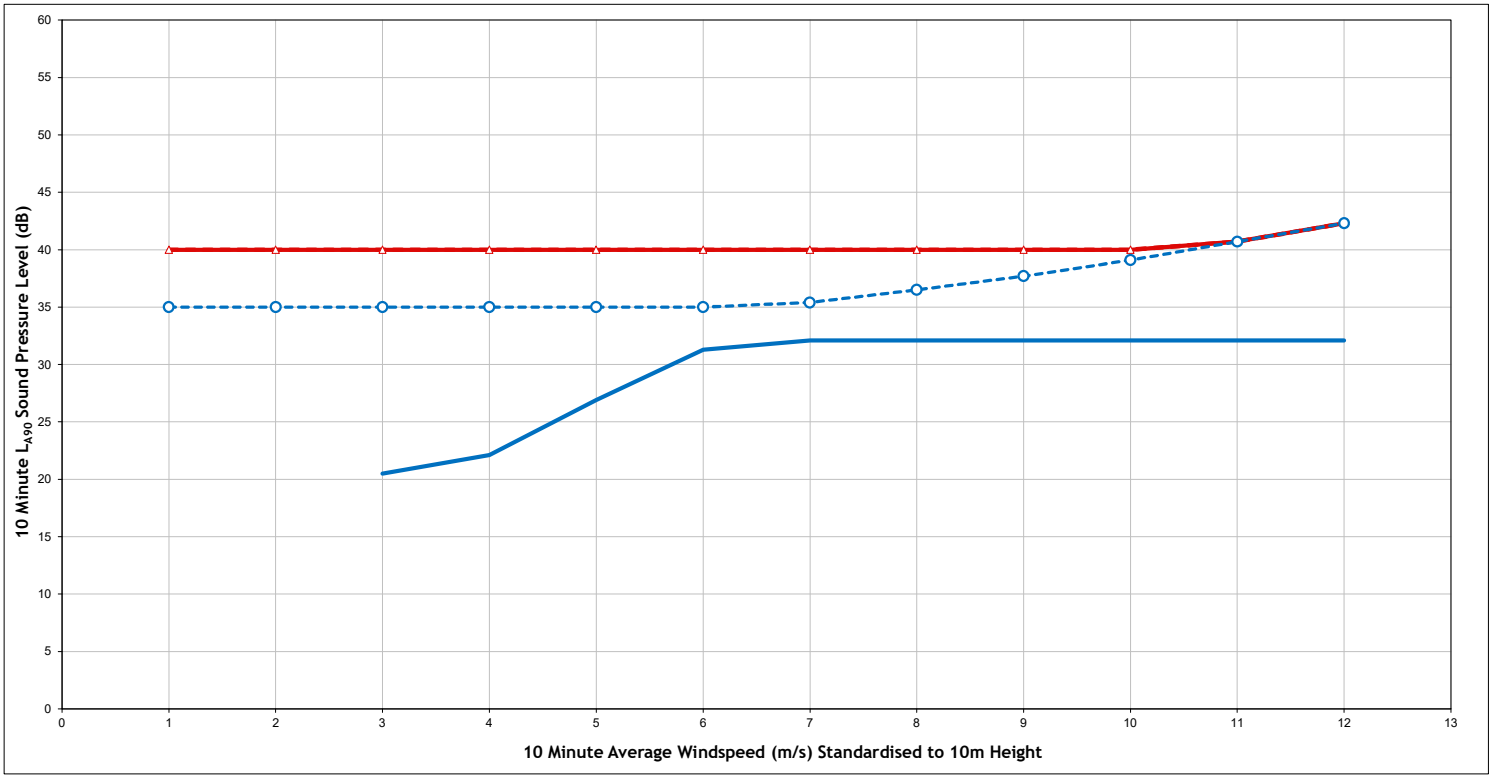
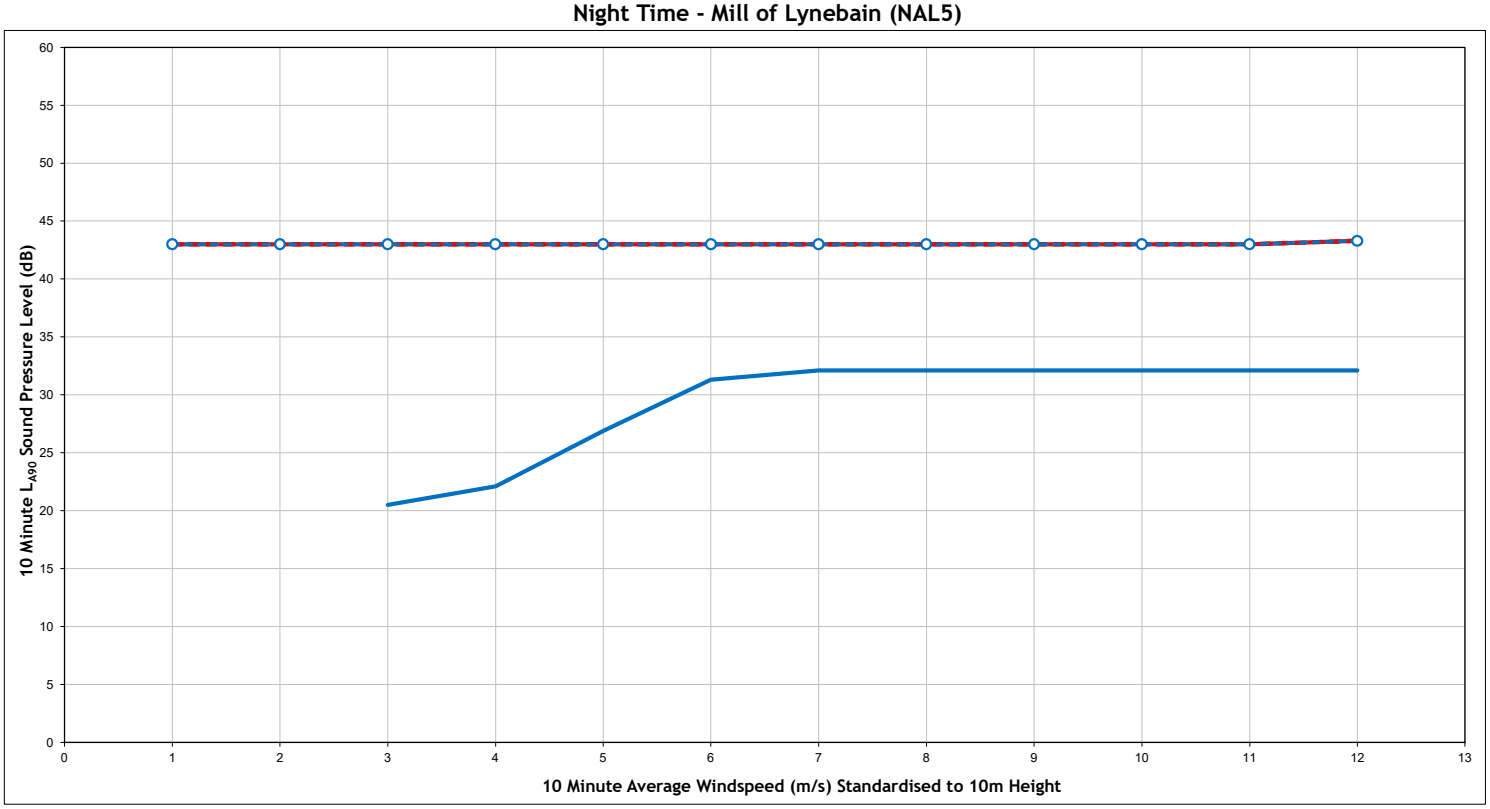
Daytime - Mill of Lynebain (NAL5)



Night Time - Mill of Lynebain (NAL5)



Legend:

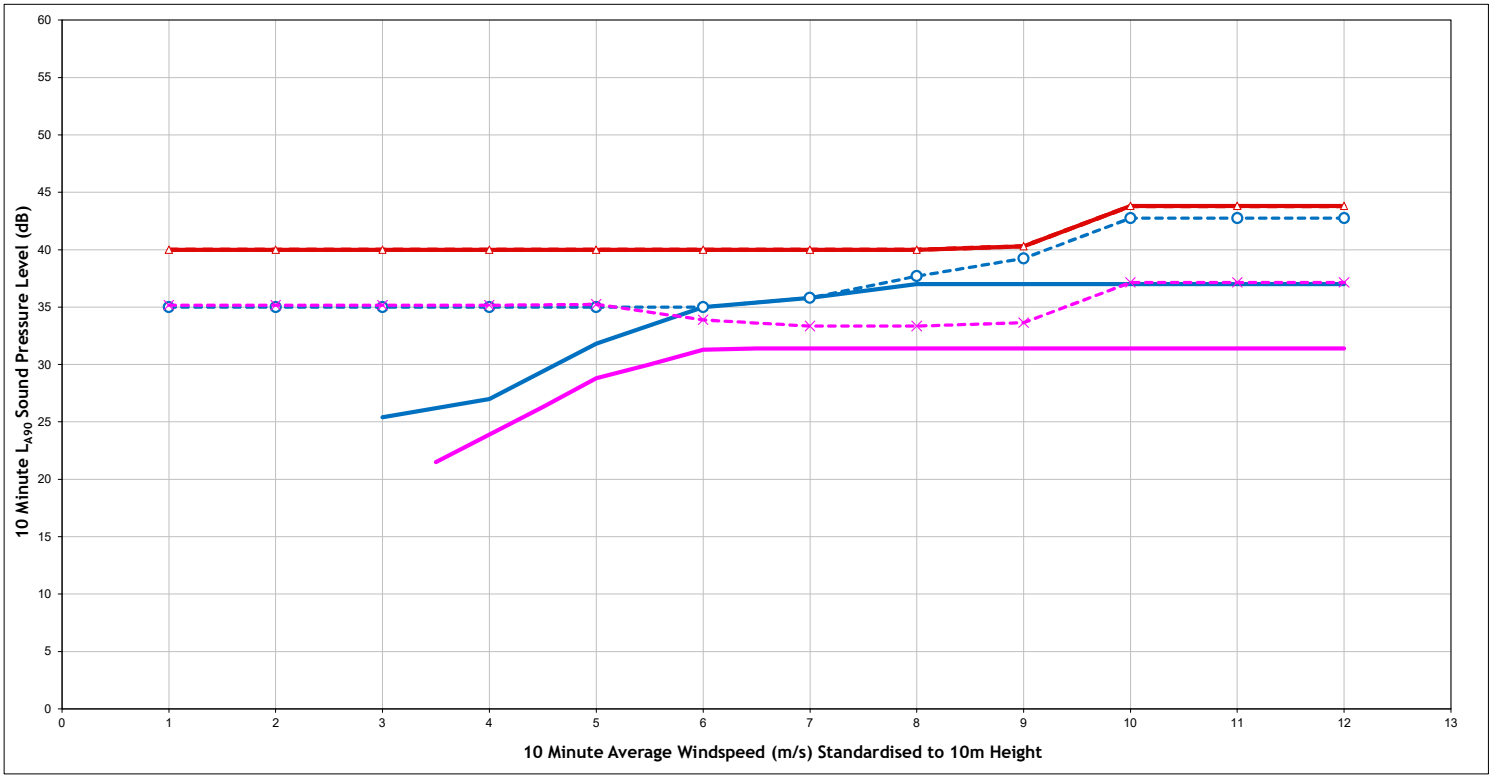
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Mill of Lynebain (NAL5)
Figure Number	A1.4e
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

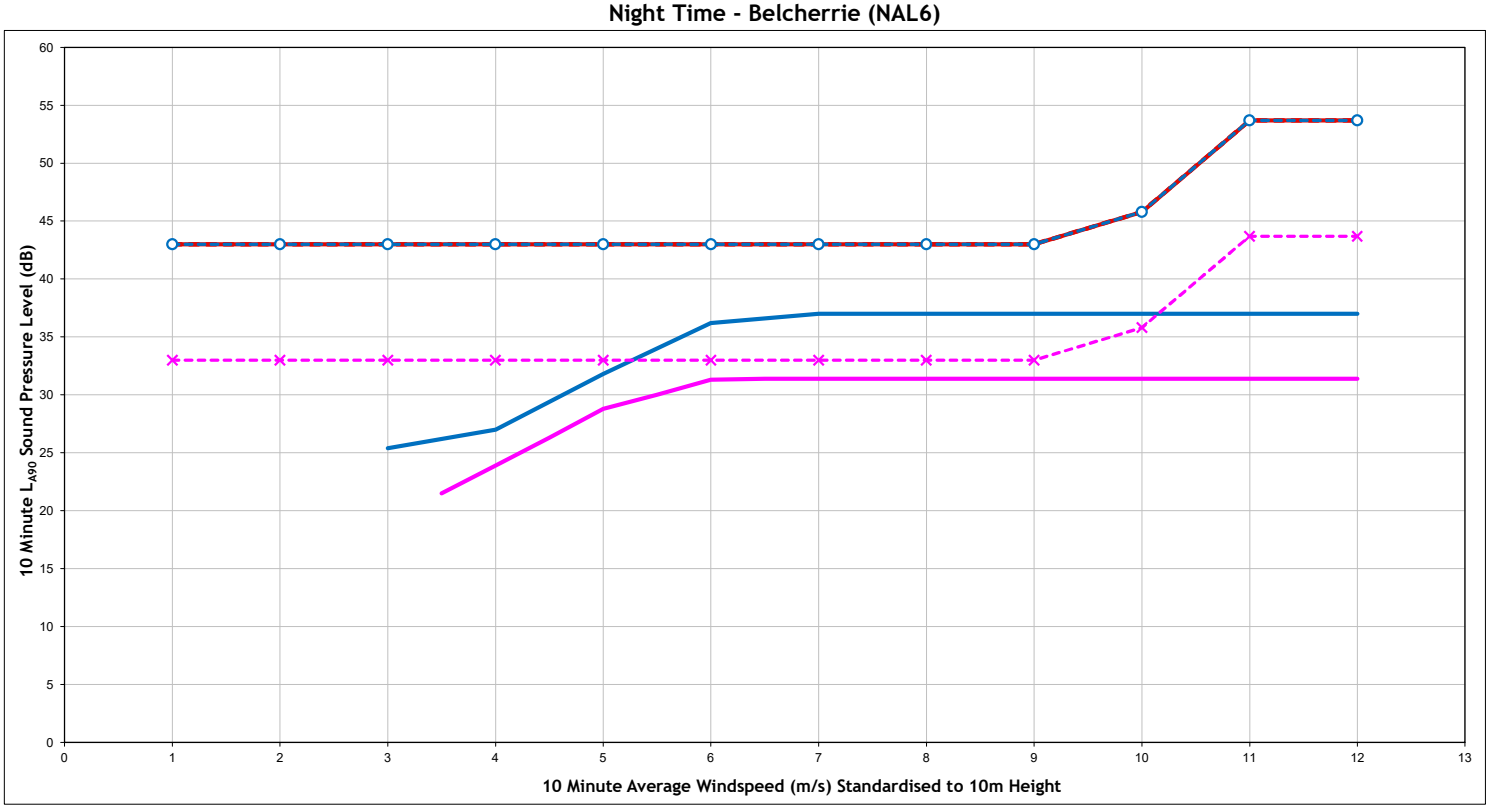
Statkraft

tnei

Daytime - Belcherrie (NAL6)



Night Time - Belcherrie (NAL6)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time
Mode management required	
	10 dB below TNL no SSNL required

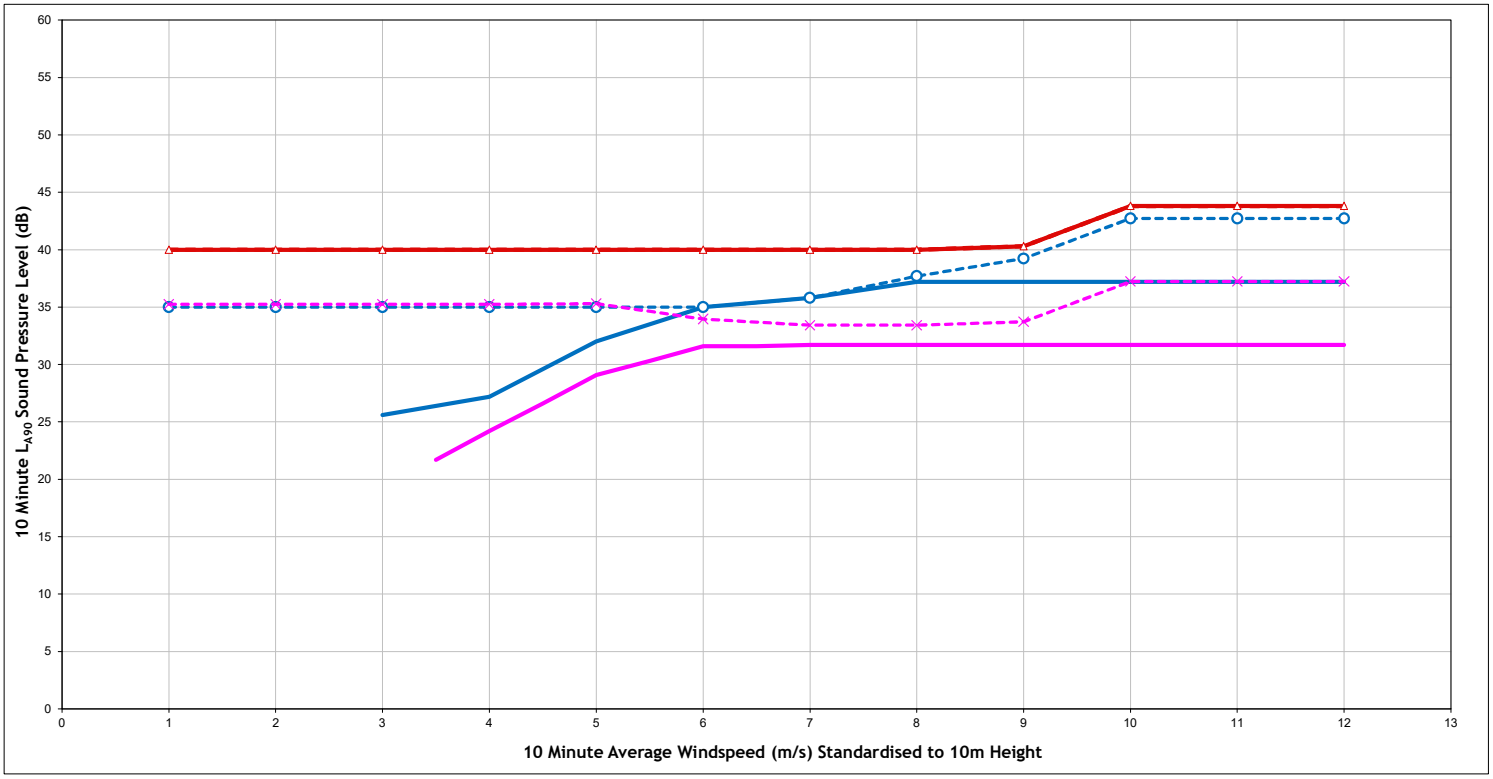
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Belcherrie (NAL6)
Figure Number	A1.4f
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

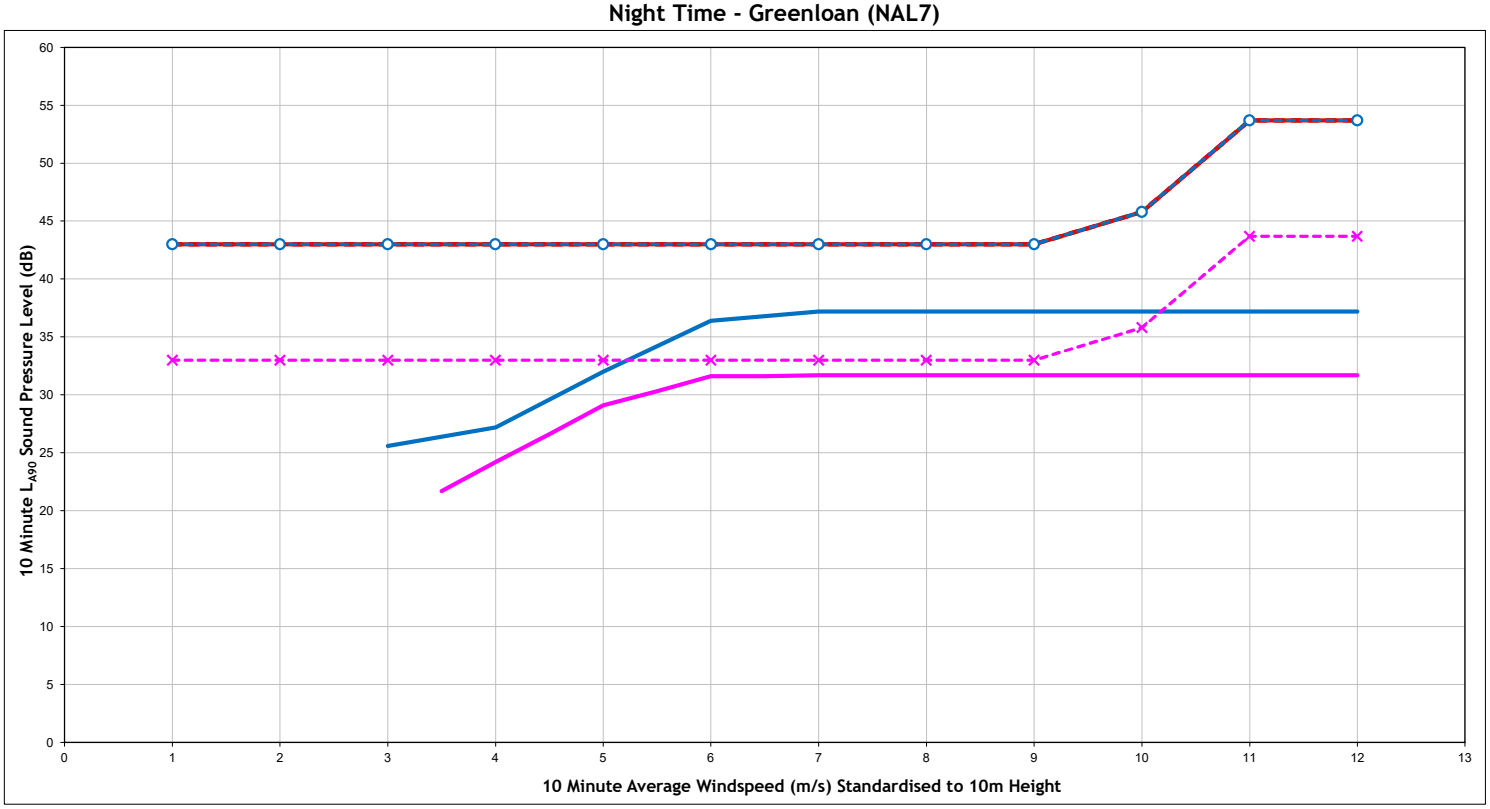
Statkraft

tnei

Daytime - Greenloan (NAL7)



Night Time - Greenloan (NAL7)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs		
	Daytime	Night-time
Mode management required		
		10 dB below TNL no SSNL required

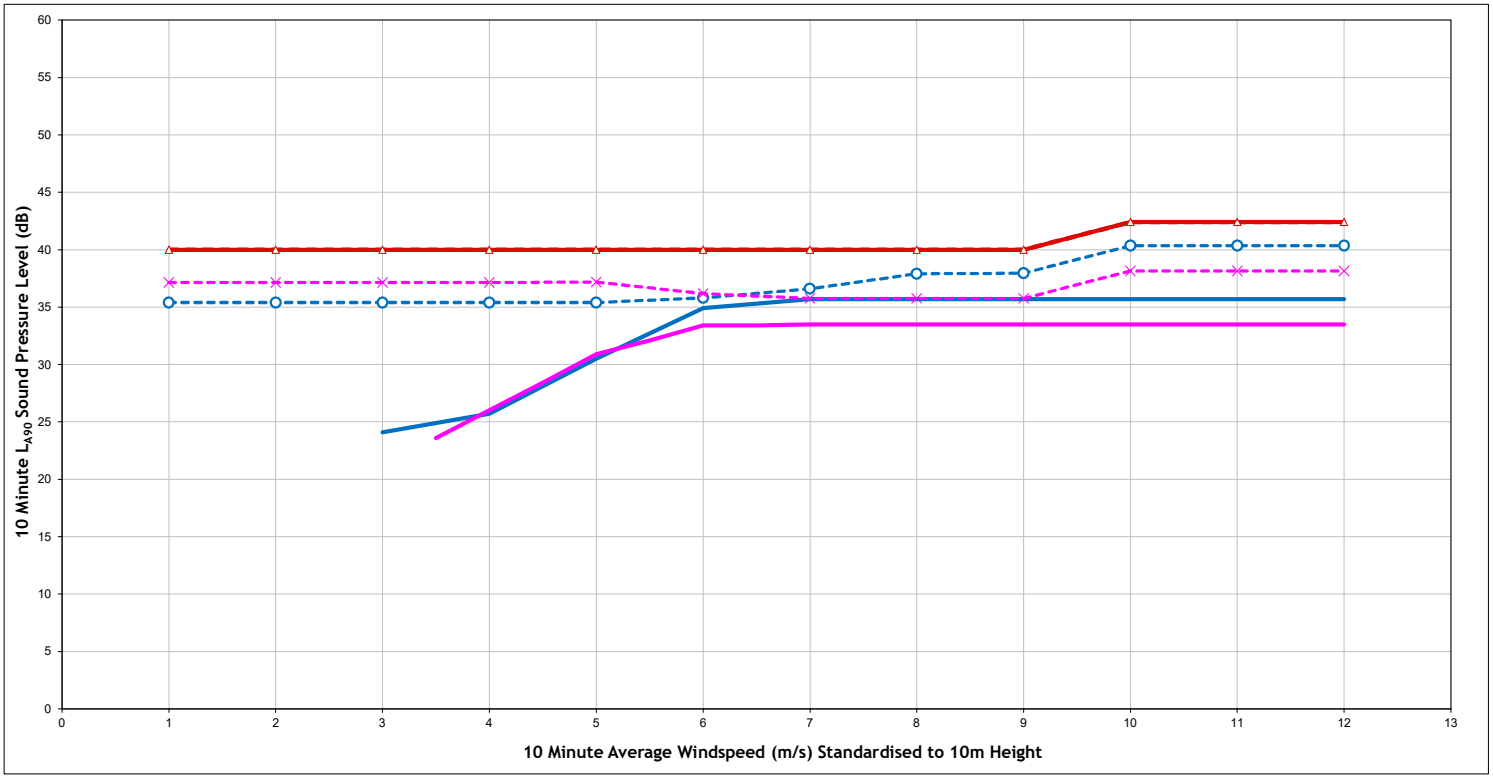
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Greenloan (NAL7)
Figure Number	A1.4g
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

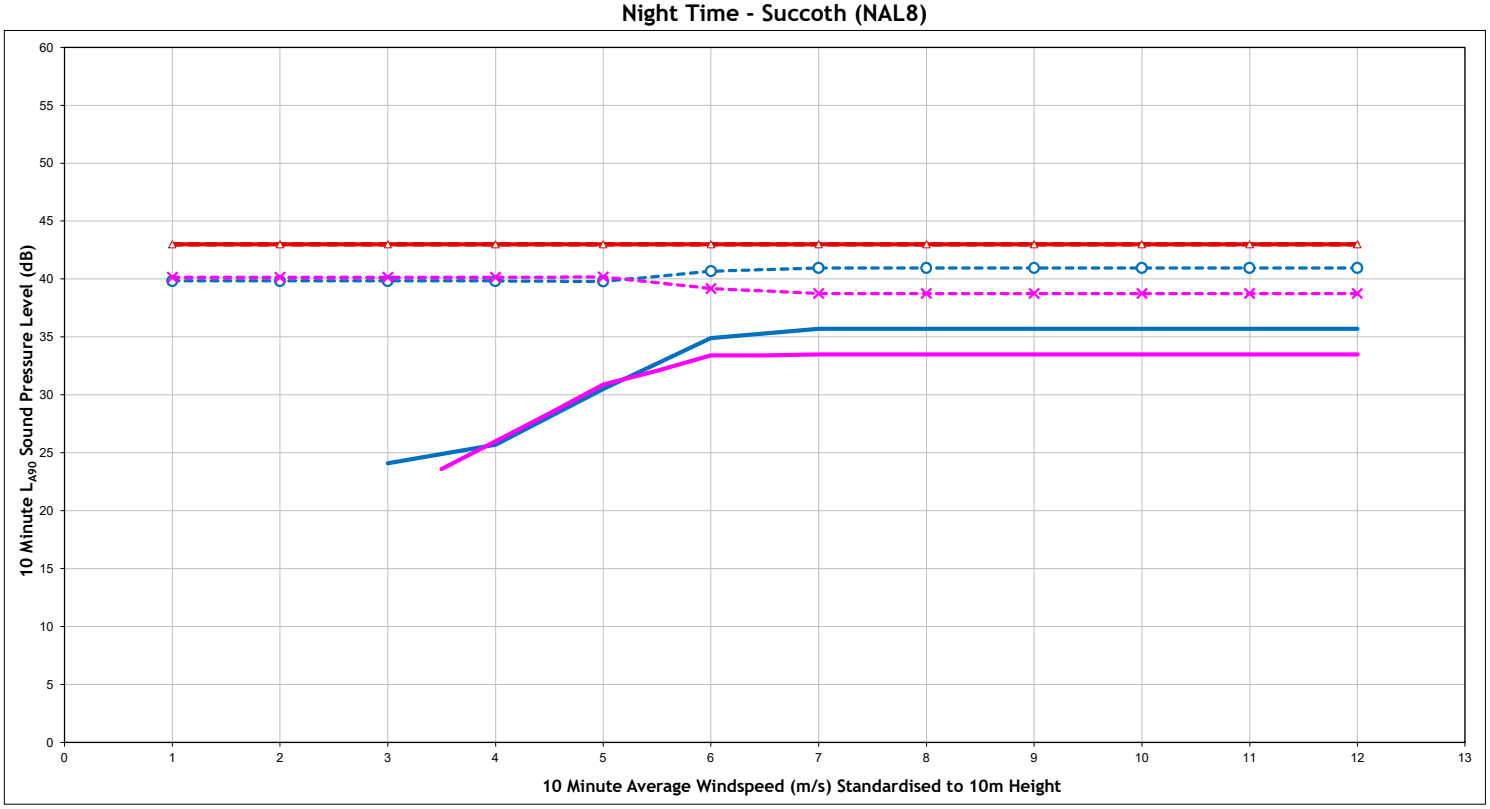
Statkraft

tnei

Daytime - Succoth (NAL8)



Night Time - Succoth (NAL8)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time

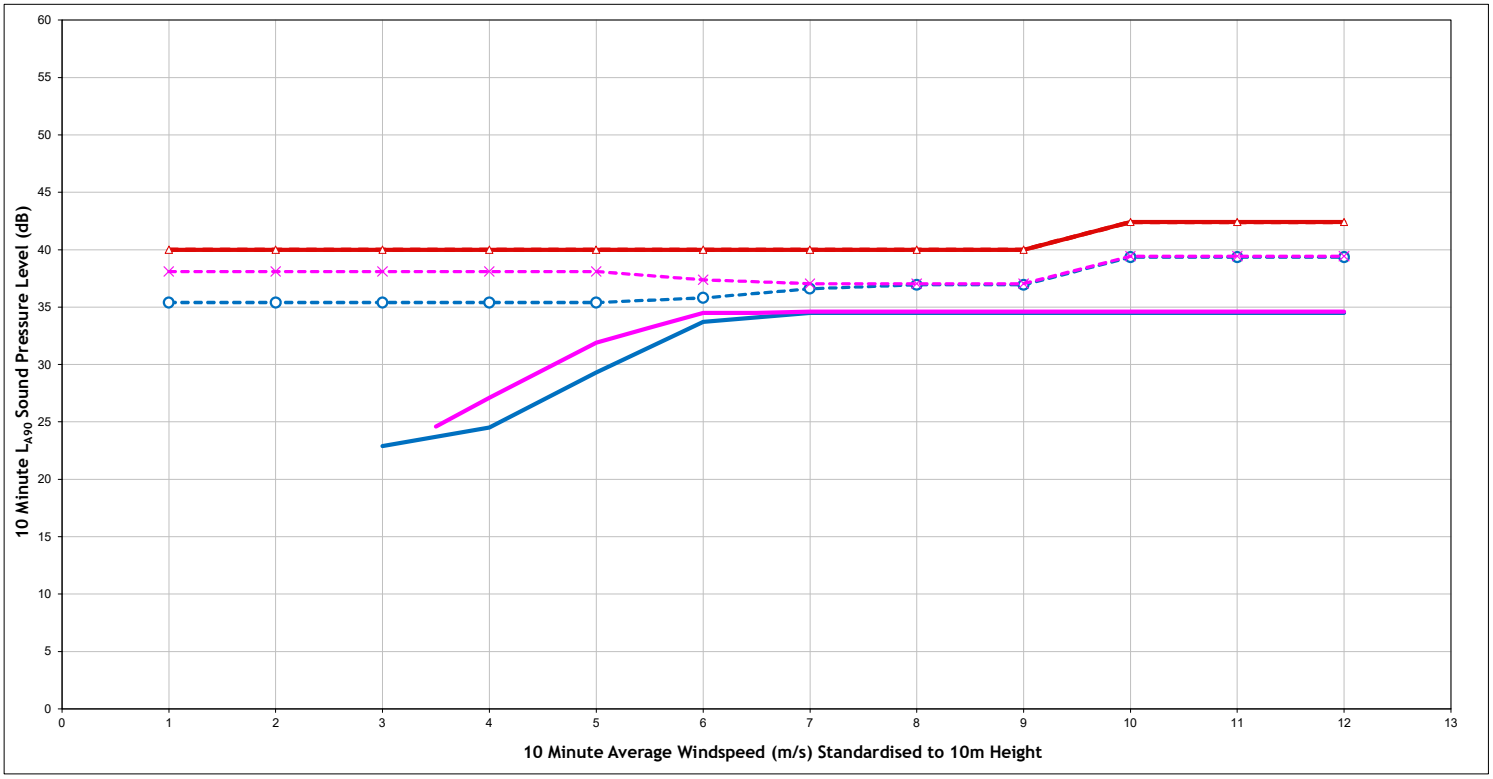
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Succoth (NAL8)
Figure Number	A1.4h
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

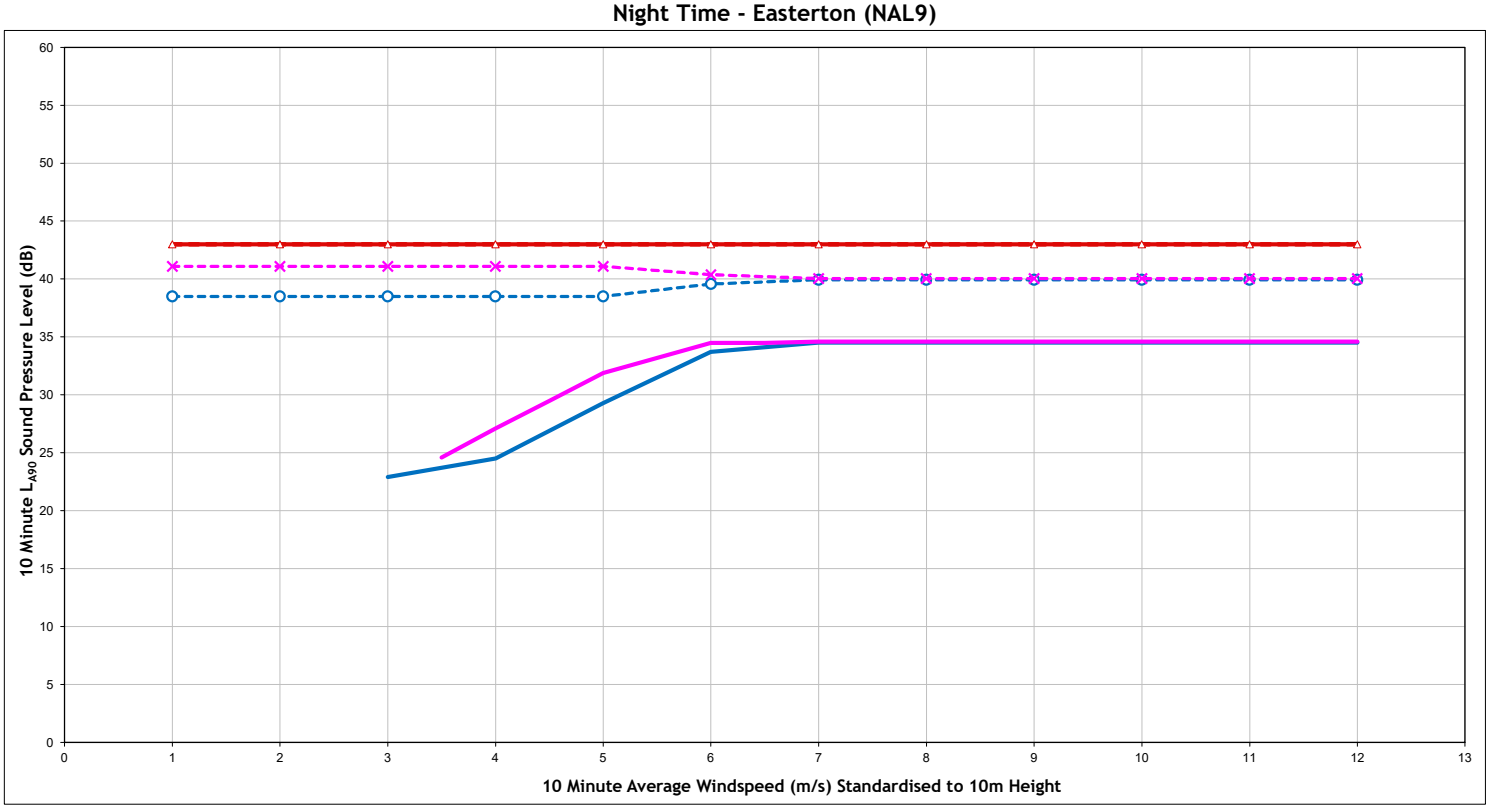
Statkraft

tnei

Daytime - Easterton (NAL9)



Night Time - Easterton (NAL9)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time

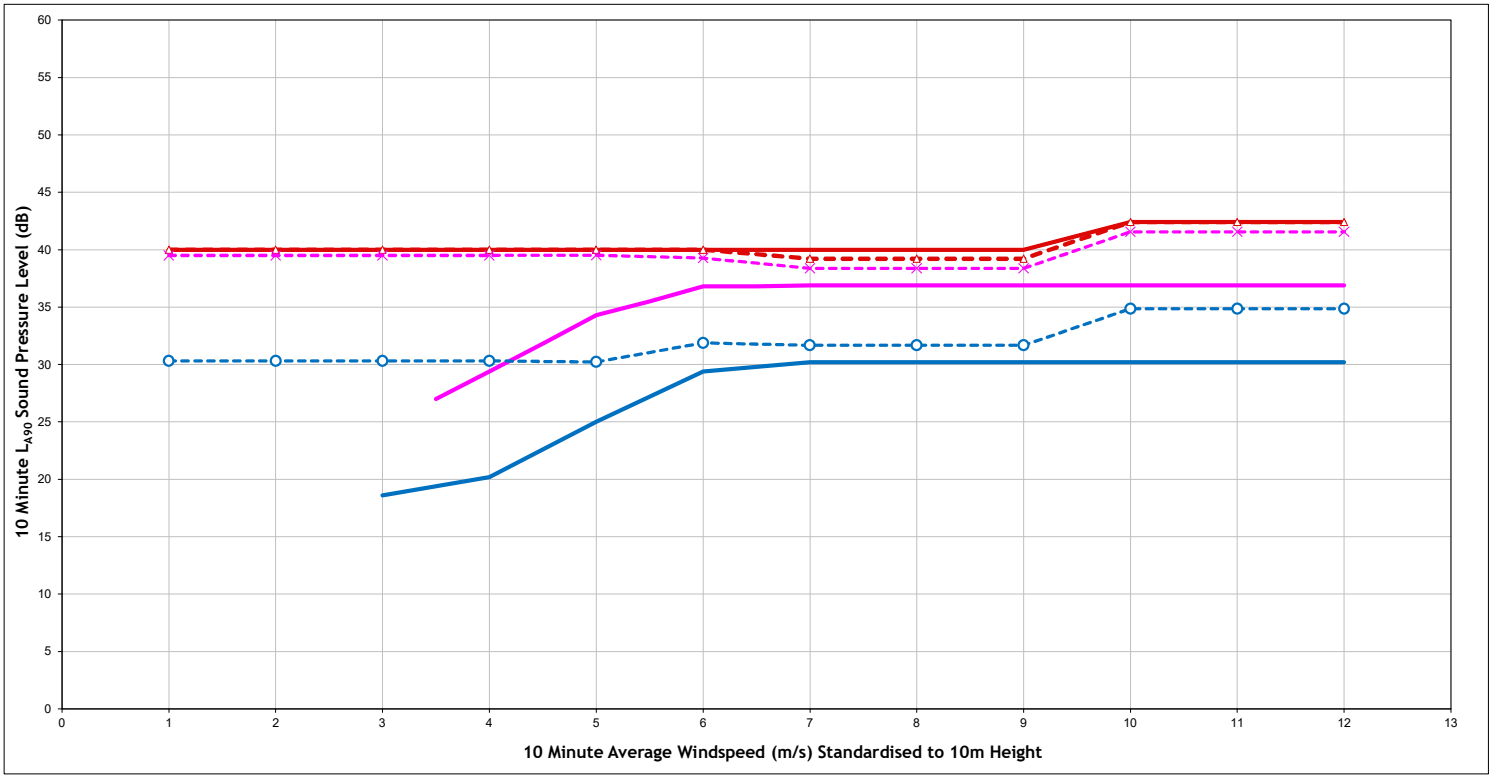
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Easterton (NAL9)
Figure Number	A1.4i
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

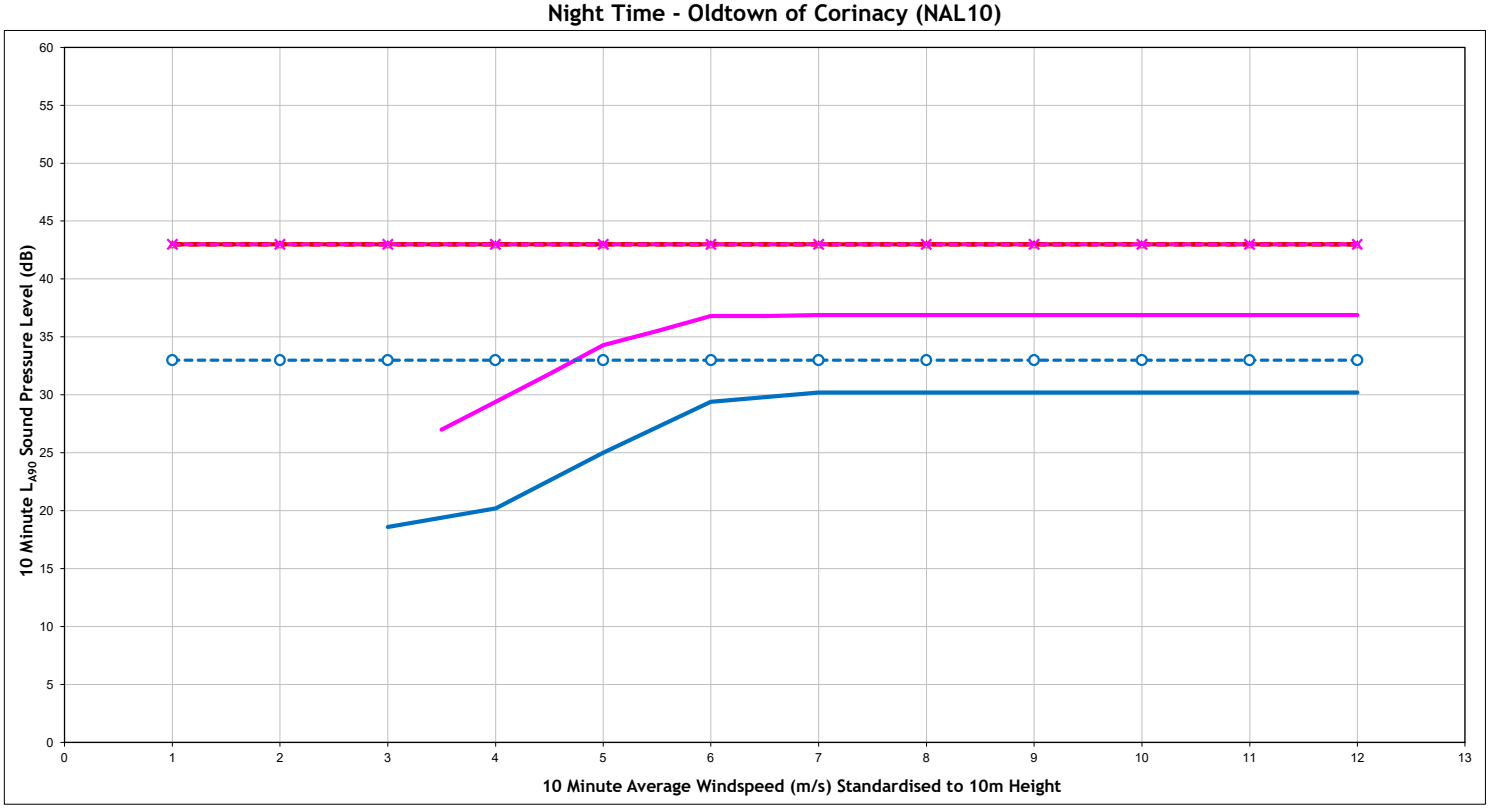
Statkraft

tnei

Daytime - Oldtown of Corinacy (NAL10)



Night Time - Oldtown of Corinacy (NAL10)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time
	10 dB below TNL no SSNL required
Mode management required	

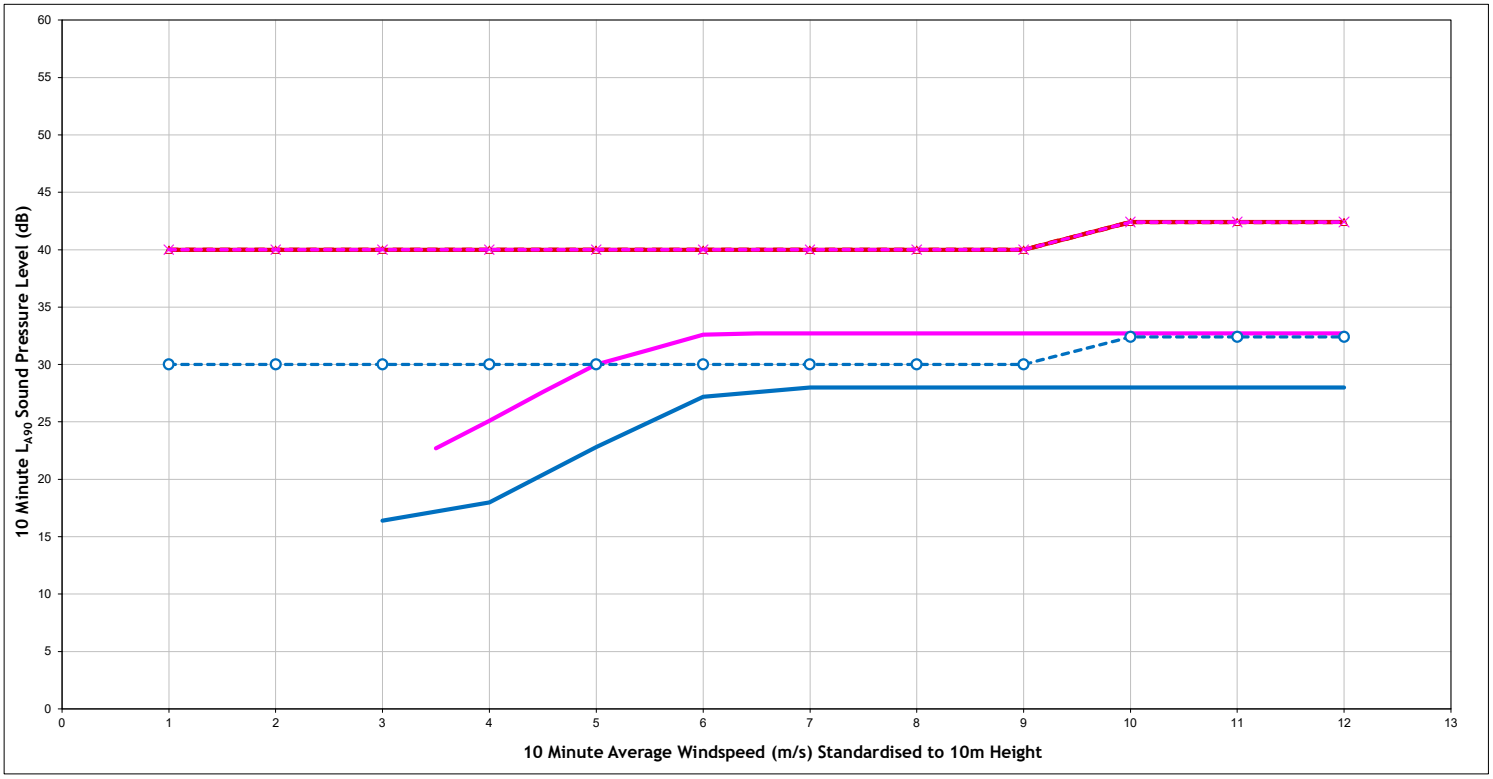
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Oldtown of Corinacy (NAL10)
Figure Number	A1.4j
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

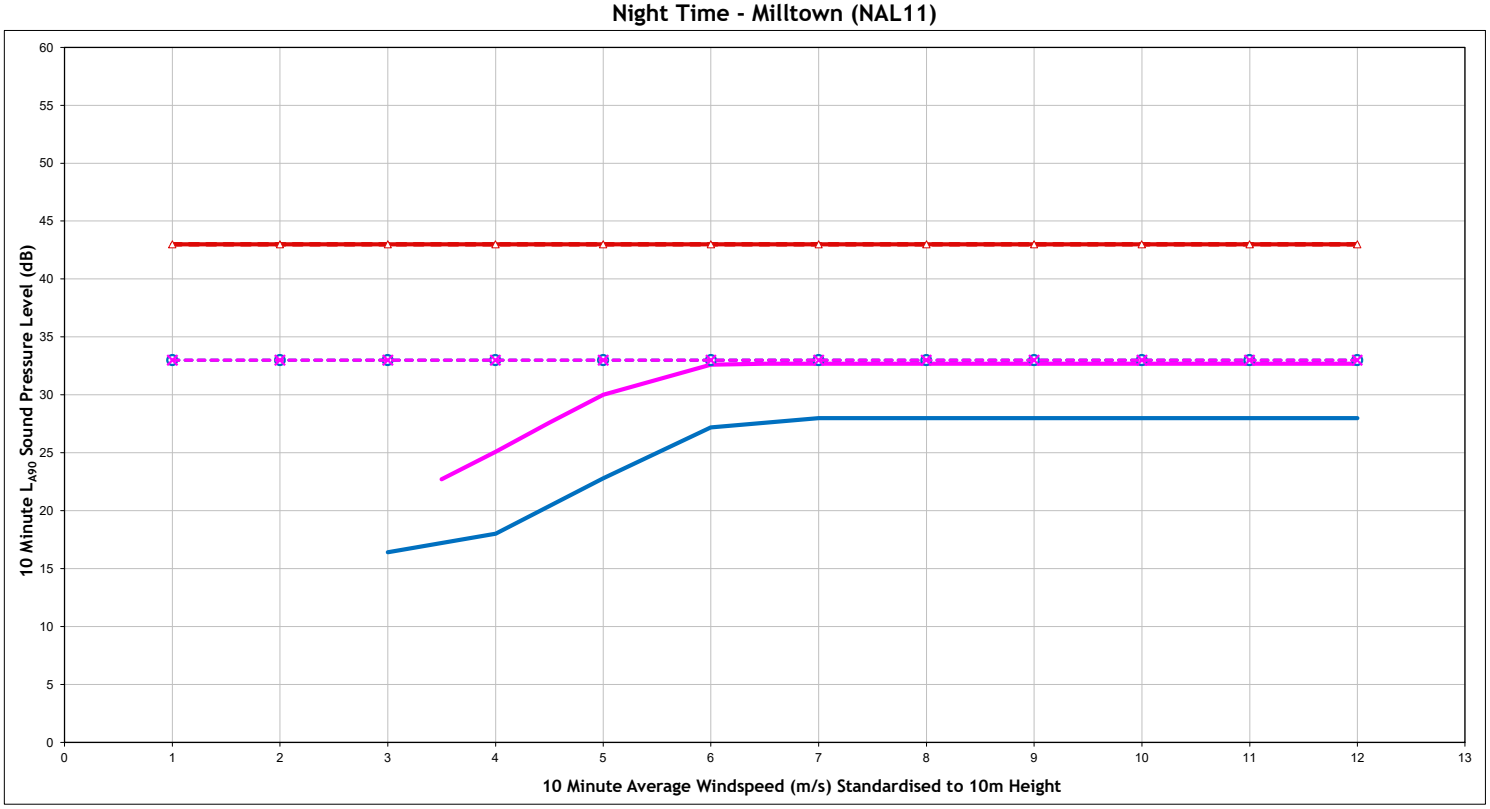
Statkraft

tnei

Daytime - Milltown (NAL11)



Night Time - Milltown (NAL11)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time
10 dB below TNL no SSNL required	10 dB below TNL no SSNL required
	10 dB below TNL no SSNL required

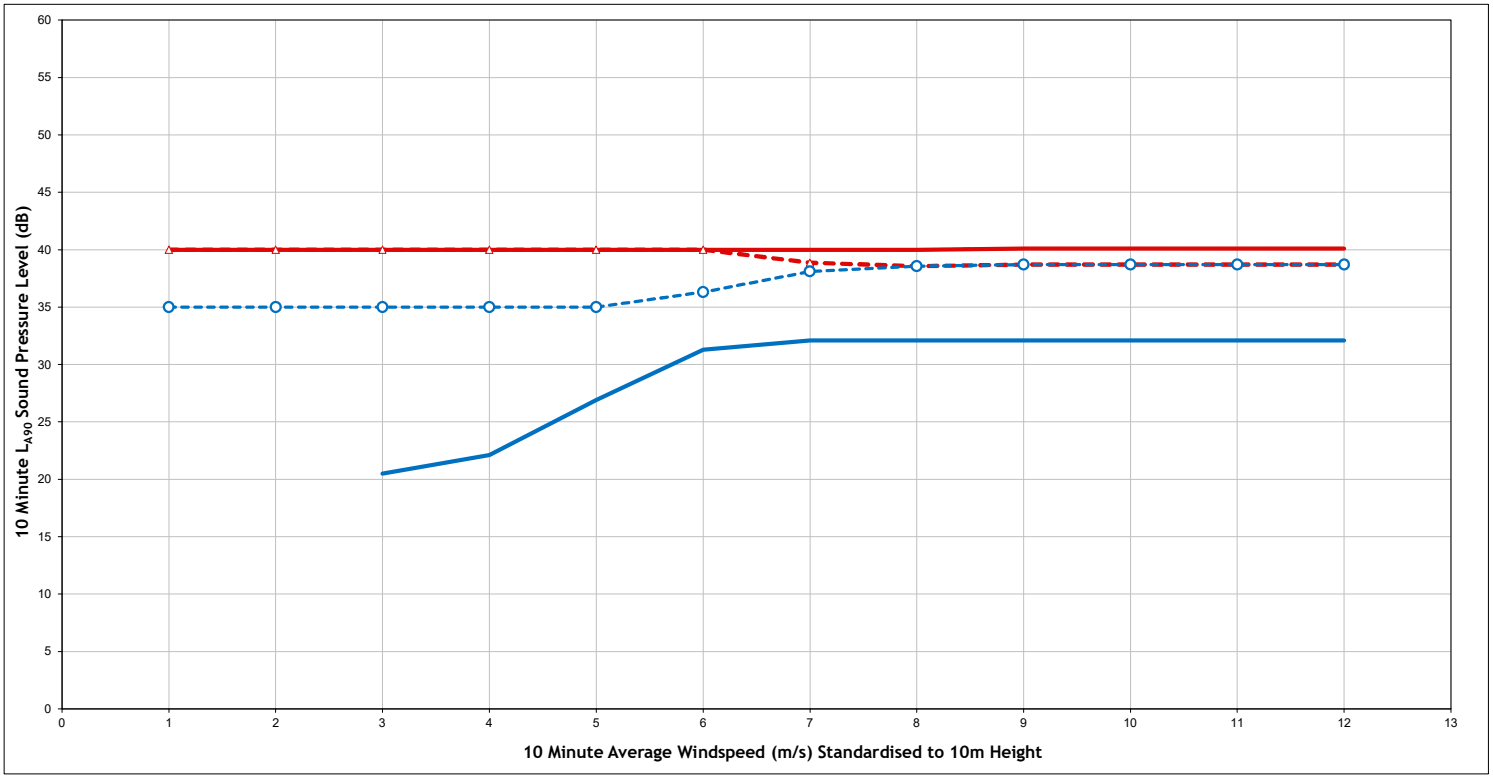
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Milltown (NAL11)
Figure Number	A1.4k
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

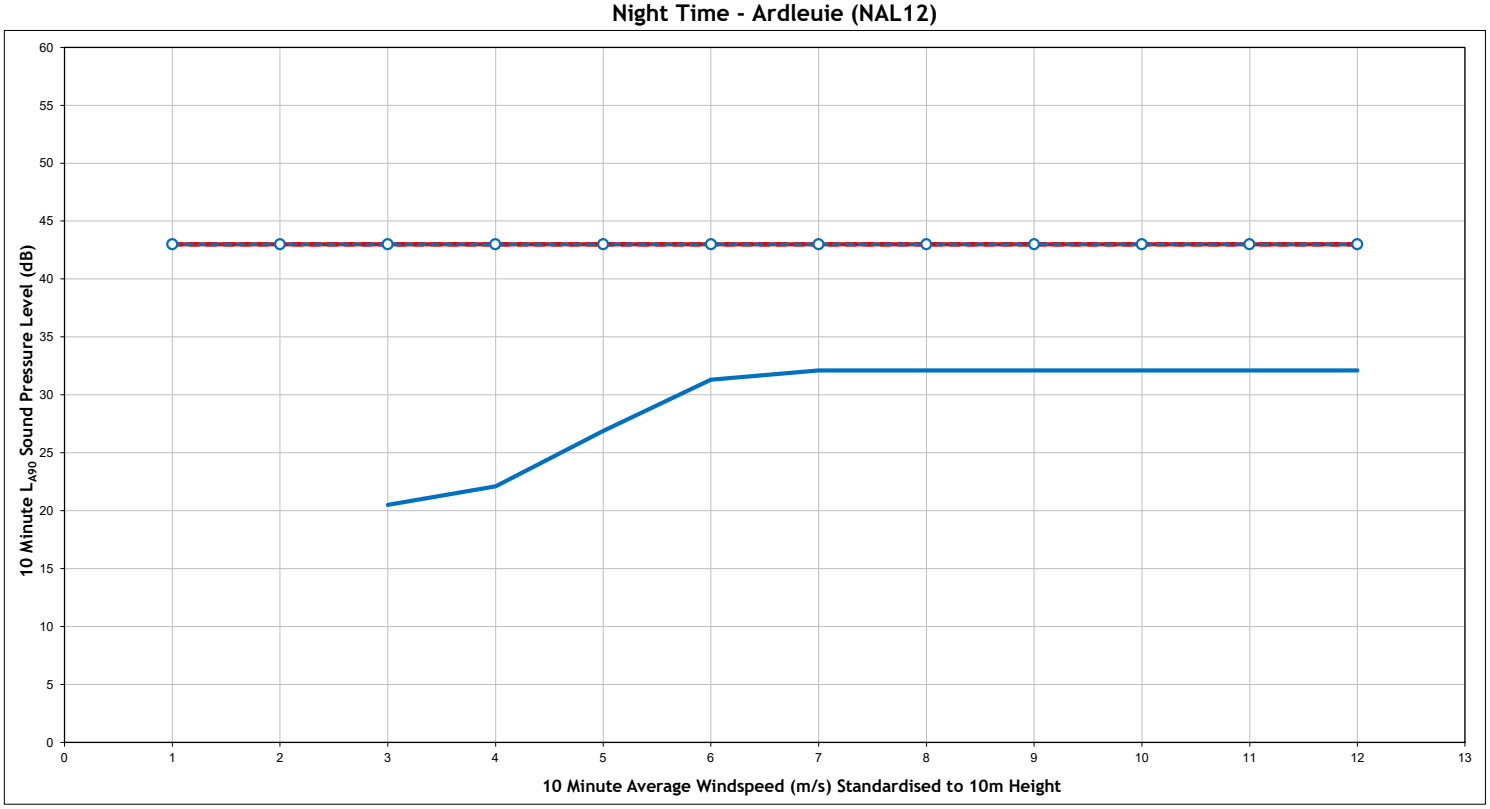
Statkraft

tnei

Daytime - Ardleuie (NAL12)



Night Time - Ardleuie (NAL12)



Legend:

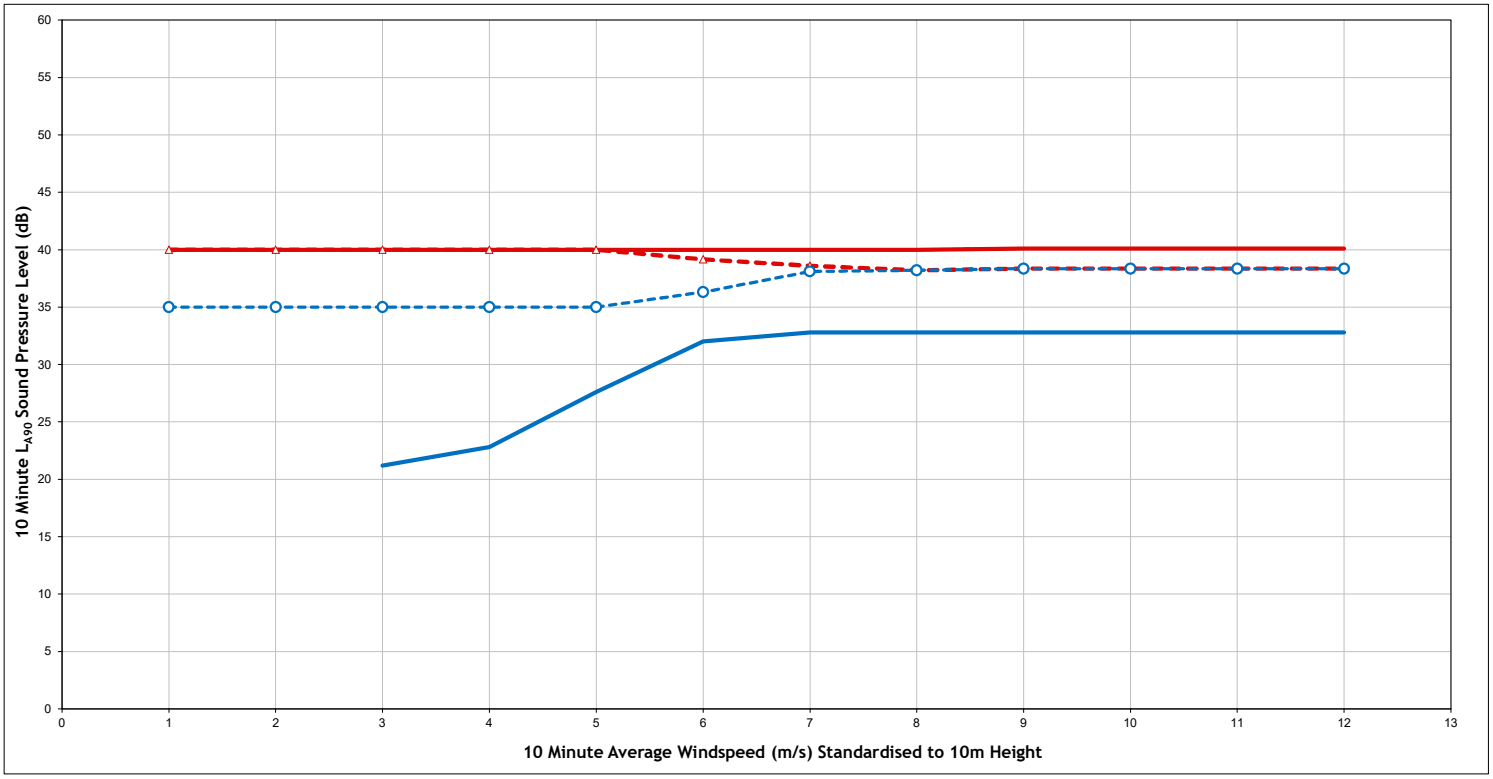
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Ardleuie (NAL12)
Figure Number	A1.4l
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

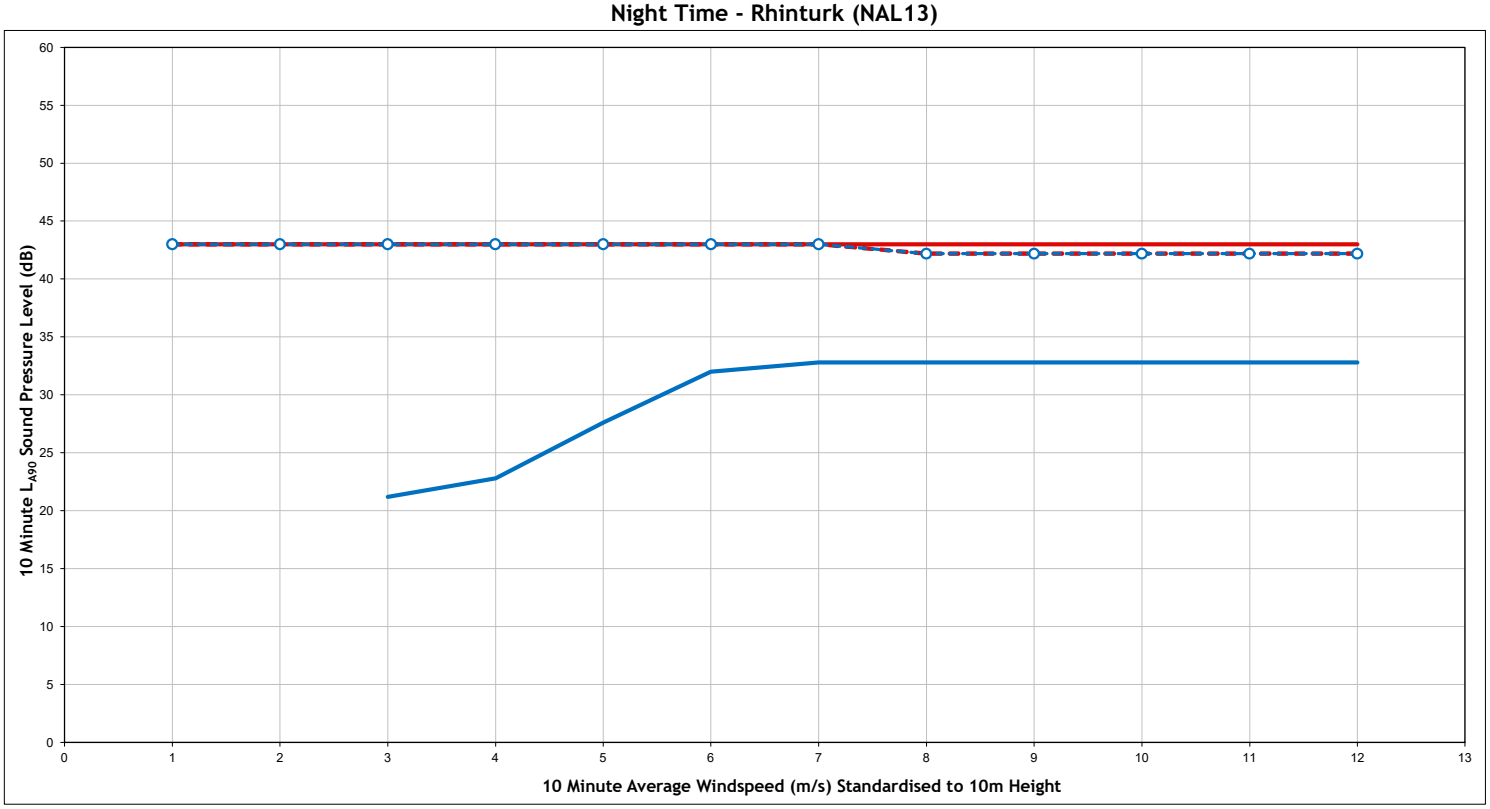
Statkraft

tnei

Daytime - Rhinturk (NAL13)



Night Time - Rhinturk (NAL13)



Legend:

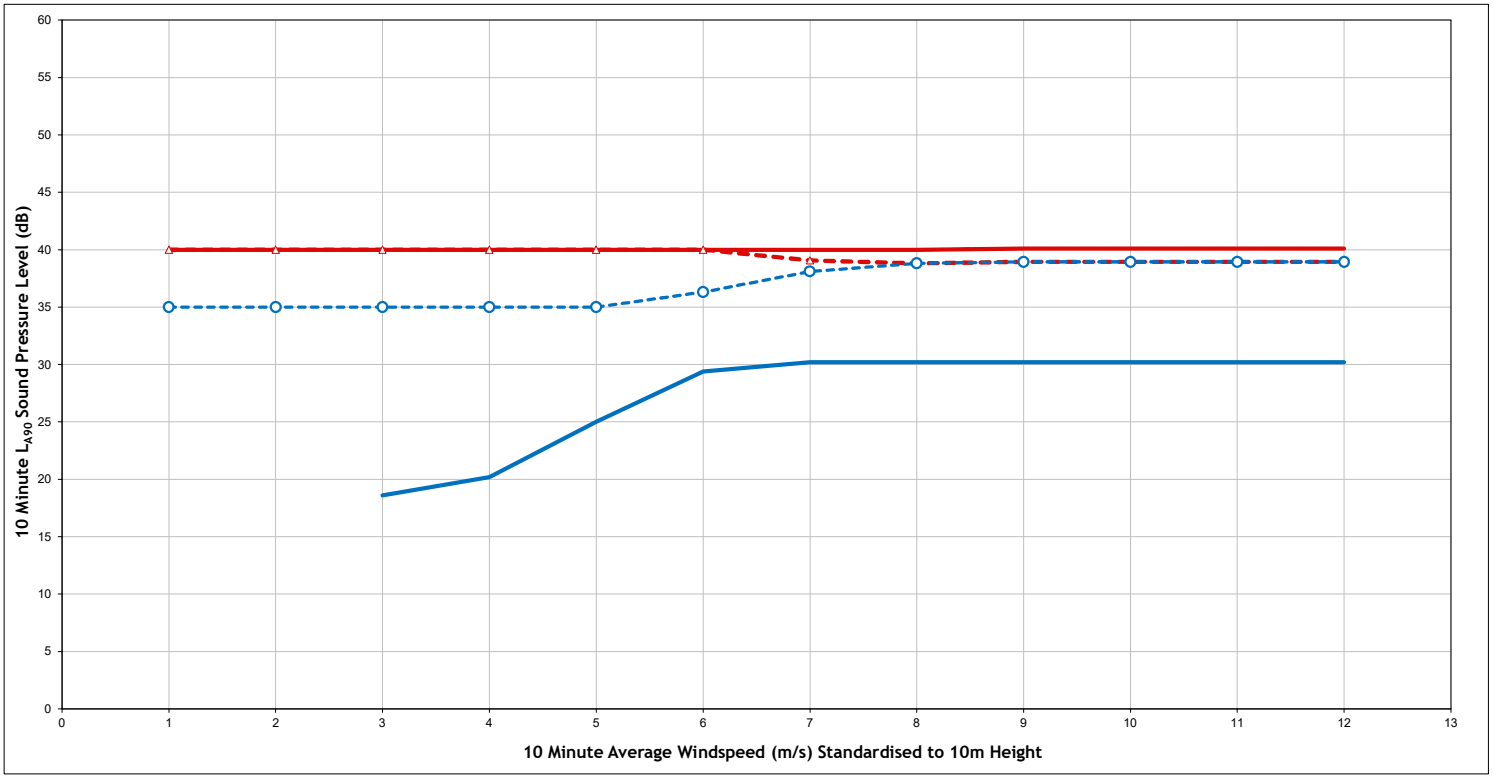
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Rhinturk (NAL13)
Figure Number	A1.4m
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

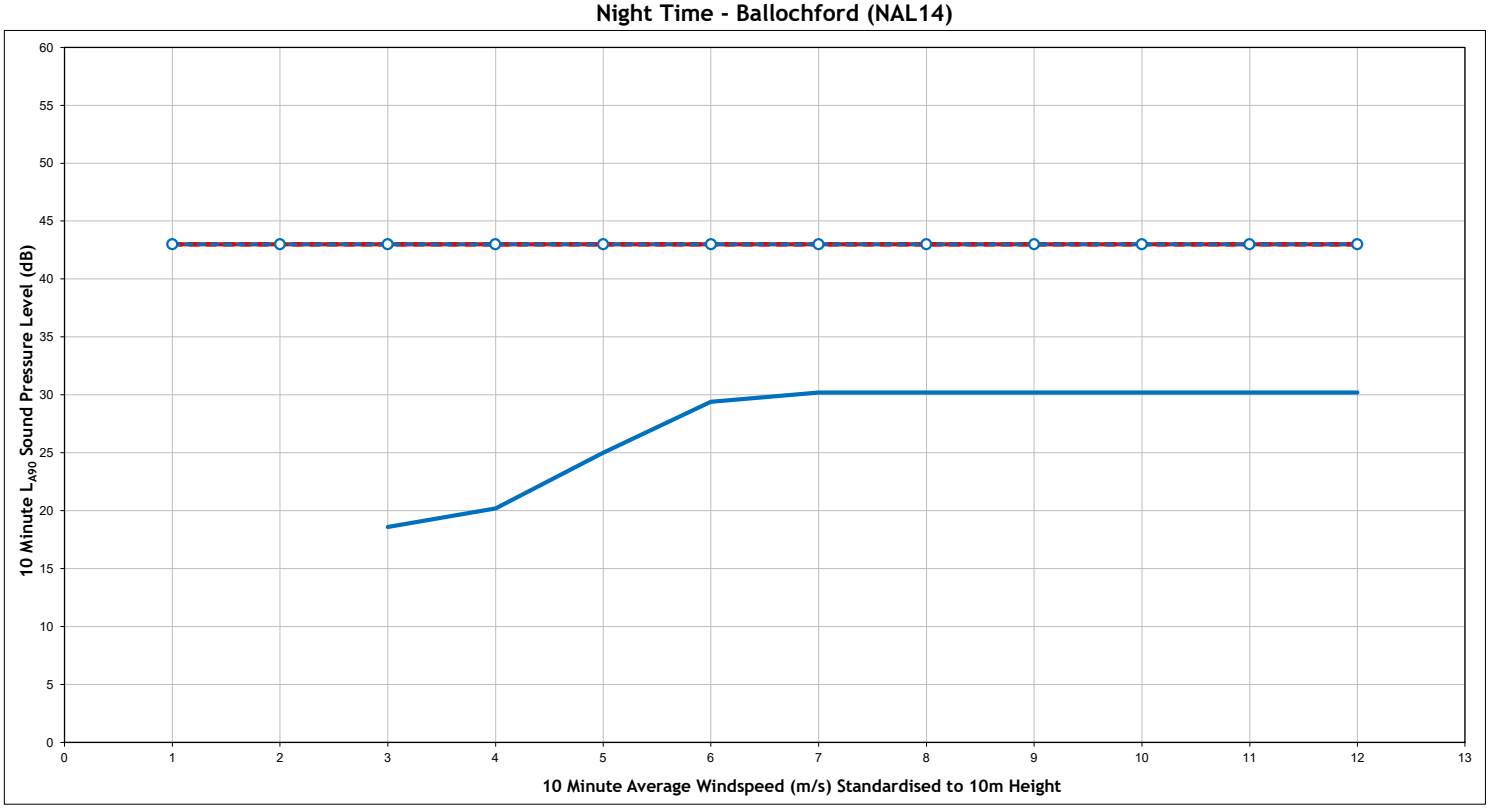
Statkraft

tnei

Daytime - Ballochford (NAL14)



Night Time - Ballochford (NAL14)



Legend:

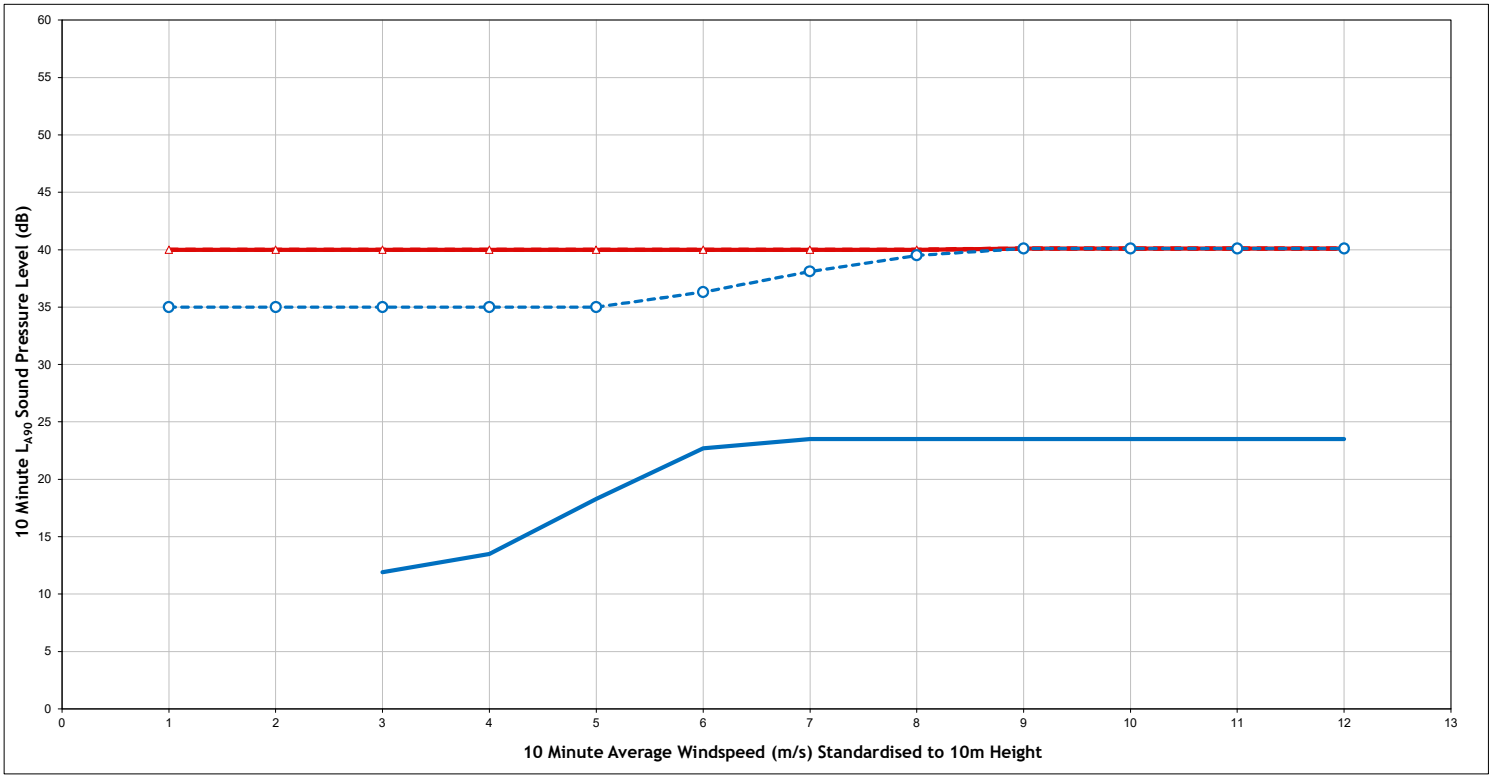
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Ballochford (NAL14)
Figure Number	A1.4n
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

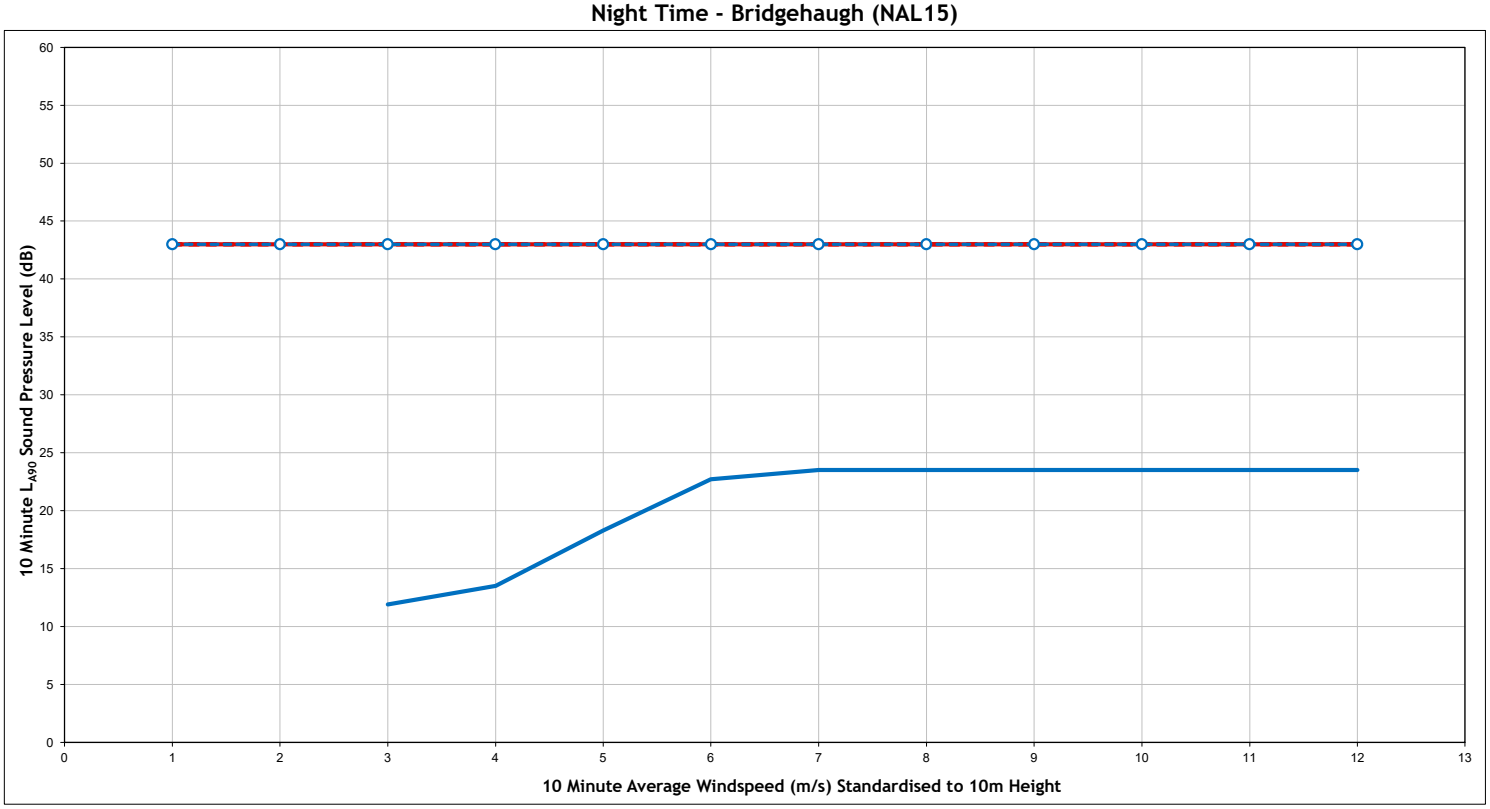
Statkraft

tnei

Daytime - Bridgehaugh (NAL15)



Night Time - Bridgehaugh (NAL15)



Legend:

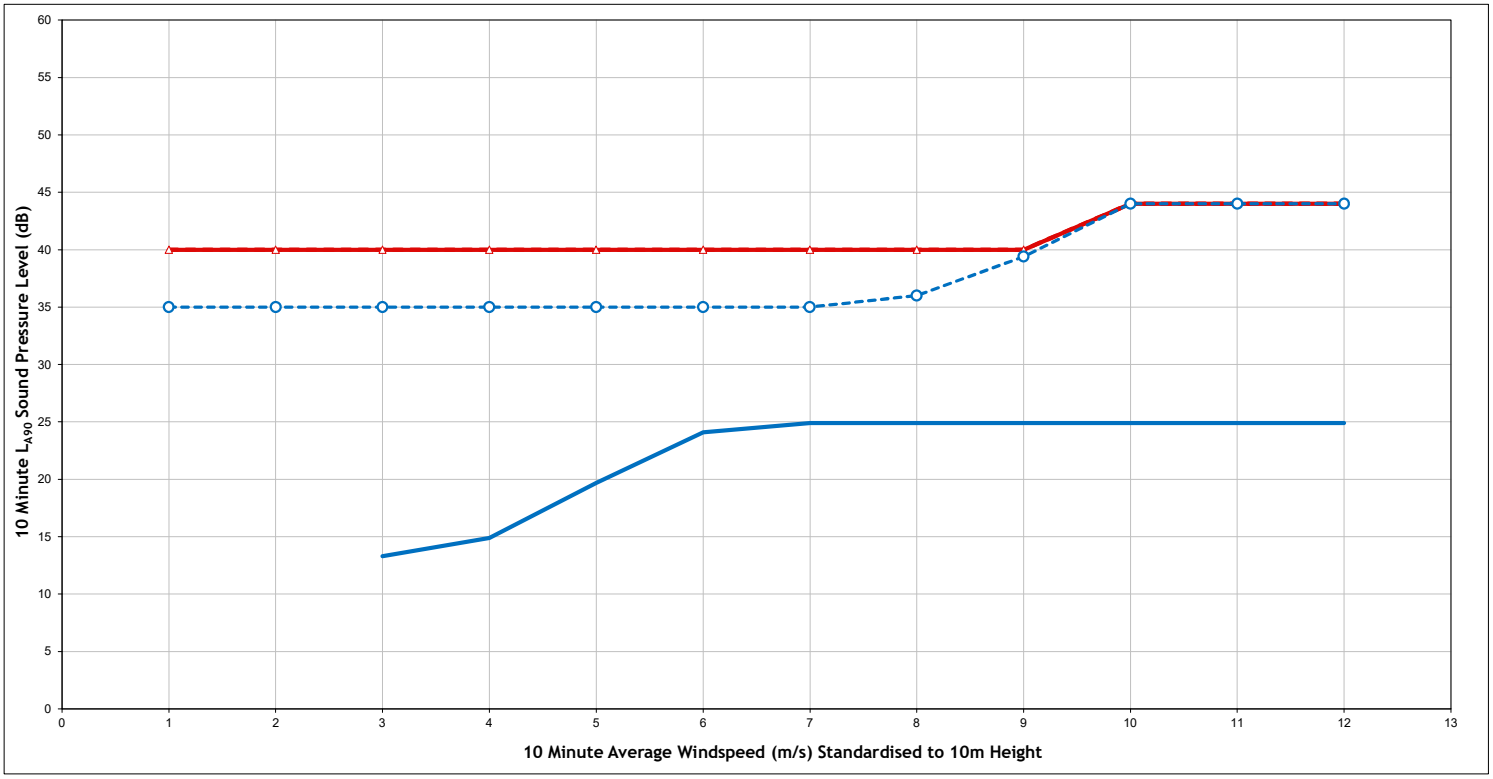
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Bridgehaugh (NAL15)
Figure Number	A1.4o
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

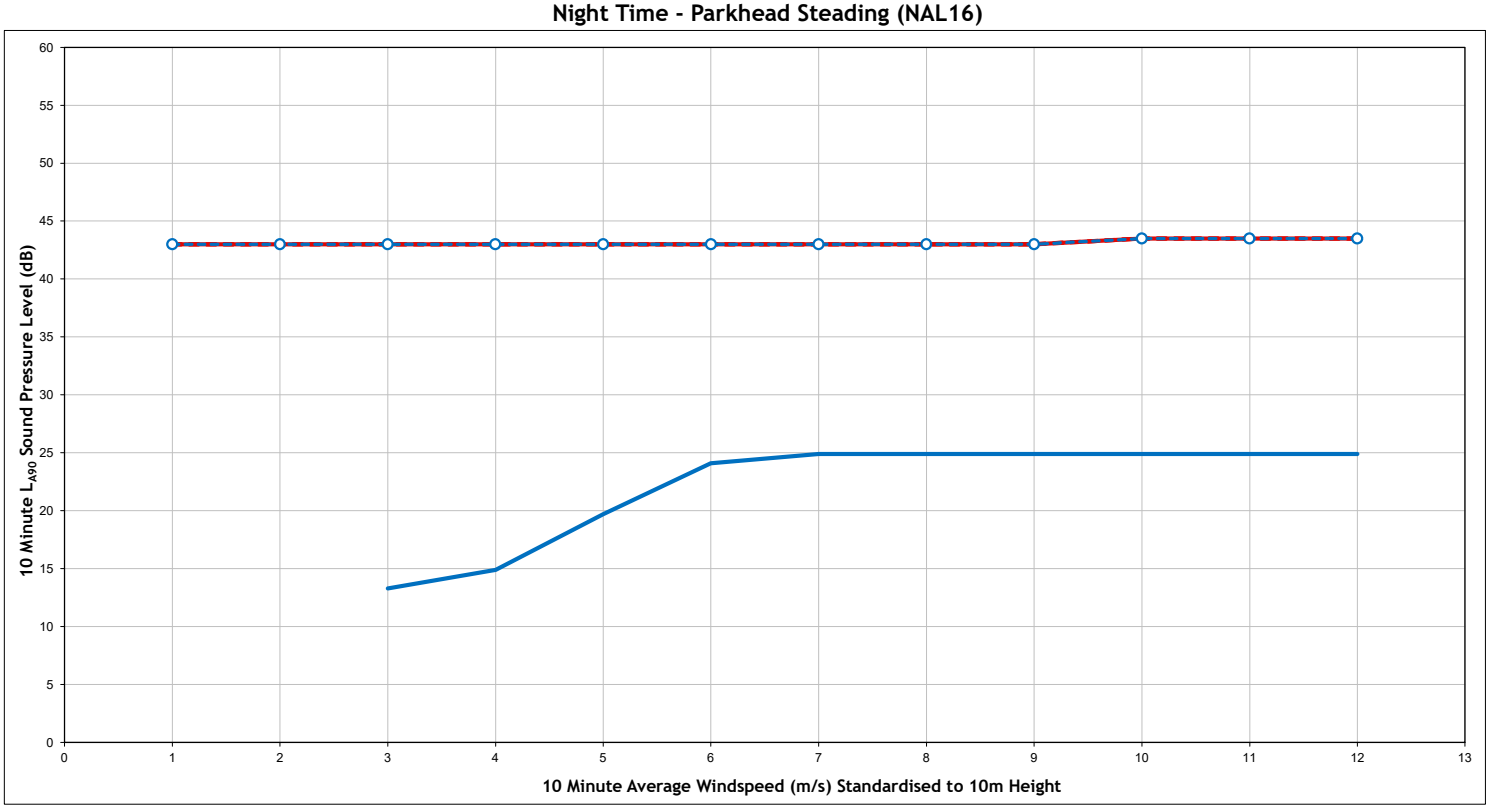
Statkraft

tnei

Daytime - Parkhead Steading (NAL16)



Night Time - Parkhead Steading (NAL16)



Legend:

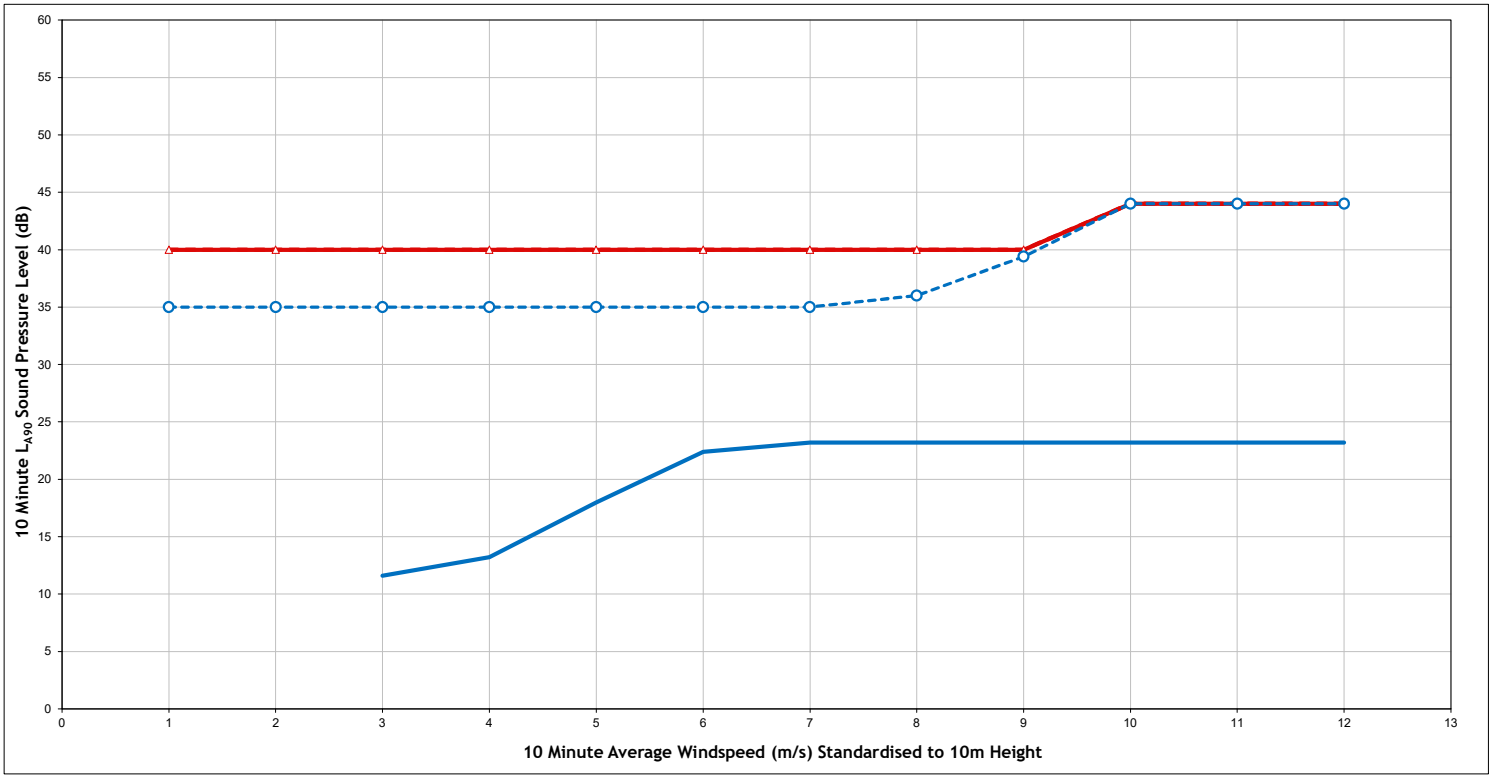
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Parkhead Steading (NAL16)
Figure Number	A1.4p
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

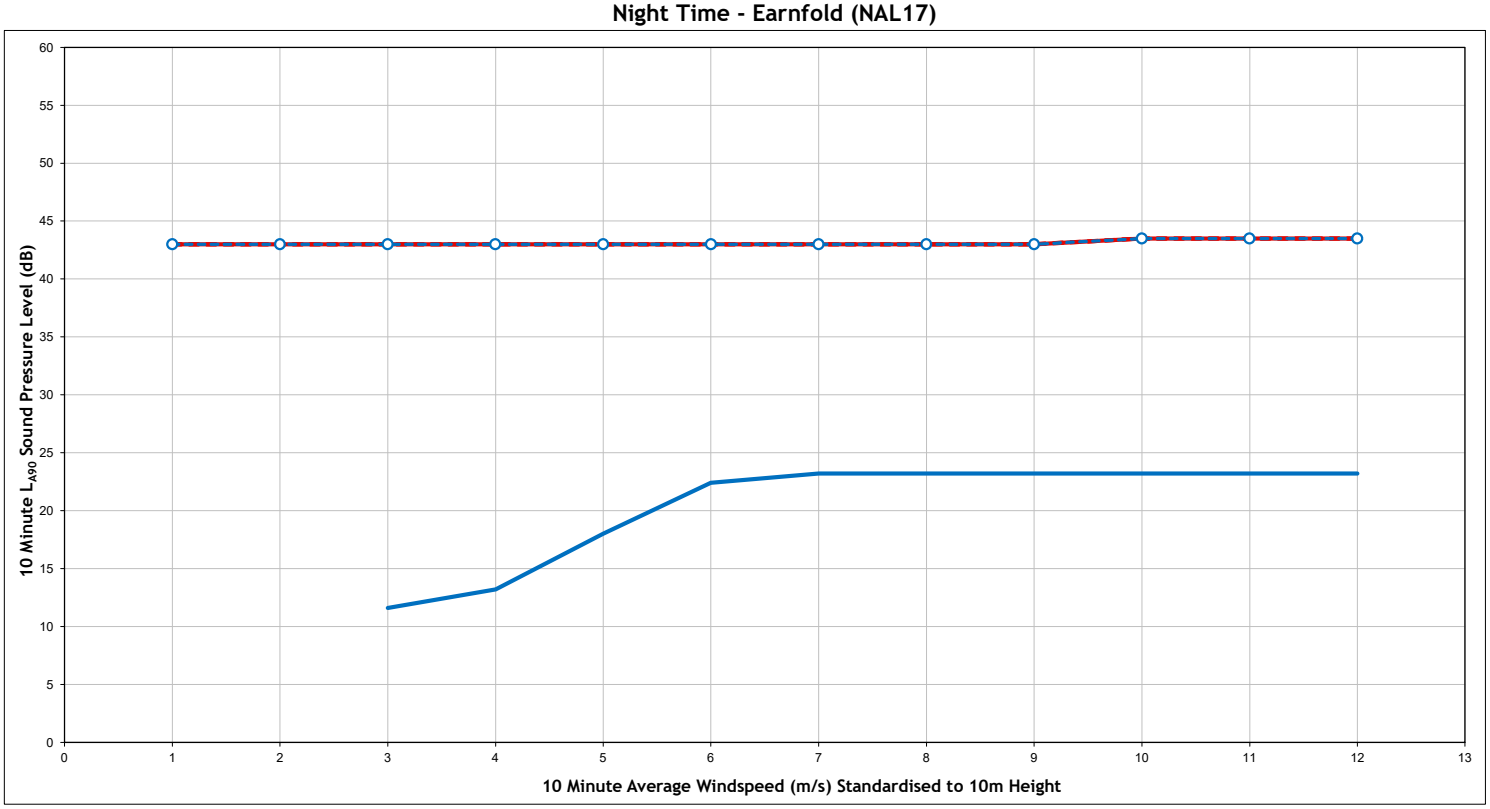
Statkraft

tnei

Daytime - Earnfold (NAL17)



Night Time - Earnfold (NAL17)



Legend:

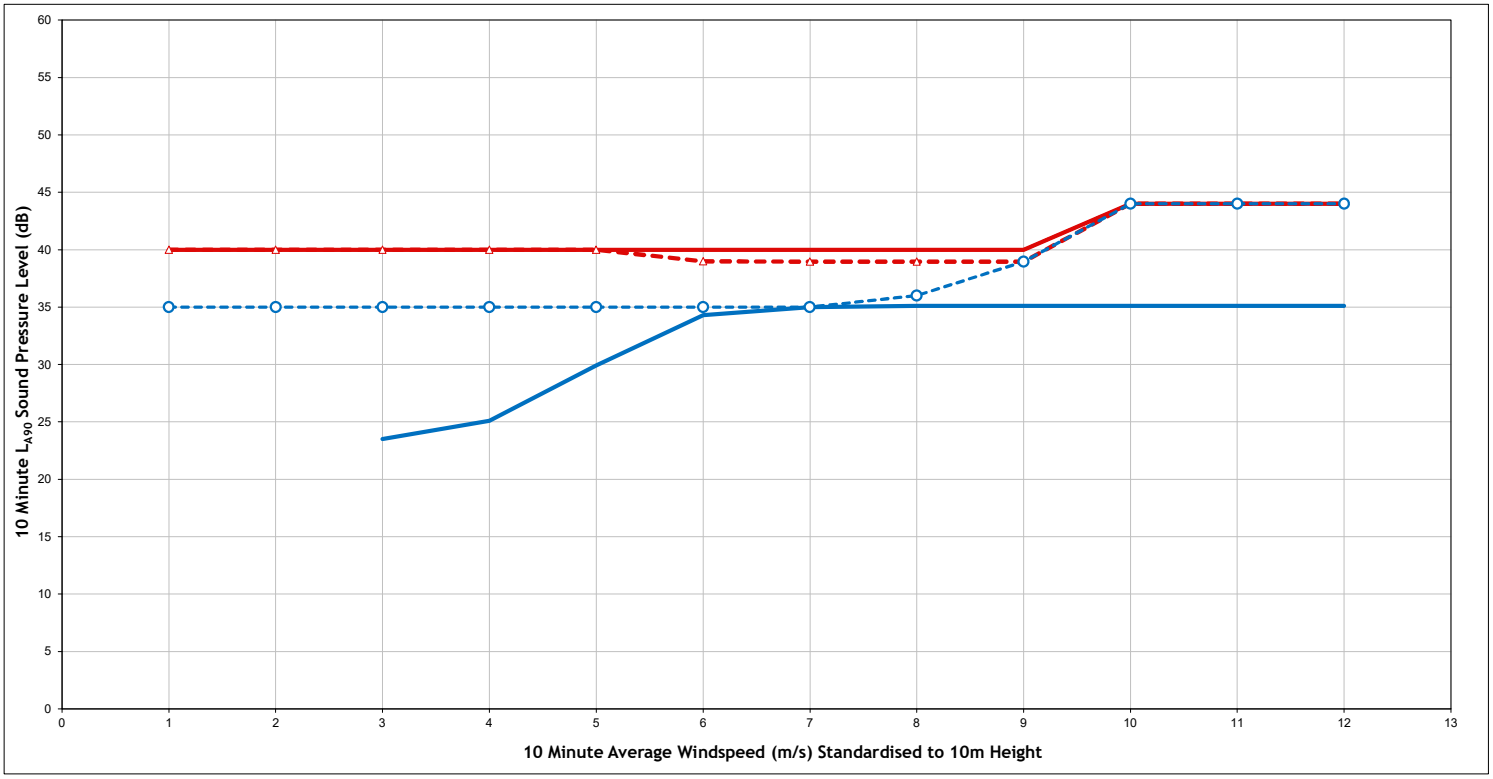
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Earnfold (NAL17)
Figure Number	A1.4q
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

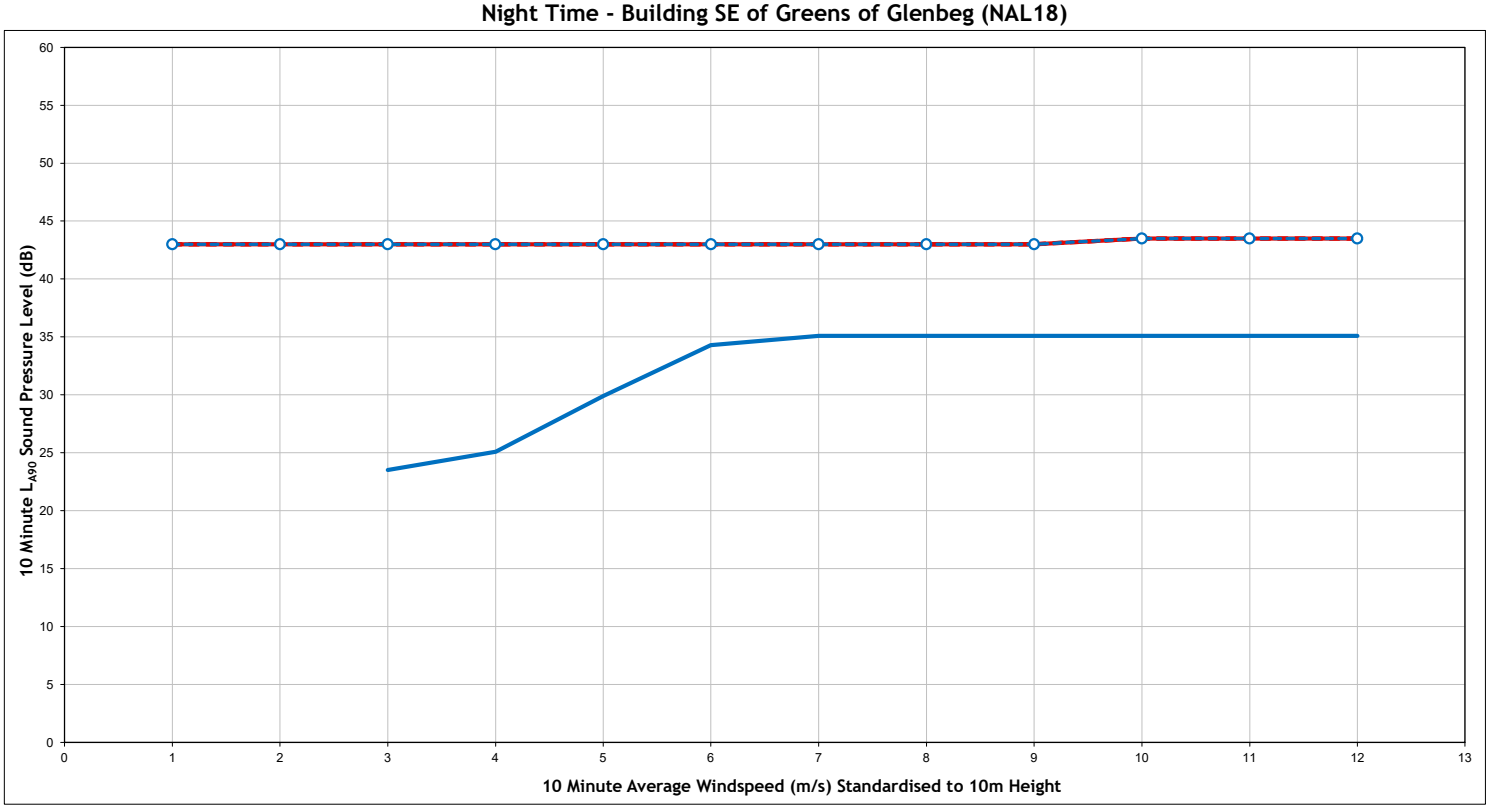
Statkraft

tnei

Daytime - Building SE of Greens of Glenbeg (NAL18)



Night Time - Building SE of Greens of Glenbeg (NAL18)



Legend:

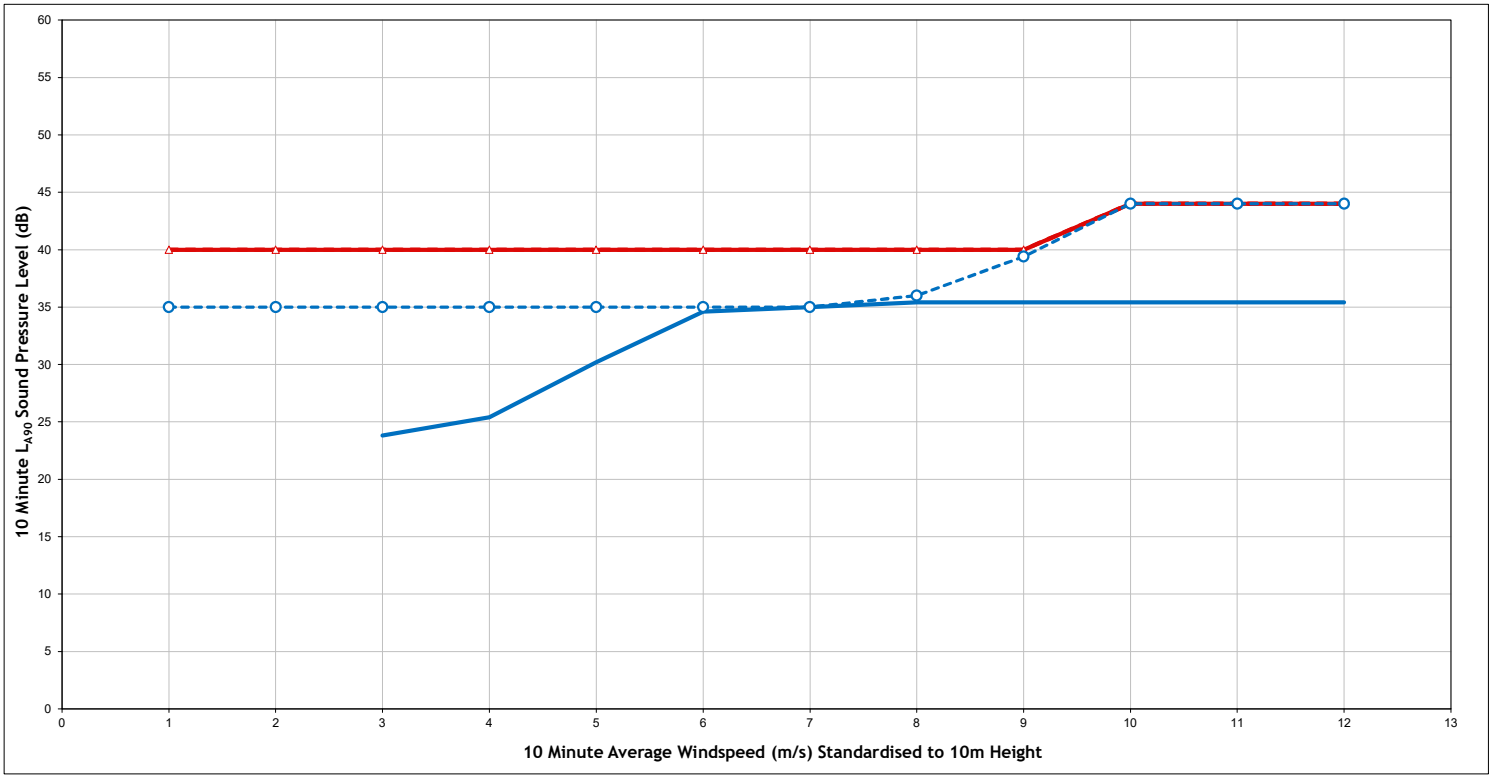
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Building SE of Greens of Glenbeg (NAL18)
Figure Number	A1.4r
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

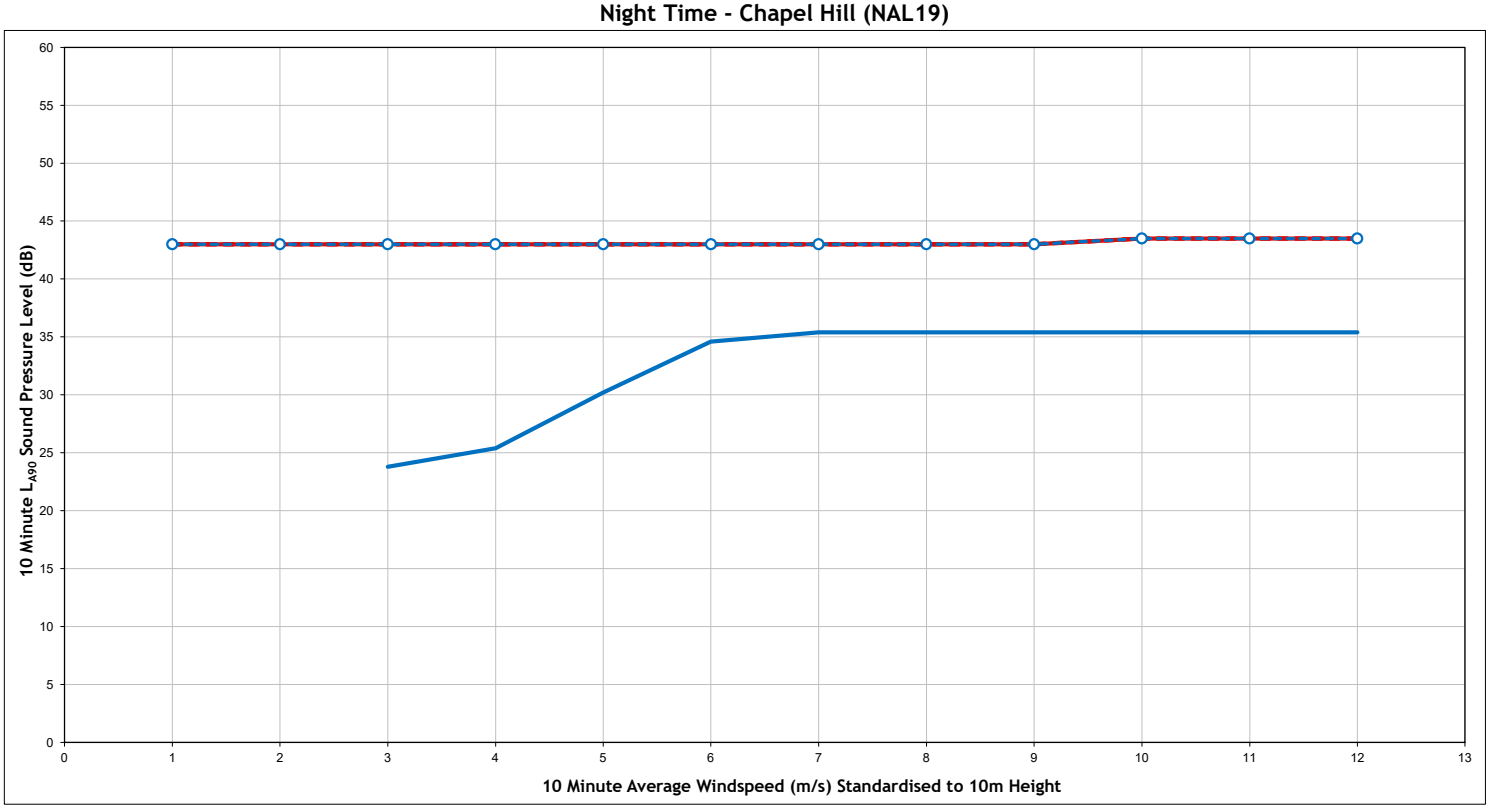
Statkraft

tnei

Daytime - Chapel Hill (NAL19)



Night Time - Chapel Hill (NAL19)



Legend:

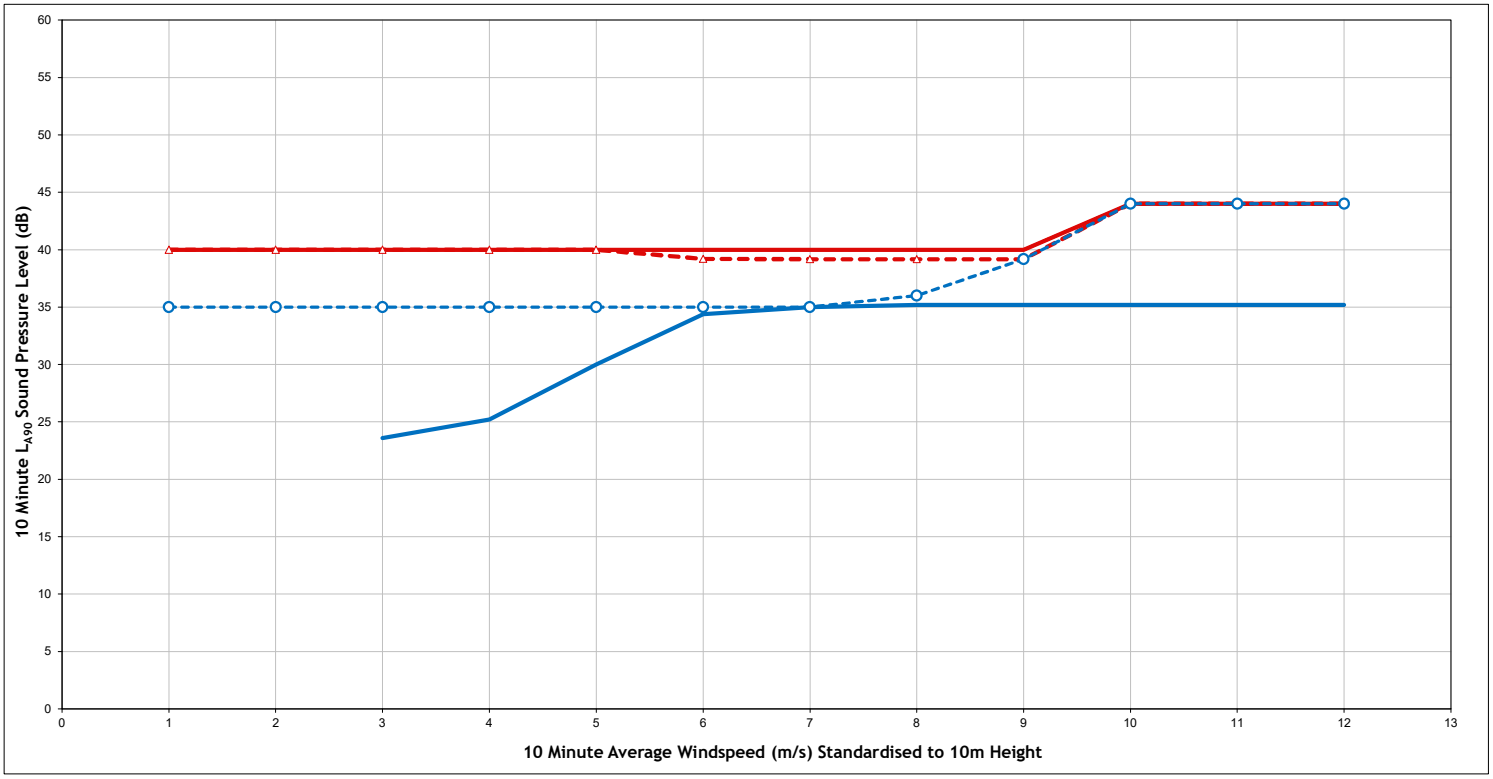
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Chapel Hill (NAL19)
Figure Number	A1.4s
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

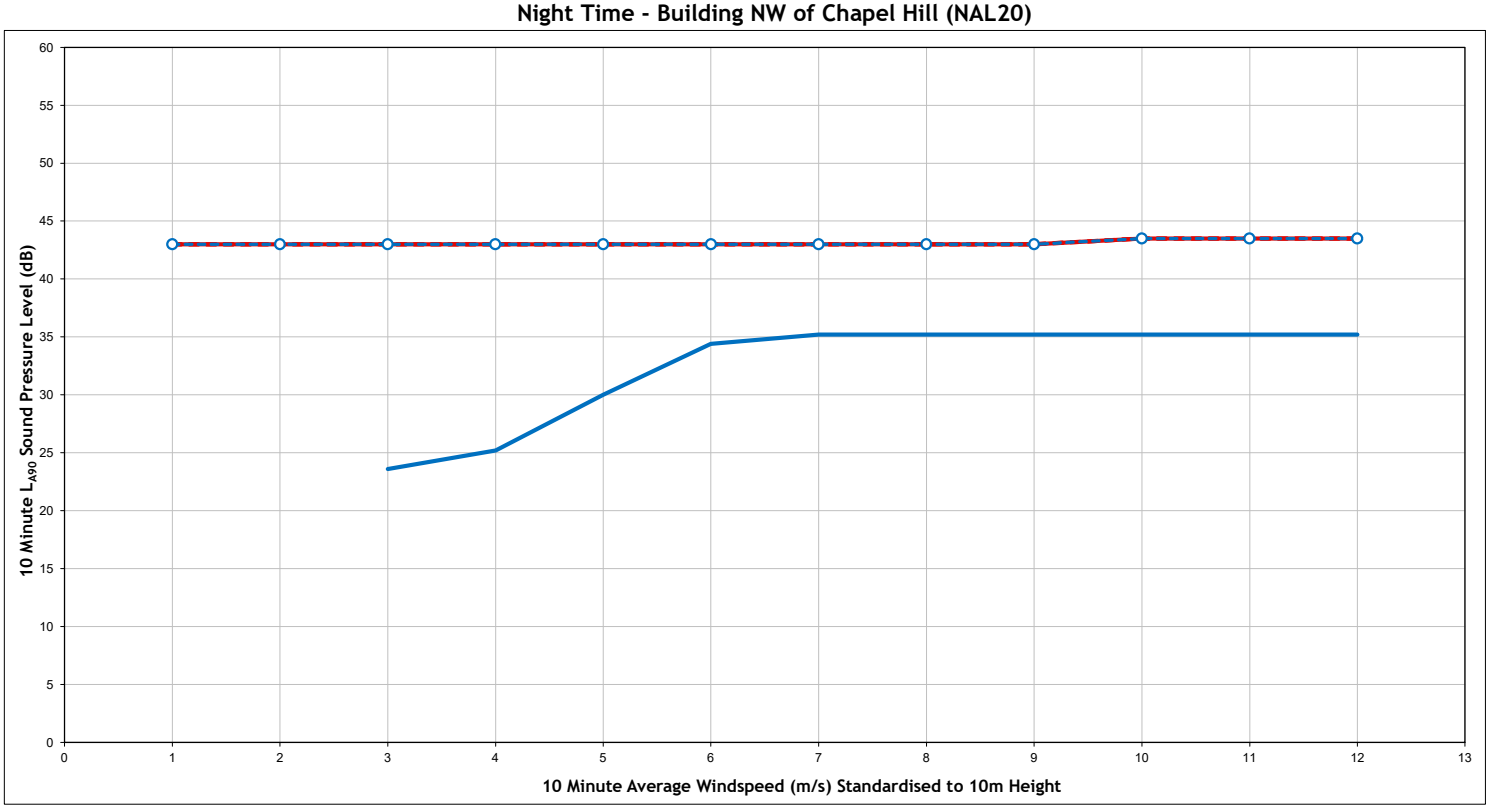
Statkraft

tnei

Daytime - Building NW of Chapel Hill (NAL20)



Night Time - Building NW of Chapel Hill (NAL20)



Legend:

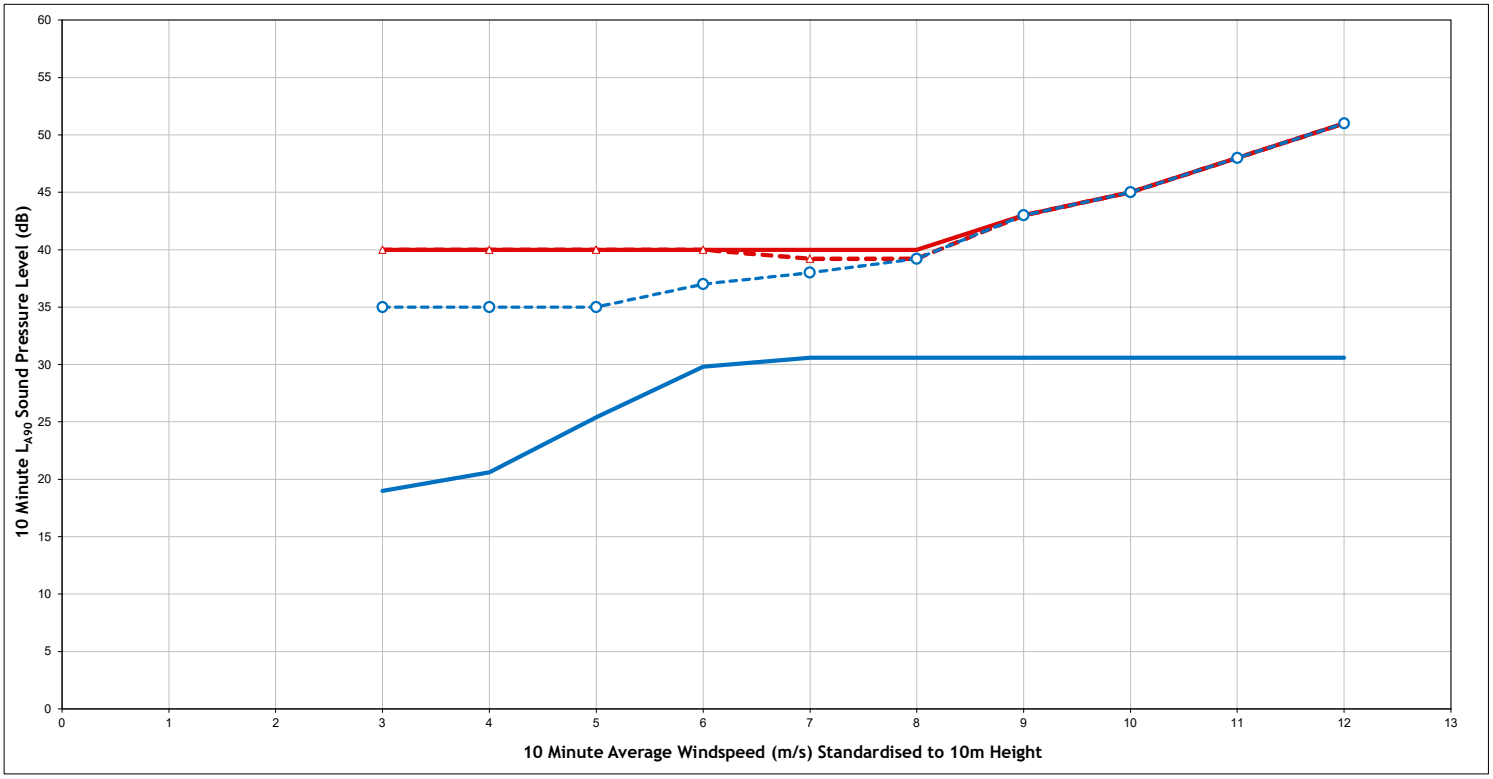
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Building NW of Chapel Hill (NAL20)
Figure Number	A1.4t
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

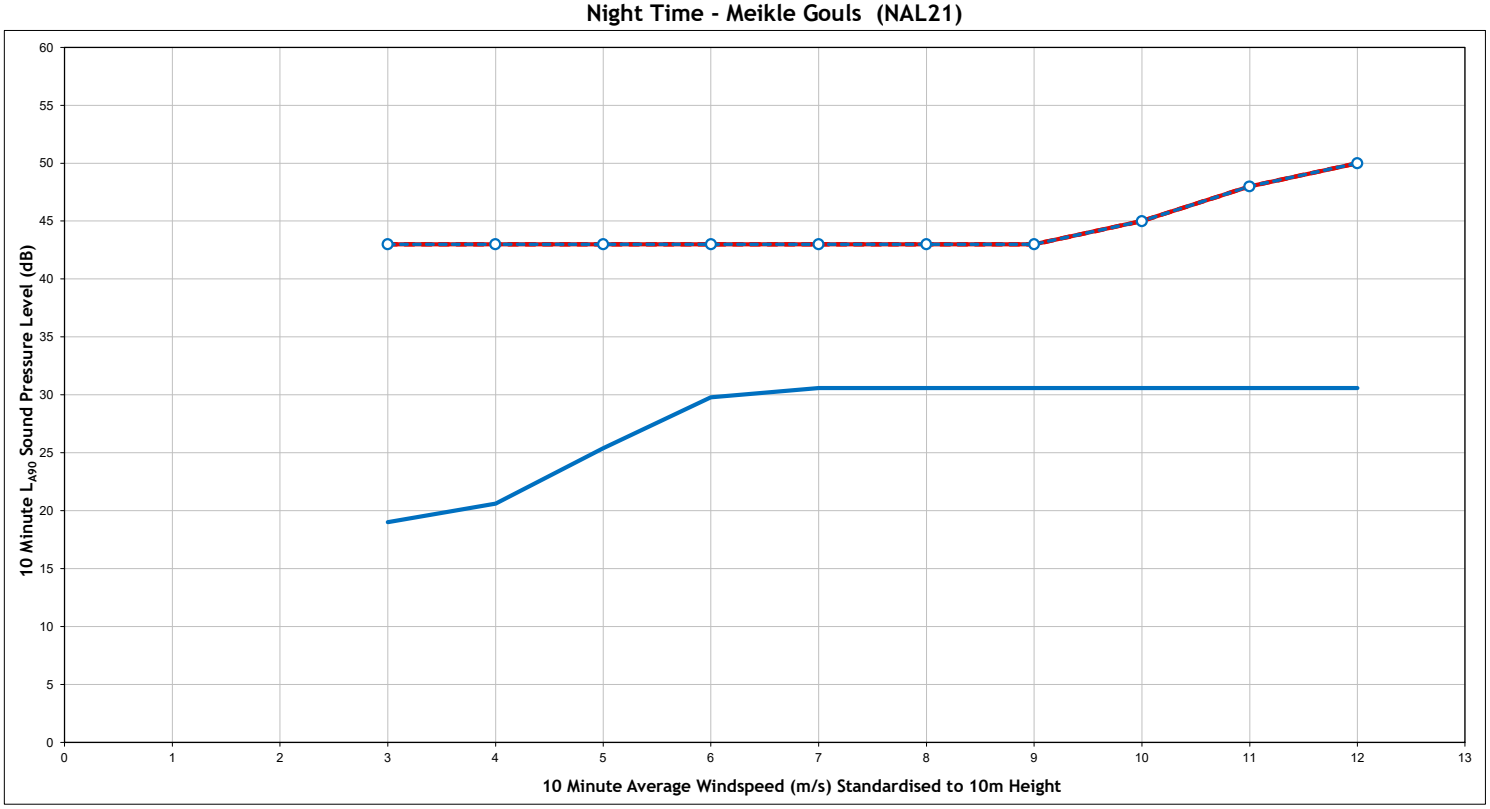
Statkraft

tnei

Daytime - Meikle Gouls (NAL21)



Night Time - Meikle Gouls (NAL21)



Legend:

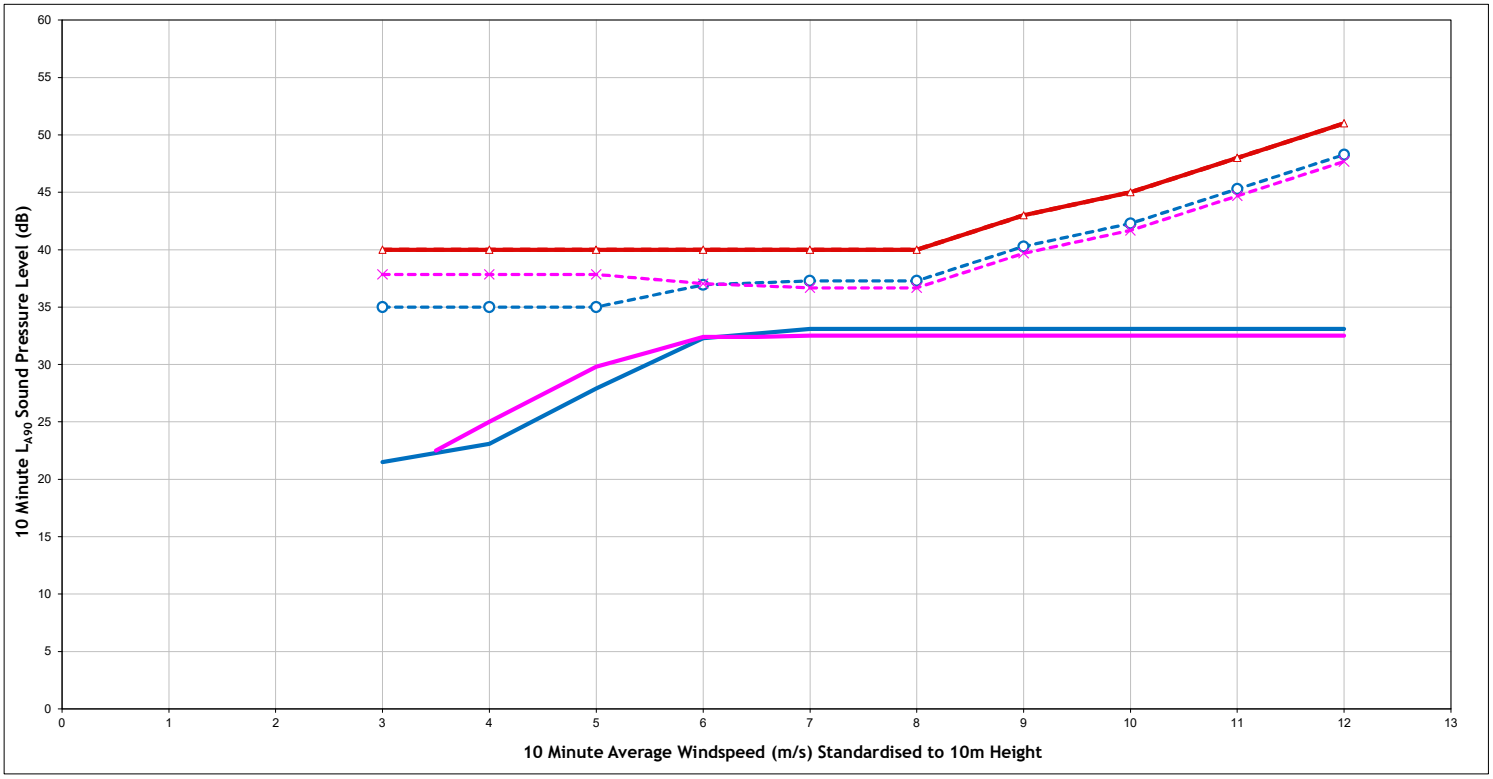
- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Meikle Gouls (NAL21)
Figure Number	A1.4u
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

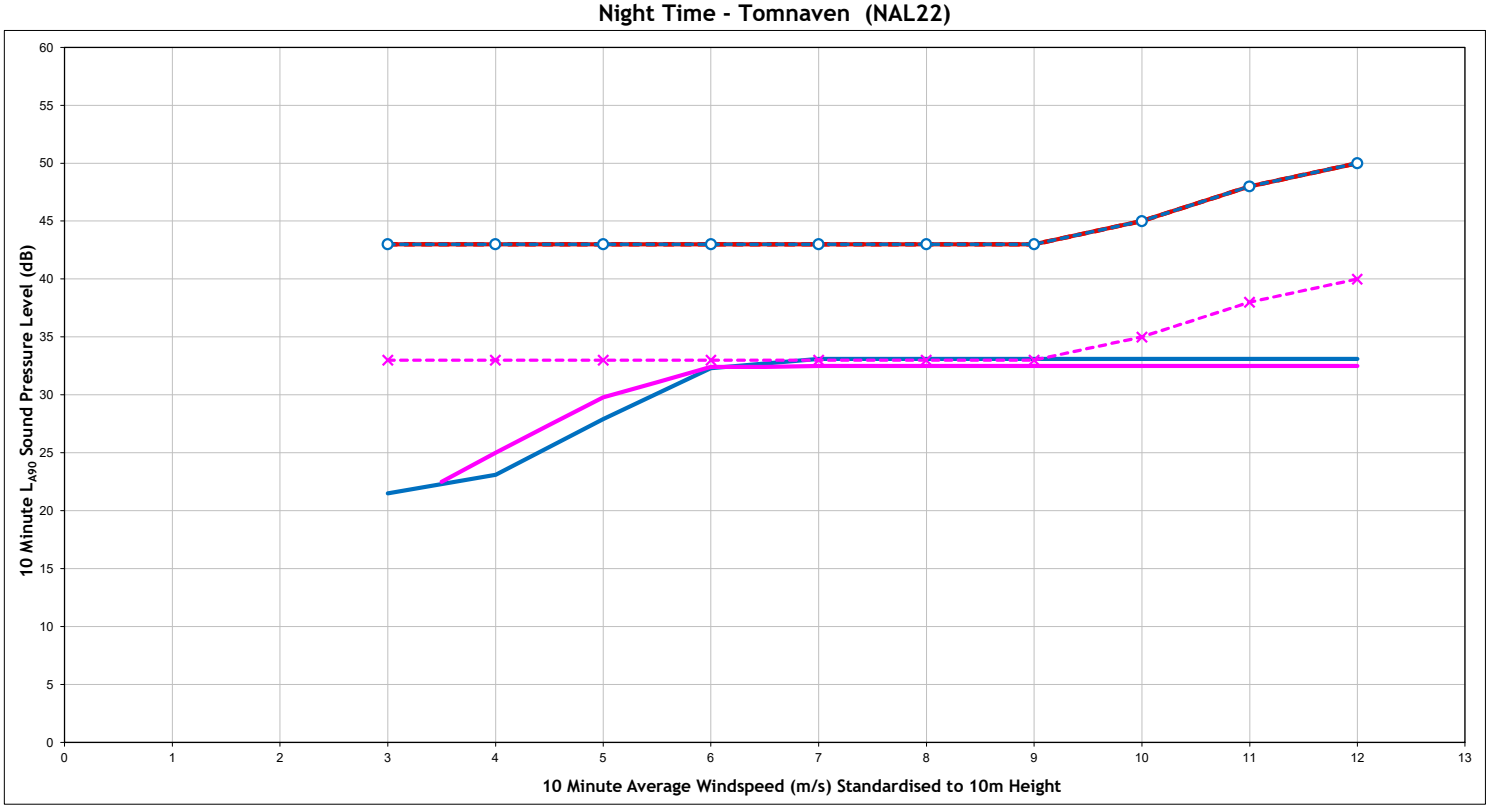
Statkraft

tnei

Daytime - Tomnaven (NAL22)



Night Time - Tomnaven (NAL22)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time
	10 dB below TNL no SSNL required

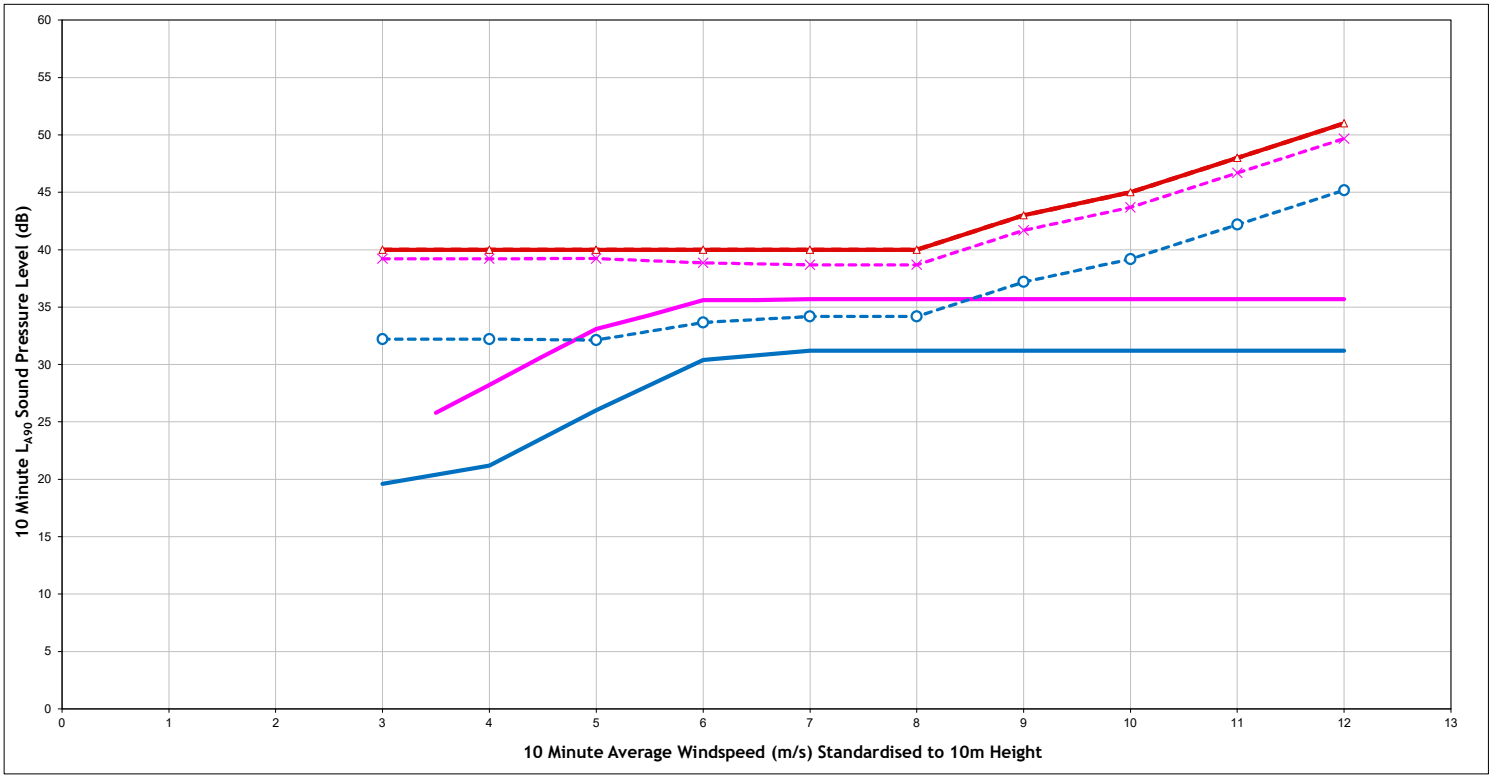
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Tomnaven (NAL22)
Figure Number	A1.4v
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

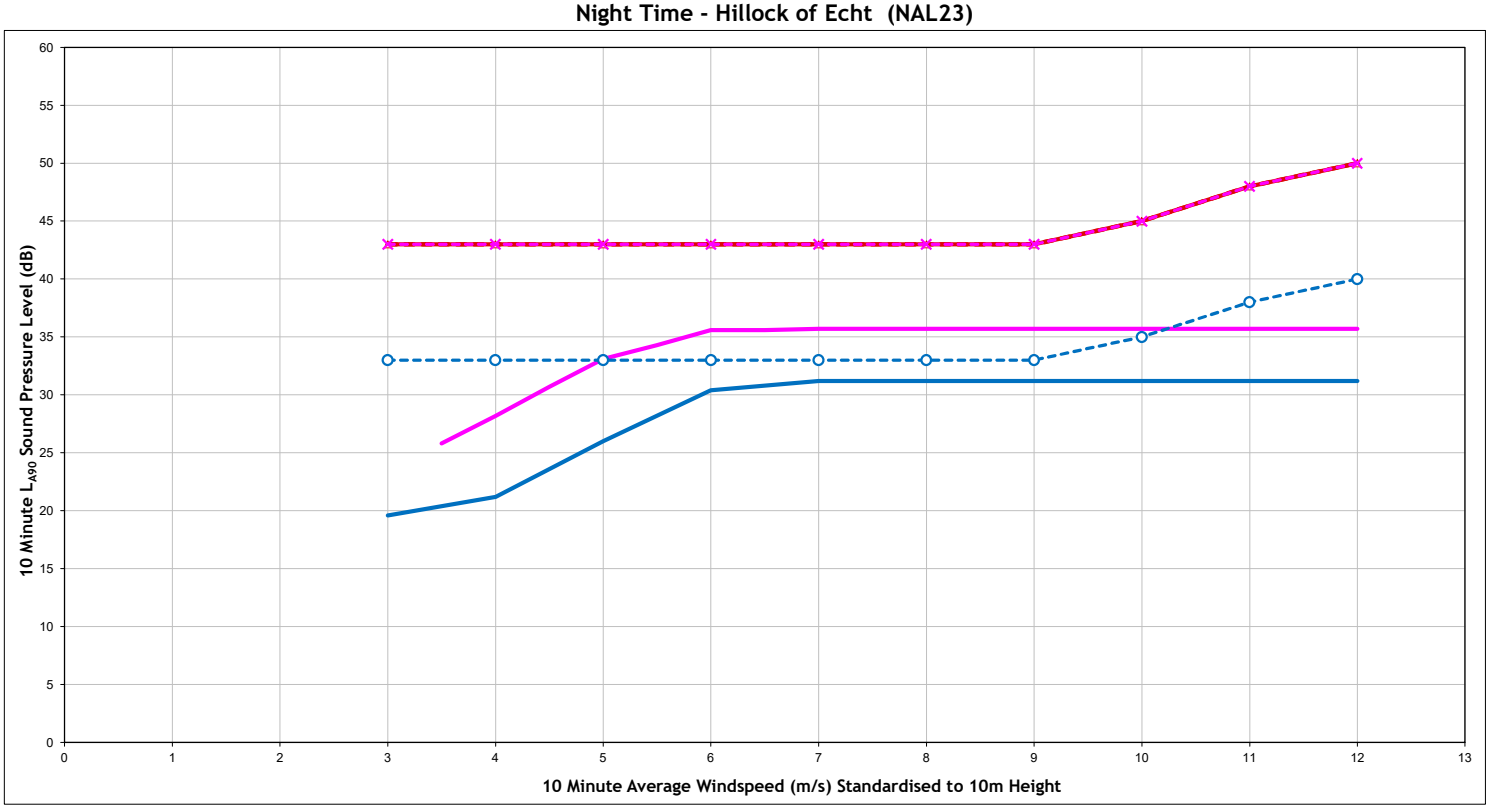
Statkraft

tnei

Daytime - Hillock of Echt (NAL23)



Night Time - Hillock of Echt (NAL23)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time
	10 dB below TNL no SSNL required

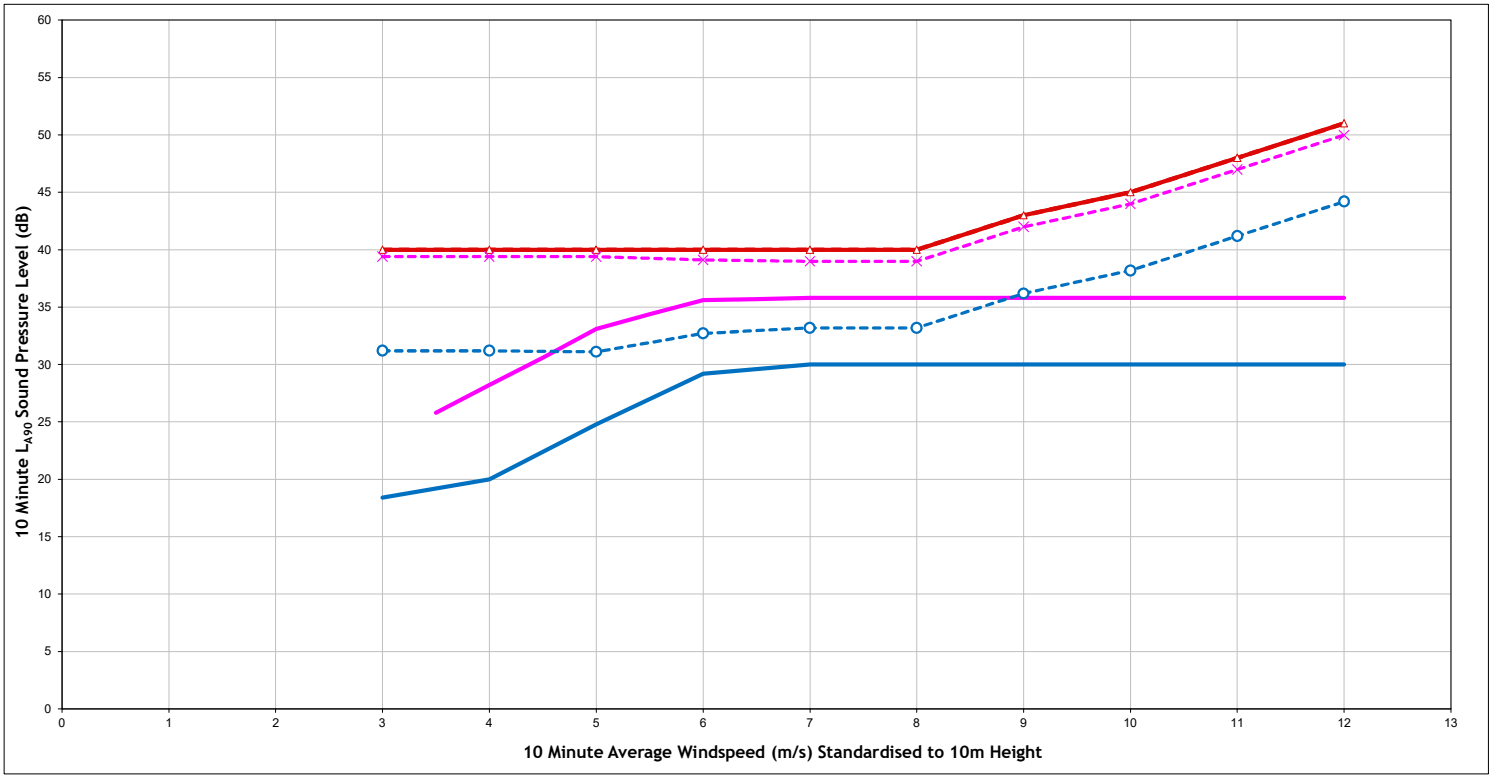
Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Hillock of Echt (NAL23)
Figure Number	A1.4w
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

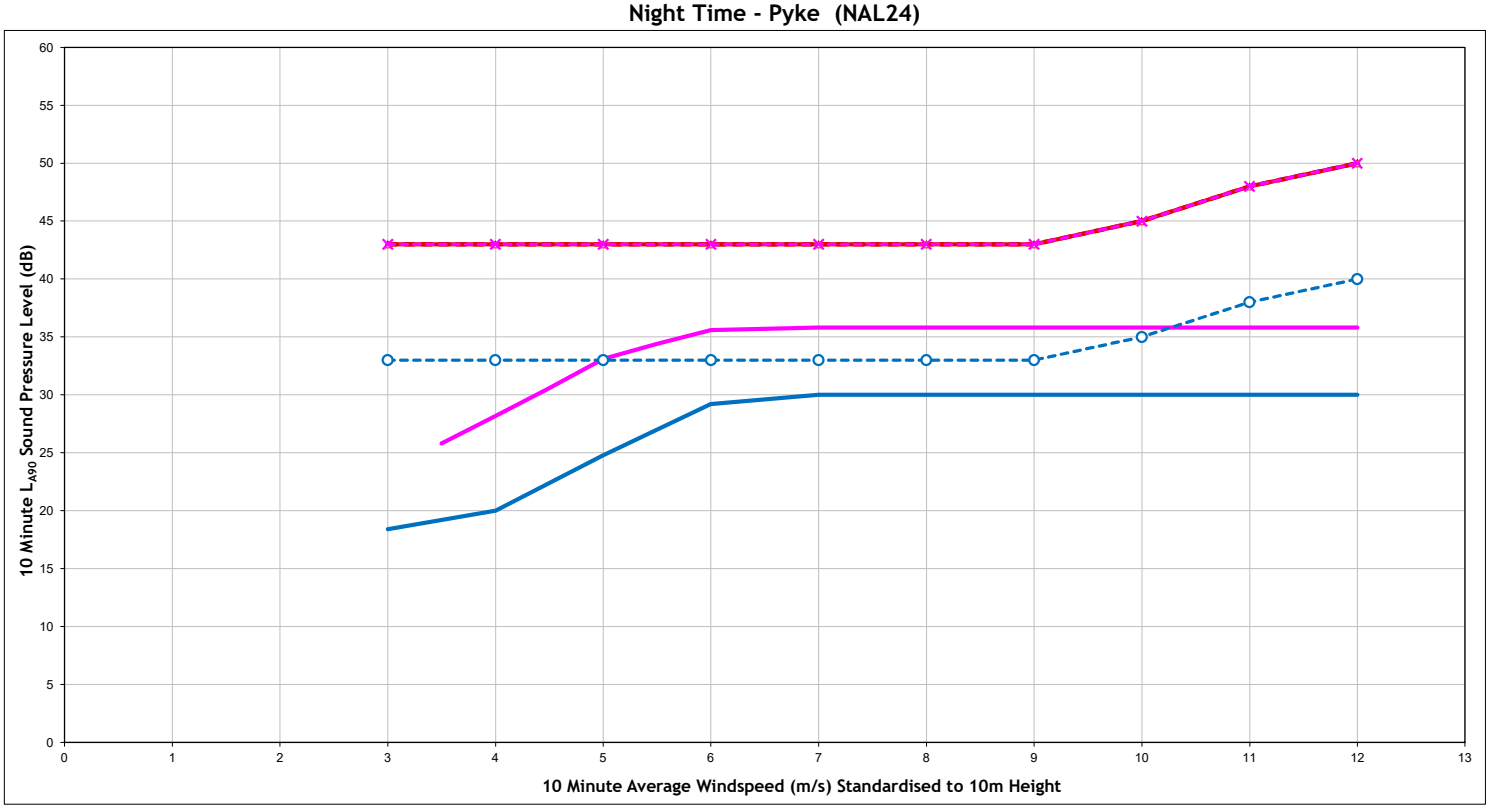
Statkraft

tnei

Daytime - Pyke (NAL24)



Night Time - Pyke (NAL24)



Legend:

- Total ETSU-R-97 Noise Limit
- Residual Noise Limit
- Proposed Development (N163)
- Proposed Development SSNL
- Clashindarroch Predictions
- Clashindarroch SSNL

Notes on Predictions and SSNLs	
Daytime	Night-time
	10 dB below TNL no SSNL required

Note: Where a SSNL is required for Daytime but not required for Night-time, the Night-time SSNL will be set at 10dB below the TNL.

Project	Craig Watch Wind Farm
Client	Craig Watch Wind Farm Ltd
Title	Likely Cumulative Assessment Pyke (NAL24)
Figure Number	A1.4x
Drawn	MT
Checked	JM
Date	25/07/2024
Document Reference	14138

Statkraft

tnei

Annex 2 – Correspondence with the Environmental Health Department at the Councils

20 November, 2020

Ref: 14138-003 R1

Douglas Caldwell
Environmental Health Officer
The Moray Council
Council Office
High Street
Elgin
IV30 1BX

Copy: Sent by email only

Dear Mr Caldwell,

PROPOSED CRAIG WATCH WIND FARM ON LAND TO THE SOUTHEAST OF DUFFTOWN, MORAY: NOISE ASSESSMENT

Craig Watch Wind Farm Limited ('the Applicant') is developing a wind farm ('the proposed development') on land approximately 8 km southeast of Dufftown. The proposed development and potential noise sensitive receptors would be located in Moray and Aberdeenshire and so we will be consulting with both Councils. An indicative turbine layout is shown on the enclosed Figure 1. The Applicant is in the process of preparing a Scoping Report for the proposed development. As such, we would like to consult with you on the proposed approach to the noise assessment in order that noise monitoring can get underway.

Noise would be emitted from the proposed development during the construction, operation and decommissioning phases. Noise emitted during the construction phase would be temporary and short term in nature and can be minimised through careful construction practices. Operational noise from wind energy developments would be controlled through the use of appropriate noise limits which would be imposed to protect the amenity of neighbouring properties without unduly restricting wind energy development. Operational noise limits need to be derived at an early stage of the development to ensure they are satisfied throughout the design process.

TNEI Services Ltd (TNEI) has been appointed by the Applicant to undertake the noise assessments for the proposed development, and prior to commencing the noise assessments we would like to agree with you the noise assessment methodologies and proposed background noise monitoring locations.

Operational Noise

An operational noise assessment will be undertaken in accordance with ETSU-R-97 *'The Assessment and Rating of Noise from Wind Farms'* (ETSU-R-97) and the Institute of Acoustics document *'A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise'* (IOA GPG). In relation to wind turbine noise PAN 1/2011 *'Planning and Noise'* refers to the Scottish Governments 'Onshore Wind Turbines' web based document which states that:

"ETSU-R-97 describes a framework for the measurement of wind farm noise, which should be followed by applicants and consultees, and used by planning authorities to assess and

Newcastle
7th Floor, West One
Forth Banks
Newcastle Upon Tyne
NE1 3PA
Tel: +44(0)191 211 1400
VAT Reg. GB 239 0146 20 | Company Reg. 03891836

rate noise from wind energy developments, until such time as an update is available".

and;

"The Institute of Acoustics (IOA) has since published Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise. The document provides significant support on technical issues to all users of the ETSU-R-97 method for rating and assessing wind turbine noise, and should be used by all IOA members and those undertaking assessments to ETSU-R-97. The Scottish Government accepts that the guide represents current industry good practice."

The noise limits derived in the assessment would inform appropriate noise related planning conditions should an application be made and should Scottish Ministers be minded to grant consent.

ETSU-R-97

ETSU-R-97 describes the findings of the Working Group on Noise from Wind Turbines, the aim of which was to provide information and advice to developers and planners on the environmental assessment of operational noise from wind turbines.

ETSU-R-97 recommends noise limits should be set at 5 dB(A) above existing background noise levels, subject to fixed minimum limits (35-40 dB for quiet daytime and 43 dB for night-time periods), and that these limits should reflect the variation in background noise with wind speed. Different limits apply to those properties that have a financial interest in the wind energy development.

The choice of quiet daytime fixed minimum limits should be considered in light of the guidance contained within ETSU-R-97 and the IOA GPG. Extracts of the guidance contained within ETSU-R-97 and the IOA GPG are included in Annex 1. Noise limits established at properties in accordance with ETSU-R-97 shall be applicable to all existing / proposed wind turbines in the area, and will henceforth be referred to as the 'Total ETSU-R-97 Noise Limits'. We would be very keen to work with both Aberdeenshire and Moray Councils with a view to agreeing suitable daytime fixed minimum limits at an early stage to ensure the development can be designed accordingly. We would welcome the opportunity to discuss the choice of fixed minimum limits with you once background noise data becomes available to ensure that the scheme is designed appropriately in light of data measured at the site.

A Site Specific Noise Limit would then be derived taking account of the noise limits already allocated to, or the limit that may be used by, other wind farm developments in the area. The Site Specific Noise Limits will be derived using the principles contained within the IOA GPG (which may include the use of the controlling property principal / determining if there is significant headroom etc). The Site Specific Noise Limits will be the limits that the proposed development would have to operate within, should consent be granted.

In line with the IOA GPG paragraph 5.4.11 we propose that the cumulative assessment and derivation of Site Specific Noise Limits for the proposed development will utilise available headroom 'where there is significant headroom (e.g. 5 to 10 dB) between the predicted noise levels from the existing wind farm and the total ETSU-R-97 limits'. An 'appropriate margin to cover factors such as potential increases in noise' is considered to be +2 dB above predicted noise levels. We would be grateful if the Council would confirm its agreement to this approach.

In order to establish Total ETSU-R-97 Noise Limits in accordance with ETSU-R-97 it is necessary to determine the relationship between wind speed measured at the proposed development site and background noise levels measured at the closest noise sensitive receptors. This requires the

installation of noise monitoring equipment at representative properties surrounding the site as well as the installation of wind monitoring equipment on the site itself.

It is proposed that a LiDAR unit will be in place on-site for the duration of the noise survey, which will be used to collect wind speed and direction data at various heights. Data from the LiDAR will be used to determine the wind speed at turbine hub height which will then be adjusted to a height of 10 m using a standardised roughness length of 0.05 m to derive 'wind speed as standardised to 10 m height'. Wind speed as standardised to 10 m height will be used in the assessment. This is consistent with method A or B as outlined in the IOA GPG (on page 10 of 40). At least one rain logger will also be installed at one (or more) of the noise monitoring locations to record any periods of rainfall. A series of simultaneous ten-minute measurements will be taken by each piece of equipment over a period of at least two weeks.

Background noise levels will be monitored at a height of between 1.2 m and 1.5 m above ground, in line with the ETSU-R-97 / IOA GPG guidance. The noise monitoring equipment will be located in a free-field position at least 3.5 m away from hard reflective surfaces where practicable and within the residential amenity area.

The following steps summarise the proposed entire noise assessment process for this scheme:

- measure the background noise levels at each receptor. This will involve the continuous logging of the $L_{A90,\ 10min}$ values at each receptor for a minimum period of two weeks;
- obtain simultaneous ten minute average wind speed data from the proposed development site;
- filter baseline noise data to remove any unrepresentative readings (such as periods of rainfall) and split the data into night-time and quiet daytime hours;
- determine the daytime and night-time criterion curves (i.e. Total ETSU-R-97 noise limits) from the measured background noise levels at the nearest neighbours using regression analysis and recommendations within ETSU-R-97 and the IOA GPG;
- specify the type and noise emission characteristics of all existing / proposed wind farms using candidate / operational wind turbine data, and undertake predictions and compare the total cumulative predicted noise levels to the Total ETSU-R-97 Noise Limits;
- undertake a cumulative noise assessment and derive suitable Site Specific Noise Limits for the proposed development using the guidance in the IOA GPG; and
- compare the predicted wind farm noise immission levels for the proposed development with the Site Specific Noise Limit.

Prior to commencing the noise survey we would like to agree suitable locations at which to monitor background noise levels in order to provide a representative dataset for the area. Figure 1 shows the indicative predicted proposed development's noise contours based on the most current layout and proposed background noise monitoring locations.

We have undertaken initial modelling based on a draft 18 turbine layout. In line with current good practice, noise predictions have been undertaken using the propagation model contained within Part 2 of International Standard ISO 9613:1996, Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation. The model assumes mixed ground conditions and data for a candidate turbine, the Vestas V150 which was chosen to be representative of the turbine which could be installed at the site. Figure 1 shows which of the neighbouring properties to the proposed development fall within the 35 dB(A) L_{90} contour. It should be noted that the predictions shown on the contour plot do not account for topography which could decrease the predicted level

(if the landform blocks the path from the turbines to receptors) or could increase the level (if any concave ground profiles exist). Topographical corrections will be considered in detail and included in the final noise assessment where required. Generally, any property outside the 35 dB(A) contour does not need to be considered in the assessment, as protection of the amenity of these properties can be controlled through a simplified noise condition as detailed in ETSU-R-97 (given below). However, due to the presence of other wind farms (both operational and in planning) proximate to the proposed development, total wind farm noise levels may be higher at some properties. As such, TNEI propose to include receptors outside the 35 dB(A) contour to ensure that cumulative wind farm noise impacts are correctly assessed.

ETSU-R-97 states that *'For single turbines or wind farms with very large separation distances between the turbines and the nearest properties, a simplified noise condition may be suitable. If the noise is limited to an $L_{90,10min}$ of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity, and background noise surveys would be unnecessary.'*

We believe noise monitoring equipment installed at eight dwellings would provide a sufficient sample of representative background noise data for the area. The proposed monitoring locations are detailed in Table 1 below and shown on Figure 1. The properties identified for the assessment will be the closest ones to the site in each direction. Hence, it can be assumed that if noise limits can be achieved at these locations then limits will also be achieved at other properties located at greater distances from the wind farm.

Table 1 - Suggested Noise Monitoring Locations (NMLs) for the Proposed Development

Property/Location	Justification
NML1 - Wester Braetown (339420, 838867)	Receptor to the north of the site. Whilst not within the 35dB contour included for completeness and potential cumulative impacts. Closer properties of Glenmarkie and Newtown of Glenmarkie are derelict/uninhabitable.
NML2 - Greens of Glenbeg (340197, 837435)	Nearest receptor to the north east of the site. The status of Greens of Glenbeg has not been confirmed at this time and may be derelict/uninhabited. If it is confirmed that this property is not a noise sensitive receptor then an alternative location of Wester Dumeath to the east is proposed as a potential noise monitoring location.
NML3 - Craig Dorney Lodge (341064, 836153)	Nearest receptor to the east of the site.
NML4 – Lynebain (341286, 835301)	Receptor to the east of the site.
NML5 - Belcherrie (340053, 834077)	Receptor to the south east of the site.
NML6 - Craiglewie (339622, 833349)	Receptor to the south east of the site.
NML7 - Rhinturk (336630, 832936)	Nearest receptor to the south west of the site.
NML8 - Parkhead Steading (334695, 837381)	Receptor to the west of the site. Whilst not within the 35dB contour included for completeness and potential cumulative impacts.

Table 2 details properties that are not considered noise sensitive receptors as they have been identified as derelict or uninhabitable. Therefore these properties will not be included as noise monitoring locations or noise assessment locations. If you have any further information regarding

the status of these properties or would like to discuss this further we would be grateful if you could let us know.

Table 2 - Properties not considered noise sensitive receptors as derelict/uninhabitable

Property/Location	Justification
Glenmarkie (338821, 837511)	Not considered noise sensitive receptor as derelict/uninhabitable
Newtown of Glenmarkie (338824, 838198)	Not considered noise sensitive receptor as derelict/uninhabitable
Chapelhill (340770, 836922)	Not considered noise sensitive receptor as derelict/uninhabitable

Monitoring at the locations listed in Table 1 is subject to consent from the owners/occupiers as well as on-site observations to ensure the properties proposed are suitable and representative. If we are unable to gain access to monitor at the proposed properties, representative alternative locations will be selected if suitable properties are identified and we will inform you of the alternative locations.

Cumulative Noise Assessment

TNEI is aware that there are a number of operational, consented and/or proposed wind farm schemes in the area including Clashindarroch I & II, Clashindarroch Extension, Dorenell, Garbet and Hill of Towie I & II.

A single turbine at Braetown (11/01422/APP) was consented in 2011, however it is not confirmed as being installed and its location has not been identified on site as yet. We would be grateful if Moray Council is able to confirm whether this single turbine was installed and therefore should be included in the cumulative noise assessment.

We would be grateful if you could bring to our attention any other wind farm developments that you are aware of in the area that may merit consideration within the cumulative noise assessment.

If possible, we would be very keen for you or one of your colleagues to attend the installation of the noise monitoring equipment in order for you to agree the exact noise monitoring locations.

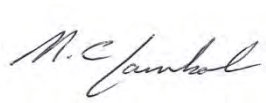
To enable us to progress the assessment I would be very grateful if you confirm whether:

- You are happy with the proposed assessment methods outlined above (ETSU-R-97 and the IOA GPG);
- You agree with the proposed approach that, in line with IOA GPG, the cumulative assessment and derivation of Site Specific Noise Limits for the proposed development will utilise available significant headroom with an appropriate margin +2 dB above predicted noise levels;
- You agree with the general monitoring locations proposed (subject to exact siting);
- You agree that the derelict/ inhabitable properties detailed in Table 2 do not need to be considered as noise sensitive receptors;
- You or one of your colleagues can attend the noise kit installation (which it is anticipated will take place in December/January but we will confirm the date closer to the time); and

- If the Council is aware of any schemes which should be included in the cumulative noise assessment (including the status of the Braetown single turbine) or any other dwellings which should be considered in the assessment of noise impacts.

We are proposing to install the noise monitoring equipment in December/January; therefore, we would appreciate a response to this letter at your earliest convenience. If you have any immediate concerns or queries, please do not hesitate to contact me or my colleague James Mackay. We look forward to hearing from you soon.

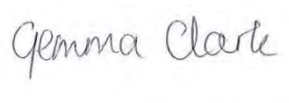
Yours sincerely,



Matthew Lambert
BSc(Hons), MSc TechIOA

Senior Consultant
matthew.lambert@tneigroup.com
Tel: 0191 211 1402

Reviewed and approved by:



Gemma Clark
BSc(Hons), MSc, AMIOA

Principal Consultant
gemma. clark@tneigroup.com
Tel: 0191 211 1418

Enc. Figure 1 – Proposed Craig Watch Wind Farm

Annex 1 - Determining the Fixed Part of the Daytime Amenity Noise Limit

Annex 1: Determining the Fixed Part of the Daytime Amenity Noise Limit

In relation to determining the fixed part of the Daytime Amenity Noise Limit the ETSU-R-97 notes (on page 65) that:

"The actual value chosen for the daytime lower limit, within the range of 35-40 dB(A), should depend upon a number of factors:

• Number of dwellings in the neighbourhood of the wind farm.

The planning process is trying to balance the benefits arising out of the development of renewable energy sources against the local environmental impact. The more dwellings that are in the vicinity of a wind farm the tighter the limits should be as the total environmental impact will be greater. Conversely if only a few dwellings are affected, then the environmental impact is less and noise limits towards the upper end of the range may be appropriate. Developers still have to consider the interests of individuals as protected under the Environmental Protection Act 1990. It is our belief however, in accordance with the report of the Welsh Affairs Committee [23], that there have been no cases of complaints of noise at levels similar to those caused by wind farms leading to a successful prosecution as a statutory nuisance. It should be noted however that the Welsh Affairs Committee also reports that although the noise may not be a statutory nuisance it can clearly be a cause for distress and disturbance, particularly if residents have been promised inaudibility and the noise has a particular quality leading to complaints.

• The effect of noise limits on the number of kWh generated.

Similar arguments can be made when considering the effect of noise limits on uptake of wind energy generated. A single wind turbine causing noise levels of 40 dB(A) at several nearby residences would have less planning merit (noise considerations only) than 30 wind turbines also causing the same amount of noise at several nearby residences.

• Duration and level of exposure.

The proportion of the time at which background noise levels are low and how low the background noise level gets are both recognised as factors which could affect the setting of an appropriate lower limit. For example, a property which experienced background noise levels below 30 dB(A) for a substantial proportion of the time in which the turbines would be operating could be expected to receive tighter noise limits than a property at which the background noise levels soon increased to levels above 35 dB(A). This approach is difficult to formulate precisely and a degree of judgement should be exercised."

The IOA GPG adds some further guidance:

"3.2.2 The day amenity noise limits have been set in ETSU-R-97 on the basis of protecting the amenity of residents whilst outside their dwellings in garden areas. The daytime amenity noise limits are formed in two parts: Part 1 is a simple relationship between the prevailing background noise level (with wind speed) with an allowance of +5 dB; Part 2 is a fixed limit during periods of quiet. ETSU-R-97 describes three criteria to consider when determining the fixed part of the limit in the range of 35 dB to 40 dB L_{A90}, all of which should be considered. They are:

1) the number of noise-affected properties;

2) the potential impact on the power output of the wind farm; and

3) the likely duration and level of exposure.

3.2.3 The rationale for a choice of this limit, or factors which would assist the determining authority in this respect should be set out in the assessment. It is beneficial to the decision maker to display both sets of limits to illustrate the range available and/or the noise limit for the development if agreed previously with the LPA.

3.2.4 Current practice on the three criteria is as follows:

1. The number of neighbouring properties will depend on the nature of the area, (rural, semi-rural, urban) and is sometimes considered in relation to the size of the scheme and study area. The predicted 35 dB L_{A90} contour (at maximum noise output up to 12 m/s) can provide a guide to the dwellings to be considered in this respect.

2. This is in practice mainly based on the relative generating capacity of the development, as larger schemes have relatively more planning merit (for noise) according to the description in ETSU-R-97. In cases when the amenity fixed limit has little or no impact on the generating capacity (i.e. noise is not a significant design constraint) then a reduced limit may be applied.

3. This last test is more difficult to formulate. But ETSU-R-97 notes that the likely excess of turbine noise relative to background noise levels should be a relevant consideration. In rural areas, this will often be determined by the sheltering of the property relative to the wind farm site. Account can also be taken of the effects of wind directions (including prevailing ones at the site) and likely directional effects. For cumulative developments, in some cases the effective duration of exposure may increase because of cumulative effects.

3.2.5 It can be argued that assessing these factors do not represent an acoustic consideration but ultimately a planning consideration, and therefore are difficult for noise consultants to fully determine. However this is described as part of ETSU-R-97 and therefore represents a relevant consideration when determining applicable noise limits. Furthermore, it is necessary, as part of the EIA process to evaluate the noise impacts, which is arguably not fully possible without a complete determination of the ETSU-R-97 limits. Finally, consideration of cumulative noise impacts may require the determination of partial noise limits which may be difficult to obtain unless the amenity noise limit is precisely determined.

3.2.6 Other planning considerations, such as the identification in local planning policy of areas of preferred wind farm development, may also influence or determine the choice of the absolute fixed amenity noise limit."