

Our ref: NIA/9654/21/9697/v1/Northorpe Lane

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Dear Sir

**NOISE IMPACT ASSESSMENT FOR A PROPOSED RESIDENTIAL DEVELOPMENT
LAND TO THE EAST OF 28 NORTHORPE LANE, MIRFIELD, WF14 0QN**

1.00 INTRODUCTION

1.01 Environmental Noise Solutions Limited (ENS) has been commissioned by Newett Homes to carry out a noise impact assessment for a proposed residential development at land to the east of 28 Northorpe Lane, Mirfield, WF14 0QN (hereafter referred to as the application site).

1.02 For reference, Planning Application ref: 2019/60/92378/E for an outline residential development at the application site is currently pending with Kirklees Council, with officers recommending approval subject to conditions. Draft planning Condition 15 relates to the control of noise, as follows:

'Submission of a Noise report specifying measures to be taken to protect the future occupants of the development from noise from Humac Associates Supplies Ltd, Stoney Lane and Northorpe Working Mens Club, Eastfield Road.'

1.03 The objectives of the noise impact assessment were to:

- Determine external noise levels at the application site
- Assess the potential impact of the external noise climate (particularly neighbouring commercial uses) on the proposed residential development, with reference to relevant guidelines
- Provide recommendations for a scheme of sound attenuation works, as necessary, to protect future occupants of the proposed residential development from a loss of amenity due to noise

1.04 This report details the methodology and results of the assessment and provides recommendations for the building envelope (fenestration and ventilation). It has been prepared to accompany a full planning application to be submitted to Kirklees Council.

1.05 This report has been prepared for by Newett Homes for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should by Newett Homes and ENS as to the extent to which the findings may be appropriate for their use.

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

2.00 APPLICATION SITE SETTING AND PROPOSED RESIDENTIAL DEVELOPMENT

2.01 The application site is located between Mirfield and Ravensthorpe, and currently consists of open grassed land. Irregular in shape, the application site is bound by (see Appendix 2 for a site location plan):

- Existing residential dwellings and open agricultural land to the north
- A dismantled railway embankment to the east, with commercial uses beyond
- Existing residential dwellings to the west and south

2.02 Humac Associates Supplies Ltd. is set back at least 60 metres from the application site, and provides storage and distribution of janitorial supplies (note: B8 Use Class only with no manufacturing). The topography of the surrounding area is such that the land slopes up to form the circa 3-metre-high railway embankment, and then drops away by circa 6 metres at Humac Associates Supplies Ltd. As a consequence, the business is significantly screened from the application site by the embankment.

2.03 Following discussion with operators at the business, it is understood that the site rarely operates outside of 0800 to 1900 hours. It is noted that the operating hours are also restricted by Condition 3 of Planning Permission ref: 2014/62/94029/E, as follows:

'The use hereby permitted shall not be open outside the hours of 06:00 to 20:00 Monday to Friday and 08:00 to 13:00 Saturdays with no opening on Sundays or Bank Holidays.'

2.04 Northorpe Working Mens Club was not operating at the time of the survey due to Covid-19 restrictions. However, it is noted that the club is set back at least 70 metres from the application site and significantly screened by the aforementioned embankment, and that there are numerous existing residential dwellings in the immediate vicinity.

2.05 Development proposals are for 45 no. residential dwellings with associated landscaping and access roads (a site layout is shown in Appendix 3 for reference).

2.06 The noise environment at the application site was characterised by distant road traffic, birdsong, and vegetation noise, with no other significant noise sources.

3.00 BASELINE NOISE SURVEY

3.01 In order to establish the external noise levels at the application site, a noise survey was undertaken on Wednesday 17th March through to Thursday 18th March 2021.

3.02 The following noise monitoring positions were adopted (the approximate locations of the noise monitoring positions are shown in Appendix 2 for reference):

- MP1 was located along the eastern boundary of the application site
- MP2 was located along the western boundary of the application site

3.03 Noise measurements were made at 5 metres above ground level using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. A windshield was fitted for all measurements. The calibration of each measurement system was verified immediately before and after the survey using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the survey were appropriate for monitoring.

3.04 Measurements consisted of A-weighted broadband parameters, together with linear octave band L_{eq} levels. Table 3.1 presents a summary of the measurement data for each measurement session, at each measurement position, rounded to the nearest decibel.

Table 3.1 – Summary of Noise Measurement Data

Position	Date	Time	L _{Aeq} (dB)	L _{A90} (dB)	L _{A10} (dB)	Comment
MP1	17/03/21	1020–1158	48	38	52	Birdsong dominant (circa 42 dB L _{Aeq, T} between birdsong)
MP1	17/03/21	2247–2300	35	32	36	Distant road traffic and vegetation noise, maximum noise levels ≤ 47 dB L _{AFMax}
MP2	17/03/21	1205–1405	41	36	43	Distant road traffic, birdsong and vegetation noise, maximum noise levels ≤ 47 dB L _{AFMax} at night
MP2	17/03/21	2305–0004	35	33	37	
Daytime ambient noise levels ≤ 48 dB L _{Aeq, T} (and ≤ 42 dB L _{Aeq, T} in the absence of birdsong)						
Night time ambient noise levels ≤ 35 dB L _{Aeq, T} (maximum noise levels ≤ 52 dB L _{AFMax})						

- 3.05 In the absence of birdsong, daytime and night time ambient noise levels throughout the application site were ≤ **42 dB L_{Aeq, T}** and ≤ **35 dB L_{Aeq, T}** respectively. Maximum noise levels during the night time were ≤ **52 dB L_{AFMax}**. Such levels are considered to be very low.
- 3.06 As a consequence of the low levels of site activity at Humac Associates Supplies Ltd., and the significant distance and screening, noise from Humac Associates Supplies Ltd. was wholly inaudible at the application site.
- 3.07 Northorpe Working Mens Club was not operating at the time of the survey due to Covid-19 restrictions. However, it is noted that the club is set back at least 70 metres from the application site and significantly screened by the aforementioned embankment.
- 3.08 Assuming a conservative 10 dB screening attenuation afforded by the embankment, in order for noise from the club to exceed night time ambient noise levels at the application site, the noise level immediately outside the club would need to exceed **82 dB L_{Aeq, T}** [i.e. = 35 dB + (20 x log (70)) + 10 dB]. Such external levels are inconceivable, particularly as there are numerous existing residential dwellings in the immediate vicinity.
- 3.09 On the basis of the above, it is considered that noise from both Humac Associates Supplies Ltd. and Northorpe Working Mens Club is wholly negligible at the application site.

4.00 NATIONAL PLANNING POLICY FRAMEWORK AND OTHER RELEVANT GUIDANCE

National Planning Policy Framework

- 4.01 The National Planning Policy Framework (NPPF) was updated in 2019 and sets out the Government's planning policies for England and how these are expected to be applied.
- 4.02 Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 170 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'.

- 4.03 Paragraph 180 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'.

- 4.04 With regard to extant community noise sources and the potential to affect proposed new developments, Paragraph 182 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.'

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

Noise Policy Statement for England

- 4.06 The Noise Policy Statement for England (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.

- 4.07 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.

Planning Practice Guidance – Noise

- 4.08 Planning Practice Guidance (PPG) is an online resource (last updated 2019) which provides 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.

- 4.09 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'.

- 4.10 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

'Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed'.

ProPG Planning and Noise: New Residential Development

- 4.11 ProPG Planning and Noise: New Residential Development (ProPG) was published in 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.
- 4.12 Stage 2: Element 2 of ProPG sets indoor ambient noise levels for residential dwellings based on the guidance contained in British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233) (see table below).

Table 4.1 – Indoor Ambient Noise Levels in Dwellings

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB L_{Aeq} (0700–2300)	-
Dining	Dining Room/Area	40 dB L_{Aeq} (0700–2300)	-
Sleeping (daytime resting)	Bedroom	35 dB L_{Aeq} (0700–2300)	30 dB L_{Aeq} (2300–0700) 45 dB L_{AFMax} (2300–0700)

- 4.13 Note 4 to the above table states:

'A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night.'

- 4.14 Note 5 to the above table states:

'Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7'.

- 4.15 This is consistent with the guidance contained within the PPG, which states that:

'... consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations'.

- 4.16 On the basis of the above, the following criteria (with windows closed and an alternative means of ventilation provided) are considered appropriate for the proposed residential development and considered to represent good resting and sleeping conditions:

- ≤ 35 dB L_{Aeq} (0700-2300) during the daytime.
- ≤ 30 dB L_{Aeq} (2300-0700) and 45 dB L_{AFMax} not regularly exceeded during the night time.

- 4.17 With respect to external amenity, ProPG reflects the advice contained in BS 8233, as follows:

'For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.'

5.00 NOISE IMPACT ASSESSMENT

- 5.01 In the absence of birdsong, daytime and night time ambient noise levels throughout the application site were ≤ 42 dB $L_{Aeq, T}$ and ≤ 35 dB $L_{Aeq, T}$ respectively. Maximum noise levels during the night time were ≤ 52 dB L_{AFMax} .
- 5.02 Based on measurements taken at numerous sites, a typical standard double-glazed window with standard trickle vents provides circa 27 dB(A) sound insulation from external to internal.
- 5.03 For reference, the World Health Organisation (WHO) Guidelines for Community Noise (1999) states *"the noise reduction from outside to inside with the window partly open is 15 dB."*
- 5.04 The resultant internal noise levels are set out in the table below.

Table 5.1 – External Noise Levels and Noise Mitigation Measures

External Noise Level	Reduction	Resultant Internal Level	Comment
≤ 42 dB L_{Aeq} (daytime) ≤ 35 dB L_{Aeq} (night) ≤ 52 dB L_{AFMax} (night)	-27 dB (closed windows)	≤ 15 dB L_{Aeq} (daytime) ≤ 8 dB L_{Aeq} (night) ≤ 52 dB L_{AFMax} (night)	Very good internal noise levels with closed windows
	-15 dB (open windows)	≤ 27 dB L_{Aeq} (daytime) ≤ 20 dB L_{Aeq} (night) ≤ 52 dB L_{AFMax} (night)	Very good internal noise levels with open windows

- 5.05 On the basis of the above, standard double glazing (i.e. 4 mm glass / 12 mm cavity / 4 mm glass) and standard trickle vents are appropriate throughout the development.

6.00 CONCLUSIONS

- 6.01 A noise impact assessment has been undertaken for a proposed residential development at land to the east of 28 Northorpe Lane, Mirfield, WF14 0QN.
- 6.02 The noise environment at the application site was observed to be characterised by distant road traffic, birdsong, and vegetation noise, with no other significant noise sources.
- 6.03 Ambient noise levels throughout the application site are relatively low. As a consequence, standard double glazing and standard trickle vents are appropriate throughout the development.

I trust the foregoing is sufficient for your needs. Should you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

Thomas Crabb BSc (Hons)
 MIOA, Diploma in Acoustics & Noise Control
 For Environmental Noise Solutions Limited

cc File

Appendix 1

Glossary of Acoustic Terms

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:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μPa).

A-weighting Network

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.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. 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 – Site Location Plan and Approximate Noise Monitoring Positions



Appendix 3 – Site Layout Plan

