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Proposed Skip Hire and Waste Transfer Station
Unit 1, Netherfield Mills, Netherfield Road, Dewsbury

Noise Impact Assessment

For:
Mr. Hamid Dhorat

24rd January 2024

Ref: NIA-11283-24-11493-v1 Netherfield Road, Dewsbury
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1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Mr. Hamid Dhorat to carry out a noise impact assessment in relation to the proposed skip hire and waste transfer unit at Unit 1, Netherfield Mills, Netherfield Road, Dewsbury (hereafter referred to as 'the site').

The objectives of the noise impact assessment were to:

- Determine, at the nearest noise sensitive receptors, the noise level associated with the development
- Determine the existing background noise levels at the nearest noise sensitive receptors during representative time periods
- Assess the potential impact of the proposed development on the nearest noise sensitive receptors with reference to pertinent guidelines
- As appropriate, provide recommendations for a scheme of noise attenuation.

This report details the methodology and results of the noise assessment. It has been prepared to accompany a planning application to be submitted to Kirklees Council.

The report has been prepared for Mr. Hamid Dhorat for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult Mr. Hamid Dhorat and ENS as to the extent to which the findings may be appropriate for their use.

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

1.2 Site Description and Development Proposals

The site is located at Unit 1, Netherfield Mills, Netherfield Road, Dewsbury (see Figure 1.1 below for location).

Figure 1.1: Location of Site

The existing noise climate at the site is characterised by road traffic on Huddersfield Road with sporadic contribution from vehicles on Netherfield Road and Calder Road, and intermittent noise from the existing commercial activities within Netherfield Mills.

Development proposals are for a skip hire and waste transfer station on land previously used for car breaking and recycling. The process on site would consist of an LGV dropping off small skips which have been collected from residential and commercial premises, the contents of these small skips are then placed into large skips which are periodically taken away for recycling at a separate site.

The large 14-yard skips are to be removed once per week, whereas the smaller skips will usually be immediately taken out to the next customer once emptied.

Proposed operating hours are 0800 to 1800 hours Monday to Friday, with no working on weekends or Bank Holidays.

The nearest existing noise sensitive receptors (NSRs) to the site are dwellings on Netherfield Road to the north of the site, set back approx. 10 metres from the northern boundary of the proposed site.

2 Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in December 2023 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 180 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of…..noise pollution'.

Paragraph 191 advises that:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should…..mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'.

With regard to extant community noise sources and the potential to affect proposed new developments, Paragraph 193 states that:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2023)

2.2 Noise Policy Statement for England

The Noise Policy Statement for England[2] (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- 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

The NPSE describes the following levels at which noise impacts may be identified:

- 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
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

'….all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.'

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance[3] (PPG) is an online resource providing additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur
- Whether or not an adverse effect is occurring or likely to occur
- Whether or not a good standard of amenity can be achieved

In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that: *'…the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation'.*

Table 2.1 summarises the PPG noise exposure hierarchy.

2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England (2010)
3 Planning Practice Guidance on Noise: http://planningguidance.planningportal.gov.uk/blog/guidance/noise/

Table 2.1: PPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

2.4 British Standard BS 4142:2014+A1:2019

BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142)[4] describes methods for determining, at the outside of a building, noise levels from factories or industrial premises and a method for assessing whether the noise is likely to give rise to adverse impacts, and 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. Typically, the greater this difference, the greater the magnitude of the impact. For example:*

A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context

A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context'

The rating level is described as the specific sound level (the equivalent continuous A-weighted sound pressure level at the assessment position (NSR) produced by the specific sound source over the given reference time interval) plus any adjustment for the characteristic features of the sound. The character correction relates to whether and to what degree the specific sound is assessed to have an element of tonality, impulsivity and/or characteristics that are readily distinctive against the residual acoustic environment.

The background noise level is the A–weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 percent of a given time interval, T, measured using time weighting 'F' and quoted to the nearest whole number of decibels.

The reference time interval of the specific sound is 1 hour during the daytime.

4 British Standard 4142:2014+A1-2019 Methods for rating and assessing industrial and commercial sound, BSI (2014)

3 Noise Survey

3.1 Overview

In order to establish ambient and background noise levels in the vicinity of the site, baseline noise measurements were undertaken on Tuesday 9th January and Wednesday 10th January 2024.

For the purpose of the assessment, a single noise monitoring position (MP1) was adopted in the vicinity of existing dwellings on Netherfield Road (see Appendix 2 for the approximate monitoring position).

Noise measurements were undertaken in free field conditions at 1.5 metres above ground level using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. The meter was connected to a windshield covered microphone positioned at the locations detailed above.

The measurement system calibration was verified immediately before and after the survey period using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted. The noted weather conditions during the survey were dry with wind speeds < 5 m/s. Weather conditions were therefore considered appropriate for noise monitoring.

Measurements consisted of A–weighted broadband parameters including L_{Aeq} and L_{A90}, together with linear 1/3rd octave band data.

3.2 Baseline Summary

Table 3.1 below presents a summary of the noise data for each measurement session, rounded to the nearest decibel (Appendix 3 contains the full raw data).

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	$L_{Aeq,\,T}$ (dB)	$L_{A90\,(15\ min)}$ (dB)	
				Range	Typical
MP1	09/01/24	1340–1540	63	50–51	50
	10/01/24	1530–1730	65	49–53	

The existing noise climate in the vicinity of the site is characterised by road traffic on Calder Road and the surrounding road network.

The typical (most commonly occurring) background noise level at MP1 (NSR1) was **50 dB $L_{A90\,(15\ min)}$.**

4 Noise Assessment

4.1 Noise Associated with Skip Hire Company

The principal noise source associated with the proposals is considered to be the delivery and collection of skips at the site.

In order to assess the impact of skip movements at the site, the Sound Exposure Level (SEL) is used. The SEL of a single discrete noise event is the level which if maintained constant for a period of one second would contain as much A-weighted sound energy as is contained in the actual noise event.

Sound pressure level (SPL) measurements have been made previously by ENS at a similar site. Measurements included the arrival an LGV, the delivery and placing of the skip, and the departing of the LGV. The SEL of the entire skip delivery was measured at circa **91 dB(A)** at 5 metres.

A maximum number of 10 skips movements per day are expected at the proposed site, this equates to typically 1–2 movements in a single hour.

The following formula may be used for calculating worst-case 1-hour L_{Aeq} level from the SEL:

$L_{Aeq,\,T} = 10 * \log_{10} [\ (n \times 10^{SEL/10}) / T\ ]$ where:

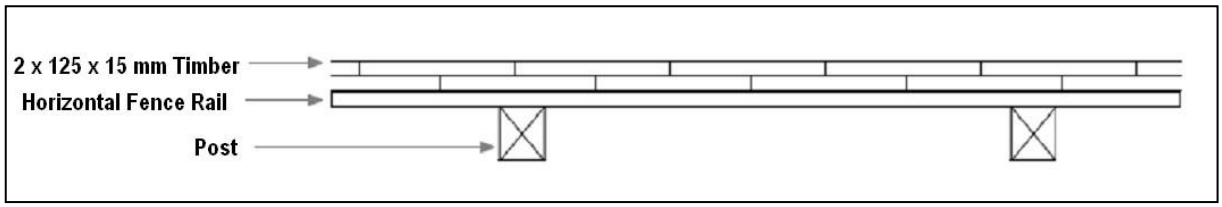
- SEL is the measured Single Event Level (dB (A))
- n is the number of occurrences
- T is the time period in seconds

Processing the above formula, the resultant sound pressure level is **46 dB $L_{Aeq\ (1\ hour)}$** at 5 metres.

4.2 Noise Propagation

In order to screen the NSRs it is recommended that a 2.4-metre-high solid timber fence is installed along the northern boundary of the site (see Appendix 3 for location).

The timber barrier should be built in double-thickness solid timber construction as illustrated below. The barrier should have no gaps or holes (cover strips should also be used to prevent gaps forming over time) and should be fully sealed at the ground (i.e. include a gravel board).



In order to derive the worst-case skip movement noise levels at the nearest NSRs, the following formula may be used:

$SPL_{REC} = SPL_{SOURCE} - DA - SA$

where:

- SPL_{REC} is the free field sound pressure level at the receiver (dB L_{Aeq})
- SPL_{SOURCE} is the sound pressure level at source (dB L_{Aeq})
- DA is the distance attenuation of noise
- SA is the screening attenuation of noise

Distance attenuation (DA) is calculated as follows:

$DA = 20 \times \log (D_{SOURCE} / D_{REC})$ where,

- D_{SOURCE} = distance to source (5 metres in this case); and
- D_{REC} = distance to receiver

With regards to screening attenuation (SA), BS 5228:2009 Part 1 states *'In the absence of spectral data, as a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver. Specifically designed and positioned noise barriers could provide greater attenuation.*'

As receptors will be screened by the proposed acoustic fence or intervening buildings, screening attenuation is taken to be 10 dB.

On the basis of the above, the worst-case resultant noise levels at the nearest NSR associated with loading operations at the application site are set out in Table 4.1.

Table 4.1 Calculated Resultant Skip Movement Noise Levels at Nearest Receptor

Noise Level at Source (5 metres)	Distance Attenuation	Screening Attenuation	Resultant Noise Level at NSR
46 dB $L_{Aeq\ (1\ hour)}$	–17 dB [= 20*log(5 / 35)]	–10 dB	19 dB $L_{Aeq\ (1\ hour)}$

BS 4142 requires that an adjustment can be made for the characteristic features of the sound. Unloading noise may contain subjectively impulsive characteristics. Whilst the absolute skip movement noise levels are relatively low (and below existing background levels) at the nearest NSRs, a +3 dB penalty is robustly applied for perceptible impulsivity.

On the basis of the above, Table 4.2 contains a BS 4142 assessment at the nearest NSRs for operations at the site.

Table 4.2 – BS 4142 Assessment

Results		Comment
Specific sound level	19 dB $L_{Aeq\ (1\ hour)}$	Worst-case level at NSRs
Acoustic feature correction	+3 dB	Loading may be impulsive
Rating level	22 dB $L_{Ar\ (1\ hour)}$	Rating level
Background sound level	50 dB $L_{A90\ (1\ hour)}$	Typical daytime background noise level
Excess of rating over background sound level	- 28 dB	Indication of low impact subject to context

The delivery rating levels are at least 28 dB below the existing background noise levels at the nearest receptors. In accordance with BS 4142, this is an indication of a low impact, subject to context.

In relation to context, the following should be noted:

- Noise rating levels of 22dB $L_{Ar\ (1\ hour)}$ are very low in absolute terms. For reference, the World Health Organisation (WHO) Guidelines for Community noise considers that few people are moderately annoyed where daytime external noise levels do not exceed 50 dB $L_{Aeq\ (0700–2300)}$

- Activities at the site are likely to be sporadic, with an anticipated maximum 10 no. deliveries/collections of skips per day. By virtue of the frequency and duration of events, use of the site is not likely to result in significant impacts at existing receptors

- The site is located on an existing industrial estate and is currently in use as a vehicle breakers yard; the proposals will therefore not change the acoustic character of the area

5 Summary and Conclusions

A noise survey and assessment has been performed in relation to a proposed skip hire and waste transfer unit at Unit 1, Netherfield Mills, Netherfield Road, Dewsbury.

Baseline noise monitoring was carried out on Tuesday 9th and Wednesday 10th January 2024 to determine prevailing ambient and background noise levels in the vicinity of the nearest receptors.

Rating levels associated with the development are at least 28 dB below existing background noise levels at the nearest NSRs. In accordance with BS 4142, this is an indication of a low impact, subject to context.

Mitigation measures, in the form of an acoustic barrier, have been recommended.

Appendix 1 – Abbreviations and Definitions

Sound Pressure Level (L_p)
The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$L_p = 20 \log_{10}(p/p_o)$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_o = reference sound pressure (20 μPa).

A-weighting
A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$
The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$
The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$
The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

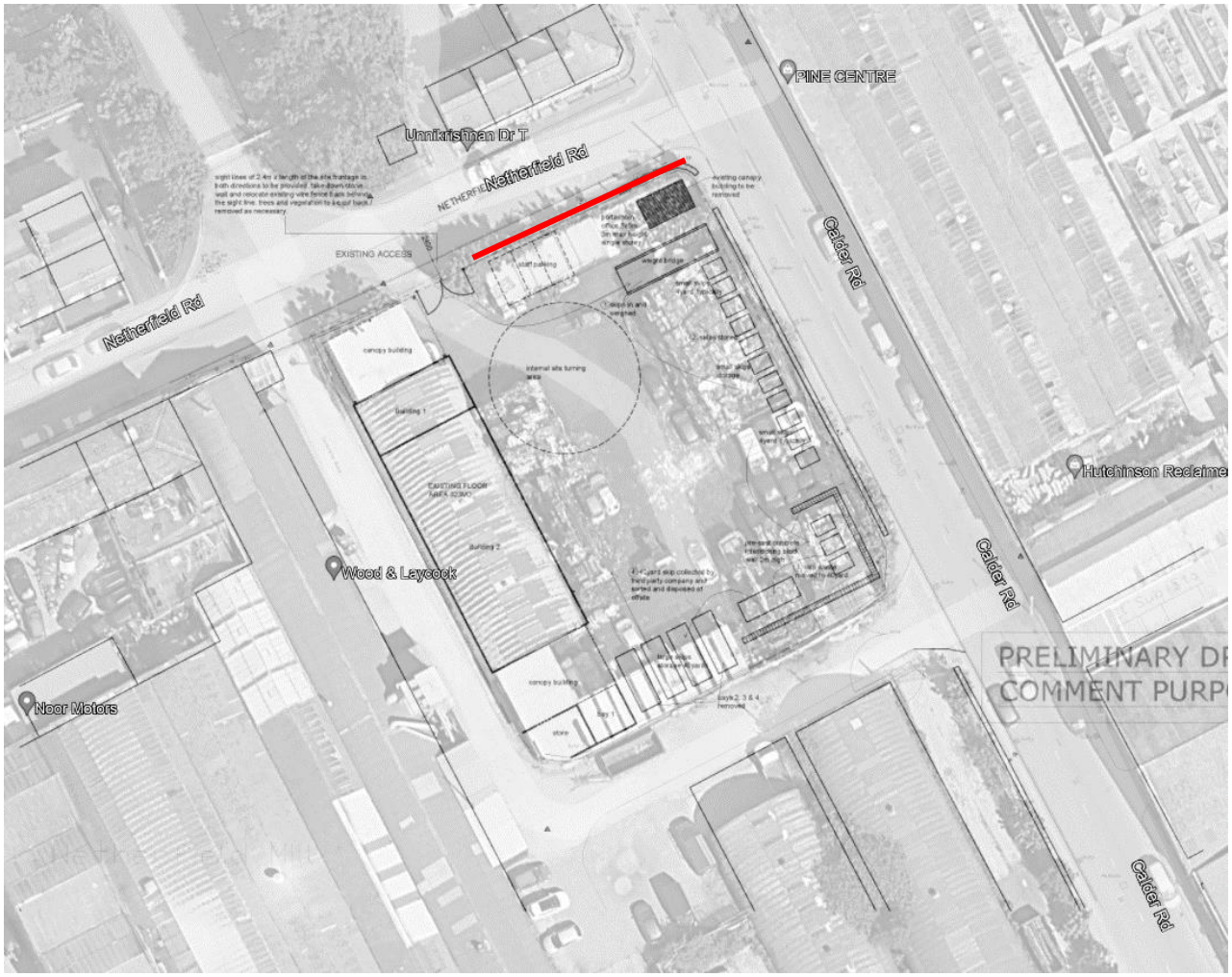
$L_{AF\ max}$
The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})
The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_W)
Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix 2 – Noise Measurement Position

Appendix 3 – Noise Mitigation Measures



= 2.4-metre-high close boarded timber fence

Appendix 4 – Baseline Noise Measurement Data

Location	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)
MP1	09/01/2024	1340–1355	63	51
		1355–1410	63	51
		1410–1425	60	50
		1425–1440	62	50
		1440–1455	64	51
		1455–1510	62	50
		1510–1525	65	50
		1525–1540	64	50
	10/01/2024	1530–1545	66	51
		1545–1600	64	53
		1600–1615	65	53
		1615–1630	65	53
		1630–1645	68	53
		1645–1700	65	52
		1700–1715	64	53
		1715–1730	65	49