Appendix 10.1 – Consultation Record

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From: *Simon Waddell <[redacted]>*
Sent: *03 February 2022 16:42*
To: *Nick Blowfield <[redacted]>*
Cc: *Emma Bathgate <[redacted]>*
Subject: *Nisthill Wind Farm - agreement of baseline noise survey approach*

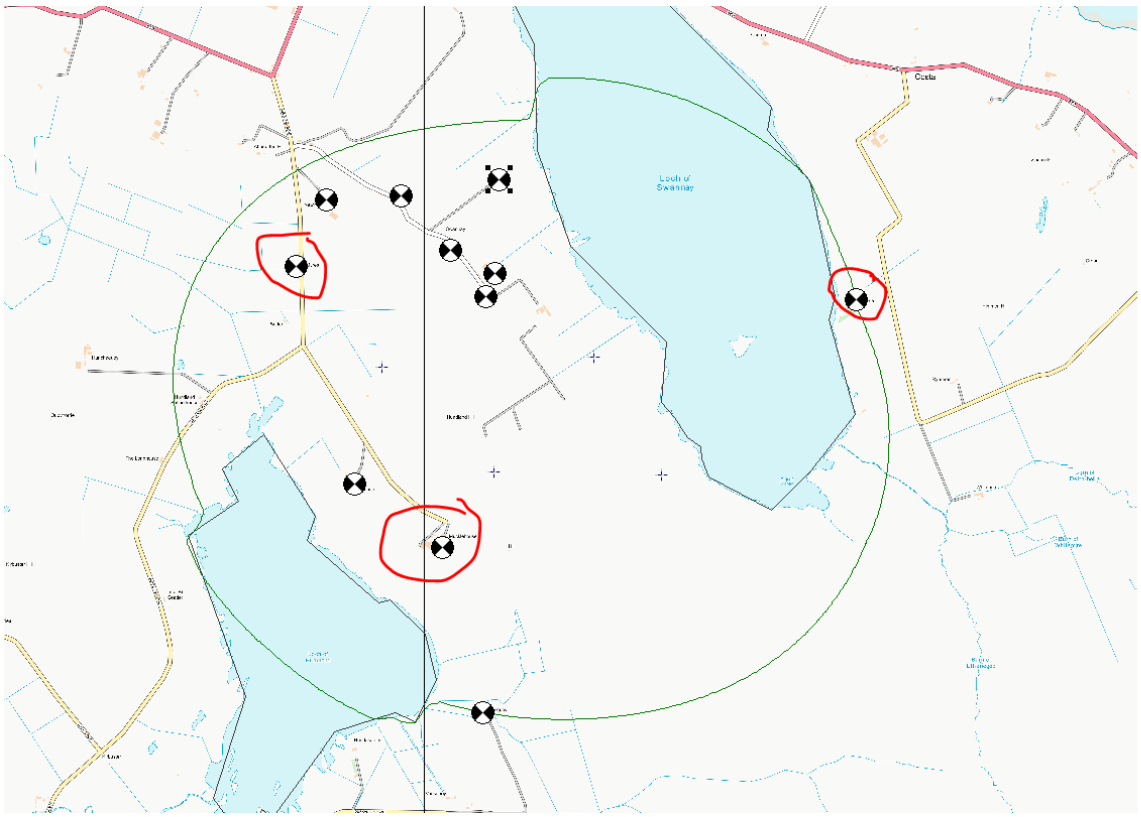
Good afternoon Nick,

I hope this finds you well and that you are the correct person to address this consultation to; I understand Paul Turner has left Environmental Health.

We are currently working on Scoping for a proposed 4-turbine 26.4 MW wind farm at Nisthill, at the northern end of Mainland. I attach an indicative redline boundary and turbine layout (turbines shown as blue dots). The Applicant is working to an ambitious timescale on the project to meet the Ofgem deadline for the interconnector, and we are therefore seeking agreement with Environmental Health on the scope and approach of the baseline noise survey in advance of submission of the formal Scoping Report.

We have undertaken a preliminary noise model to identify properties and potential Noise Sensitive Receptors (NSRs) within the 35 dB contour, which I provide below as Figure 1.

Figure 1 – 35 dBL_{A90} contour and identified properties



The 35 dBL_{A90} contour is shown in green and properties are shown as black and white 'beachball' symbols, turbines are blue crosses. Not all of the properties shown are residential/inhabited – the status of all properties in the study area (residential/non-residential/financially-involved with the project) will be agreed with you at a later stage in the project.

Please note that ground absorption within the model has been set at G=0 for propagation over water for the lochs.

We propose to measured background noise levels in accordance with the requirements of ETSU and the Institute of Acoustics' Good Practice Guide (GPG) at three locations. Potential monitoring locations are circled in red in Figure 1, however, our final selection will be determined according to residents' consent to access properties and conditions encountered while on site.

We note that there is at least one existing turbine present at the site, however, we understand that turbines within land owned by the Applicant can be switched off for the duration of the survey to eliminate turbine noise from the baseline measurements. Should any turbines not within the control of the Applicant be identified during the commissioning visit, and if they are potentially audible at the monitoring locations, then these will be noted and monitoring locations may be relocated accordingly. Alternatively, noise data from monitoring location(s) potentially affected by existing turbines will be screened such that wind directions when turbine noise may occur are excluded.

We expect to commission the baseline survey either later this month or early March and would welcome the opportunity to meet you on site, should you be available. We will provide a full record of our commissioning visit, including our rationale for selection of the chosen positions and photos of the sound level meters in position for your review, should you be unable to meet us.

Wind speed measurement will be undertaken either by LiDAR or SoDAR, at a site within the redline boundary. Wind speed measurements at the proposed hub height will be monitored, as well as a range of other heights. A rain gauge will be sited at one or more of the noise monitoring positions.

Monitoring will be for approximately 20 days, until a dataset sufficient to meet the IoA GPG minimum requirements has been captured.

I would welcome the opportunity to discuss our proposed baseline survey with you, should you have any comments or questions on the approach set out above. Alternatively, if you are satisfied with what we have proposed I would greatly appreciate it if you could confirm by response to this email.

Many thanks in advance,

Simon

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From: *Nick Blowfield <[redacted]>*
Sent: *04 March 2022 16:43*
To: *Simon Waddell <[redacted]>*
Cc: *Emma Bathgate <[redacted]>*
Subject: *RE: Nisthill Wind Farm - agreement of baseline noise survey approach*

Hi Simon,

Thank you for your email. Having read through the information provided I have no concerns or questions regarding the installation.

Kind regards

Nick

Nick Blowfield

Environmental Technical Officer

Environmental Health,

Development and Infrastructure,

Orkney Islands Council, School Place, Kirkwall, KW15 1NY

Tel: [redacted]

email: [redacted]

From: *Simon Waddell*
Sent: *22 April 2022 12:50*
To: *Nick Blowfield <[redacted]k>*
Cc: *Kari Clouston <[redacted]>; Emma Bathgate <[redacted]>; Alasdair Baxter <[redacted]>; Gregor Massie <[redacted]>*
Subject: *Nisthill wind farm - agreement of approach to derivation of 'true' background and appropriate noise limits*

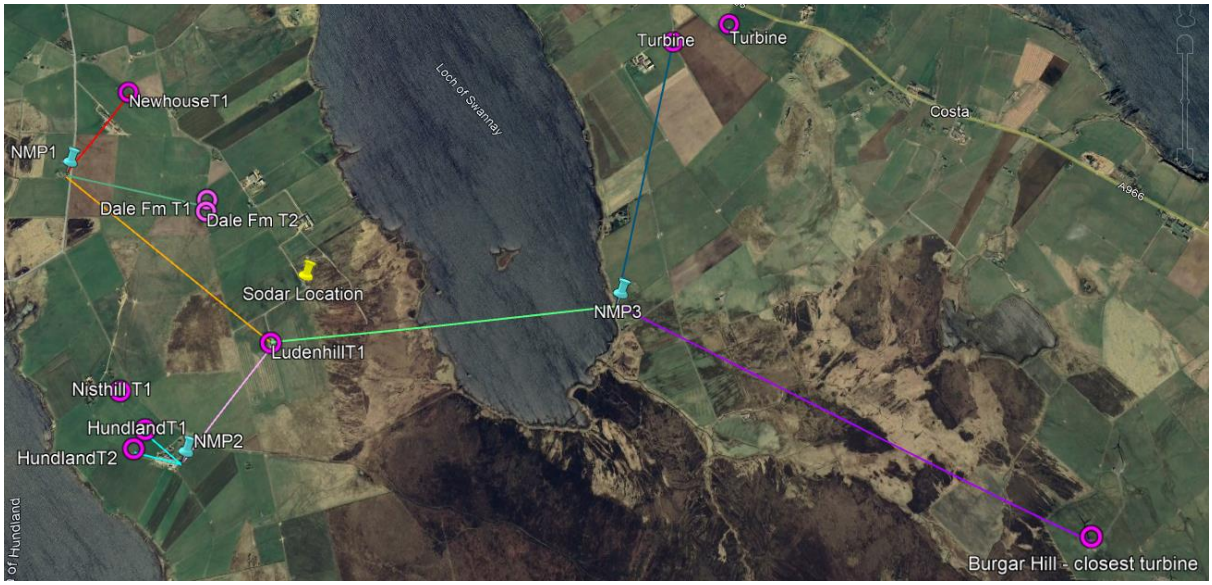
Good afternoon Nick,

Further to our previous correspondence regarding the proposed Nisthill Wind Farm, I would like to agree with you our approach to deriving background noise levels at the noise monitoring positions (NMPs) used during the baseline noise survey to exclude noise from existing wind turbines and to the derivation of residual noise limits (RNLs) applicable at specific properties within the study area, accounting for consented noise limits/the contribution of existing turbines. The process is necessarily somewhat complex, and I would welcome a call to discuss it with you/your consultants.

STAGE 1 – Derivation of baseline noise levels in the absence of existing wind turbines

As previously discussed, we measured background noise levels at three NMPs within the predicted 35 dBL_{A90} noise contour of the proposed development. The NMPs and the existing wind turbines are shown in Figure 1.

Figure 1 – NMPs and existing turbines



Rain affected data has been screened out for all NMPs and the hub-height wind speed has been standardised to 10m in accordance with the method provided in the IoA GPG. The time stamps of the SoDAR and sound level meters have been accounted for in the data processing.

NMP1 – Myres

Notes on representative background derivation:

- *As previously reported, the sound level meter (SLM) was installed to the west of the building at Myres and, as such, we consider that it would have been screened from noise from the Ludenhill turbine (orange line on Figure 1 shows distance of 1,250m between NMP1 and Ludenhill turbine) – predictions support this. No correction has therefore been applied to measured background noise levels in the derivation of representative background noise levels in the absence of the Ludenhill turbine.*
- *The Dale Farm turbines (T1, T2) are approximately 660m from the NMP (green line) and were screened by the building – no correction has therefore been applied to measured levels for these turbines.*
- *The Hundland turbines (T1, T2) and Nisthouse turbine are between 1.1km and 1.3km from NMP and will have a negligible contribution to measured background levels. No correction has been made for these turbines.*
- *There is an Evance 9000 turbine at Newhouse (shown as 'NewhouseT1') which is 440m from NMP1. This turbine has been modelled and the predicted noise level from this turbine (predicted in accordance with the IoA GPG at a receptor height of 4m above ground level) from logarithmically subtracted from the measured background levels recorded at NMP1 for each wind speed. No directional filtering has been applied.*

Close up of the NMP provided in Figure 2 showing orientation of closest existing turbine.

Figure 2 – close up of NMP1

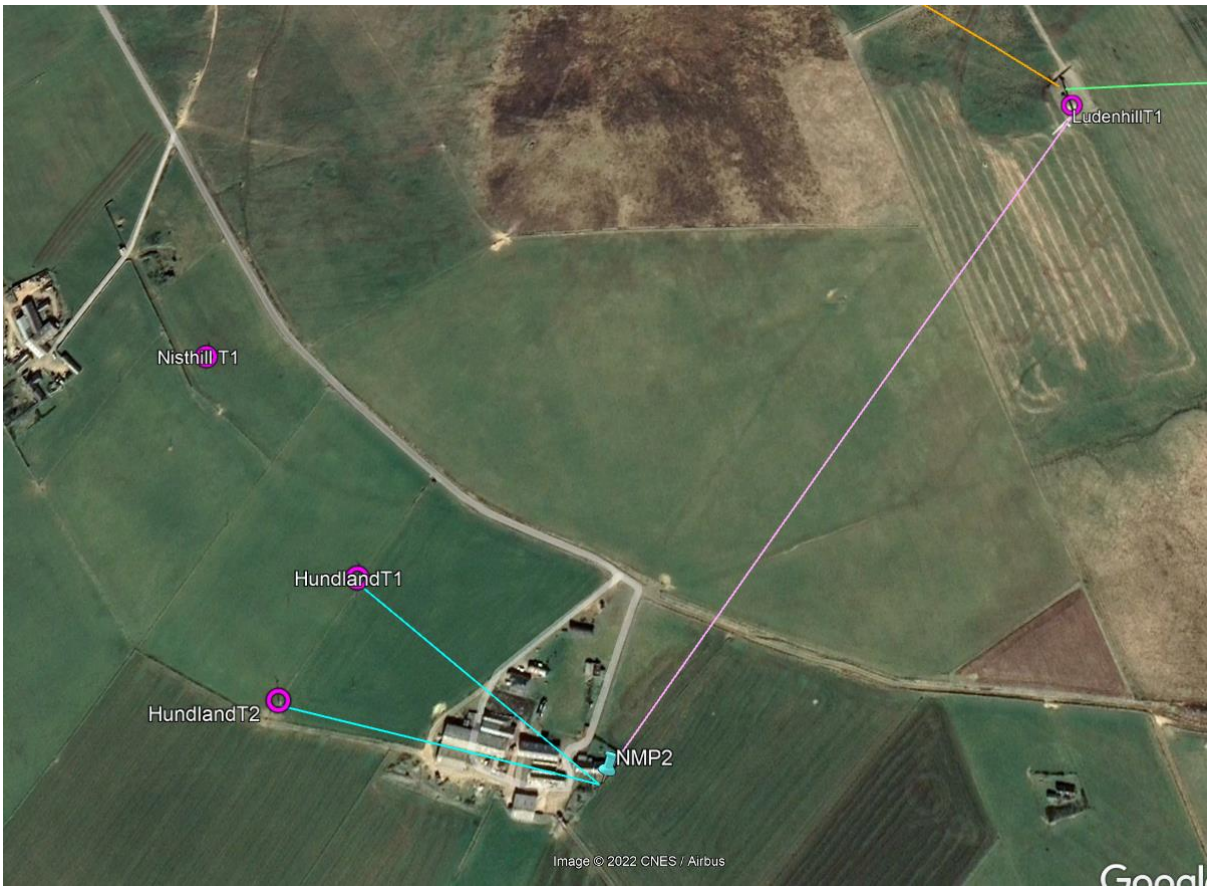
NMP2 – Hundland

Notes on representative background derivation:

- *As previously reported, the sound level meter (SLM) was installed to the south-east of the buildings at Hundland and, making use of the farm buildings and topography to screen noise from the nearby Hundland turbines and Nisthill turbine (light blue lines on Figure 1 show distance of 200m between NMP2 and the Hundland turbines) – predictions which consider screening due to buildings support this. No correction has therefore been applied to measured background noise levels for noise from these turbines.*
- *Noise from the Ludenhill turbine 600m to the north has been predicted at NMP2, excluding any screening from buildings (a robust approach, as the NMP was on the opposite side of the house from the turbine) and the predicted level logarithmically subtracted from measured background noise levels for each wind speed. There is no reported sound power data for the Ludenhill turbine for 4m/s wind speed, so the 5m/s value was used at 4m/s – this is considered a robust approach.*
- *Noise from other turbines is considered to be negligible at NMP2 based on separation distance.*
- *No directional filtering has been applied to the data.*

Close up of the NMP provided in Figure 3 showing screening of NMP from the Hundland and Nisthill turbines by farm buildings.

Figure 3 – close up of NMP2



NMP3 – Lochview/Southend

Notes on representative background derivation:

- *As previously reported, the sound level meter (SLM) was installed at the edge of the loch, at a location representative of the cottage to the south and Dale to the north.*
- *The closest existing turbines to NMP3 are as follows:*
    - *Ludenhill 1.5km to west;*
    - *Burgar Hill 2.2km to south-east; and*
    - *Other small turbines 1.3km to north-north-east*
- *Noise from the Hundland and Newhouse turbines will be negligible at NMP3. The Burgar Hill turbines are substantially larger than the closer small turbine developments and their contribution may therefore be larger.*
- *The Ludenhill turbine will have its greatest contribution when it is up-wind of NMP3 (i.e. westerlies).*
- *Burgar Hill and the other turbines will have their greatest contribution when they are up-wind of NMP3, i.e. northerly through easterly to southerly winds and will have a negligible contribution at NMP3 under westerly winds (indeed, given the large separation distances to NMP3 it is likely that noise from existing developments will be negligible under most conditions).*
- *The noise data from NMP3 has been filtered to exclude wind directions from 0º through 90º to 180º (easterlies), leaving data from 180º through 270º to 0º (westerlies). This approach will suppress noise from the small turbines to the north and Burgar Hill to a negligible level at NMP3 – this is supported by predictions.*
- *The predicted level from the Ludenhill turbine has been logarithmically subtracted from the measured background level to give the background in the absence of noise from other turbines. The noise level of Ludenhill was predicted at 4m above ground level, considering a ground absorption of G=0 (acoustically*

reflective surface) for the Loch of Swannay, in accordance with the requirements of the IoA GPG; we consider that this is a robust approach.

- *We consider that this approach is the most robust option for NMP3 since noise from waves on the Loch of Swannay was the dominant noise source at this location and these noise-sensitive receptors (NSRs) will only ever be downwind of the proposed Nisthill development and the loch simultaneously; characterising the background noise level using data from the NMP is upwind of the site and the loch is therefore potentially non-representative.*

Close up of the NMP provided in Figure 4 showing separation from existing turbines.

Figure 4 – close up of NMP3

STAGE 2 – Identification of noise limits at NSRs applicable to other cumulative developments, identification of controlling properties

- *Consented noise limits have been reviewed for Costa Head, Burgar Hill and the small turbine developments*
- *Costa Head names specific NSRs and presents limits across a range of wind speeds; these have been included within the analysis*
- *For Burgar Hill there are general background-derived limits though properties are not specified*
- *The small turbines use the simplified ETSU 35 dBL_{A90} flat noise limit and exclude financially-involved properties*

STAGE 3 – Correction of predicted noise levels from cumulative developments to meet consented limits at controlling properties

- *Where predicted levels from cumulative developments (operating in isolation) exceed the consented limits at the closest/named controlling property, the noise output of the cumulative development has been corrected within the model such that the noise limits are met*
- *A correction was only required at Burgar Hill, given the conservative assumptions regarding the sound power level of the Burgar Hill turbines assumed in the model.*

STAGE 5 – Identification of the Overall Noise Limit (ONL) applicable at each NSR

- *ONL at NSRs adjacent to Burgar Hill is the Burgar Hill noise limits*
- *ONL at NSRs named in the Costa Head consented limits are the Costa Head limits*
- *ONL at all other NSRs are those derived from the corrected, measured background levels*

- *The ONLs will consider whether NSRs are Financially Involved (FI) with the proposed development. The list of FI properties is yet to be finalised and is therefore not presented here.*

The NSRs considered are shown in the attached PDF and listed below:

NSR Name	***NSR ID***	***Coordinates***		***ONL derived from***
		X	***Y***	
		(m)	***(m)***	
Dale Cottage	*NSR1*	*330275.49*	*1027680.61*	*NMP1 background*
Dale Fm	*NSR2*	*330314.39*	*1027783.61*	*NMP1 background*
NSR3	*NSR3*	*330117.89*	*1027887.21*	*NMP1 background*
Lochside Cottage	*NSR4*	*330334.04*	*1028205.18*	*NMP1 background*
Unknown house	*NSR5*	*329898.17*	*1028130.16*	*NMP1 background*
Newhouse	*NSR6*	*329564.13*	*1028114.08*	*NMP1 background*
Myres	*NSR7*	*329430.15*	*1027815.76*	*NMP2 background*
Nisthouse	*NSR8*	*329690.96*	*1026842.21*	*NMP2 background*
Mucklehouse	*NSR9*	*330077.14*	*1026615.69*	*NMP2 background*
Hundland	*NMP2_NSR9A*	*330092.00*	*1026550.00*	*NMP2 background*
Skesquoy	*NSR10*	*330260.20*	*1025820.42*	*NMP2 background*
Dale	*NSR11*	*331928.21*	*1027666.14*	*NMP3 background*
Southend	*NMP3_NSR12*	*331928.00*	*1027174.28*	*NMP3 background*
AtH1	*NSR13*	*329495.06*	*1028364.22*	*NMP1 background*
AtH2	*NSR14*	*329443.47*	*1028378.62*	*NMP1 background*
AtH3	*NSR15*	*329372.12*	*1028418.82*	*NMP1 background*
AtH4	*NSR16*	*329272.62*	*1028321.86*	*NMP1 background*
AtH5	*NSR17*	*329177.97*	*1028366.00*	*NMP1 background*
Burgar1	*NSR18*	*332491.41*	*1026788.65*	*Burgar Hill limits*
Burgar2	*NSR19*	*333608.82*	*1027478.14*	*Burgar Hill limits*
Burgar3	*NSR20*	*334776.84*	*1026539.21*	*Burgar Hill limits*
Mannobreck	*NSR21*	*329588.00*	*1029290.00*	*Costa Head limits*

Swannay House	*NSR22*	*329597.00*	*1029253.00*	*Costa Head limits*
Surtidale	*NSR23*	*330140.00*	*1028985.00*	*Costa Head limits*
Crismo	*NSR24*	*331507.16*	*1028834.59*	*Costa Head limits*

– property Myres is derelict and unoccupied.

STAGE 6 – Identify cumulative developments at each NSR

- At each NSR, *subtract the predicted worst-case noise level for each potentially cumulative development from the worst-case predicted level for the proposed development*
- *Where the difference is ≥10 dB no cumulative effects will occur and the scheme can be discounted*
- *Where the difference is <10 dB cumulative effects will occur and the scheme is included within cumulative calculations at this NSR*

STAGE 7 – Identify significant presented headroom, derive Residual Noise Limits (RNLs)

- *Subtract the predicted worst-case cumulative noise level (assuming down-wind propagation) from the ONL and determine whether headroom of ≥5 dB is present*
- *Where significant headroom of ≥5 dB is available, RNL determined by subtraction of 'cautious prediction' (predicted level +2dB) of cumulative turbines from ONL*
- *Where headroom of <5 dB, RNL determined by subtraction of 10 dB from ONL*

The above approach follows the method provided in the Institute of Acoustics' Good Practice Guide (IoA GPG).

STAGE 8 – NSRs financially involved with the proposed development and affected by noise from FI small turbines nearby

Further to the approach set out above, we propose a slight variation, as described below:

- *At the houses of the landowners of the proposed development (NSR6 and NSR8), which are currently affected primarily by noise from their own small turbines such that there is little/no headroom at higher wind speeds (9m/s and above), we propose to relax the process;*
- *At these two NSRs, at which the residents benefit financially from their existing turbines and will benefit further from the proposed development and may therefore be considered to be of lesser sensitivity, we propose to evaluate only the ability of the proposed development and cumulative developments to meet the ONL, i.e. the RNL will not consider 'significant presented headroom' or a 'cautious prediction' of noise levels from cumulative developments.*

We consider this approach to offer appropriate protection to the residents of NSR6 and NSR8 without placing excessive burden on the proposed development, with which they are interested parties. We note that at wind speeds of 9m/s (30 km/h) there would be a lesser expectation of amenity in external areas, such that marginal (<1 dB) exceedances of the ONL may be considered to be of negligible impact.

I would be most grateful if you could review the above approach and confirm whether you consider it acceptable.

Many thanks in advance,

Simon

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From: *Nick Blowfield <[redacted]*
Sent: *29 April 2022 16:13*
To: *Simon Waddell <[redacted]>*
Subject: *RE: Nisthill wind farm - agreement of approach to derivation of 'true' background and appropriate noise limits*

Classification: OFFICIAL

Hi Simon,

Apologies for the delayed response having read through your email , in general the approach is considered acceptable, however I do have concerns regarding 'Stage 8' and the proposal of slight variation to relax the process due to financial benefit. What is proposed may be acceptable if it were known to what extant the residents of NSR6 and NSR8 financially benefit?

For instance a third party payment from the person who owns the turbine does not mean that the residents are a direct beneficiary, there needs to be a meaningful link between the resident(s), as the property owner(s), and the wind turbine. This could would usually be:

- *ownership,*
- *a supply of electricity, or*
- *the receipt of a feed-in tariff.*

If you wish to discuss this further then I will be available on Monday 2 May to discuss.

Kind regards

Nick

Nick Blowfield

Environmental Technical Officer

Environmental Health | Planning and Community Protection

Neighbourhood Services and Infrastructure,

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