
1800-1900	53	84	54	41
1900-2000	53	74	52	40
2000-2100	53	75	52	40
2100-2200	56	71	56	50
2200-2300	58	80	58	49
2300-0000	52	72	50	42
1200-2300	57	80	56	45
2300-0000	52	72	50	42

Measured Noise levels – MP1 – 15.04.2023

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	56	81	49	39
0100-0200	41	63	43	39
0200-0300	40	68	42	38
0300-0400	43	73	44	40
0400-0500	56	84	51	41
0500-0600	56	81	56	41
0600-0700	66	93	62	45
0700-0800	57	80	59	45
0800-0900	54	79	55	45
0900-1000	57	76	58	45
1000-1100	59	78	61	44
1100-1200	57	80	58	43
1200-1300	57	78	58	42
1300-1400	59	81	58	41
1400-1500	53	75	52	41
1500-1600	55	79	58	42
1600-1700	53	75	54	41
1700-1800	72	85	71	49
1800-1900	77	100	80	54
1900-2000	64	92	62	43
2000-2100	55	84	57	42
2100-2200	51	74	50	38

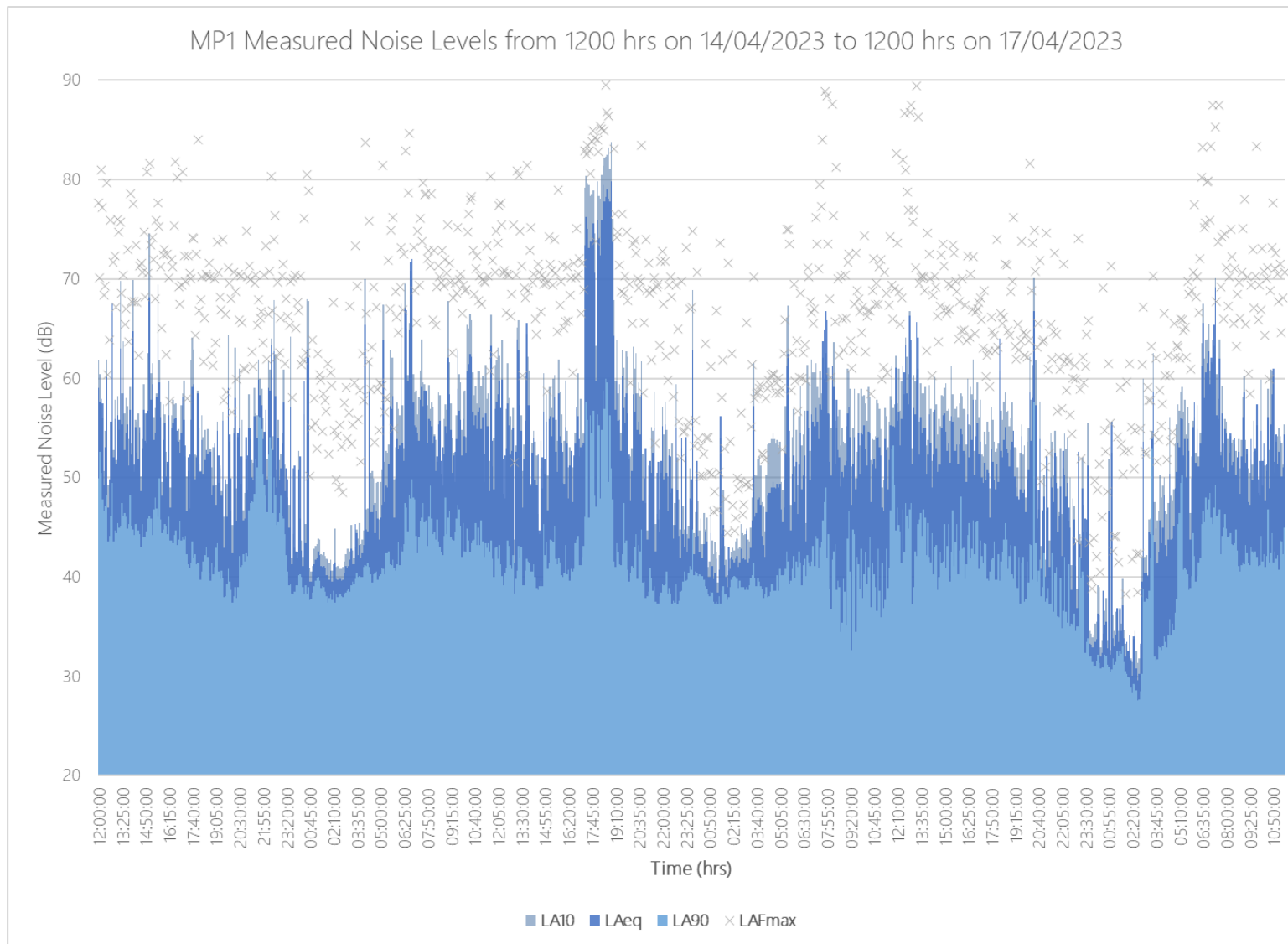
Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
2200-2300	52	73	53	39
2300-0000	54	75	49	40
0700-2300	67	80	59	43
2300-0700	58	77	49	40

Measured Noise levels – MP1 – 16.04.2023

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	45	71	45	40
0100-0200	47	74	44	38
0200-0300	42	72	43	39
0300-0400	49	70	49	40
0400-0500	48	61	52	39
0500-0600	55	75	55	41
0600-0700	52	71	54	41
0700-0800	62	91	60	44
0800-0900	55	88	57	40
0900-1000	53	73	56	40
1000-1100	53	74	56	40
1100-1200	53	74	56	42
1200-1300	60	87	60	46
1300-1400	60	89	58	44
1400-1500	54	75	56	42
1500-1600	54	73	58	43
1600-1700	54	72	57	44
1700-1800	52	69	55	42
1800-1900	56	91	56	42
1900-2000	51	76	53	40
2000-2100	58	82	55	42
2100-2200	49	75	49	39
2200-2300	48	72	49	37
2300-0000	47	74	43	36
0700-2300	56	79	56	42
2300-0700	50	71	48	39

Measured Noise levels – MP1 – 17.04.2023

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
0000-0100	38	69	37	31
0100-0200	45	71	37	32
0200-0300	34	62	33	29
0300-0400	51	70	48	38
0400-0500	46	67	49	34
0500-0600	53	70	56	42
0600-0700	60	83	60	44
0700-0800	62	91	60	46
0800-0900	52	75	54	43
0900-1000	54	83	53	42
1000-1100	55	78	55	43
1100-1200	52	75	53	42
1200-1300	56	73	58	45
0700-1300	57	79	55	43
0000-0700	53	70	46	36



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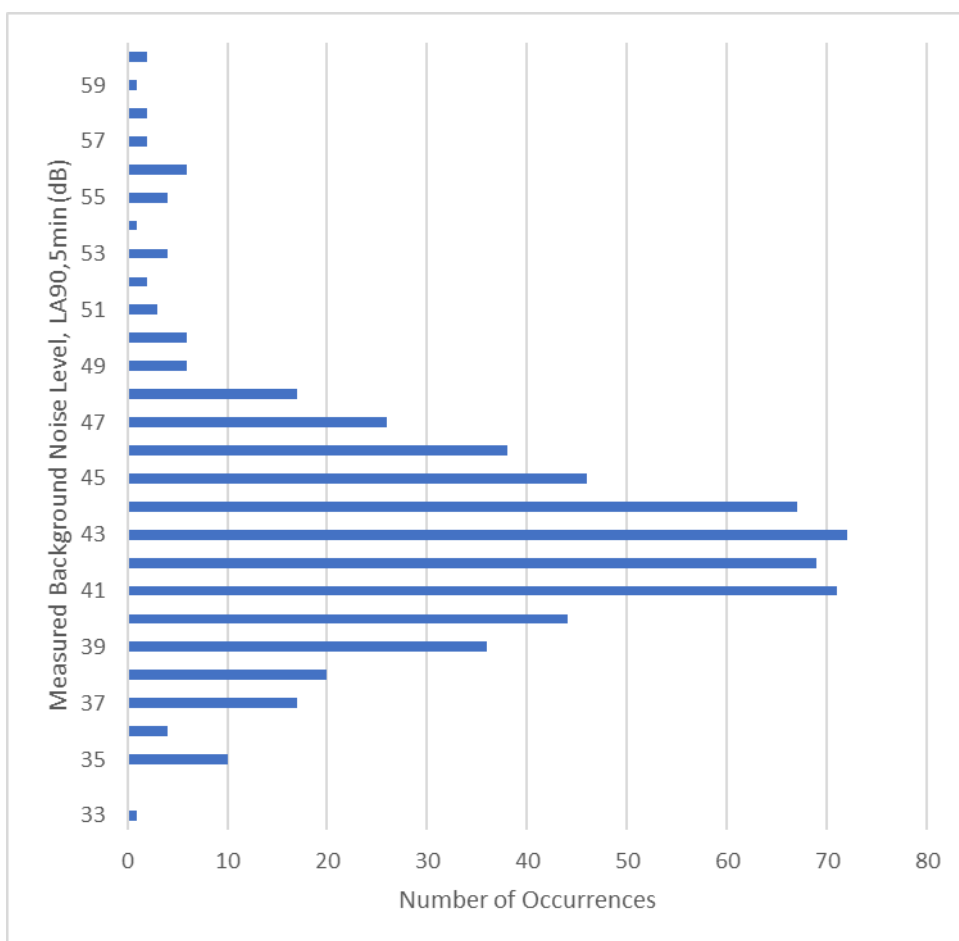
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12.1. Typical Background Noise Level Analysis for BS 4142:2014 Assessment

MP1 - Daytime (0700 hrs – 2300 hrs)

Measured L _{A90,5min} (dB)	Number of Occurrences
33	1
34	0
35	10
36	4
37	17
38	20
39	36
40	44
41	71
42	69
43	72
44	67
45	46
46	38
47	26
48	17
49	6
50	6
51	3
52	2
53	4
54	1
55	4
56	6
57	2
58	2
59	1
60	2



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

13. Appendix 5: Detailed Plant Noise Levels and Tonality Assessment

Façade	Type of Data		Noise Levels (dB) in Octave Bands (Hz)														dB(A)
		25	31.5	40	50	63	80	100	125	160	200	250	315	400	500		
Entrance	SPL at 1m	56.4	57.1	59.3	63.1	61.6	59.9	57.9	70.1	67.5	59.1	59.8	62.2	61.7	60.5	73.6	
		630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10,000			
		60.1	59.7	59.8	60.2	59.9	61.2	63.2	63.1	64.4	62.8	61.8	61.2	57.6			
Compressor	SPL at 1m	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	65.1	
		55.7	54.6	52.6	56.1	60.9	57.7	51.4	61.7	59	62.2	56.2	56.2	54.7	57.2		
		630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10,000			
		52.4	51.9	51.3	54.3	51.6	54.5	57.8	51.1	50.4	47.9	46.2	45.6	41.3			
Exit	SPL at 1m	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	75.9	
		56.4	56	55.9	59.6	62.4	61.1	60.5	60.5	60.8	64.5	61	62.1	62.5	62.9		
		630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10,000			
		66	63.1	62.1	62.2	63	63.5	65.1	65.5	66.7	65.1	64.1	63.4	59.7			
Internal	SPL at 1m	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	81.7	
		63.4	61.8	63.7	58.9	63.1	63.6	60.8	77.5	74.8	67	67.2	66.2	67.3	67.8		
		630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10,000			
		67.8	68	67.8	68.2	69	69.9	70.6	71.6	72.6	71	70.1	69.3	65.5			

In order to assess tonality, the plant noise levels should be assessed using the ‘Objective Method’ detailed in BS4142:2014. The ‘Objective Method’ states: “for a discrete tone to be identified as present, the time-averaged sound pressure level in the one-third-octave band of interest is required to exceed the time-averaged sound pressure levels of both adjacent one-third-octave bands by:

- 15 dB in the low-frequency one-third-octave bands (25 Hz to 125 Hz);
- 8 dB in the middle-frequency one-third-octave bands (160 Hz to 400 Hz); and

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- *5 dB in the high-frequency one-third-octave bands (500 Hz to 10 000 Hz)."*

The 'Objective Method' for assessing tonality, as set out in BS 4142:2014, has determined that no tones are present. This accords with the subjective assessment on-site in which no tones were noted.