Noise Impact Assessment

Site Address: Land off 8 Swinnow View, Leeds, LS13 4TZ

Client Name: B W Skip Hire Limited

Project Reference: NP-013379

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01	P. Soler, BEng, MIOA & T. Watkin, MSc, MIOA	T. Watkin, MSc, MIOA

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Disclaimer

Contact Details

NOVA Acoustics Ltd,
Suite 13, Crown House,
94 Armley Road,
Leeds,
LS12 2EJ

0113 322 7977

www.novaacoustics.co.uk

technical@novaacoustics.co.uk

Delivering sustainable development by promoting good health and well-being through effective management of noise.

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1. Introduction

NOVA Acoustics Ltd has been commissioned to prepare a noise impact assessment for an installed wash plant facility and ancillary equipment ('the proposed development') at Land off 8 Swinnow View, Leeds, LS13 4TZ ('the site').

The applicant is preparing to submit an application to Leeds City Council. This report has been prepared to accompany the planning application to be submitted to the Local Planning Authority ('the LPA').

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

As the wash plant facility has already been installed, on-site measurements have taken to inform the 3D noise modelling exercise and BS4142 noise impact assessment.

Measures required to mitigate noise impact from the proposed development have been recommended where necessary and assessed in accordance with the relevant performance standards, legislation, policy and guidance.

This 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 LPA's policies and guidance;
    - 'Leeds City Council – Planning Consultation Guidance: Noise & Vibration (Dec 2019)' (last viewed 12/11/2024)
    - The 'Leeds Core Strategy (Adopted Nov 2014)' & The 'Selective Review of the Core Strategy (Adopted Sep 2019)'
    - The 'Natural resources and Waste Local Plan' (2013)
- National Planning Policy Framework (2024)
- Noise Policy Statement for England (2010)
- British Standard BS4142:2014+A1:2019 – 'Methods for rating and assessing industrial and commercial sound'.

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

1.2 Proposal Brief

The Planning Statement set out by Heatons, on behalf of B W Skip Hire Limited, describes all aspects of the proposal. Presented in the following section is a summary of the items relevant to the assessment of noise impact.

The proposal is for the change the use of the site from a vehicle and haulage depot (Use Class B8) to the washing and storage of inert waste, soils and aggregate (Sui Generis). Historically the site has been permitted as a waste transfer station, although the permissions were never implemented.

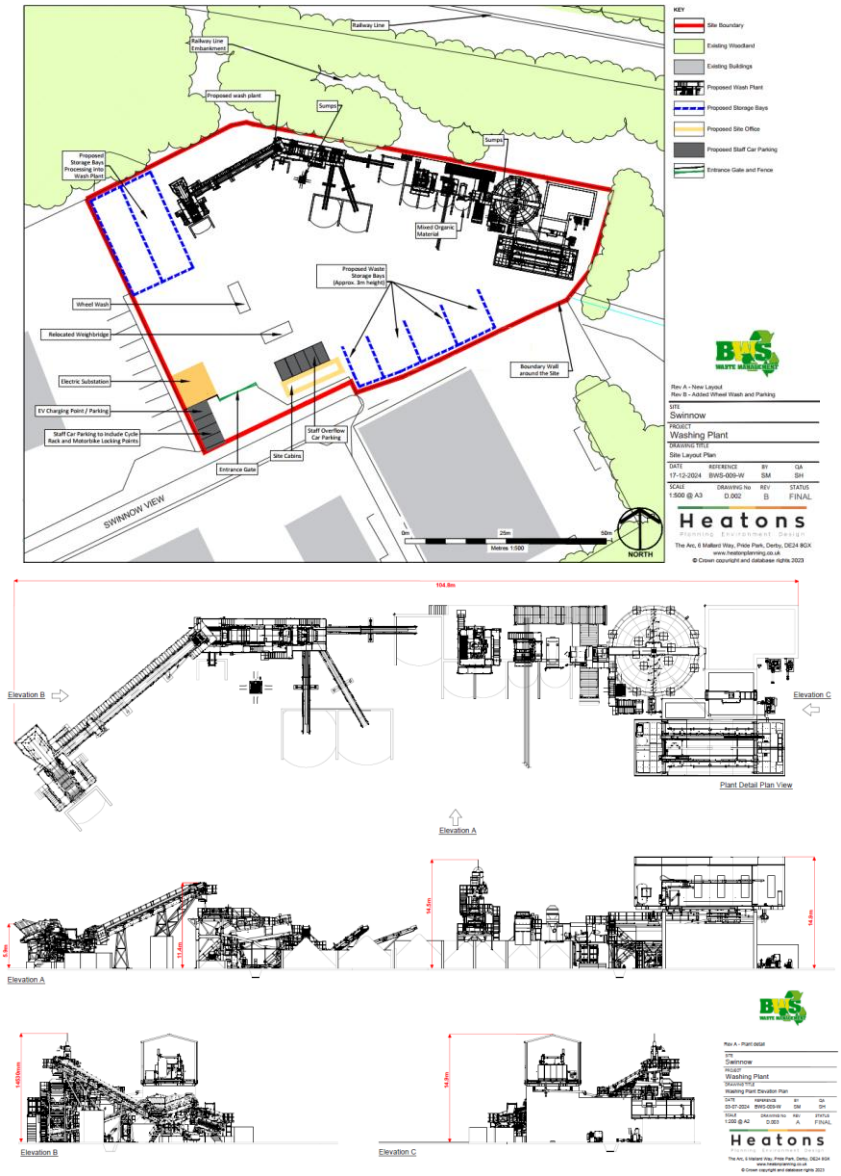
Proposed Infrastructure & Operations

The assessment contained within this report accounts for all aspects of the proposed wash plant facility, including:

- The wash plant
- Ancillary equipment
- HGVs & mobile plant for (un)loading of waste / processed material
- The erection of concrete storage bay walls and all other site furniture.

The proposed operational hours are from 07:00 to 17:00 Monday to Friday, and from 08:00 to 13:00 on Saturdays for (un)loading of vehicles and plant maintenance. It is proposed that the wash plant operate between 09:00 – 17:00 Monday to Friday, and 09:00 to 13:00 on Saturdays.

The figures below are the most up-to-date drawings provided to NOVA Acoustics.



Drawing no. D.002(REVB) & D.003 by Heatons

Figure 1 – Proposed Development Site

Incoming HGV/RORO traffic will deposit waste in the storage bays to the north-west of the site, where a 360-grab excavator will load the R Series (scalper & screener). From there, finer waste shall travel up the feed conveyor, passed the overband magnet to the AGGMAX / HYDROGRADE. The second half of the processing line (eastern side) shall include an EVOWASH, clarification tank, clean water tanks, sludge buffer holding tank and a filter press.

As seen in Figure 1, the wash plant line extends up to 14.5m in height where the top of the EVOWASH and enclosed filter press will be. Much of the eastern side of the wash plant is to be installed on an approximately 3m tall concrete plinth, however, the majority of the pumps and other ancillary equipment is to be ground mounted.

2.5m and 3m tall concrete storage bays are to be erected underneath the wash plant for material to be deposited into. Additional bays shall also be erected in the south of the site for storage. A loading shovel and 360-grab excavator shall be used to manoeuvre the processed material and load HGVs / ROROs for exportation.

1.3 Local Planning Authority & Background

Initial LPA Commentary

The following comments were made by the Environmental Health Services (pollution control) department of Leeds City Council in relation to the previously refused application:

"Whilst the applicant has submitted a noise and dust management plan, they have not provided a noise assessment to quantify site noise levels at sensitive receptors.

We agree that the site has historical industrial uses and the nearest dwellings are a moderate distance away with the railway embankment to the north and Stanningley bypass to the south which afford some screening effects and masking noise. What is unknown are the sound power levels of the wash plant and given the height of the plant is over 14m above ground level, we need to consider the location of individual noise sources also as these may not all be screened from dwellings- i.e. apartments on Roman Court to the north on Stanningley Road.

A noise assessment is required to provide this information and where necessary recommend additional noise mitigation measures to ensure compliance with our fixed plant criteria set out in our noise and planning guidance.

Other off-site impacts such as dust and artificial lighting are less of a concern and can be covered off via the dust management plan already submitted and a requirement for details of floodlights via condition if not provided prior to determination."

This report aims to satisfy the comments above and provide a robust assessment of the noise emissions generated by the proposed development.

From the Leeds City Council – Planning Consultation Guidance: Noise & Vibration (Dec 2019), it is understood that the cumulative rating sound level should be controlled as to not exceed the prevailing background sound level at the most affected NSRs when assessed in accordance with BS4142:2014+A1:2019.

Response to Consultee Comments (25/01363/FU) August 2025

Acoustic report NP-011859 (Rev03) was submitted to the LPA at the beginning of 2025. In August of 2025 the following consultee comments were made by the Environmental Health Services department of Leeds City Council:

"We have reviewed the Nova acoustic report ref: NP-011859 and have concerns over the findings and conclusions.

The assessment presents a baseline noise assessment and carries out a BS4142:2014 assessment based on predictions of operational noise. Data for fixed plant sound power levels was taken from a 3rd party's acoustic assessment of the same wash equipment at a different site whilst HVG movement and loading activities were taken from library data obtained by Nova Acoustics or derived from BS5228 for use in a 3-D computer noise model.

The BS4142 assessment assumes that all static plant are devoid of acoustic character that make it more perceptible (i.e. drones, hums, rattles or whines) and that unloading of skips and waste handling would just attract the minimum correction of +3dB set out in the standard to account for impulsivity.

On this point, we consider that this is an optimistic assumption of impact given that the report goes on to state that LAmax levels are likely to be 10dB above the prevailing LAeq at the nearest noise sensitive properties. The standard states:

Impulsivity

A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.

Our experience of similar sites operated in Leeds at planning stage and in the context of complaints do not correlate with this assessment. Typically, it is a combination of frequent impacts of material and the drone of machinery that are problematic. At this site, some of the loudest items of fixed plant will be at an elevated position and unscreened to dwellings. A character correction higher than 3dB is appropriate (+6 for impulsivity and +3 for other characteristics are likely to be more robust assessments), particularly at dwellings on Sunnyside Road which have clear line of sight with no intervening buildings to provide screening effects.

We consider that adverse impacts will arise from this development owing to the decibel level of noise, character of the sound and the duration that the plant and site operations will be carried out from 7am to 6pm Monday to Friday and 8am to 2pm on Saturdays.

Measures to mitigate noise emission further have not been explored such as alternative, quieter plant, reducing the height of noise sources or acoustic treatment at source. The findings of the noise assessment present a level of impact that is also incompatible with the applicant's noise management plan where BS4142 rating level differences should be zero. This is also a requirement of our local policy to mitigate harmful impacts of development on health and quality of life.

National noise planning policy requires development to avoid significant adverse impacts on health and quality of life. We consider that the noise impact assessment presents an optimistic assessment and

should seek to achieve a cumulative rating level equal to background to ensure that our local policies are met and to remove uncertainty in the predictive assessment in terms of decibel level and noise character. The applicant has also not explored all best available techniques to further mitigate the impact of their processes."

In the first instance, NOVA Acoustics made efforts to engage directly with the author of the above comments to better understand the concerns raised and explore potential solutions. Despite these efforts, both NOVA Acoustics and the applicant's planning consultant were unable to secure an urgent dialogue despite the urgency reported by the LPA. While this outcome was unexpected, NOVA Acoustics remains respectful of the Council's position and acknowledges their discretion in managing planning communications.

NOVA Acoustics acknowledges that, at the time of issuing the acoustic report, the applicant was advised of the potential risk associated with relying on a contextual justification. While the BS4142 assessment outcome did not fully align with LCC's noise impact criteria, it was considered—based on professional judgement and contextual factors—that the actual noise impact posed a lower risk than initially quantified in the preliminary BS4142 assessment.

Notwithstanding the above, in response to the comments, please see consider the following:

Based on NOVA Acoustics' experience, with the exception of low frequency rumbles in lower residual noise climates, the noise emissions from mechanical systems associated with modern wash plant facilities are typically broadband in nature and do not exhibit strong discrete acoustic features as defined in BS4142. This observation is supported by the findings within the RPS survey report, which was used to inform the wash plant noise data. Modern wash plant components, such as drive motors and pumps, are generally designed to operate without strong tonal characteristics.

The above has been corroborated by an additional attended survey on and off site. The findings of which, are detailed within this report.

It is acknowledged that over time, acoustic features may emerge due to equipment wear. However, with appropriate maintenance protocols implemented as part of a noise management plan, the likelihood of such features developing can be significantly reduced. While NOVA Acoustics maintains that an additional character correction is not strictly warranted, a conservative +2dB penalty has been applied in the revised BS4142 assessment to account for a 'just-perceptible' tone or low-frequency hum.

There appears to be some misunderstanding regarding the application of the impulsivity correction. NOVA Acoustics advises that a +3dB impulsivity correction is appropriate, as the associated L_{AFmax} levels from mobile plant are expected to be 10–15dB above their respective $L_{Aeq,T}$ values, rather than 10dB above the prevailing residual sound level at the nearest NSRs. Given that the lowest residual sound level at the NSRs is 61dB $L_{Aeq,T}$, it is unlikely that the impulsive noise events will frequently exceed this threshold. Therefore, impulsivity is not expected to be intrusive in this context.

In line with BS4142, a +3dB penalty for 'other characteristics' is only required if the associated specific noise emissions include characteristics that make them **clearly distinguishable** from the residual acoustic environment, but **do not fall under tonal, impulsive, or intermittent categories.** The ANC Guide to BS4142 emphasises that this correction should be used only when the sound is **readily perceptible and**

distinguishable from the background noise. It is not intended to be applied automatically or without justification.

It is recognised that the outcome of the initial BS4142 assessment did not fully align with the LPAs noise impact criteria. However, at the time of reporting, a mitigation scheme was not recommended due to the contextual considerations outlined in the original assessment. This report presents a revised BS4142 assessment based on the attended measurements of the wash plant installation with the aim of supporting compliance with the LPA's noise impact requirements and facilitating a constructive resolution.

2. Environmental Noise Survey

2.1 Measurement Methodology

The following tables outline the measurement dates and particulars. All sound level meters were fitted with a proprietary environmental kit complete with a 130mm diameter windshield suitable for windspeeds up to 8m/s. The equipment was field calibrated before and after the survey; negligible drift was noted.

Long-term monitoring locations were set at heights greater than 1.5m above the ground to avoid interference from the public. All monitoring locations were situated in free-field conditions, at least 3.5m from any other large reflective surface.

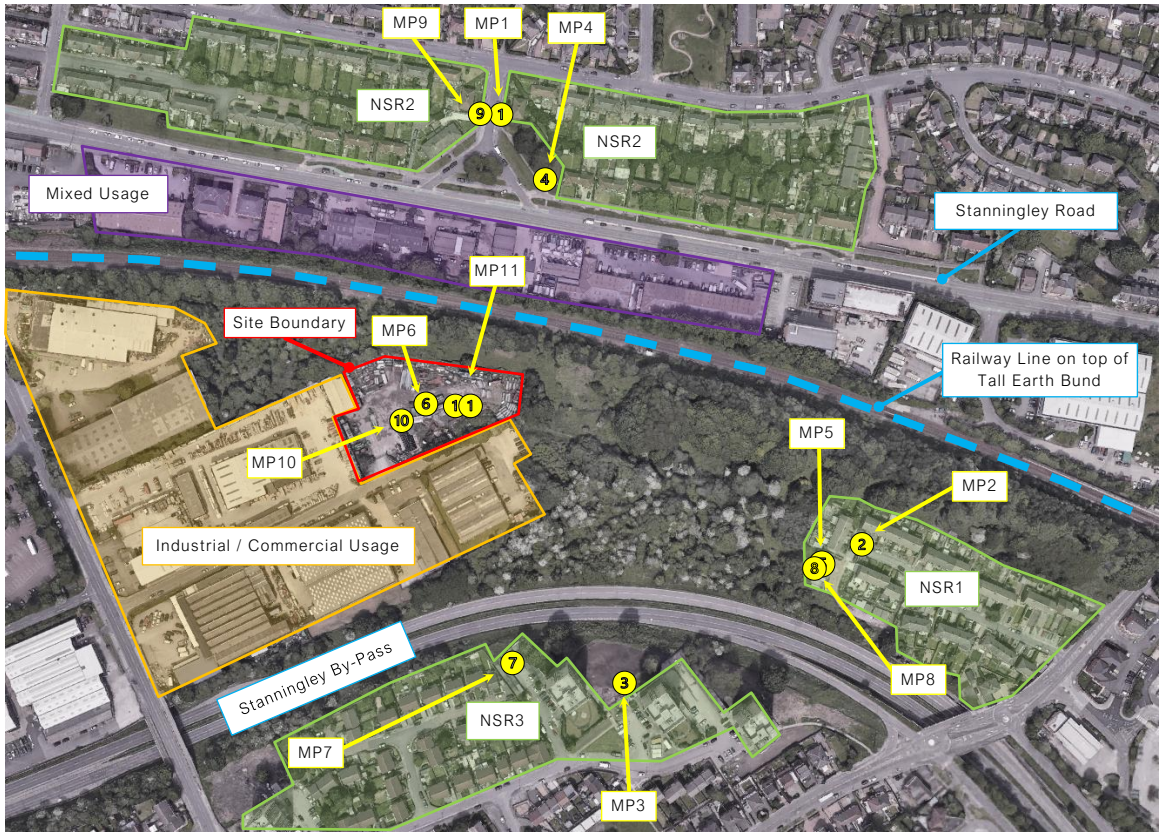
A follow-up site visit has been undertaken in October 2025 to obtain noise measurements of the installed plant equipment and to verify the operational noise emissions under representative conditions. The assessment confirmed that all relevant items of external plant were fully operational during the visit, and the measured levels have been used to validate the assumptions and results presented in this report.

Details regarding the equipment used and the meteorological conditions recorded during the survey are available in Appendix C.

Location	Survey Dates	Measurement Particulars
Long-Term Measurement Locations		
MP1	05 – 06/11/2024	Equipment mounted on a lamppost at 4m above the ground midway along Fairfield Mount.
MP2	01 – 05/11/2024	Equipment mounted on a lamppost at 4m above the ground along Sunnyside Road.
Short-term Measurement Locations		
MP3	01/11/2024	Equipment mounted on a tripod at 1.5m above the ground in front of Rycroft Green flats.
MP4	01/11/2024	Equipment mounted on a tripod at 1.5m above the ground in line with the most exposed NSR façade fronting Stanningley Road.
MP5	01/11/2024	Equipment mounted on a tripod at 1.5m above the ground in line with the most exposed NSR façade along Sunnyside Road.
MP6	01/11/2024	Equipment mounted on a tripod at 1.5m above the ground in the centre of the proposed development site.
MP7	24/10/2025	Equipment mounted on a tripod at 3m above the ground in line with the most exposed NSR façade fronting Raycroft Gardens.
MP8	24/10/2025	Equipment mounted on a tripod at 3m above the ground in line with the most exposed NSR façade along Sunnyside Road.
MP9	24/10/2025	Equipment mounted on a tripod at 3m above the ground along Fairfield Mount
MP10 & MP11	24/10/2025	Equipment mounted on a tripod at 1.5m above the ground in the centre of the proposed development site.

Table 1 – Measurement Methodology

Outlined in the figure below are the site surroundings and measurement locations.



Imagery from "©2024 Airbus, Maxar Technologies, Map data ©2024"

Figure 2 – Measurement Locations and Site Surroundings

2.1 Context & Subjective Impression

The proposed development site is located within a small industrial/commercial employment area and the immediate surrounding area consists of industrial/commercial usages and open-air activity. The immediate north of the site is bounded by a railway line sat on top of a high-level earth bund that entirely screens the sites footprint from the receptors to the north, however, the highest equipment above ≈10m would be visible once installed.

The acoustic climate at the site is currently dominated by road traffic noise emissions from the Stanningley By-Pass / Pudsey Ring Road, although HGV and forklift movements emanating from W Madden Building Merchants (which is the industrial unit that will share the western boundary with the proposed development) were audible and contained clearly perceptible impulsive elements at times.

The acoustic environment at MP1 was deemed high in level and noise profile was dominated by road traffic noise emissions from Stanningley Road, which facilities heavy flows of bus traffic. A mixed-use strip of commercial, light industrial and residential uses lies along Stanningley Road.

A 'Car Spa hand car Wash' and multiple vehicle garages generated noise emissions from the use of jet washes, engine idling, radio playback and tools. Intermittency was clearly perceptible from the start stop nature of jet washing, along with a 'just perceptible' low frequency hum akin to the road traffic, and 'just perceptible' impulsivity was noted in the noise breakout from the garages. A low rumble and brake squeal/flanging from railway traffic was audible at times.

The acoustic climate at MP2 was also deemed high in level and the noise profile is dominated by road traffic noise emissions from the Stanningley By-Pass / Pudsey Ring Road. Railway traffic was faintly audible as the trains approach Bramley Station.

The noise profile at MP3 was identical to MP2, albeit subjectively louder due to the decreased distance and screening from the Stanningley By-Pass / Pudsey Ring Road.

During the attended monitoring in October 2025, the wash plant installation was inaudible at the closest NSRs (MP7-9); only a very faint low frequency rumble was 'just perceptible' at MP9 (NSR2), however, this was frequently masked by the nearby car wash noise emissions.

2.2 NSR Identification

The following NSRs have been identified as the closest and most exposed to the proposed development site:

- NSR1: no. 40, 42, 57 & 69 Sunnyside Road
- NSR2(A): no. 418 & 420 Stanningley Road
- NSR2(B): flat no. 1-3 above the Post Office along Fairfield Mount (the entire upper floor of the building has been accounted for)
- NSR2(C): no. 424 & 422 Stanningley Road
- NSR2(D): no. 10 & 12 Fairfield Mount
- NSR3(A): the western-most block of Rycroft Green (all floors)
- NSR3(B): no. 20, 22 & 24 Rycroft Gardens
- NSR3(C): no. 28 & 30 Rycroft Gardens.

Multiple other receptors have also been accounted for with the noise modelling software.

2.3 Environmental Noise Survey Results

Background Sound Level Analysis

Outlined in the following section are the measured background sound levels that have been used as the baseline for the subsequent BS4142 noise assessment.

Statistical analysis has allowed a representative background sound level to be chosen based on the range and distribution of the $L_{A90,15min}$ measurements. The following table shows a summary of the range of background sound levels measured during the proposed operational period of 07:00 – 17:00 hours throughout the entire measurement period, excluding Sundays and periods when fireworks were found to adversely influence the acoustic climate. The typical background sound level measured is also presented.

The time history results and histograms can be found in Appendix C.

Description	MP1 (NSR2)		MP2 (NSR1)	
	$L_{A90,15min}$ Range (dB)	Typical $L_{A90,15min}$ (dB)	$L_{A90,15min}$ Range (dB)	Typical $L_{A90,15min}$ (dB)
07:00 – 17:00 hours	45 – 56	52	55 – 62	59

Table 2 – Long-term Background Sound Level Summary

It should be recognised that between 09:00 to 17:00 hours, the lowest measured $L_{A90,15min}$ sound level recorded at MP1 was 50dB.

Due to the conservative nature of the 'long-term' measurement locations, concurrent spot measurements were also taken in line with the most exposed points of each NSR; detailed in the following table is the results summary.

The spot measurements were also undertaken on the site itself (MP6) and this is presented below for reference purposes.

Concurrent measurements were not possible between MP1 and MP4, therefore, only the MP4 data is presented below, and this should be compared with the sound level summaries shown in Table 2 above for MP1.

Description	$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)
MP4: 11:34 – 12:04 (NSR2)	54	51
MP2: 12:27 – 13:27 (NSR1)	63	61
MP3: 12:30 – 13:30 (NSR3)	69	63
MP2: 11:45 – 12:15 (NSR1)	63	61
MP5: 11:50 – 12:20 (NSR1)	63	61
MP6: 11:12 – 11:42 (On-site)	63	57

Table 3 – Comparison of Attended Measurements

As can be seen in the table above, the sound levels measured at MP4 and MP5 are akin to those measured at MP1 and MP2, respectively. The ambient sound climate at MP3 is approximately 6dB higher than at MP2, however, the background sound climate is only marginally higher than the 'long-term' position.

Considering the above, the background sound levels used as the baseline for the subsequent BS4142 noise impact assessment are detailed in the following table. It is thought that these levels allow for a 'robust' assessment.

Description	$L_{A90,15min}$ Daytime (dB) (07:00 – 18:00)
NSR1 & NSR3 (all receptors)	59 (MP2) – Table 2
NSR2 (all receptors)	52 (MP1) – Table 2

Table 4 – Chosen BS4142 Baseline Background Sound Level

Residual $L_{Aeq,T}$ Sound Level Analysis

For reference purposes, the residual $L_{Aeq,T}$ sound levels measured at the long-term measurement locations between the daytime and night-time operating periods are also presented below.

Description	$L_{Aeq,T}$ Daytime (dB) (07:00 – 18:00)
MP2 - NSR1 & NSR3 (all receptors)	64

MP1 - NSR2 (all receptors)	61

Table 5 – Existing Residual Sound Levels

Wash Plant $L_{Aeq,T}$ Sound Level Analysis

A series of spot measurements were undertaken during the October 2025 site visit to quantify the noise emissions associated with the operational wash plant and to compare conditions with the plant both on and off.

Measurements were taken at five positions (MP7–MP11). Across all NSR measurement positions, the comparison between ambient (15-min plant on) and residual (15-min plant off) conditions shows no discernible difference in overall or L_{A90} noise levels, confirming that the wash plant noise emissions are not contributing to the overall acoustic environment. At MP7 and MP8, overall and L_{A90} levels remained identical under both conditions, while at MP9 a negligible 1dB increase in the overall level was observed with the plant operating. These results demonstrate that the operation of the plant does not introduce any meaningful change in the local noise climate.

The measured results are summarised in the table below.

Location	1/1 Octave Frequency Band (Hz, $L_{eq,T}$ dB)								$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)
	63	125	250	500	1k	2k	4k	8k		
MP7 (NSR3) – ON	69	61	61	64	70	62	49	40	71	66
MP7 (NSR3) – OFF	66	61	60	65	70	62	49	39	71	66
MP8 (NSR1) – ON	65	59	59	61	66	58	41	29	67	65
MP8 (NSR1) – OFF	65	60	58	61	66	58	41	35	67	65
MP9 (NSR2) – ON	65	58	55	54	57	53	48	43	60	54
MP9 (NSR2) – OFF	63	55	54	52	56	51	44	42	59	54
MP10 (wash plant on-site) (specific sound level)	77	68	60	62	61	58	56	54	66	58
MP11 (wash plant on-site) (specific sound level)	80	70	62	62	61	58	57	54	66	59

Table 6 – Summary of Attended Wash Plant Measurements at NSRs

3. BS4142 Noise Impact Assessment

In the following section of the report, the impact of the noise emissions generated by the proposed development is assessed.

3.1 Source Noise Levels

Wash Plant & Ancillary Equipment

At the time of the original assessment, the wash plant had not yet been installed, and therefore noise data were taken from a comparable facility as reported in the RPS Group document (ref: 'JAT11497-REPT-01-R0'). Since the completion of the installation, NOVA Acoustics has undertaken a new site visit to obtain direct measurements of the noise emissions from the actual equipment in-situ. NOVA Acoustics has been informed by CDE that all wash plant installations are bespoke, and use of any other noise emissions is indicative. However, CDE had confirmed that the wash plant noise emissions contained within the RPS Group document are conservative and reflective of a larger wash plant equipment treating more course and heavier material.

The measured data has been used to derive representative sound power levels for the principal plant items, ensuring that the current assessment reflects the true operational characteristics of the installed system whilst treatment was taking place.

Fo any measurements taken at distances where point source propagation is not expected, the subsequent sound power levels have been calculated assuming L_p+10*Log(S), where S is the total surface area of the noise source (obtained from the site drawings). It should also be recognised that the source measurements could not be corrected for residual noise from other wash plant items, and as such, the sound power levels below are deemed conservative.

Where on-site measurements could not be undertaken the sound power levels have been retained from the previous RPS Group report to provide a conservative basis for assessment. These retained items are clearly identified within the following table.

All sound power levels are presented as 1/1 octave band values and assume continuous operation (100% on-time). Source heights have also been included for reference.

Description	Source Height (m)	1/1 Octave Frequency Band (Hz, Lw, dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
R Series (Scalper & Screener)	1 – 7	110	103	100	101	96	91	89	83	102
Feed Conveyor[1]	1 – 14	84	78	75	72	68	68	67	62	76
Overband Magnet[1]	5.5	94	81	73	86	80	71	66	71	85
AGGMAX / Hydrograde: 1no. Infinity D1-63 Vibrosync[2]	2.5 – 8	110	101	98	96	95	94	91	90	100
AGGMAX 160 Log Wash[2]	3.5 – 5	110	104	101	100	99	96	92	90	104
EVOWASH / GMAX[3]	4	117	103	94	93	93	91	90	87	99
Stockpile Conveyors[1]	1 – 5	79	74	70	67	65	70	75	79	81

AQUACYCLE (top motor)	1.5	95	82	78	79	75	74	71	66	82
AQUACYCLE (lower motor)[1]	1.5	93	90	86	90	90	85	80	72	93
Static Screen (Vibrosync)	1 – 4	110	95	88	84	85	82	81	80	91
Sludge Pump[1]	1	77	77	77	76	77	74	73	68	81
Cloth Wash Pump[1]	1	86	79	80	75	69	63	51	49	76
Chemical Dosing Plant[1]	1.5	95	84	72	72	65	76	82	84	87

Notes:
[1] *Sound power levels could not be measured on-site and thus are obtained from the RPS Group report.*
[2] *The AGGMAX is made up of 3no. Infinity D1-63 Vibrosyncs and an AGGMAX 160 (log wash).*
[3] *The dominant component of the EVOWASH was found to be the plinth level Infinity D1-63 Virosync. All other expects of the EVOWASH were negligible in comparison.*

Table 7 – Wash Plant Sound Power Levels

As summary of the noise modelling particulars can be found in Appendix D.

Noise Breakout Elements

The RPS report details the internal ambient noise levels for the filter press housing. Shown in the table below is a summary of the 1/1 octave band L_{eq} noise levels measured internally, and the assumed sound reduction index (SRI) for the 0.6mm profiled steel outer structures. Noise from the filter press housing will also be assumed as having a 100% on time within the noise model.

Description	1/1 Octave Frequency Band (Hz, dB)								Overall (dB)
	63	125	250	500	1k	2k	4k	8k	
Filter Press Housing (L_{eq})	72	63	58	61	47	53	53	45	61 (A)
0.6mm Profiled Steel (SRI)	8	10	14	19	24	29	34	34	23 (R_W)

Table 8 – Noise Breakout Elements

Mobile Plant Operations

Presented in the following table are the 1/1 octave and overall sound power levels of mobile plant operations. All on-time assumptions are based on information provided to NOVA Acoustics.

In this instance, the noise emission level for the 360-Grab Excavator loading operation has been derived from on-site measurements obtained during the most recent site visit, ensuring that the data accurately reflect the operational performance of the equipment installed at the site.

With the exception of HGV movements, all other items listed below have been assumed to have a 100% on-time within the noise model. The number of movements relating to HGV pass-bys is subsequently discussed after the table. Source heights for each item within the noise model are included below for reference.

Description	Source Height (m)	1/1 Octave Frequency Band (Hz, Lw, dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	

360-Grab Excavator Loading R Series	5	112	107	98	98	93	89	85	79	99
HGV / RORO Loaded via 360-Grab Excavator	2	112	107	98	98	93	89	85	79	99
Loading Shovel Moving & Sorting Waste[1]	1.5	104	103	99	98	99	93	86	79	102
HGV / RORO Waste Delivery[2]	1.5	100	96	105	100	94	90	83	76	101
HGV Pass-by[3]	1	92	88	89	92	91	89	83	80	95

Notes:
[1] CAT 966M sorting waste – measured by NOVA Acoustics for report no. NP-011721.
[2] HGV delivering inert aggregate waste – measured by NOVA Acoustics for report no. NP-011281.
[3] 16-wheel HGV pass-by measured by NOVA Acoustics for report no. NP-011651.

Table 9 – Mobile Plant Sound Power Levels

The quantity of HGV movements in and out of the site has been modelled according to the planning statement. During a 'typical worst-case' 1-hour period, a total of 20no. movements have been modelled associated with waste delivery, and 6no. movements are associated with material collection.

3.2 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 has been modelled according to the ground type.
- Octave band noise data was used to facilitate noise modelling in accordance with ISO 9613-2. ISO 9613-2 assumes a 'downwind' model to the NSRs.
- The sound map grid hight has been set to 4m above the ground as this best represents the lower median height of the plant installation.
- 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.
- 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 sound power levels, and on-time corrections shown in Section 3.1 have been inputted to the model. A detailed summary of the source modelling parameters can be found in Appendix D.
- The noise breakout of the filter press housing has been calculated within the noise modelling software, which account for:
    - The internal ambient noise levels seen in Table 8,
    - The sound insulation of the 0.6mm steel outer structure also seen in Table 8,
    - A -6dB Cd correction to account for the change in diffusivity from an internal to external environment.

- A 100% on-time allowance.

- The source heights of all operations detailed in Tables 6 and 8 have been included in the noise model.
- The sound power levels for all mobile plant operations seen in Table 8 have been inputted into the model.
- HGV pass-bys have been modelled as slow-moving point source emitters with the sound power levels shown in Table 8. On-time corrections have been applied to account for the vehicle speed (4.4m/s) and number of events per 1-hour.
- The wash plant in isolation has been augmented to 2dB above the $L_{eq,T}$ noise levels measured at MP10 & MP11 (66dB L_{Aeq} overall), which forms a 'robust' noise modelling approach.

The noise map showing the specific sound level emissions from the development can be seen in the following figure.

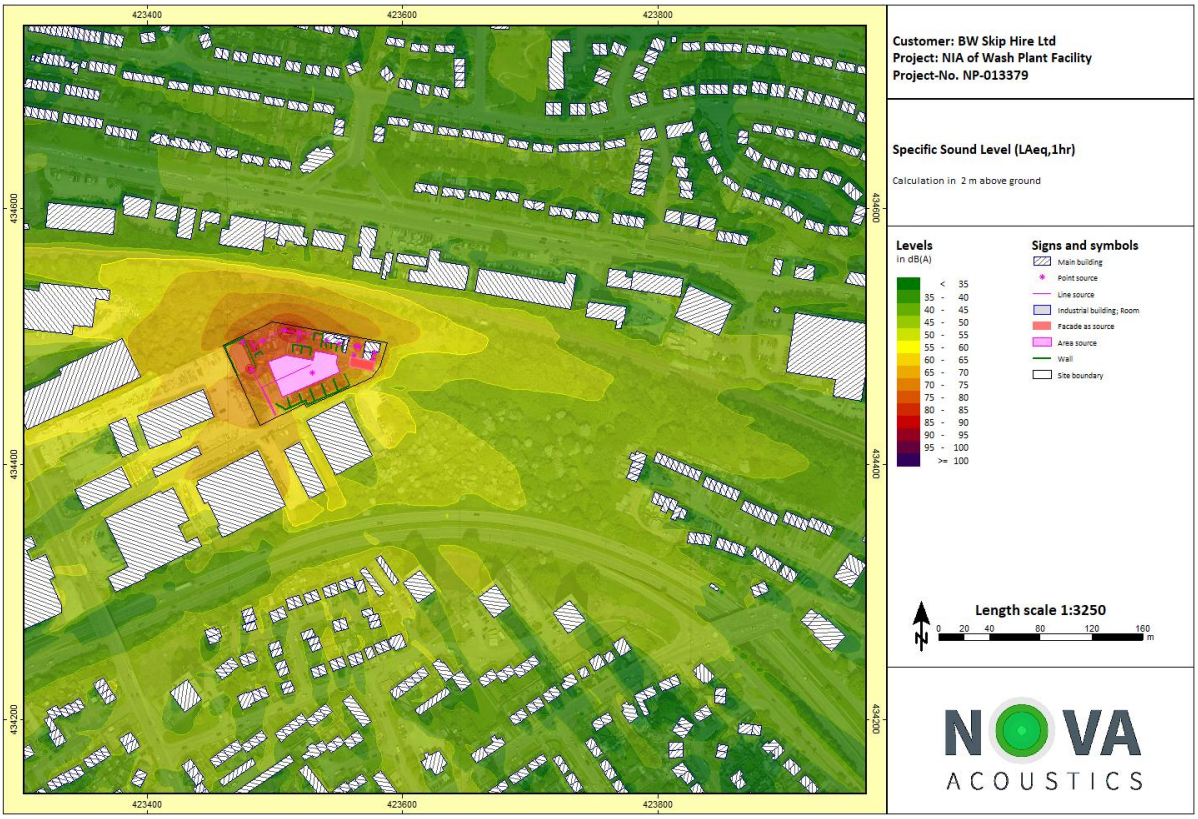


Figure 3 – Specific Sound Level Map

3.3 BS4142 Noise Impact Assessment

Adopted Criteria

The criteria that will be applied to the initial BS4142 assessment outcomes will be based on the table below. Please note that any relevant context is discussed afterwards to inform any corrections to the noise impact initially quantified in accordance with BS4142.

Description	Exceedance Levels			
Exceedance of Background ($L_{A90,T}$)	<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'
BS4142 Abbreviations	'LI' to 'NI'	'LI' to 'LowAI'	'AI'	'SAI'

Table 10 – BS4142 Initial Assessment Grades

BS4142 Noise Impact Assessment

Shown in the following table are the BS4142 noise impact assessments at the most affected dwelling(s) per NSR group.

Daytime Assessment (07:00 – 18:00)				
Description	**NSR1**	**NSR2**	**NSR3(A) (Rycroft Green)**	**NSR3(D) (Rycroft Gardens)**
Specific Sound Level ($L_{Aeq,T}$)	48 (1st Floor)	45 (1st Floor)	54 (11th Floor)	53 (1st Floor)
BS4142 Subjective Acoustic Feature Correction	+5[1]	+5[1]	+5[1]	+5[1]
Rating Sound Level ($L_{Ar,Tr}$)	53	50	59	58
Background Sound Level ($L_{A90,15min}$)	59	52	59	59
Exceedance of L_{A90}	**-6**	**-2**	**0**	**-1**
Initial BS4142 Assessment Outcome	**LI**	**LI**	**LI**	**LI**

Notes:
[1] *A conservative +3dB penalty has been applied to account for 'just perceptible' impulsivity from waste sorting and (un)loading. A further +2dB penalty has been applied for a 'just perceptible' low frequency hum/rumble that was noted during the attended monitoring, although this was only observed at NSR2.*

Table 11 – Daytime BS4142 Noise Impact Assessment

As can be seen in the revised BS4142 assessment above, 'low impact' is predicted at all NSRs, which is a positive indication that the proposed development would be unlikely to adversely affect the nearby residential receptors.

The background sound levels at the upper floors of NSR3, which have a more direct line of sight to the by-pass / ring road, are thought to be approximately 2dB greater than the baseline used in the BS4142 assessment (as described in Section 2.3). As such, the noise impact is thought to be lower than that presented in Table 11.

The extant residual acoustic environment at NSR2 is already characterful, as outlined in Section 2.1. Acoustic features such as impulsivity, low-frequency hums, and intermittency are already present due to nearby light industrial and commercial activities. In this context, the BS4142 acoustic feature corrections applied within the assessment are considered precautionary and conservative.

It is also important to note that the source noise levels used in the modelling are themselves conservative. With the exception of HGV movements, all mobile plant equipment and operational processes have been modelled assuming a 100% on-time, which likely overstates their contribution to the overall noise climate, particularly in the case of mobile plant loading and unloading the wash plant.

In light of the above, the predicted daytime noise impacts at the most affected NSRs are thought to align with the threshold for a 'No Observed Adverse Effect Level' ('NOAEL') when assessed in line with the NPSE and NPPF. It is stated that at NOAEL, *"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 site would operate between the hours of 07:00 – 17:00 Monday to Friday and 08:00 – 13:00 on Saturdays (no Sunday working) for the loading and unloading of vehicles and general maintenance. However, the wash plant would operate during reduced hours of 09:00 – 17:00 Monday to Friday and 09:00 – 13:00 on Saturdays (no Sunday working). During these reduced periods at MP1, the lowest measured $L_{A90,15min}$ sound level was circa 50dB; thus, further reducing the predicted noise impact at NSR2.

It is thought that all reasonable steps have been taken to mitigate and minimise adverse effects on health and quality of life, while also considering the guiding principles of sustainable development. The relevant context outlined in this report suggests that the calculations and assessment of nose impact is conservative, and that actual noise impact levels will be lower.

3.4 Additional Best Available Techniques

In addition to the recommended nose control strategy, the following Best Available Techniques ('BAT') can be implemented where practicable to do so:

- Vibrating screens – constrained-layer damping can be fitted to side plates, along with tune mechanism suspension has been found to reduce overall sound power levels of vibrating screens by as much as 6dB (D. Yantek & P. Jurvcik, 2006).
- All mobile plant should be fitted with broadband white-noise reversing alarms and sirens and remain switched off when not in use; do not leave plant idling.
- All mobile plant should have noise emissions levels that comply with the limits as defined by the EC Directive 2000/14/EC and subsequent amendments.
- All plant should be properly serviced, maintained and operated in accordance with the manufacturer's instructions to ensure that the occurrence of malfunctions which can give rise to elevated noise levels is reduced, and any malfunctions that do occur are promptly repaired.
- All reasonable steps should be taken to avoid or limit the number of vehicles queuing or waiting to enter / exit the site.
- A site speed limit of 10mph should be enforced.
- All drop heights should be minimised to as low as possible.

- Where front loaders are used to manoeuvre waste, drivers should be instructed to avoid unnecessary scraping, rattling or banging or the loading buckets to minimum impact noise.
- The appropriate anti-vibration mounts shall be fitted to the wash plant equipment.
- The R Series hopper can be lined with a resilient impact resistant layer where practicable to do install.

4. Conclusion and Action Plan

The development has been assessed against the requirements of BS4142 and the local and national policies.

The initial daytime BS4142 assessment indicated 'low impact'. The noise impacts at the most affected NSRs are thought to align with the threshold for a 'No Observed Adverse Effect Level' ('NOAEL') when assessed in line with the NPSE and NPPF. It is stated that at NOAEL, *"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"*.

It is thought that all reasonable steps have been taken to mitigate and minimise adverse effects on health and quality of life, while also considering the guiding principles of sustainable development. The relevant context outlined in this report suggests that the calculations and assessment of nose impact is conservative, and that actual noise impact levels will be lower.

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

1. The makes and models of on-site plant should not be altered. If alterations are made, then further assessment should be undertaken.
2. The wash plant and ancillary equipment is operational between the hours of 07:00 to 18:00, exclusively.
3. The BAT and best practices outlined in Section 3.4 should be adhered to, however, they are not an exhaustive list, and further measures are available.
4. A 'robust' Noise Management Plan ('NMP') should be implemented and adhered to throughout the lifetime of the development.

The findings of this report will require written approval from the Local Authority prior to work commencing.

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 $p0$ is the reference sound pressure (20 µPa)
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: $L_p = 10\log_{10}(p/p_0)^{2.}$ Wherе: p is the root-mean-square sound pressure in pascals (Pa) and $p0$ is the reference sound pressure (20 µPa)
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 $L_{Ar,Tr}$ '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 nighttime 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 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.

Appendix C – Environmental Survey

C.1 – Time History Noise Data

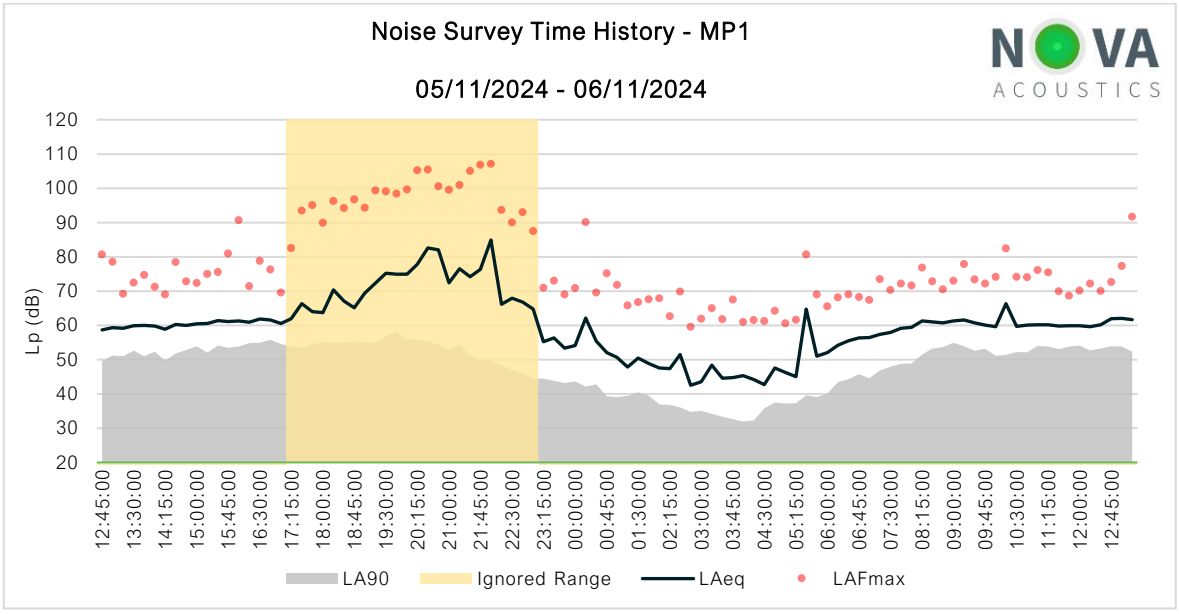


Figure 4 – MP1 Noise Survey Time History

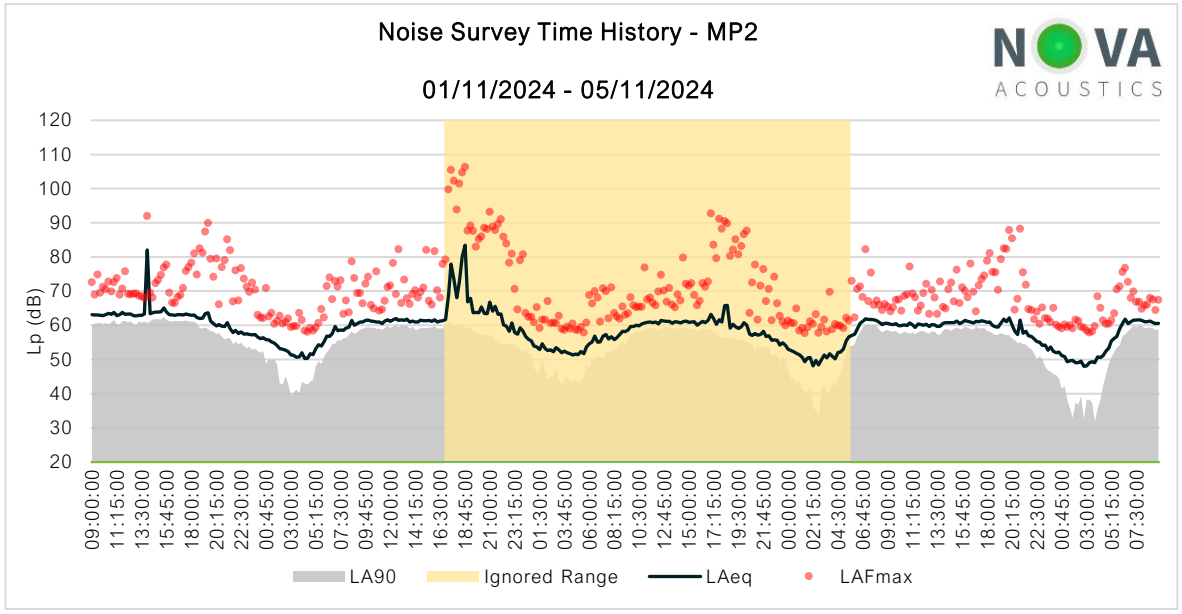


Figure 5 – MP2 Noise Survey Time History

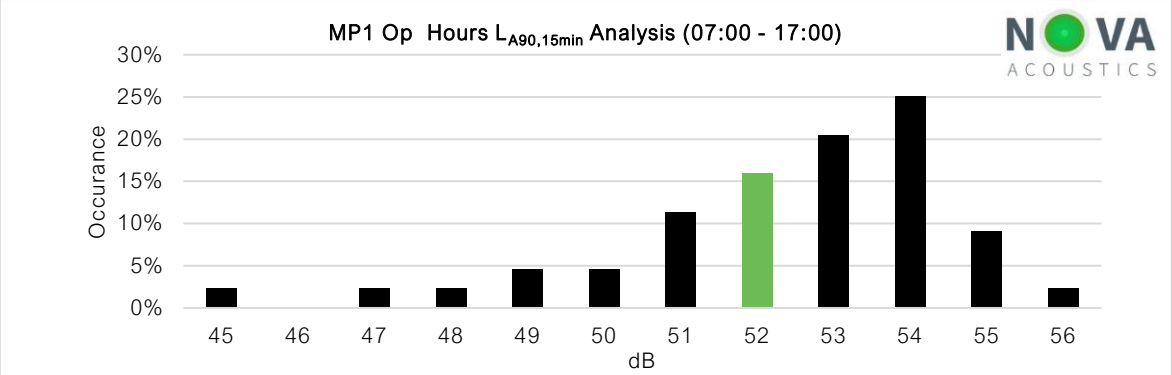


Figure 6 – MP1 $L_{A90,15min}$ Histograms – Proposed Operational Hours

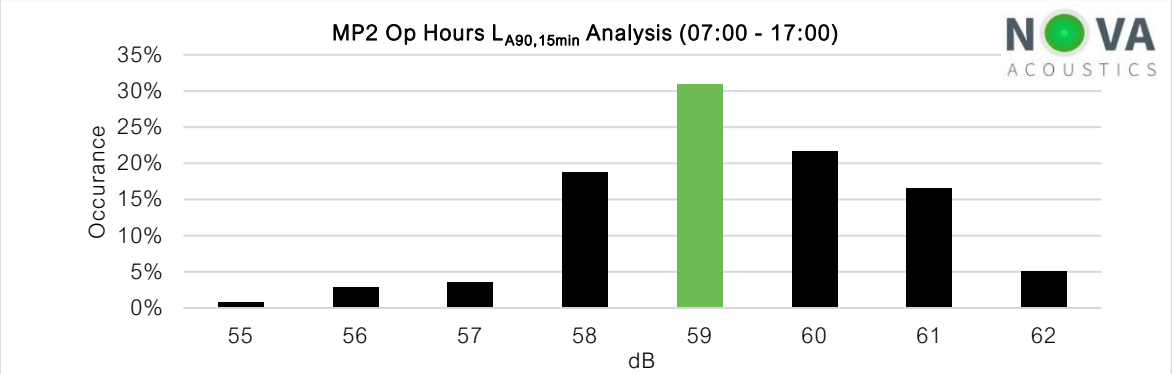


Figure 7 – MP2 $L_{A90,15min}$ Histograms – Proposed Operational Hours

C.2 – Surveying Equipment

Piece of Equipment	Serial No.	Calibration Deviation
Svantek SV971 Class 1 Sound Level Meter	44018	≤0.1
Svantek SV36 Class 1 Calibrator	106876	
Svantek SV307 Class 1 Sound Level Meter	87871	≤0.1
CESVA CB006 Class 1 Calibrator	106876	
CESVA SC250 Class 1 Sound Level Meter	T252915	≤0.1
CESVA CB006 Class 1 Calibrator	106876	
Svantek SV971 Class 1 Sound Level Meter	162046	≤0.1
Svantek SV971A Class 1 Sound Level Meter	143564	≤0.1
Svantek SV33B Class 1 Calibrator	25695	--

Table 12 – Noise Surveying Equipment

All equipment used during the survey was field calibrated at the start and end of the measurement period with a negligible deviation of ≤0.1dB. 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

The environmental noise survey was carried out over a long un-manned period and localised records of weather conditions were taken with a Davis Vantage weather station, set to log every 15-minutes.

When reviewing the time history of the noise measurements and weather data, 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.

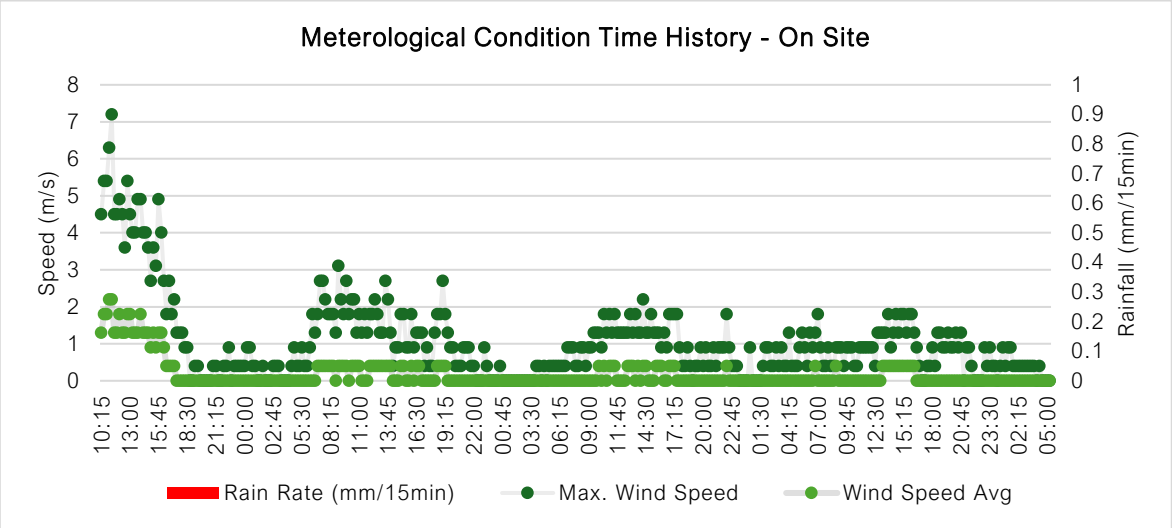


Figure 8 – On-site Meteorological Condition Time History

Appendix D – Noise Modelling Assumptions & Parameters

Shown in the table below is a summary of the sound pressure levels measured at source during the October 2025 on-site measurements of the wash plant.

					Measure Sound Pressure								
Location	Description	Distance (m)	Q Factor		LAt	Lt_63	Lt_125	Lt_250	Lt_500	Lt_1000	Lt_2000	Lt_4000	Lt_8000
Leeds Kit 9 - L101	Excavator loading scalper screener in-feed	20	2		66	78	73	64	64	59	55	51	45
Leeds Kit 9 - L102	Front of Scalper Screener	8.5	4		74	81	78	71	72	67	64	64	58
Leeds Kit 9 - L103	East side of Scalper Screener (also 2m from overband magnet drop)	8	4		78	88	79	75	78	72	67	62	56
Leeds Kit 9 - L104	Rear of Scalper Screener	9	4		78	84	77	78	76	72	67	65	60
Leeds Kit 9 - L105	Bottom Infinity D1-63 Vibrosync (rear side) under highest point of conveyor feeding AGGMax 160 (log wash).	3			82	91	86	77	82	74	72	69	67
Leeds Kit 9 - L106	Inbetween two bottom D1-63 Vibrosync under AGGMax 160				80	89	80	77	75	74	73	70	69
Leeds Kit 9 - L107	2nd bottom Infinity D1-63 Vibrosync (rear side) under end of AGGMax 160	3			79	85	78	76	77	72	72	70	68
Leeds Kit 9 - L108	2nd bottom Infinity D1-63 Vibrosync (front side) under end of AGGMAX 160	3			80	88	79	78	77	73	72	70	67
Leeds Kit 9 - L110	Above AGGMAX 160 (log wash) gantry grills	1.5			84	90	83	79	81	78	77	74	73
Leeds Kit 9 - L111	Top-most Infinity D1-63 Vibrosync (front side)	1.5			87	97	82	78	82	81	80	77	76
Leeds Kit 9 - L112	Side of AGGMAX 160 Log Wash (on read side gantry)	1			83	89	83	80	79	78	75	71	69
Leeds Kit 9 - L115	Bottom Infinity D1-63 Vibrosync of Evo Wash (east side)	4.5	1		79	90	81	72	73	73	73	71	66
Leeds Kit 9 - L116	Bottom Infinity D1-63 Vibrosync of Evo Wash (rear side)	4.5	1		76	89	76	72	70	70	68	66	65
Leeds Kit 9 - L117	Bottom Infinity D1-63 Vibrosync of Evo Wash (rear side 1st gantry)	4	1		77	91	80	71	71	71	69	68	66
Leeds Kit 9 - L118	Bottom Infinity D1-63 Vibrosync of Evo Wash (east side 2nd gantry)	5	1		78	100	85	73	71	71	68	67	64
Leeds Kit 9 - L119	Top cyclone seperator (rear side)	1.5	1		75	96	78	70	70	67	65	63	64
Leeds Kit 9 - L120	Infinity D1-63 Vibrosync after Evo Wash (east side) - static screen	1			77	96	81	74	70	71	68	67	66
Leeds Kit 9 - L123	Top motor of water tank	1	1		70	83	70	66	67	63	62	59	54
Leeds Kit 9 - L124	Infinity D1-63 Vibrosync after Evo Wash (rear side)	1.5			77	92	81	73	70	71	69	68	64
Leeds Kit 9 - L125	Bottom pump & motor of water tank	4.5	2		64	81	68	60	59	58	57	52	48

The following table details the noise modelling parameters and behaviours.

Description	Source Type	Height (m)	Length (m)	Width (m)	Notes
R Series (Scalper & Screener)	Vertical Area	1 – 7	11.6	--	From 1m above ground.
Feed Conveyor	Line	1 – 14	25	--	L_w/unit
Overband Magnet	Point	--	--	--	5.5m above ground.
AGGMAX / Hydrograde Vibrosyncs (3no.)	3no. Point Source	2.5 – 8	--	--	
AGGMAX / Hydrograde Log Wash	Vertical Area	3.5 – 5	8.5	--	From 1m above ground.
EVOWASH / GMAX	Point Source (plinth level Vibrosync dominant)	4 – 13	3.4	3.5	2m above concrete plinth.
Stockpile Conveyors	Line	1 – 5	10 – 12	--	L_w/unit
AQUACYCLE (top motor)	Point	--	--	--	1.5m above ground.
AQUACYCLE (lower motor)	Point	--	--	--	1.5m above ground.
Static Screen	Point	--	--	--	4m above concrete plinth.
Sludge Pump	Point	--	--	--	1m above ground.

Cloth Wash Pump	Point	--	--	--	1m above ground.
Chemical Dosing Plant	Point	--	--	--	1.5m above ground.
HGV / RORO Deliveries	Point	--	--	--	1.5m above ground.
360-Grab Excavator Loading HGV / RORO	Point	--	--	--	2m above ground.
360-Grab Excavator Loading R Series	Point	--	--	--	5m above ground.
Loading Shovel Sorting Waste & Moving	Area	Within vicinity of storage bays			1.5m above ground.
HGV pass-bys	Slow Moving Point Source	Between entrance/exit and delivery / storage bays. 4.4m/s speed.			1m above ground.

Table 13 – Noise Modelling Parameters

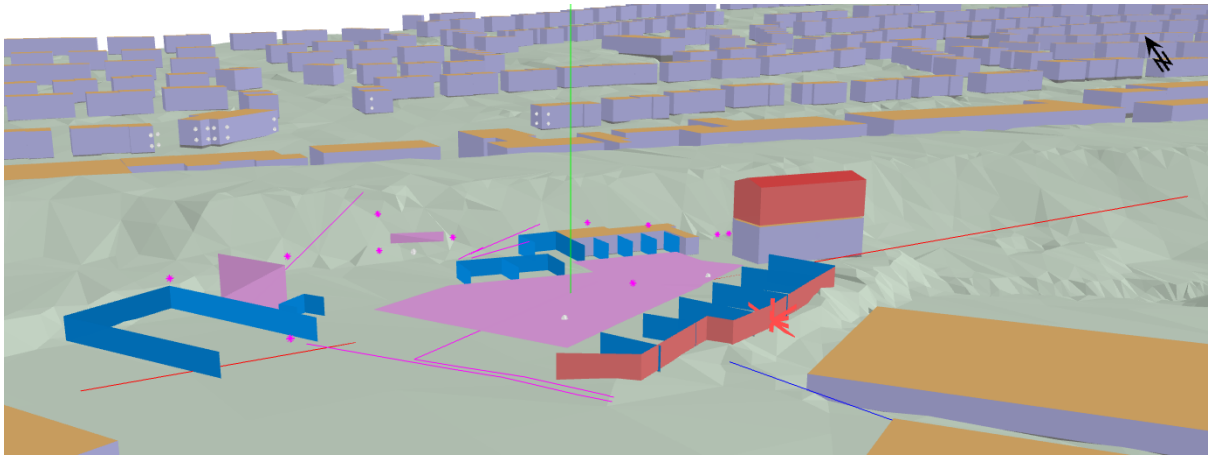


Figure 9 – Screenshot of 3D Noise Modelling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