

## Appendices

## Appendix A

### Grid references for turbine locations

## Appendix A: Lochluichart Wind Farm Extension II

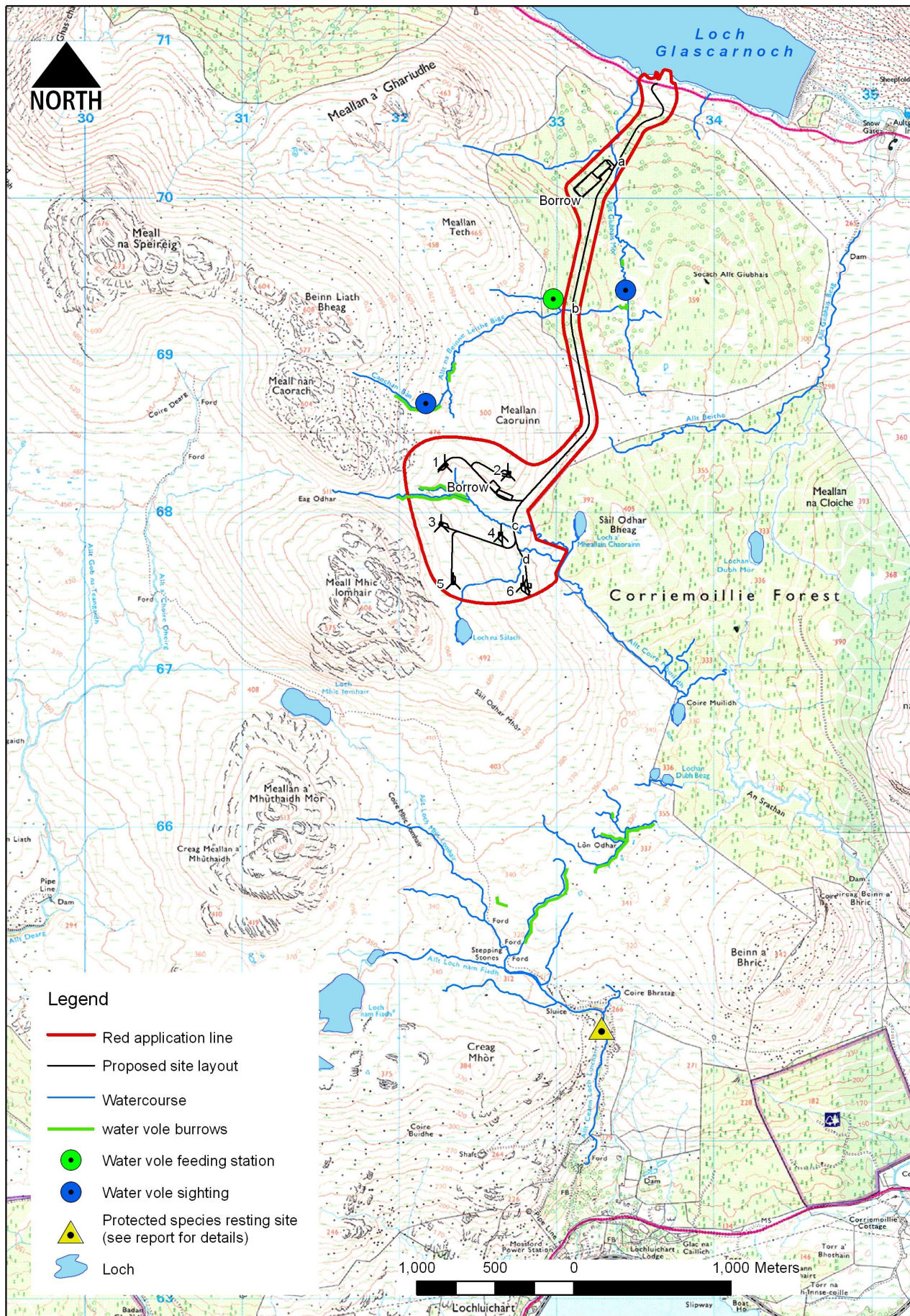
### Proposed Turbine Grid References

| <b>Turbine Number</b> | <b>Easting</b> | <b>Northing</b> | <b>Altitude (m)</b> |
|-----------------------|----------------|-----------------|---------------------|
| Turbine 1             | <b>232509</b>  | <b>867179</b>   | 485                 |
| Turbine 2             | <b>232198</b>  | <b>868788</b>   | 481                 |
| Turbine 3             | <b>232712</b>  | <b>869150</b>   | 424                 |
| Turbine 4             | <b>232700</b>  | <b>868847</b>   | 463                 |
| Turbine 5             | <b>233165</b>  | <b>868894</b>   | 383                 |
| Turbine 6             | <b>232732</b>  | <b>868550</b>   | 467                 |
| Turbine 7             | <b>233227</b>  | <b>868561</b>   | 393                 |
| Turbine 8             | <b>233007</b>  | <b>867266</b>   | 403                 |

## Appendix B SNH Consultation – 4.15 Non avian ecology







## Appendix B SNH Consultation – 4.43 Avian ecology



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## APPENDIX B, 4.43

From: Liz McLachlan <Liz.McLachlan@snh.gov.uk>  
Sent: 10/06/2016 11:23  
To: Stacey Whiteley  
Subject: RE: Under Commercial Confidence. Proposed Wind Energy Extension at Lochluichart Wind Farm Phase II on behalf of Infinergy Limited.

Hi Stacey

We have looked through the report and can confirm the survey effort is acceptable.

The maps provided show that only a small part of the red line boundary is described as 'developable' and a single hen harrier flight and possibly part of an osprey flight were the only raptors recorded flying over that area. The single eagle flight that crossed through red line boundary appears to have been over the operational turbines of Lochluichart WF. The breeding bird survey results in this report are similar to the previous surveys undertaken for Lochluichart and Corriemoillie Wind Farms with a limited number and range of wader species present.

The site is just over 6 km from the Glen Affric to Strathconon SPA for golden eagles so there is no connectivity between the eagle seen and the SPA and the already operational Lochluichart WF is between it and the SPA.

This is a wider countryside case close to an operational wind farm and a wind farm under construction and we see no reason to undertake a second year of bird surveys.

Given the early stage of this proposal and the previous history of proposed developments in this location we would strongly suggest Infinergy Ltd make use of the pre-application service offered by Highland Council in order to get feedback from all statutory consultees on the full range of potential issues which any application in this location would need to address.

Regards

Liz

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From: Liz McLachlan <Liz.McLachlan@snh.gov.uk>  
Sent: 24/02/2016 16:17  
To: Stacey Whiteley  
Subject: FW: Under Commercial Confidence. Proposed Wind Energy Extension at Lochluichart Wind Farm Phase II on behalf of Infinergy Limited.

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Hi Stacey

Thank you for your e-mail. The previous survey work for Corriemoillie and Lochluichart is all over 5 years old now so outside our limit of acceptability. Although it does provide useful background information on the past bird use of the wind farm sites. Subject to the years survey work you are currently completing clearly demonstrating that there is no significant change in the level of bird activity and the range of species using the site it is probably acceptable. However if the years survey work suggests a significant change in the use or range of species then we will definitely require the full 2 years of survey effort. Given the first years breeding survey doesn't show a significant amount of Annex 1/Sch 1 bird activity on the site above that found in the original survey work. I recommend that once the winter work is complete you should provide us with your results and allow us to review it. We will then be in a position to confirm if it is sufficient or whether additional survey effort will be required.

Regards

Liz

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From: Stacey Whiteley [mailto:stacey@avianecology.co.uk]  
Sent: 16 February 2016 17:09  
To: Nina Turner; SOUTH\_HIGHLAND  
Subject: Under Commercial Confidence. Proposed Wind Energy Extension at Lochluichart Wind Farm Phase II on behalf of Infinergy Limited.

Dear Sirs,

**Under Commercial Confidence. Proposed Wind Energy Extension at Lochluichart Wind Farm Phase II on behalf of Infinergy Limited.**

Our client is currently investigating an extension to the Lochluichart Wind Farm, northwest of Inverness, Highlands. We have been undertaking ecology surveys to establish the baseline at the proposed site to inform a planning application in 2016 which is assumed to be EIA.

Please find attached a request for pre-scoping consultation regarding the required survey effort at the proposed site.

If you have any questions please feel free to get in touch.

Kind regards,

Stacey Whiteley BSc (Hons) ACIEEM

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Senior Ecologist



Dear Sirs,

We are working on behalf of our client Infinergy Limited, who propose to submit a planning application for a wind energy project north west of Inverness in the Highlands, centred at grid reference NH 32839 69086. The project is located between the operational Lochluichart Wind Farm and the Corriemoillie Wind Farm, which is currently under construction. The project is provisionally referred to as the Lochluichart Extension Wind Farm Phase 2. The proposed turbine locations have not yet been fixed, but a developable area has been provided, although the proposed wind farm will only partially occupy this area.

Ornithology surveys commenced in April 2015 and are on-going, with a planned completion date of March 2016 and there is considerable existing data available from the adjacent consented developments.

It is with respect to the scope of survey works required to inform the application that I am writing to seek your views. All bird survey methodologies are in accordance with SNH guidance '*Recommended bird survey methods to inform impact assessment of onshore wind farms*' (May 2014), or equivalent guidance at that time.

#### **Desk Study**

A review of the government's online GIS constraints mapping system: Scottish Natural Heritage Information Service (SNHi) and MAGIC website identified no statutory designated sites within 5km of the proposed turbines. The following Special Protection Areas (SPAs) were identified within 10km:

- Glen Affric to Strathconon SPA located approximately 5.6km west of the proposed turbines at the nearest point. The SPA is notified for golden eagle *Aquila chrysaetos*, supporting up to 10 pairs (SNH, 2009), 2.2% of the Great Britain breeding population.
- Achanalt Marshes SPA located approximately 8.5km south west of the project site. The site is designated for wood sandpiper *Tringa glareola* comprising 3 pairs, 30% of the Great Britain breeding population.

The wider region is important for golden eagle and red-throated diver are known to be present in low numbers. It is considered the adjacent moorland and woodland has the potential to support a range of notable bird species including scarce raptors, waders and black grouse.

### Existing Data

Surveys have been undertaken within the developable area in 2010 and also within the adjacent Corriemoillie Wind Farm in 2009 and these data will be referred to within the application as they are still considered relevant to the proposed Lochluichart Extension Phase 2. Surveys were undertaken within the developable area (new extension site) in 2010 comprising the following surveys, undertaken in line with best practice guidance available at the time:

- Breeding Bird Survey (April-July 2010);
- Diver searches (April-August 2010);
- Raptor searches (March-July 2010);
- Black grouse surveys (March-May 2010); and,
- Vantage Point surveys (November 2009 – October 2010).

Additionally, information submitted for the adjacent operational Lochluichart/Extension Phase 2 Wind Farm and the Corriemoillie Wind Farm<sup>1</sup> comprised field surveys within the immediate local area between 2002 and 2009. These data recorded similar species, with the addition of red kite and goshawk. The following surveys are considered to be the most recent and were completed for the Corriemoillie Wind Farm:

- Breeding Bird Survey (April-June 2007);
- Brown and Shephard (1993) breeding birds (April-June 2009);
- Vantage Points (April-August 2009);
- Raptor searches (March-July 2009);
- Diver searches (June-July 2009);
- Black grouse (April-May 2009); and,
- Winter walkover surveys (September-November 2009).

### Field Surveys

To inform the ornithological baseline of Lochluichart Extension Phase 2 and surrounding areas the following surveys have been commissioned in line with best practise SNH guidelines (2014):

- Ornithology surveys April 2015 to March 2016
  - Vantage Point surveys;
  - Breeding Birds (April-June 2015);
  - Black grouse surveys (May 2015); and,
  - Raptor / diver searches (May to July 2015).

Field surveys have been undertaken by experienced ornithologists, some of which have previously undertaken surveys for the adjacent Corriemoillie Wind Farm and are therefore knowledgeable of the local area. A field survey plan is presented as **Figure 1**. The following survey effort has been completed or is on-going. Figure 2 shows the study areas for Corriemoillie wind farm.

#### Breeding Bird Survey

Four breeding bird surveys have been completed between April and June 2015 within the site, extended to include all habitats within 500m of the proposed turbines.

The survey has been undertaken in accordance with SNH (2014) guidance based on an adapted Brown and Shepherd (1993) methodology and comprised four visits. Surveys recorded an assemblage of moorland breeding birds including some of conservation value such as black grouse and greenshank.

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<sup>1</sup> Corriemoillie Wind Farm Environmental Statement (2010).



### Black Grouse Survey

The survey area comprised all land within the site, extended to include all habitats within 500m of the proposed turbines. A black grouse lek was confirmed during a check in early May 2015. The lek comprised 2 males, outside the developable area.

### Breeding Raptor and Diver Searches

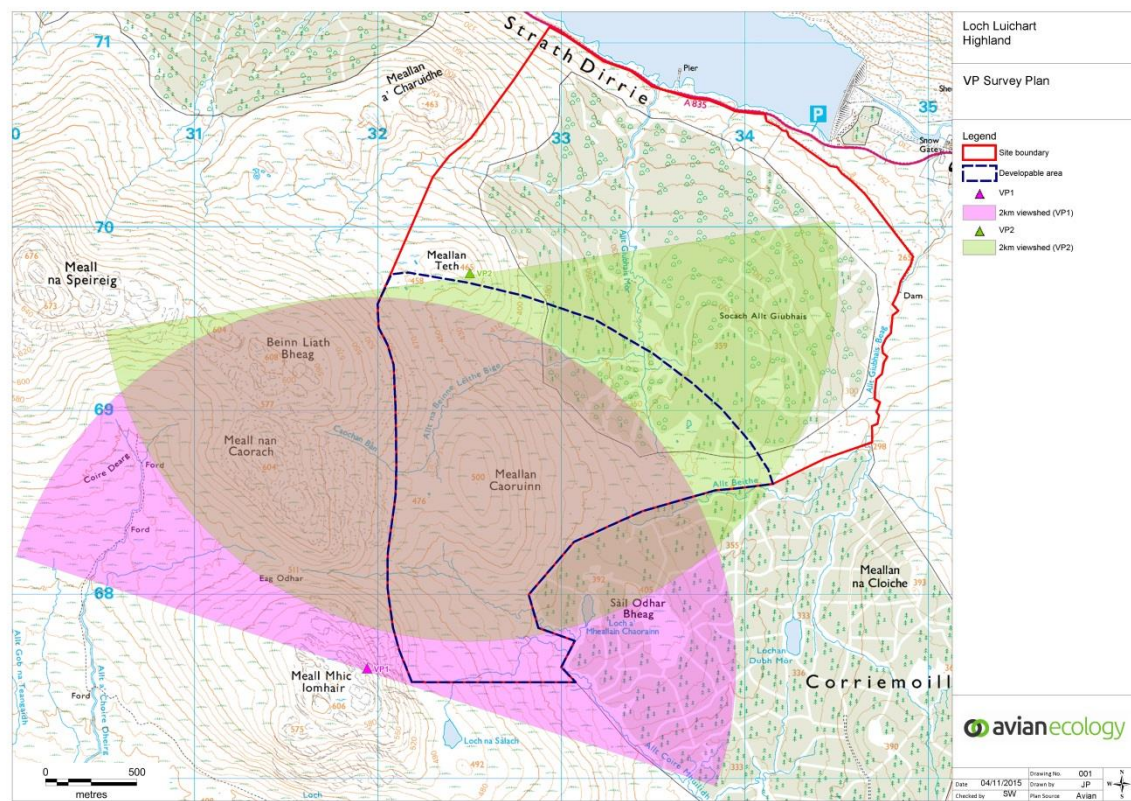
Searches for breeding raptors and divers were undertaken in April to July 2015 within a 2km radius of the developable area. No evidence of breeding raptors has been found within the search radius.

Red-throated divers have been recorded using Loch na Salach, to the south of the site but no evidence of breeding was found in 2015. A pair was present at this location during baseline surveys for the operational Lochluichart wind farm and the Corriemoillie wind farm currently under construction; SNH considered the loss of this pair to be not significant to the wider population.

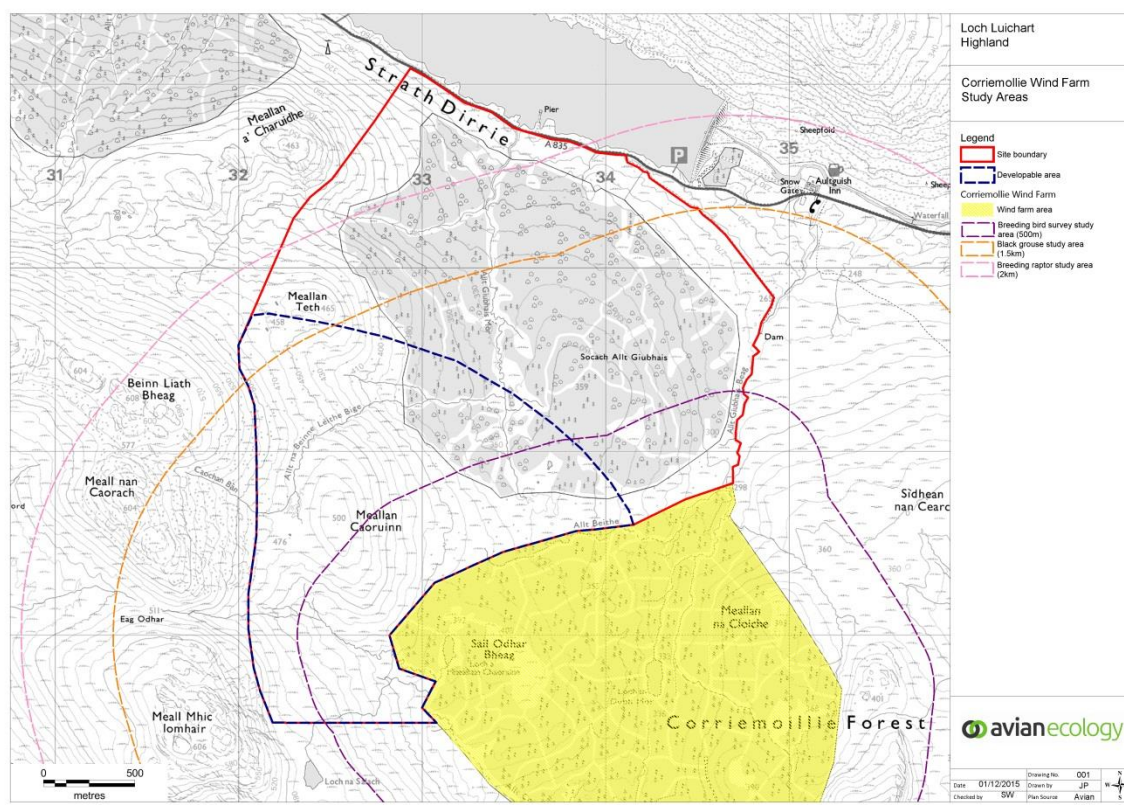
### Vantage Point (VP) Surveys

Two VP locations have been used to sample the VP viewshed. **Figure 1** overleaf shows the proposed site boundary and the VP locations. **Figure 1** presents the approximate 'viewshed' from each VP, showing the development site boundary. In addition to providing suitable coverage of potential rotor swept area, the VP locations were chosen to minimise disturbance impacts on breeding birds, notably raptors and grouse.

**Figure 1** illustrates current VP locations and 2km viewshed.



**Figure 2: Corriemoillie Wind Farm study areas**



VP surveys comprised watches of no more than 3 hours in duration, in accordance with SNH (2014) guidance. Survey effort *per Vantage Point* completed to date, or currently proposed, is as follows:

| Month | Apr-15 | May-15 | Jun-15 | Jul-15 | Aug-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| VP1   | 5.5    | 15     | 12     | 15     | 6      | 6      | 6      | 0      | 12     | 5      | 6      | 6      |
| VP2   | 11.5   | 12     | 12     | 12     | 6      | 6      | 6      | 6      | 6      | 6      | 6      | 6      |

**Table 2: VP survey effort. Hours in BOLD have been completed to date.**

Initial results indicate low usage of the site by target species to date, including: golden eagle (3 flights), golden plover (6 flights), merlin (1 flight), hen harrier (1 flight), red kite (1 flight) and osprey (2 flights) over a total of 60 hours VP survey from both VP's.

In accordance with SNH (2014) guidance, survey effort has been tailored to target species potentially present locally. The minimum number of VP hours scheduled is presented by species in Table 3 below.

|                   | Season       | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | SNH guidance minimum required hours | Scheduled/completed Hours per VP |
|-------------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------------------------------|----------------------------------|
| Raptors – general | Breeding     | -   | -   | -   | 5.5 | 15  | 12  | 15  | -   | -   | -   | -   | -   | 36                                  | 47.5                             |
|                   | Non-breeding | 5   | 6   | 6   | -   | -   | -   | -   | 6   | 6   | 6   | 6   | 6   | 36                                  | 53                               |
| Golden eagle      | Breeding     |     | 6   | 6   | 5.5 | 15  | 12  | 15  | 6   | -   | -   | -   | -   | 36                                  | 65                               |
|                   | Non-breeding | 5   | -   | -   | -   | -   | -   | -   | -   | 6   | 6   | 6   | 6   | 36                                  | 29                               |
| Osprey            | Breeding     | -   | -   | -   | 5.5 | 15  | 12  | 15  | 6   | -   | -   | -   | -   | 36                                  | 53.5                             |
| Red kite          | Breeding     | -   | -   | -   | 5.5 | 15  | 12  | 15  | -   | -   | -   | -   | -   | 36                                  | 47.5                             |
|                   | Non-breeding | 5   | 6   | 6   | -   | -   | -   | -   | 6   | 6   | 6   | 6   | 6   | 36                                  | 53                               |
| Peregrine         | Breeding     | -   | -   | 6   | 5.5 | 15  | 12  | 15  | 6   | -   | -   | -   | -   | 36                                  | 53.5                             |
|                   | Non-breeding | 5   | 6   | -   | -   | -   | -   | -   | -   | 6   | 6   | 6   | 6   | 36                                  | 35                               |
| Merlin            | Breeding     | -   | -   | -   | 5.5 | 15  | 12  | 15  | -   | -   | -   | -   | -   | 36                                  | 47.5                             |
|                   | Non-breeding | 5   | 6   | 6   | -   | -   | -   | -   | 6   | 6   | 6   | 6   | 6   | 36                                  | 53                               |

**Table 3: Minimum VP survey effort per species per year.**

VP survey effort presented in Table 3 is the minimum number of hours scheduled. Although every effort will be taken to ensure the schedule is followed, surveys are largely weather dependant particularly during the winter months and where VP hours are missed due to extreme unfavourable weather conditions hours will be caught up within the corresponding season.

### Collision Risk Modelling

A collision model will be calculated based on Vantage Point survey data following the standard Band (2007) model. This will include standard species and turbine parameters, with the 'collision risk area' defined as a 200m radius around the proposed turbines.

### Personnel

All surveys have been completed by experienced ornithologists who are fully conversant in standardised field methodologies. Surveys to date have been completed by the following personnel: Mr A Carroll, Mr P Carroll, Mr R Whytock, Mr G Riddoch, Mr E McHaugh and Mr M Wood.

### **Preliminary Results**

Surveys are on-going; however preliminary results to date have recorded the following noteworthy observations:

- Red-throated diver are present locally but do not appear to have bred during 2015. This location also supported a breeding pair during baseline studies for the operational Lochluichart wind farm and the Corriemoillie wind farm (currently under construction);
- Black grouse 'leks' of up to 2 male birds in the survey area;
- Low level of golden eagle flights recorded;
- Low levels of golden plover, osprey and merlin flights although the majority has been outside the potential developable area;
- Greenshank and golden plover may be breeding locally; and,
- Activity during October and November 2015 has been very low, with a single flight of hen harrier and red kite recorded.

The nearest designated site is Glen Affric to Strathconon SPA located c.5.6km from the proposed turbines, for which golden eagle is a qualifying interest species during the breeding season. It is acknowledged that the wider area surrounding the site supports eyries and the species occupies large territories which could include the Site; however, the activity recorded to date and historical survey data does not indicate the site is of importance for this species, and not located on a favoured flyway. In terms of other raptors including hen harrier, osprey and merlin, activity within the site has been consistently low, and any collision risk model figures are likely to be negligible.

It is understood that SNH guidance currently requests two years survey unless it can be demonstrated that a shorter period of survey is sufficient. Based on the activity recorded to date and the data collected from adjacent wind farms, we consider that the site baseline will be robust on completion of surveys in March 2015.

We welcome any comments SNH may have regarding the methodology detailed above and seek SNHs comments with regards to the adequacy of the proposed survey effort for impact assessment purposes. Should you wish to discuss the project further then please do not hesitate to contact me.

If you would like any further information please do not hesitate to get in touch.

Best regards,

Stacey Whiteley BSc ACIEEM

**Senior Ecologist**