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**Residential New Build Development
Land to the south of Ferrand Lane,
Gomersal, West Yorkshire
Noise Impact Assessment**

For:

Quarters Gomersal Ltd

25 July 2023

Ref: NIA-10976-23-11156-v1.2 Gomersal

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1 Introduction

- 1.1.1 Environmental Noise Solutions Ltd. (ENS) has been commissioned by Quarters Gomersal Ltd. to undertake a noise impact assessment for a proposed residential development on land to the south of Ferrand Lane, Gomersal (hereafter referred to as the application site).
- 1.1.2 The objectives of the noise impact assessment were to:
- Determine the ambient noise climate at the application site,
 - Assess the potential impact of the ambient noise climate on the proposed residential development with reference to pertinent guidelines, and
 - Provide recommendations for a scheme of sound attenuation works, as necessary to ensure that future occupants of the proposed residential development do not experience a loss of amenity due to the ambient noise climate.
- 1.1.3 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 planning application to Kirklees Council for the proposed residential development of the application site.
- 1.1.4 This report has been prepared for Quarters Gomersal Ltd.. 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 consult Quarters Gomersal Ltd. (applicant) and ENS as to the extent to which the findings may be appropriate for their use.
- 1.1.5 A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2 Application Site Setting and Proposed Development

- 2.1.1 The application site is bound by:
- Ferrand Lane to the north (which comes to a dead end travelling west) with farmland opposite, the farm is surrounded by existing residential dwellings. The M62 motorway is located circa 900 metres beyond,
 - Existing dwellings to the east,
 - Existing dwellings to the south, fronting onto Cliffe Lane, and
 - An access road adjacent to the western boundary, giving access to both residential dwellings opposite and Throstle Nest Farm towards the north-western corner of the application site.
- 2.1.2 It was confirmed on site by the survey engineer, having had a conversation with an individual at Throstle Nest Farm that it operates as a farm, with additional (temporary) activity measured during the course of the survey due to construction works at the farm.
- 2.1.3 During the course of the noise survey, the ambient noise climate was associated with distant road traffic noise (albeit at relatively low levels). Vehicle movements on Ferrand Lane were extremely limited and were generally associated with occasional movements from Throstle Nest Farm. Noise from activity at Throstle Nest Farm was both occasional and relatively low in noise level (which is commensurate with the nature of business).
- 2.1.4 Planning permission for residential development is sought (circa 87 dwellings), with public open space located towards the centre of the application site. An annotated layout development plan is contained in Appendix B for reference.

3 Baseline Noise Survey

3.1.1 In order to establish the ambient noise levels at the application site, a baseline noise survey was undertaken during the daytime period on Monday 2nd November 2015.

3.1.2 For the purpose of the assessment the following noise monitoring positions were adopted (see Appendix B) in free field locations at 1.5 metres above ground level:

- MP1 northern boundary of the application site,
- MP2 northern end of the western boundary of the application site, and
- MP3 south-western corner of the application site.

3.1.3 Noise measurements were undertaken using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end, using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the survey were appropriate for monitoring. Measurements consisted of A-weighted broadband parameters, together with linear octave band L_{eq} levels.

3.1.4 The following table contains a summary of the measurement noise data, rounded to the nearest decibel.

Table 3.1 – Noise Measurement Data

Position	Date	Time	$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A1,T}$ (dB)	Comments
MP1	2/11/15	12:09 – 12:26	52	45	53	60	Distant road traffic Wildlife (63 dB L_{AFMax})
		13:54 – 14:09	53	46	58	66	Distant road traffic Farm vehicle pass (74 dB L_{AFMax})
MP2	2/11/15	12:54 – 13:24	53	46	56	62	Distant road traffic Occasional engine noise and fork lift truck Farm activity (66 dB L_{AFMax})
		14:15 – 14:35	49	44	52	58	Distant road traffic Farm activity slightly reduced in comparison to 12:54-13:24 (64 dB L_{AFMax})
MP3	2/11/15	13:44 – 13:50	53	46	55	57	Wildlife noise (60 dB L_{AFMax}) Distant road traffic
		14:39 – 14:57	54	45	56	63	Increased wildlife activity (66 dB L_{AFMax}) Aircraft and distant road traffic
Relatively Low Ambient Noise Climate Across The Application Site							

3.1.5 The ambient noise levels at the application site are relatively low and are considered commensurate with the setting.

4 Noise Impact Assessment

4.1.1 Kirklees Council’s Noise Design Advice Appendix 1 provides acceptable internal and garden noise levels generally in accordance with levels given in BS 8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’ (BS 8233). These levels are reproduced in Table 4.1 below.

Table 4.1 – Indoor Ambient Noise Levels in Dwellings

Room/Area	07:00 – 23:00	23:00 – 07:00	23:00 – 07:00	23:00 – 07:00
Living Rooms/Studies	35 dB L _{Aeq,16hour}	-	-	-
Gardens	55 dB L _{Aeq,16hour}	-	-	-
Bedrooms	-	30 dB L _{Aeq,8hour}	45 dB L _{A1,15min}	55 dB L _{AFMax}

4.1.2 The sound insulation provided by standard double glazed windows with standard trickle vents in a masonry façade is of the order of 27 dB(A); see Appendix 3 for a generic noise break-in calculation.

4.1.3 With noise levels at the site measured between 49 – 54 dB L_{Aeq,T} during the daytime period, the predicted internal ambient noise levels across the site will be of the region to 22 – 27 dB L_{Aeq,T} during this period. For reference, the remaining guidance set out in Kirklees Council’s Noise Design Advice Appendix 1 will be met across the site with standard double glazing and ventilation.

4.1.4 In accordance with Kirklees guidance, there is no issue with respect to garden amenity.

5 Updates Since Original Survey

5.1.1 The original survey for the site was conducted in November 2015 and the main body of this assessment is taken from the original report (NIA/6337/15/6195/v3) produced in November 2018.

5.1.2 A consultation response from Kirklees Council Environmental Health in relation to the previous planning application (ref: 2019/60/90902/E) stated:

“I have reviewed the ENS Noise Report reference: NIA/6337/15/6195/v3 dated 13/11/2018 and agree that no further mitigation measures are required other than standard building regulations in order to protect occupiers of the proposed development from noise.”

5.1.3 There are no material changes to the noise sources impacting on the development, and the development itself maintains similar stand-off distances from the existing noise sources.

5.1.4 A recent pre-application response (2023/20293/ March 2023) for a new application for the same site received the following comments from the Environmental Health team regarding noise.

“It is considered that existing noise in the area is unlikely to adversely affect the proposed development and that the proposed development is unlikely to cause noise that will adversely affect nearby noise sensitive receptors. Therefore, it is considered unlikely that noise will be an issue.”

5.1.5 Therefore; considering the previous assessment indicated the suitability of the site and there are no recent concerns regarding noise, it is assumed that the conclusions in the previous report remain valid.

6 Conclusions

- 6.1.1 A noise impact assessment has been undertaken for a proposed residential development (circa 87 dwellings) on land to the south of Ferrand Lane, Gomersal.
- 6.1.2 The ambient noise climate across the application site is associated with distant road traffic noise and is relatively low.
- 6.1.3 A scheme of sound insulation works been developed to protect the proposed residential development from the ambient noise climate in accordance with the requirements of Kirklees Council's Noise Design Advice. On this basis, the ambient noise climate is not considered to represent a constraint to the proposed residential development.
- 6.1.4 Nearby residential dwellings will potentially be subject to impact from construction noise associated with the development of the application site. Construction noise is however temporary in nature. Through a combination of good site practices, location of plant and scheduling/phasing of work, it is considered that the noise impact upon local residents due to construction noise can be reduced to a minimum.

Appendix A – 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 μ Pa 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 μ Pa).

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 B: Approximate Noise Monitoring Positions and Site Layout



Appendix C: BRE Building Envelope Insulation Model

BRE

Building Envelope Insulation

2) Select elements of facade structure, and enter corresponding internal surface area in m² **OR** enter number of vents.

Switch to
 Reverberation Time Calculation

	Surface area OR number of vents	m ²
Wall 1	Brick/block cavity	8
Wall 2	None	
Window 1	4/ 12/ 4 double glazing	2
Window 2	None	
Door	None	
Roof/ Ceiling	None	
Vent 1	Hit and miss trickle (4000mm ²)	2
Vent 2	None	

3) Enter reverberation time of the room.

seconds

4) Select exterior sound level type

Option (A) User defined spectrum

60 dB LAeq

▼

Option (B) Spectrum shape

Select spectrum shape and enter free field exterior sound level, L_{Aeq} (considering only the octave bands between 125Hz and 2kHz)

L_{Aeq}

60

dB

ISO 717 - 1 (C)

▼

Internal sound level

L_{Aeq} 33.3 dB

1) Enter room dimensions or volume

Use

x m

y m

z m

Volume m³

OR

Use volume

m³