



Environmental Appraisal Report

Woolfords Wind Farm - Tip Height Increase

Technical Appendix 8-1: Noise

Woolfords Wind Energy Ltd

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Version	Date	Reason
1.0	May 2026	Original Issue
2.0	June 2026	Final Issue



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Glossary and Abbreviations

Term	Definition
The Applicant	Woolfords Wind Energy Ltd
Environmental and Planning Consultant	Atmos Consulting Limited
The Proposed Development	Woolfords Wind Farm - Tip Height Increase
The Site	The site of the Proposed Development outlined in red. This is also the application boundary.
The Planning Act	The Town and Country Planning (Scotland) Act 1997 (as amended)
The Consented Development	Woolfords Wind Farm (Planning Reference: P/22/0031 & Date of Consent: 30 May 2025)
Proposed Development	Woolfords Wind Farm - Tip Height Increase
Site-specific noise limits	Noise limits that apply only to the Proposed Development
NGR	National Grid Reference
dB	A measure of sound level using a logarithmic scale.
dB LA90	The level of noise, in dB, exceeded for 90 percent of the specified time, usually used to define the A-weighted sound pressure level background level, but also used for wind turbine measurement and prediction.
dB LWA	The fundamental measure of sound power. Sound power is the total sound energy radiated by a source per unit time. The subscript 'A' refers to an A-weighted sound power level.

List of Abbreviations

Abbreviation	Expanded Term
C	Celsius
EA	Environmental Appraisal
CEMP	Construction Environmental Management Plan
GPG	A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Noise from Wind Turbines
IOA	Institute of Acoustics
km	Kilometre
dB	Decibel
m	metre
m/s	metre per second
MW	Megawatt

Executive Summary

Noise during the construction and decommissioning of the Proposed Development was scoped out of the assessment as likely effects remain unchanged from the Consented Development. Nevertheless, noise during the construction phase will be managed through the construction environmental management plan (CEMP), and noise during decommissioning will be controlled as required at the time.

Operational noise from the Proposed Development has been assessed by comparing predicted operational noise levels with relevant noise limits. In this case the relevant cumulative noise limits are specified within the planning conditions for the Consented Development.

Predicted cumulative operational noise levels have been compared with the relevant cumulative noise limits which have been shown to be met without any specific mitigation, and therefore operational noise effects are considered to be not significant in EIA terms.

Site-specific operational noise limits have been derived that take into account cumulative noise effects such that these site-specific noise limits can be applied via planning conditions to ensure that operational noise levels from the Proposed Development, in conjunction with noise from other wind turbine developments, remain acceptable throughout the lifespan of the wind farm.

8. Noise

8.1 Introduction

This Technical Appendix of the Environmental Appraisal (EA) Report assess the potential noise impact of the construction, operation and decommissioning of the Proposed Development.

The assessment has been carried out by Rob Shepherd, MEng, MIOA, Director at Hayes McKenzie Partnership Ltd, who has over 20 years of experience as an acoustic consultant specialising in noise from wind turbines. Rob holds a master's degree in acoustical engineering from the Institute of Sound and Vibration Research at Southampton University and is a member of the Institute of Acoustics. The Hayes McKenzie Partnership Ltd have been providing acoustic consultancy since 1991 and have carried out work on well over 1000 wind turbine developments.

This chapter is supported by the following figures and annexes:

- **Annexes**
 - Appendix A: Cumulative wind farm noise modelling assumptions
- **Figures**
 - Figure 8-1: Noise contour plot
 - Figure 8-2: Cumulative noise contour plot

Figures and annexures are referenced in the text where relevant.

8.2 Consultation

Table 8-1 summarises the consultation responses received regarding noise and provides information on where and/or how they have been addressed in this assessment.

Table 8-1: Summary of Consultation

Consultee and Date	Consultation Response	Applicant Response
South Lanarkshire Council Screening Opinion March 2026	It was noted that the proposal did not constitute EIA development, but it was requested that an environmental assessment is carried out that includes noise.	This technical appendix presented the findings of the noise assessment.
South Lanarkshire Council Screening Opinion Checklist March 2026	When considering whether the development will cause noise or vibration, it was considered that there would be the potential for noise, and that the noise impact on sensitive receptors would need to be assessed.	Vibration during all phases of the development has been scoped out. This noise assessment presents the effects on noise-sensitive receptors

8.3 Legislation, planning policy and guidance

The operational noise impact assessment has been carried out in line with the Institute of Acoustics (IOA) good practice guide; A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Noise from Wind Turbines [GPG]. Predicted operational noise levels have been compared with the noise limits set out in the planning conditions for the Consented Development, as well as site-specific noise limits that apply to the Proposed Development only.

8.4 Assessment Methodology

The planning conditions for the Consented Development contain operational noise limits at Condition 10 which sets cumulative noise limits and refers to cumulative predicted noise levels presented in the Consented Development EA Report; Technical Appendix 8-1: Noise Appraisal. That document

contains site-specific noise limits that took into account the existing consented wind turbine developments by logarithmically subtracting the cumulative predicted noise levels from the relevant cumulative noise limits.

The cumulative noise assessment has been updated here as the adjacent Heathland wind farm is now consented as a 14-turbine development rather than the 17-turbine layout assessed in 2021.

The significance of the noise effects have been determined by comparing predicted cumulative operational noise levels with the relevant cumulative noise limits referenced in the planning conditions for the consented development. Where the cumulative noise limits are met the noise impact is considered to be not significant.

In addition to the cumulative noise assessment site-specific noise limits have been derived for the Proposed Development that should be applied via the planning conditions if consented.

The relevant cumulative noise limits, taken from the report referenced in the planning conditions, for noise sensitive receptors scoped into the assessment are shown at Table 8-2 and

Table 8-3 below.

Table 8-2: Cumulative night noise limits (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	43	43	43	43	43	43	44	47	50	52
Burnfoot Poultry Farm Dwellings	43	43	43	43	43	43	46	50	53	55
Easter Mosshat	43	43	43	43	43	43	44	47	50	52
Mountainblaw Farm	43	43	43	43	43	43	46	50	53	55
Wester Mosshat	43	43	43	43	43	43	44	47	50	52
Woolfords Cottages	43	43	43	43	43	43	43	43	43	43
Woolfords Farm	43	43	43	43	43	43	44	47	50	52

Table 8-3: Cumulative day noise limits (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	40	40	40	40	40	44	48	51	53	53
Burnfoot Poultry Farm Dwellings	40	40	40	40	40	44	47	50	53	54
Easter Mosshat	40	40	40	40	40	44	48	51	53	53
Mountainblaw Farm	40	40	40	40	40	44	47	50	53	54
Wester Mosshat	40	40	40	40	40	44	48	51	53	53
Woolfords Cottages	40	40	40	40	42	42	43	43	43	43
Woolfords Farm	40	40	40	40	40	44	48	51	53	53

Study Area

The minimum cumulative noise limit applied to the Consented Development is 40 dB LA90, and therefore noise-sensitive receptors have been scoped in if the predicted operational noise levels from the Proposed Development alone are above 30dB LA90. This is on the basis that if the predicted operational noise levels are 10dB or more below the relevant noise limits their operational noise from the Proposed Development is considered to be not significant irrespective of the cumulative operational noise levels.

The noise sensitive receptors scoped into the assessment are shown at Table 8-4 below.

Table 8-4: Scoped in noise sensitive receptors

Location Name	Grid reference (National Grid) Easting
Burnfoot	NGR 298720 655255
Burnfoot Poultry Farm Dwellings	NGR 297840 655352
Easter Mosshat	NGR 299831 656023
Mountainblaw Farm	NGR 297477 656017
Wester Mosshat	NGR 299669 655628
Woolfords Cottages	NGR 300400 657200
Woolfords Farm	NGR 300432 656576

The same rationale has been applied to the cumulative operational noise impact assessment whereby other wind farm developments have been scoped into the cumulative operational noise assessment where their maximum predicted operational noise levels are above 30dB LA90 at scoped in noise-sensitive receptors.

Noise from construction effects have been scoped out of this assessment as they remain largely unchanged from those associated with the Consented Development. Noise will be controlled during the construction phase of the development via the Construction Environmental Management Plan (CEMP).

Desk Study

The desk study has been carried out with reference to the following guidance and documents:

- Planning conditions for the Consented Development (South Lanarkshire planning ref. P/22/0031 dated 30 May 2025);
- Woolfords Wind Farm, Technical Appendix 8-1: Noise Appraisal of December 2021 (referenced in the planning conditions);
- ETSU-R-97, The Assessment and Rating of Noise from Wind Farms;
- Institute of Acoustics, A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise; and
- Heathland Wind Farm Environmental Impact Assessment Report, January 2021.

Site Visit

No site visits have been undertaken as the relevant noise limits specified in the planning conditions for the Consented Development were set relevant to existing baseline noise levels which are still relevant for this assessment.

Assessment of Potential Effect Significance

The method for assessing the significance of the Proposed Development is set out in Table 8-5 below. All noise-sensitive receptors are treated equally in terms of the sensitivity of the receptor although different noise limits apply at different noise-sensitive receptors depending on baseline background noise levels.

Table 8-5: Method for assessing significance at noise-sensitive receptors

Criteria	Significance
Predicted operational noise levels from Proposed Development below 30 dB LA90	Not significant and no further assessment required
Predicted operational noise levels from the Proposed Development between 30 and 40 dB LA90	Not significant in isolation but cumulative effects require evaluation

Predicted operational noise levels from Proposed Development above 40 dB LA90	Potentially significant depending on cumulative predicted noise levels and cumulative noise limits
Predicted cumulative operational noise levels meet the cumulative noise limits set out in the planning conditions for the Consented Development	Not significant
Predicted cumulative operational noise levels above the cumulative noise limits set out in the planning conditions for the Consented Development	Significant impact requiring mitigation

Requirement for Mitigation

Where predicted operational noise levels are above the relevant noise limits, mitigation is required to enable the limits to be met. In general terms, noise will be controlled during the lifespan of the operational wind farm by noise limits imposed via planning conditions. If these limits are exceeded, then it would be possible to mitigate the noise output of the turbines (at the expense of electrical energy generation) to enable the limits to be met.

Assessment of Residual Effect Significance

Where the relevant noise limits are met, whether requiring mitigation to be achieved or not, then the residual noise effects will be considered to be not significant.

Cumulative Assessment

The chapter also assesses cumulative effects as arising from the addition of the Proposed Development to other cumulative developments, which are operational, under construction, consented developments, or the subject of a valid planning application.

Wind farms scoped into the cumulative noise assessment are those where predicted operational noise levels are above 30dB LA90 at noise-sensitive receptors scoped into the assessment.

Limitations to Assessment

The operational noise modelling is based on assumed wind turbine sound power level data. However reasonable allowances for uncertainty are included within the noise modelling to ensure that a conservative assessment is presented.

8.5 Baseline Conditions

The noise limits applied to the Consented Development took into account baseline background noise levels which do not include noise from other wind turbine developments. This ensures that a conservative assessment can be carried out whereby cumulative noise effects are compared with noise limits that do not include any contribution from wind turbines.

Current Baseline

The current baseline at noise-sensitive receptors in the vicinity of the Proposed Development is characterised by typical background noise sounds such as wind in the trees and vegetation, farming sounds, birdsong, vehicles on the road network. In addition, the nearest noise-sensitive receptors would be expected to be exposed to a certain degree of operational wind turbine noise as they are in the vicinity of consented and operational wind turbine developments.

This is unchanged from the baseline described in the Consented Development EA Report Technical Appendix.

Future Baseline

In the event that the Proposed Development (and the Consented Development) does not go ahead, the existing baseline background noise environment would remain largely unchanged, noting that there are existing consented and operational wind turbine developments that will be audible in the vicinity.

8.6 Embedded Mitigation

No specific embedded mitigation has been considered in relation to noise other than the selection of appropriate turbine locations and development scale applied. Predicted operational noise levels are based on a candidate wind turbine that fits the dimensions of the Proposed Development.

8.7 Assessment of Effects

This section summarises the predicted effects of noise from the Proposed Development on noise-sensitive receptors.

Construction

Construction noise has been scoped out of this assessment as the construction noise effects predicted for the Consented Development remain valid and were considered to be not significant.

Operation

Predicted operational noise levels for the Proposed Development have been carried out for a candidate turbine that fits the dimension of the scheme and using the same methodology as used for the Consented Development.

A summary of the noise modelling assumptions are provided below:

- Modelling carried out in line with the IOA GPG, based on ISO 9613-2 (1996);
- Receiver height 4m, Ground factor $G=0.5$, temperature of 10°C and 70% humidity;
- Topography included (including 2dB reduction for barriers and 3dB increase for concave ground profiles within 2km of a turbine); and
- L_{Aeq} converted to L_{A90} by subtracting 2dB

The source sound power level of the candidate turbine model is set out at Table 8-6 below which includes plus 2dB on the manufacturers' specified sound power levels to account for uncertainty. The candidate turbine assumed is an Enercon E-175 EP5 7.0 MW machine operating in Mode OM-O with a hub height of 112m, and the hub height sound power level data has been converted to be referenced to equivalent standardised 10m height wind speeds.

Table 8-6: Candidate turbine sound power levels (dB L_{WA})

Octave band centre frequency (Hz)	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
63	76.6	80.2	86.0	89.8	90.9	91.7	92.4	92.8	92.9	92.9
125	83.9	85.9	90.9	94.7	95.3	95.6	96.0	96.1	96.1	96.1
250	88.9	91.2	95.4	99.6	99.7	99.6	100.1	99.8	99.8	99.8
500	90.2	93.7	98.7	102.8	102.8	102.7	102.1	101.8	101.6	101.6
1000	90.4	94.0	99.4	103.5	103.6	103.4	103.3	103.3	103.2	103.2
2000	88.8	92.4	97.8	102.0	102.3	102.4	102.6	103.0	103.1	103.1
4000	86.7	88.1	91.6	95.2	96.2	96.4	96.7	97.0	97.1	97.1

8000	69.2	71.2	75.4	80.3	86.5	87.0	87.2	87.2	87.2	87.2
Overall	96.5	99.6	104.6	108.7	108.9	108.9	108.9	108.9	108.9	108.9

The results of the operational noise modelling for the Proposed Development are shown at Table 8-7 below for the noise-sensitive receptors scoped into the assessment. The results are also shown graphically at Figure 8-1 for a standardised 10m height wind speed of 8m/s.

Table 8-7: Proposed Development predicted noise levels (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	18.7	21.8	26.7	30.8	31.0	31.0	30.9	30.8	30.8	30.8
Burnfoot Poultry Farm Dwellings	17.7	20.7	25.7	29.7	29.9	29.9	29.9	29.8	29.7	29.7
Easter Mosshat	21.0	24.0	29.0	33.1	33.2	33.3	33.2	33.1	33.0	33.0
Mountainblaw Farm	19.4	22.4	27.4	31.5	31.6	31.7	31.6	31.5	31.4	31.4
Wester Mosshat	19.5	22.5	27.5	31.6	31.7	31.8	31.7	31.6	31.6	31.6
Woolfords Cottages	20.8	23.8	28.8	32.9	33.0	33.1	33.0	32.9	32.8	32.8
Woolfords Farm	19.5	22.5	27.5	31.6	31.7	31.7	31.7	31.6	31.5	31.5

The result of the operational noise predictions for the Proposed Development acting in isolation show the predicted operational noise levels are significantly below the relevant cumulative noise limits applicable to the Consented Development. Where predicted operational noise levels are above 30dB LA90 the overall significance depends on cumulative operational noise levels which are evaluated below.

Predicted operational noise levels at all other noise-sensitive receptors are below 30 dB LA90 such that predicted operational noise effects are not significant (irrespective of existing baseline noise levels or cumulative operational noise levels).

Decommissioning

Levels of noise arising from the decommissioning of the Proposed Development will be similar or lower than the levels arising during the construction phase. Therefore, noise during the decommissioning phase of the development have been scoped out of the assessment and are considered to be not significant.

Cumulative

Cumulative operational noise effects have been assessed by comparing predicted cumulative operational noise levels with the relevant cumulative noise limits referred to in the planning conditions for the Consented Development as set out at Table 8-2 and

Table 8-3 above.

The wind turbine developments were considered for inclusion within the cumulative assessment are shown at Table 8-8 below, showing the wind farm developments that were scoped in.

Table 8-8: Wind farms scoped into cumulative assessment

Wind Farm	Predicted > 30 dB L _{A90}	Scoped in
Heathland Resubmission	Yes	Yes
Pates Hill	Yes	Yes
Harburnhead	No	No

Longhill Burn	No	No
Muirhall	No	No
Muirhall Extension	No	No
Muirhall South	No	No
Tormywheel	No	No

Cumulative operational noise modelling has been carried out including scoped in wind farms in addition to the Proposed Development. The sound power levels and turbine location details are provided in Appendix A.

The results of the cumulative noise modelling are shown at Table 8-9 below, and also presented at cumulative noise contour plot at Figure 8-2.

Table 8-9: Predicted cumulative noise levels (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	27.0	27.6	30.8	33.9	34.2	34.6	34.5	34.5	34.4	34.4
Burnfoot Poultry Farm Dwellings	27.4	27.8	31.2	34.3	34.8	35.1	35.1	35.1	35.1	35.1
Easter Mosshat	29.6	30.2	32.6	35.4	35.7	36.0	35.9	35.9	35.8	35.8
Mountainblaw Farm	30.3	30.6	34.4	37.6	38.1	38.5	38.5	38.4	38.4	38.4
Wester Mosshat	28.2	28.7	31.3	34.2	34.5	34.8	34.7	34.6	34.6	34.6
Woolfords Cottages	34.2	34.4	35.5	37.1	37.4	37.7	37.6	37.6	37.6	37.6
Woolfords Farm	30.9	31.2	32.7	34.9	35.2	35.5	35.4	35.4	35.3	35.3

The results of the cumulative operational noise predations show that predicted operational noise levels are below the minimum cumulative noise limit of 40dB LA90 and therefore cumulative operational noise effects can be considered to be not significant. Nevertheless, the predicted cumulative operational noise levels have been compared with the relevant cumulative noise limits presented at Table 8-2 and

Table 8-3 above at Table 8-10 and Table 8-11 below.

Table 8-10: Margin between cumulative noise levels and night limits (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	16.0	15.4	12.2	9.1	8.8	8.4	9.5	12.5	15.6	17.6
Burnfoot Poultry Farm Dwellings	15.6	15.2	11.8	8.7	8.2	7.9	10.9	14.9	17.9	19.9
Easter Mosshat	13.4	12.8	10.4	7.6	7.3	7.0	8.1	11.1	14.2	16.2
Mountainblaw Farm	12.7	12.4	8.6	5.4	4.9	4.5	7.5	11.6	14.6	16.6
Wester Mosshat	14.8	14.3	11.7	8.8	8.5	8.2	9.3	12.4	15.4	17.4
Woolfords Cottages	8.8	8.6	7.5	5.9	5.6	5.3	5.4	5.4	5.4	5.4
Woolfords Farm	12.1	11.8	10.3	8.1	7.8	7.5	8.6	11.6	14.7	16.7

Table 8-11: Margin between cumulative noise levels and day limits (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	13.0	12.4	9.2	6.1	5.8	9.4	13.5	16.5	18.6	18.6
Burnfoot Poultry Farm Dwellings	12.6	12.2	8.8	5.7	5.2	8.9	11.9	14.9	17.9	18.9
Easter Mosshat	10.4	9.8	7.4	4.6	4.3	8.0	12.1	15.1	17.2	17.2
Mountainblaw Farm	9.7	9.4	5.6	2.4	1.9	5.5	8.5	11.6	14.6	15.6

Wester Mosshat	11.8	11.3	8.7	5.8	5.5	9.2	13.3	16.4	18.4	18.4
Woolfords Cottages	5.8	5.6	4.5	2.9	4.6	4.3	5.4	5.4	5.4	5.4
Woolfords Farm	9.1	8.8	7.3	5.1	4.8	8.5	12.6	15.6	17.7	17.7

The results of the cumulative operational noise assessment show that predicted operational noise levels are below the relevant cumulative noise limits, and therefore cumulative noise effects are considered to be not significant.

8.8 Mitigation

No specific mitigation is required as there are no significant effects as a result of the construction and operation of the Proposed Development. Nevertheless, the standard mitigation applied during the construction and operation of the Proposed Development is discussed below.

Mitigation during Construction

Noise during the construction phase of the development will be mitigated through the CEMP which will consider noise effects on noise-sensitive receptors. No specific requirements for mitigation have been identified but the CEMP will set out construction working hours, methods to minimise noise impacts, and provide site contact details to be used in the event of concerns about construction noise.

Mitigation during Operation

No specific mitigation requirements have been identified as the relevant cumulative noise limits are predicted to be met. Nevertheless, operational noise will be controlled during the operational phase of the development through noise limits applied to the consent. As the noise limits should apply only to the Proposed Development, site-specific noise limits have been derived for the noise-sensitive receptors scoped into the assessment.

Site-specific noise limits have been derived in the same way as presented in the technical note referenced in the planning conditions for the Consented Development. They have been calculated by logarithmically subtracting the predicted cumulative operational noise level (excluding the proposed development but with an additional 2dB added) from the relevant cumulative operational noise limits.

The predicted cumulative operational noise levels excluding the proposed development but with an additional 2dB added are shown at Table 8-12 below.

Table 8-12: Predicted noise levels from other wind farms with 2 dB added (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	28.3	28.3	30.6	32.9	33.5	34.0	34.0	34.0	34.0	34.0
Burnfoot Poultry Farm Dwellings	28.9	28.9	31.8	34.5	35.1	35.6	35.6	35.6	35.6	35.6
Easter Mosshat	31.0	31.0	32.2	33.6	34.1	34.7	34.6	34.6	34.6	34.6
Mountainblaw Farm	31.9	31.9	35.4	38.4	38.9	39.5	39.5	39.5	39.5	39.5
Wester Mosshat	29.5	29.5	31.0	32.6	33.2	33.7	33.6	33.6	33.6	33.6
Woolfords Cottages	36.0	36.0	36.4	36.9	37.4	37.9	37.8	37.8	37.8	37.8
Woolfords Farm	32.5	32.5	33.2	34.1	34.6	35.1	35.0	35.0	35.0	35.0

The resultant derived site-specific night and daytime noise limits are shown at Table 8-13 and Table 8-14 below.

Table 8-13: Site-specific night noise limits (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	42.9	42.9	42.7	42.6	42.5	42.4	43.5	46.8	49.9	51.9
Burnfoot Poultry Farm Dwellings	42.8	42.8	42.7	42.3	42.2	42.1	45.6	49.8	52.9	54.9
Easter Mosshat	42.7	42.7	42.6	42.5	42.4	42.3	43.5	46.7	49.9	51.9
Mountainblaw Farm	42.6	42.6	42.2	41.2	40.9	40.4	44.9	49.6	52.8	54.9
Wester Mosshat	42.8	42.8	42.7	42.6	42.5	42.5	43.6	46.8	49.9	51.9
Woolfords Cottages	42.0	42.0	41.9	41.8	41.6	41.4	41.4	41.4	41.4	41.4
Woolfords Farm	42.6	42.6	42.5	42.4	42.3	42.2	43.4	46.7	49.9	51.9

Table 8-14: Site-specific day noise limits (dB L_{A90})

Location Name	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Burnfoot	39.7	39.7	39.5	39.1	38.9	43.5	47.8	50.9	52.9	52.9
Burnfoot Poultry Farm Dwellings	39.6	39.6	39.3	38.6	38.3	43.3	46.7	49.8	52.9	53.9
Easter Mosshat	39.4	39.4	39.2	38.9	38.7	43.5	47.8	50.9	52.9	52.9
Mountainblaw Farm	39.3	39.3	38.2	34.9	33.5	42.1	46.1	49.6	52.8	53.8
Wester Mosshat	39.6	39.6	39.4	39.1	39.0	43.6	47.8	50.9	52.9	52.9
Woolfords Cottages	37.8	37.8	37.5	37.1	40.2	39.9	41.4	41.4	41.4	41.4
Woolfords Farm	39.1	39.1	39.0	38.7	38.5	43.4	47.8	50.9	52.9	52.9

It can be seen through comparison with the predicted operational noise levels for the Proposed Development presented at Table 8-7 above, that these site-specific noise limits are met.

If the above site-specific noise limits are applied via the planning conditions for the Proposed Development, it can be ensured that operational noise levels, including an allowance for cumulative noise, will remain acceptable during the operational lifespan of the development in line with national guidance.

Mitigation during Decommissioning

No specific requirement for mitigation during the decommissioning of the development have been identified. Decommissioning noise effects will be evaluated and mitigated in line with the requirements at the time of decommissioning.

8.9 Residual Effects and Conclusion

This section summarises the residual effects during the construction, operation and decommissioning of the Proposed Development.

Construction

Residual construction noise effects are considered to be not significant.

Operation

Residual operational noise effects are considered to be not significant, and site specific noise limits have been presented that should be included in planning conditions attached to the consent for the Proposed Development.

Decommissioning

Residual decommissioning noise effects are considered to be not significant.

Cumulative Assessment

No significant cumulative construction and decommissioning effects are anticipated.

Cumulative operational noise effects have been evaluated and as the relevant cumulative noise limits are met, and therefore cumulative effects are considered to be not significant.

8.10 Reference

Atmos Consulting. (2021). Environmental Appraisal, Technical Appendix 8-1, Woolfords Wind Farm, Noise Appraisal

EDF-R & Arcus Consultancy Services Ltd. (2021). Heathland Wind Farm Environmental Impact Assessment Report

ENERCON Global GmbH. (2025). Technical data sheet, One-third octave band levels, operating mode OM-0-0, ENERCON E-175 EP5 E2 / 7000 kW wind energy converter

ETSU for the DTI. (1996). ETSU-R-97, The Assessment and Rating of Noise from Wind Farms

Institute of Acoustics. (2013). A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise

International Organization for Standardization. (1996). ISO 9613-2, Acoustics - Attenuation of sound during propagation outdoors, Part 2: General method of calculation

South Lanarkshire Council. (2025). Issue of decision – compliance with conditions, Erection of 3 No. wind turbines with a maximum tip height of 180 metres and associated infrastructure (Planning ref. P/22/0031)

Appendix A. Cumulative wind farm noise modelling assumptions

This annexure sets out the assumptions for the cumulative noise modelling, including the assumed turbine coordinates and sounds power levels.

The grid coordinates for the wind turbines included in the cumulative assessment are presented at Table 8-15 below. The turbine combination and sound power level data used for the Heathland Resubmission wind turbine has been taken from the Heathland Wind Farm EIA Report, Chapter 13, Noise, dated January 2021.

Table 8-15: Scoped in wind turbine coordinates for cumulative assessment

Wind Farm Name	ID	Grid reference (National Grid) Easting	Hub height	Turbine model
PatesHill	PH1	NGR 300104 658978	67	Vestas V80
PatesHill	PH2	NGR 299723 658949	67	Vestas V80
PatesHill	PH3	NGR 299329 658733	67	Vestas V80
PatesHill	PH4	NGR 299109 658280	67	Vestas V80
PatesHill	PH5	NGR 299475 658251	67	Vestas V80
PatesHill	PH6	NGR 299865 658444	67	Vestas V80
PatesHill	PH7	NGR 300256 658637	67	Vestas V80
Heathland Resubmission	HI1	NGR 295292 657001	83.5	Nordex N133
Heathland Resubmission	HI2	NGR 295710 656644	83.5	Nordex N133
Heathland Resubmission	HI3	NGR 296033 657230	83.5	Nordex N133
Heathland Resubmission	HI4	NGR 296425 656680	83.5	Nordex N133
Heathland Resubmission	HI5	NGR 296725 657260	101	Vestas V150
Heathland Resubmission	HI6	NGR 296554 657665	101	Vestas V150
Heathland Resubmission	HI7	NGR 296500 658108	101	Vestas V150
Heathland Resubmission	HI8	NGR 296453 658537	101	Vestas V150
Heathland Resubmission	HI9	NGR 297116 658744	101	Vestas V150
Heathland Resubmission	HI10	NGR 297194 658322	101	Vestas V150
Heathland Resubmission	HI11	NGR 297211 657846	101	Vestas V150
Heathland Resubmission	HI12	NGR 297500 657506	101	Vestas V150
Heathland Resubmission	HI13	NGR 298204 657675	101	Vestas V150
Heathland Resubmission	HI14	NGR 298084 657153	101	Vestas V150

The sound power levels for each of the turbines included in the cumulative operational noise model are shown at Table 8-16 to Table 8-18 below. The sound power levels include an allowance for uncertainty as recommended by the IOA GPG. It should be noted that for the Vestas V80, the sound power level at 6m/s has been applied at lower wind speeds as a conservative approach where data was not available.

Table 8-16: Vestas V80, 67 m hub, sound power levels (dB L_{WA})

Octave band centre frequency (Hz)	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
63	83.4	83.4	83.4	83.4	83.8	84.3	84.1	84.1	84.1	84.1
125	91.6	91.6	91.6	91.6	92.0	92.5	92.3	92.3	92.3	92.3
250	98.1	98.1	98.1	98.1	98.5	99.0	98.8	98.8	98.8	98.8
500	100.3	100.3	100.3	100.3	100.7	101.2	101.0	101.0	101.0	101.0
1000	99.0	99.0	99.0	99.0	99.4	99.9	99.7	99.7	99.7	99.7
2000	97.5	97.5	97.5	97.5	97.9	98.4	98.2	98.2	98.2	98.2
4000	97.8	97.8	97.8	97.8	98.2	98.7	98.5	98.5	98.5	98.5
8000	75.5	75.5	75.5	75.5	75.9	76.4	76.2	76.2	76.2	76.2
Overall	105.9	105.9	105.9	105.9	106.3	106.8	106.6	106.6	106.6	106.6

Table 8-17: Nordex N133, 83.5 m hub, sound power levels (dB L_{WA})

Octave band centre frequency (Hz)	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
63	79.1	79.1	84.6	88.8	89.4	89.4	89.4	89.4	89.4	89.4
125	84.8	84.8	90.3	94.5	95.1	95.1	95.1	95.1	95.1	95.1
250	87.1	87.1	92.6	96.8	97.4	97.4	97.4	97.4	97.4	97.4
500	87.9	87.9	93.4	97.6	98.2	98.2	98.2	98.2	98.2	98.2
1000	89.7	89.7	95.2	99.4	100.0	100.0	100.0	100.0	100.0	100.0
2000	90.2	90.2	95.7	99.9	100.5	100.5	100.5	100.5	100.5	100.5
4000	87.9	87.9	93.4	97.6	98.2	98.2	98.2	98.2	98.2	98.2
8000	77.3	77.3	82.8	87.0	87.6	87.6	87.6	87.6	87.6	87.6
Overall	96.2	96.2	101.7	105.9	106.5	106.5	106.5	106.5	106.5	106.5

Table 8-18: Vestas V150, 101 m hub, turbine sound power levels (dB L_{WA})

Octave band centre frequency (Hz)	Standardised 10 m height wind speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
63	78.3	78.3	82.6	85.6	86.2	86.9	86.9	86.9	86.9	86.9
125	86.4	86.4	90.7	93.7	94.3	95.0	95.0	95.0	95.0	95.0
250	91.6	91.6	95.9	98.9	99.5	100.2	100.2	100.2	100.2	100.2
500	93.6	93.6	97.9	100.9	101.5	102.2	102.2	102.2	102.2	102.2
1000	92.4	92.4	96.7	99.7	100.3	101.0	101.0	101.0	101.0	101.0
2000	88.2	88.2	92.5	95.5	96.1	96.8	96.8	96.8	96.8	96.8
4000	81.0	81.0	85.3	88.3	88.9	89.6	89.6	89.6	89.6	89.6
8000	70.5	70.5	74.8	77.8	78.4	79.1	79.1	79.1	79.1	79.1
Overall	98.3	98.3	102.6	105.6	106.2	106.9	106.9	106.9	106.9	106.9