INFINERGY

ARCUS

Site Boundary

Potential Turbine Delivery Route to Site

1:250,000 Scale @ A3

0 5 10 km

NORTH

Produced By: KB	Ref: 2966-REP-009
Checked By: KM	Date: 08/03/2018

Turbine Delivery Route
Figure 10

Shepherds' Rig Wind Farm
Scoping Report

P:\Projects\Environment\Scoping Reports\2966 Shepherd's Rig.aprx\2966-REP-009 Fig10 Turbine Delivery Route

APPENDIX B – 2013 SCOPING OPINION

The Scottish Government

SCOTTISH GOVERNMENT
ENERGY CONSENTS AND DEPLOYMENT UNIT

SHEPHERDS RIG SCOPING OPINION

Contents

THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2000

SCOPING OPINION FOR THE PROPOSED SHEPHERD RIG WIND FARM EAST OF CARSPHAIRN, DUMFRIES & GALLOWAY

1. Introduction

Any proposal to construct or operate a power generation scheme with a capacity in **excess of 50 megawatts** requires Scottish Ministers' consent under Section 36 of the Electricity Act 1989.

Schedule 9 of the Act places on the applicant a duty to "have regard to the desirability of preserving the natural beauty of the countryside, of conserving flora, fauna and geological and physiological features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest". In addition, the applicant is required to give consideration to National Planning Framework 2, Scottish Planning Policy, Planning Advice Notes, the relevant planning authority's Development Plans and any relevant supplementary guidance.

Under the Electricity Works (Environmental Impact Assessment) (Scotland)(EIA) Regulations 2000, the Scottish Ministers are required to consider whether any proposal for a wind farm is likely to have a significant effect on the environment. In terms of these Regulations, we must consult the planning authority, Scottish Natural Heritage and the Scottish Environment Protection Agency and other relevant consultees.

2. Aim Of This Scoping Opinion

Scottish Ministers are obliged under the EIA regulations to respond to requests from applicants for a scoping opinion on outline design proposals.

The purpose of this document is to provide advice and guidance to applicants which has been collated from expert consultees whom the Scottish Government has consulted. It should provide clear advice from consultees and enable applicants to address the issues they have identified and address these in the EIA process and the Environmental Statement associated with the application for Section 36 consent.

3. Land Use Planning

The Scottish Government's planning policies are set out in the National Planning Framework, Scottish Planning Policy, Designing Places and Circulars.

The National Planning Framework is the Scottish Government's Strategy for Scotland's long term spatial development.

Scottish Planning Policy (SPP) is a statement of Scottish Government policy on land use planning and contains:

- The Scottish Government's view of the purpose of planning,
- The core principles for the operation of the system and the objectives for key parts of the system,
- Statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
- Concise subject planning policies, including the implications for development planning and development management, and
- The Scottish Government's expectations of the intended outcomes of the planning system.

Online renewables planning advice for onshore wind, preparing spatial frameworks and wind farm developments on peat land is available at http://www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Policy/themes/renewables, including advice on spatial planning, typical planning considerations, detailed siting matters and useful references. This is regularly updated to reflect emerging best practice.

Other land use planning documents which may be relevant to this proposal can be found at http://www.scotland.gov.uk/Topics/Built-Environment/planning

The ES should also include full reference to the relevant development plan.

4. Natural Heritage

Scottish Natural Heritage (SNH) has produced a service level statement (SLS) for renewable energy consultation. This statement provides information regarding the level of input that can be expected from SNH at various stages of the EIA process. Annex A of the SLS details a list of references, which should be fully considered as part of the EIA process. A copy of the SLS and other vital information can be found on the renewable energy section of their website – http://www.snh.org.uk.

5. General Issues

5.1 Aviation

In the wake of recent consultation with the aviation organisations such as NATS, BAA, CAA, MOD etc, it is clear that large scale wind farm proposals can impact significantly on primary, secondary or weather radar stations and thus affect operational safety. Applicants are encouraged to engage with these organisations and airport operators at an early stage in the design process, to establish the potential impacts and agree acceptable technical solutions. Where actual or potential conflicts exist, it is important that a solution is identified and that the relevant consultee agrees to that solution being realised within a suitable timescale.

A link to relevant aviation guidance is available at the following website http://www.caa.co.uk/docs/33/Cap764.pdf

NATS En Route Plc ("NERL") is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility NERL has a comprehensive infrastructure of radars, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a wind farm. In this respect NERL is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC). In order to discharge this responsibility NERL assess the potential impact of every wind farm development in the UK which have applied for planning approval.

NERL offer services to assist in pre-planning for wind farm developments. Details of these services are available at http://www.nats.co.uk/services/information/wind-farms/self-assessment-maps/ or by contacting NERL directly on NATSSafeguarding@nats.co.uk or writing to:

NERL Safeguarding – Mailbox 27
NATS - CTC
4000 Parkway
Solent Business Park
Whiteley
Hampshire
PO15 7FL

NATS are unable to evaluate the proposal until the ground to blade tip height and OS Grid Reference for each individual wind turbine (eastings and northings) is received.

The Wind Energy Team at the Defence Infrastructure Organisation (DIO) is the focal point for all wind farm proposals in the Ministry Of Defence (MOD). The team seeks to work with industry at the earliest stages of proposed development to minimise the impact on Defence, to ensure public safety is not compromised, and maximise the likelihood of planning success. Some of the main concerns the MOD have are interference with Air Defence Radar and Air Traffic Control Radar, plus the creation of obstacles in Low Flying Areas, which negate the usefulness of the training undertaken there. Aviation safety lighting should also be considered through consultation with the aviation authorities and the relevant planning authority.

The pre-planning consultation form found at http://www.bwea.com/aviation/proforma.html should be completed and e-mailed to DIO at DIO-Safeguarding-Wind@mod.uk.

Civil Aviation Authority Directorate of Airspace Policy (DAP) is the civil aviation regulatory focal point for all wind farm proposals. DAP seeks to work with industry at the earliest stages of proposed development to establish potential civil aviation issues associated with any particular wind turbine proposal. The best means by which to initiate the aviation related consultation

process is via the **completion and submission of an associated aviation pre-planning proforma** in line with the process described within the DTI/BERR guidance document 'Wind Energy and Aviation Interests – Interim Guidelines'. Generic CAA policy and guidance on wind turbines is set out within Civil Air Publication 764, available at http://www.caa.co.uk/docs/33/Cap764.pdf.

Furthermore, applicants should demonstrate that a solution to potential aviation issues is either agreed or well advanced, **prior to** submission of the application.

5.2 Economic Benefit

The Government Economic Strategy (2011) establishes a new Strategic Priority – Transition to a Low Carbon Economy – to reflect the excellent opportunity we have to secure investment and jobs from this growing sector and ensure that the benefits of this transformational change are shared across the economy and our communities. The concept of economic benefit as a material consideration is explicitly confirmed in the SPP. Further details of the Government's approach to realising its ambitions for renewables are set out in the "2020 Routemap for Renewable Energy in Scotland", which highlights the manufacturing potential of the renewables sector and opportunities for communities to share in the rewards of our next energy revolution.

The application should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction operation and decommissioning of the development.

5.3 Local Planning Agreements

There are two main tests in determining whether a consideration is material and relevant. These are:

- it should serve or be related to the purpose of planning – it should therefore relate to the development and use of land; and

- it should fairly and reasonably relate to the particular application.

Only those issues that meet the above tests can be taken into account when considering applications. Where relevant, applicants should identify such issues in their application, including evidence to support compliance with these tests.

6. Contents Of The Environmental Statement (ES)

We recommend the contents of the ES should be structured as follows below:

6.1 Format

High resolution and low resolution PDF versions should be provided. A description of the methodology used in assessing all impacts should be included.

It is considered good practice to set out within the ES the qualifications and experience of all those involved in collating, assessing or presenting technical Information.

6.2 Non Technical Summary

This should be written in simple non-technical terms to describe the various options for the proposed development and the mitigation measures against the potential adverse impacts which could result.

6.3 Site Selection And Alternatives

The applicant should set out the alternatives sites considered and the rationale and methods used to select the chosen site. The applicant should demonstrate that a fairly wide set of environmental and economic parameters have been used to narrow down choice of sites and how this choice takes account of the spatial framework set out in the SPP. Secondly, there should be a detailed examination on these parameters to minimise the impact of the proposal by sensitive design and layout.

Wind potential and access to the grid are key to initial sieve-mapping exercises for site selection, but environmental constraints other than landscape character should also be included in this initial site selection process. For example, areas of deep peat, watercourse crossings, wetlands and locations of protected species would be other examples of additional environmental constraints to be considered both from the outset and in the detailed design and layout.

Architecture+Design Scotland (A+DS) suggest that a planning and design strategy should first look at the proposed location and address whether this is a sensible location in relation to wind, access to the grid and to the character of the landscape.

6.4 Description Of The Development

The description of the proposed development in the Environmental Statement should comprise information on the site boundary, design layout, and scale of the development.

Where it is required to assess environmental effects of the development (see EIA regulation 4 (1)(b), the Environmental Statement should include;

(a) a description of the physical characteristics of the whole development and the land use requirements during the construction, operation, decommissioning and restoration phases;

(b) a description of the main characteristics of the production processes and nature and quality of the materials used; and

(c) an estimate by type and quantity of expected residues and emissions resulting from the operation of the proposed development.

6.5 Track Construction

The applicant should set out the alternative access routes considered and the rationale and methods used to select the chosen access routes. Applicants should set out the intended use of access routes i.e.: for transportation of turbine components, delivery of construction materials, every day operational use etc. Applicants should specify which access routes/ roads are temporary and which are required for the operational duration of the development. Considered design details will be required for all aspects of site work that might have an impact upon the environment, containing further preventative action and mitigation to limit impacts.

The applicant should be aware of useful guidance on, among other things, minimising the impact from construction of the type of access roads used in wind farms. Such guidance can be found in "Forests and Water Guidelines" Fifth Edition (2011) which can be obtained from the Forestry Commission via http://www.forestry.gov.uk/forestry/infd-8bvgx9 and "Control of water pollution from linear construction projects" (CIRIA C648, 2006) which can be obtained from CIRIA. However, given that tracks in some cases will be located on peat and will carry very heavy loads, evidence will be necessary of additional consideration of specific measures required in similar schemes elsewhere to deliver best practice. Additional guidance is also available in 'Constructed tracks in the Scottish Uplands' (2006) published by SNH and available at http://www.snh.org.uk/pdfs/publications/heritagemanagement/constructedtracks.pdf

6.6 Decommissioning

The subsequent application and supporting environmental statement should include a programme of work complete with outline plans and specifications for the decommissioning and reinstatement of the site. Information should be provided on the anticipated working life of the development and after use site reinstatement.

6.7 Grid Connection Details

The impacts of constructing, installing and operating the following infrastructure components should be considered and assessed by applicants, if known;

- Substation.
- Cabling (Underground).
- Cabling (Overhead).
- Monitoring and control centre.

7. Baseline Assessment And Mitigation

Under each section below applicants are asked to consider:

- Aspects of the environment likely to be affected by the proposals.
- Environmental impacts of the proposals.
- Methods to offset adverse environmental effects.
- Effects of the phases of the development; Construction, Operation, Decommissioning and Restoration.

This section should clearly set out a description of the environmental features of the proposed wind farm site, the likely impacts of the wind farm on these features, and the measures envisaged to prevent, mitigate and where possible remedy or offset any significant effects on the environment. It should incorporate details of the arrangements and the methodologies to be used in monitoring such potential impacts, including arrangements for parallel monitoring of control sites, timing and arrangements for reporting the monitoring results. It should be noted that there is a danger that these measures could themselves have secondary or indirect impacts on the environment.

7.1 Air And Climate Emissions

The Environmental Statement should fully describe the likely significant effects of the development on the environment, including direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary e.g. construction related impacts, positive and negative effects of the development which result from:

(a) the existence of the development.
(b) the use of natural resources.
(c) the emission of pollutants, the creation of nuisances and the elimination of waste.

7.2 Carbon Emissions

To assist Scottish Ministers in making a determination on the application, applicants must produce a statement of expected carbon savings over the lifetime of the wind farm. The statement should include an assessment of the carbon emissions associated with track preparation, foundations, steel, and transport; any carbon losses from tree felling (and offsetting from tree planting); and any carbon losses from loss or degradation of peaty soils. Reference can be made to the technical note “Calculating Potential Carbon Losses and Savings from Wind Farms on Scottish Peatlands” (Scottish Government, 2011). The spreadsheet tool it refers to should be used for developments on peat but can also be used for sites that will be drained, are located on carbon rich soils or require a significant amount of deforestation.

It is important to ensure that the carbon balance of renewable energy projects is not adversely affected by management of peat resource. There need to be measures in place to ensure that the development does not lead to significant

drying or oxidation of peat through, for example, development of access tracks and other infrastructure, drainage channels, or “landscaping” of excavated peat. The basis for these measures should be set out within the ES, on which a detailed peat management scheme, required through planning condition, can subsequently be designed to ensure that the carbon balance benefits of the scheme are maximised.

Applicants are required to submit full details of the potential carbon losses and savings of the wind farm, and demonstrate how the scheme has been designed to minimise the payback figure.

The ES should include a dedicated chapter on carbon assessment which has printed copies of all worksheets along with an explanation of how the data entered is derived, referring to the relevant section of the ES as appropriate. An electronic version of the spreadsheet should be emailed to econsentsadmin@scotland.gsi.gov.uk and SEPA.

References must be given to the data sources used as inputs to the tool and the rationale behind their use must be made clear, especially where sources outside the data presented elsewhere in the ES are used. Where assumptions or estimates have been made these should be explained and justified.

Guidance on the above technical note, planning policy, site surveys and assessments for developments on peatland, re-use of peat and minimisation of waste, as well as the supporting research and spreadsheet tools are all available from the Scottish Government “Wind Farms and Carbon” website at www.scotland.gov.uk/WindFarmsAndCarbon. Prior to submission of the application, applicants should make a final check that they have used the most up to date version of the tool. This will always be available from the link above.

7.3 Design, Landscape And The Built Environment

Scottish Ministers place particular importance on the layout design of wind farms and considers there is a need for a coherent, structured and quality driven approach to wind farm development. The appearance of wind farms is of particular interest and the need for a coherent design strategy to be considered at scoping stage and to be prepared before submission of the Environmental Statement. The strategy should explain the design principles behind the layout plan in a rational way that can be easily understood. The design strategy for the wind farm should be expressed through a design statement. The Design Statement should describe a clear strategy for meeting these objectives, a justification for the resulting layout and evidence that the design ideas have been tested against the objectives.

Wind farms are prominent features in the landscape and hence a full assessment of the effects on landscape and visual amenity is important. The assessment methodology should follow the approach promoted by the Landscape Institute and Institute of Environmental Management and Assessment (‘Guidelines for Landscape and Visual Impact Assessment’, second edition, Spon 2002). General guidance on the range of issues to be considered in assessment of wind farms is set out, in the form of a scoping

checklist, at Appendix 1 of ‘Hydroelectric schemes and the natural heritage (SNH 2010)

As regards the portrayal of visual and landscape impacts within Environmental Statements, guidance has also been developed, jointly by SNH and the Scottish Renewables Forum, on ‘Visual Representation of Wind Farms – Good Practice Guidance’ (SNH 2007), published at: http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind.

Visual information should be presented in a way which communicates as realistically as possible the actual visual impact of the proposal. The format of the images and the focal length of the lens will have to be taken into consideration.

All visualisation images should be accompanied by a description of how to view the image so that it best replicates what will be seen if the proposal is constructed. This should include the required viewing distance between the eye and the image, and whether it is a single frame image or a composite panoramic image. If a composite image, it is desirable either to curve the edges of panoramic images so that peripheral parts of the image are viewed at the same intended viewing distance, or to 'pan' across the image with the eye remaining at the recommended viewing distance. This is not required for single frame images.

The viewpoints from which the photographs are taken should be agreed with the planning authority and SNH. The horizontal field of view should be shown on a map so that the images can be used accurately on site.

The ES should include a description of the landscape character of the area and how that character will be affected by the impact on any landscapes designated for their landscape or scenic value, including National Parks, National Scenic Areas, or local landscape designations such as Area of Great Landscape Value or Regional Scenic Area (the terminology is varied) and the impact on any area which is a recognised focus for recreational enjoyment of the countryside, eg a Regional Park or Country Park.

7.4 Construction And Operation

The ES should contain site-specific information on all aspects of site work that might have an impact upon the environment, containing further preventative action and mitigation to limit impacts. Elements should include: fuel transport and storage management; concrete production (including if batching plants are proposed and measures to prevent discharges to watercourses); stockpile storage; storage of weather sensitive materials at lay-down areas; haul routes and access roads (and if temporary or permanent); earthworks to provide landscaping; mechanical digging of new or existing drainage channels; vehicle access over watercourses; construction of watercourse crossings and digging of excavations (particularly regarding management of water ingress); temporary and long-term welfare arrangements for workers during construction ; maintenance of vehicles and plant; pollution control measures during turbine gearbox oil changes; bunding or roofing of transformer areas;

use of oil-cooled power cables and related contingency measures; and dewatering of turbine base excavations. With regards to oil, it is imperative that there is a detailed contingency plan to deal with large oil spills that cannot be dealt with at a local level. The ES should identify if there are particularly sensitive receptors of pollution (e.g. salmonid rivers, rivers with freshwater pearl mussels etc.).

Such information is necessary in order to assess the environmental impact of the proposals prior to determination and provide the basis for more detailed construction method statements which may be requested as planning conditions (it is recommended that the relevant Planning Authorities, SNH and SEPA are provided with the opportunity to view these method statements in draft form, prior to them being finalised should development take place).

The applicant should be aware of information provided by SEPA that may be of use such as rainfall and hydrological data. The need to plan the works in order to avoid construction of roads, dewatering of pits and other potentially polluting activities during periods of high rainfall is important. The ES needs to demonstrate which periods of the year would be best practice for construction for the site, taking into account the need to avoid pollution risks and other environmental sensitivities affecting operational timing, such as fish spawning and bird nesting.

The impact of the proposed development on public footpaths and rights of way should be clearly indicated. If any re-routing of paths under a Right of Way is required alternative routes should be highlighted for consideration. Further guidance can also be found within the Scottish Outdoor Access Code at http://www.outdooraccess-scotland.com.

The ES should set out mechanisms to ensure that workers on site, including sub-contractors, are aware of environmental risks, and are well controlled in this context. The ES should state whether or not appropriately qualified environmental scientists or ecologists are to be used as Clerk of Works or in other roles during construction to provide specialist advice. Details of emergency procedures to be provided should be identified in the ES.

The process whereby a method statement is consulted upon before commencement of work is satisfactory at many sites where sensitivities are non-critical. However for environmentally sensitive sites it is recommend that, following consultation, method statements be approved by the planning authority in consultation with SNH, prior to the commencement of construction work.

Scottish Natural Heritage would normally only wish to comment on Construction Method Statements where there are relevant and significant natural heritage interests involved. Applicants should avoid submitting multiple versions of the Construction Method Statement to SNH.

8. Ecology, Biodiversity And Nature Conservation

Scottish Government suggests that all ecological survey methods conform to the best available standard methods for each habitat and species, and follow guidance published by SNH where this is available. Where standard methodologies do not exist, applicants should propose and agree an appropriate methodology with SNH specialist advisers. SG also requires that all ecological survey data collected during ES survey work should be made available by the applicant to SG and SNH, in a form which would enable them to make future analysis of the effects of wind farms if appropriate.

8.1 Designated Sites

The ES should address the likely impacts on the nature conservation interests of all the designated sites in the vicinity of the proposed development. It should provide proposals for any mitigation that is required to avoid these impacts or to reduce them to a level where they are not significant. Information on designated sites and the law protecting them can be found on the SNH website. Maps of the boundaries of all natural heritage designated sites and information on what they are designated for are also publicly available via SiteLink in the SNHi section of the SNH website http://www.snh.org.uk/snhi/. The applicant is referred to this resource to ensure that they have the correct information on designated sites within the locality that may be affected by the proposed development. The potential impact of the development proposals on other designated areas such as NSA, LSA, SSI or Regional/National Parks etc should be carefully and thoroughly considered and appropriate mitigation measures outlined in the ES. Early consultation and agreement with SNH, the relevant planning authority and other stakeholders is imperative in these circumstances.

For developments with a potential to affect Natura sites, applicants must provide in the ES sufficient information to make clear how the tests in the Habitats Regulations will be met, as described in the June 2000 Scottish Government guidance. The information in the ES should enable the assessments required by the legislation to be completed by the Scottish Government. Specific guidance on the Habitats and Birds Directive regarding the appropriate impact assessments and associated alternative solution and IROPI tests is available on the following website link http://www.scotland.gov.uk/library3/nature/habd-00.asp

Within the Regulations, the first test is whether the proposal is necessary for the management of the site: this will not be the case for wind farm applications. The next step is to ask whether the proposal (alone or in combination with other proposals) is likely to have a significant effect on the site. If so, the Scottish Government as the Competent Authority under the Habitats Directive will draw up an 'appropriate assessment' as to the implications of the development for the site, in view of that site's conservation objectives.

The scoping report should aim to present sufficient information to enable a conclusion to be drawn on this test, i.e. as to whether there is likely to be a significant effect on the site. If that information is provided, SNH will be able to

advise, when consulted upon the scoping request, whether an appropriate assessment will be necessary. In the event that detailed survey or analysis is required in order to reach a view, the survey and analysis should be regarded as information contributing to that assessment. Note that such information should be provided for the wind farm itself together with any ancillary works such as grid connections and vehicle tracks, and cumulatively in combination with any other wind farm consented or formally proposed in the vicinity.

8.2 Habitats

Surveys should be carried out at appropriate times or periods of the year by appropriately qualified and experienced personnel, and suitability of the timing needs to be considered within the ES.

The ES should provide a comprehensive account of the habitats present on the proposed development site. It should identify rare and threatened habitats, and those protected by European or UK legislation, or identified in national or local Biodiversity Action Plans. Habitat enhancement and mitigation measures should be detailed, particularly in respect to blanket bog, in the contexts of both biodiversity conservation and the inherent risk of peat slide. Details of any habitat enhancement programme (such as native- tree planting, stock exclusion, etc) for the proposed wind farm site should be provided. It is expected that the ES will address whether or not the development could assist or impede delivery of elements of relevant Biodiversity Action Plans.

Particular attention should be paid to the effects of the proposals on any priority habitats, as listed in Annex 1 of the EU Habitats Directive, on the site. SEPA emphasises that the ES should demonstrate that turbine locations have been determined on the basis of habitats on the site, especially with regard to any areas of deep peat and intact hydrological units of mire vegetation. Turbines therefore need to be located in the light of vegetation survey work. Similarly, the ES needs to demonstrate that roads have been located to minimise impact on vegetation communities, peat habitats and peat depth. Measures to avoid pH impact on peatland from use of cement/concrete (e.g. use of blinding cement on roadways, wash-out during construction, integrity of shuttering) should be set out.

8.3 Habitat Management

SNH and RSPB may wish to see a Habitat Management Plan for the area of the wind farm and any area managed in mitigation or compensation for the potential impacts of the wind farm. A commitment to maintain and/or enhance the biodiversity of the overall area is expected. Monitoring of any specific potential impacts of the development, and of the outcome of any habitat management measures, should form part of the ES proposals. Applicants may also want to consult other interested parties in preparation of the HMP information or relevant studies/surveys.

The ES should also outline provisions made regarding public access, having regard for the requirements of the Land Reform (Scotland) Act 2003 and the Scottish Outdoor Access Code at http://www.outdooraccess-scotland.com,

clarifying the extent of any access restrictions proposed, if any, during construction or operation, and indicating any new facilities for access to be provided on or off site.

8.4 Species: Plants And Animals

The ES needs to show that the applicants have taken account of the relevant wildlife legislation and guidance, for example but not limited to, Council Directives on The Conservation of Natural Habitats and of Wild Flora and Fauna, and on Conservation of Wild Birds (commonly known as the Habitats and Birds Directives), the Wildlife & Countryside Act 1981, the Nature Conservation (Scotland) Act 2004, the Protection of Badgers Act 1992, the 1994 Conservation Regulations, Scottish Government Interim Guidance on European Protected Species, Development Sites and the Planning System and the Scottish Biodiversity Strategy and associated Implementation Plans. In terms of the SG Interim Guidance, applicants must give serious consideration to/recognition of meeting the three fundamental tests set out in this Guidance. **It may be worthwhile for applicants to give consideration to this immediately after the completion of the scoping exercise.**

It needs to be categorically established which species are present on the site, and where, before the application is considered for consent. The presence of legally protected species and habitats, for example bird species listed in Annex 1 of the EU Birds Directive, Schedules 5 (animals) and 8 (plants) of the Wildlife & Countryside Act 1981, (as amended in Scotland), must be included and considered as part of the application process, not as an issue which can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the EC. Likewise the presence of species on Schedules 5 (animals) and 8 (plants) of the Wildlife & Countryside Act 1981 should be considered where there is a potential need for a licence under Section 16 of that Act.

Plants

A baseline survey of the plants present on the site should be undertaken, and field and existing data on the location of plants should be used to determine the presence of any rare or threatened species of vascular and no-vascular plants and fungi.

Birds

The ES should provide an assessment of the impact of the wind farm on birds. The assessment should follow the available guidance on the SNH website at http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/. A baseline survey of the species and number of birds present on the site throughout the year should be undertaken. Particular attention should be paid to specially protected and/or vulnerable species. All ornithological survey work should conform to the SNH guidance at the above link..

Survey work should include assessments of the flight lines of breeding birds and birds whose migrations or other seasonal distributions traverse or are in

close proximity to the site. Collision risk analyses will be necessary for species which regularly pass through the site at any time of year. The analysis should follow the principles set out in the SNH guidance at the above link.

In the interests of all stakeholders involved in the consultation exercise, the presence of protected species must be included and considered as part of the Section 36 application process. Submitting this information as an addendum at a later date will require further publicity and consultation which will delay the overall determination.

An Annex of Environmentally Sensitive Information may be required to provide information on nest locations or other environmentally sensitive information related to specially protected species, the information should follow the principles set out in the SNH guidance "Environmental Statements and Annexes of Environmentally Sensitive Bird Information" (September 2009) at http://www.snh.gov.uk/docs/A285693.pdf. However, the annex should not include any information that is not confidential, or if it does this information should be contained elsewhere within the text of the environmental statement.

Mammals

A baseline survey of the species and number of mammals present on the site should be undertaken. Particular attention should be paid to specially protected and/or vulnerable species, especially European Protected Mammals. Consideration should also be given to indirect impacts on species outwith the site.

Reptiles And Amphibians

A baseline survey of the species and number of reptiles and amphibians present on the site should be undertaken. Particular attention should be paid to specially protected and/or vulnerable species, especially European Protected species, and those potentially affected by the development.

Fish And Other Freshwater Aquatic Species

Fish populations and other freshwater aquatic species can be impacted by subtle changes in water quality and quantity and changes in channel morphology that influence suitability of habitat and consequently performance and production. Further impacts can occur if issues of habitat continuity are not adequately considered when planning site drainage and river crossings. A baseline survey should be undertaken to demonstrate the species and abundance of fish present in the still and running water bodies on and around the site throughout the year. This should extend to watercourses which may be affected by run-off from the site during construction, operation or decommissioning.

Particular attention should be paid to specially protected and/or vulnerable species, especially European Protected species, and those potentially

affected by the development. However, fish and fisheries should be given due consideration regardless of conservation designation.

Applicants should be aware that wind farm developments have considerable construction implications which should not be conducted without proper regard or understanding of their potential impacts on watercourses and water quality, and on fish and aquatic invertebrate populations.

The applicant should ensure that the implications of changing water quality, quantity, channel morphology and habitat continuity are addressed specifically with reference to potential impacts on fish and that mitigation addresses these issues. Where this information is provided elsewhere in the document, it should be specifically highlighted.

Where a development has the potential to impact on local fish populations the applicant will be asked to develop an integrated fish and water quality monitoring programme with baseline, development and post-development sampling. Details of any proposed monitoring should be detailed.

Applicants are encouraged to submit fish information in a collective document or with the relevant cross references to other areas of the ES. (i.e. hydrology, hydro-geology, water quality and hydro-morphology)

Terrestrial And Aquatic Invertebrates

A baseline survey of invertebrates present on the site and in the water bodies and watercourses on and around the site throughout the year should be undertaken. This should be guided by existing information on the presence, distribution and abundance of notable invertebrates. Sampling of aquatic invertebrates should extend to watercourses which may be affected by run-off from the site during construction, operation or decommissioning. Particular attention should be paid to specially protected and/or vulnerable species, especially European Protected species, and those potentially affected by the development.

8.5 Archaeology And Cultural Heritage

General Principles

The ES should address the predicted impacts on the historic environment and describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant. Historic environment issues should be taken into consideration from the start of the site selection process and as part of the alternatives considered.

National policy for the historic environment is set out in:

- Scottish Planning Policy *Planning and the Historic Environment at:* http://www.scotland.gov.uk/topics/built-environment/planning/National-planning-policy/themes/historic
- The Scottish Historic Environment Policy (SHEP) sets out Scottish Ministers strategic policies for the historic environment and can be found at:

http://www.historic-scotland.gov.uk/index/heritage/policy/shep.htm

Amongst other things, SPP paragraph 110–112, Historic Environment, stresses that scheduled monuments should be preserved *in situ* and within an appropriate setting and confirms that developments must be managed carefully to preserve listed buildings and their settings to retain and enhance any features of special architectural or historic interest which they possess. Consequently, both direct impacts on the resource itself and indirect impact on its setting must be addressed in any Environmental Impact Assessment (EIA) undertaken for this proposed development. Further information on setting can be found in the following document: Managing Change in the Historic Environment http://www.historic-scotland.gov.uk/managing-change-consultation-setting.pdf.

Historic Scotland recommend that the applicant engages a suitably qualified archaeological/historic environment consultants to advise on, and undertake the detailed assessment of impacts on the historic environment and advise on appropriate mitigation strategies.

Baseline Information

Information on the location of all archaeological/historic sites held in the National Monuments Record of Scotland, including the locations and, where appropriate, the extent of scheduled monuments, listed buildings and gardens and designed landscapes can be obtained from http://www.pastmap.org.uk.

Data on scheduled monuments, listed buildings and properties in the care of Scottish Ministers can also be downloaded from Historic Scotland's Spatial Data Warehouse at http://data.historic-scotland.gov.uk. For any further information on those data sets and for spatial information on gardens and designed landscapes and World Heritage Sites which are not currently included in Historic Scotland's Spatial Data Warehouse please contact hsgimanager@scotland.gsi.gov.uk. Historic Scotland would also be happy to provide any further information on all such sites.

9. Water Environment

Applicants are strongly advised at an early stage to consult Scottish Environment Protection Agency (SEPA) as the regulatory body responsible for the implementation of the Controlled Activities (Scotland) Regulations 2005 (CAR), to identify 1) if a CAR license is necessary and 2) clarify the extent of the information required by SEPA to fully assess any license application. Energy Consents will identify a requirement for flood prevention comments from SEPA.

All applications (including those made prior to 1 April 2006) made to Scottish Ministers for consent under Section 36 of the Electricity Act 1989 to construct and operate a electricity generating scheme will require to comply with CAR . In this regard, we will be advised by SEPA concerning the requirements of these Regulations on the proposed development and will have regard to this

advice in considering any consent under Section 36 of the Electricity Act 1989.

SEPA produces a series of Pollution Prevention Guidelines, several of which should be usefully utilised in preparation of an ES and during development. These include SEPA's guidance note PPG6: Working at Construction and Demolition Sites, PPG5: Works in, near or liable to affect Watercourses, PPG2 Above ground storage tanks, and others, all of which are available on SEPA's website at:
http://www.sepa.org.uk/about_us/publications/guidance/ppgs.aspx

SEPA would look to see specific principles contained within PPG notes to be incorporated within mitigation measures identified within the ES rather than general reference to adherence to the notes.

Prevention and clean-up measures should also be considered for each of the following stages of the development;

- Construction.
- Operational.
- Decommissioning.

Construction contractors are often unaware of the potential for impacts such as these but, when proper consultation with the local District Salmon Fishery Board (who have a statutory responsibility to protect salmon stocks) and Fishery Trust is encouraged at an early stage, many of these problems can be averted or overcome.

- Increases in silt and sediment loads resulting from construction works.
- Point source pollution incidents during construction.
- Obstruction to upstream and downstream migration both during and after construction.
- Disturbance of spawning beds during construction – timing of works is critical.
- Drainage issues.
- Alteration to hydrological regime and water quality
- Impacts on stream morphology

The ES should identify location of and protective/mitigation measures in relation to all private water supplies within the catchments impacted by the scheme, including modifications to site design and layout.

Applicants should also be aware of available CIRIA guidance on the control of water pollution from construction sites and environmental good practice (http://www.ciria.org). Design guidance is also available on river crossings and migratory fish (SE consultation paper, 2000) at
http://www.scotland.gov.uk/consultations/transport/rcmf-00.asp.

9.1 Hydrology And Hydrogeology

The ES should contain detailed statements of the nature of the hydrology and hydrogeology of the site, and of the potential effects the development on these. Applicants should be aware that wind farm developments will have considerable construction implications and these should not be conducted without proper regard or understanding of the potential impacts on hydrology, water courses, water quality, water quantity and on aquatic flora and fauna. The assessment should include statements on the effects of the proposed development at all stages on;

- Hydrology
- Water Quality and quantity
- Flood Risk

The high rainfall often experienced at proposed wind farm sites means that run-off, high flow in watercourses, and other hydrological and hydrogeological matters require proper consideration within the ES.

Hydrological and hydrogeological issues should be addressed within the ES, and the following hydrological baseline information should be included.

- Long term average monthly rainfall figures.

Where the project includes significant watercourse engineering works, then SEPA would expect the following information to be included within the ES for at least a typical watercourse within the development area:

- Flood flow statistics - the flows for the Mean Annual Flood, 1:100 and 1:200 year return period.

- From a flow duration curve, the mean daily flow and Q95 flow.

- Methods used to calculate these must be identified; if non-standard methods are used, these should be described in detail with rationale for use.

Impacts on watercourses, lochs, groundwater, other water features and sensitive receptors, such as water supplies, need to be assessed. Measures to prevent erosion, sedimentation or discolouration will be required, along with monitoring proposals and contingency plans.

The applicant should refer to SEPA policy on groundwater which can be found at: http://www.sepa.org.uk/planning/groundwater.aspx which will assist in identifying potential risks. It should also be noted that 1:625000 groundwater vulnerability map of Scotland often referred to in Environmental Statements has been superseded by the digital groundwater vulnerability map of Scotland (2003) and the digital aquifer map of Scotland (2004) and it is the information used on these newer maps, available on request from SEPA, that should be used in any assessment.

If culverting should be proposed, either in relation to new or upgraded tracks, then it should be noted that SEPA has a policy against unnecessary culverting

of watercourses. **Schemes should be designed to avoid by preference crossing watercourses, and to bridge watercourses which cannot be avoided. Culverting is the least desirable option.**

The ES must identify all water crossings and include a systematic table of watercourse crossings or channelising, with detailed justification for any such elements and design to minimise impact. The table should be accompanied by photography of each watercourse affected and include dimensions of the watercourse. It may be useful for the applicant to demonstrate choice of watercourse crossing by means of a decision tree, taking into account factors including catchment size (resultant flows), natural habitat and environmental concerns.

Culverts are a frequent cause of local flooding, particularly if the design or maintenance is inadequate. The size of culverts needs to be large enough to cope with sustained heavy precipitation, and allow for the impact of climate change. This must be taken into account by applicants and planning authorities. SPP and PAN69 provide more information on this aspect.

Measures to avoid erosion of the hillside associated with discharge from road culverting need to be set out in the ES.

All culverts must be designed with full regard to natural habitat and environmental concerns. Where migratory fish may be present (such as trout, salmon or eels) the river crossing should be designed in accordance with the Scottish Government guidance on River Crossings and Migratory Fish. This guidance can be found on the Scottish Government website at: http://www.scotland.gov.uk/consultations/transport/rcmf-06.asp.

Where the watercourse is used as a pathway by otters and other small mammals, the design of culverts will need to be modified to accommodate this.

The need for, and information on, abstractions of water supplies for concrete works or other operations should also be identified in the ES.

SEPA requests that evidence should also be provided to demonstrate that the proposals have been designed to minimise engineering works within the water environment, including crossing watercourses. Further to this, SEPA wishes to highlight the following Scottish National Policy, and legislative aims.

Environment, including crossing watercourses. Further to this, SEPA wishes to highlight the following Scottish Planning Policy and legislative aims.

Scottish Planning Policy (paragraph 130) states ‘Lochs, ponds, watercourses and wetlands also form valuable landscape features, recreational resources and wildlife habitats and should be protected and enhanced wherever possible both as part of developments and green networks.’

In addition, where water abstraction is proposed, SEPA requests that the ES assesses whether a public or private source is to be utilised. If a private

source is to be utilised, the following information should be included within the ES to determine the environmental acceptability of the proposals.

- Source i.e. ground water or surface water;
- Location i.e. grid ref and description of site;
- Volume i.e. quantity of water to be extracted;
- Timing of abstraction i.e. will there be a continuous abstraction?;
- Nature of abstraction i.e. sump or impoundment?;
- Proposed operating regime i.e. details of abstraction limits and hands off flow;
- Survey of existing water environment including any existing water features;
- Impacts of proposed abstraction upon the surrounding water environment.

Although it is appreciated that many of the issues highlighted above will be scoped out during the EIA process they are important to consider. Equally, the applicant should be aware that the drilling activity does not fall under Water Environment (Controlled Activities) Regulations (CAR) and therefore would not require authorisation from SEPA as the proposal is within coastal waters.

9.2 Geology And Soils

The Environmental Statement should fully describe the likely significant effects of the development on the environment including direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary e.g. construction related impacts, positive and negative effects of the development which result from:

- The existence of the development.
- The use of natural resources (including borrow pits, the need for which and impact of which, including dust, blasting and pollution of the water environment, should be appraised as part of the overall impact of the scheme)
- The emission of pollutants, the creation of nuisances and the elimination of waste.

The ES should identify the intended source of any rock or fill material to be used for tracks or foundations, and should describe the environmental impacts associated with any new quarries or borrow pits or road or track cuttings.

SEPA seeks in relation to substantial new development, that applicants demonstrate that the development includes construction practices to minimise the use of raw materials and maximise the use of secondary aggregates and recycled or renewable materials. Further information is available from AggRegain (http://www.aggregain.org.uk);

Where borrow pits are proposed, the ES should include information regarding the location, size and nature of these borrow pits including information on the depth of the borrow pit floor and the borrow pit final reinstated profile.

The impact of such facilities (including dust, blasting and impact on water) should be appraised as part of the overall impact of the scheme. Information should cover, in relation to water, at least the information set out within Planning Advice Note 50: Controlling the Environmental Effects of Surface Mineral Workings in relation to surface water (pages 24-25) and, where relevant, in relation to groundwater (pages 22-23). Information on the proposed depth of the excavation compared to the actual topography, the proposed restoration profile, proposed drainage and settlement traps, turf and overburden removal and storage for reinstatement should be submitted.

9.3 Assessment Of Peat Slide Risk

If the proposed development is to take place on peatland habitats, the Environmental Statement should incorporate a comprehensive peat slide risk assessment in accordance with the Scottish Government Best Practice Guide for Developers, published at:
http://www.scotland.gov.uk/Publications/2006/12/21162303/0

Particular attention should be paid to the risks of engineering instability relating to presence to peat on the site. Turbines locations should be identified in the light of survey work on peat depth and nature, and roads will need to be carefully aligned and designed with regard to peat habitats and depth. It is recommended that both engineers and ecologists are involved in the assessment and management of the risk of peat slide.

The peat slide risk assessment should also address pollution risks to and environmental sensitivities of the water environment. It should include a detailed map of peat depth and evidence that the scheme minimises impact on areas of deep peat. The ES should include outline construction method statements or the site-specific principles on which such construction method statements would be based for engineering works in peat land areas, including access roads, turbine bases and hard standing areas, and these should include particular reference to drainage impacts, dewatering and disposal of excavated peat.

9.4 Forestry / Woodlands

Internationally there is now a strong presumption against deforestation (which accounts for 18% of the world's greenhouse gas emissions). Reflecting this, Scottish Ministers have now approved a policy on Control of Woodland Removal published at http://www.forestry.gov.uk/forestry/infd-7hyhwe (refer Scottish Planning Policy paragraph 148) which seeks to protect the existing forest resource in Scotland, and supports woodland removal only where it would achieve significant and clearly defined additional public benefits. In some cases, including those associated with development, a proposal for compensatory planting may form part of this balance.

The criteria for determining the acceptability of woodland removal and further information on the implementation of the policy is explained in the Control of Woodland Removal Policy. These should be taken into account when preparing the development plans for this wind farm proposal. The applicant should also be aware of the *National Planning Framework 2* (published at

http://www.scotland.gov.uk/Publications/2008/12/12093953/0) and specifically paragraph 93 which reiterates Scottish Government determination to decrease the loss of existing woodland and aspiration for further expansion.

The ES should indicate proposed areas of woodland for felling to accommodate new turbines and other infrastructure such as roads. Details of the area to be cleared around those structures should also be provided, along with evidence to support the proposed scale and sequence of felling. The ES should also detail any trees or woodland areas likely to be indirectly affected by the proposed development (e.g. through changes in hydrology, loss of neighbouring plantation causing instability, etc) and provide full details of alternatives and/or protection and mitigation measures in the ES.

The applicant should consider the wildlife implications of any tree felling in the relevant sections of the ES. The ES should also consider any impacts of forestry activities on the water environment, with particular attention paid to acidification and nutrient leaching. The applicant should make full use of the *Forests and Water Guidelines* in proposing forestry activity and mitigation procedures.

If timber is to be disposed of on site, details of the methodology for this should be submitted. Areas of retained forestry or tree groups should be clearly indicated and methods for their protection during construction clearly described.

If areas of woodland are to be temporarily removed but then replanted shortly afterwards (typically within 1-5 years) this should be indicated in the ES, and details of the replanting plan provided.

Where there is a change in land use (e.g. to non-woodland habitats) the woodland should be described in sufficient detail (e.g. including details of the age of the trees; the species type and mix; the soil types; any particular natural heritage designations or protected species present in the woodland; and the landscape and historical environment context) to enable its intrinsic public benefit value to be assessed. This will facilitate decisions on whether woodland removal is acceptable and if so, whether compensatory planting will be required.

The applicant should refer to guidance documents[1] issued by the Forestry Commission in relation to good forestry practice and associated environmental issues.

In summary, the applicant should consider their response to the Control of Woodland Removal Policy, including the consequences of such removal on carbon sequestration and mitigating the potential effects of climate change.

Forestry Commission Scotland can advise on all aspects of woodlands and forestry associated with developments and early consultation with them to

[1] The UK Forestry Standard and its suite of associated guidelines are available at: http://www.forestry.gov.uk/forestry/INFD-6J2JBS. Further guidance is available at: http://www.forestry.gov.uk/forestry/INFD-5XFLS7.

clarify proposals and any particular restrictions or conditions on woodland removal that may apply to the area is recommended. Contact details of the nearest Forestry Commission Conservancy office can be accessed at: http://www.forestry.gov.uk or from fcscotland@forestry.gsi.gov.uk.

Forest and woodland ecology

The *Scottish Forestry Strategy* (SFS) (2006) and *Scottish Biodiversity Strategy* (both of which have Ministerial endorsement) and *Nature Conservation (Scotland) Act 2004* should be essential documents that the applicant should be aware of.

The SFS recognises the importance of native woodlands, especially those that are of ancient and semi-natural origin. It also incorporates targets for priority habitats and species, sets priorities for action in terms of improving the management of semi-natural woodlands, and extending and enhancing native woodlands by developing forest habitat networks (page 48).

The SFS also recognises the potential for well designed productive forests to contribute environmental benefits through the restructuring process and future management systems, such as habitat and landscape value from increased open space (page 48).

The SFS also identifies and promotes the importance of sustainable forest management as an essential contributor to the conservation of soils, the quality of water and air (page 44), and the general contribution that forests and woodlands can make to tackle climate change.

The *Scottish Biodiversity Strategy* contains delivery of targets for priority habitats and species as key aims as well as enhanced management of whole landscapes for biodiversity, including reducing fragmentation of habitats. This strategy has been designated by Ministers under the terms of the *Nature Conservation (Scotland) Act 2004*, to confirm that all public bodies have a duty to further biodiversity where consistent with their functions, in ways which are guided by the strategy.

This would suggest that the applicant should be obliged to carry out an assessment of the implications of the wind farm proposals on biodiversity.
This should be in both general terms of effects on the biodiversity strategy aims, and specifically the impacts on priority habitats and species; i.e. those with national targets (*HAPs* and *SAPs* identified in the *Biodiversity Action Plan*).

It would also suggest that the applicant should be obliged to carry out an assessment of the implications of the wind farm proposals on water, soil and air resources, and an appreciation of the potential consequences of the loss of woodland cover with regards climate change, specifically carbon sequestration.

Consultation with the local Forestry Commission Scotland Conservancy should also be undertaken during the development of proposals for the

planned restructuring and/or woodland removal to accommodate the wind farm proposals.

Regards the FC *Forest and Water Guidelines* please note that this publication is now in its 4th Edition, published 2004.

Landscape and visual assessment

The *UK Forestry Standard*, FC *Forest Landscape Guidelines* and *Lowland Design Guidelines,* FC Forestry Practice Guide: *Forest Design Planning – A Guide to Good Practice*, The *Scottish Forestry Strategy 2006* and SNH suite of *Landscape Character Assessments* should all be on the list of documents that the applicant should be aware of.

The *Scottish Forestry Strategy* identifies that forests and woodlands contribute to Scotland's diverse and attractive landscape. It promotes the benefits of well designed and managed woodlands that reflect local landscape character, and that their contribution to the wider landscape should help Scotland meet the undertakings of the *European Landscape Convention* (page 44).

The Scoping Report should promote a full assessment by the applicant of all the landscape and visual issues. This should include a full description of the general landscape character within which the applicant proposes to introduce the wind farm, and a statement of the landscape and visual sensitivities that may be potentially affected by that development.

It should also include an assessment of the cumulative landscape and visual impacts affecting the wind farm proposal, and identify relevant criteria that may have a bearing on that assessment.

The *UK Forestry Standard* sets out the criteria and standards for the sustainable management of all forests and woodlands in the UK. Landscape is a specific *Criteria for Sustainable Forest Management* (page 18) and the two *Forest Management Unit Indicators* as evidence that landscape quality is enhanced are:

- Landscape principles of forest design are used;
- Cultural and historical character of countryside is taken into account when…making changes to existing woods.

The first point refers to the FC *Forest Landscape Guidelines* and *Lowland Design Guidelines* (both extracted from the FC book *The Design of Forest Landscapes* (Oliver W.R. Lucas; pub. Oxford University Press 1991)).

The second point on the appraisal of the landscape with regard to appreciating its local character is similarly covered in the aforementioned Guidelines and *The Design of Forest Landscapes*. Further, the *Scottish Forestry Strategy* specifically advocates the use of Scottish Natural Heritage's suite of *Landscape Character Assessments*, which provide valuable descriptive information about the landscape of Scotland. The potential removal of the existing woodlands within the wind farm proposal area may

create significant areas of open ground (that is, ground without woodland cover).

The principles and process of restructuring an existing forest are described in the aforementioned FC Forestry Practice Guide: *Forest Design Planning – A Guide to Good Practice*. Not only should such a plan consider how best to clear fell the forest for the wind farm development, but also describe how the remaining woodland elements beyond the scheme boundary can be best integrated with the development site. Such integration could be achieved, for example, by the selective restocking of strategic areas within the wind farm site area.

We would advise that when forest landscape design is being considered as part of the forest management associated with such a development, a chartered Landscape Architect with a comprehensive knowledge of forestry should be commissioned.

Historic environment of forests and woodlands

The applicant should recognise the wider aspects of the wind farm proposals on historic environment policies. In terms of forests and woodlands, besides the legacy of the past to be found within woodlands, the cultural heritage of ancient woodlands and veteran trees are particularly important. The value of the historic environment in woodlands is recognised in the *UK Forestry Standard* the *Scottish Forestry Strategy* (SFS) (page 45) and FCS Policy Statement *Scotland's Woodlands and the Historic Environment*.

The SFS not only identifies the duty to safeguard evidence of the historic environment but also encourages their active management, enhancement and interpretation. Reference should also be made to the FC *Forests & Archaeology Guidelines*.

Management Plan

With regards both ecological and landscape considerations for the site and immediate environs, we would advocate the preparation of a long-term management plan.

This should be carried out in consultation with FCS, Local Authority, SNH, landowners and other interested parties. Essentially what is required is an integrated land-use and management plan that fosters optimising the ecological and landscape benefits of both the wind farm site and neighbouring land uses.

10. Other Material Issues

10.1 Waste

Potential requirement for waste management licences or licensing exemptions in relation to waste disposed to or from borrow pits should be discussed at an

early stage with SEPA as decisions on waste management are likely to affect site design and layout.

The ES should identify all of the waste streams (such as peat and other materials excavated in relation to infrastructure) associated with the works. It should demonstrate a) how the development can include construction practices to minimise the use of raw materials and maximise the use of secondary aggregates and recycled or renewable materials and b) how waste material generated by the proposal is to be reduced and re-used or recycled where appropriate on site (for example in landscaping not resulting in excessive earth moulding and mounding).

Further to the above advice, SEPA would like to highlight the use of site waste management plans which SEPA are now seeking on all large scale construction projects and which the applicant should consider during the formulation of the ES. In SEPA's experience, waste management is becoming an increasing issue on large scale projects.

Coherent consideration should be given to the handling, use, short term storage and final disposal of surplus material, including peat and soils, and to waste minimisation and management. Should it be proposed that peat should be used at depth to restore excavations such as borrow pits, the applicant would need to demonstrate that this could be done without the release of carbon through oxidisation, and without risk to people and the environment. Please note that waste peat or soil from excavations spread on this land would not necessarily be to ecological benefit; if excavated peat or soil is to be used in landscaping the site, then this should be included in the plans, and not dealt with in an ad-hoc fashion as it arises.

SEPA therefore requests that the ES gives consideration to a full site specific Site Waste Management Plan (SWMP). The SWMP should detail the measures for managing and minimising waste produced during construction. Further information on the preparation of these plans can be obtained from the Zero Waste Scotland web site which may be found at http://www.zerowastescotland.org.uk/category/service/business-support.

The SWMP should also include a soils balance carried out to demonstrate need for importation/export of materials including any backfill of excavations. Given experience on other sites, clarification is sought specifically on whether or not waste materials are to be imported. Clarification of the amount of surplus materials to be permanently deposited on mounds and scale of these mounds should also be included.

SEPA encourages the recovery and reuse of controlled waste, provided that it is in accordance with the Waste Management Licensing Regulations 1994. The applicant should note the regulatory advice below. The applicant should note that SEPA has produced guidance to assist in the consideration as to whether any particular material is waste, which is available on SEPA's website at http://www.sepa.org.uk/waste/waste_regulation/is_it_waste.aspx.

10.2 Telecommunications

British Telecom will offer advice in respect of EMC and related problems, BT point to point microwave links and satellite. Any information on the likely interference to BT's current and presently planned radio networks should be enclosed.

Ofcom only comment in respect of microwave fixed links and does not include broadcast transmissions or scanning telemetry links that may be affected by the proposals. Ofcom will have sent a copy of the scoping request to:

CSS Spectrum Management Services Ltd. David Tripp 01458 273 789 david.tripp@css.gb.com (for Scanning Telemetry)

Joint Radio Company (JRC). David Priestley 020 7953 7015 david.priestley@jrc.co.uk (for Scanning Telemetry)

With regard to assessing the affects to TV reception, the BBC now have an online tool available on their website, at http://www.bbc.co.uk/reception/info/windfarm_tool.shtml. Ofcom will no longer be forwarding enquiries received to the BBC or carrying out assessments. Applicants are advised to access the online tool.

Ofcom only comment in respect of fixed microwave links managed by Ofcom, in addition the applicant is obliged to do further checks of the proposals with the CAA, NATS, and the MOD. Further details may be obtained on the British Wind Energy Association (BWEA) website at http://www.bwea.com.

10.3 Noise

Wind farms have the potential to create noise through aerodynamic noise and mechanically generated noise. Noise predictions should be carried out to evaluate the likely impacts of airborne noise from the wind turbines and associated construction activities including noise from blasting or piling activities which may affect local residents, during construction, operational and decommissioning stages of the project. Advice should be sought from the relevant Council planning and/or environmental health departments in respect to the potential impacts on the local community.

The applicant should be aware of the guidance produced by ETSU on behalf of the DTI titled "The Assessment and Rating of Noise from Wind Farms". This publication provides applicants with best practice noise monitoring and reporting techniques. Cumulative noise effects should also be considered in assessing the specific circumstances prevailing at the development site. Applicants may also want refer to PAN 1/2011 in this respect.

10.4 Shadow Flicker

Information on the impact of shadow flicker on the local community should be enclosed within the ES. Information on this can be found at:

10.5 Traffic Management

The Environmental Statement should provide information relating to the preferred route options for delivering the turbines etc. via the trunk road network. The Environmental Impact Assessment should also address access issues, particularly those impacting upon the trunk road network, in particular, potential stress points at junctions, approach roads, borrow pits, bridges, site compound and batching areas etc.

Where potential environmental impacts have been fully investigated but found to be of little or no significance, it is sufficient to validate that part of the assessment by stating in the report:

- the work has been undertaken, e.g. transport assessment;
- what this has shown i.e. what impact if any has been identified, and
- why it is not significant.

10.6 Cumulative Impacts

Where a wind farm development might have cumulative impacts with other existing, approved or current wind farm applications, then the assessment of environmental impacts should include consideration of these cumulative effects. Visual or landscape cumulative effects may arise where more than one wind farm is visible from certain viewpoints, or along a journey by road or other route. Ecological cumulative effects may arise where more than one wind farm impacts upon a bird population, or on the hydrology of a wetland or peatland habitat.

SPP introduces new requirements in relation to considering cumulative impacts through the development plan process. Where relevant, proposals should identify how they comply with development plans. We also refer to the SNH guidance note 'Cumulative Effect of Wind Farms' (version 2 revised 13.4.05) for further guidance. A cumulative assessment should include other existing wind farms in the vicinity of the proposal, any wind farms which have been consented but are still to be constructed, and any which are the subject of undetermined consent applications. Inclusion within a cumulative assessment of other proposed wind farms which have not yet reached application stage is not required, unless in exceptional circumstances we advise otherwise.

http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/

10.7 Other Planning Or Environmental Impact Issues Unique To The Application

The ES should include information on any other potential impacts connected with the project.

11. General ES Issues

In the application for consent the applicant should confirm whether any proposals made within the Environmental Statement, eg for construction methods, mitigation, or decommissioning, form part of the application for consent.

11.1 Consultation

Applicants should be aware that the ES should be submitted in a user-friendly PDF format. Applicants are asked to issue ESs directly to all consultees. An up to date consultee list can be obtained from the Energy Consents and Deployment Unit. The Energy Consents and Deployment Unit also requires **1 hard copy and 2 CDs**.

Where the applicant has provided Scottish Ministers with an environmental statement, the applicant must publish their proposals in accordance with part 4 of the Environmental Impact Assessment (Scotland) Regulations 2000. Energy consents information and guidance, including the specific details of the adverts to be placed in the press can be obtained from the Energy Consents website; http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-Consents

11.2 Gaelic Language

Where Section 36 applications are located in areas where Gaelic is spoken, applicants are encouraged to adopt best practice by publicising the project details in both English and Gaelic (see also Energy consents website above).

11.3 OS Mapping Records

Applicants are requested at application stage to submit a detailed Ordinance Survey plan showing the site boundary and all turbines, anemometer masts, access tracks and supporting infrastructure in a format compatible with the Scottish Government's Spatial Data Management Environment (SDME), along with appropriate metadata. The SDME is based around Oracle RDBMS and ESRI ArcSDE and all incoming data should be supplied in ESRI shapefile format. The SDME also contains a metadata recording system based on the ISO template within ESRI ArcCatalog (agreed standard used by the Scottish Government), all metadata should be provided in this format.

11.4 Difficulties In Compiling Additional Information

Applicants are encouraged to outline their experiences or practical difficulties encountered when collating/recording additional information supporting the application. An explanation of any necessary information not included in the Environmental Statement should be provided, complete with an indication of when an addendum will be submitted.

11.5 Application And Environmental Statement

A checklist is enclosed with this report to help applicants fully consider and collate the relevant ES information to support their application. In advance of publicising the application, applicants should be aware this checklist will be

used by government officials when considering acceptance of formal applications.

11.6 Consent Timescale And Application Quality

In December 2007, Scottish Ministers announced an aspirational target to process new Section 36 applications within a 9 month period, provided a Public Local Inquiry (PLI) is not held. This scoping opinion is specifically designed to improve the quality of advice provided to applicants and thus reduce the risk of additional information being requested and subject to further publicity and consultation cycles.

Applicants are advised to consider all aspects of the scoping opinion when preparing a formal application, to reduce the need to submit information in support of the application. The consultee comments presented in the scoping opinion are designed to offer an opportunity to considered all material issues relating to the development proposals.

In assessing the quality and suitability of applications, Government officials will use the enclosed checklist and scoping opinion to scrutinise the application. Applicants are encouraged to seek advice on the contents of ESs prior to applications being submitted, although this process does not involve a full analysis of the proposals. In the event of an application being void of essential information, officials reserve the right not to accept the application. Applicants are advised not to publicise applications in the local or national press, until their application has been checked and accepted by SG officials.

Applicants are advised to refer to the Energy Consents website at http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-Consents

11.7 Judicial Review

All cases may be subject to judicial review. A judicial review statement should be made available to the public.

Authorised by the Scottish Ministers to sign in that behalf.

Annex 1

Consultee Comments relating specifically to Shepherds Rig Wind Farm

Statutory Consultees

1. Dumfries and Galloway Council
2. SEPA
3. SNH

Scottish Government Internal Consultees

4. Forestry Commission Scotland
5. Historic Scotland
6. Marine Scotland
7. Transport Scotland

Non Statutory External Consultees

8. Association of Salmon Fishery Boards
9. Civil Aviation Authority - Airspace
10. The Crown Estate
11. Defence Infrastructure Organisation
12. NATS Safeguarding
13. RSPB Scotland
14. Mountaineering Council of Scotland
15. Scottish Water
16. Visit Scotland
17. John Muir Trust
18. Scottish Wildlife Trust
19. British Horse Society
20. Scottish Rights of Way and Access Society (ScotWays)
21. Prestwick Airport
22. BT

Any Additional Non Statutory External Consultees

23. Carsphairn Community Council
24. Carsphairn Heritage Group
25. Carsphairn Renewable Energy Fund Ltd

CONSULTEE COMMENTS

Statutory Consultees

1. Dumfries and Galloway Council

The scoping request from Scottish Government on behalf of Infinergy relates to a development site of approximately 810ha. The site is approximately 5km east of Carsphairn, in an upland rural landscape dominated by forestry plantation. The proposed development would consist of up to 45 turbines with maximum height to blade tip of 146.5m and all associated infrastructure.

The council consulted the following Departments of Dumfries and Galloway Council:
Archaeology, Roads, Environmental Standards and the Landscape Architect.

No response has been received from the Council's Landscape Architect to date. Should comments be received in due course then these will be forwarded.

Archaeologist

Council Archaeologist has expressed concerns about a proposal of this scale at this
location.

Section 9 of the submitted document sets out a methodology for assessing effects on 'Cultural Heritage'. It is confirmed that there is potential for a proposal of this nature to have significant impact on cultural heritage assets and therefore potential effects will need to be assessed in the environmental impact assessment. Careful note should be taken of the following comments in respect of this assessment.

Interim Planning Policy: Wind Energy Development

The applicant should be aware of the Interim Planning Policy: Wind Energy Development, adopted February 2012. This is supported by a technical study; the
Dumfries and Galloway Wind Farm Landscape Capacity Study (DGWLCS). It is
advised that the landscape capacity study considered 'Settlement and Archaeology'as one of the landscape sensitivities informing the landscape capacity study and the
resulting spatial framework.

The following is an extract from Appendix B: assessment methodology that describes how this has been applied to inform the overall sensitivity category of the landscape character area:

Settlement and Archaeology

Large/medium wind farms, turbines greater than 50m to blade tip

Consideration of the pattern, scale and character of settlement and its relationship to the landscape. Assessment of how development might impinge on these characteristics; where there may be scope to attain some visual separation to avoid adverse scale contrasts and minimise effects on settlement setting. Where larger scale industrial buildings are present, the scale relationships between turbines and these is also considered. Archaeological features are considered in respect of their contribution to landscape character and any potential effects on setting.

In this case, the proposal falls within Character Type 19a: Southern Uplands with Forest, Ken. Although the sensitivity rating in relation to settlement and Archaeology is Low in Unit 19a, as the area is sparsely settled overall, the guidance advises that there is a range of archaeological sites and the setting of these sites is sensitive. This is confirmed to be the case and is indeed highlighted by the designation of 2 Archaeologically Sensitive Areas within 5 km that fall within the ZTV. It is also noted that Character Type 4 : Narrow Wooded Valley lies to the east of the proposal. The overall sensitivity rating is High for turbines over 50m m in height. Section 7 of Interim Planning Policy: Wind Energy Development contains guidance on Historic Environment and Cultural Heritage for all proposals, that must be considered.

Direct effects

These effects may occur within or around the proposal site where development activity will take place. Assessment of these effects should be informed by a thorough desk based study and, where appropriate, targeted field survey in order that Council Historic Environment Record identifies designated and undesignated features within and around the proposal area. To inform the assessment this should be consulted, see below.

The results of the survey should be submitted to the Council in a format suitable for importation to the Council Records. (Contact Historic Environment Record Officer, see below).

Indirect Effects

Generally, impacts on the setting of significant historic environment assets, should be lead by the Zone of Theoretical Visibility, with the greatest effects likely to be

experienced by sites of national, (note not all are designated), or greater significance
closest to the site.

Preliminary examination of the ZTV at the scale provided indicates that the effects on the
following assets should be assessed :

• Designated sites at Stroanfreggan Craig Fort, Stroanfreggan Cairn, Woodhead
mines and Smittons Bridge
• Stroanfreggan Archaeologically Sensitive Areas, (ASA) from a number of viewpoints/specific assets within and around
• Bardennoch to Garryhorn ASA from a number of viewpoints/specific assets within
and around.

This list is not exhaustive and further analysis of the historic environment features in
relation to the ZTV should be undertaken, before a finalised list of wirelines/photomontages
illustrating the effects on the setting of features is agreed with Council Archaeologist.
Cumulative effects should also be considered. The planning case officer will provide
advice on which proposals and approved schemes to include.

Key Policy

Key policy statements that have been issued by the Scottish Government in relation
to the historic environment are:

• Scottish Historic Environment Policy
• Scottish Planning Policy, paragraphs 110 -124 on Historic Environment
• Managing Change in the Historic Environment: Setting, Historic Scotland October
2010.
• Planning Advice Note 2/2011 Planning and Archaeology
In addition to national policy the relevant Council policies covering the historic environment in this case are:
• Structure Plan Policy E9: Listed Buildings
• Structure Plan Policy E11: Historic Gardens and designed Landscapes
• Structure Plan Policy E12: Development Affecting Archaeological Sites
• Structure Plan Policy E13 and General Policy 55 on Archaeologically Sensitive
Areas, (ASA).

Structure Plan Policy E13 and General Policy 55 on Archaeologically Sensitive Areas is
considered to be a very significant constraint for the proposal to address.
The justification in the background paper advises that in defining ASAs consideration
has been given to:

1 Particularly good group survival/and importance
2 Landscape setting where this is a significant dimension of the archaeological
remains
3 Areas where there is a existing or potential recreational aspect
4 High density of archaeological remains worthy of preservation
5 Rare group survival in an otherwise improved or already generally afforested area
Technical Guidance on all ASA's is available on line on the Local Development Plan
pages on the Council web site :
http://www.dumgal.gov.uk/index.aspx?articleid=11943 . Note: This relates to current
as well as proposed policy.

It is strongly recommended that at an early stage the developer give full consideration to this policy that flags up the sensitivity of this area to change.

Policy

Key policy statements that have been issued by Scottish Government in relation to
the historic environment are:
• Scottish Historic Environment Policy.
• Scottish Planning Policy, paragraphs 110 -124 on Historic Environment, and 182-191 on Renewable Energy, February 2010.
• Managing Change in the Historic Environment: Setting, Historic Scotland October
2010.
• Planning Advice Note 2/2011 Planning and Archaeology
In addition to national policy the relevant Council policies covering the historic environment in this case are:
• Structure Plan policy E8: Conservation Areas
• Structure Plan Policy E9: Listed Buildings
• Structure Plan Policy E11: Historic Gardens and designed Landscapes
• Structure Plan Policy E12: Development Affecting Archaeological Site
• Structure Plan Policy E13: Archaeologically Sensitive Areas

Historic Environment Record

Information on features recorded in the Council Historic Environmental Record,
including listed buildings and designed landscapes, can be obtained from the Historic

Environmental Record Officer (Andrew Nicholson), Planning and Environment,
Newall Terrace, Dumfries, DG1 1LW. Tel: 01387 260154. In line with Council Policy
there will be a charge to cover the costs of the time taken. This can be supplied in
GIS and database format to facilitate integration with other data, particularly the ZTV.

Principal Roads Services Officer (Stewartry)

A Scoping Report was submitted as part of this planning application and Sections 12,
Traffic and Transport provide details which are to be included in an Environmental
Impact Assessment (EIA) that will form part of a future detailed planning application.

In the interests of road safety, the applicant shall carry out swept path analysis of the
proposed access route to ensure that vehicles can navigate the route. Furthermore,
an assessment of the number and type of construction vehicles used during
construction, operational and decommissioning stage is to be provided and any
mitigation measures, carriageway widening and traffic management procedures are
to be agreed in advance with the Development Team Leader (Stewartry).

A traffic management plan is to be developed in consultation with all relevant bodies
and the exact details of the Traffic Management Plan are to be agreed in writing with
the Development Team Leader (Stewartry) prior to any works being carried out on
site.

A full road condition survey of the component delivery route is to be undertaken prior
to any construction works taking place to record the condition of the public roads
thereby ensuring that any damage caused by the windfarm construction traffic can be
repaired by the applicant.

Any improvements or construction of new access off the public road shall be
constructed to the specification

Environmental Standards

The Council's Environmental Standard Section have no objections in principal. However, until a site specific noise impact assessment has been carried out following
the principles detailed in the Assessment & Rating of Noise from Wind Farms ETSU
Report ETSU-R-97,1996 they are unable to comment fully as to the expected impacts. The site specific assessment should be carried out following the principles
detailed in the Assessment & Rating of Noise from Wind Farms ETSU Report ETSU-R-97, 1996

It is also suggested that the proposal should be designed to meet the lower noise
limits as specified in the ETSU-R-97 document, but where lower limits cannot be achieved the detailed reasons as to why this cannot be accomplished should be detailed in the ETSU-R-97 report within the Environmental Impact Assessment.

It is additionally suggested that a method statement for the construction project should be provided within the ETA for approval by Dumfries & Galloway Council. This should include an assessment of potentially noisy operations and outline the noise mitigation measures proposed. This will also include a programme and phases for each stage of work. Guidance as to construction noise prediction methodology may be found within BS5228: 2009

2. SEPA

Thank you for consulting SEPA on the scoping opinion for the above development proposal by way of your letter which we received on 25 April 2013. We would welcome meeting with the applicant at an early stage to discuss any of the issues raised in this letter. We consider that the following key issues should be addressed in the EIA process:

Environmental impact from all aspects of site development, carbon balance, impact on peatlands and associated wetland habitats, deforestation activities, site waste management (including forestry waste), impact on site hydrology (inclusive of flood risk and private water supplies), baseline monitoring works including habitat assessments and evidence on how all of the above factors will be used to influence the proposed design of the site.

Windfarm developments can make a valuable contribution to achieving Scotland's renewable targets and help fulfil public sector duties under the Climate Change (Scotland) Act 2009. However, even small windfarms can potentially have an adverse environmental impact. While all of the issues below should be addressed in the Environmental Statement (ES), there may be opportunities for several of these to be scoped out of detailed consideration. The justification for this approach in relation to specific issues should be set out within the ES.

Carbon balance

Scottish Planning Policy (SPP) recognises that "the disturbance of some soils, particularly peat, may lead to the release of stored carbon, contributing to carbon emissions" (Paragraph 133). In line with SPP and government guidance, we recommend that the ES or planning submission contains a section systematically assessing carbon balance. This assessment should quantify the gains over the life of the project against the release of carbon dioxide during construction. It should include all elements of the proposal, including borrow pits, construction of roads/tracks and other infrastructure and loss of peat bog. Please refer to the Scottish Government guidance Calculating carbon savings from windfarms on Scottish peat lands - A New Approach, which provides a revised methodology for estimating the impacts of this type of development on carbon dynamics of peat lands. We will validate carbon balance assessments for Section 36 windfarm applications that use this revised version of the tool. In order to validate such assessments, all input data, assumptions and workings need to be provided within one dedicated section of the ES. In addition we will provide comment on drainage and waste management aspects of the peat management scheme to ensure that the carbon balance benefits of the scheme are maximised.

Disruption to wetlands including peatlands

If there are wetlands or peatland systems present, the ES or planning submission should demonstrate how the layout and design of the proposal, including any associated borrow pits, hard standing and roads, avoid impact on such areas.

A Phase 1 habitat survey should be carried out for the whole site and the guidance A Functional Wetland Typology for Scotland should be used to help identify all wetland areas. National Vegetation Classification should be completed for any wetlands identified. Results of these findings should be submitted, including a map with all the proposed infrastructure overlain on the vegetation maps to clearly show which areas will be impacted and avoided.

Groundwater dependent terrestrial ecosystems, which are types of wetland, are specifically protected under the Water Framework Directive. The results of the National Vegetation Classification survey and Appendix 2 (which is also applicable to other types of developments) of our Planning guidance on windfarm developments should be used to identify if wetlands are groundwater dependent terrestrial ecosystems.

The route of roads, tracks or trenches within 100 m of groundwater dependent terrestrial ecosystems (identified in Appendix 2) should be reconsidered. Similarly, the locations of borrow pits or foundations within 250 m of such ecosystems should be reconsidered. If infrastructure cannot be relocated outwith the buffer zones of these ecosystems then the likely impact on them will require further assessment. This assessment should be carried out if these ecosystems occur within or outwith the site boundary so that the full impacts on the proposals are assessed. The results of this assessment and necessary mitigation measures should be included in the ES.

For areas where avoidance is impossible, details of how impacts upon wetlands including peatlands are minimised and mitigated should be provided within the ES or planning submission. In particular impacts that should be considered include those from drainage, pollution and waste management. This should include preventative/mitigation measures to avoid significant drying or oxidation of peat through, for example, the construction of access tracks, dewatering, excavations, drainage channels, cable trenches, or the storage and re-use of excavated peat. Detailed information on waste management is required as detailed below. Any mitigation proposals should also be detailed within the Construction Environmental Management Document, as detailed below.

Disturbance and re-use of excavated peat

Where the proposed infrastructure will impact upon peatlands, a detailed map of peat depths (this must be to full depth) should be submitted. The peat depth survey should include details of the basic peatland characteristics.

By adopting an approach of minimising disruption to peatland, the volume of excavated peat can be minimised and the commonly experienced difficulties in dealing with surplus peat reduced. The generation of surplus peat is a difficult area which needs to be addressed from the outset given the limited scope for re-use.

The ES or planning submission should detail the likely volumes of surplus peat that will be generated, including quantification of catotelmic and acrotelmic peat, and the principles of how the surplus peat will be reused or disposed of.

There are important waste management implications of measures to deal with surplus peat as set out within our Regulatory Position Statement - Developments on Peat. Landscaping with surplus peat (or soil) may not be of ecological benefit and consequently a waste management exemption may not apply. In addition we consider disposal of significant depth of peat as being landfilled waste, and this again may not be consentable under our regulatory regimes. Experience has shown that peat used as cover can suffer from significant drying and oxidation, and that peat redeposited at depth can lose structure and create a hazard when the stability of the material deteriorates. This creates a risk to people who may enter such areas or through the possibility of peat slide and we are aware that barbed-wire fencing has been erected around some sites in response to such risks.

It is therefore essential that the scope for minimising the extraction of peat is explored and alternative options identified that minimise risk in terms of carbon release, human health and environmental impact. Early discussion of proposals with us is essential, and an overall approach of minimisation of peatland disruption should be adopted. If it is proposed to use some excavated peat within borrow pits or bunding then details of the proposals, including depth of peat and how the hydrology of the peat will be maintained, should be outlined in the ES or planning submission.

Our Planning and Energy webpage provides links to current best practice guidance on peat survey, excavation and management.

Forest removal and forest waste

We would support the approach of key-holing wherever possible as large scale felling can result in a peak release of nutrients which can affect local water quality. We may, however, be supportive of clear felling in cases where planting took place on deep peat and it is proposed through a Habitat Management Plan to reinstate peat-forming habitats. This should be specifically referenced in the ES.

We would be especially interested in and are likely to have significant concerns relating to any proposals to fell to waste where the waste generated by the process will be managed by techniques such as chipping, mulching or spreading. This is because where material is classed as waste then appropriate waste management options require consideration and, where appropriate, adoption. In such cases we would wish the ES to include information which explains how the waste hierarchy has been applied in a way which delivers the best overall environmental outcome and if this is not demonstrated we are likely to be object to the application.

It has previously been argued that using waste on the site could yield an ecological improvement and so has been considered as an exemption under waste management licensing. However, this approach is now being questioned as the results of early research show there is a lack of clarity and evidence to support the claim that this practice delivers overall ecological improvement for the main target vegetation types (blanket bog or wet heath).

This restoration practice is currently being tested and researched at a number of sites across Scotland. This research will provide greater clarity on the benefits and risks associated with the practice. If ecological benefit from use of waste is to be claimed, then reliable site-specific evidence must be provided. For avoidance of doubt, where it is sought to claim ecological benefit from deposition of forestry waste a) the ecological benefit must relate to the land to which the waste is applied rather than off-site benefits and b) there must not be an ecological harm also associated with the deposition of the waste. Note that if there are likely to be significant amounts of surplus forestry material without a clear use, and if scope for an exemption under waste management is unclear, then unfortunately we may need to object to an application due to our inability to advise on consentability under our regulatory regime and hence it is essential that these issues are addressed at an early stage.

Nationally we are working with our SEARS partners to agree common principles for considering the use of forest material / waste wood on peatland sites for restoration projects. This work is currently being agreed and will soon be published on our website as Principles for Use of Forest Residue for Peatland Restoration. The draft principles within it which should be applied are as follows:

- Full justification for using the material on-site must be provided. Evidence must be provided to show that all options for use of the material off-site have been considered;

- The proposed use of the material must be beneficial in reaching the objectives of the Habitat Management Plan (HMP) as agreed by the local authority in consultation with statutory agencies (SNH and SEPA). Detailed monitoring proposals should be included in the HMP;

- Material used on site should not have any negative impact on the water environment or other sensitive receptors (e.g. protected species);

- Details of the size, volume, and depth of material to be used on site must be provided. A detailed map showing areas where the material will be used and extent of cover should also be provided;

- A clear specification for contractors is required to ensure the correct machinery is used, and that any material left on site is used in line with the HMP. The quality of the material is an important factor; maximum chip size (or other criteria) should be defined and agreed with the contractor. A maximum depth of material should also be agreed with the contractor.

We ask that where the ecological benefit proposed by the fell to waste activity does not relate to improvement of peatland habitats that the expected environmental benefit is outlined and fully justified in the ES.

Existing groundwater abstractions

Roads, foundations and other construction works associated with large scale developments can disrupt groundwater flow and impact on groundwater abstractions. To address this risk a list of groundwater abstractions both within and outwith the site boundary, within a radius of i)100 m from roads, tracks and trenches and ii) 250 m from borrow pits and foundations) should be provided.

If groundwater abstractions are identified within the 100 m radius of roads, tracks and trenches or 250 m radius from borrow pits and foundations, then either the applicant should ensure that the route or location of engineering operations avoid this buffer area or further information and investigations will be required to show that impacts on abstractions are acceptable. Further details can be found in Appendix 2 (which is also applicable to other types of developments) of our Planning guidance on windfarm developments.

Engineering activities in the water environment

In order to meet the objectives of the Water Framework Directive of preventing any deterioration and improving the water environment, developments should be designed to avoid engineering activities in the water environment wherever possible. The water environment includes burns, rivers, lochs, wetlands, groundwater and reservoirs. We require it to be demonstrated that every effort has been made to leave the water environment in its natural state. Engineering activities such as culverts, bridges,

watercourse diversions, bank modifications or dams should be avoided unless there is no practicable alternative. Paragraph 211 of SPP deters unnecessary culverting. Where a watercourse crossing cannot be avoided, bridging solutions or bottomless or arched culverts which do not affect the bed and banks of the watercourse should be used. Further guidance on the design and implementation of crossings can be found in our Construction of River Crossings Good Practice Guide. Other best practice guidance is also available within the water engineering section of our website.

If the engineering works proposed are likely to result in increased flood risk to people or property then a flood risk assessment should be submitted in support of the planning application and we should be consulted as detailed below.

A site survey of existing water features and a map of the location of all proposed engineering activities in the water environment should be included in the ES or planning submission. A systematic table detailing the justification for the activity and how any adverse impact will be mitigated should also be included. The table should be accompanied by a photograph of each affected water body along with its dimensions. Justification for the location of any proposed activity is a key issue for us to assess at the planning stage.

Where developments cover a large area, there will usually be opportunities to incorporate improvements in the water environment required by the Water Framework Directive within and/or immediately adjacent to the site either as part of mitigation measures for proposed works or as compensation for environmental impact. We encourage applicants to seek such opportunities to avoid or offset environmental impacts. Improvements which might be considered could include the removal of redundant weirs, the creation of buffer strips and provision of fencing along watercourses. Fencing off watercourses and creating buffer strips both helps reduce the risk of diffuse water pollution and affords protection to the riparian habitat.

We are pleased to note that the applicant intends to undertake baseline water monitoring sampling, macroinvertebrate and fishery surveys at various locations throughout the site and that these surveys will be carried out in accordance with the relevant best practice standards. We will be pleased to offer further comments on these matters in due course.

Water abstraction

Where water abstraction is proposed we request that the ES, or planning submission, details if a public or private source will be used. If a private source is to be used the information below should be included. Whilst we regulate water abstractions under The Water Environment (Controlled Activities) (Scotland) Regulations 2011, the following information is required at the planning stage to advise on the acceptability of the abstraction at this location:

- Source e.g. ground water or surface water;
- Location e.g. grid reference and description of site;
- Volume e.g. quantity of water to be extracted;

- Timing of abstraction e.g. will there be a continuous abstraction;
- Nature of abstraction e.g. sump or impoundment;
- Proposed operating regime e.g. details of abstraction limits and hands off flow;
- Survey of existing water environment including any existing water features;
- Impacts of the proposed abstraction upon the surrounding water environment.

If other development projects are present or proposed within the same water catchment then we advise that the applicant considers whether the cumulative impact upon the water environment needs to be assessed. The ES or planning submission should also contain a justification for the approach taken.

Pollution prevention and environmental management

One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. The construction phase includes construction of access roads, borrow pits and any other site infrastructure.

We advise that the applicant should, through the EIA process or planning submission, systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the principles of preventative measures and mitigation. This will establish a robust environmental management process for the development. A draft Schedule of Mitigation should be produced as part of this process. This should cover all the environmental sensitivities, pollution prevention and mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our website.

A Construction Environmental Management Document is a key management tool to implement the Schedule of Mitigation. We recommend that the principles of this document are set out in the ES outlining how the draft Schedule of Mitigation will be implemented. This document should form the basis of more detailed site specific Construction Environmental Management Plans which, along with detailed method statements, may be required by planning condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).

We would refer you to best practice advice prepared by SNH, SEPA and the windfarm industry Good Practice During Windfarm Construction. Additionally, the Highland Council (in conjunction with industry and other key agencies) has developed a guidance note Construction Environmental Management Process for Large Scale Projects.

Borrow pits

Detailed investigations in relation to the need for and impact of such facilities should be contained in the ES or planning submission. Where borrow pits are proposed, information should be provided regarding their location, size and nature. In particular, details of the proposed depth of the excavation compared to the actual topography and water table should be submitted. In addition details of the proposed restoration profile, proposed drainage and settlement traps, turf and overburden removal and storage for reinstatement should be submitted.

The impact of such facilities (including dust, blasting and impact on water) should be appraised as part of the overall impact of the scheme. Information should cover, in relation to water; at least the information set out in Planning Advice Note PAN 50 Controlling the Environmental Effects of Surface Mineral Workings (Paragraph 53). In relation to groundwater, information (Paragraph 52 of PAN 50) only needs to be provided where there is an abstraction or groundwater dependent terrestrial ecosystem within 250 m of the borrow pit. Additional information on groundwater is provided above.

Air quality

The local authority is the responsible authority for local air quality management under the Environment Act 1995 and therefore we recommend that Environmental Health within the local authority be consulted.

They can advise on the need for this development proposal to be assessed alongside other developments that could contribute to an increase in road traffic. They can also advise on potential impacts such as exacerbation of local air pollution, noise and nuisance issues and cumulative impacts of all development in the local area. Further guidance regarding these issues is provided in NSCA guidance (2006) entitled Development Control: Planning for Air Quality.

Flood risk

The site should be assessed for flood risk from all sources in line with Scottish Planning Policy (Paragraphs 196-211). Our Indicative River & Coastal Flood Map (Scotland) is available to view online and further information and advice can be sought from your local authority technical or engineering services department and from our website.

If a flood risk is identified then a Flood Risk Assessment should be carried out following the guidance set out in the Annex to the SEPA-Planning Authority flood risk protocol. Our Technical flood risk guidance for stakeholders outlines the information we require to be submitted as part of a Flood Risk Assessment, and methodologies that may be appropriate for hydrological and hydraulic modelling.

Regulatory advice for the applicant

Details of regulatory requirements and good practice advice for the applicant can be found on our website at www.sepa.org.uk/planning.aspx. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the Dumfries & Galloway operations team in your local SEPA office at:
Rivers House
Lochside Industrial Estate
Irongray Road
Dumfries
DG2 0JE
Tel No 01387-720502

3. SNH

Thank you for your e-mail dated 25 April 2013 consulting us on the above and thank you also for allowing additional time to respond. Please find comments below as they relate to various subject areas in the scoping report.

Landscape and Visual Impact Assessment
Firstly, given the height of the turbines and that they are at the top end of the scale for on shore wind turbines we think it likely that in landscape and visual terms turbine scale is anticipated to be a key issue, turbine size and perceived scale in the landscape context must be fully explored in the ES.

A possible way to explore this issue is for a range of turbine sizes to be tested through the assessment and visualisation processes of the LVIA. Additional to the proposals the following thresholds could be used: 120m, and 100m, and 80m. Alternative layouts may also be beneficial.

The large number and height of turbines included in this scheme will likely contribute to a concentrated band of turbine development, eventually linking the Glenkens to Nithsdale, and the resultant cumulative landscape and visual effects that this may cause. We expect this issue to be dealt with as part of the assessment. We also consider that there will be cumulative landscape and visual effects with existing and consented wind farms within the Ken and Cairnsmore units.

Comments on Methodology/Scoping Report

A few of the references contained within the report are out of date,
GLVIA has recently been updated, the 3rd issue should now be referenced, with the consultant using this updated version when considering the specific method for assessing the impacts.

Our guidance on assessing cumulative impact has also been updated and is now available on our website, referenced as '*Assessing the cumulative impact of onshore wind energy developments* March 2012.

Landscape

The scheme is located partly within the Galloway Hills RSA. We strongly recommend that the effect of the scheme upon the key characteristics on this designated landscape be investigated. These effects may include visual intrusion on Glenkens and Rhinns of Kells.

The scheme is located within the Southern Uplands with Forest 'Ken' unit, where we consider there is capacity for wind development, however we consider this capacity will be lessened by the number of consented, constructed and in application schemes, plus the substantial interest (i.e. number of scoping schemes) coming forward. This will increase the likelihood of significant cumulative impacts and lessen the capacity for this area to accommodate significant wind development.

Visual Assessment

We expect photomontages be used for all viewpoints up to 17km from the proposal, with all viewpoints being represented by an existing photo and wireline.

We consider the range of viewpoints selected to be adequate, though wish to request a viewpoint from the summit of Corserine.

Cumulative Landscape and Visual

Given the number of schemes coming forward within this area, we think it likely that most viewpoints should also contain cumulative wireframes as appropriate. We recommend that the applicant liaise with Dumfries and Galloway Council as well as South and East Ayrshire for an up to date list of in application schemes, as we no longer keep an up to date list.

Ecology

We note that most of the ecological survey work, with the exception of great crested newt, is planned for 2013 and therefore nothing to comment on at this point. So far as the breadth of surveys for certain habitats and species are concerned we find these adequate. Note that the survey period for bats, as per BCT guidance, extends the period April to October and not May to September as proposed.

In addition to a Phase 1 survey, habitats consistent with those on Annex 1 of the EC Habitats Directive together with UKBAP Priority Habitats should be mapped to NVC standard, accompanied by supporting quadrat information. There should also be an assessment of impacts on any rare and scarce associated species. Following the survey, the results should be used to inform the design and layout process, so that the development avoids, where

possible, fragile and priority habitats. Where this is not possible suitable restoration and/or compensation will be required.

Ornithology

Surveys began in October 2012 and will run up to end September 2013. Aside from the fact that we have already advised the applicant that Vantage Point (VP) watches were not required for autumn and spring migration periods (see 8.11) the scoping report nevertheless sees surveys during these periods as 'prime objectives' (8.33). It is therefore unclear as towhat the main aims of VP watches are outwith the breeding season as VP watches alone for the autumn and spring season would require 72 hours per VP, leaving little or no time for the winter period (accepting a degree of overlap). Also, at 19.9 in Appendix C, it is stated that watches are being undertaken in each month of the year and so it needs to be clarified where the main survey effort will be concentrated and primary objectives clearly stated.

Figure 6 clearly shows 4 VPs and associated viewsheds which does not correspond to the two stated at 19.9, Appendix C. At 19.10, Appendix C, it is stated *that "normally, all points within the survey area will be within 2km of a VP"*. We accept that under certain circumstances there may be blind spots within the survey boundary, however, Figure 6 clearly shows an area to the north of the site that is not covered by any VP with turbine 44 located in this area, and turbines 43 and 45 on the periphery of viewsheds 2 and 1 respectively. If turbine 44 remains outwith the viewshed of any VP then clearly this will have an impact on collision risk assessments and so either this turbine is removed or relocated within a viewshed at this state of the survey period unless the VP survey design and watches are revised.

At 8.32 the applicants allow themselves a flexible approach to survey methods suggesting possible revisions to effort if deemed necessary. It is not clear what this actually means, but a word of caution to note that deviations from established methodologies and effort will need to be fully justified within the Environmental Statement should the proposal proceed.

Table 8.1, first column, second row, should not be headed 'summer 2013'
At 8.46 consultees are invited to consider a number of questions. First bullet asks if we consider any SPAs where a Habitats Regulations Assessment would be required. Without performing our own analysis of data we cannot answer this question at this point.

If and when we advise the Competent Authority that an Appropriate Assessment is required we will suggest any 'in combination' plans or projects to include.

Hydrology and Hydrogeology

Appropriate field surveys should be undertaken to determine the extent of peat deposits as part of the EIA process and to inform site design and layout. If peat is found to be present on site, we would expect the applicant to carry out a peat stability assessment. It is important that Peat Depth Surveys and

Peat Slide Risk Assessments are as extensive as necessary to capture and assess all relevant areas. The assessment should include turbine, infrastructure and laydown locations, plus the access tracks and any borrow pits. We also strongly recommend early engagement with SEPA with regard to excavated peat reuse and disposal.

4. Forestry Commission Scotland

No comments received

5. Historic Scotland

Thank you for your scoping opinion request, which we received on 25 April 2013. This letter contains our comments for our historic environment interests. That is, scheduled monuments and their setting, category A listed buildings and their settings and gardens and designed landscapes and battlefields included in their respective inventories.

You should seek information and advice from the relevant planning authority archaeologist and conservation advisor for matters including unscheduled archaeology and impacts on B and C listed buildings, if you have not already done so.

Historic Scotland's advice

Without prejudice and on the basis of the information supplied, we have concerns that the setting of a number of scheduled monuments would be significantly adversely affected by the proposals. While we envisage potential for wind energy development at this location, the current proposal is likely to raise issues for our historic environment interests. Our detailed comments are set out in the attached Annex I.

In light of the concerns that we have raised, we would be strongly recommend that the developer undertakes further pre-application consultation with Historic Scotland. As part of that, we would be happy to provide comments on the visualisations produced in advance of any application being submitted.
I hope this letter has been helpful to you. If you would like to discuss any of the issues raised please feel free to contact me on the details above.

Annex I

General
I understand that the proposed development would consist of up to 45 turbines with maximum height to blade tip of 146.5m, access tracks, substation building, permanent meteorological mast and other associated development, on land east of Carsphairn.
I advise that consideration is given to our guidance on the setting of historic environment assets when carrying out the assessment, which can be accessed via the following link:
http://www.historic-scotland.gov.uk/setting-2.pdf.

Additional guidance on our role and information requirements in the EIA process can be found on our website: http://www.historic-scotland.gov.uk/index/heritage/policy/environmental-assessment/eiafaqs.htm.

Scheduled Monuments – HS assessment of settings and potential impacts

The three monuments with which we are most concerned are:

Stroanfreggan Craig, fort, Smittens Bridge (Index No. 1095)
Stroanfreggan Bridge, cairn (Index No. 1043)
Craigengillan,cairn (Index No. 2238)

Stroanfreggan Craig, fort, Smittens Bridge (Index No. 1095)

This probable Iron Age fort is located halfway down a narrow ridge running northeast-southwest, and is overlooked by higher ground to the northeast. Marked by a stone cairn of later date, it has extensive views over the immediate landscape to the southwest, south and southeast. It is also a very prominent monument when viewed from these points in the immediate landscape. The key element in the setting of this monument is its relationship to the topography of the ridge. Views towards the fort from the southwest, south and southeast are therefore sensitive elements in this monument's setting. The fort is located on open upland grazing with practically no modern development in the vicinity. The extensive commercial woodlands to the west form part of the baseline of this setting, and contribute to a sense of rural upland isolation.

The proposed turbines would feature in the backdrop of views towards the fort from the lower ground to the south and southeast, and possibly on the periphery of views towards it from the southwest. The turbines would also be a prominent element in views westwards from the monument. The introduction of turbines would represent a highly visible and industrial intrusion into the open upland setting, and the degree of change to this setting would be high. Therefore, there is potential for a significant adverse impact on this monument. Along with the proposed Longburn wind farm to the immediate north of the fort, there is also potential for a significantly adverse cumulative impact.

We recognise that the proposed turbines in the southern half of the development site are set well back from the site boundary. We would strongly recommend that turbines are not proposed any closer to the fort, and that an assessment of the setting impacts seeks to identify any necessary mitigation to reduce impacts. This may include relocation of a number of the proposed turbines.

Stroanfreggan Bridge, cairn (Index No. 1043)

This large circular cairn and cist is situated at the edge of a bank on low-lying ground. The monument appears as a low circular cairn of stones c. 24m in diameter, and features a burial cist on the eastern side of the cairn. Such cairns were designed to be visible from adjacent farmland and routeways, and

to have reciprocal views outwards. The location of this cairn on a gentle slope leading southwards towards the Stroanfreggan Burn suggests that the key element in the setting of the cairn consists of views to the east and west along the watercourse, and that distant views to the north and south are subsidiary elements in this setting. The monument is not particularly isolated from modern development, and the small number of dwellings to the west and east form part of the baseline setting.

The introduction of turbines on the hillsides to the northwest of the site may have an adverse impact on the setting of the cairn. Along with the proposed Longburn wind farm to the north, there is also potential for a cumulative adverse impact.

Craigengillan, cairn (Index No. 2238)

The cairn is presently located in a clearing within a forestry plantation, and has not been visited by Historic Scotland in recent years. However, we recently responded to a scoping exercise for a Long Term Forest Plan for this area. In this we recommended ensuring that replanting incorporated a 20m buffer zone around the scheduled area, and reopening views to and from the southeast to enhance the setting of the monument. (I have attached a copy of this response as Annex II to this letter).

The cairn lies on a steep southeast-facing slope, and views to and from the east and southeast are likely to be a significant element in the setting of the monument. These views are likely to be re-established as part of the restocking work. Apart from the visual element of the setting, the monument is located in a relatively isolated upland landscape, and this also contributes to the setting of the monument.

The potential impact of the proposed development on this setting may be significant. The scale and proximity of turbines to the cairn would represent significant and industrial introductions into its setting. Perceptions of the cairn and its setting would largely be dictated by the sense that it lay within a wind farm. The isolated location of the monument would be significantly altered. This would represent an adverse impact even if fewer trees than recommended were removed as part of the forest plan. Turbines 6, 9, 10, 11, 13, 17 and 35 would represent particularly significant issues in this regard. Along with the proposed Longburn wind farm to the east of the cairn, there is also potential for a cumulative adverse impact.

Other Monuments in the Vicinity

The following monuments are also in the vicinity of the development and lie within the zone of theoretical visibility as demonstrated in the diagram provided. As such, we abcde abc www.historic-scotland.gov.uk
would expect that impacts upon their settings would be included in the Environmental Statement:

Dundeugh Castle (Index no. 2476)
Braidenoch Hill, cross slabs (Index no. 1105)
Polmaddy, medieval and post-medieval settlement (Index no. 5391)

Information required and mitigation potential

In order to fully assess the potential impacts on the setting of the Stroanfreggan monuments (Index numbers 1095 and 1043), we recommend that the ES includes the following photomontages:

- From both monuments, looking towards the wind farm
- From the unnamed road leading eastwards from Smittons Bridge looking northwestwards towards Stroanfreggan fort
- From the south side of the Stroanfreggan Burn looking northwestwards towards the Stroanfreggan Bridge cairn and the proposed development. Where feasible, the viewpoint should be within c.30 – c.50m of the cairn.

In order to assess the potential impact on the setting of Craigengillan cairn, we recommend that a series of wireframes be undertaken:

From the monument, looking in the direction of the proposed development site. This series of wireframes should show (at a minimum) Turbines 6, 9, 10, 11, 13, 17 and 35.

We are of the opinion that there is potential for wind energy development at this location, but not to the extent envisaged at this stage. The potential impacts discussed above can be mitigated through design changes which take a full and reasonable assessment of impacts into account.

6. Marine Scotland

Marine Scotland Science Freshwater Laboratory (MSS-FL) provides scientific advice on migratory and freshwater fish in Scotland to allow the Scottish Government to protect and promote the development of sustainable fisheries. We are a Scottish Government internal consultee providing fisheries advice to the Energy Consents and Deployment Unit (ECDU).

Wind farm and transmission line proposals which are considered under Section 36 and 37 of the Electricity Act may adversely affect water quality and fish populations through a number of mechanisms. These include: increased sediment transport and deposition; pollution incidents; altered hydrological pathways; removal or degradation of fish habitat, including spawning areas; reduction in food supply and obstruction to upstream and downstream migration of fish, all of which should be fully addressed in the Environmental Statement (ES).

Atlantic salmon, trout (sea trout and brown trout) and European eel are of particular interest to MSS-FL. Fish and fisheries issues will also be of concern to the local District Salmon Fishery Boards (DSFBs), which have a statutory responsibility to protect salmon populations. As such this organisation should also be contacted at the outset of any development. In addition to the DSFBs, local Fisheries Trusts have information regarding local fish populations. The following web sites have lists of all DSFBs and Fisheries Trusts in Scotland:

http://www.asfb.org.uk

http://www.rafts.org.uk

The developer should also note that fish and fisheries issues are also likely to be of concern to Scottish Natural Heritage (SNH) when species of conservation interest are involved (see http://www.snh.gov.uk/about-scotlands-nature/species/fish/freshwater-fish/) and to the Scottish Environment Protection Agency (SEPA) due to their role in ensuring compliance with the requirements of the Water Framework Directive.

Environmental Statement

In preparation of the ES careful consideration should be given to the following activities which can have an impact on fisheries: turbine foundations, excavation of borrow pits, road construction/upgrading, cable laying, water abstraction and discharge.

Water bodies and stream crossings

It is recommended that construction avoids water bodies wherever possible. If construction is to be carried out near watercourses, a buffer zone of at least 50m should be established. Where river crossings are proposed the Scottish Executive guidance "River Crossings and Migratory Fish" (2000) http://www.scotland.gov.uk/Topics/marine/science/Publications/publicationslatest/rivercrossings should be consulted in addition to SEPA's "Engineering in the Water Environment Good Practice Guide Construction of River Crossings" (http://www.sepa.org.uk/water/water_regulation/guidance/engineering.aspx).

Peat stability

Peat slides can have a direct impact on fisheries and peat disturbance can have indirect effects on water quality, therefore all construction should avoid areas of deep peat, where this is not possible appropriate mitigation measures should be put in place. Natural peat drainage channels should be preserved throughout the development; excavated material should not be stock piled in areas of unstable peat; concentrated water flows onto peat slopes should also be avoided.

Flooding

The propensity of the development site to flooding, prior to any construction activities, should be considered. Drainage throughout the proposal should be designed such that it does not alter surface water runoff leading to a reduction in baseflows or influence the magnitude and/or frequency of flooding. Such changes in the hydrological regime can have a large impact on fisheries.

Abstraction and discharge of water

SEPA, through The Water Framework Directive, regulates abstraction from and discharge of polluting matter to all wetlands, surface waters and groundwaters. (SEPA-The Water Environmental (Controlled Activities) (Scotland) Regulations 2005 A Practical Guide http://www.sepa.org.uk/water/water_regulation.aspx). Where water abstraction is proposed, the developer should ensure that they comply with The Salmon (Fish Passes and Screens) (Scotland) Regulation 1994 which states that screens, at the point of water abstraction, should serve to prevent the entry and injury of salmon. http://www.legislation.gov.uk/uksi/1994/2524/regulation/6/made. Surface water run-off must be discharged in such a way to minimise the risk of pollution of the water environment.

Pollution

The Water Framework Directive requires any activity that is liable to cause water pollution to be authorised by SEPA. This includes point source pollution (eg sewage and trade effluent) and diffuse pollution (fuel, concrete spills, sediment discharge) all of which can be detrimental to the survival of fish see SEPA Pollution Prevention Guidelines http://www.netregs.gov.uk/netregs/links/107968.aspx

Acidification

Particular attention should be paid to acidification issues if they are known to be a problem in the area. Anthropogenic acidification of freshwaters is largely caused by the input of sulphur and nitrogen compounds, derived from the combustion of fossil fuels, exceeding the buffering capacity of the soils and underlying rocks through which the streams flow. Peat deposits and marine derived sulphates can also contribute to acidity. Salmonid fish are particularly sensitive to acid water, particularly due to the increased mobility of labile aluminium in acid conditions which is toxic to aquatic organisms.

Forestry

The developer should be aware of the potential impacts of tree felling on the aquatic environment including nutrient release, increased acidification risk, loss of habitat, impacts on hydrology, increased fine sediment transport and deposition, all of which can have a detrimental impact on fish populations and should therefore be addressed in the ES. “The Forest and Water Guidelines” should be consulted for further information http://www.forestry.gov.uk/forestry/INFD-88VGX9.

Monitoring Programmes

In order that MSS- FL can assess the potential impact of developments the developer should provide information on all species and abundance of fish within the development area. MSS- FL may not have local knowledge of the site and consequently the onus is on the developer to provide adequate information on which to base an assessment of risk.

Where local salmonid and eel populations are present and the development has the potential to have an impact on the freshwater environment MSS FL requests that a baseline study be carried out at least one year prior to construction to assess all species and abundance of fish and water quality in standing and running waters likely to be affected by the proposed development. Particular attention should be paid to species of high economic and/or conservation value as outlined below:

Atlantic salmon, sea lamprey, river lamprey and brook lamprey are listed under the European Habitat Directive. Atlantic salmon, trout (ancestral forms and sea trout), European eel, river lamprey, sea lamprey and Arctic charr are UK Biodiversity Action Plan (UKBAP) species-listed as priorities for conservation. European eel is also protected by EU regulation (EC No 1100/2007). The following links provide further information regarding the protection of fish species and water bodies in Scotland.

http://www.jncc.gov.uk/ProtectedSites/SACselection/SAC_species.asp
http://www.jncc.gov.uk/ProtectedSites/SACselection/SAC_list.asp?Country=S
http://www.jncc.gov.uk/page-5164
http://www.nasco.int/pdf/far_habitat/HabitatFAR_Scotland.pdf

Although MSS-FL will be primarily concerned with species of fisheries interest (e.g. salmon, trout and eels), other consultees will have an interest in other species.

Adherence to best available techniques is expected throughout the development. Site specific mitigation measures and/or enhancement programmes to protect and/or compensate freshwater habitats should always be included in the ES.

Monitoring throughout the development phase should be carried out to identify impacts and allow remediation at the earliest opportunity for sites where there are thought to be risks to fish populations. The experimental design of the monitoring programme should focus on the risks presented by the development and be clearly justified. Methods of analysis, reporting mechanisms and links to site management should also be clearly identified. The following publication may be helpful in considering fish monitoring programmes; http://www.scotland.gov.uk/Uploads/Documents/SFRR_67.pdf .

Developers should ensure that all fish work complies with the Animal (Scientific Procedures) Act (1986) and Animal Health and Welfare (Scotland) Act (2006) where required.

The combined effect on water quality and fisheries from all existing and proposed construction developments in the area should be addressed in the ES in addition to angling, as a recreation interest, and the impact that the proposed development may have on it.

Where the development can be clearly demonstrated to be of low risk to fish populations the developer should still draw up **site specific** mitigation

plans to minimise any impact to fish and their inhabiting waters. If the developer considers that there will be no significant impact from the development and as such no monitoring will be required this should be clearly presented in the ES with supporting data and information thereby enabling MSS-FL to finalise the decision on monitoring requirements. If this information is not provided, MSS-FL will have no information on which to base an assessment of risk and as such will recommend that the developer carry out a full monitoring survey of fish and water chemistry in addition to appropriate mitigation plans. Due to limited staff resources MSS-FL normally do not attend meetings held in relation to proposed developments.

Summary

- MSS-FL is an internal Scottish Government consultee providing scientific advice on fish and fisheries in Scotland to protect fish populations and promote sustainable fisheries.
- Other organisations including DSFBs, Fishery Trusts, SNH and SEPA also have an interest in fish and fisheries issues.
- Energy developments can impact fish populations through a wide range of mechanisms that need to be considered in the ES.
- It is the responsibility of the developer to provide data on the distribution, species and abundance of fish within and around the development site to allow MSS-FL to assess levels of risk from the proposed development.
- It is the responsibility of the developer to provide a clear and honest assessment of the risks posed to fish populations as a result of the proposed development.
- If there is any reasonable doubt as to the potential impacts a monitoring plan should be put in place to assess impacts and allow remedial action at the earliest opportunity.
- Monitoring plans should be clearly defined and justified and must tie into site management.

Useful links

Good practice during windfarm construction: http://www.snh.org.uk/pdfs/strategy/renewables/Good%20practice%20during%20windfarm%20construction.pdf

SEPA water publications: http://www.sepa.org.uk/water/water_publications.aspx

Peat Landslide Hazard and Rish Assessments: Best Practice Guide for proposed Electricity Generation Developments. http://www.scotland.gov.uk/Publications/2006/12/21162303/0

SFCC electrofishing protocols: http://www.scotland.gov.uk/Topics/marine/science/sfcc/Protocols/ElectrofishingSurveys

Construction of floating roads: http://www.roadex.org/uploads/publications/Seminars/Scotland/FCE:SNH%20Floating%20Roads%20on%20Peat%20report.pdf

7. Transport Scotland

No comments received

8. Association of Salmon Fishery Boards

No comments received

9. Civil Aviation Authority - Airspace

Having reviewed the Scoping Report for the proposed Shepherds' Rig Wind farm, the appropriate aviation consultees have been identified in Chapter 13 although the positions of each consultee regarding the proposed development should be established by consultation. I would also add the need, if the proposed development is approved, to inform the Defence Geographic Centre ICGDGC-ProdAISAFDb@mod.uk of the locations, heights and lighting status of the turbines and meteorological masts, the estimated and actual dates of construction and the maximum height of any construction equipment to be used, prior to the start of construction, to allow for the appropriate inclusion on Aviation Charts, for safety purposes.

10. The Crown Estate

No comments received

11. Defence Infrastructure Organisation

The principal safeguarding concerns of the MOD with respect to the development of wind turbines relate to their
potential to create a physical obstruction to air traffic movements, and cause interference to air traffic control and air defence radar installations.

Air Traffic Control (ATC) Radar & Range Control Radar

Where wind turbines are visible to ATC radars they have been shown to have detrimental effects on radar performance. These effects include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns which air traffic controllers must treat as real. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to air traffic controllers. Controllers use the radar to separate and sequence both military and civilian aircraft, and in busy uncontrolled airspace radar is the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of "false" aircraft displayed on the radar leads to increased workload for both controllers and aircrews, and may have a significant operational impact. Furthermore, real aircraft returns can be obscured by the turbine's radar returns, making the tracking of conflicting unknown aircraft (the controllers' own traffic) much more difficult.

Precision Approach Radar (PAR)

The MOD's PAR is a very accurate radar used by air traffic controllers to guide aircraft down in inclement weather (although the procedure is practised in all weather conditions). The accuracy and integrity of this radar is critical as air traffic controllers must control the aircraft in descent and very close to the ground. Wind turbines constructed in line of sight of the PAR can cause localised "track seduction", leading to aircraft disappearing from the radar. A further possible effect is the overload of the radar's processor, in that wind turbines generate "false plots" which use up processing ability. Once its threshold is reached the radar may be unable to detect smaller targets, which are likely to be aircraft in head-on profile. Technical aspects of the PAR are covered by international arms traffic regulations, and therefore cannot be released by the MOD, but on these grounds the MOD will object to any wind turbine constructed within the PAR's coverage.

Air Defence (AD) radar

Trials carried out in 2005 concluded that wind turbines can have detrimental effects on the operation of radar which include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, and the RAF would be unable to provide a full air surveillance service in the area of the proposed wind farm.

Secondary Surveillance Radar (SSR)

SSR relies on co-operative transmission from aircraft carrying equipment known as transponders. For this reason confusion between returns from aircraft and from other objects is highly unlikely and many of the effects caused to normal radars will not occur. However reflection of transmissions could be caused by wind turbines particularly if they are in close proximity to an SSR site. In this eventuality misidentification or mislocation of aircraft could occur. This could have potential flight safety implications.

Meteorological Office radar

Wind turbines can interfere with Met Office Radars in similar ways to Air Traffic Control Radars as detailed above and impair their ability to detect weather phenomena.

Low Flying

The whole of the UK may be used for military low flying operations. The proliferation of obstacles is not only a safety hazard but also severely impacts on its utilisation for essential low flying training. The MOD will often request that turbines be fitted with aviation warning lights.

Area Air Traffic Control (ATC) radar

There are 12 National Air Traffic Services (NA TS) radars under contract to provide the MOD with airspace monitoring services throughout the UK.

Physical Safeguarding

Turbines constructed within statutory safeguarding zones have the potential to cause physical obstructions which could interfere with the safe operation of defence assets.

Eskdalemuir Seismological Recording Station

Following research jointly commissioned by DTI (now the Department of Business, Innovation and Skills), BWEA (now RenewableUK) and MOD, it has been confirmed that wind turbines of current design generate seismic noise which can interfere with the operational functionality of the array. In order to ensure the UK complies with the Comprehensive Nuclear-Test-Ban Treaty, a noise budget based on the findings of the research has been allocated to a Safeguarding Zone around the array. At present the reserved noise budget has been reached, so the MOD must object to further applications if they are not accompanied by a MOD approved mitigation schem.

The allocated noise can alter on a regular basis as new schemes reach planning and others do not obtain consent. We recommend you contact us regularly to ascertain current allocation levels. Any schemes to which the MOD does not object, which subsequently do not gain planning consent, will have their noise quota added back to the available noise budget.
Calculations are based on current turbine designs. If future technological solutions can be applied to turbines arid be scientifically proven to reduce or remove the noise generated, the MOD will reassess its policies.

Threat Radar

RAF Spadeadam, in north Cumbria, is home to an Electronic Warfare Tactical Range which provides vital training, using threat radars and targets, to prepare aircrews for operations which they are likely to face in contemporary warfare. This type of military flight training activity is conducted in air space extending across northern England and Southern Scotland interacting with Threat Radar sites which are scattered across the same region. In 2010 MOD conducted a trial that concluded that threat radar systems were subject to degradation from wind turbines.

Long Range Very Low Freguency (VLF) Transmitters

VLF radio is a very specialised area of electronics, and the effects of wind turbines have been subject to only limited scientific study. However, there are a number of known means by which wind turbines can adversely affect the characteristics of VLF transmission. It is probable that turbine constructed in the vicinity of an VLF transmitter would have a discernable adverse impact on transmission through one of these means. The MOD is currently undertaking various studies to further understand the effects of wind turbines on VLF transmission. Planning guidance establishes that wind energy developers should assess the affects of their proposed development upon aviation and defence interests and that they should engage in dialogue with the MOD at an

early stage to identify concerns and potential mitigation to support of their application.

Accordingly the applicant should take account of MOD aviation and radar operations in completing the EIA particularly in identifying a suitable site for development and the dimensions of the turbines that are to be installed.
We therefore ask that the MOD be consulted about all wind turbine developments with a height of 11m or more or a rotor diameter of 2m or more by the developer at the earliest possible time in the development process in accordance with "Wind Energy & Aviation Interests Interim Guidelines". http://www.bwea.com/pdflWind-Energyand-aviation-interim-guidelines.pdf This is so that the development can be fully assessed and any MOD concerns be made known to the developer at an early stage of the development process. We also ask that MOD be consulted by Consenting Authorities regarding all applications for wind turbine developments with a height of 11m or more or a rotor diameter of 2m or more so we can ensure that our concerns are taken into account in the decision making process.

In order to assess a proposed development, we need the following information:

1. Accurate grid coordinates for each turbine to the nearest metre,
2. The height of the turbines to blade tip, hub height and rotor diameter,
3. The number of rotor blades,
4. The wind farm generation capacity,
5. The number of turbines

MOD Safeguarding wishes to be consulted and notified about the progress of planning applications and submissions relating to this proposal to verify that it will not adversely affect defence interests.

I hope this adequately explains our position on the matter. If you require further information or would like to discuss this matter further please do not hesitate to contact me.

Further information about the effects of wind turbines on MOD interests can be obtained from the following websites:

MOD:

http://www.mod.uklDefenceInternetiMicroSiteIDIOlWhatWeDo/Operations/ModSafeguarding.htm

12. NATS Safeguarding

I attach some general guidance from NATS regarding the potential impact upon our infrastructure and operations. Whether any potential impact might exist, can be ascertained through the use of our self-assessment maps or pre-planning service. Please note these maps are now available as easy to use Google Earth layers.

Our advice is for developers to familiarise themselves with the aviation aspects of wind farms and to include any evidence of assessments in their documentation. We would also advise developers to engage with NATS should they anticipate any issues, at the earliest opportunity.

13. RSPB Scotland

Thank you for consulting RSPB Scotland on the Scoping Report for this project. In general, RSPB Scotland is supportive of the use of renewable energy, but believes that wind farms must be carefully sited and designed to avoid negative impacts on sites and species of conservation importance.

We have the following comments on the Scoping Report for this project.

Site Location

The development site location falls within an area of Medium Sensitivity for breeding and wintering birds (RSPB/SNH Bird Sensitivity Map 2006)[i], and an area of Potential Constraints (within Dumfries and Galloway Council's Wind Energy IPP) and is also within an area for wildfowl migratory birds (Annex 1 wintering whooper swans, Greenland white-fronted geese and greylag geese). In addition, we have data of black grouse leks within 1-2km of the site boundary and, based on this and additional regional data, the general area has been identified by the RSPB as 'sensitive' for potential cumulative impact from wind farm development for this species. Breeding raptors are also known to be in the area including peregrine and merlin. We would therefore expect that the EIA for this project gives full consideration to the potential impacts on these sites and associated bird species, which may include consideration of the need for a habitat management plan to address potential cumulative impact on black grouse.

Ornithological Survey

We are generally satisfied with the level of bird survey work agreed for this site and acknowledge the level of detailed raptor survey work proposed. We agree with the species which have been identified as target species (raptors, black grouse) but would request the addition of whooper swan as target species. We acknowledge SNH recommendations that migratory survey work need not be undertaken at this site due to the relatively low number of Greenland white-fronted geese at Loch Ken SPA. However, we consider that due to the potential for this route to be used by migrating birds, particularly by whooper swans (tracking data provided by WWT [ii]has shown this species to migrate to the east and directly over the development site, please see map enclosed and associated text descriptor) and the high number of turbines proposed at this site, that migratory survey work should be undertaken . We would recommend that this would involve additional vantage point watches being carried out for migratory wildfowl/whooper swan from mid March to mid-April/May, at least once per week as per SNH guidance[iii].

Vantage Point Survey

We welcome the level of hourly vantage point (VP) watches proposed at this site. However, we note from the viewshed map that the two VP locations do not achieve one hundred percent coverage of this site. Turbine 44 is not covered by the viewshed from either location and there is only partial coverage of turbines 43 and 45. We would therefore, advise that an additional VP location is established and subsequent survey work is undertaken to address this omission. Should this not be possible, detailed reasoning should be included within the ES.

Peat land/Bog Habitat

We note that peat has been highlighted as a key sensitivity at this site and that should peat be present on the site in sufficient abundance and depth, the potential effects associated with construction on peat land will be considered as part of the EIA. Peat is a significant store of carbon and also has a high biodiversity value. We would therefore, expect that potential impact on this habitat is fully assessed including the use of the Scottish Government's carbon calculator and should include measures undertaken as part of the design process to avoid construction and operations impact on deep peat soils (over 0.5m).

Habitat Management

The ES should include full details of proposals for mitigation in relation to important habitats and species on the site, as well as any enhancement measures. We request that a Habitat Management Plan is prepared and an outline plan submitted as part of the ES to secure the biodiversity objectives for the scheme.

Relevant Guidance, Legislation and Policies

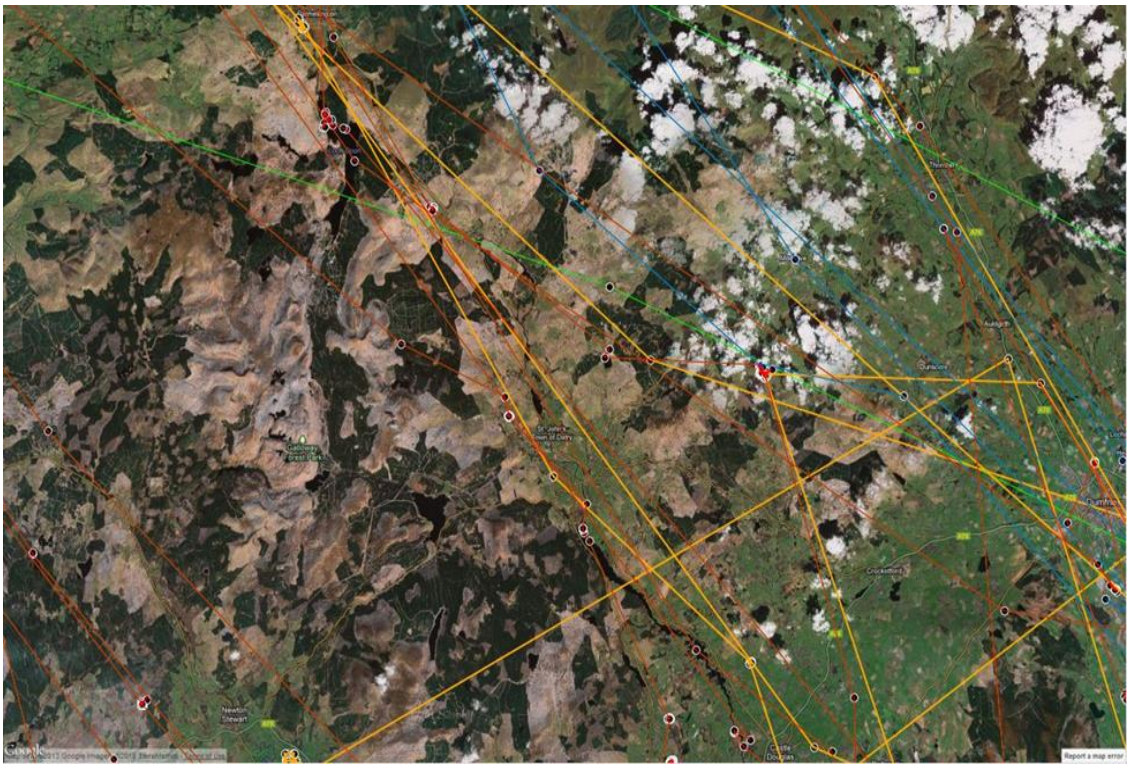
We would like to highlight that the SNH Guidance documents cited in the Scoping Report are not the most recent publications as follows: Survey Methods for Use in Assessing the Impacts of Onshore Windfarms on Bird Communities was updated in 2010; Cumulative Effects of Windfarms was updated in 2012. In addition, SNH has revised guidance on the assessment of collision risk for wildfowl (May 2013).

Data Research

We note that the report includes RSPB and the local Raptor Study Group as appropriate bodies that will be contacted for further baseline data to inform the impact assessment. The Dumfries and Galloway Raptor Study Group can be contacted for data on breeding raptors within the project area (chris.rollie@rspb.org.uk). RSPB Scotland can provide data searches upon request via the data unit at Edinburgh (dataunit@rspb.org.uk). In addition, the Dumfries and Galloway Environmental Resource Centre (info@dgerc.org.uk) can provide further data on bird species in this area.

[1] Bird Sensitivity Map to provide locational guidance for onshore wind farms in Scotland 2006 - J. A. Bright, R. H. W. Langston, R. Bullman, R. J. Evans, S. Gardner, J. Pearce-Higgins & E. Wilson
[1] Map provided by Larry Griffin at WWT Caerlaverock.
[1] SNH Survey Methods for use in Assessing the Impacts of Onshore Windfarms on Bird Communities November 2005 (revised December 2010) p.29 106

Tracks from tagging c.40 whoopers at Martin Mere – red – and 5 at Caerlaverock –blue – in spring 2009, plus any return autumn tracks – green; and 6 tracks from Martin Mere in spring 2010 – orange. Spring tracks spread out on a migratory front by the time birds reach the Solway from Martin Mere, and the birds tend to concentrate their migratory routes along many of the N-S valleys across the region. However the Carsphairn valley does appear to be one of the more popular routes for crossing the higher topography of the region and it is likely that the typical 100 or so that winter at Threave would take the same route if these were tracked. A bird tagged at Caerlaverock in 2009 also cut across to that valley and a zoom of a GPS showing the contours in the likely area of the windfarm suggests the bird was travelling at 358m (+-20m) across an area where examination of the contours show the land to be 350-360m high, i.e. it was close to ground level at that point (we know from the tag's speed measure that it was flying).



14. Mountaineering Council of Scotland

Thank you for the opportunity to respond to the scoping opinion request.

After consideration, we do not intend to make a formal response.

15. Scottish Water

A review of our records indicates that the proposed wind farm is adjacent to Kendoon Loch which is the upper part of the Galloway hydro electric scheme. There are 2 further impoundments downstream of Kendoon the next one being Carsfad Loch. Scottish Water have a raw water pumped abstraction from Carsfad to Lochinvar Loch which supplies Lochinvar water treatment works. It is therefore essential that these sources and assets are protected from the risk of contamination and damage.

The following is a list of precautions that we would ask you to take to ensure that the aforementioned does not occur or affect our assets:

1) A detailed method statement and a risk assessment must be submitted to Scottish Water and agreed prior to any operations taking place.

2) You or your developer must make every effort to reduce the risk of soil erosion and pollution from oils, etc. during and after the construction phase.

3) You or your developer should at all times allow us access to assets belonging to Scottish Water and must avoid the obstruction or hindrance to them.

4) You or your developer will give full facilities to Scottish Water and our representatives to determine by inspection or otherwise whether our assets protected and whether special requirements of Scottish Water are being observed.

5) Locations where public water supplies may be vulnerable should be identified and the impact assessed. In particular:

- Any impact to the hydrology of the area should be assessed throughout all stages of the site's development and operation. This should include natural drainage patterns, base flows / volume, retention / run off rates and water quality.
- Any potential pollution risk which could affect water quality should be considered. This includes sediment run-off, erosion and management of chemicals and oils throughout all operations at all stages of development. You should follow appropriate General Binding Rules under the Controlled Activities Regulations and follow the guidance provided by the Scottish Environment Protection Agency (SEPA) on pollution prevention, visit www.sepa.org.uk/guidance/ppg/index.htm
- Any new road infrastructure should take into account local watercourses that are feeding reservoirs and any crossing of these should be kept to a

minimum. Pollution prevention measures should be put in place at each crossing point and silt traps, or equivalent, should be constructed at regular intervals to minimise the risk from pollution. Once constructed, site roads should be regularly maintained to ensure minimal erosion and hence pollution, from the road surface. Sites roads should be constructed from inert materials.

- Depending on the vulnerability of the public water supply, a sampling programme to assess the baseline water quality and to monitor any damaging effects caused by the development may be advised.
- A site pollution prevention plan and contingency plan should be developed to prevent or to deal with pollution incidents and it should be agreed with SW prior to any operations taking place.

6) Mitigation measures to ensure minimum pollution to water courses / bodies should be highlighted.

7) In addition, any forestry activity likely to affect the drinking water supply should follow the Forest and Water guidelines and appropriate General Binding Rules. Please contact us if you are likely to carry out any such activity.

8) No re-fuelling to take place within the catchment area or storage of fuel or hazardous materials.

9) Scottish Water will not accept liability for any costs incurred by you or your developer in fulfilling any of these requirements.

10) If a connection to the water or waste water network is required, you must make a separate application to Scottish Water Customer Connections section for permission to connect. It is important to note that the granting of planning consent does not guarantee a connection to Scottish Water assets.

Prior to any activities commencing on site, please notify Scottish Water and upon completion. In the event of an emergency, please contact Scottish Water on 0845 600 8855.

I trust that the above is acceptable however, if you have any questions relating to the above do not hesitate to contact me at the above address.

16. Visit Scotland

Thank you for giving VisitScotland the opportunity to comment on the above wind farm development. Apologies for the delay in responding.

Our response focuses on the crucial importance of tourism to Scotland's local and national economy, and of the natural landscape for visitors.

<u>Background Information</u>

VisitScotland, as Scotland's National Tourism Organisation, has a strategic role to develop Scottish tourism in order to get the maximum economic benefit for the country. It exists to support the development of the tourism industry in Scotland and to market Scotland as a quality destination.

While VisitScotland understands and appreciates the importance of renewable energy, tourism is crucial to Scotland's economic and cultural well-being. It sustains a great diversity of businesses throughout the country. According to a recent independent report by Deloitte, tourism generates £11 billion for the economy and employs over 200,000 - 9% of the Scottish workforce. Tourism provides jobs in the private sector and stimulates the regeneration of urban and rural areas.
One of the Scottish Government and VisitScotland's key ambitions is to grow tourism revenues and make Scotland one of the world's foremost tourist destinations. This ambition is now common currency in both public and private sectors in Scotland, and the expectations of businesses on the ground have been raised as to how they might contribute to and benefit from such growth.

Importance of scenery to tourism

Scenery and the natural environment have become the two most important factors for visitors in recent years when choosing a holiday location.
The importance of this element to tourism in Scotland cannot be underestimated. The character and visual amenity value of Scotland's landscapes is a key driver of our tourism product: a large majority of visitors to Scotland come because of the landscape, scenery and the wider environment, which supports important visitor activities such as walking, cycling wildlife watching and visiting historic sites.

The VisitScotland Visitor Experience Survey (2011/12) confirms the basis of this argument with its ranking of the key factors influencing visitors when choosing Scotland as a holiday location. In this study, over half of visitors rated scenery and the natural environment as the main reason for visiting Scotland. Full details of the Visitor Experience Survey can be found on the organisation's corporate website, here:

http://www.visitscotland.org/research_and_statistics/tourism_topics/wind_farms.aspx

Taking tourism considerations into account

We would suggest that full consideration is also given to the Scottish Government's 2007 research on the impact of wind farms on tourism. In its report, you can find recommendations for planning authorities which could help to minimise any negative effects of wind farms on the tourism industry. The report also notes that planning consideration would be greatly assisted if the developers produced a Tourist Impact Statement as part of the Environmental Impact Analysis, and that planning authorities may wish to consider the following factors to ensure that any adverse local impacts on tourism are minimised:

The number of tourists travelling past en route elsewhere The views from accommodation in the area The relative scale of tourism impact i.e. local and national The potential positives associated with the development The views of tourist organisations, i.e. local tourist businesses or VisitScotland. The full study can be found at www.scotland.gov.uk/Publications/2008/03/07113507/1

Specific Concerns

For many people around the world, Dumfries and Galloway ‘is’ Scotland, living up to their picture-postcard images with majestic scenery, exceptional coastlines, awesome wild places, beautiful mountains, ancient pine forests and broad expanses of dark and shimmering lochs.
Dumfries and Galloway also offers unsurpassed opportunities for top-class climbing and off-road biking, dark sky stargazing, wildlife observation along with a host of other outdoor pursuits.

Due to these important facts and as this area also holds various important tourism facilities, including the 7sStanes biking trails, Galloway Forest Park, Europe’s only Dark Sky Stargazing Park for example, VisitScotland would urge consideration of how this proposed development may affect the visitor experience of the area.

Industry View

Destination Dumfries and Galloway is the recognised representative group for the tourism industry and we have actively sought out their opinion on the proposed development at Carsphairn.

The group recommended that an independent assessment be made of the financial impact of the development on tourism businesses in the area, and that this becompared to any financial benefits to the local economy from the wind turbines being proposed.

While this assessment should acknowledge a Scotland-wide and Dumfries & Galloway-wide picture, there should also be a site specific survey. If there have been any objections from tourism businesses within sight of the turbines, then independent studies of the area’s current visitors’ likelihood to revisit the area if turbines were to be erected at the proposed site should be also included in the assessment.

Conclusion

Given the aforementioned importance of Scottish tourism to the economy, and of Scotland’s landscape in attracting visitors to Scotland, VisitScotland would strongly recommend any potential detrimental impact of the proposed development on tourism - whether visually, environmentally and economically - be identified and considered in full. This includes when taking decisions over turbine height and number.

VisitScotland would also urge consideration of the specific concerns raised above relating to the impact any perceived proliferation of developments may have on the local tourism industry, and therefore the local economy.

17. John Muir Trust

No comments Received

18. Scottish Wildlife Trust

No comments Recieved

19. British Horse Society

Thank you for consulting with BHS on the above wind farm, horse riders do ride in the project area and do use some routes in the vicinity, I am currently seeking comments from our members, but meanwhile could you please take the following information into account and actively pursue the opportunity to create paths, tracks and links for multi-use access.

BHS Scotland supports the Scottish Government's Renewables Strategy to produce 20% of Scotland's energy from renewable sources by 2020. As a matter of general policy, BHS is not against wind farms. As an organisation BHS normally restricts its comments (both those made by BHS at national level and those made by local BHS representatives) to those most relevant from an equestrian perspective, including safety and the potential economic impact on equestrian access or local equestrian businesses. Individual BHS members may choose to take other factors into account in supporting or objecting to wind farm development proposals.

This information has been produced to help promote better understanding amongst developers and planning authorities of how horses may react to wind turbines. It offers recommendations as to how any potential negative impacts or wind farm development or operation can be minimised, and highlights opportunities to maximise the benefits of wind farm development for equestrian access. Chapter 7 of Good Practice During Wind Farm Construction(http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1618) offers more general guidance on access and recreation in relation to wind farm design, construction and operation.

Legal rights of access for horse riders and carriage drivers

The Land Reform (Scotland) Act 2003 provides a right of responsible access for all non-motorised recreational users to most land. This includes wind farms (other than during the construction phase – see below). In theory, riders and carriage drivers have a legal right to access most land on wind farms, provided they do so responsibly, although most will choose to follow paths and tracks.

Key issues for horses

The main concerns about turbines from an equestrian perspective are:

- blade movement, particularly when blades start to turn within a horse's sight line, or blades which come into view at eye level;
- moving shadows cast by blades, which some horses may perceive as a threat to their safety, exacerbated by the fact that the

object casting the shadow may not be obvious to the horse. Blade shadows are not a problem if the turbine is north of the track or path;

- sun or light flicker off blades;
- noise from turbines, particularly erratic noise during start-up or deceleration;
- risk of snow and ice shedding off blades;
- risk of electrocution (particularly during lightning strike);
- risk of injury or fright resulting from structural failure, breakage or collapse of the tower, blades or other constituent parts of turbines.

A BHS survey of riders' and carriage drivers' experience demonstrated a correlation between increased reaction of horses and proximity to turbines, particularly within 200 m.

Site assessment

BHS recommends that no anemometer should be situated closer than fall over distance plus 10% from any track used, or likely to be used, by horse riders or carriage drivers, and that no associated cables should be situated any closer than 30m from an equestrian route, as the cables may be difficult to see, especially by a startled horse.

Design

BHS expects turbine siting and wind farm development plans to respect all existing equestrian access, and to consider opportunities for development of further access wherever possible. This includes access within, across, through and adjacent to sites. Scope to use new tracks constructed to enable turbine erection to link other routes out with the site is encouraged. Both BHS nationally and local riders will be happy to help identify existing riding routes, and to offer suggestions for how access could be improved as an integral part of wind farm development.

- BHS' standard guidance is that there should be a separation distance of at least four times the overall height of turbines (i.e. to tip of blade) for core paths, nationally promoted routes such as Scotland's Great Trails and other promoted riding routes, as these are most likely to be used by equestrians unfamiliar with turbines.
- BHS recommends a target of three times overall height between turbines and all other routes which pre-date wind farm development or turbine erection, including roads.

- BHS recommends a minimum separation distance of 200 m between turbines and core paths, rights of way or promoted riding routes.

Where recommended separation distances cannot be achieved, BHS will expect developers to demonstrate how safety issues can be addressed, including development and signage of alternative routes of comparable length, gradient and appeal to horse riders and carriage drivers to cater for those who prefer not to take their horses so close to turbines. From an equine perspective, turbines which suddenly come into view at close range without any warning are likely to cause the greatest risk of horses reacting.

Traffic during and after development

• Drivers of all vehicles visiting the site should be alerted to where they are most likely to meet horses.

• All vehicles should be required to slow down or stop when meeting walkers, cyclists, and particularly horses.

• Where construction traffic has to cross an equestrian route, this should be at right angles to the path or track, with warning notices for both vehicle drivers and horse riders/carriage drivers. Construction traffic should give way to recreational users.

• A Temporary Traffic Regulation Order should be in place before closure of any core path or promoted route which may be necessary during transportation of large components.

• Traffic movement which may impact on equestrian access should be planned to allow horse riders and carriage drivers to continue to ride safely in the early morning, evening, at the weekend and on bank holidays.

• All drivers of large vehicles should follow BHS' guidance to minimise risk to horse riders and carriage drivers (http://www.bhsscotland.org.uk/resources-for-developers.html).

• Where there is no alternative to using the line of a core path or promoted route as an access track during the construction phase, the route should be widened and a fence erected to segregate vehicles from horses using the route.

Surfacing

BHS recognises that the first priority from a developer's perspective for tracks providing access to turbines is capacity to support required vehicular access, which usually involves stone surfacing, whereas the ideal surface for horses is firm, well drained turf.

Stoned tracks may increase opportunities for year-round riding, particularly over boggy or waterlogged ground, but sharp stone, particularly if unconsolidated, can quickly lame horses, and will usually restrict pace to walk.

Horse riders and carriage drivers understandably feel aggrieved when paths and tracks along which they have previously enjoyed scope to trot, canter or gallop are stone surfaced as part of wind farm development, resulting in loss of amenity for equestrian users.

As a matter of policy:

• Where wind farm development or turbine erection results in loss of previously unsurfaced, firm beaten earth tracks enjoyed by horse riders and carriage drivers, BHS expects developers to provide substitute routes of similar length, gradient and character.

• BHS encourages developers to identify in their proposals what, if any action, is proposed to ameliorate the surface of construction tracks on completion of construction. Where traffic movement and natural consolidation with earth or mud is insufficient to blind sharp stone, dressing with whin dust or similar material may be necessary. .

• BHS does not expect paths or tracks with a past history of multi-use, or intended for future multi-use to be surfaced with tarmac, but accepts that developers may agree to bound surfacing of specific routes for the benefit of walkers and cyclists in some instances.

Further guidance on the general principles of equestrian access can be found at http://www.bhsscotland.org.uk/resources-for-developers.htmlt.

Access controls

All access controls should ensure that horse riders and carriage drivers, as well as other non-motorised users, are able to exercise their legal access rights. In order to ensure this, and in accordance with national guidance, BHS expects developers and planners to ensure that:

• the least restrictive option is used to provide access for all legitimate recreational users;
• where it is necessary to erect or lock gates across a track to restrict illegal vehicular access, a suitable gap, bridlegate or horse stile should be maintained alongside. Guidance on appropriate widths and designs can be downloaded from the BHS website. Sites likely to be used for carriage driving should incorporate facility such as the Kent Gap design (http://www.ride-uk.org.uk/standard/kent.htm).

BHS Scotland is happy to provide further guidance and advice on appropriate access controls tel. 01764 656334.

Other facilities

Incorporation within site design of areas with sufficient space for horse boxes and trailers to park, turn and unload easily will be much appreciated by horse riders and carriage drivers. Parking areas should not be close to any turbines to allow horses unfamiliar with turbines to be safely unloaded and opportunity

to acclimatise. Corals, tying rails and mounting blocks are valuable additional features.

20. Scottish Rights of Way and Access Society (ScotWays)

The National Catalogue of Rights of Way shows that routes DS15, DS16 and DS21 may be affected by the site boundary shown on Figure 1 Site Location of the Scoping Report. DS15 and DS16 are recorded as rights of way, whilst DS21 is listed as an "other route". A map is enclosed showing rights of way DS15 and DS16 highlighted in orange and other route DS21 highlighted in yellow. As there is no definitive record of rights of way in Scotland, there could be additional routes that meet the criteria to be rights of way buthave never been recorded because they have not come to our notice.

It appears that the applicant is aware that the Southern Upland Way (SUW) lies shortly to the east of the proposed wind farm site. Closer still, right of way DS17 forms part of a route promoted for its historic interest by the Heritage Paths project; both this old route and the affected section of the SUW are described in our popular publication Scottish Hill Tracks.

For ease of reference, on the enclosed map, the SUW has been highlighted in pink and the Heritage Path has been highlighted in green. If further information is required about routes over a wider search area in order to prepare the Environmental Impact Assessment, the applicant is welcome to contact us directly.

You will no doubt be aware there may now be general access rights over any property under the terms of the Land Reform (Scotland) Act 2003. The Society is pleased to note that the Scoping Report mentions Core Paths (p26), the plans of which have been prepared by local authorities as part of their duties under this Act.

Although I understand that there is very little guidance regarding the siting of turbines in relation to established paths and rights of way, I would like to draw your attention to the following:

Extract from the Welsh Assembly Government's Technical Advice Note on Renewable Energy (TAN 8) Proximity to Highways and Railways

2.25 It is advisable to set back all wind turbines a minimum distance, equivalent to the height of the blade tip, from the edge of any public highway (road or other public right of way) or railway line.

Neither the Society nor its individual officers carries professional indemnity insurance and in these circumstances any advice that we give, while given in good faith, is always given without recourse.
I hope the information above is useful to you. Please do not hesitate to contact me if you need more detail or if you have any further queries.

21. Prestwick Airport

The development is located roughly 40km to the south east of Glasgow Prestwick Airport. Using estimated co-ordinates from the maps provided the site appears to be well terrain shielded from our Primary Surveillance Radar.

However only once we have firm co-ordinates for each of the turbines can we conduct a full assessment for each and give a more definitive response as to whether we would have a safeguarding objection.

22. BT

We have studied this Windfarm proposal with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that, the Project indicated should not cause interference to BT's current and presently planned radio networks.

23. Carsphairn Community Council

No comments Received

24. Carsphairn Heritage Group

Scoping Response for the proposed Shepherds' Rig Wind Farm east of Carsphairn.

The proposed development is in an area dominated by forestry plantation. The forestry was planted on what were two sheep farms, Smeaton, sometimes known as Smittons planted in 1967 and Craigengillan planted in 1971. It is easier to look at the built heritage in the areas which have been felled.

- We do not know whether in the late 60s or early 70s it was obligatory for the forestry companies to consult the local authority with regard to the archaeology and cultural heritage of the proposed planting area.

- Bearing that in mind we would wish to make the following points having explored the area as much as possible without venturing into the unfelled areas which are dark and dense.

- Cultural heritage includes dykes(stone walls) stells (stone built sheep shelters) and buchts (enclosed areas built of stone into which farmers

and shepherds gathered sheep). There is evidence of all three in the proposed area.

- We note in the proposed area that, 40 years ago, trees were often planted very close to dykes resulting in damaged dykes where timber has fallen. The dykes may be several hundred years old.

- Trees were planted extremely close to any bucht that we can see and they too have been or may be damaged by falling timber.

As hill sheep farms become rarer it is important to preserve and conserve their working heritage. We would urge that any wind farm development takes the protection of the cultural heritage described above into consideration when planning tracks, compounds, turbine positions or any other new structure connected with the development of the site.

There are no active or planned heritage trails for the proposed site as far as we are aware.

With reference to the key questions for consultees we do not know of any current or recent archaeological work or projects within or in the vicinity of the Development site.

We do not consider that any of the settings of the sites in Table 9.1 or Table 9.2 with the exception of the Craigengillan cairn will be affected. We note that the positioning of turbine 11 is some way from the cairn.

25. Carsphairn Renewable Energy Fund Ltd

Following a meeting of CREFL Directors last night, I have been asked to let you know that CREFL will not be sending in a response to the report, as it is felt that Carsphairn Community Council is the appropriate body to do this at this stage.

We understand that a response has been requested from them also, so we will leave things to them.

APPLICATION AND ENVIRONMENTAL STATEMENT CHECKLIST

	Enclosed
1. Applicant cover letter and fee cheque	□
2. Copies of ES and associated OS maps	□
3. Copies of Non Technical Summary	□
4. Confidential Bird Annexes	□
5. Draft Adverts	□
6. E Data – CDs, PDFs and SHAPE files	□

Environmental Statement	Enclosed	ES Reference (Section & Page No.)
7. Development Description	□	
8. OS co-ordinates for site and turbine layout	□	
9. Planning Policies, Guidance and Agreements	□	
10. Natural Heritage	□	
11. Economic Benefits	□	
12. Site Selection and Alternatives	□	
13. Construction and Operations (outline methods)	□	
14. Decommissioning	□	
15. Grid Connection details	□	
16. Carbon Assessment (include spreadsheet)	□	
17. Design, Landscape and Visual Amenity	□	
18. Archaeology	□	
19. Ecology, Biodiversity & Nature Conservation	□	
20. Designated Sites	□	
21. Habitat Management	□	
22. Species, Plants and Animals	□	
23. Water Environment - Hydrology	□	
24. Geology - Peat survey data and risk register	□	
25. Forestry	□	
26. Waste	□	
27. Aviation	□	
28. Telecommunications	□	
29. Noise	□	
30. Shadow Flicker	□	
31. Traffic Management	□	
32. Cumulative Impacts	□	

FORMAL SUBMISSION OF APPLICATION AND GATE-CHECKING

Applicants should note that prior to any application being accepted by the Energy Consents and Deployment Unit it will pass through a gate-checking exercise in which the content of the final Environmental Statement will be checked against the above checklist and against the comments made by all consultees in the Scoping Opinion. Applicants should ensure that their final ES pays cognisance to the advice within this Scoping Opinion, and fully addresses all concerns raised.

Applicants should not publicise applications in the local and national press until the application and the corresponding press notices have been checked and confirmed as acceptable by officials.

[i] Bird Sensitivity Map to provide locational guidance for onshore wind farms in Scotland 2006 - J. A. Bright, R. H. W. Langston, R. Bullman, R. J. Evans, S. Gardner, J. Pearce-Higgins & E. Wilson

[ii] Map provided by Larry Griffin at WWT Caerlaverock.

[iii] SNH Survey Methods for use in Assessing the Impacts of Onshore Windfarms on Bird Communities November 2005 (revised December 2010) p.29 106

APPENDIX C – CUMULATIVE SITES

Cumulative Wind Farms within 35 km	
Operational	
Hare Hill	Plascow
Clyde	Sunnyside
Harestanes	Wether Hill
Hare Hill Extension	Dalswinton
Dersalloch	Windy Standard
Windy Standard II (Brockloch Rig Phase 1)	Minnygap
Under Construction	
Blackcraig	Torrs Hill
Afton	Whiteside Hill
Sanquhar	
Appeal Granted	
Benbrack	Mochrum Fell
Linburn Farm	South Kyle
Planning Permission Granted	
Penbreck	Knockman Hill
Crookedstane Farm	Twentyshilling Hill
Kennoxhead	Glenmuckloch
Knockshinnoch	Sanquhar 'Six'
Lion Hill	Sandy Knowe
Windy Rig	
Appeal Lodged	
Enoch Hill	Pencloe
Linfairn	Longburn
Polquhairn	
Application Submitted	
Balunton	Windy Standard III (Brockloch Rig Phase 2)
Knockendurrick	Lowther Hills (North Lowther Energy Initiative)
Wether Hill Extension	Lorg Hill
Margree	Harryburn
Ulzieside	Over Hill
Lethans	
Scoping	
Troston	Glenshimmeroch
Cornharrow	

APPENDIX D – ORNITHOLOGY SURVEY METHODS

Desk Study

22.9. Desk studies have been completed in order to collate existing available information for key species of interest that may be present in the study area. The initial desk study included searches of available online sources for data on designated sites such as the SNH Sitelink Website (http://gateway.snh.gov.uk/sitelink/) within 20 km of the Site. Also, the desk study focused on establishing the potential species that may be present in the area based on surveys undertaken to inform other wind farm assessments and the consultant's general knowledge of the bird fauna of the region.

22.10. The collated information from the desk study was used to help inform, in combination with data from the completed baseline surveys, the scoping layout and will be used to influence the final Development design and inform the assessment of the effects of the Development.

Survey Areas

22.11. The survey areas are based on the Site Boundary (Figure 7, Appendix A). The various survey areas are defined as follows:

- 'site area' refers to the area enclosed by the Development site boundary;
- 'breeding bird survey area', 'winter walkover survey area', 'core survey area' or 'flight activity survey area' refers to the site area plus an additional 500 m wide strip around the site area;
- 'black grouse survey area' refers to the site area plus an additional 1.5 km wide strip; and
- 'raptor survey area' refers to the site area plus an additional 2 km wide strip depending on the focal species and presence of contiguous suitable habitat outside of the core survey area.

Survey Methods

22.12. The first year of baseline ornithological surveys were completed between October 2012 and August 2013 (Table 1). The second year of baseline ornithological surveys commenced in April 2017 and are due to be completed at the end of March 2018 (Table 2).

22.13. The purpose of these surveys is to systematically record and assess the use of all habitats within the survey area by breeding and non-breeding birds, with a particular focus on species that are potentially sensitive to wind farm development and are also of conservation concern (i.e. species listed on Annex 1 of the EC Birds Directive, Schedule 1 of the Wildlife and Countryside Act 1981, species on the UK Red List of birds of conservation concern). All surveys have been undertaken by suitably experienced

ornithological surveyors, who have been trained in the detailed field and recording methods of each of the surveys they are completing.

22.14. Listed below are some of the key published guidance and scientific papers which have been considered in determining the detailed survey methods for this project:

- SNH (2005) Survey Methods for Use in Assessing the Impacts of Onshore Windfarms on Bird Communities, 2010 version (most recently revised May 2014);
- SNH (2012) Assessing Connectivity with Special Protection Areas (SPAs);
- Band *et al.* (2007) Developing field and analytical methods to assess avian collision risk at wind farms;
- Bibby *et al.* (2000) Bird Census Techniques;
- Gilbert *et al.* (1998) Bird Monitoring Methods;
- Brown & Shepherd (1993) A method for censusing upland breeding waders; and
- Hardey *et al.* (2013) Raptors: a Field Guide to Survey and Monitoring.

22.15. The survey area and vantage point locations for the flight activity surveys are shown on Figure 8. In summary, the following surveys have been completed:

- Winter, Spring, Summer and Autumn Flight Activity Surveys, from strategically located vantage points, to systematically quantify the use of the Site by key species (i.e. species of conservation concern and susceptibility to adverse effects from wind farm development);
- Breeding Bird Surveys involving a range of surveys completed to determine the presence and approximate location of breeding territories/sites within the core and wider survey areas, including the following:
  - Moorland breeding bird surveys of the core survey area in 2013 (April to June) and also in 2017 (April to July);
  - Breeding raptor surveys, focusing on species listed on Schedule 1 of the Wildlife & Countryside Act 1981, within suitable habitats in the raptor survey area in the Spring/Summer 2013 and Spring/Summer 2017; and
  - Black grouse lek surveys in Spring 2013 and Spring 2017 within the black grouse survey area.
- Winter Transect Surveys involving walkover surveys to assess the use of the Site by passage and wintering birds, supplementing observations from the flight activity survey. Wintering bird walkover surveys of the core survey area were completed between October 2012 and March 2013.

22.16. Bird flight activity was systematically monitored from strategically located vantage points in 2012, 2013, 2017 and 2018 following the methods described in Band *et al.* (2007) and SNH (2005, revised 2014). The purpose of these surveys was to inform estimates of the frequency of flight activity, by certain 'target' species, at the estimated wind turbine

height across the flight activity survey area. Target species were recorded in preference to secondary species if a target and secondary species were in the observer's view at the same time.

22.17. Watches from these vantage points were usually three hours long and were timed to ensure each vantage point had observations spread throughout daylight hours each month.

22.18. The height above ground level of target and secondary species flights was assessed by the observer to be within one of several bands so that an estimate could be made of flight activity within the zone where turbine blades would be operating. The height bands used in the flight activity surveys were <10 m, 10-30 m, 30-50 m, 50-100 m, 100-150 m and >150 m.

Species Records

22.19. The following brief summary focuses on records of target species. The desk studies identified that the survey area provide potentially suitable habitat to support breeding goshawk, hen harrier, osprey and red kite, although there was no current or recent historical evidence of breeding activity by these species within the Site. Breeding pairs of peregrine falcon and barn owl were known to be present in the general area. Kestrel and buzzard were also thought to breed in the general area.

Key Findings of the Baseline Surveys

22.20. In general, and in relation to target species, the findings of the baseline breeding and wintering bird surveys were consistent with the information collated during the desk studies.

Geese and Swans

22.21. The Site was rarely visited by significant numbers of wildfowl and patterns of flight activity showed no regular local or passage movements of geese or swans over the Site. The Site provides very limited suitable habitat for wintering / passage wildfowl.

22.22. South west Scotland is an important region for wintering geese and swans, including several internationally important sites including the Loch Ken and River Dee Marshes, Solway Estuary, Wigtown Bay, and the River Nith. However, all of these areas are more than 10 km from the Site and although there is the potential for geese and swans to occasionally fly over the Site, primarily during passage periods, the available evidence indicates that this type of movement is highly sporadic and typically at a height that is much greater than the wind turbines would be operating. More regular movements, and greater risk to local populations from collision mortality, might be expected if the Development was located adjacent to, or in between important roosting and foraging areas, but this is not the case.

Raptors

22.23. Within the raptor survey area, two red kite breeding territories were recorded as occupied in 2017. Both nest sites were located less than 2 km from the site. A third red kite nest site was also identified in 2017 and was located at a distance greater than 2 km from the Site.

22.24. Evidence of a breeding attempt by osprey was recorded in 2013; however, despite searches, no nest location was found.

22.25. Evidence of a breeding attempt by goshawk was recorded within the Site during 2017; however, despite searches, no nest location was found.

22.26. There was no evidence of breeding hen harrier in 2013 or 2017 or osprey in 2017. However, both these species were observed periodically and to varying frequencies during the flight activity surveys (see Tables 3 and 4).

22.27. During September 2017, a hen harrier winter roost site was found within the wider survey area; however the roost site was only occasionally used by a single male and wasn't recorded after October 2017.

Black Grouse

22.28. There was no evidence of lekking black grouse within the Site or black grouse survey area in 2013 or 2017. Two lekking males were observed in 2013, at a distance greater than 1.5 km to the east of the Site, near Round Craigs.

22.29. The only record of black grouse within 1.5 km of the site was of an individual male on 03 November 2017.

Waders

22.30. The survey area did not support breeding waders of moderate or high Nature Conservation value. Breeding wader species, typical of the habitats present in the area, are present in very low numbers and included oystercatcher, common sandpiper and snipe.

Barn Owl

22.31. One barn owl breeding site was confirmed during 2017, however it was at a distance greater than 2 km from the Site.

Other Species

22.32. The survey area supports a suite of breeding songbirds typically associated with upland moorland habitats (comprising a mosaic of acid/marshy grassland, heath and blanket bog vegetation) and commercial conifer plantation in south-west Scotland. The vast majority of species recorded are relatively widespread and common (that is, their populations are not of conservation concern in Scotland). The moorland breeding bird assemblage is considered to be relatively species-poor,

with extensive areas supporting low densities of relatively low number of moorland passerine species.

Flight Activity Surveys

22.33. A summary of the observed flight activity by target species is provided in Tables 3 and 4. Tables 3 and 4 give a summary of the number of flight lines (and number of birds for flight lines representing more than one bird) recorded during 2012, 2013 and 2017 within the flight activity survey area. Tables 3 and 4 also provide a summary of the distribution of time recorded at the six flight height bands for each species[72].

22.34. Considering the length of the survey period and the survey effort as a whole, flight activity by target species was relatively infrequently recorded within the flight activity survey area, reflecting the generally poor habitat quality for most of the target species. The most frequently observed target species within the flight activity survey area was red kite with 32 flights followed by osprey (14), greylag goose (14), goshawk (11), and hen harrier (5). By comparison the most frequently recorded species (including secondary species) during the flight activity surveys was buzzard with a total of 410 flights observed.

[72] N.B. Data collection is on-going until end of March 2018 and full results will be presented within the EIA.

Table 1: Summary of survey effort during 2012-2013. Data are in hours (hrs)													
Survey Type	**Vantage Point**	**Oct-12**	**Nov-12**	**Dec-12**	**Jan-13**	**Feb-13**	**Mar-13**	**Apr-13**	**May-13**	**Jun-13**	**Jul-13**	**Aug-13**	**Grand Total**
Black grouse lek survey								3.50	6.50				10.00
Barn owl survey											0.58		0.58
Vantage Point Watches	VP1	7.00	6.00	5.50	6.00	6.00	6.50	7.50	7.00	6.50	9.50	7.50	75.00
	VP2	8.00	6.50	6.00	6.00	6.00	4.50	7.50	7.50	6.50	9.50	7.50	75.50
	VP3	9.00	6.50	5.75	6.00	6.00	4.50	6.00	8.00	9.50	8.00	7.50	76.75
	VP4		7.50	6.50	6.00	6.00	10.50	7.50	8.00	8.00	8.00	7.50	75.50
	Total	24.00	26.50	23.75	24.00	24.00	26.00	28.50	30.50	30.50	35.00	30.00	302.75
Moorland bird survey								5.25	10.00	1.50			16.75
Raptor survey								14.50	12.75	13.00	12.00		52.25
Winter transect survey		4.00	5.00	3.50	5.00	4.00	2.75						24.25

Table 2: Summary of survey effort during 2017. Data are in hours (hrs)											
Survey Type	**Vantage Point**	**Apr-17**	**May-17**	**Jun-17**	**Jul-17**	**Aug-17**	**Sep-17**	**Oct-17**	**Nov-17**	**Dec-17**	**Grand Total**
Black grouse lek survey		10.83	12.50								23.33
Barn owl survey		0.58			3.83						4.42
Hen harrier roost survey							2.25	2.00			4.25

Table 2: Summary of survey effort during 2017. Data are in hours (hrs)											
Vantage Point Watches	VP2	3.00	13.00	8.00	6.00	6.00	6.17	6.00	6.00	4.00	58.17
	VP3	6.50	9.50	8.00	6.00	6.00	6.00	6.00	6.00	4.00	58.00
	VP5	5.00	10.50	8.00	6.00	6.00	6.00	6.00	5.00	4.00	56.50
	VP6	8.00	9.08	8.00	6.00	6.00	6.00	6.00	5.00	4.00	58.08
	Total	22.50	42.08	32.00	24.00	24.00	24.17	24.00	22.00	16.00	230.75
Moorland bird survey		5.32	17.25	10.87	5.17						38.60
Raptor survey		22.08	37.82	13.60	20.37						93.87

Table 3: Flight activity, in seconds, observed within the flight activity survey area, 2012-2013												
Species	**Season**	**VP number**	**No of flights**	**No of birds**	**Total fly time (s)**	**Number adjusted total (s)**	**<10m**	**10-30m**	**30-50m**	**50-100m**	**100-150m**	**>150m**
Goshawk	Apr-Aug	VP4	1	1	7	7		7				
Greylag goose	Sep-Mar	VP3	1	4						*		
Hen harrier	Sep-Mar	VP4	1	1	49	49		16	33			
Red kite	Apr-Aug	VP3	7	7	948	948	98	296	315	239		
Merlin	Apr-Aug	VP1	1	1	44	44			44			
Osprey	Apr-Aug	VP2	1	1	270	270			120	150		
		VP3	8	11	637	806	200	389		46	62	108
Whooper swan	Sep-Mar	VP1	1	2	174	348					94	254
		VP4	1	10	90	900					900	
Geese sp.	Sep-Mar	VP2	1	13							*	*

Table 4: Flight activity, in seconds, observed within the flight activity survey area, 2017												
Species	**Season**	**VP number**	**No of flights**	**No of birds**	**Total fly time (s)**	**Number adjusted total (s)**	**<10m**	**10-30m**	**30-50m**	**50-100m**	**100-150m**	**>150m**
Barnacle goose	Sep-Mar	VP6	1	160						*		
Goshawk	Apr-Aug	VP2	5	5	751	751	2	35	33	75	60	545
		VP3	1	1	51	51		17	17	17		
		VP5	3	3	23	23	9	14				
	Sep-Mar	VP3	1	1	43	43	43					
Greylag goose	Apr-Aug	VP2	4	10			*	*	*	*		
		VP3	7	14				*	*	*		
		VP6	2	27						*		
Hen harrier	Apr-Aug	VP3	1	1	78	78	16		16	47		
		VP6	1	1	46	46	46					
	Sep-Mar	VP6	2	2	512	512	375	137				
Hobby	Apr-Aug	VP3	1	1	43	43		43				
Red kite	Apr-Aug	VP2	6	6	833	833		94	280	291	92	76
		VP3	10	11	2329	2563	16	327	528	998	355	339
		VP6	7	7	981	981	120	200	205	317	137	
	Sep-Mar	VP6	2	2	566	566	184	382				
Osprey	Apr-Aug	VP2	2	2	271	271			15	225	31	
		VP3	3	3	387	387		73	93	221		
Pink-footed goose	Sep-Mar	VP6	1	5							*	*