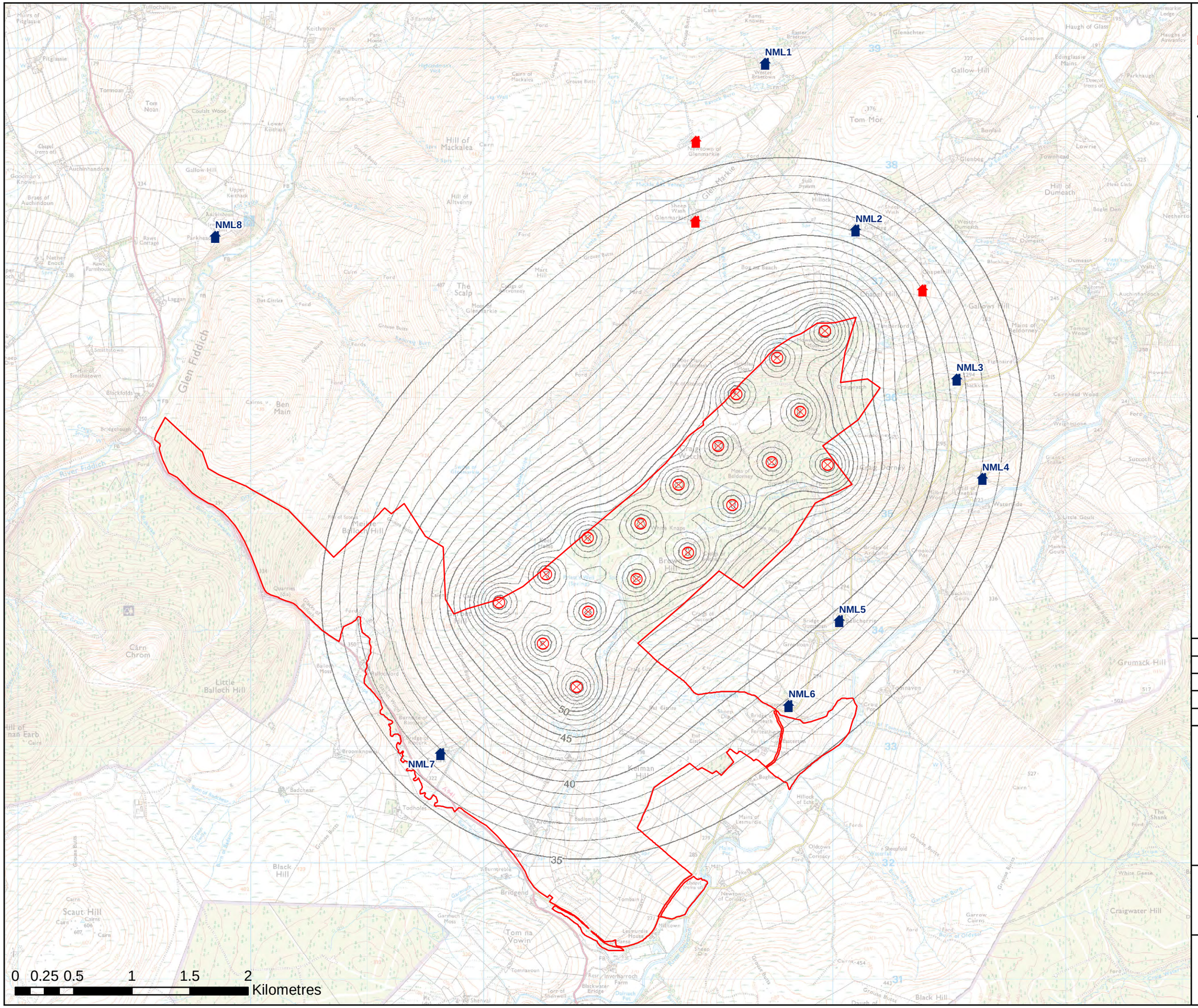

Legend

- Site Boundary
- Indicative Turbine
- Proposed Noise Monitoring
- Predicted Wind Turbine Noise dB(A), L90 based on Vestas V150 wind turbine*

*Noise Predictions have been undertaken using mixed ground (G=0.5) at a receiver height of 4m above ground level. The contour plot models the highest noise output predicted between 0 and 10m/s as standardised to 10m height.
Noise contours do not account for topographical corrections due to terrain, accordingly predictions should be treated as indicative only.

N

R1	THIRD ISSUE	MCL	GC	GC	20/11/2020
R1	SECOND ISSUE	MCL	GC	GC	17/11/2020
R0	FIRST ISSUE	MCL	JM	JM	23/10/2020
REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE

Project	Craig Watch Wind Farm
Client	Statkraft
Title	Proposed Noise Monitoring Locations
Figure No.	1
Scale	1:30,000 @A3
Doc. Ref.	14138-003

Statkraft

tnei

29 March, 2021

Ref: 14138-005 R0

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

Copy: Sent by email only
neal.macpherson@moray.gov.uk

Dear Mr Caldwell,

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

As you are aware, Craig Watch Wind Farm Limited ('the Applicant') is considering developing a wind farm ('the proposed development') on land approximately 8 km southeast of Dufftown. As part of the work undertaken to identify receptors in the area for the noise assessment and other Environmental Impact Assessments (EIA), the project team has identified a number of farmsteads/ buildings which appear to be derelict or abandoned and uninhabitable.

For the EIA it is only proposed to consider, assess and set noise limits at habitable buildings in the vicinity of the wind farm. The purpose of this letter therefore is to provide further information on the derelict and abandoned/ uninhabitable buildings that have been identified and seek the Council's agreement that the buildings do not need to be considered as sensitive receptors within the EIA Report for noise or other EIA disciplines (such as residential visual amenity).

The figure included below shows the location of the buildings in relation to the site and aerial photographs/ individual photographs of the buildings are also included below.

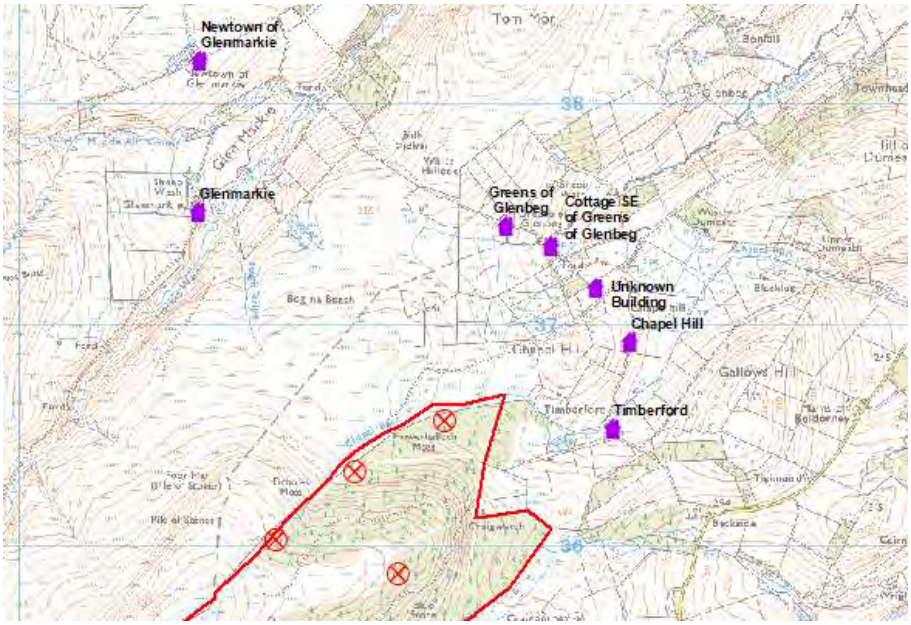

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Table 1 details the grid coordinates for the individual buildings.

Table 1 - List of buildings

Farmstead/ Building Name	Grid reference (Easting, Northing)
Glenmarkie	338821, 837511
Newtown of Glenmarkie	338824, 838198
Greens of Glenbeg	340208 , 837453
Cottage to south east of Greens of Glenbeg	340416, 837360
Chapel Hill	340770, 836922
Timberford	340694 , 836534
Unknown Building	340620, 837170

Photos of the individual buildings are included below. The aerial photographs are reproduced using Google Earth Pro.

Glenmarkie

Newton of Glenmarkie

Greens of Glenbeg

Cottage to the South East of Greens of Glenbeg

Chapel Hill

Timberford

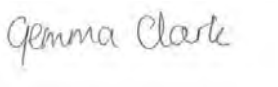
Unknown Building Name

As part of the EIAR submitted for Garbet Wind Farm, the farmsteads/ buildings of Glenmarkie, Newton of Glenmarkie, Greens of Glenbeg, Timberford and Chapel Hill are described as derelict, abandoned or uninhabitable and were, for those reasons, excluded from their assessment work.

To enable us to progress the assessment we would be very grateful if you confirm whether you agree that the derelict/ abandoned/ uninhabitable properties detailed in Table 1 do not need to be considered as noise sensitive receptors for the purpose of the EIAR.

We would appreciate a response to this letter at your earliest convenience. If you have any questions, please do not hesitate to contact me. We look forward to hearing from you soon.

Yours sincerely,



Gemma Clark
BSc(Hons), MSc, AMIOA

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

Reviewed and approved by:

Mark Tideswell
BSc(Hons), AMIOA, Dip

Senior Consultant
mark.tideswell@tneigroup.com
Tel: 0191 211 1403

Gemma Clark

From: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Sent: 23 April 2021 17:27
To: Gemma Clark
Cc: 'Lyn Farmer'
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Gemma

I did have a successful site visit round all the identified properties yesterday and agree that they are all either derelict or abandoned.
In the past we have considered planning conditions that certain identified properties not be brought back into use and I'll need to think about that here.

In answer to your email of 29th March I would agree that they all come within the derelict/abandoned/uninhabitable category and don't need considered within the noise assessment as noise sensitive receptors.

I hope that assist for now and I'll share this with Lyn Farmer in the Shire as a couple of properties just fall into their administrative boundary.

I'll get back to early next week on noise limits too , further to previous discussions.

Kind regards
Douglas

From: Gemma Clark <gemma.clark@tneigroup.com>
Sent: 22 April 2021 10:47
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Cc: #Craig Watch EIA PM <CraigWatch@ramboll.com>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Douglas,

I hope that you are well and that your back is better now. I was just wondering whether you have had a chance yet to visit the derelict/ abandoned buildings?

I look forward to hearing from you.

Kind regards

Gemma

Gemma Clark
Principal Consultant

Gemma Clark

From: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Sent: 01 April 2021 16:27
To: Ewan Watson
Cc: Gemma Clark
Subject: RE: Craig Watch Noise Monitoring Locations

Hi Ewan

Thanks for the email and I too found it helpful to meet up and accompany during the installation.

I can confirm that, subject to the outcome of the background noise survey findings, that the use of Easterton as a proxy location for the northerly receptors at Braetown, would be the most robust approach.

I am in discussion with Gemma on the other aspects she has recently highlighted this week and I'll copy you in on those replies.

Kind regards
Douglas

From: Ewan Watson <ewan.watson@tneigroup.com>
Sent: 22 March 2021 14:25
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Cc: Gemma Clark <gemma.clark@tneigroup.com>
Subject: Craig Watch Noise Monitoring Locations

Good Afternoon Douglas,

Just wanted to email to say thank you for accompanying me on site for the installation of the noise kits for the Craig Watch wind farm background noise survey. Your input was very much valued especially given the situation we faced with choosing a proxy location to represent the receptors to the north of the proposed development.

I wanted to email and confirm that, as was discussed on site, given the limitations we had in terms of locations in which to install noise monitoring equipment and the subjective observations we noted whilst on site, you are happy that the most robust approach in this situation is to use Noise Monitoring Location 04 (Easterton) as a proxy location to represent the receptors located to the north?

If there is anything further you would like to add to this approach or highlight anything of note that I haven't touched upon that would be useful for myself and my colleague Gemma to know for purposes of the assessment, please let us know.

Thanks again,

Ewan Watson
Technical Consultant

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Address: TNEI, 7th Floor, 80 St Vincent Street, Glasgow, G2 5UB

Gemma Clark

From: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Sent: 01 April 2021 13:57
To: Gemma Clark
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Gemma
Further to your email I would confirm that Lyn and I had discussions this morning on points 2 and 6 below and I would make the following comments –

1. In relation to point 2 I would see no objection or concern in relation to approach being suggested here with +2 dB above predicted levels, where significant headroom has been identified.
2. In relation to point 6 on limits then our approach is to look at, for daytime, the greater of L A 90 of 35dB of background sound level + 5, and a night-time limit at the greater of L A 90 40 dB or background sound level +5. I understand from Aberdeenshire's perspective a lower night time fixed limit of L A 90 38 dB is expected.
3. I think in these circumstances, when considered in the context of the adjacent Garbet Hill, and other developments in the planning system at Clashindarroch, the limits suggested in 2 when considered cumulatively with these other developments, would give rise to a daytime cumulative value heading towards 40 dB, which is the maximum desirable.

Happy to enter into further discussions on the above – I'm on leave from tonight and would be good to have a chat on my return w/c 12/04

Kind regards
Douglas

From: Gemma Clark <gemma.clark@tneigroup.com>
Sent: 29 March 2021 16:50
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Cc: #Craig Watch EIA PM <CraigWatch@ramboll.com>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Douglas,

Further to the email below, I was wondering whether you have had the chance yet to discuss points 2 and 6 with colleagues in Aberdeenshire Council?

We had some feedback from Lyn at Aberdeenshire regarding point 2 (see attached email). As per our consultation letter where significant headroom is available we propose:
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.

Please could you confirm if you are happy with our proposed approach which is more cautious than Aberdeenshire's standard approach?

With regards to point 6, we appreciate that the background noise survey has only just started therefore we cannot yet provide our thoughts on the choice of fixed minimum noise limits but we would welcome any initial feedback you may have so that we can consider it once the background noise data and more information on the Craig Watch layout and other nearby schemes becomes available.

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From: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Sent: 01 April 2021 13:59
To: Gemma Clark <gemma.clark@tneigroup.com>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Gemma
I was set to visit the area this afternoon but injured my back and can't drive today. I have been already to Newton of Glenmarkie and reported agreement on this status to matthew Lambert previously.

I will get back there early w/c 12/04 and then be able to respond definitively on the properties.

Kind regards
Douglas

From: Gemma Clark <gemma.clark@tneigroup.com>
Sent: 29 March 2021 12:45
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Cc: #Craig Watch EIA PM <CraigWatch@ramboll.com>; Antas Jessica <Jessica.Antas@statkraft.com>; Neal MacPherson <Neal.MacPherson@moray.gov.uk>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Douglas,

I hope that you are well. Further to your previous emails with my colleague Matthew, please find attached a letter providing further information on the derelict/ abandoned buildings to the north of the proposed development.

If you have any questions or require additional information then please let me know. We look forward to hearing from you soon.

Kind regards

Gemma

Gemma Clark
Principal Consultant

tnei

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From: Matthew Lambert <matthew.lambert@tneigroup.com>
Sent: 09 February 2021 09:56
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Cc: Gemma Clark <gemma.clark@tneigroup.com>; Ewan Watson <ewan.watson@tneigroup.com>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Douglas

Thanks very much for the update.

We managed to get confirmation from the landowner last week that Greens of Glenbeg, along with Newton of Glenmarkie and Glenmarkie, are not inhabited. I also understand that the Garbet Wind Farm application which is now available did not include these properties as noise sensitive receptors.

As you may have expected, due to the weather the Lidar has not yet been installed. We are therefore just waiting for better conditions before that is installed and we can then go to site and install the noise kits. We will update you once we know more and will invite you to come along to the noise kit installation.

Also just to let you know that this is my last week at TNEI so I will be handing over the project to my colleague Gemma Clark who is cc'd. Once we are able to install the noise kits it is likely to be my colleague Ewan Watson who will be going to site for TNEI so I have also cc'd him.

Thanks very much for your help to date.
All the best
Matt

Matthew Lambert
Senior Consultant

tnei

Manchester | Newcastle | Glasgow | Cape Town

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From: Douglas Caldwell
Sent: 05 February 2021 17:38
To: Matthew Lambert <matthew.lambert@tneigroup.com>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Matthew
Sorry for not replying sooner and unfortunately I've not been able to get to this site. The weather is definitely not great for the next week ahead and will limit the opportunity to get there.

If I get a chance at the end next week I'll try to confirm the situation with the property.

Kind regards
Douglas

From: Matthew Lambert <matthew.lambert@tneigroup.com>
Sent: 20 January 2021 09:28
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Douglas

Thanks very much for the update and information from site visit, much appreciated.

We have received permission from residents to monitor at a number of properties that will give us a good range of monitoring locations but have not received any communication from two letters to Greens of Glenbeg. It is not clear from aerial imagery whether this property is inhabited/derelict and previous project team site visits have not been

able to reach there due to forestry activities further down tracks – did you happen to manage to visit or see that property?

I have been informed the Lidar installation will definitely not go ahead this week due to the weather. I am due to get another update on potential Lidar installation dates early next week so I will update you once I know more.

Thanks very much
Matt

Matthew Lambert
Senior Consultant

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From: Douglas Caldwell
Sent: 19 January 2021 16:17
To: Matthew Lambert <matthew.lambert@tneigroup.com>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Matthew

I managed up around some of the properties this morning, but due to heavy snow and ice didn't manage as far as Glenmarkie.

I did observe that Newton of Glenmarkie has two houses at the site and all windows boarded up (uninhabited). I couldn't say if they are uninhabitable and it may be feasible to redevelop these without planning permission. Both appear to not have been lived in for some time. Perhaps your client can make further enquiries with the land owner on this and Glenmarkie ?

In relation to Braetown I don't see the 20 kw turbine erected on site and permission appears to have lapsed for a 2011 consent.Having regard to our GIS planning , I don't see any other planning permission for residential development nearer than the existing properties around the development in Moray

I hope this assists for now and weather conditions likely to remain a bit treacherous in the days ahead. If you are able to update me on Lidar installation I'll try to meet at the noise monitoring installation period.

Kind regards
Douglas

From: Matthew Lambert <matthew.lambert@tneigroup.com>
Sent: 14 January 2021 11:21
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Douglas

Just to update you on Craig Watch noise assessment. I have been told that the Lidar may potentially be installed from the end of next week, which would allow us to commence noise monitoring after that, although this is weather

dependent and with recent snow fall and potentially more to come this may be pushed back. I will update you as I know more.

With the conditions as they have been I don't know whether you have managed to get out on site or found out any further information on status of properties as you discussed as yet?

Thanks very much
Matt

Matthew Lambert
Senior Consultant

tnei

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From: Douglas Caldwell
Sent: 24 December 2020 11:11
To: 'Matthew Lambert' <matthew.lambert@tneigroup.com>
Cc: 'Lyn Farmer' <lyn.farmer@aberdeenshire.gov.uk>
Subject: RE: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Hi Matt,

Thanks for the opportunity to comment on the current proposals. I would make the following comments at this stage-

1. I welcome the methodology in general terms as working within the framework of ETSU-R-97, the IOA Good Practice Guide and Supplementary Guidance Notes (SGN's). Moray Council wind energy guidance should also be taken cognisance of and is available at the following link. http://www.moray.gov.uk/downloads/file118604.pdf It would seem useful to clarify if there is the possibility of blasting for borrow pits, or the use of mobile screening plant in the construction phase, if known at this stage
2. I note and agree in principle on the concept of utilising available headroom, as described in 5.4.11 of IOA GPG. I would like to discuss this aspect with colleagues in Aberdeenshire before replying in full on a notional dB increase.
3. Monitoring locations – Glenmarkie and Newtown of Glenmarkie – I would propose to site visit there in the first week of January and clarify their current status as uninhabitable, as well as a look at the proposed locations. I also will carry out a planning search to see if there are live consents and get bqack to you.
4. I would welcome an invitation to attend installation of noise monitoring equipment, subject to my availability at the time.
5. Braetown 11/01422/APP 20 kw single turbine –my records show this as at a status of "Approved Or Under Construction". I would hope to carry out a site visit to recheck the current situation. It would seem prudent to account for it at the time of writing.
6. Daytime fixed limits – I think this will be influenced by the timing of other nearby developments to some extent and where this sits in the planning timeline. Further discussion with colleagues in Aberdeenshire would be helpful early in the New Year.

I hope this reply is of assistance at this stage and you should note my comments are provided at this stage without prejudice to the views expressed at the time of determination of a lodged application.

I'll get a further update early into the New Year after I have been to the localities.

Kind regards
Douglas

From: Matthew Lambert <matthew.lambert@tneigroup.com>
Sent: 20 November 2020 12:22
To: Douglas Caldwell <Douglas.Caldwell@moray.gov.uk>
Subject: 14138 - Proposed Craig Watch Wind Farm - Noise Assessment Consultation

Dear Douglas

TNEI has been appointed by Craig Watch Wind Farm Limited to undertake a noise assessment for the proposed Craig Watch Wind Farm which is located on land approximately 8km southeast of Dufftown.

Please find attached a letter detailing the proposed approach to the noise assessment and proposed noise monitoring locations. We would welcome your comments at your earliest convenience.

If you would like to discuss the assessment further, please do not hesitate to contact me.

Kind regards
Matt

Matthew Lambert

Senior Consultant

Manchester | Newcastle | Glasgow | Cape Town

Tel: +44(0)191 211 1402

Address: TNEI, 7th Floor, West One, Forth Banks, Newcastle Upon Tyne, NE1 3PA
Registered in England & Wales No. 03891836

Registered Address: TNEI Services Ltd, Bainbridge House, 86-90 London Road, Manchester M1 2PW

20 November, 2020

Ref: 14138-003 R1

Lyn Farmer
Environmental Health Officer
Aberdeenshire Council
Woodhill House
Westburn Road
Aberdeen
AB16 5GB

Copy: Sent by email only

Dear Lyn Farmer,

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

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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.

We note that the Aberdeenshire Council's developer guidance (https://www.aberdeenshire.gov.uk/media/2646/20150206wtguidancenote.pdf) states that *'Aberdeenshire Council expects that existing and consented wind turbine developments will be operating to full capacity of their consented noise limits'* but that *'there may be some circumstances where an alternative approach is more appropriate'.* 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.

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.

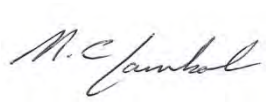
If possible, we would be very keen for you or one of your colleagues to attend the installation of the noise monitoring equipment in order for you to agree the exact noise monitoring locations.

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 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
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Senior Consultant
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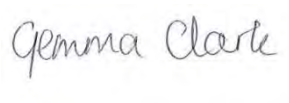

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Enc. Figure 1 – Proposed Craig Watch Wind Farm

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:

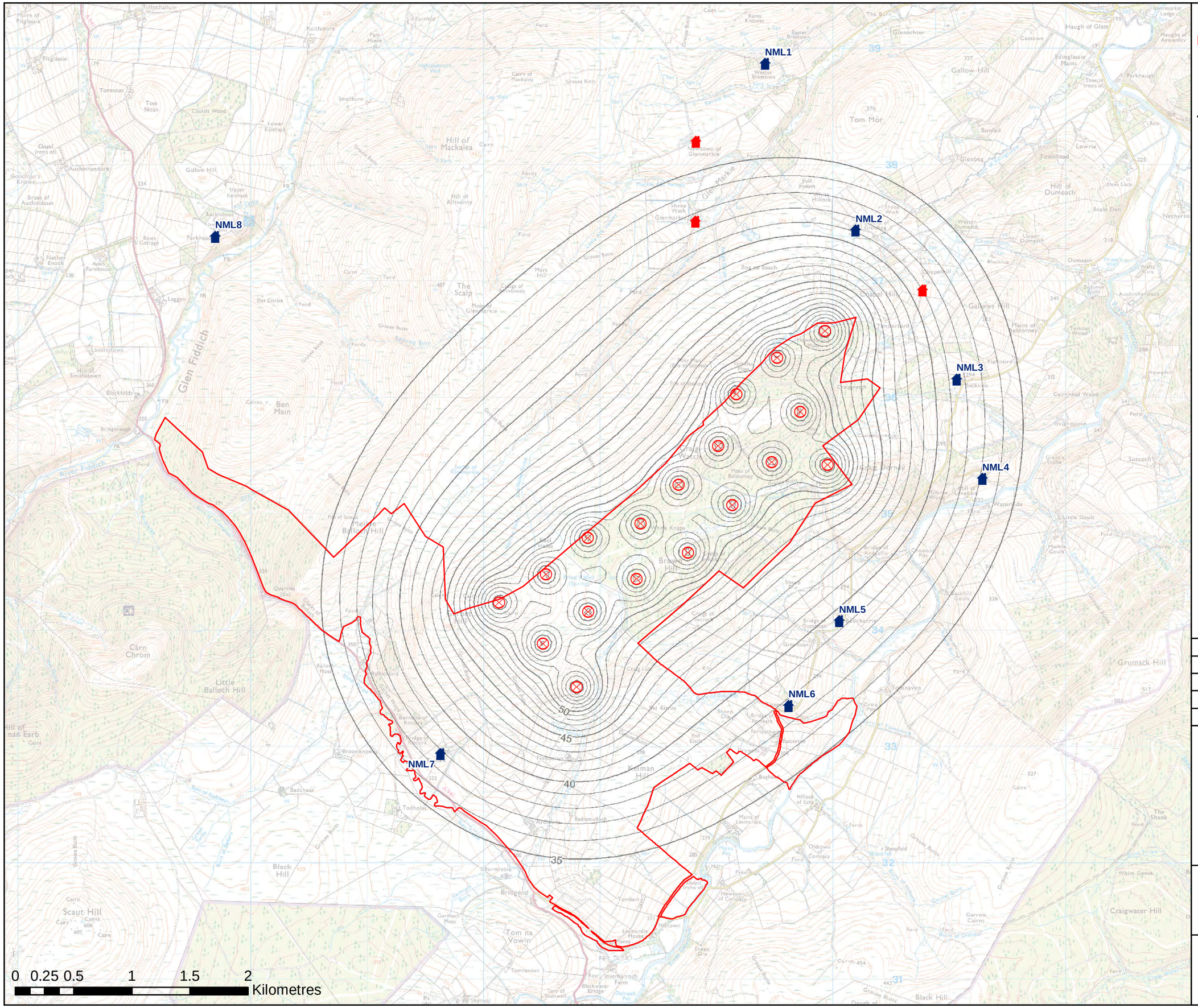
1. The number of neighbouring properties will depend on the nature of the area, (rural, semi-rural, urban) and is sometimes considered in relation to the size of the scheme and study area. The predicted 35 dB L_{A90} contour (at maximum noise output up to 12 m/s) can provide a guide to the dwellings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



Legend

- Site Boundary
- Indicative Turbine
- Proposed Noise Monitoring
- Predicted Wind Turbine Noise dB(A), L90 based on Vestas V150 wind turbine*

*Noise Predictions have been undertaken using mixed ground (G=0.5) at a receiver height of 4m above ground level. The contour plot models the highest noise output predicted between 0 and 10m/s as standardised to 10m height.
Noise contours do not account for topographical corrections due to terrain, accordingly predictions should be treated as indicative only.

N

R1	THIRD ISSUE	MCL	GC	GC	20/11/2020
R1	SECOND ISSUE	MCL	GC	GC	17/11/2020
R0	FIRST ISSUE	MCL	JM	JM	23/10/2020
REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE

Project	Craig Watch Wind Farm
Client	Statkraft
Title	Proposed Noise Monitoring Locations
Figure No.	1
Scale	1:30,000 @A3
Doc. Ref.	14138-003

Statkraft

tnei

28 April, 2021

Ref: 14138-007 R0

Lyn Farmer
Senior Environmental Health Officer
Aberdeenshire Council
Woodhill House
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Aberdeen
AB16 5GB

Dear Lyn,

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

As you are aware, Craig Watch Wind Farm Limited ('the Applicant') is considering developing a wind farm ('the proposed development') on land approximately 8 km southeast of Dufftown. As part of the work undertaken to identify receptors in the area for the noise assessment and other Environmental Impact Assessments (EIA), the project team has identified a number of farmsteads/ buildings which appear to be derelict or abandoned and uninhabitable.

For the EIA it is only proposed to consider, assess and set noise limits at habitable buildings in the vicinity of the wind farm. The purpose of this letter therefore is to provide further information on the derelict and abandoned/ uninhabitable buildings that have been identified and seek the Council's agreement that the buildings do not need to be considered as sensitive receptors within the EIA Report for noise or other EIA disciplines (such as residential visual amenity).

The figure included below shows the location of the buildings in relation to the site and aerial photographs/ individual photographs of the buildings are also included below.

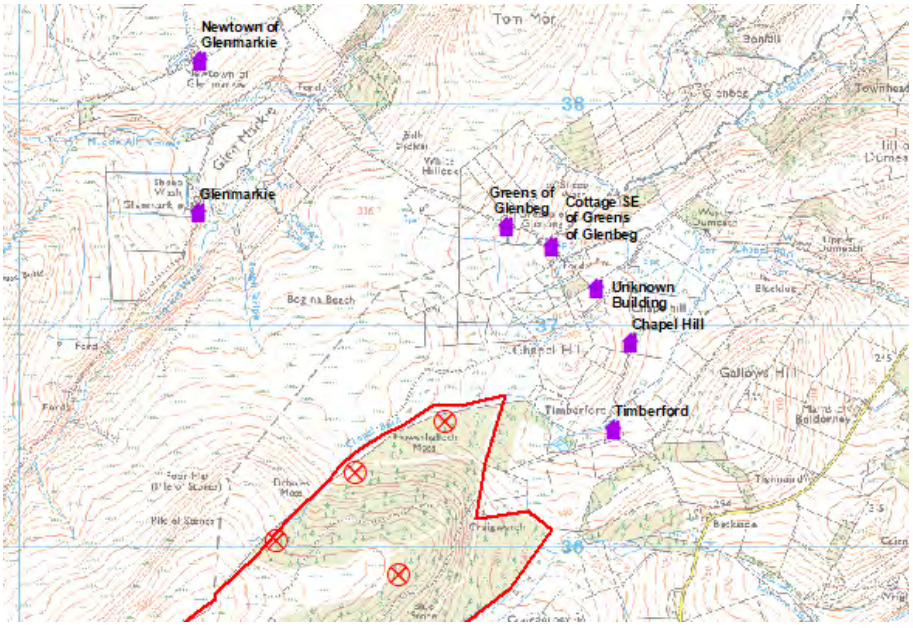

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Table 1 details the grid coordinates for the individual buildings. We understand that some of the buildings lie within Aberdeenshire Council boundary and some within Moray Council boundary.

Table 1 - List of buildings

Farmstead/ Building Name	Grid reference (Easting, Northing)
Glenmarkie	338821, 837511
Newtown of Glenmarkie	338824, 838198
Greens of Glenbeg	340208 , 837453
Cottage to south east of Greens of Glenbeg	340416, 837360
Chapel Hill	340770, 836922
Timberford	340694 , 836534
Unknown Building	340620, 837170

Photos of the individual buildings are included below. The aerial photographs are reproduced using Google Earth Pro.

Glenmarkie

Newton of Glenmarkie

Greens of Glenbeg

Cottage to the South East of Greens of Glenbeg

Chapel Hill

Timberford

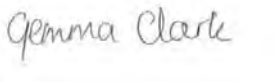
Unknown Building Name

As part of the EIAR submitted for Garbet Wind Farm, the farmsteads/ buildings of Glenmarkie, Newton of Glenmarkie, Greens of Glenbeg, Timberford and Chapel Hill are described as derelict, abandoned or uninhabitable and were, for those reasons, excluded from their assessment work.

To enable us to progress the assessment we would be very grateful if you confirm whether you agree that the derelict/ abandoned/ uninhabitable properties detailed in Table 1 which are located within Aberdeenshire Council boundary do not need to be considered as noise sensitive receptors for the purpose of the EIAR.

We would appreciate a response to this letter at your earliest convenience. If you have any questions, please do not hesitate to contact me. We look forward to hearing from you soon.

Yours sincerely,



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