



Noise Impact Assessment

Site Address: B&A Group, Severn Road, Hallen, BS10 7SE

Client Name: Oaktree Environmental Ltd

Project Reference: NP-012692

In partnership with:



Oaktree Environmental
Waste, Planning & Environmental Consultants

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1. Introduction

NOVA Acoustics Ltd has been commissioned to prepare a noise impact assessment as part of an Environmental Agency ('EA') application to vary an existing permit to a new bespoke A11 permit ('the application'), at B&A Group, Severn Road, Hallen, BS10 7SE ('the site'). This report has been compiled to accompany the permit application to be submitted to the EA.

A noise survey has been undertaken to establish the prevailing background and ambient sound levels at the closest Noise Sensitive Receptors ('NSRs'). This report details the existing background and ambient sound climate, and the noise emissions associated with the proposed development.

Measures required to mitigate noise impacts have been recommended where necessary and assessed in accordance with the relevant performance standards, legislation, policy and guidance. The noise assessment is necessarily technical in nature; therefore, a glossary of terms is included in Appendix A to assist the reader.

1.1 Standards, Legislation, Policy & Guidance

The following performance standards, legislation, policy and guidance have been considered to ensure good acoustic design in the assessment:

- The Environment Agency Guidance 'Noise and Vibration Management: Environmental Permits (Jan 2022)'
- Environmental Agency 'Method Implementation Document ('MID') for BS4142 (2023)
- National Planning Policy Framework (2024)
- Noise Policy Statement for England (2010)
- BS4142:2014+A1:2019 – 'Methods for rating and assessing commercial and industrial sound'

Further information on the legislation can be found in Appendix B.

1.2 Background & Proposal Brief

The site is currently operating under permit no. EPR/BB3204CV (A25), which is to be varied into a new bespoke A11 permit, and to include:

- A boundary extension to allow the existing dry aggregate recycling operations to be retained (partly relocated due to the wash plant installation).
- The installation of a 24/7 wash plant facility to improve rates and efficiency for recycling construction, demolition and excavation waste.
- Increase the annual throughput of the site from 250,000 tpa to 450,000 tpa (to accommodate additional material for the wash plant).
- Waste deliveries shall extend from 07:00 – 18:00 hours during the week to 06:00 to 18:00 hours including Saturdays; however, the applicant would like an allowance for 24-hour deliveries up to once a month.

The figure overleaf shows the proposed site plan and permit boundary.

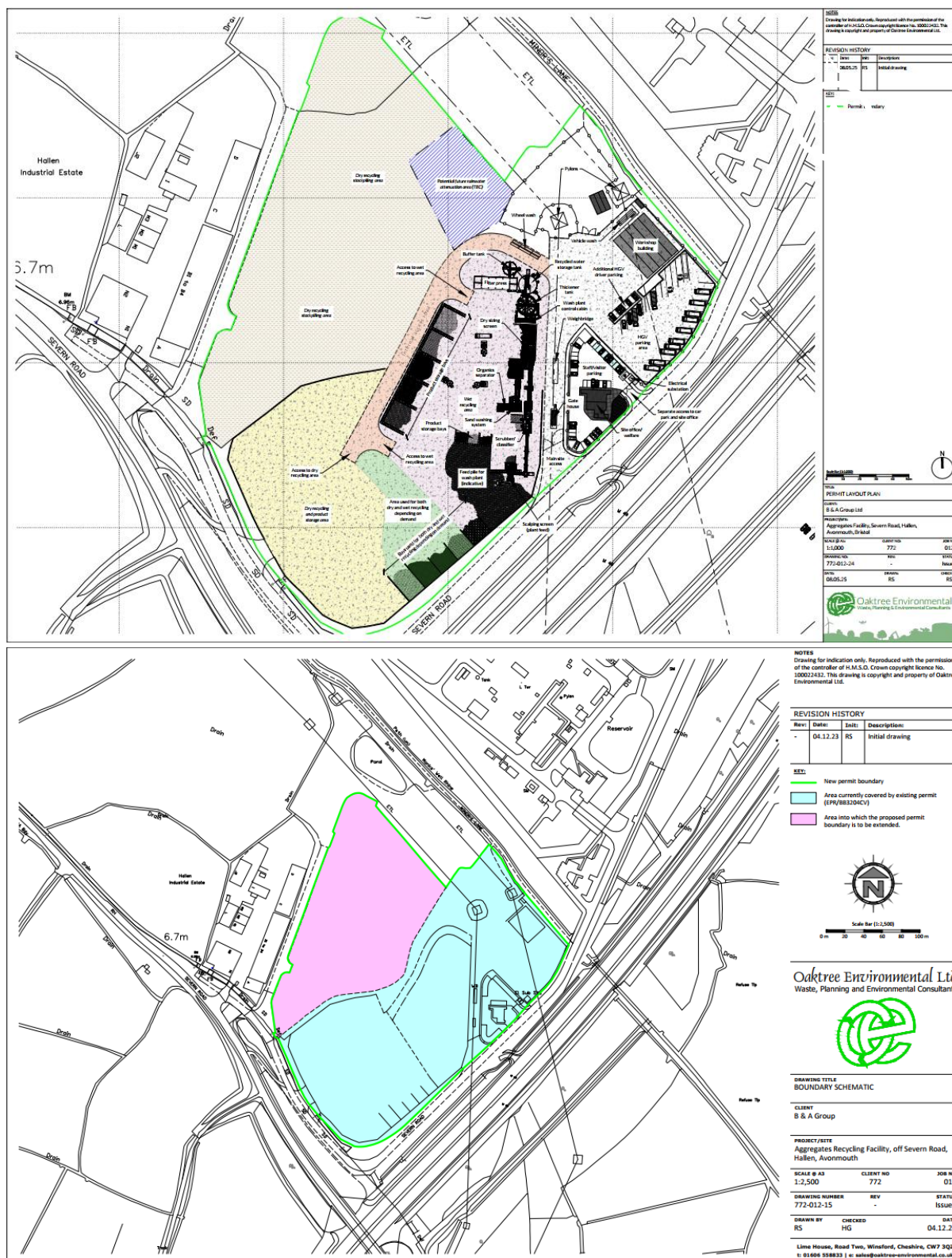


Figure 1 – Proposed Site Plans & Permit Boundary Extension

Currently, the site is a waste transfer station that accepts dry waste as part of a recovery operation. Wagons deposit waste into various stockpiles which are then crushed and/or screened ready to be exported.

1.3 Operating Periods

The following operating times of the existing permit, proposed permit, and cumulative operations are as presented below:

- **Existing permit EPR/BB3204CV:**
 - o 07:00 – 18:00 (weekday) & 07:00 – 13:00 (Saturdays)
- **Proposed bespoke permit in isolation:**
 - o 07:00 – 23:00 (weekday, Saturday & Sunday daytime) for daytime operations
 - o 23:00 – 07:00 (week-night, Saturday & Sunday night-time) for night-time operations
- **The cumulative operations as part of the proposed bespoke permit (existing & proposed):**
 - o 07:00 – 18:00 (weekday, Saturday & Sunday daytime) for daytime operations

2. Environmental Noise Survey

2.1 Measurement Methodology

An environmental noise survey was carried out by NOVA Acoustics in May of 2025, and both long-term unattended and short-term attended measurements were conducted as part of the survey. Additional noise surveys were conducted by Oaktree Environmental Ltd in August of 2022 and July of 2023.

The measurement dates and particulars and the locations of the nearest NSRs are outlined in the following table and figure. All sound level meters were fitted with a proprietary environmental kit complete with a suitable windshield (130mm diameter).

Measurements taken at heights greater than 1.5m were to avoid public interference. All measurements were taken using a fast time-weighting, logging every 0.1s and with integration periods in 15-minutes samples. All measurements were undertaken under free-field conditions.

A localised weather station could not be situated on-site, therefore, met office weather data of the area, specifically the closest weather station, has been consulted. Details of the equipment used, and the meteorological conditions recorded are available in Appendix C.

Location	Survey Dates	Measurement Particulars
NOVA MP1	13/05/2025 (15:46 – 21:57)	Sound level meter mounted to a telegraph pole at 4m above ground overlooking Berwick Lane.
NOVA MP2	13/05/2025 – 19/05/2025	Sound level meter mounted to a telegraph pole at 4m above ground overlooking Severn Road.
NOVA SP3	19/05/2025 (12:04 – 13:02)	Sound level meter mounted on a tripod at 1.5m above ground along one of the agricultural walking paths located to the south-east. Measurement was approximately 330m away south-east from the southern boundary of the development.
NOVA SP4	19/05/2025 (15:46 – 21:57)	Sound level meter mounted on a tripod at 1.5m above ground along one of the agricultural walking paths located to the south-east. Measurement was approximately 260m away south-east from the southern boundary of the development.
Oaktree MP5	August 2022 and July 2023	Sound level meter made at 1.5m above ground floor level external to the nearest noise sensitive receptor to the site.

Table 1 – Measurement Methodology



Figure 2 – Measurement Locations and Site Surroundings

2.2 Area Description and Context

The area surrounding the site is mixed in nature with industrial/commercial sites and residential properties in close proximity. The closest residential NSRs are identified in the table below.

NSR	Coordinates	Description
NSR1	51.522698419216084, -2.652836267382636	A detached two-story dwelling.
NSR2(A)	51.52127164167472, -2.652873597443626	A detached two-story dwelling.
NSR2(B)	51.52041930298418, -2.65476310720351	A detached two-story dwelling.
NSR2(C) (1-10)	Various	A group of detached and semi-detached dwellings along Severn Rd ('worst-case' dwellings considered).
NSR3	51.5259701868213, -2.6419472220886986	A detached bungalow.
NSR4	51.52736861160141, -2.6392989845840713	A detached two-story dwelling adjacent to 'Hopkins Motorsport' (trailer manufacturer) and 'Heavy Vehicle Brakes' (a vehicle parts distribution centre).
NSR5	51.53080924297873, -2.639655442246279	A detached two-story farm dwelling.
NSR6(A)	51.52338991866223, -2.639716909785287	A detached two-story farm dwelling. This dwelling is screened from the site via the intervening topography.
NSR6(B)	51.52338795145242, -2.638770666359377	A detached two-story dwelling. This dwelling is screened from the site via the intervening topography.

Table 2 – NSR Identification

2.3 Subjective Impression of Noise Environment

The B&A group development compound under consideration is located to the north of the M49 which is a major road separating the site from all nearby NSR's that are located to the south and south-east. The noise survey carried out highlighted that their operations included the use of crushers, excavators, screeners and the continued delivery from HGV's.

When the site was active, noise emissions were totally inaudible against the prevailing noise climate at all receptors during the daytime. At all receptors, the acoustic climate was affected by the M49 to the north, general local road traffic and distant road traffic, particularly from the M5 to the south-east.

Located to the north of NSR2(C) was a construction site where it was observed that excavators were in operation. Whilst these did slightly affect the measurements, the main roads in the area were still the dominating noise sources. This was confirmed to be typical throughout the entire measurement duration, as evidenced by the diurnal noise pattern of the time history graph at MP2.

Based on the above, the ambient noise profile at all receptors is described as the same as the residual noise climate, in that no on-site noise emissions were perceptible during the survey. As such, the full measurement period has been used to derive the baseline $L_{A90,T}$ sound levels used in the BS4142 assessments.

It should be noted that whilst at the development site, there were several large 10m high earth mounds located that have developed over time through excavation and the movement of aggregate. As there is no control of where these are located and removed, the influence of these mounds (whilst likely to be significant) has not been included within our modelling for robustness. A figure of these earth mounds is presented below for reference.



Figure 3 – Earth Mounds

2.4 Environmental Noise Survey Results

Sound Level Results Summary & Baseline Noise Levels

The 'lowest typical' (through statistical analysis) sound levels are presented below. The background sound levels have been derived from residual periods when the site was inactive, with an exception for MP2 where the entire measurement period could be used (as was described in the previous section).

The periods below are based on the operational hours shown in Section 1.3. Whilst the existing and cumulative operational hours are between 07:00 – 18:00 hours, these have been split between 07:00 – 16:00 hours and 16:00 – 18:00 hours during the weekday to remove the influence of rush hour periods which may elevate background sound levels.

In relation to the night-time, the background sound levels between 23:00 – 06:00 and 06:00 – 07:00 hours are presented, respectively, in brackets next to the full background sound levels measured during the night-time. Full noise survey information can be seen in Appendix C.

Description	MP1		MP2
	13/05/2025	19 – 21/05/2025	13 – 19/05/2025
	LA90,T (dB)		
	Daytime Background Sound Levels (LA90,1hr)		
Weekday (07:00 – 16:00)	--	46	49
Weekday (16:00 – 18:00)	46	53	51
Weekday (16:00 – 23:00)	48	47	47
Weekday (18:00 – 23:00)	48	47	47
Saturday (07:00 – 13:00)	--	--	46
Saturday (07:00 – 18:00)	--	--	46
Saturday (18:00 – 23:00)	--	--	46
Saturday (07:00 – 23:00)	--	--	46
Sunday (07:00 – 23:00)	--	--	45
Sunday (07:00 – 18:00)	--	--	45
Sunday (18:00 – 23:00)	--	--	46
	Night-time Background Sound Levels (LA90,15min)		
Weekday (23:00 – 07:00)	--	39 (39 & 51)	43 (43 & 53)
Saturday (23:00 – 07:00)	--	--	41 (41 & 47)
Sunday (23:00 – 07:00)	--	--	46 (46 & 46)

Table 3 – Background Sound Level Results Summary

Unfortunately, due to equipment error, MP1 only measured for an approximate 6-hour period on 13/05/2025. As a result, weekend measurements were not possible. Therefore, for robustness, additional monitoring was carried out for a further 48-hour period between 19 and 21/05/2025 at the same location.

As identified during the daytime periods, background sound levels are consistent at all locations. Therefore, it is deemed appropriate that the background sound levels measured during the weekend at MP2 are suitable for use within the weekend assessment of receptors nearby MP1.

In terms of the night-time, typical background sound levels are 4dB quieter at MP1 than at MP2. Therefore, this same reduction will be applied during the weekend periods from MP2.

In relation to the difference between the 23:00 – 06:00 and 06:00 – 07:00 hour periods, the former are identical to the entire night-time background sound levels. Therefore, these will be used within the assessment.

Based on the time history, background sound levels at MP2 on Sunday during the night-time appear to be elevated and do not follow the diurnal noise pattern identified during other periods. For robustness, it is assumed that this is due to an anomalous source, possibly night-time construction works on the surrounding major road network and so for robustness, the night-time background sound levels measured during the Saturday will be used instead.

Additional attended monitoring was carried out to the south-east of the site at ST3 and ST4. Ambient and background sound levels at ST3 were 54dB $L_{Aeq,T}$ and 47dB $L_{A90,T}$, respectively. At ST4, ambient and background sound levels at ST3 were 51dB $L_{Aeq,T}$ and 47dB $L_{A90,T}$, respectively.

At both locations, noise from the proposed development was inaudible. It was confirmed with the site contacts that the screener, crusher and other typical site operations were in use throughout the measurements. The dominant noise levels were from the main roads in the area and to a lesser extent, the nearby construction site. Based on this, the background sound levels during the weekday at all receptors are consistent.

Oaktree Background Sound Levels

Oaktree Environmental also carried out two separate noise surveys at MP5, as identified on Figure 2. In August 2022, background sound levels were no lower than 49dB $L_{A90,1hr}$ during the daytime. In July 2023, background sound levels at the same location were 46dB $L_{A90,1hr}$ during the daytime and dropped to 44dB $L_{A90,1hr}$ at night. A summary of their measured background sound levels is shown in Appendix C.

Based on this, the background sound levels measured by NOVA Acoustics are slightly lower and, therefore, the use of them in any BS4142 assessment would represent a more robust and worst-case assessment. The figures presented in Table 3 in **bold** will, therefore, be used to inform the BS4142 assessment.

3. Noise Impact Assessment

In the following section of the report, the impact from the proposed permit variation is assessed. The following situations have been accounted for:

- **Existing permit EPR/BB3204CV:**
 - o 07:00 – 18:00 (weekday) & 07:00 – 13:00 (Saturdays)
- **Proposed bespoke permit in isolation:**
 - o 07:00 – 23:00 (weekday, Saturday & Sunday daytime) for daytime operations
 - o 23:00 – 07:00 (week-night, Saturday & Sunday night-time) for night-time operations
- **The cumulative operations as part of the proposed bespoke permit (existing & proposed):**
 - o 07:00 – 18:00 (weekday, Saturday & Sunday daytime) for daytime operations

3.1 Relevant Standards Guidance & Policies

Environmental Permitting Regulations 2022

Please see Appendix B.4 for the EA guidance followed throughout this assessment.

BS4142:2014+A1:2019

When assessing industrial or commercial noise, acoustic design criteria are commonly set based on the guidance presented within BS4142:2014:A1:2019.

The following summarises the primary steps in the BS4142:2014:A1:2019 assessment methodology:

- A representative background sound level ($L_{A90,Tr}$) is determined based on the noise survey results;
- The cumulative specific sound level ($L_{Aeq,Tr}$) from the proposed development is predicted outside the windows of the NSRs and residential gardens;
- The rating sound level ($L_{Ar,Tr}$) is determined by applying 'acoustic feature corrections' which correct for the acoustic characteristics of the sound which may be perceptible and potentially cause annoyance at each NSR;
- The predicted rating sound level is compared with the background sound level and the level of impact is initially estimated in accordance with BS4142:
 - o Typically, the greater this difference, the greater the magnitude of the impact.
 - o A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
 - o A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
 - o 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 negligible impact, depending on the context.
- Further context can then be provided where necessary.
- If necessary, mitigation measures are recommended to reduce the predicted noise impact.

3.2 Adopted Criteria

It is required that any site noise emissions causing significant noise impact (classed as 'significant adverse impact, dependent on context' in accordance with BS4142) are mitigated to an acceptable level given the context of the site.

Noise emissions causing an 'adverse impact' must be minimised to as low as practicable also considering context; this does not necessarily mean that such adverse effects cannot occur, providing the implementation of appropriate measures (may also be Best Available Techniques ('BAT')) can be "rigorously" demonstrated.

Site noise emissions causing 'no impact' to 'low impact' may not require any action over the basic appropriate measures or BAT.

Considering the above, the BS4142 rating sound level at the most affected NSRs has been minimised to avoid 'significant adverse impact', further measures and BAT shall be considered to minimise any 'adverse impact' with the aim to reduce to 'low impact' where practicable, dependent on the context of the site.

3.3 Source Noise Levels & Noise Modelling Data

On-site Measurement Methodology

For all on-site measurements the following measurement methodology was adhered to:

- All measurements of external noise sources were taken at 1.5m above local ground, in a position found to be most influenced by the generated noise emissions if residual noise could not be corrected for.
- Where possible, measurements have been taken at a position where point source propagation is to be expected. Where not possible, measurements at discrete locations around the noise source have been conducted to facilitate calculations considering ISO 3746:2010. Where the ISO 3746:2010 method could not be adhered to, manufacturers data has been consulted where possible.
- All measurements were taken using a fast time-weighting and the sound level meter was set to log every 0.1s.
- Measurements were taken in 1/3 octave frequency bands; however, the report details the 1/1 octave band sound levels inputted to the noise modelling software.

HGV Movements

Please note that the sound power levels presented in the following table are the input values only; the speed and the number of events has been applied within the noise modelling software.

The highest $L_{eq,1sec}$ measurement from an HGV pass-by at 4m measured by NOVA Acoustics on-site has been used to calculate the sound power levels shown in the following table.

Description	1/1 Octave Frequency Band (Hz, L _w , dB)								L _{WA} (dB)
	63	125	250	500	1k	2k	4k	8k	
HGV Pass-by	97	100	98	103	97	96	91	86	104

Notes:

[1] L_w calculated based on measurement distance of 4m and point source propagation over 1 reflective plane (Q2).

[2] Existing permit (07:00 – 16:00):

- Two separate paths to dry aggregate area hosting 18no. movements (9 in & 9 out) per 1-hour.

[3] Proposed bespoke permit:

- One path to dry recycling areas hosting 36no. movements (18 in & 18 out) per 1-hour.
- One path to wet recycling area (wash plant) hosting 18no. movements (9 in & 9 out) per 1-hour.
- During the night-time it is assumed that 9no. movements occur to the dry recycling areas and 5no. movements occur to the wet recycling area per 15-minute period.

[4] All on-time corrections are calculated within the noise model assuming a moving point source at 4.4m/s and the number of events per reference time period shown in points no. 2 & 3 above.

Table 4 – Sound Power Levels of HGV Pass-by

External Plant Equipment & Operations

A summary of the source sound power levels is presented below. For the purpose of this assessment, the plant and operations are assumed to be continuous over the BS4142 reference time periods of 1-hour and 15-minutes during the daytime and night-time, respectively. An exception to this rule is for the HGV tipping; the on-time correction is described in the footnotes of the table.

Description	1/1 Octave Frequency Band (Hz, Lw dB)								LWA (dB)
	63	125	250	500	1k	2k	4k	8k	
Existing operations									
Loading Shovel Operations ^[2]	109	107	102	99	98	96	90	85	103
HGV Unloading/Tipping Waste ^{[1][3]}	105	108	108	108	107	109	112	114	117
Loading Shovel, Crusher Operating & Excavator Loading ^[1]	122	113	108	109	109	107	103	101	113
Screener Operating ^[1]	109	107	108	109	107	107	106	101	113
Additional operations and equipment proposed for bespoke permit									
Feed Hopper (Scalping Screen) and Loading via Excavator ^[2]	104	98	94	95	97	97	89	79	102
Wash Plant Magnet Separator ^[4]	96	81	73	86	80	71	66	71	85
Wash Plant AGGMAX ^[2]	122	111	109	108	106	104	103	100	111

Wash Plant EVO B Wash ^[2] ^[5]	98	83	80	81	78	77	76	75	85
Wash Plant Dry Sizing Screen & Associated Discharge Points ^[2]	112	107	102	102	101	102	103	103	109

Notes:

[1] Spectrum measured by NOVA Acoustics during the site visit.

[2] Spectrum measured by Oaktree Environmental for a similar site.

[3] Waste tipping lasts approximately 15-seconds per event.

- Based on the assumption that 9no. HGVs tip waste per hour in two separate locations, a 'robust' on-time of 5-minutes has been assumed for the existing permit.
- The same number of daytime movements has been assumed for wet recycling area (bespoke permit variation).
- 2-minutes of tipping is assumed during the night-time in the wet recycling area (bespoke permit variation).
- 3-minutes of tipping is assumed during the night in the dry recycling area (bespoke permit variation).

[4] Sound power levels reported by RPS Group in report ref: JAT11497-REPT-01-R0. A combination of sound pressure and intensity measurement taken by RPS Group for a similar CDE wash plant.

[5] Sound pressure level measured at 1m assumed to be $L_{W/m2}$ for each elevation of industrial source plant item.

Table 5 – Sound Power Levels of External Equipment & Operations

Existing On-Site Furniture

The only permanent meaningful screening currently on-site is provided by the material stockpiles and subsequent bunds, however, only those provided by the DEFRA LIDAR data has been included.

Proposed Site Furniture – Variation to Bespoke Permit

Various waste storage bays are present throughout the site, and these have been modelled at 2-3m in height. The screening been modelled within the SoundPlan software and the most appropriate absorption spectrum found in the SoundPlan library has been utilised.

3.4 Noise Modelling & Specific Sound Levels

The following assumptions have been made within the SoundPlan 9.1 noise modelling software:

- To accurately model the land surrounding the site, the topographical data has been taken from the EA's 'National LIDAR Programme' on the DEFRA Data Services Platform.
- For the purpose of the assessment, the ground between the source and receivers is considered to be a mixture of acoustically 'hard' and 'mixed-soft' surfaces that have been modelled according to the ground type.
- Octave band noise data was used to facilitate noise modelling in accordance with ISO 9613-2 (2024).
- The sound map grid heights have been set to 1.5m and 4m to represent ground and first floor receptor windows, however, the noise levels used in the assessment have been taken from the most exposed point of each façade; this includes the upper floors during the night.
- The site and all other buildings and any intervening objects have been modelled according to measurements taken on-site, with Google Maps and those provided by the LIDAR data.
- The sound levels and on-times presented in Tables 4 and 5 have been inputted into the noise model.

- All fixed operations and mobile plant with little movement have been modelled as point source emitters.
- Where more than one dominating noise generating element was present in a noise source, the median point source height was chosen. Where only a single noise generating element was present, or a single element was dominant, the point source height was that of the only or dominant element.
- The AGGMAX has been modelled as a vertical area source according to that observed on-site and in accordance with drawings.
- The EVO B wash has been modelled as a floating industrial building.
- All HGV movements have been modelled as slow-moving point source emitters (line source), and on-times have been calculated based on vehicle speed (4.4 m/s) the number of events per reference time period.

Specific Sound Level Summary & BS4142 Rating Sound Levels

The sound maps showing the specific sound level emissions from the site can be seen in the following figures.

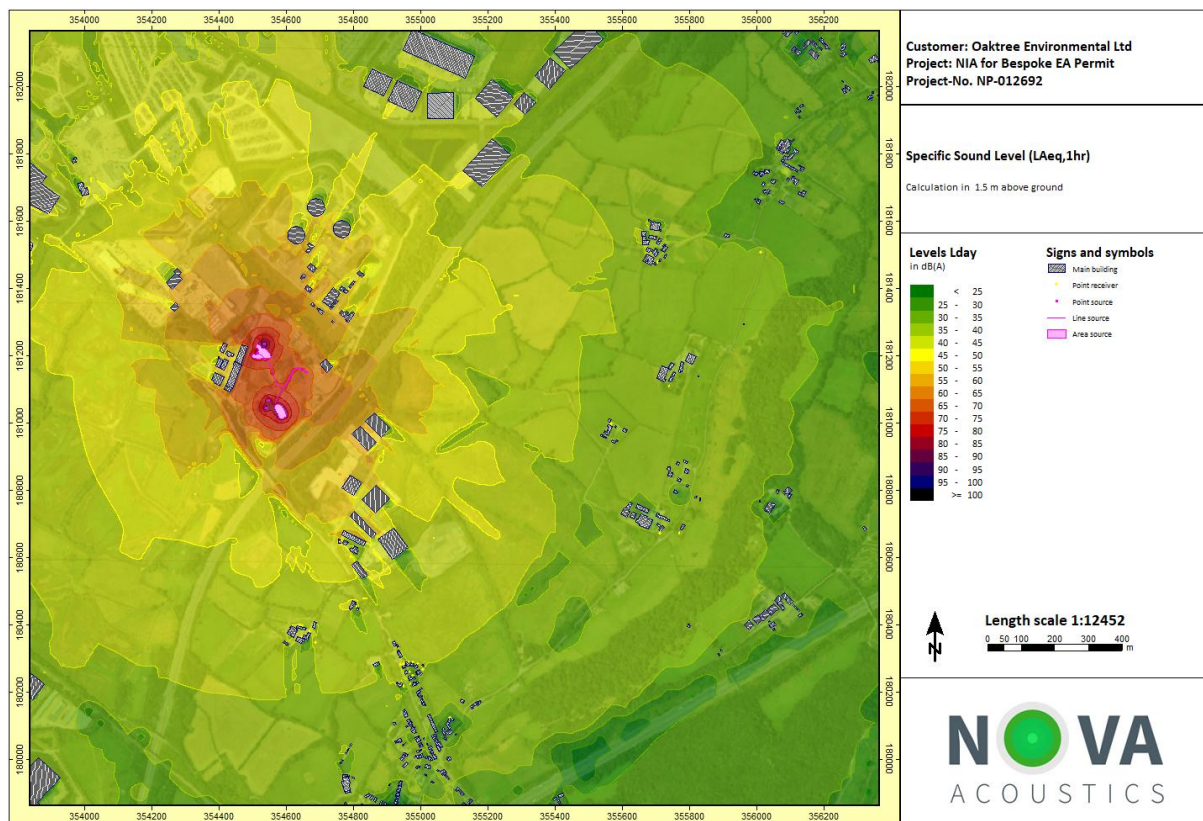


Figure 4 – Specific Sound Level Map – Existing (Weekdays 07:00 – 18:00 & Saturday's 07:00 – 13:00 hours)

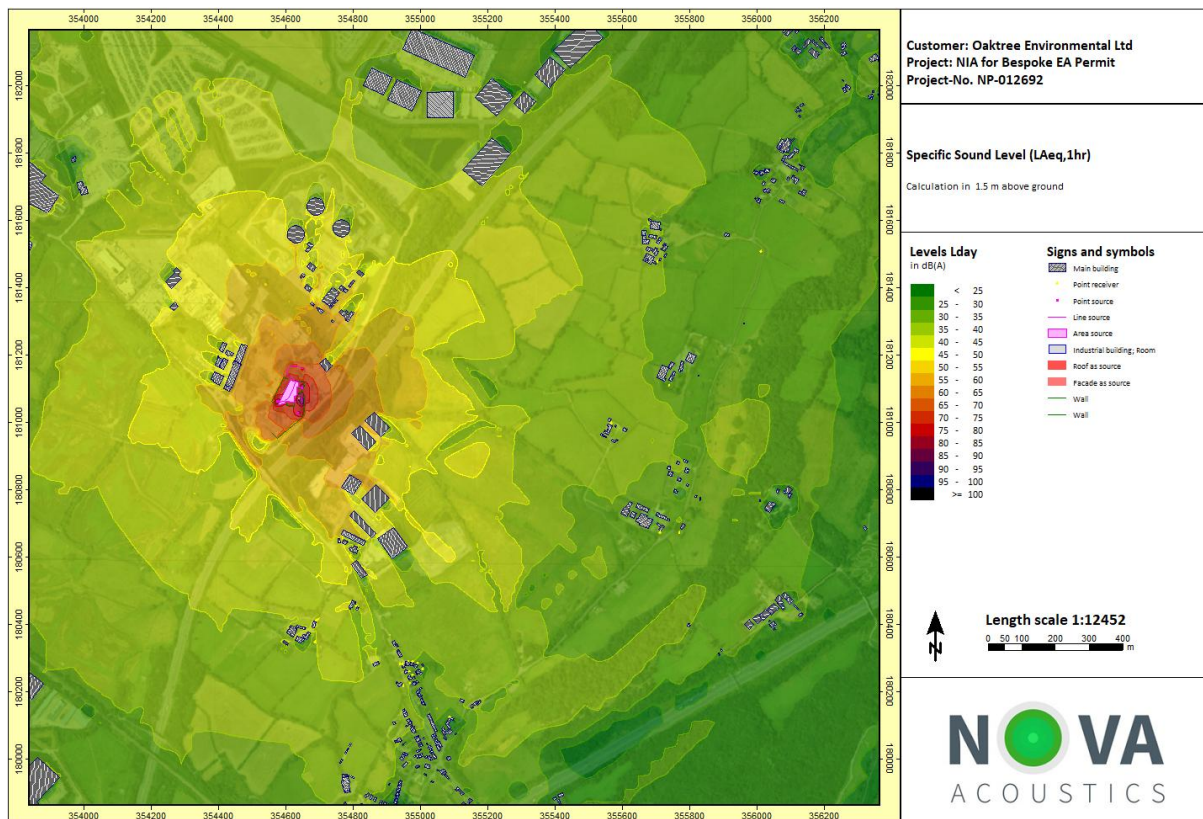


Figure 5 – Specific Sound Level Map – Bespoke Permit Isolation (07:00 – 18:00)

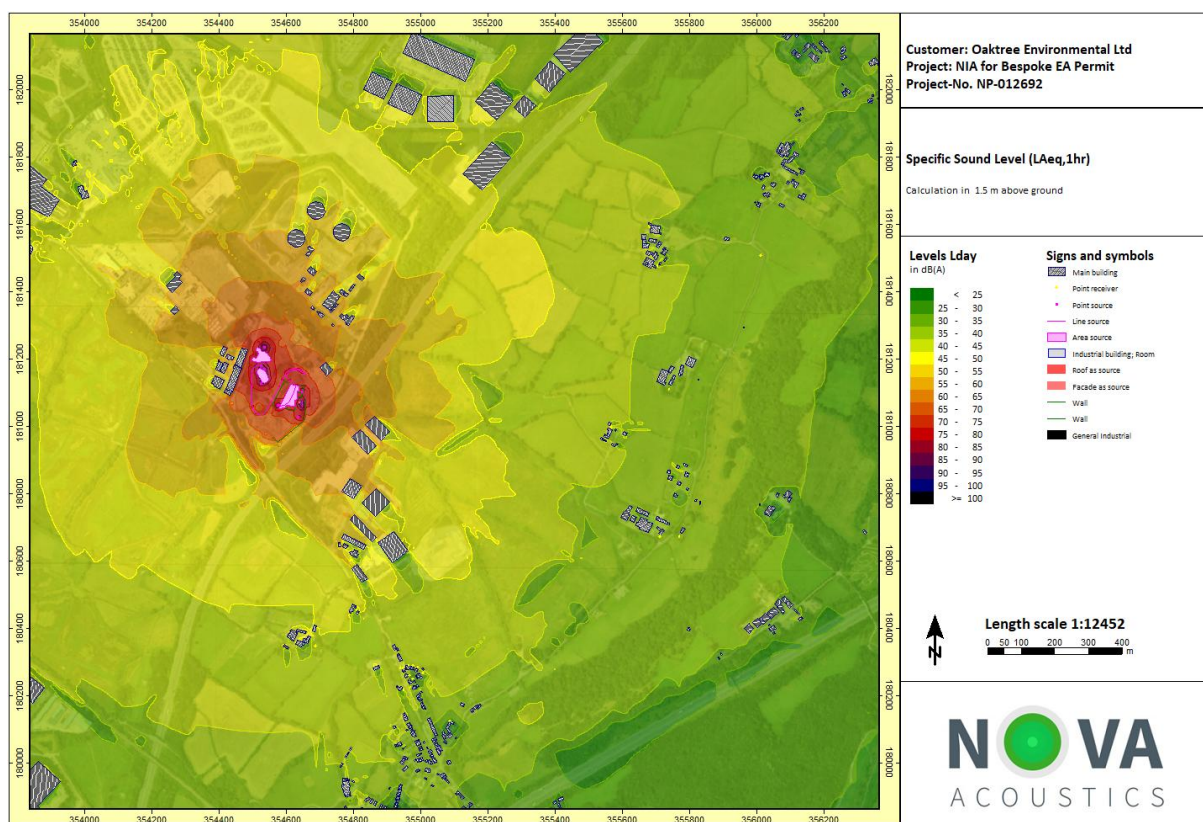


Figure 6 – Specific Sound Level Map – Bespoke Permit Isolation (18:00 – 23:00) & Cumulative Bespoke Permit (07:00 – 18:00)

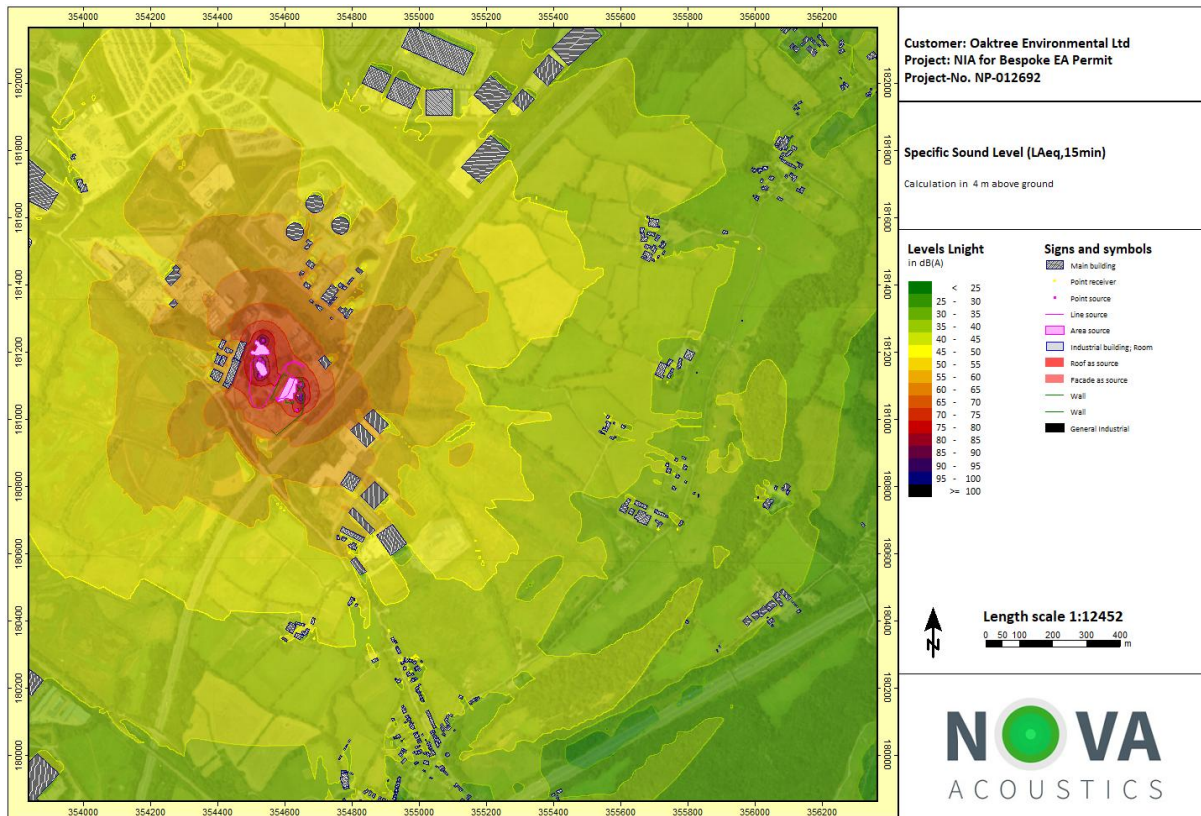


Figure 7 – Specific Sound Level Map – Bespoke Permit Isolation (23:00 – 07:00)

3.5 BS4142 Noise Impact Assessments

The criteria that are applied to the BS4142 assessment outcomes are based on the table below. Please note that these are indicative at this stage and require a review of the 'contextual' nature of the site when compared to the background sound level. This is subsequently discussed after the BS4142 assessment.

Description	Exceedance Levels & Initial Assessment Outcome			
Exceedance of Background (L_{A90})	<0	0 – 4	5 – 9	10+
BS4142 Initial Assessment Outcome	Low Impact to 'Negligible Impact	Low Impact / Low Likelihood of Adverse Impact	Adverse Impact	Significant Adverse Impact

Table 6 – BS4142 Initial Noise Impact Criteria

BS4142 Assessment – Existing Permit (Weekday 07:00 – 18:00 & Saturday 07:00 – 13:00 hours)

The BS4142 noise impact assessments for the existing permits are conducted at the most affected NSRs in the table below.

Period	Description	NSR					
		1	2	3	4	5	6
Specific Sound Level (dB L _{Aeq,1hr})		49	47	41	38	38	39
Weekday	BS4142 Acoustic Feature Corrections	0 ^[1]	0 ^[1]	0 ^[1]	0 ^[1]	0 ^[1]	0 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	49	47	42	38	38	39
	Background Sound Level (dB L _{A90,15min})	49	49	46	46	46	46
	Weekday Exceedance of L _{A90}	0	-2	-1	-8	-8	-7
Saturday	BS4142 Acoustic Feature Corrections	+2 ^[2]	+2 ^[2]	0 ^[1]	0 ^[1]	0 ^[1]	0 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	51	49	41	38	38	39
	Background Sound Level (dB L _{A90,15min})	46	46	46	46	46	46
	Saturday Exceedance of L _{A90}	+5	+3	-5	-8	-8	-7

Notes:

[1] Based on the subjective impression obtained during a site visit, no acoustic feature penalty has been applied as the specific noise emissions were inaudible and nor were any acoustic features perceptible at the most affected NSRs.

[2] A +2dB penalty for potential 'just perceptible' tonal characteristics typically associated with the site as a whole is likely to be present based on NOVA Acoustics' experience of similar sites.

[3] As the specific sound level is predicted to be greater than 5dB below the existing background sound level, no acoustic feature corrections have been applied.

Table 7 – BS4142 Noise Impact Assessment of Existing Permit

Discussion: Weekday

As can be seen in the BS4142 assessments above, during the weekday, there are no exceedances of the background sound level at any receptor. Therefore, in all instances, this would be an indication of 'low impact, dependent on context' from the existing permit on the NSR's.

Discussion: Saturday

As can be seen in the BS4142 assessments above, at NSR's 1 and 2, there are exceedances of +5 and +3dB at NSR's 1 and 2, respectively. This would be an indication of 'adverse impact' and a 'low likelihood of adverse impact, dependent on context' at NSR's 1 and 2, respectively. At NSR's 3 – 6, there would be no exceedances of the background sound level and, therefore, this would be an indication of 'low impact, dependent on context' in line with BS4142.

BS4142 Assessment – Proposed Permits in Isolation

The BS4142 noise impact assessments for the permit variation (in isolation) are conducted at the most affected NSRs in the table below.

Period	Description	NSR					
		1	2	3	4	5	6
Proposed Permit Variation in Isolation (07:00 – 18:00 hours)							
	Specific Sound Level (dB L _{Aeq,1hr})	47	45	42	35	36	37
Weekday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	0 ^[3]	0 ^[3]
	Rating Sound Level (dB L _{Ar,Tr})	49	47	44	35	36	37
	Background Sound Level (dB L _{A90,15min})	49	49	46	46	46	46
	Exceedance of L _{A90}	0	-2	-2	-11	-10	-9
Saturday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	0 ^[3]	0 ^[3]
	Rating Sound Level (dB L _{Ar,Tr})	49	47	44	35	36	37
	Background Sound Level (dB L _{A90,15min})	46	46	46	46	46	46
	Exceedance of L _{A90}	+3	+1	-2	-11	-10	-9
Sunday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	0 ^[3]	0 ^[3]
	Rating Sound Level (dB L _{Ar,Tr})	49	47	44	35	36	37
	Background Sound Level (dB L _{A90,15min})	45	45	45	45	45	45
	Saturday Exceedance of L _{A90}	+4	+2	-1	-10	-9	-8
Proposed Permit Variation in Isolation (18:00 – 23:00 hours)							
	Specific Sound Level (dB L _{Aeq,1hr})	50	48	44	40	41	41
Weekday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	+2 ^[1]	+2 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	52	50	46	40	43	43
	Background Sound Level (dB L _{A90,15min})	47	47	46	46	46	46
	Exceedance of L _{A90}	+5	+3	0	-6	-3	-3

Saturday & Sunday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	+2 ^[1]	+2 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	52	50	46	40	43	43
	Background Sound Level (dB L _{A90,15min})	46	46	46	46	46	46
	Exceedance of L_{A90}	+6	+4	+0	-6	-3	-3
Proposed Permit Variation in Isolation (23:00 – 07:00 hours)							
Specific Sound Level (dB L _{Aeq,15min})		50	48	44	40	41	41
Weekday	BS4142 Acoustic Feature Corrections	+4 ^[2]	+4 ^[2]	+4 ^[2]	+2 ^[1]	+2 ^[1]	+2 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	54	52	48	42	43	43
	Background Sound Level (dB L _{A90,15min})	43	43	39	39	39	39
	Exceedance of L_{A90}	+11	+9	+9	+3	+4	+4
Saturday & Sunday	BS4142 Acoustic Feature Corrections	+4 ^[2]	+4 ^[2]	+4 ^[2]	+2 ^[1]	+2 ^[1]	+2 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	54	52	48	42	43	43
	Background Sound Level (dB L _{A90,15min})	41	41	37	37	37	37
	Exceedance of L_{A90}	+13	+11	+11	+5	+6	+6

Notes:

[1] A +2dB penalty for potential 'just perceptible' tonal characteristics typically associated with wash plants is applied.

[2] A +4dB penalty for potential 'clearly perceptible' tonal characteristics typically associated with wash plants is applied.

[3] As the specific sound level is predicted to be greater than 5dB below the existing background sound level, no acoustic feature corrections have been applied.

Table 8 – BS4142 Noise Impact Assessment of Bespoke Permit in Isolation

Discussion: Weekday

As can be seen in the BS4142 assessments above, the outcomes are as follows:

- 07:00 – 18:00 hours
 - o There are no instances where the calculated rating levels exceed the background sound levels at any NSR's. In all instances, this would be considered '**low impact**, depending on context' at the NSR's.
- 18:00 – 23:00 hours
 - o There are only exceedances of the calculated rating levels above the background sound levels at NSR's 1 and 2 (+5 and +3dB, respectively). This would be an indication of '**adverse impact**' and '**low likelihood of adverse impact**' depending on context, at these receptors.
 - o There are no exceedances of the background sound level at NSR's 3 – 6 during this period. This would be considered '**low impact**, depending on context' at these NSR's.
- 23:00 – 07:00 hours

- There are exceedances of the background sound level at all receptors during this period. The exceedances are most severe at NSR's 1 – 3 (+11dB, +9dB & +9dB, respectively). These would be considered '**significant adverse impact**, depending on context' at NSR1 and 'adverse impact' at NSR's 2 and 3.
- At NSR's 3 – 6, the exceedances are considered as a '**low likelihood of adverse impact**, depending on context' in line with BS4142.

Discussion: Saturday

As can be seen in the BS4142 assessments above, the outcomes are as follows:

- 07:00 – 18:00 hours
 - There are only exceedances of the calculated rating levels above the background sound levels at NSR's 1 and 2 (+3 and +1dB, respectively). This would be an indication of '**low likelihood of adverse impact**' depending on context, at these receptors.
 - There are no instances where the calculated rating levels exceed the background sound levels at NSR's 3 - 6. This would be considered '**low impact**, depending on context' at these NSR's.
- 18:00 – 23:00 hours
 - There are only exceedances of the calculated rating levels above the background sound levels at NSR's 1 and 2 (+6 and +4dB, respectively). This would be an indication of '**adverse impact**' and '**low likelihood of adverse impact**' depending on context, at these receptors.
 - There are no exceedances of the background sound level at NSR's 3 – 6 during this period. This would be considered '**low impact**, depending on context' at these NSR's.
- 23:00 – 07:00 hours
 - There are exceedances of the background sound level at all receptors during this period. The exceedances are most severe at NSR's 1 – 3 (+13dB, +11dB, +11dB, respectively). These would be considered '**significant adverse impact**, depending on context'.
 - At NSR's 3 – 6, the exceedances are considered as '**low likelihood of adverse impact**, depending on context' in line with BS4142.

Discussion: Sunday

As can be seen in the BS4142 assessments above, the outcomes are as follows:

- 07:00 – 18:00 hours
 - There are only exceedances of the calculated rating levels above the background sound levels at NSR's 1 and 2 (+4 and +3dB, respectively). This would be an indication of '**low likelihood of adverse impact**' depending on context, at these receptors.
 - There are no instances where the calculated rating levels exceed the background sound levels at NSR's 3 - 6. This would be considered '**low impact**, depending on context' at these NSR's.
- 18:00 – 23:00 hours
 - There are only exceedances of the calculated rating levels above the background sound levels at NSR's 1 and 2 (+6 and +4dB, respectively). This would be an indication of

'adverse impact' and 'low likelihood of adverse impact' depending on context, at these receptors.

- There are no exceedances of the background sound level at NSR's 3 – 6 during this period. This would be considered 'low impact, depending on context' at these NSR's.
- 23:00 – 07:00 hours
 - There are exceedances of the background sound level at all receptors during this period. The exceedances are most severe at NSR's 1 – 3 (+13dB, +11dB, +11dB, respectively). These would be considered 'significant adverse impact, depending on context'.
 - At NSR's 3 – 6, the exceedances are considered as 'low likelihood of adverse impact, depending on context' in line with BS4142.

BS4142 Assessment – Cumulative Bespoke Permit

The BS4142 noise impact assessments for the cumulative bespoke permit are conducted at the most affected NSRs in the table below.

Period	Description	NSR					
		1	2	3	4	5	6
Cumulative Bespoke Permit (07:00 – 18:00 hours)							
Specific Sound Level (dB L _{Aeq,1hr})		50	48	44	40	41	41
Weekday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	+2 ^[1]	+2 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	52	50	46	40	43	43
	Background Sound Level (dB L _{A90,15min})	49	49	46	46	46	46
	Exceedance of L _{A90}	+3	+1	0	-6	-3	-3
Saturday	BS4142 Acoustic Feature Corrections	+2 ^[1]	+2 ^[1]	+2 ^[1]	0 ^[3]	+2 ^[1]	+2 ^[1]
	Rating Sound Level (dB L _{Ar,Tr})	52	50	46	40	43	43
	Background Sound Level (dB L _{A90,15min})	46	46	46	46	46	46
	Exceedance of L _{A90}	+6	+4	-2	-6	-3	-3
Sunday	BS4142 Acoustic Feature Corrections	+4 ^[2]	+2 ^[1]	+2 ^[1]	0 ^[3]	0 ^[3]	0 ^[3]
	Rating Sound Level (dB L _{Ar,Tr})	54	50	46	40	41	41
	Background Sound Level (dB L _{A90,15min})	45	45	45	45	45	45
	Exceedance of L _{A90}	+9	+5	+1	-5	-4	-4

Notes:

[1] A +2dB penalty for potential 'just perceptible' tonal characteristics typically associated with wash plants is applied.

[2] A +4dB penalty for potential 'clearly perceptible' tonal characteristics typically associated with wash plants is applied.

[3] As the specific sound level is predicted to be greater than 5dB below the existing background sound level, no acoustic feature corrections have been applied.

Table 9 – BS4142 Noise Impact Assessment of Cumulative Bespoke Permit

Discussion: Weekday

As can be seen in the BS4142 assessments above, there would only be exceedances at NSR's 1 and 2. In line with BS4142, these would be considered as '**low likelihood of adverse impact**, dependent on context' at NSR's 1 and '**low impact**, dependent on context' at NSR2.

There are no exceedances of the background sound level at NSR's 3 - 6. Therefore, in all instances, this would be an indication of '**low impact**, dependent on context' of the existing permit on the NSR's.

Discussion: Saturday

As can be seen in the BS4142 assessments above, at NSR's 1 and 2, there are exceedances of +5 and +3dB at NSR's 1 and 2, respectively. At NSR's 1 and 2, respectively, the above assessment indicates '**adverse impact**' and a '**low likelihood of adverse impact**, dependent on context'. At NSR's 3 – 6, there would be no exceedances of the background sound level and, therefore, this would be an indication of '**low impact**, dependent on context' in line with BS4142.

Discussion: Sunday

'**Significant adverse impact**, depending on context' would be predicted at NSR1. '**Adverse impact**, depending on context' would be predicted at NSR2. Whilst only a marginal exceedance (+1dB), a '**low likelihood of adverse impact**, dependent on context' would be predicted at NSR3.

At NSR's 4 – 6, there would be no exceedances of the background sound level and, therefore, this would be an indication of '**low impact**, dependent on context' in line with BS4142.

3.6 Summary of Assessments – Pre-Context

A summary of the impact of the proposed operations on the NSR's is presented below. Please note that all the below are dependent on the context of the wider site. The following key is used:

- A rating level exceedance greater than +10dB over the background sound level is denoted as red i.e. 'Significant Adverse Impact'.
- A rating level exceedance of +5 – 9dB over the background sound level is denoted as orange i.e. 'Adverse Impact'.
- A rating level exceedance of +1 – 4dB over the background sound level is denoted as yellow i.e. 'Low Impact' to a low likelihood of 'Adverse Impact'.
- No rating level exceedance is denoted as green i.e. 'Low Impact'.

Period	NSR					
	1	2	3	4	5	6
Existing Permit						
Weekday						
Saturday						
Proposed Permit Variation in Isolation (07:00 – 18:00 hours)						
Weekday						
Saturday						
Sunday						
Proposed Permit Variation in Isolation (18:00 – 23:00 hours)						
Weekday						
Saturday						
Sunday						
Proposed Permit Variation in Isolation (23:00 – 07:00 hours)						
Weekday						
Saturday						
Sunday						
Cumulative Bespoke Permit (07:00 – 18:00 hours)						
Weekday						
Saturday						
Sunday						

Table 10 – Summary of Assessments – Pre-Context

As identified above, the highest level of impact is typically felt at NSR's 1 and 2.

The only periods where 'significant adverse impact' is predicted is during the night-time periods at NSR's 1, 2 and 3. It should be noted though that the highest level of exceedance is only +13dB above the background sound level.

3.7 Contextual Argument

Whilst the dominating noise source during all periods is the wash plant, noise from this source is only 3dB greater than that from the excavator and screener/crusher operations. Therefore, these latter two noise sources are still having a high effect on the outcomes of the assessment. The noise modelling presented above does not account for any attenuation provided by the aggregate mounds located on-site. To all sources excluding the wash plant (due to its height), it is likely that these mounds would provide at least 5dB (likely 10dB) of attenuation.

Assuming as a 'worst-case' that only 5dB of attenuation would be allowed for from screener/crusher operations, this would lower the specific sound levels by approximately 3dB meaning that combined with a reduction in acoustic feature corrections, would effectively ensure that there would be no rating level exceedances greater than 10dB above the background sound level during any periods and within any scenario.

It is also important to note that the proposed development is situated within a predominantly heavy industrial area, where existing industrial and commercial premises are located closer to the NSRs than the proposed site. This suggests that the NSRs are already subject to, and potentially acclimatised to, an industrial noise environment. While this does not alter the numerical outcomes of the BS4142 assessment, it provides important contextual support, indicating that the perceived impact of the proposed operations is likely to be reduced.

To further illustrate the contextual nature of the proposal, Table 11 below presents a comparison of the specific sound levels between 07:00 and 18:00 hours for both the existing permitted operations and the cumulative noise levels associated with the proposed development. This time period represents the only operational overlap between the two permit scenarios.

Description	NSR					
	1	2	3	4	5	6
(07:00 – 18:00 hours)						
Existing Permit Specific Sound Level (dB LAeq,1hr)	49	47	41	38	38	39
Cumulative Permit Specific Sound Level (dB LAeq,1hr)	50	48	44	40	41	41

Table 11 – Comparison of Permit Specific Sound Levels

As shown, the maximum increase in predicted specific sound level is +3 dB. This is generally considered to be the threshold of perceptibility.

Taking the above contextual factors into account, it is reasonable to conclude that during normal operation, neither the proposed permit activities nor the cumulative operations would result in a 'significant adverse impact' at the NSRs. This conclusion is consistent with the aims of the Noise Policy Statement for England (NPSE) and the National Planning Policy Framework (NPPF), which seek to avoid significant adverse effects from environmental noise. As such, a 'Lowest Observed Adverse Effect Level' would be predicted and the criterion would be met. In all instances, the level of impact identified in Section 3.6 would be expected to reduce to the next level of impact after considering context i.e. a previous

'adverse impact' would now be considered as a 'low likelihood of adverse impact'. A summary of the level of exceedances is as follows:

3.8 Summary of Assessments – Post-Context

The following key is used:

- A rating level exceedance greater than +10dB over the background sound level is denoted as red i.e. 'Significant Adverse Impact'.
- A rating level exceedance of +5 – 9dB over the background sound level is denoted as orange i.e. 'Adverse Impact'.
- A rating level exceedance of +1 – 4dB over the background sound level is denoted as yellow i.e. 'Low Impact' to a low likelihood of 'Adverse Impact'.
- No rating level exceedance is denoted as green i.e. 'Low Impact'.

Period	NSR					
	1	2	3	4	5	6
Existing Permit						
Weekday						
Saturday						
Proposed Permit Variation in Isolation (07:00 – 18:00 hours)						
Weekday						
Saturday						
Sunday						
Proposed Permit Variation in Isolation (18:00 – 23:00 hours)						
Weekday						
Saturday						
Sunday						
Proposed Permit Variation in Isolation (23:00 – 07:00 hours)						
Weekday						
Saturday						
Sunday						
Cumulative Bespoke Permit (07:00 – 18:00 hours)						
Weekday						
Saturday						
Sunday						

Table 12 – Summary of Assessments – Post Context

As identified, 'significant adverse impact' is avoided during all periods at all receptors. The only areas of 'adverse impact' are predicted during the night-time period.

4. Limitations and Uncertainty

Any measurement of existing ambient and background sound levels will be subject to a degree of inherent uncertainty. Environmental sound levels vary between days, weeks and throughout the year due to the variations in source level and conditions, meteorological effects on sound propagation and other factors.

Therefore, any environmental noise survey can only provide a snapshot of the noise levels. However, all efforts have been made to ensure that the measurements were conducted in a way to provide a robust sample of representative and typical conditions, e.g., avoiding or omitting adverse weather conditions. Nonetheless, a small degree of uncertainty will always remain in the noise levels from surveys.

For example, whilst no weekend measurements were undertaken at MP1, given the similarity between MP1 and MP2 during the weekday, it is highly unlikely there would be any significant deviations from those at weekends. The consistency in measurements at MP1 is verified with separate weekday measurements which show a negligible difference between noise levels.

All measurements were taken with a 130mm diameter windshield fitted. The average wind speeds shown in Appendix C fall below the manufacturer's limits of effectiveness.

The impact assessment has been prepared in accordance with source data measured during a site visit. The measurement distances were measured accurately using a laser meter, and the worst-case highest sound levels measured where directivity was at its greatest have been used.

To reduce uncertainty when measuring noise sources that are erratic or variable, longer measurements were taken that included several full cycles rather than a single 'snapshot'.

The measurements were undertaken at distances where noise emissions from operations were thought to be dominant and also where they were propagating in point source manner.

The calculations using SoundPlan 9.1 conform to ISO 9613 (2024) that has an uncertainty reported as ± 3.0 dB. ISO 9613 assumes a downwind model output that will tend overestimate actual noise propagation from source to receptor locations; the calculated levels are therefore based on worst-case scenarios.

5. Conclusion and Action Plan

A BS4142 assessment has been undertaken for the existing permitted activities and proposed bespoke permit application.

The BS4142 assessment for the existing situations indicates a 'low likelihood of adverse impact' in accordance with BS4142 at the most affected NSRs.

The BS4142 assessment for the proposed bespoke permit shows increases in the noise impact during all proposed operating times. However, in all instances when considering the contextual impacts of the proposals, there would be no expected instances of 'significant adverse impact' at any NSR.

When comparing the existing permit with the cumulative permit operations, as shown in Table 11, at most there would be a +3dB increase in the specific sound levels at any NSR. This would be considered marginal and is generally considered as being the threshold of perceptibility.

It is thought that through correct implementation of BAT and community liaison, the noise impact will typically be lower than what has been predicted within the assessments.

The following 'Action Plan' is outlined to ensure the design considerations and specifications from this report are duly implemented:

1. The Noise Management Plan ('NMP') outlined in Section 6 should be implemented and continuously reviewed.

The findings of this report will require written approval from the Environment Agency prior to the approval of the application.

6. Noise Management Plan ('NMP')

This noise management plan outlines the methods by which the site operator will systematically assess and minimise the potential impacts of noise generated by the site. The noise management plan is a working document with the specific aim to ensure that:

- Noise impact is considered as part of routine inspections.
- Noise is primarily controlled at source by good operational practices and 'Best Available Techniques' ('BAT'), including physical and management control measures.
- All appropriate measures are taken to prevent or, where that is not reasonably practical, to reduce noise emissions from the site.

The noise management plan addresses the impact of noise, and the control measures employed to mitigate the risk. These are supported through monitoring procedures to identify elevated levels and review complaints should they arise. The complaints management procedure is also addressed, which includes the management responsibilities.

6.1 Hours of Operation

The proposed permit variations include the following operating times:

- 07:00 – 23:00 (weekday, Saturday & Sunday daytime) for daytime operations
- 23:00 – 07:00 (week-night, Saturday & Sunday night-time) for night-time operations

6.2 Equipment Maintenance

All plant and machinery will be regularly and properly maintained in accordance with the preventative maintenance schedule of which the appropriate staff will be trained in.

6.3 Operator Monitoring Plan

Monitoring of noise emissions from the site will be undertaken both subjectively and objectively.

Continuous Subjective Noise Monitoring

- All operational staff will, as part of their induction, be made aware of their roles and responsibility. It is the responsibility of all staff to be aware of noise on site and to report any potential noise issues to the sites Operations Manager at the earliest opportunity.
- All staff will have refresher training on noise issues, prevention and management at six-monthly intervals.
- If members of staff report any instances of elevated noise, this should be investigated immediately. In the event that increased noise levels are verified; the source of the noise should be taken out of commission and must be fixed/corrected prior to the equipment being put back into commission.
- A visual inspection of all equipment should be made before use to ensure that there are no obvious faults or malfunctions that could lead to elevated noise levels. It will be ensured that all noise mitigation measures (silencers, etc.) are installed as per manufacturer's guidance.

Objective Noise Monitoring

- A class 2 sound level meter should be purchased to measure sound levels on site. This will take place during typical operations when the site is in use and associated plant vehicles are operating as normal.

Monthly Measurements

Noise levels will be measured at monthly intervals at the site perimeter in the location shown below.

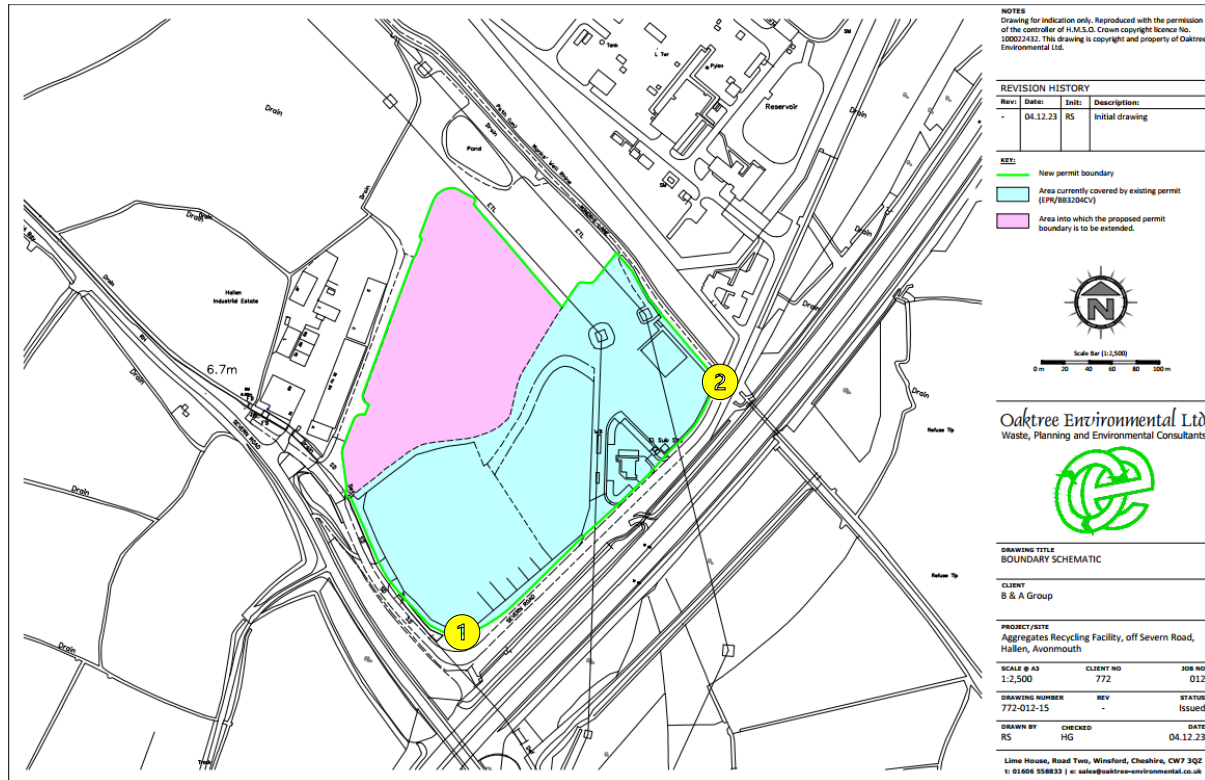


Figure 8 – Proposed NMP Monitoring Locations

- $L_{Aeq,1hour}$ (A-weighted noise levels averaged over a 1-hour assessment period) and L_{AFmax} noise levels will be recorded. Measurements taken on site will be compared with previous measurements. If $L_{Aeq,1hour}$ noise levels increase by more than 3dB from the previous month then the cause of the increase shall be investigated.
- When the source of the elevated noise levels is discovered, remedial work shall be undertaken to reduce noise emissions to 'normal' levels. If complex remedial work is required, the offending equipment will be taken out of commission until repair work is completed. This will be logged in an IMS (Issue Management System).

6.4 Noise Control Measures Summary

- Reversing alarms will be self-adjusting white noise models.
- Engines will be switched off when not in use. Vehicles will not be left idling.
- Vehicle horns to be used as a Health and Safety measure only.
- Deliveries will be spread evenly throughout the day where practicable.
- All drop heights (including that from heavy mobile plant) will be reduced to as low as possible.

- All mobile plant will be fit with the appropriate exhaust silencers and radiator intake attenuators.

6.5 Management Control Measures

- Users of on-site plant and equipment complete a daily defect log at the beginning of the working day if they observe that their vehicle is not working to its optimum. An on-site mechanic actions the defect log on the same working day and machines are not used until this action has been completed.
- Tool-box talks are provided by site management on a regular basis to site operatives. These talks include all aspects of the management plans for this site.
- Plant maintenance schedules using the manufacturer's recommendations where vehicles are serviced after 500 hours of operation.
- Pre-use checks are completed prior to using plant and equipment daily.
- Defects are reported and actions are taken to rectify the problem or remove the offending item from service until such time as the issue is resolved.
- All plant and equipment are visually inspected by the operator at the end of the working day.
- Throughout the day operators are vigilant in checking vulnerable areas like exhausts and engine bays.
- Specialist contractors are used to perform maintenance outside the scope and expertise of the site management and operatives.
- All documentation relating to plant and equipment maintenance is retained in the site office for inspection.

6.6 Noise Complaint Investigation

It is understood that an Issue Management System ('IMS') is not currently implemented.

Therefore, this should be completed by a site manager and should include a site diary, plus forms and records of complaints. Further to this, a complaints procedure should be implemented; this procedure would need to allow for all complaints, feedback and requests made by third parties regarding the site's operational activities, as well as the health and safety performance or quality of service/product.

A phone number for the head office should be available online (it is understood that this available) in order to allow for any member of the public to lodge a complaint without entering the operational site. The operations manager will be specifically assigned to deal with complaints.

All complaints received from third parties including statutory authorities, statutory consultees, members of the general public and representatives of the company will be forwarded to the operations manager to action as below within 2 hours (where feasible). The complaint will be logged in the incident database within 72 hours.

The operations manager will ensure that:

- The complaint is investigated to identify the cause, if necessary, this may involve direct communication with the complainant.
- The noise source will be measured using a class 2 sound level meter and compared with monthly objective monitoring records.

- In the event of elevated noise being detected, the presence of 'abnormal' onsite activity is assessed and if necessary, action is taken immediately to prevent a reoccurrence of the same problem. These actions must be documented.
- The complainant will be contacted and given information on the investigations conducted and actions taken as appropriate.
- All complaints are reported to regional directors and discussed at site meetings.
- Details of other complaints are sent to the other company personnel as appropriate.

If the investigation indicates that the complaint has not been justified this will be clearly recorded on the incident report. All complaints will be logged.

6.7 Reporting Measures

In the event of elevated levels of noise being identified, the event will be reported into the IMS by a member of operational staff. Upon notification of an environmental incident, the site manager will complete an incident reporting form. The completed form is then distributed throughout the company for review at operational, management and health and safety meetings.

All performance failures will be categorised for input into the IMS as follows:

- Minor event: quick fix possible, locally resolved.
- Medium event: brief disruption to service, management intervention required.
- Major event: significant disruption to service.

Each non-conformance category must have a given deadline for rectification. The deadline for each category is:

- Minor Event: within 24 hours
- Medium Event: within 6 hours
- Major Event: within 1 hour

The IMS/EHS will record any actions taken to rectify the issue, ensure that any necessary actions or review are recorded onto the IMS/EHS and ensure that the person reporting the incident is notified. The site manager will investigate the performance failure within a reasonable time frame (ideally 2 hours). Once the issue has been resolved, the corrective action will be entered onto the system and the issue will be closed.

Appendix A – Acoustic Terminology

A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure given by the following formula in decibels (dBA). $L_{pA} = 10 \log_{10} (pA/p_0)^2$. Where: pA is the A-weighted sound pressure in pascals (Pa) and p_0 is the reference sound pressure (20 μ Pa)
Background Sound	Underlying level of sound over a period, T , which might in part be an indication of relative quietness at a given location
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T , has the same mean-squared sound pressure as the sound under consideration that varies with time
Facade level	Sound pressure level 1 m in front of the facade
Free-field level	Sound pressure level away from reflecting surfaces
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants
Noise Criteria	Numerical indices used to define design goals in a given space
Noise Rating (NR)	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves
Octave Band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit
Percentile Level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting “F”, which is exceeded for $N\%$ of a specified time interval
Rating Level, $L_{Ar,Tr}$	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise
Reverberation time, T	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped
Sound Pressure, p	root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound
Sound Pressure Level, L_p	Quantity of sound pressure, in decibels (dB), given by the formula: $L_p = 10 \log_{10} (p/p_0)^2$. Where: p is the root-mean-square sound pressure in pascals (Pa) and p_0 is the reference sound pressure (20 μ Pa)
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies

Appendix B – Standards, Legislation, Policy, and Guidance

This report is to be primarily based on the following standards, legislation, policy and guidance.

B.1 – National Planning Policy Framework (2024)

Government policy on noise is set out in the National Planning Policy Framework (NPPF), updated in 2024. This replaced all earlier guidance on noise and places an emphasis on sustainability. In section 15, Conserving and enhancing the natural and local environment, paragraph 187e, it states:

Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

Paragraph 198 states:

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

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

B.2 – Noise Policy Statement for England (2010)

Paragraph 198 of the NPPF also refers to advice on adverse effects of noise given in the Noise Policy Statement for England (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 identifies the following three aims:

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;
- Where possible, contribute to the improvement of health and quality of life.

In achieving these aims the document introduces significance criteria as follows:

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur. It is stated that “significant adverse effects on health and quality of life should be avoided while also considering the guiding principles of sustainable development”.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected. It is stated that the second aim above lies somewhere between LOAEL and SOAEL and requires that: “all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also considering the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.”

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise. This can be related to the third aim above, which seeks: “where possible, positively to improve health and quality of life through the pro-active management of noise while also considering the guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”

This is further expanded using the updated “Noise Exposure Hierarchy Table” which includes an additional level of impact referred to as the ‘No Observed Adverse Effect Level’ (‘NOAEL’). It is stated that at this level: “*noise can be heard, but does not cause any change in behaviour, attitude or other physiological response*”. In addition, noise at this level “*can slightly affect the acoustic character of the area but not such that there is a change in the quality of life*”.

The NPSE recognises that it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations and provides no guidance as to how these criteria should be interpreted. It is clear, however, that there is no requirement to achieve noise levels where there are no observable adverse impacts but that reasonable and practicable steps to reduce adverse noise impacts should be taken in the context of sustainable development and ensure a balance between noise sensitive and the need for noise generating developments.

Any scheme of noise mitigation outlined in this report will, therefore, aim to abide by the above principles of the NPPF and NPSE whilst recognizing the constraints of the site.

B.3 – BS4142:2014+A1:2019 – ‘Methods for rating and assessing industrial and commercial sound’

Overview

BS4142:2014 sets out a method to assess the likely effect of sound from factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises, on people who might be inside or outside a dwelling or premises used for residential purposes in the vicinity.

The procedure contained in BS4142:2014 for assessing the effect of sound on residential receptors is to compare the measured or predicted sound level from the source in question, the $L_{Aeq,T}$ 'specific sound level', immediately outside the dwelling with the $L_{A90,T}$ background sound level.

Where the sound contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific sound level to obtain the $L_{A,r}$ 'rating sound level'. A correction to include the consideration of a level of uncertainty in sound measurements, data and calculations can also be applied when necessary.

Rating Penalty

Section 9 of BS4142:2014 describes how the rating sound level should be derived from the specific sound level, by deriving a rating penalty.

BS4142:2014 states:

"Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level. This can be approached in three ways:

- a) subjective method;*
- b) objective method for tonality;*
- c) reference method."*

Due to the nature of the development the subjective method has been adopted to derive the rating sound level from the specific sound level. This is discussed in Section 9.2 of BS4142:2014, which states:

"Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed. Correct the specific sound level if a tone, impulse or other characteristics occurs, or is expected to be present, for new or modified sound sources."

BS4142:2014 defines four characteristics that should be considered when deriving a rating penalty, namely; tonality; impulsivity; intermittency; and other sound characteristics, which are defined as:

a) Tonality

A rating penalty of +2 dB is applicable for a tone which is "just perceptible", +4 dB where a tone is "clearly perceptible", and +6 dB where a tone is "highly perceptible".

b) Impulsivity

A rating penalty of +3 dB is applicable for impulsivity which is "just perceptible", +6 dB where it is "clearly perceptible", and +9 dB where it is "highly perceptible".

c) Other Sound Characteristics

BS4142:2014 states that where "the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distance against the residual acoustic environment, a penalty of +3 dB can be applied."

d) Intermittency

BS4142:2014 states that when the *“specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time ... if the intermittency is readily distinctive against the residual acoustic environment, a penalty of +3 dB can be applied.”*

Background Sound Level

The background sound level is the underlying level of sound over a period, T, and is indicative of the relative quietness at a given location. It does not reflect the occurrence of transient and/or higher sound level events and is generally governed by continuous or semi-continuous sounds.

To ensure the background sound level values used within the assessment are reliable and suitably represent both the particular circumstance and periods of interest, efforts have been made to quantify a ‘typical’ background sound level for a given period. The purpose has not been to simply select the lowest measured value. Diurnal patterns have also been considered as they can have a major influence on background sound levels, for example, the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night-time period for sleep purposes.

Since the intention is to determine a background sound level in the absence of the specific sound that is under consideration, it is necessary to understand that the background sound level can in some circumstances legitimately include industrial and/or commercial sounds that are present as separate to the specific sound.

Assessment of Impact

BS4142:2014 states: *“The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs”*. An estimation of the impact of the specific sound can be obtained by the difference of the rating sound level and the background sound level and considering the following:

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

Interpreting the guidance given in BS4142:2014, with consideration of the guidance given in the NPSE and NPPG Noise, an estimation of the impact of the rating sound is summarised in the following text:

- A rating sound level that is +10 dB above the background sound level is likely to be an indication of a Significant Observed Adverse Effect Level;

- A rating sound level that is +5 dB above the background sound level is likely to be an indication of a Lowest Observed Adverse Effect Level;
- The lower the rating sound 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 sound level does not exceed the background sound level, this is an indication of the specific sound source having a negligible impact and would therefore be classified as No Observed Adverse Effect Level.

During the daytime, the assessment is carried out over a reference time period of 1-hour. The periods associated with day or night, for the purposes of the Standard, are 07.00 to 23.00 and 23.00 to 07.00, respectively.

B.4 – Environmental Permitting Regulations 2022

Most recently updated in January 2022, the 'Noise and Vibration Management: Environmental Permits' provides advice on how the Environment Agency ('EA') assesses noise from industrial processes, what the law says must be done to manage noise and vibration, how to carry out a noise impact assessment and what should be included in a noise management plan ('NMP'). It replaces Horizontal Guidance for Noise (H3) Parts 1 and 2, and the Scottish Environmental Protection Agency (SEPA) Guidance on the control of noise at Pollution Prevention and Control (PPC) installations.

The guidance lists the reasons why regulation of noise is important, defines when an assessment is needed, and states required competency standards before presenting the approved methodology for undertaking a noise impact assessment, broken into the following four steps:

Step 1: desktop risk assessment:

- Identification of plant or operations that could be audible at any known or proposed NSR, including non-routine noise sources (e.g. emergency pressure relief / venting systems).
- Description and ranking of noise sources in terms of off-site impact, noting what they sound like and when they operate.
- Identification of current and proposed NSRs by name, type, location and distance from source.
- Description of the land between the site and the NSRs and whether any man-made features could increase or decrease the audibility of the sound at the NSRs.

Step 2: off-site monitoring survey, involving baseline measurements at NSRs to the standards defined in BS4142:

- When considering overall site impact, background sound levels at NSRs must not be influenced by site noise.
- In addition to assessment of the 'typical' impact required by BS4142, worst-case impact scenarios should also be considered, e.g. atypical sound sources, low background sound levels, or downwind propagation from the noise source.
- When applying for a variation, the existing noise sources on the site (before changes) must not be included in the baseline background and residual sound levels. The existing and proposed sources should be considered as separate components and combined to give a new total for the specific sound level at the receptor(s).

Step 3: source assessment, involving quantification of the noisiest items of plant or operations identified in Step 1 and estimating / predicting their impact at the receptor using BS4142. Due consideration of uncertainty should be incorporated into the assessment:

- Where modelling or calculation is used, they must comply with the requirements of 'ISO 9613 Acoustics – attenuation of sound during propagation outdoors' and the following must be provided alongside the assessment:
 - o Statement of modelling/calculation assumptions.
 - o Copy of all modelling/calculation files (models to be submitted in original software format and, where possible, QSI data exchange format).
 - o Copy of numerical noise data (excluding terrain data) in a clearly labelled and concise spreadsheet.

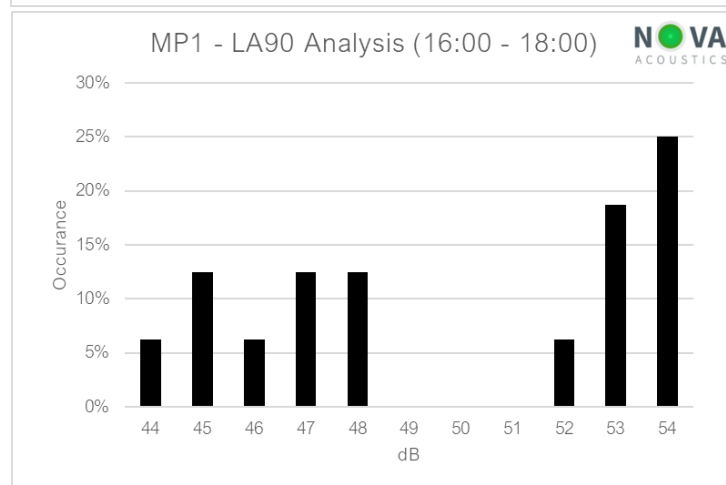
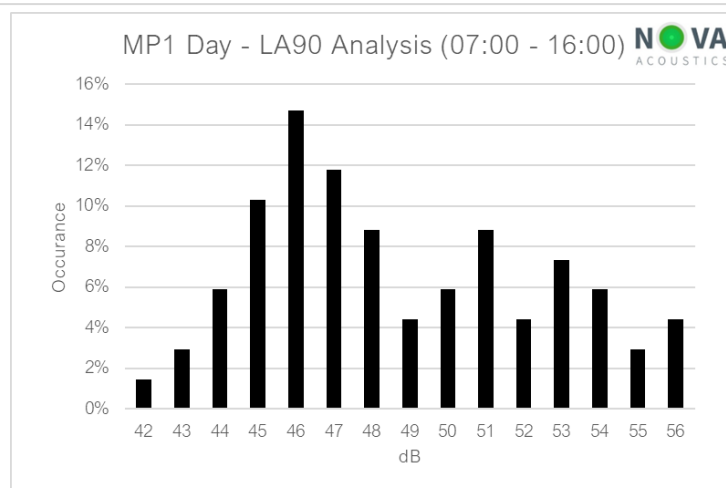
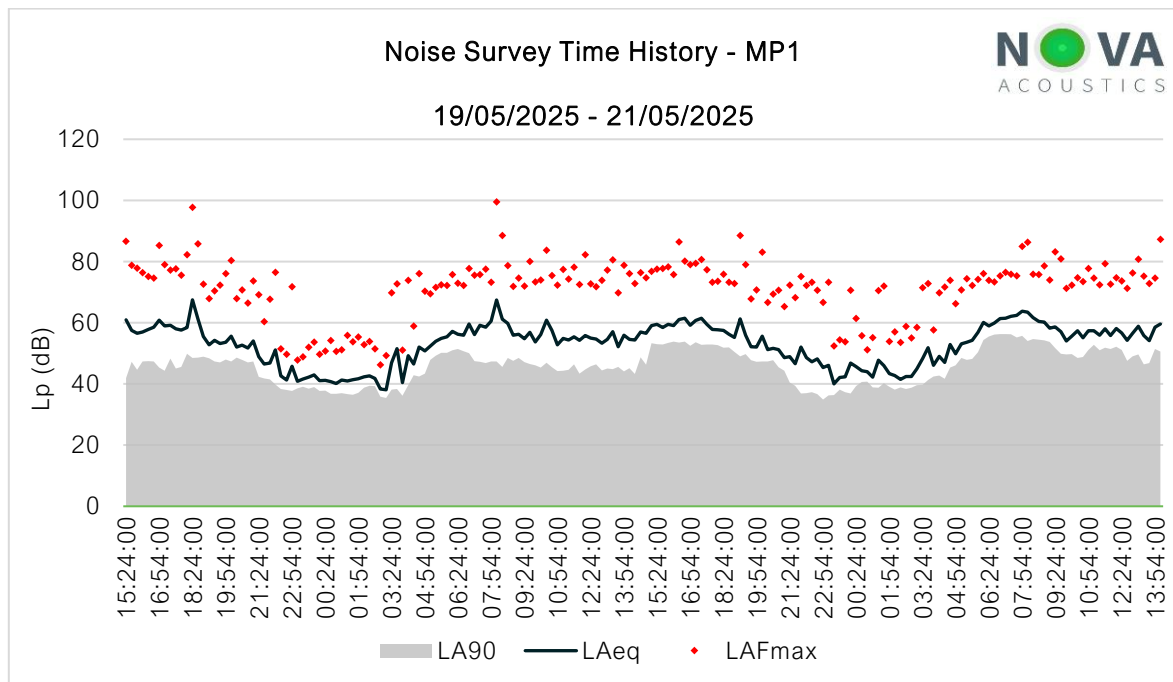
Step 4: BAT or appropriate measures justification, involving presentation of Best Available Techniques or appropriate measures and justification for their use in the context of the specific application:

- Demonstration that emissions have been prevented or minimised as far as reasonably practicable with respect to:
 - o The dominant noise sources (where necessary considered as sub-components within a system).
 - o All existing noise attenuation measures (physical, managerial and maintenance).
 - o Consideration of all reduction techniques for dominant noise sources and provide a reasoned determination of what is achievable.
 - o As appropriate, prediction of the impact of upgrade works and commitment to a firm timescale.
 - o Development of a noise management plan where there will be a noise impact beyond the site boundary.

Further guidance is provided in the 'Method Implementation Document ('MID') for BS4142 (2023)'.

Appendix C – Environmental Survey

C.1 – Noise Survey Data



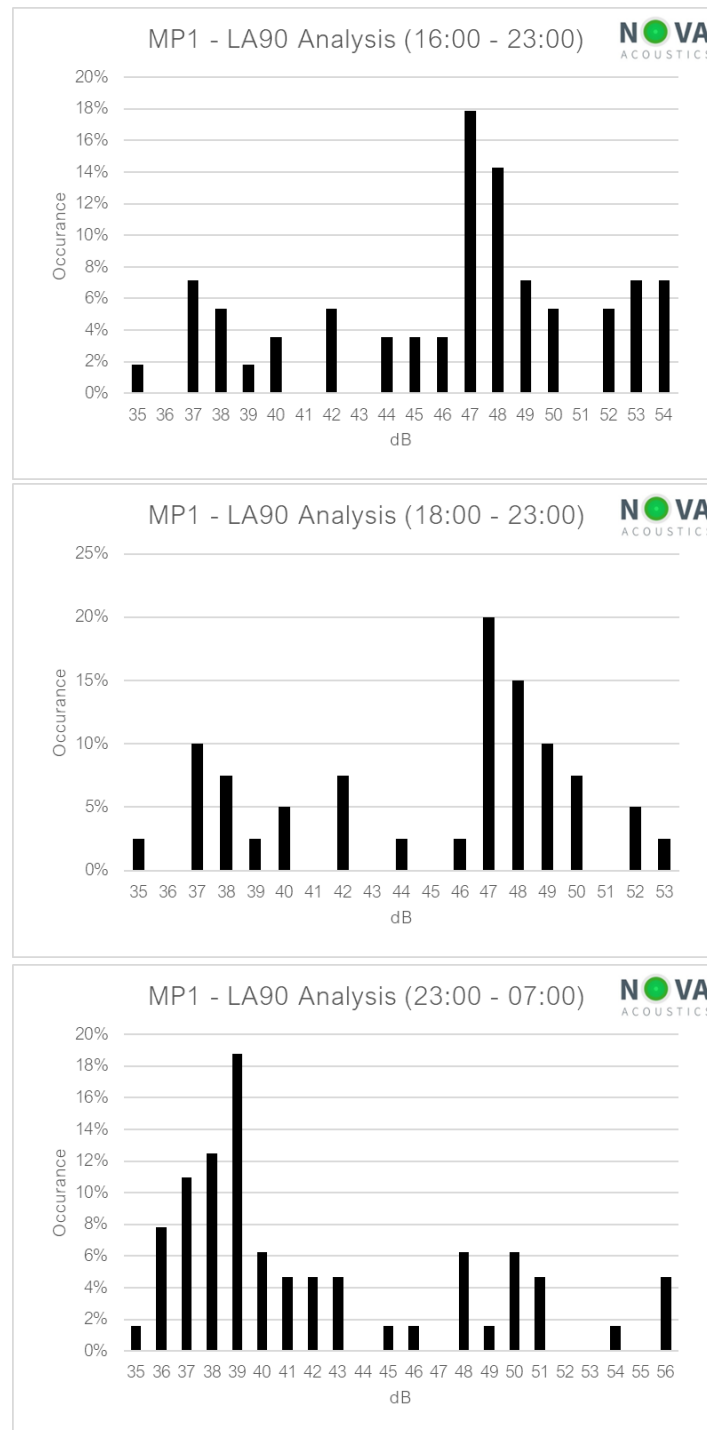
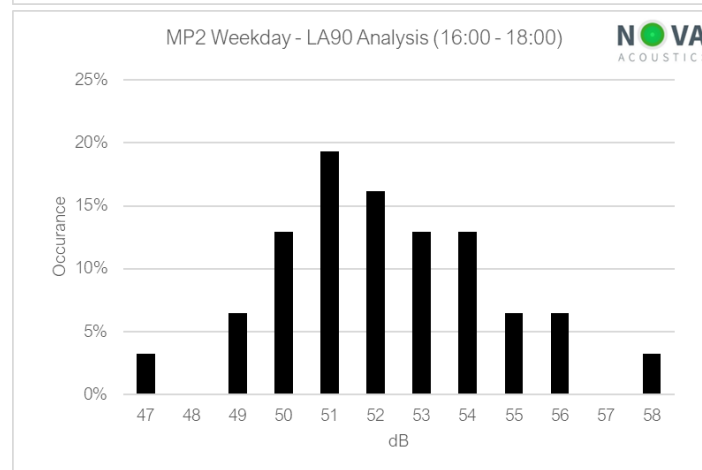
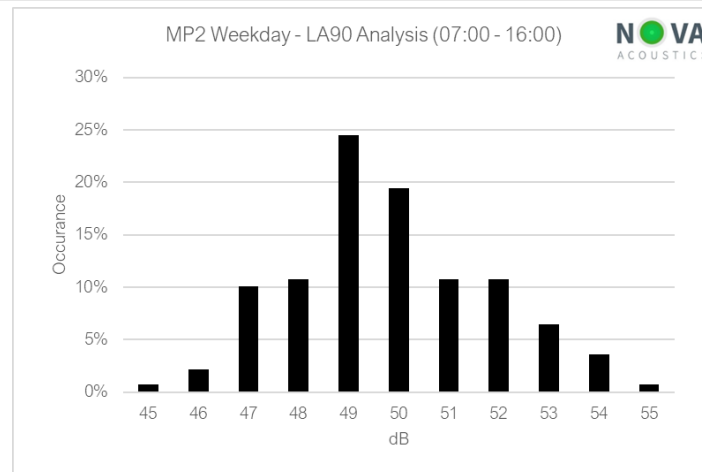
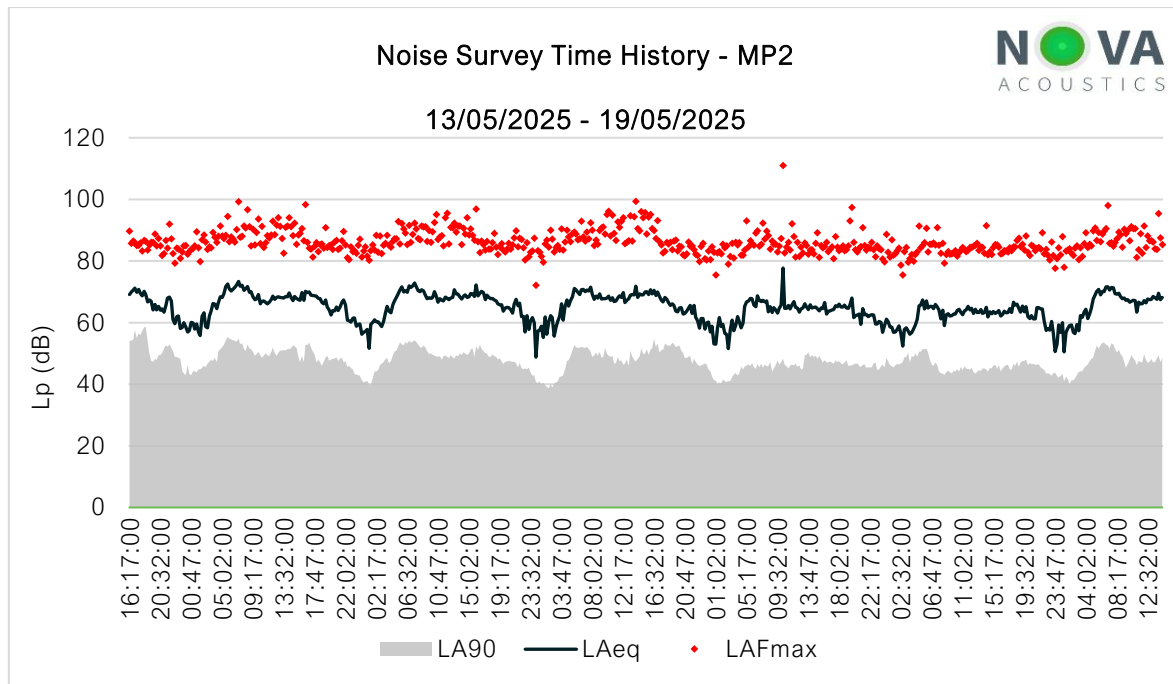
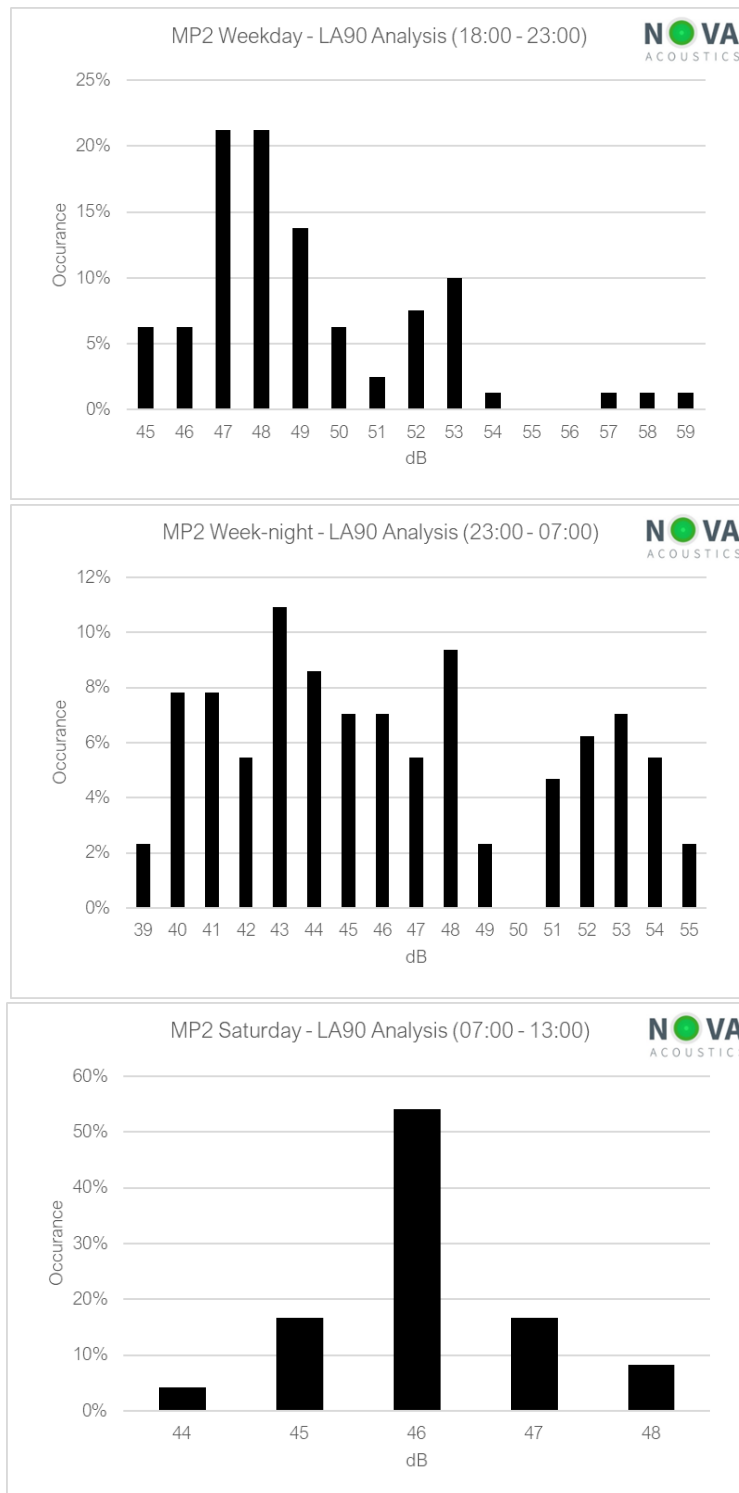
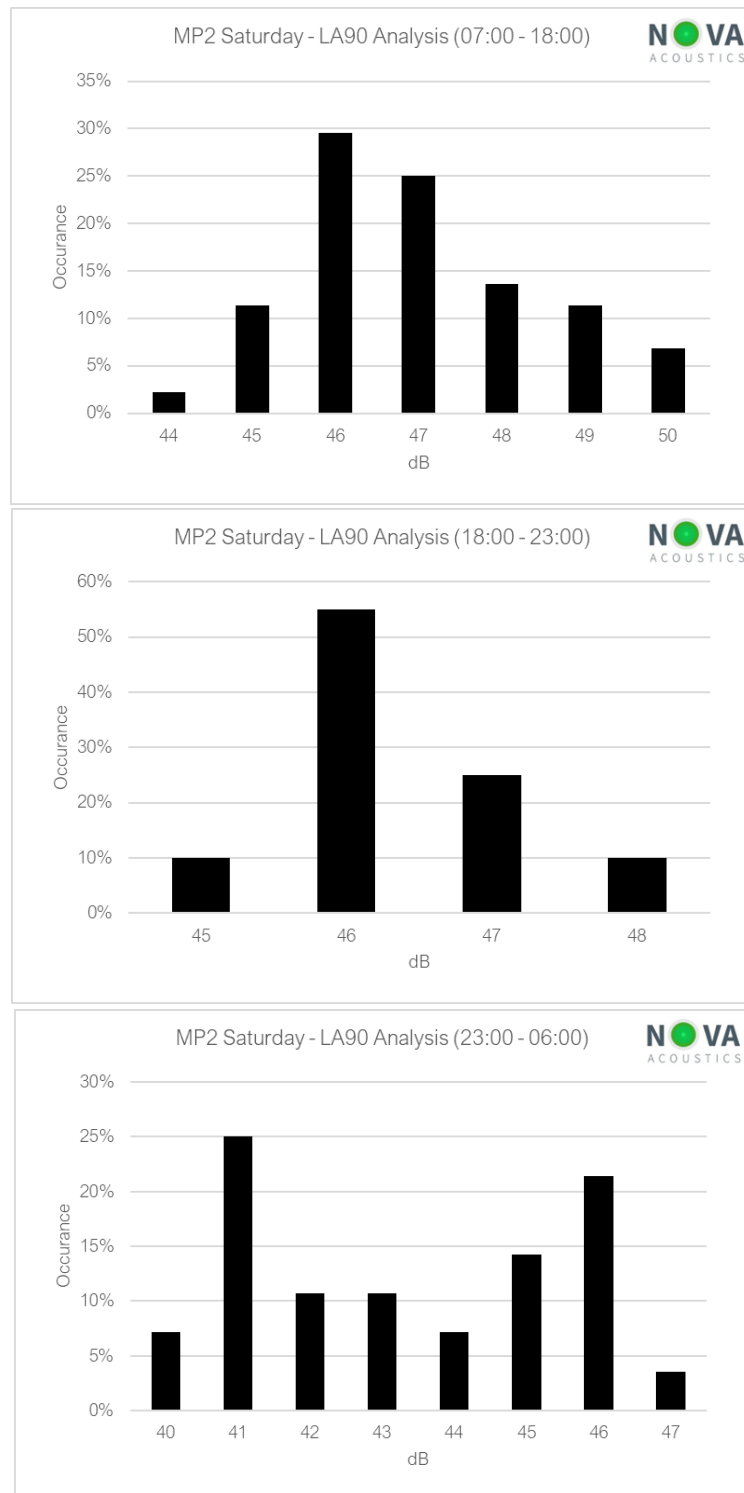


Figure 9 – MP1 Noise Survey Data (Full Period)







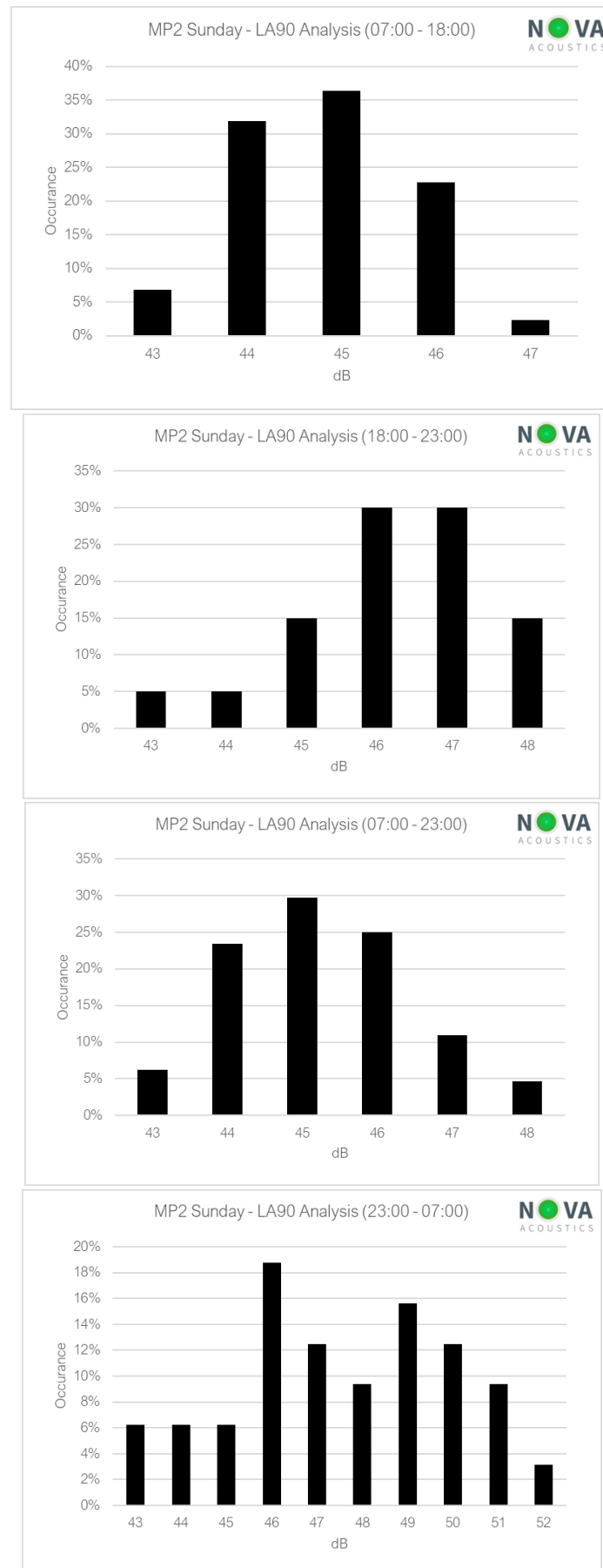


Figure 10 – MP2 Noise Survey Time History (Full Period)

Table 4.3 - Measurement Results for Severn Road

Measurement Time	LA _{eq}	LA _{max}	LA ₉₀	LA ₁₀
01/08/2022 18:25-19:25	62.5	81.8	52.8	64.6
01/08/2022 19:25-20:25	61.5	82.7	51.5	62.9
01/08/2022 21:00-22:00	62.1	84.6	48.8	63.7

Table 4.4 - Measurement Results for Severn Road

Measurement Time	LA _{eq}	LA _{max}	LA ₉₀	LA ₁₀
12/08/2022 07:00-08:00	67.0	83.4	54.5	71.6
01/08/2022 08:00-09:00	64.9	83.3	50.4	68.5
01/08/2022 09:00-10:00	63.5	83.4	49.3	66.1

Table 4.5 - Measurement Results for Severn Road

Measurement Time	LA _{eq}	LA _{max}	LA ₉₀	LA ₁₀
11/07/2023 21:00-22:00	68.5	86.3	50.0	69.2
11/07/2023 22:00-23:00	66.3	90.8	46.4	65.0
11/07/2023 23:00-00:00	63.2	88.5	45.9	60.6

Measurement Time	LA _{eq}	LA _{max}	LA ₉₀	LA ₁₀
11/07/2023 00:00-01:00	61.4	89.8	44.2	57.5

Figure 11 – Oaktree Environmental Noise Survey

C.2 – Surveying Equipment

Piece of Equipment	Serial No.	Calibration Deviation
Svantek 971A Class 1 Sound Level Meter	143564	114.0 (pre) / 114.0 (post)
Svantek SV33B Class 1 Calibrator	116639	
Svantek 971A Class 1 Sound Level Meter	113255	114.0 (pre) / 114.0 (post)
Svantek SV33B Class 1 Calibrator	116639	
Cesva SC420 Class 1 Sound Level Meter	T252915	93.4 (pre) / 93.5 (post)
Svantek SV33B Class 1 Calibrator	116639	

Table 13 – Surveying Equipment

All equipment used during the survey was field calibrated at the start and end of the measurement period with negligible deviation. All sound level meters are calibrated every 24 months, and all calibrators are calibrated every 12 months by a third-party calibration laboratory. All microphones were fitted with a protective windshield for the entire measurements period. Calibration certificates can be provided upon request.

C.3 – Meteorological Conditions

A localised weather station was not used by Oaktree Environmental, met office weather data of the area, specifically the closest weather station, has been consulted; however, all measurements have been compared with met office weather data of the area, specifically the closest weather station, and the data from the weather station is outlined in the table below.

When reviewing the time history of the noise measurements, any scenarios that were considered potentially to be affected by the local weather conditions have been omitted. The analysis of the noise data includes statistical and percentile analysis and review of minimum and maximum values, which aids in the preclusion of any periods of undesirable weather conditions. The weather conditions were deemed suitable for the measurement of environmental noise in accordance with BS7445 Description and Measurement of Environmental Noise. The table below presents the average temperature, wind speed and rainfall range for each 24-hour period during the entire measurement.

Weather Conditions – Bradley Stoke (Approx. 5.6km E of Site)				
Time Period	Air Temp (°C)	Rainfall (mm/h)	Prevailing Wind Direction	Wind Speed (m/s)
13/05/25: 00:00 – 23:59	12.3 – 23.0	0.0 – 3.3 ^[1]	ENE	0.0 – 0.9
14/05/25: 00:00 – 23:59	8.4 – 22.7	0.0	NE	0.0 – 1.6
15/05/25: 00:00 – 23:59	8.9 – 18.8	0.0	ENE	0.0 – 1.5
16/05/25: 00:00 – 23:59	9.7 – 22.6	0.0	ENE	0.0 – 1.4
17/05/25: 00:00 – 23:59	9.1 – 17.8	0.0	NE	0.0 – 1.4
18/05/25: 00:00 – 23:59	8.2 – 20.6	0.0	ENE	0.0 – 1.2
19/05/25: 00:00 – 23:59	8.9 – 19.8	0.0	NE	0.0 – 1.3
20/05/25: 00:00 – 23:59	9.9 – 21.8	0.0	NE	0.0 – 1.8
21/05/25: 00:00 – 23:59	11.0 – 20.0	0.0 – 1.3 ^[1]	NE	0.0 – 1.6
Notes: [1] Localised rain shower did not adversely influence the measurement.				

Table 14 – Survey Weather Conditions



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