



## Paul's Hill II Wind Farm

Volume 1: Non-Technical Summary

April 2018



## PREFACE

An Environmental Statement (ES) has been prepared in support of an application submitted by Natural Power Consultants (Natural Power) on behalf of the applicant Paul's Hill II Limited. The application seeks consent under Section 36 of the Electricity Act 1989 and the ES has been prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 as amended. The application also seeks a direction under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 as amended that planning permission for the development be deemed to be granted.

This ES contains the information relating to the Environmental Impact Assessment to develop a wind farm comprising of up to seven turbines and associated infrastructure (the proposed development). The proposed development is located approximately 5 km west of Upper Knockando in the Moray Council area.

The Environmental Statement and application may be viewed at the following address:

Moray Council  
Elgin Council Offices  
High Street  
Elgin  
IV30 1BX

**This is Volume 1 of 4, of the ES.** This volume presents a Non-Technical Summary (NTS) of the proposed development.

Other volumes include:

**Volume 2 of the ES** contains the written statement on the findings of the environmental impact assessment.

**Volume 3 of the ES** contains all figures and visualisations.

**Volume 4 of the ES** presents the technical appendices of the ES Chapters.

The ES is also supplemented by accompanying documents including a Planning, Design and Access Statement and Pre-Application Consultation (PAC) Report.

Copies of the full Environmental Statement and Non-Technical Summary can be obtained from Natural Power, Ochil House, Springkerse Business Park, Stirling, FK7 7XE. Tel: 01786 542300.

Non-Technical Summary in printed form	£10
Environmental Statement in printed form (Volumes 1-4)	£822
Environmental Statement in PDF file format on CD (Volumes 1-4)	£10

An electronic copy (accessible free of charge) of the Environmental Statement can also be found on the Fred. Olsen Renewables website: <https://fredolsenrenewables.com/windfarms/pauls-hill-ii/>

No part of this publication may be reproduced by any means without prior written permission from Natural Power and Pauls Hill II Limited. Every effort is made to ensure the accuracy of the material published. However, neither Natural Power or Paul's Hill II Limited will be liable for any inaccuracies.

## Document history

Author	Craig Potter	08/03/2018
Checked	Kirstin Leckie	16/03/2018
Approved	Euan Hutchison	25/03/2018

### Client Details

Contact	Gareth Swales
Client Name	Paul's Hill II Limited
Address	c/o Fred. Olsen Renewables Ltd, 2nd Floor 64-65 Vincent Square, London, SW1P 2NU, United Kingdom

Issue	Date	Revision Details
A	09/03/2018	First Draft
B	27/03/2018	Final Draft

Copyright © 2018 FRED. OLSEN RENEWABLES LIMITED.

#### Local Office:

Ochil House,  
Springkerse Business Park,  
Stirling,  
FK7 7XE  
SCOTLAND,  
UK  
Tel: +44 (0) 1786 542 300

#### Registered Office:

The Natural Power Consultants Limited  
The Green House  
Forrest Estate, Dalry,  
Castle Douglas, Kirkcudbrightshire,  
DG7 3XS

Reg No: SC177881

VAT No: GB 243 6926 48

# Contents

1.	Introduction .....	1
1.1.	Application.....	1
1.2.	The Applicant: Paul's Hill II Limited.....	1
1.3.	The Lead Agent: Natural Power Consultants Ltd (Natural Power).....	1
1.4.	The Proposed Development .....	3
2.	Policy Context .....	4
3.	Site Selection and Design Evolution .....	4
4.	Public Consultation .....	5
5.	Development Details .....	6
6.	Summary of EIA .....	10
6.1.	Approach to the ES.....	10
6.2.	Landscape & Visual Impact Assessment.....	12
6.3.	Ecology Assessment.....	13
6.4.	Ornithology Assessment .....	14
6.5.	Cultural Heritage Assessment.....	15
6.6.	Hydrology, Geology and Hydrogeology Assessment.....	15
6.7.	Aviation and Existing Infrastructure Assessment .....	16
6.8.	Traffic & Transport Assessment.....	17
6.9.	Human Health and Population Assessment.....	18
7.	Final Summary .....	18

# 1. Introduction

## 1.1. Application

- 1.1.1. This Non-Technical Summary (NTS) summarises the main findings of the environmental studies carried out to build and operate the proposed wind farm development, Paul's Hill II (the proposed development), on the hills of Carn Na Dubh-chlais in Moray. The environmental studies have been completed as part of the Environmental Impact Assessment (EIA), the full results of which are presented in the Environmental Statement (ES). These findings can be found in Volume 2, of the ES which is referenced throughout this NTS. It incorporates more detailed information about the proposed development including its location, design and potential environmental impacts. The ES has been prepared to accompany an application (the application) submitted by Natural Power Consultants Ltd, on behalf of Paul's Hill II Limited. The application seeks consent under the Section 36 of the Electricity Act 1989, and the ES has been prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000, as amended, as the Scoping Report for the proposed development was submitted before the 16<sup>th</sup> of May 2017. The ES does, however, contain a chapter on Human Health and Population, in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
- 1.1.2. This is Volume 1, of 4, of the ES. This volume presents a Non-Technical Summary (NTS) of the proposed development.
- Volume 2, of the ES, contains the full written statement of findings of the EIA.
  - Volume 3, of the ES, contains all figures and visualisations associated with the ES chapters.
  - Volume 4, of the ES, contains the technical appendices of the ES chapters.
- 1.1.3. The ES is also supplemented by an accompanying Planning, Design and Access Statement and a Pre-Application Consultation (PAC) report.
- 1.1.4. Copies of the full Environmental Statement can be obtained from Natural Power, Ochil House, Springkerse Business Park Stirling, FK7 7XE, Scotland, UK: Telephone: +44 (0) 1786 542 300. Separate copies of Volumes 2, 3 and 4 can also be obtained from Natural Power.
- Environmental Statement in printed form (Volumes 1-4) £822
  - Environmental Statement in PDF file format on CD or USB stick £10

## 1.2. The Applicant: Paul's Hill II Limited

- 1.2.1. Paul's Hill II Limited is a subsidiary company of Fred. Olsen Renewables Ltd (FORL). FORL has been developing and operating wind farms since the mid 1990's and is fully committed to the Scottish and UK renewables energy generation market, with an operational portfolio generating capacity of over 508 MW.

## 1.3. The Lead Agent: Natural Power Consultants Ltd (Natural Power)

- 1.3.1. The proposed development has been designed and assessed by the applicant in association with their lead consultants, Natural Power. Natural Power has been appointed to coordinate and produce this ES and associated EIA documentation.
- 1.3.2. Natural Power has been providing expertise to the renewable energy industry since the company was formed in 1995 and is one of the UK's leading wind farm consultants. As well as development and EIA services, Natural Power also provide expert advice and due diligence consultancy, site construction

management, site operation and maintenance. Natural Power currently employs over 350 people working full time on providing wind energy services internationally.

1.3.3. Natural Power has also commissioned the following specialist consultants to provide professional advice for specific assessments in relation to the EIA of the proposed development.

1.3.4. Natural Power has also commissioned the following specialist consultants to provide professional advice for specific assessments in relation to the EIA of the proposed development:

## CONSULTANTS

### PHOTOGRAPHY CONSULTANCY

Leeming Paterson Photography	Glenhoul Brae Dalry Castle Douglas DG7 3UB	Tel: 01664 430004
---------------------------------	---	-------------------

*Contact: Morag Paterson*

### CULTURAL HERITAGE CONSULTANCY

CFA Archaeology Ltd	Old Engine House, Eskmills Park, Musselburgh, East Lothian, EH21 7PQ	Tel: 0131 273 4380
---------------------	--	--------------------

*Contact: George Mudie*

### NOISE CONSULTANCY

Hayes McKenzie Partnership Ltd	Unit 3, Oakridge Office Park, Whaddon, Salisbury, Wiltshire, SP5 3HT	Tel: 01722 710 091
-----------------------------------	---	--------------------

*Contact: Rob Shepherd*

## 1.4. The Proposed Development

1.4.1. The application is seeking consent for a proposed wind farm comprising of:

- Up to 7 wind turbines, 6 of a maximum height base to tip not exceeding 149.9 m and 1 of a maximum height not exceeding 134 m;
- External transformer housing;
- Site tracks;
- Crane pads;
- Foundations;
- Underground electricity cables
- Control building;
- Temporary construction and storage compounds
- 2 borrow pits
- Associated works/infrastructure; and
- Health and safety signage.

1.4.2. The proposed development is located on the hills of Carn na Dubh-chlais, approximately 7 km north west of Upper Knockando in Moray (see NTS Figure 1.1 for the location of Paul's Hill II in a regional context.) The proposed development is centred on the British National Grid Coordinates 313355E 841358N. See NTS Figure 1.2: Proposed Development Area. NTS Figures are included at the end of the NTS.

1.4.3. The location of the proposed turbines are provided in Table 1 below:

Table 1: Location of Proposed Turbines

Turbine Number	Easting	Northing	Maximum Tip Height (m)	AOD (m)
1	313931	841817	149.9	364
2	313502	841832	149.9	355
3	312960	841711	149.9	369
4	313664	841371	149.9	403
5	313229	841364	149.9	415
6	313163	840928	134	462
7	313033	840482	149.9	421

1.4.4. The proposed development will act as an extension to the operational Paul's Hill Wind Farm. The wind farm became operational in 2006 and comprises of 28 turbines at 100 m to tip height.

1.4.5. The proposed development is shown in the following NTS Figures, included at the end of the NTS:

- NTS Figure 1.1: Regional Context Map;
- NTS Figure 1.2: Proposed Development Area;
- NTS Figure 1.3: Constraints to Site Design;
- NTS Figure 1.4: Layout Evolution;
- NTS Figure 1.5: Layout Evolution Wirelines;
- NTS Figure 1.6: Blade Tip ZTV.

- 1.4.6. The proposed development is expected to have an operational life of 35 years.

## 2. Policy Context

- 2.1.1. Chapter 2: Policy Context, in Volume 2 of the ES, describes in detail the policy relevant to the proposed development. This includes a review of the guiding legislation and policy in relation to renewable energy and planning at the local, regional, national and international levels.
- 2.1.2. The chapter has given due consideration to the Scottish Energy Strategy (2017) and the associated Scottish Onshore Wind Energy Policy Statement (2017). Both of these documents duly recognise that the economic landscape for onshore wind turbine development changed following the removal of subsidies in 2015, and therefore if onshore wind is to remain a viable form of energy generation wind turbine typologies will need to become larger (taller in overall height with larger rotors). These turbines increase efficiency and maximise the use of the available wind resource, and also reduce the turbine numbers per unit area of land.
- 2.1.3. In particular, consideration has also been given to planning policy and supporting guidance in Moray, which supports a general move towards a low carbon economy for the area and recognises there is scope for further development in the area around the existing Paul's Hill Wind Farm. Further details on how these matters have been considered are referenced throughout this ES. Attention has also been given to the Cairngorms National Park's policies, as the proposed development lies approximately 7 km from the park and is visible from certain viewpoints within the park. The visibility from the park and the impact upon the Special Qualities is considered in detail in the LVIA chapter (Chapter 6) of the ES. An overall assessment of how these policy matters have been considered in relation to the proposed development are set out in the Planning, Design and Access Statement which accompanies this application.

## 3. Site Selection and Design Evolution

- 3.1.1. Chapter 3: Site Selection and Design Evolution, in Volume 2 of the ES, describes the steps that have been considered in the design evolution of the proposed Paul's Hill II Wind Farm. This chapter demonstrates how the site design and the layout of the turbines evolved through the initial site selection process, identification of various constraints (see NTS Figure 1.3) and site specific factors, and highlights the key design criteria applied.
- 3.1.2. With reference to NTS Figure 1.4 and NTS Figure 1.4, following a final review of the layout and taking into account the overall design strategy and identified site constraints, the decision was taken to restrict turbine height to below 150 m, mainly to address visual sensitivities. An assessment of the landscape and visual impact of turbines of this size was conducted by the project landscape architect. The assessment concluded that the additional visibility from increasing the tip height from 125m in Option A to 149.9 m would be acceptable and proposing 149.9 m turbines would ensure the proposed development would be a viable wind farm development. Some variation in tip height (T6 being proposed now at 134 m) was still considered prudent however, to accommodate the rolling nature of the development area and the rising summit of Roy's Hill. As shown in NTS Figure 1.5 Option C, the wireline taken from Tormore Distillery shows the reduction in height of the southern turbines from Option B to Option C and the overall reduction in number of turbines visible from this location, giving an overall improvement in layout design. The final layout (Option C) is considered to be a well-balanced design from key viewpoints and receptors whilst also giving due consideration to constraints, such as ornithological receptors. As discussed in Chapter 8: Ornithology, the primary locations of hen harrier activity has been a major factor in the reduction in turbine numbers to the south of the development, for example. NTS Figure 1.6 shows the theoretical zone of visibility (ZTV) for Option C (the proposed layout).



3.1.3. The final design has sought to balance the technical requirements of the project with the environmental considerations highlighted by consultees and the public during early consultation.

## 4. Public Consultation

4.1.1. Engagement with consultees commenced prior to scoping in October 2016. In accordance with the Scoping Guidelines provided by the Scottish Government's Energy Consents and Deployment Unit, Natural Power undertook an initial pre-scoping meeting with The Energy Consents and Deployment Unit (ECDU) on the 7th December 2016 on behalf of Paul's Hill II Limited. Also present at the meeting were Moray Council (MC), Cairngorms National Park Authority (CNPA), Scottish Natural Heritage (SNH), Scottish Environmental Protection Agency (SEPA) and Forestry Commission Scotland (FCS).

4.1.2. Natural Power also had a gatecheck meeting with the ECDU on the 12th January 2018 to review the scoping responses received, provide details of the consultations undertaken and discuss the ES to be submitted. Also present at the meeting were Moray Council (MC), Cairngorms National Park Authority (CNPA), Scottish Natural Heritage (SNH). SEPA, Historic Environment Scotland (HES) and FCS were invited to the meeting, although were unable to attend.

4.1.3. A scoping report was then submitted on the 23rd May 2017 and formal consultation responses were then received. A summary of the consultation responses is set out in Chapter 3: Introduction, in Volume 2 of the ES. The full Paul's Hill II Scoping Opinion received from the Scottish Government is presented in Technical Appendix 1.2.

4.1.4. Statutory consultees were consulted as part of the formal scoping process and throughout the EIA process. These included The Moray Council (TMC), Cairngorms National Park Authority (CNPA), Scottish Environmental Protection Agency (SEPA), Scottish Natural Heritage (SNH) and Historic Environment Scotland (HES). Details of the statutory consultees and their responses can be found in Chapter 3: Site Selection & Evolution, in Volume 2 of the ES.

4.1.5. Non-statutory consultees were consulted as part of the formal scoping process and where required throughout the EIA process. These include:

- Forestry Commission (Scotland);
- Marine Scotland;
- Transport Scotland;
- Spey Fishery Board;
- BT;
- Crown Estate;
- Civil Aviation Authority (CAA);
- Defence Infrastructure Organisation (DIO);
- Joint Radio Company (JRC);
- NATS Safeguarding;
- RSPB Scotland;
- Mountaineering Council of Scotland;
- Scottish Water;
- Visit Scotland;
- John Muir Trust;

- Scottish Wild Land Group;
- Scottish Wildlife Trust;
- BAA (Aerodrome Safeguarding);
- Scottish Rights of Ways and Access Society;
- Garden History Society;
- Highland Gliding Club;
- OFCOM;
- Atkins Global.

## Communities Consulted

- 4.1.6. The proposed development is located entirely within the boundary of Moray Council. There are seven communities which have been consulted as part of the scoping process. These are represented by a variety of organisations including Community Councils, Community Associations, Community Trust's and Village Council's. The communities consulted include Cromdale and Advie Community Council, Ineravon and Glenlivet Community Council, Knockando Community Trust, Carron Village, Archiestown Village Council, Aberlour Community Association and Edinville Community Association. Since the scoping report has been submitted, another Community Council has been formed, known as Speyside Community Council. Speyside Community Council has now been added to the consultation list.
- 4.1.7. Natural Power has communicated with all communities (see Appendix A) and has liaised extensively with Aberlour Community Association and Knockando Community Trust during the scoping and post scoping period, ensuring that they were fully informed of the proposed development at an early stage and that they received appropriate notification regarding public exhibitions.

## Public Exhibitions

- 4.1.8. Public exhibitions were held on the 8th and 9th of November at Fleming Hall, Aberlour and Margach Hall, Knockando respectively. A total of 24 members of the public attended the public exhibition in Aberlour on the 8th November. A total of 10 members of the public attended the public exhibition in Knockando on the 9th November. Prior to the public exhibition, a public notice was published in the Northern Scot, which appeared on the 27th October 2017. An A3 poster for the public exhibition was also displayed in several locations in Aberlour and Knockando prior to the public exhibitions. Representatives from Aberlour Community Association and Knockando Community Trust also sent email notifications around to members of their groups and to other community organisations informing them of the public exhibitions.
- 4.1.9. A public exhibition notice advertised within the Northern Scot on the 27th October 2017. The public exhibition was also advertised locally using A4 posters in several locations in Aberlour and Knockando. Representatives from Aberlour Community Association and Knockando Community Trust also sent email notifications around to members of their groups and to other community organisations informing them of the public exhibition details.

## 5. Development Details

- 5.1.1. Chapter 4: Description of Development, in Volume 2 of the ES outlines the details of the proposed development, including specifications of turbines, access tracks and electrical infrastructure. It also describes the general construction methodology, timescales and typical construction equipment likely to be used. Operational and decommissioning phases are also described within this chapter.

- 5.1.2. The construction methods detailed build on best practice methodologies developed at other wind farms to comply with Health and Safety requirements for construction, operations and follow relevant guidelines including the Scottish Environmental Protection Agency's (SEPA) Pollution Prevention Guidelines, SNH's Good Practice During Wind Farm Construction and SNH's/Forestry Commission Scotland's Floating Roads on Peat guidance.
- 5.1.3. Further construction details and mitigation will be provided in the Construction Method Statement (CMS), which will include the Construction Environmental Management Plan (CEMP). This will be produced pre-construction when a principal contractor has been appointed.
- 5.1.4. It is proposed that, as far as is practical, the planning conditions that applied to the Paul's Hill Wind Farm consent in 2004 (see Appendix 1.3 in Volume 4 of the ES) should also be applied to the proposed development. This will ensure that there is, in general, duplicate sets of similar conditions applying to the wind farm as a whole, with the new set recognising the use of shared infrastructure for the lifetime of the new phase of development.
- 5.1.5. It is also proposed, as far as practical, that existing infrastructure will be utilised thus ensuring disturbance to the environment is kept to a minimum and prolonging its useful life. Existing infrastructure to be used includes tracks, the existing substation and electricity cabling.
- 5.1.6. The list of elements of the wind farm are provided in 1.4.1 above, and will include a new substation.

### Substation Control Building

- 5.1.7. A new substation control building will be constructed adjacent to the existing control building at Paul's Hill Wind Farm and will be used for the management of the proposed development. The impact on the local environment is anticipated to be minimal and is assessed in the various chapters throughout the ES e.g. Ecology. Hydrology etc.

### Construction Activities

- 5.1.8. Construction of the proposed development would begin following granted consent from the Scottish Ministers, within the period stated within the consent. The general order of on-site activities is summarised in Table 2 below:

Table 2: List of general order of on-site activities

Construction Elements
Site investigation
Mobilisation of civil and electrical contractor
Construction and upgrades to access and site tracks
On-site temporary construction compound and site storage compound
Track reinstatement
Excavation and construction of turbine foundations
On-site cabling
Construction of the substation control building
Preparation of crane pads
Installation of turbine transformers

## Construction Elements

Mobilisation of turbine supply contractor

Turbine delivery

Turbine erection

Reinstatement around turbines

Turbine fit-out

Connection to substation and grid connection

Commissioning of wind farm

Reliability testing

Demobilisation

## Construction Programme

5.1.9. Construction of the proposed development would begin following granted consent from the Scottish Ministers, within the period stated within the consent. The general order of on-site activities is summarised in Table 1.2 above.

5.1.10. The construction period for the whole of the proposed development is envisaged to last for approximately twelve months, from commencement of construction through to installation and commissioning of the turbines, ending with site reinstatement and demobilisation (as shown on the typical construction programme below):

5.1.11. A typical 12 month construction programme is presented in Table 3 below.

Table 3: Typical Construction Programme

Month >	1	2	3	4	5	6	7	8	9	10	11	12
<b>Task Name</b>												
Mobilisation & site setup	X											
Site tracks & crane pads	X	X	X	X	X	X						
Foundations				X	X	X						
Forest felling and extraction						X						
Substation construction							X					
Cabling/electrical installation							X	X				
Turbine deliveries and erection									X	X	X	
Site reinstatement										X	X	X
Commissioning of wind farm											X	X
Demobilisation											X	X

\* Pre construction surveys will take identified sensitive receptors, such as breeding birds, and where such receptors are found appropriate action will be taken to avoid these receptors applying a suitable buffer distance and/or applying appropriate mitigation and good practice.

*It will be the aim of the construction programme to minimise construction activity during the winter months when there is high precipitation to ensure that run off and siltation is minimised.*

## Installation and Operation of Turbines

- 5.1.12. The selected turbines would be of a modern design with three blades mounted on a horizontal axis, attached to a nacelle, housing the generator, gearbox and other operating equipment. The nacelles would be mounted on a tubular tower which allows access to the nacelle. There are 2 different blade tip heights of turbines proposed; 6 turbines of an overall height from base to tip not exceeding 149.9 m and 1 turbine of an overall height from base to tip not exceeding 134 m. It is expected that the turbine cut in wind speed will be approximately 3m/s and will rotate clockwise.
- 5.1.13. Where possible, the delivery of the turbine components would be scheduled, weather dependent, to allow for direct lift off the transport trailers. Otherwise, turbine components would be stored on, or adjacent to, the crane pad areas. Alternatively, components may be delivered to the construction compound for internal distribution by a separate tractor unit. The tower sections would be erected, followed by the nacelle and hub. Following erection of the tower sections and the nacelle, the blades would either, be lifted and attached individually to the hub in position, or the hub and blades would be raised together, as a unit, and attached to the nacelle. The cranes would then move to the next turbine location.
- 5.1.14. Once installed and fully commissioned, the wind turbines would operate automatically and can be controlled remotely or from the on-site metering building. Regular visits will be made by technicians to infrastructure and turbines in four-wheel drive (4WD) vehicles or similar. In addition, longer servicing visits would be required, typically every six months, along with irregular unscheduled maintenance, as may be necessary. Occasional use of larger vehicles, such as cranes or lorries similar to those used during construction may be necessary, should there be a requirement for replacement of major turbine components.
- 5.1.15. Wind farm performance would be remotely monitored using the existing permanent anemometer masts, together with a Supervisory Control and Data Acquisition system (SCADA) that would monitor the individual turbines and the grid connection.

## Offsite Access Route

- 5.1.16. From the entrance to Marypark at particular locations (e.g. in the vicinity of Blacksboat Bridge) along this route additional works may be required for the delivery of the large turbine components. The extent of these works is currently unknown (if indeed required), as a specific turbine model has not yet been selected. Once a turbine model has been chosen a detailed swept path analysis will be undertaken and appropriate engineering specifications will be formulated and included in the CMS. The environmental impacts of these works will be confirmed prior to construction.

## Offsite Cabling

- 5.1.17. An electricity cable will be laid between the onsite substation control building and the grid connection point at Glenfarclas. Onsite, this cable will be laid alongside the access track. From the site entrance through to Marypark it will be placed alongside the public road where possible. Where placement alongside the carriageway is not possible, such as from Marypark through to the Glenfarclas substation, it will be placed alongside the existing cable, subject to a safe buffer being observed to ensure health and safety.

## Construction Employment

5.1.18. During the construction period there could be approximately 30 - 40 construction operatives carrying out the works on site that have been described. There would also be indirect local benefits arising from the construction phase, including use of hotels, B&Bs and other accommodation, hire of local equipment and plant, temporary employment of local work force and potential contracting of local subcontractors. The construction mobilisation would likely be spread over a 12 month period.

## Operational Employment

5.1.19. It is envisaged that the turbines at the proposed development would be included within a wider portfolio of operational wind turbines and that persons and/or technicians would be on site as required. For the first few years of operation the turbines would be expected to be under warranty and maintenance would be performed by the turbine manufacturer. During these years there would be approximately 2-4 technicians dedicated to the site. During annual servicing this would increase temporarily with up to 8 technicians on site. The site would also support a site manager to be based in the local area. Other contract personnel would attend the site as required to maintain the civil and electrical infrastructure as well as carrying out duties in relation to ecological monitoring and reporting. Site personnel would make use of the onsite control building, which has been designed to include office space and welfare facilities.

## Decommissioning

5.1.20. At the expiry of the consent or the end of the wind farm's useful life, it is proposed that the turbines, transformers and the on-site substation would be removed. The upper section of the turbine foundations, to a depth of at least 1 m, would be removed and backfilled with appropriate material. Tracks will be left and allowed to grass over, or would be covered with soil and reseeded). At least six months prior to the decommissioning of the site, a Decommissioning Method Statement would be prepared, for agreement with the local authorities and relevant consultees.

## Safety of the Public

5.1.21. Throughout the construction phase of the proposed development the relevant statutory requirements would be adhered to. All potentially hazardous areas would be fenced off and all unattended machinery would be stored in the site compound or immobilised to prevent unauthorised use. In addition, temporary construction safety signs would be placed at each possible entrance to the site and in areas where there may be further danger, e.g. around settling lagoons and borrow pits.

5.1.22. Throughout construction, measures to manage diversion routes would be put in place. The diversion routes would be clearly marked and for safety reasons would direct the user away from any areas of construction.

# 6. Summary of EIA

## 6.1. Approach to the ES

6.1.1. Chapter 5: Approach to the Environmental Statement, in Volume 2 of the ES outlines the process and methodology regarding the application of Environmental Impact Assessment (EIA) used during the preparation of this ES to guide the specific elements of site assessment and design.

6.1.2. The EIA is based on various legislation, in particular, the Electricity Works (Environmental Impact Assessment) (Scotland) regulations 2000 as amended by the Electricity Works (Environmental Impact Assessment) (Scotland) Amendment Regulations 2008 (herein referred to as the EIA Regulations). Under the EIA regulations, the proposed development is classed as Schedule 2 development, requiring the project

to be screened for EIA. The Applicant determined following an internal screening process that an EIA was required.

- 6.1.3. As the Scoping Report was submitted prior to 16th May 2017, the ES will be submitted under 2000/2008 EIA regulations. The ES will however include a chapter on the impact on human health and population in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. This can be found in Chapter 13: Human Health and Population of the ES.
- 6.1.4. As part of the EIA process, scoping exercises were undertaken to identify the environmental effects that might result from a development with the characteristics defined during the early stages of the development process, with reference to the environmental receptors specific to the area in the vicinity of the proposed development. An essential part of this involved identifying the sensitive environmental receptors of the proposed development and its surroundings.
- 6.1.5. A number of existing data sources were collected and reviewed prior to the initiation of survey work targeted directly on gathering data for the EIA of the proposal. This included information and understanding of the site and surrounding area from the existing Paul's Hill Wind Farm. It was understood that existing data sources would, in most cases, be unlikely to provide sufficient data alone to use in the EIA but would provide a valuable initial stage with which to form methodologies for further survey.
- 6.1.6. Baseline surveys were carried out by specialist consultants in a number of different study areas. These were aimed at gathering sufficient data to form a picture of the current status of the environmental and human elements in the vicinity of the proposed development, and filling any gaps in existing historical data. The ultimate aim was to allow the prediction of the potential effects of a subsequent detailed development proposal upon these elements. Baseline survey methodologies and coverage are described in detail in the relevant assessments in chapters of this ES.
- 6.1.7. As a result of the consultation process, baseline studies and surveys the goal was to design a wind farm within the boundaries of technical and economic constraints that would avoid any unacceptable environmental impacts.
- 6.1.8. Each of the impact assessments detailed in the relevant chapters of this ES have been generally formulated in a similar way, giving an evaluation of the baseline conditions, the magnitude, sensitivity and significance of impacts and then the residual impacts following the implementation of the stated mitigation measures and resultant beneficial effects.
- 6.1.9. As stated above significance of impacts is determined an evaluation of the baseline conditions, the magnitude, sensitivity and is assisted by the use of a significance matrix as shown in Table 4 below:

Table 4: Example Significance Matrix

<b>Significance Matrix</b>			
<b>MAGNITUDE OF CHANGE</b>			
<b>High</b>	Moderate	Moderate/Major	Major
<b>Medium</b>	Minor/Moderate	Moderate	Moderate/Major
<b>Low</b>	Minor	Minor Moderate	Moderate
<b>Negligible</b>	Negligible/Minor	Minor	Minor/Moderate
	<b>Low</b>	<b>Medium</b>	<b>High</b>
	<b>SENSITIVITY OF RECEIVING ELEMENT</b>		

- 6.1.10. Significant effects are typically indicated as ‘major’ or ‘moderate/major’, although ‘moderate’ may also be considered as significant depending up the context and the judgment of the assessor.
- 6.1.11. If any significant impacts are identified it is the aim to design out or reduce the significance of unacceptable adverse effects to an environmentally (or otherwise) acceptable level. This is known as mitigation by design or embedded mitigation (meaning mitigation that has been incorporated into the design of the development). If however it is not possible by applying such mitigation to eliminate adverse impacts to an acceptable level, additional specific mitigation will be proposed in order to do so. This is known as impact mitigation and is proposed to eliminate these residual effects. Details of any impact mitigation are summarised in Table 14.1 and 14.2 of Chapter 14: Summary, Residual Effects and Mitigation, in Volume 2 of the ES.

## Cumulative Impacts

- 6.1.12. The EIA Regulations require the likely cumulative impacts of the proposed development to be assessed as part of an EIA. Hence, cumulative impacts are considered in each of the ES chapters. These can be broadly defined as impacts that result from incremental changes caused by other developments, plans, or projects together with the proposed development. The EIA regulations state that all likely significant cumulative effects resulting from the existence of the development, use of natural resources and the emission of the pollutants, the creation of nuisances and the elimination of waste should be considered within the EIA.

## 6.2. Landscape & Visual Impact Assessment

- 6.2.1. Chapter 6: Landscape & Visual Impact Assessment, in Volume 2 of the ES provides a comprehensive but focussed assessment of the likely significant effects of the proposed Paul’s Hill II Wind Farm on the landscape resource and visual amenity within an identified study area. These assessments have been carried out and presented by a Chartered Landscape Architect in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition, (Landscape Institute and the Institute of Environmental Assessment, 2013) (GLVIA3). A study area of 40 km from the outer edge of Paul’s Hill II turbines was proposed in the LVIA section of the scoping report and agreed to in consultee responses.
- 6.2.2. The design process began with a layout responding mainly to wind resource and wind turbine specification which took into account operational turbines on the adjacent existing Pauls Hill Wind Farm development and initial considerations of the capacity of the landform of the Paul’s Hill II development area. From this starting point, turbines were relocated, modified or removed from the layout due to physical constraints, such as watercourses, areas of deep peat and steep slopes and took into account sensitive wildlife habitats and species locations and initial visual and landform sensitivities. The proposed layout is considered to be a well-balanced design from key viewpoints and receptors whilst also giving due consideration to constraints, such as ornithological receptors. As discussed in Chapter 8: Ornithology, the primary locations of hen harrier activity has been a major factor in the reduction in turbine numbers to the south of the development, for example.
- 6.2.3. In relation to potential significant impacts on Landscape Character Types (LCT’s), one of these is Landscape Character Type 11 (LCT 11 – Open Rolling Moorland), which is assessed to experience a significant effect during the construction phase only. Following post-construction reinstatement this temporary moderate effect is reduced to minor/moderate and therefore not significant. The other potential significant effect identified is that upon LCT 7 (Broad Farmed Valley) which has been identified as potentially experiencing moderate/major and therefore significant landscape and cumulative effects for cumulative baseline 1 (operational wind farm developments). However due to mitigating factors, such as the operational developments will generally be experienced at the same time as the proposed development and the landmark feature of Roy’s Hill is not the only key landmark hill within the LCT, it is considered that this potential significant effect is not unacceptable.



- 6.2.4. No Significant landscape effects are considered to occur from any of the three assessed landscape designations within the study area. Moderate and Not Significant levels of landscape effect have been considered for the Cairngorms National Park (CNP), The Cairngorm mountains National Scenic Area (NSA) and the Cairngorms Wild Land Area (WLA) which were included in the initial assessment for significant effects within the Scoping report. Also, no significant levels of landscape effect have been considered for the Drynachan, Lochindorb and Dava Moors Special Landscape Area (SLA) and the Spey Valley Area of Great Landscape Value (AGLV). These not significant effects arise from limited magnitude of landscape change from the CNP and from medium levels of sensitivity combined with moderate levels of landscape change for the two local landscape designations.
- 6.2.5. No unacceptable visual significant effects are predicted to be experienced by visual receptors at any of the selected viewpoints. One out of the ten selected viewpoints has been identified as potentially experiencing Moderate and Significant visual and cumulative effects for cumulative baseline 1 (operational wind farm developments): Viewpoint 1, taken from the frontage of Tormore Distillery is a close proximity viewpoint at 5.9 km from the proposed development. A further seven of the remaining nine viewpoints were considered to experience a Moderate and Not Significant level of effect. The remaining two viewpoints are considered to experience Minor/Moderate and Not Significant level of effect.
- 6.2.6. In relation to individual residential receptors, there were two significant effects and one borderline significant effect identified from the three individual and isolated properties within 3 km of the proposed development. However screening (e.g. from topography and/or trees), the carefully designed layout and the localised nature of these effects mitigate these effects which are assessed as not significantly affecting the overall visual component of living conditions for any of these three properties.
- 6.2.7. No significant visual effects have been identified from any of the four assessed settlements; Archiestown, Upper Knockando, Craigellachie and Dallas.
- 6.2.8. Four sequential routes have been identified as experiencing Moderate levels of sequential visual effect. These include the A95 main route along the Spey Valley, the B970 from Grantown to Aviemore and beyond the study area, the Speyside Way long distance footpath from Buckie to Aviemore and beyond the study area, and Core Path SP20. These moderate sequential effects are considered to be Not Significant owing to the highly localised nature and restricted actual visibility along all four routes.
- 6.2.9. Mitigation for Landscape and Visual Effects is in the form of embedded mitigation (meaning mitigation that has been incorporated into the design of the development). It is considered that the proposed development has followed Scottish Natural Heritage (SNH) guidance in this regard and that the design a wind farm relates directly to the qualities of the site and contains design elements that minimise the effects as far as is practical.

### 6.3. Ecology Assessment

- 6.3.1. Chapter 7: Ecology Assessment, in Volume 2 of the ES provides an overview of baseline ecological conditions within the Paul's Hill II Development Area and immediate surrounding environment. The potential ecological effects of the proposed wind farm development during construction, operation and decommissioning are identified, assessed and evaluated in terms of their significance, in accordance with industry guidelines. Cumulative impacts at an appropriate biogeographic scale are described and an assessment of residual impacts, taking into consideration proposed mitigation measures, is also provided.
- 6.3.2. It is expected that embedded mitigation measures will protect potentially highly dependent Ground Water Dependent Terrestrial Ecosystems (GWDTEs) during the construction phase of Paul's Hill II Wind Farm, as required by the Water Framework Directive (WFD). By applying effective embedded mitigation measures, mainly through the design process and following best practice guidelines during construction, the magnitude of residual effects has been reduced to negligible for all Important Ecological Features (IEF's) and highly dependent GWDTEs.

- 6.3.3. Adoption of similar habitat management measures to those already employed on the existing operational Paul's Hill Wind Farm provide an opportunity to continue to promote the current good practice for the duration of the proposed development.
- 6.3.4. In relation to cumulative impacts, there are not any IEFs for which a greater than negligible residual impact is predicted and hence, there is no real possibility of meaningful contribution to a cumulative impact with other relevant projects. Therefore, no further cumulative impact assessment has been undertaken for any of the IEFs.
- 6.3.5. In summary, by applying effective embedded mitigation measures, mainly through the design process, implementing the proposed fish monitoring programme and following best practice guidelines during construction including production of a Species Protection Plan (SPP), the magnitude of residual effects of Paul's Hill II Wind Farm are assessed as being reduced to Negligible in terms of magnitude, and thus Not Significant in terms of the EIA Regulations.
- 6.3.6. In relation to the Habitat Regulations Assessment (HRA) for the main wind farm site, with the successful implementation of all of the embedded mitigation it is concluded that potential effects for all qualifying features of the River Spey Special Area of Conservation (SAC) will be reduced to Negligible and there will be No Adverse Effect resulting from this proposed wind farm development.
- 6.3.7. In relation to additional works that may be required along the public access route (particularly in the vicinity of Blacksboat Bridge) these will have to be provided at a later stage. It is assumed for the purpose of determining this application that any such works will not have an adverse effect on the River Spey SAC. Whilst a variety of turbine options are being considered that have larger turbine components than have been previously been used for the Paul's Hill Wind Farm, at this time, it is expected that there will be options to enable the selection of turbine components and an appropriate mode of transport that enables delivery within the current parameters of the highway. This will be kept under review, as the consenting process progresses toward the proposed implementation of the wind farm. Additional information on this matter will be provided as required to the planning authority and other stakeholders prior to construction.

## 6.4. Ornithology Assessment

- 6.4.1. Chapter 8: Ornithology Assessment, in Volume 2 of the ES describes the ornithological interest at the proposed Paul's Hill II Wind Farm and assesses the predicted impacts of the proposed development on these interests. It details the methods used to identify the baseline bird community within the proposed Paul's Hill II Wind Farm development and surrounding locale, and the process used to determine the nature conservation value of the bird populations present. The chapter then sets out the potential effects of the proposed wind farm development on birds during construction, operation and decommissioning, and assesses the significance of potential impacts on bird populations, including cumulative impacts, at an appropriate bio-geographic scale.
- 6.4.2. The assessment identified no significant effects following embedded mitigation measures, of the proposed development on ornithological interests. Specific embedded mitigation measures for black grouse, hen harrier and merlin are proposed to minimise the potential effects of disturbance and/or displacement, and to ensure compliance with the Wildlife and Countryside Act (1981) as amended by the Nature Conservation (Scotland) Act (2004). A Species Protection Plan (SPP) is proposed and best practice guidance regarding breeding birds will be followed, with an Ecological Clerk of Works (ECoW) employed during construction.
- 6.4.3. A Habitat Management Plan (HMP) targeted at hen harrier and merlin is also proposed, incorporating an Ornithological Management Plan (OMP) to assess the efficacy of measures outlined in the HMP and species-specific embedded mitigation outlined for black grouse, hen harrier and merlin. It is considered that following the implementation of these species specific embedded mitigation measures there will be **No Significant Adverse Impacts** on the main target species associated with the proposed Paul's Hill II Wind Farm.

- 6.4.4. Furthermore, with the implementation of the proposed management and monitoring measures it is considered that there is the potential for beneficial effects in the medium to longer term, and a continuation of the successful management that has already taken place for the protection of hen harrier and other target species associated with the Paul's Hill I consent.

## 6.5. Cultural Heritage Assessment

- 6.5.1. Chapter 9: Cultural Heritage Assessment, in Volume 2 of the ES has considered the likely significant effects of the proposed Paul's Hill II Wind Farm development on cultural heritage (historic environment sites and features, archaeology and built heritage). The assessment has been carried out by CFA Archaeology Ltd (CFA) using information provided by Historic Environment Scotland (HES), the Aberdeenshire Council Archaeology Service (ACAS), on behalf of Moray Council, and the Highland Council Historic Environment Team (HCHET).
- 6.5.2. It is anticipated that no known heritage assets would be directly affected in the main wind farm area.
- 6.5.3. It is also anticipated that no known heritage assets would be directly affected by the proposed highways works or cabling works but there remains some limited possibility that those works could have an adverse effect on any unrecorded, buried archaeological remains present in affected areas. Any potential impact on heritage assets will be addressed once a turbine has been selected, the route has been fully assessed and engineering details are known and provided in the Construction Method Statement (CMS).
- 6.5.4. In terms of indirect impacts on the setting of cultural heritage assets (e.g. Ballindalloch Castle), the up-to-date data with statutory and non-statutory designations up to 10 km from the proposed wind farm development has been compared against the blade tip height ZTV for the proposed Paul's Hill II development and no heritage assets have been identified where potentially adverse impacts on their settings would arise. A detailed assessment has been undertaken of the potential impact on Ballindalloch Castle, Ballindalloch Dovecote and the castle grounds and no significant impact is predicted.
- 6.5.5. There is also considered to be no significant cumulative effect on the setting of any heritage assets.
- 6.5.6. As no significant direct or indirect impacts have been identified no mitigation is currently required. Whilst there is some potential for heritage assets to be impacted by highway works, it is considered that the known heritage assets can be avoided.

## 6.6. Hydrology, Geology and Hydrogeology Assessment

- 6.6.1. Chapter 10: Hydrology, Geology and Hydrogeological Assessment, in Volume 2 of the ES has assessed the impacts on the hydrological, geological and hydrogeological environment of the proposed Paul's Hill II Wind Farm development and the potential impacts resulting from the construction, operation and ultimate decommissioning of the proposed turbines and associated infrastructure.
- 6.6.2. The greatest risk of the proposed Paul's Hill II Wind Farm development affecting the hydrological, geological and hydrogeological environment will occur during the construction phase, with effects reduced during the operational and decommissioning phases.
- 6.6.3. Following the identification and assessment of the key receptors (e.g. water courses), taking into account the key potential effects, a comprehensive suite of embedded mitigation and best practice measures has been incorporated into the design, including extensive buffer areas. In addition, a site specific Construction Environmental Management Plan (CEMP) as well as detailed design of infrastructure with associated embedded mitigation will be implemented to protect the groundwater and surface water resources from pollution and minimise changes to the hydrological environment.
- 6.6.4. The impact assessment has taken into account the hydrological regime, highlighting that the principal effects will occur during the construction. Assuming the successful design and implementation of embedded

mitigation measures the significance of construction effects on all identified receptors is considered to be of **minor or no significance**. The assessment of predicted ongoing and operational effects has also determined that the significance of effects on all receptors to be of **minor/moderate minor or no significance**.

- 6.6.5. In relation to private water supplies (see Technical Appendix 10.7), they are considered of utmost importance and will be protected from detrimental effects of the proposed wind farm development. At the current time the exact details of some works such as whether existing access track will require widening or the burial of the power cables is yet to be determined. However, should track widening works or excavation be undertaken adjacent to the existing access track, reassessment of the risk will be undertaken for Corglass Lodge & Corglass Beag.
- 6.6.6. The Private Water Supply Risk Assessment (Technical Appendix 10.7) identified a Medium/Low risk to Corglass Lodge, Corglass Beag (219) as a result of potential impact during planned resurfacing work to the existing access track. It is recommended that monitoring at both source and point of consumption is carried out during this upgrade work. Agreement with the property owner, monitoring frequency and parameters monitored would be agreed post consent. Monitoring regime would conform to the relevant guidance & best practice statements.
- 6.6.7. In relation to peat stability (Technical Appendix 10.2), the peat depths across the site are predominantly shallow (<1m). Due to a number of water courses across the development a Medium hazard ranking is indicated for infrastructure within 100m of water courses. However, it should be noted that these medium risk ratings are a consequence of the high exposure rating for these locations and are not a result of an increased risk of a peat landslide event occurring. Applied mitigations and appropriate control measures including best practice construction shall ensure the residual hazard rankings are insignificant across these areas.
- 6.6.8. In relation to peat management (Technical Appendix 10.3), the peat excavation volume calculation prediction for Paul's Hill II Wind Farm is approximately 30,899 m<sup>3</sup>. With this volume of peat excavated, this should be suitably accommodated in the estimated available capacity of 31,822 m<sup>3</sup>. The management of peat across the site can be monitored to ensure that effects on the peat land environment are appropriately understood and subsequently reduced via the embedded mitigation measures proposed.
- 6.6.9. In relation to carbon balance (Technical Appendix 10.5), the results from the online carbon calculator show that the proposed wind farm development would have effectively paid back its expected carbon debt from manufacture, construction, impact on habitat and decommissioning within 2 years, if it replaced the fossil fuel electricity generation method. Based on the minimum and maximum scenarios however, the analysis indicates that the payback time for fossil fuel-mix generation ranges between 0.8 and 5.9 years. Overall, the carbon balance assessment reveals that the net impact of the proposed wind farm development at Paul's Hill II will be positive overall, as over the 35-year lifespan of the proposed wind farm development, and it is likely to generate over 29 years' worth of clean energy based on the maximum worst-case scenario. Assuming the expected 33 years that the wind farm is likely to be generating carbon-free electricity, this could result in expected CO<sub>2</sub> emission savings of over 835,000 tonnes of CO<sub>2</sub>. This illustrates that the proposed wind farm development has the potential to contribute significantly towards the reduction of Green House Gas (GHG) emissions from energy production.

## 6.7. Aviation and Existing Infrastructure Assessment

- 6.7.1. Chapter 11: Aviation and Existing Infrastructure Assessment, in Volume 2 of the ES has given consideration to the potential for impact upon civil aviation interests, Ministry of Defence (MoD) interests, communication operations and existing infrastructure. The chapter assesses such potential impacts and demonstrates the consultation process undertaken, provides details of any impacts and outlines mitigation where it is deemed necessary.

- 6.7.2. In summary, the proposed development is likely to affect aviation interests and existing infrastructure. In terms of aviation interests, the wind turbines are likely to cause interference to both civil and military ATC radar located at Inverness Airport and RAF Lossiemouth respectively. In both cases, the applicant is in dialogue with the HIAL and the MoD to identify suitable mitigation solutions to reduce the impact to an acceptable level. Mitigation measures could be secured with appropriate planning conditions.
- 6.7.3. The proposed development also has the potential to cause interference to a communications link. An assessment identified that it is only T7 that could potentially interfere with the link, and mitigation is possible. Potential mitigation measures include agreeing to a micro-siting restriction ensuring that the turbine position does not move closer to the link or upgrade of the antenna. Refer to the note from JRC for confirmation of the requirements of the link owner (see Technical Appendix 11.1). The mitigation could be secured through a planning condition.
- 6.7.4. In relation to existing infrastructure, it has been identified that there is existing infrastructure in the vicinity of the wind farm, access route and grid connection route. Suitable embedded mitigation will be taken to ensure that these assets are suitably protected throughout the delivery, construction and operation of the wind farm. Where mitigation is required detail will be provided in the Construction Method Statement (CMS).

## 6.8. Traffic & Transport Assessment

- 6.8.1. Chapter 12: Traffic and Transport Assessment, in Volume 2 of the ES assesses the potential impacts due to transport and access for the proposed Paul's Hill II Wind Farm development resulting from the wind farm construction, operation and decommissioning of the development against a baseline condition built up from automated traffic counts commissioned for this project and Department for Transport data of traffic flows on the roads network. Predicted traffic volumes relating to the proposed development are based on assumptions set out in the chapter.
- 6.8.2. Traffic generated by the wind farm proposal would be concentrated during the construction phase and decommissioning phases of the wind farm. During the operation of the wind farm, traffic would be minimal since much of the operation of the wind farm would be automatic and would be monitored as part of the wider management of the existing wind farm at Paul's Hill.
- 6.8.3. The construction of Paul's Hill II Wind Farm is expected to last approximately 12 months, from site mobilisation through to installation and commissioning of the turbines, ending with site re-instatement and demobilisation.
- 6.8.4. Based on the criteria explained in the methodology the assessment concludes that:
- Traffic effect on the A95 at Locations 1055, 74436 and 30867 is considered to be of **Negligible / Low Significance**.
  - Traffic effect on the A941 at Location 20985 is considered to be of **Negligible / Low Significance**.
  - Traffic effect on B9138 at Location A is considered to be of **Low / Moderate Significance**.
  - Traffic effect on B9102 at Location B is considered to be of **Negligible / Low Significance**.
  - Traffic effect on the unclassified (C13e) at Location C is considered to be of **Negligible / Low Significance**.
  - Noise and vibration impacts have potential for a **Moderate Significance**, but if the embedded mitigation measures proposed are adopted they would be of **Low / Moderate Significance**.
  - Dust and dirt pollution has the potential for a **Moderate Significance**, but if the embedded mitigation measures proposed are adopted they would be of **Low / Moderate Significance**.
  - Air pollution has the potential for a **Moderate Significance**, but if the embedded mitigation measures proposed are adopted they would be of **Low / Moderate Significance**.
  - During the operation period of the wind farm **Negligible / Low Significant** impacts are foreseen.

- During the decommissioning period the activities have the potential for **similar significant impacts**. The impacts cannot be fully assessed until the methods for decommissioning have been agreed, nevertheless it would be expected that the impacts would be similar or less to those identified here and the similar embedded mitigation measures be applied.
- 6.8.5. Taking into account the embedded mitigation measures proposed the overall impact of the proposed transport during construction and operation is deemed to have **Low / Moderate Significance** which is **Not Significant** in terms of the EIA regulations.

## 6.9. Human Health and Population Assessment

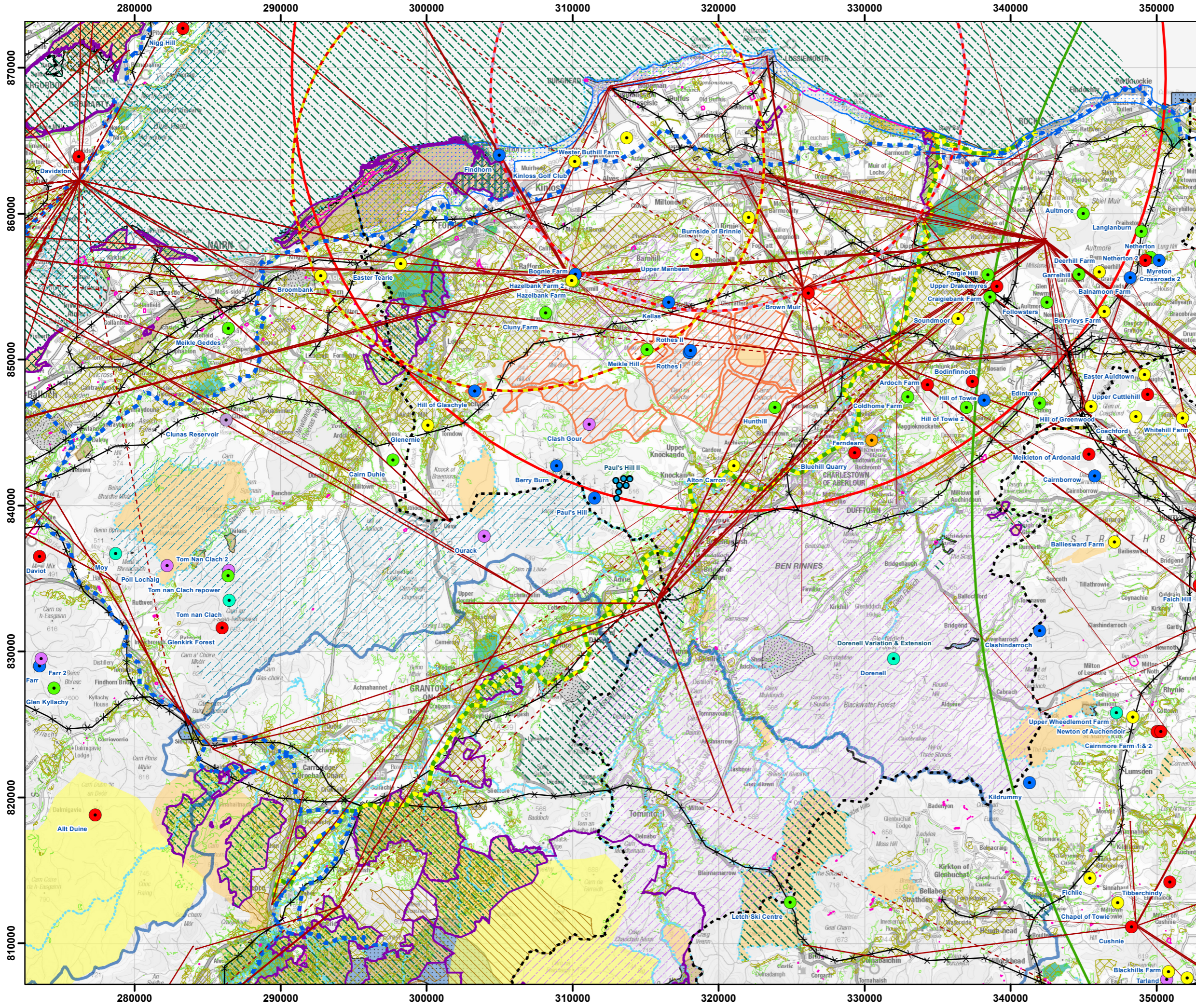
- 6.9.1. Chapter 13: Human Health and Population Assessment, in Volume 2 of the ES includes a section outlining the socioeconomic context of the proposed development locally, regionally and nationally. This includes a review of publicly available information sources related to socioeconomic context of the area. This chapter also includes a section giving details of the economic and community benefits of the existing Paul's Hill Wind Farm and how the proposed Paul's Hill II Wind Farm could add to these benefits. This section also considers other socioeconomic factors such as the impact of wind farms on house prices and the impact of wind farms on tourism and recreation, both from a Paul's Hill II perspective and generally.
- 6.9.2. In relation to the socioeconomic impact it is considered that the proposed development has the potential to create positive socioeconomic impacts locally, regionally and nationally. As with the existing Paul's Hill Wind Farm, the proposed development also has the potential to coexist with its neighbouring properties and settlements and create positive community and economic benefits for the local area and beyond.
- 6.9.3. The chapter additionally includes the noise assessment of the proposed development, and considers the potential for ice throw. It is considered that as a result of turbine procurement together with good practice site management procedures including the use of visual warnings signs and restricted access to turbines where ice is present on blades there will be no significant impact for the public or for site workers using the site.
- 6.9.4. There is no shadow flicker assessment within the ES as the nearest residential property to the proposed development is located over 10 turbine rotor diameters from the nearest turbine.
- 6.9.5. In relation to the noise assessment the results show that the proposed Paul's Hill II Wind Farm on its own, and the cumulative predicted operational noise levels meet the ETSU-R-97 simplified noise limit, and therefore no significant operational noise impacts are predicted.
- 6.9.6. The noise assessment also indicates that with the implementation of appropriate embedded mitigation measures during construction there should be no significant construction noise impacts predicted, and there should also be no significant noise impacts predicted related to road traffic noise generated by construction traffic accessing the site during the construction phase of the development.

## 7. Final Summary

- 7.1.1. The ES has highlighted that the only residual significant effects that have been identified during the EIA process are as a result of visual and landscape impacts, potential interference of the turbines with civil and military ATC radar and potential interference with a communications link.
- 7.1.2. A relatively limited number of significant effects were identified within Chapter 6: Landscape and Visual Assessment, of the ES on what are generally considered to be receptors of local importance. Whilst localised significant effects have been identified, the wider landscape would not be transformed as a result of the proposed development and as such, it is considered that the landscape at a broad scale is sufficiently robust enough to accommodate the proposed development without significant effects arising. The extent of

significant cumulative effects attributable to the proposed development is also considered to be of modest proportions.

- 7.1.3. Whilst it is acknowledged that the three residential receptors within 3 km of the proposed development may experience significant effects it is considered that screening (e.g. from topography and/or trees), the carefully designed layout and the localised nature of these effects mitigate these effects and do not significantly affect the overall visual component of living conditions for any of these three properties. These effects are therefore considered acceptable in landscape and visual terms.
- 7.1.4. In relation to the potential significant impacts on civil and military ATC radar at Inverness Airport and RAF Lossiemouth, it is considered that these impacts can be mitigated and that mitigation could be secured with appropriate planning conditions.
- 7.1.5. Equally, in relation to the potential significant impact on the communication link caused by turbine 7, it is considered that this impact can be mitigated, by applying a micro-siting restriction or upgrading the antennae, and that again mitigation could be secured with an appropriate planning condition.
- 7.1.6. It is proposed that, as far as is practical, the planning conditions that applied to the Paul's Hill Wind Farm consent in 2004 (see Appendix 1.3 in Volume 4 of the ES) should also be applied to the proposed development. This will ensure that there is, in general, duplicate sets of similar conditions applying to the wind farm as a whole, with the new set recognising the use of shared infrastructure for the lifetime of the new phase of development.
- 7.1.7. Subject to suggested mitigation measures and considerations summarised in Table 14.1 and 14.2 of Chapter 14 and outlined above, the ES did not identify any other potentially significant residual effects (in terms of the EIA Regulations) on any other environmental or human receptors during the preparation, construction, operation and decommissioning of the proposed Paul's Hill II Wind Farm development and as such the overall impact of the proposed development is considered not significant in EIA terms.
- 7.1.8. It is therefore considered that the proposed Paul's Hill II Wind Farm is an appropriate environmentally acceptable development for the location, whilst simultaneously making a significant contribution to reaching Scottish Government targets on reducing carbon emissions. Furthermore, it has the potential to coexist with its neighbouring properties and settlements and create positive community and economic benefits for the local area and beyond.



Project:  
**Paul's Hill II Wind Farm,  
 Moray**

Title:  
**NTS Figure 1.1: Regional  
 Context**

**Key**

Proposed Paul's Hill II turbine	National Nature Reserve (1)
Preferred search area for large scale wind proposals (2)	Scottish Wildlife Trust reserve (8)
Overhead power transmission lines	RAMSAR (1)
Speyside Way (1)	SSSI (1)
National Cycle Network (5)	Wild land area (1)
Indicative micropath (6)	Historic gardens & landscapes (3)
Indicative TV transmitter link (6)	Battlefield (3)
74km buffer from ASACS radar (7)	Geological conservation review site (1)
30km buffer from MOD radar (7)	Regional boundary
RAF Kinloss Safeguard Zone (7)	Other wind farm developments
RAF Lossiemouth Safeguard Zone (7)	Operational
Scheduled Ancient Monument (3)	Construction
Area of Great Landscape Value (2)	Approved
Special Landscape Area (9)	Submitted
Cairngorm National Park (1)	Scoping
Coastal Protection Zone (2)	Pre-Scoping
RSPB reserve (4)	Appeal
RSPB Important Bird Area (4)	Refused
Local nature reserve (1)	
Special Protection Area (1)	
Special Area of Conservation (1)	
Semi natural ancient woodland (1)	
Plantation on ancient woodlands site (1)	

Source data reproduced with the permission of:  
 (1) SNH (2) Moray Council (3) Historic Environment Scotland (4) RSPB  
 (5) Sustrans (6) BBC/Ofcom (7) MOD (8) Scottish Wildlife Trust (9) Highland Council

**Notes:**  
 a) Information on this map is directly reproduced from digital and other material from different sources. Minor discrepancies may therefore occur. Where further clarification is considered necessary, this is noted through the use of text boxes on the map itself.  
 b) For the avoidance of doubt and unless otherwise stated:  
 1. where a line recorded in the key demarcates a boundary on this plan, the boundary edge is the outside edge of the line.  
 2. where a line or feature recorded in the key of this plan is also shown as a line or feature by the Ordnance Survey, and that line or feature is located in a different position on the ground than shown by the Ordnance Survey, then the line or feature shall be deemed to follow the position as existing on the ground.  
 3. this plan should be used for identification purposes only, unless specifically stated above or in accompanying documentation.  
 4. Natural Power Consultants Ltd. accepts no responsibility for the accuracy of data supplied by third parties.

**Scale @ A3: 1:250,000**  
 Coordinate System: British National Grid  
 Contains Ordnance Survey data © Crown copyright and database right 2018.  
 Contains public sector information licensed under the  
 Open Government Licence v3.0

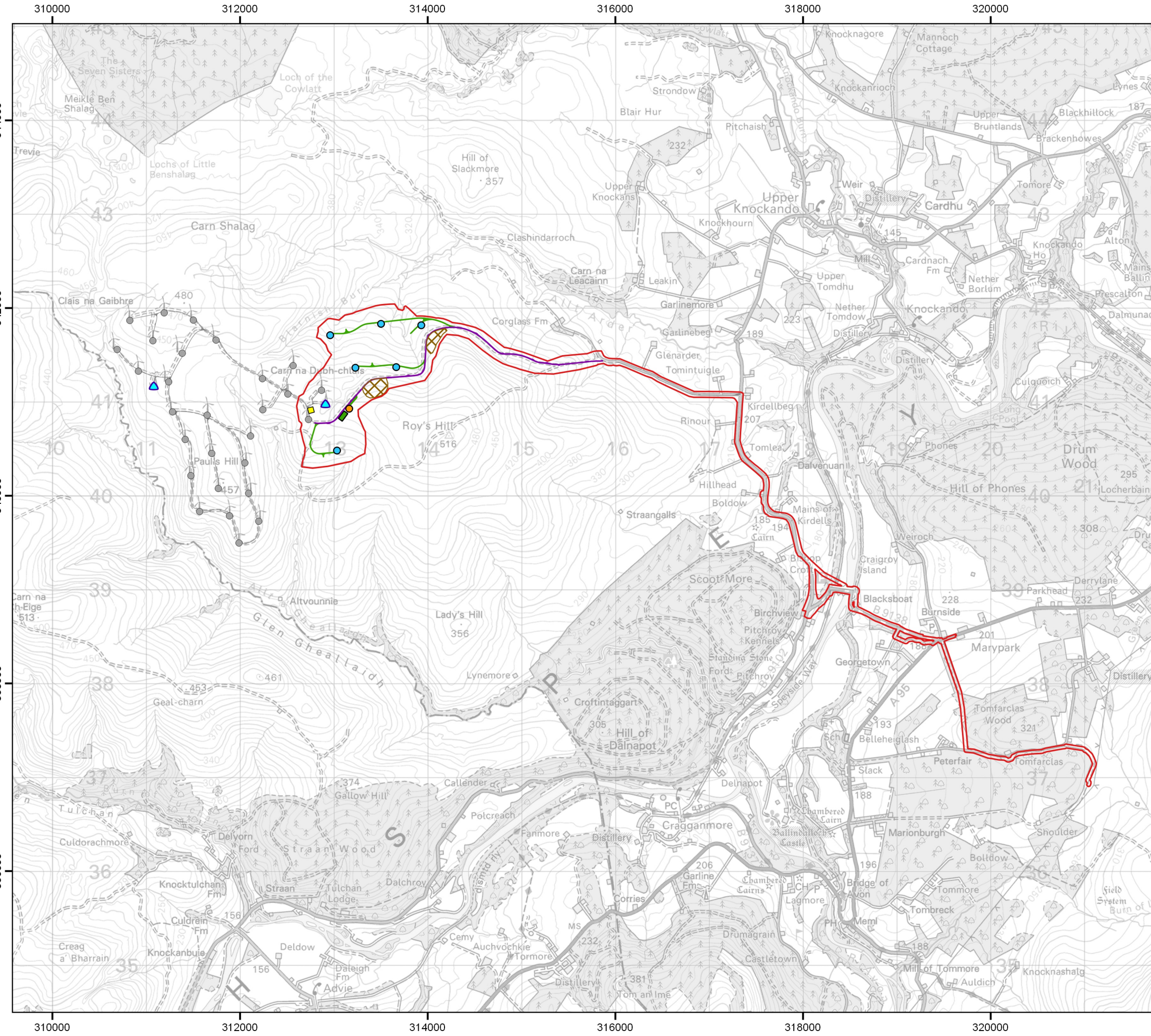
Date: 23/03/2018    Prepared by: AB    Checked by: TG

Ref: GB200325\_M\_453\_A    Layout: 57\_070917\_7t\_A

Drawing by:  
 Natural Power Consultants Ltd  
 The Green House  
 Forrest Estate, Dalry  
 Castle Douglas, DG7 3XS, UK  
 Tel: +44 (0)1644 430008  
 Fax: +44 (0)845 299 1236  
 Email: sayhello@naturalpower.com  
 www.naturalpower.com

Client:





Project:  
**Paul's Hill II Wind Farm.  
 Moray**

Title:  
**NTS Figure 1.2: Proposed  
 Development Area**

- Key**
- Proposed development area
  - Proposed Paul's Hill II turbine (134 m to tip)
  - Proposed Paul's Hill II turbine (149.9 m to tip)
  - Existing Paul's Hill I turbine
  - ▲ Existing anemometry mast
  - Proposed new track
  - Existing track to be upgraded
  - Existing track
  - Proposed construction compound
  - Control building
  - Borrow pit search area

**Notes:**

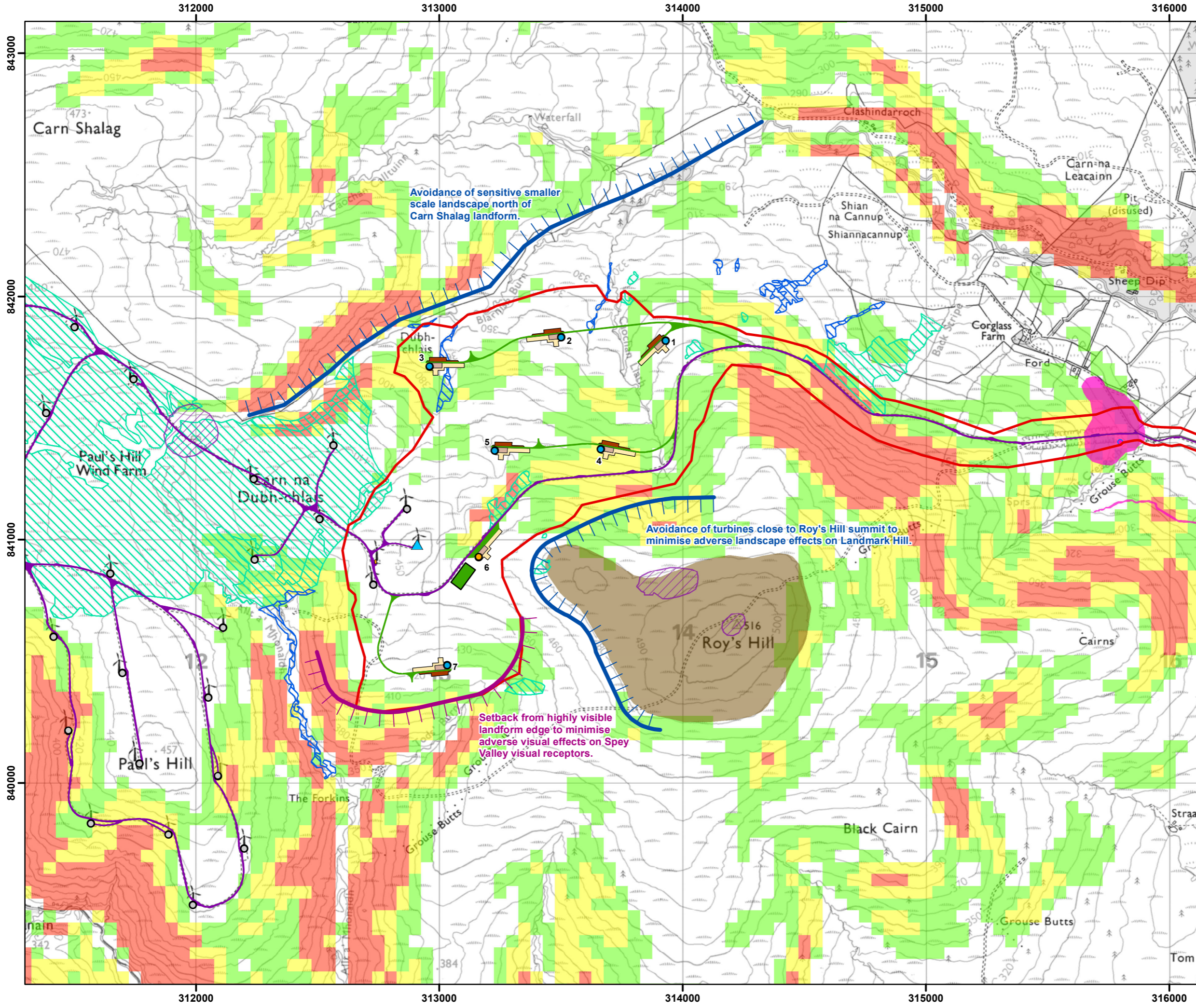
- a) Information on this map is directly reproduced from digital and other material from different sources. Minor discrepancies may therefore occur. Where further clarification is considered necessary, this is noted through the use of text boxes on the map itself.
- b) For the avoidance of doubt and unless otherwise stated:
  1. where a line recorded in the key demarcates a boundary on this plan, the boundary edge is the outside edge of the line.
  2. where a line or feature recorded in the key of this plan is also shown as a line or feature by the Ordnance Survey, and that line or feature is located in a different position on the ground than shown by the Ordnance Survey, then the line or feature shall be deemed to follow the position as existing on the ground.
  3. this plan should be used for identification purposes only, unless specifically stated above or in accompanying documentation.
  4. Natural Power Consultants Ltd. accepts no responsibility for the accuracy of data supplied by third parties.

**Scale @ A3: 1:40,000**  
 Coordinate System: British National Grid  
 © Crown copyright 2018. All rights reserved.  
 Ordnance Survey License 0100031673

Date: 28-03-18	Prepared by: AB	Checked by: KL
Ref: GB200325_M_454_A	Layout: 57_070917_7t_A	

Drawing by:  
 Natural Power Consultants Ltd  
 The Green House  
 Forrest Estate, Dalry  
 Castle Douglas, DG7 3XS, UK  
 Tel: +44 (0)1644 430008  
 Fax: +44 (0)845 299 1236  
 Email: sayhello@naturalpower.com  
 www.naturalpower.com

Client:  
**Fred. Olsen Renewables**



Project:  
**Paul's Hill II Wind Farm,  
 Moray**

Title:  
**NTS Figure 1.3: Constraints to  
 Site Design**

**Key**

Development area	Bog pool area
Proposed turbine (134 m to tip)	GWDTE - High
Proposed turbine (149.9 m to tip)	GWDTE - Moderate
Existing Paul's Hill I turbine	High ground area
Existing anemometry mast	Landscape exclusion area
Proposed new track	Visual exclusion area
Existing track	<b>Slope constraints</b>
Proposed construction compound	8° - 10°
Proposed crane pad	10° - 12°
Proposed laydown area	> 12°
Proposed additional area	
Proposed control building	
Cultural heritage site (2)	
Cultural heritage area (2)	

Source data reproduced with permission of:  
 (1) Scottish Natural Heritage (2) CFA Archaeology (3) Ofcom  
 Contains public sector information licensed under the Open Government  
 Licence v3.0. © Scottish Natural Heritage 2018.

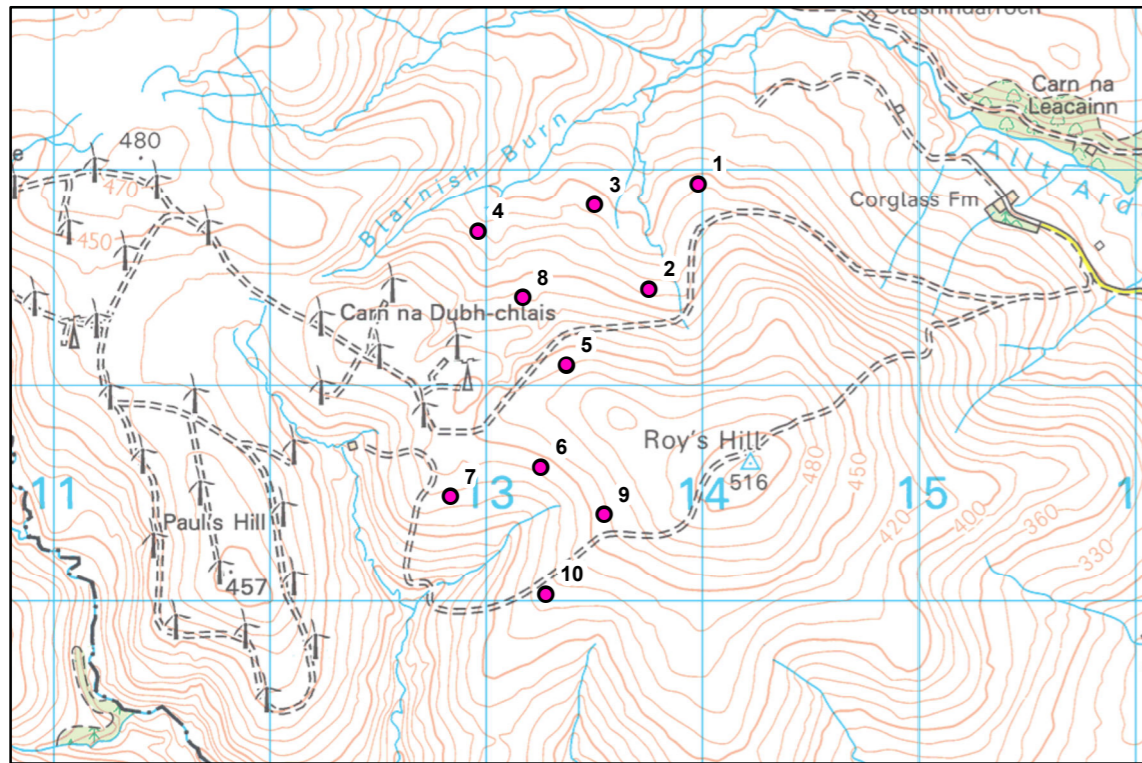
Notes:  
 a) Information on this map is directly reproduced from digital and other material from different sources. Minor discrepancies may therefore occur. Where further clarification is considered necessary, this is noted through the use of text boxes on the map itself.  
 b) For the avoidance of doubt and unless otherwise stated:  
 1. where a line recorded in the key demarcates a boundary on this plan, the boundary edge is the outside edge of the line.  
 2. where a line or feature recorded in the key of this plan is also shown as a line or feature by the Ordnance Survey, and that line or feature is located in a different position on the ground than shown by the Ordnance Survey, then the line or feature shall be deemed to follow the position as existing on the ground.  
 3. this plan should be used for identification purposes only, unless specifically stated above or in accompanying documentation.  
 4. Natural Power Consultants Ltd. accepts no responsibility for the accuracy of data supplied by third parties.

**Scale @ A3: 1:15,000**  
 Coordinate System: British National Grid  
 © Crown Copyright 2018. All rights reserved.  
 Ordnance Survey Licence 0100031673.

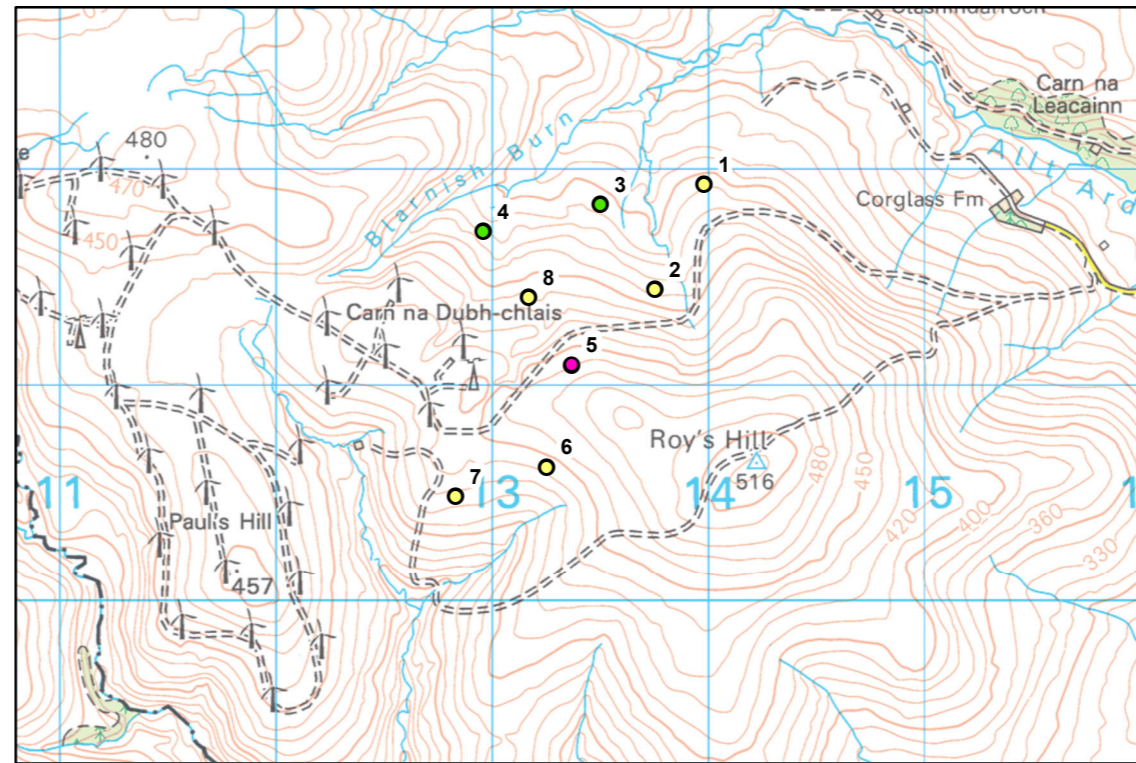
Date: 23-03-18    Prepared by: AB    Checked by: TG  
 Ref: GB200325\_M\_455\_A    Layout: 57\_070917\_7t\_A

Drawing by:  
 Natural Power Consultants Ltd  
 The Green House  
 Forrest Estate, Dalry  
 Castle Douglas, DG7 3XS, UK  
 Tel: +44 (0)1644 430008  
 Fax: +44 (0)845 299 1236  
 Email: sayhello@naturalpower.com  
 www.naturalpower.com

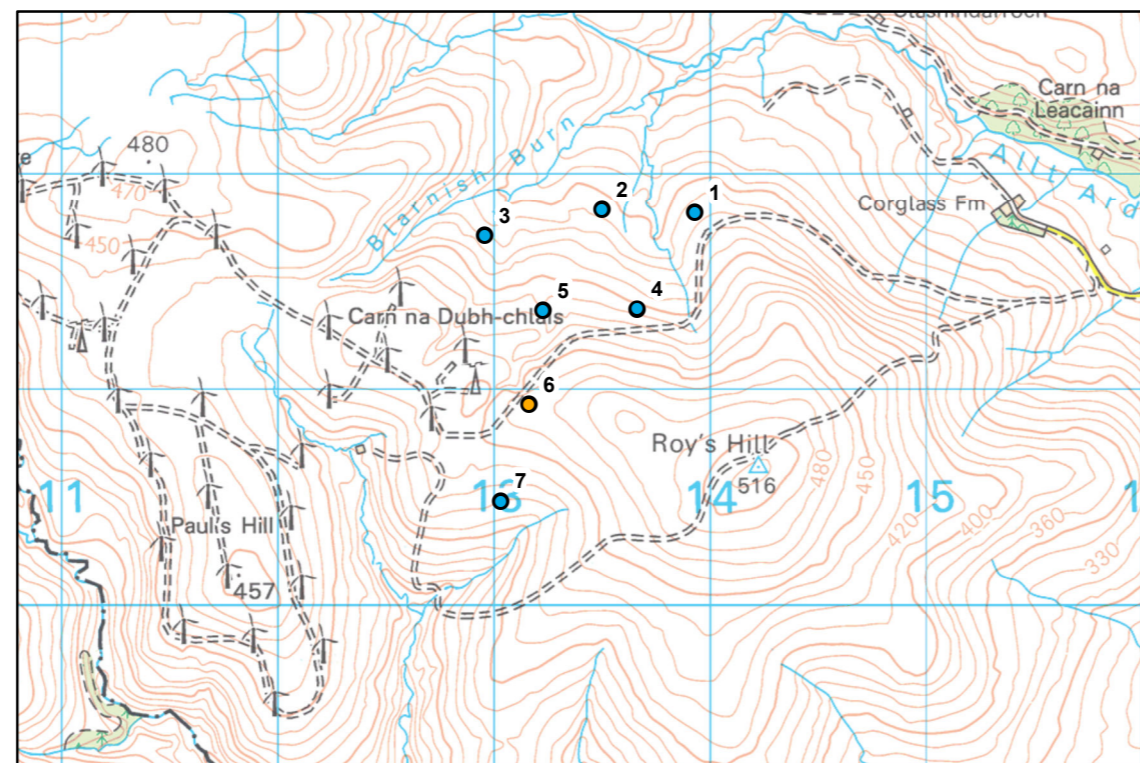
Client:



Option A - 10 turbines



Option B - 8 turbines



Option C - 7 turbines

Project:  
**Paul's Hill II Wind Farm,  
 Moray**

Title:  
**NTS Figure 1.4: Layout  
 Evolution**

**Key**  
**Proposed Paul's Hill II turbine**

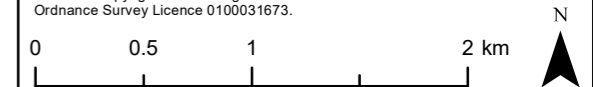
- 125 m to tip
- 134 m to tip
- 148 m to tip
- 149.9 m to tip
- 174.5 m to tip

Notes:  
 a) Information on this map is directly reproduced from digital and other material from different sources. Minor discrepancies may therefore occur. Where further clarification is considered necessary, this is noted through the use of text boxes on the map itself.  
 b) For the avoidance of doubt and unless otherwise stated:  
 1. where a line recorded in the key demarcates a boundary on this plan, the boundary edge is the outside edge of the line.  
 2. where a line or feature recorded in the key of this plan is also shown as a line or feature by the Ordnance Survey, and that line or feature is located in a different position on the ground than shown by the Ordnance Survey, then the line or feature shall be deemed to follow the position as existing on the ground.  
 3. this plan should be used for identification purposes only, unless specifically stated above or in accompanying documentation.  
 4. Natural Power Consultants Ltd. accepts no responsibility for the accuracy of data supplied by third parties.

**Scale @ A3: 1:35,000**

Coordinate System: British National Grid

© Crown Copyright 2018. All rights reserved.  
 Ordnance Survey Licence 0100031673.



Date: 23-03-18    Prepared by: AB    Checked by: TG

Ref: GB200325\_M\_456\_A    Layout: 57\_070917\_7t\_A

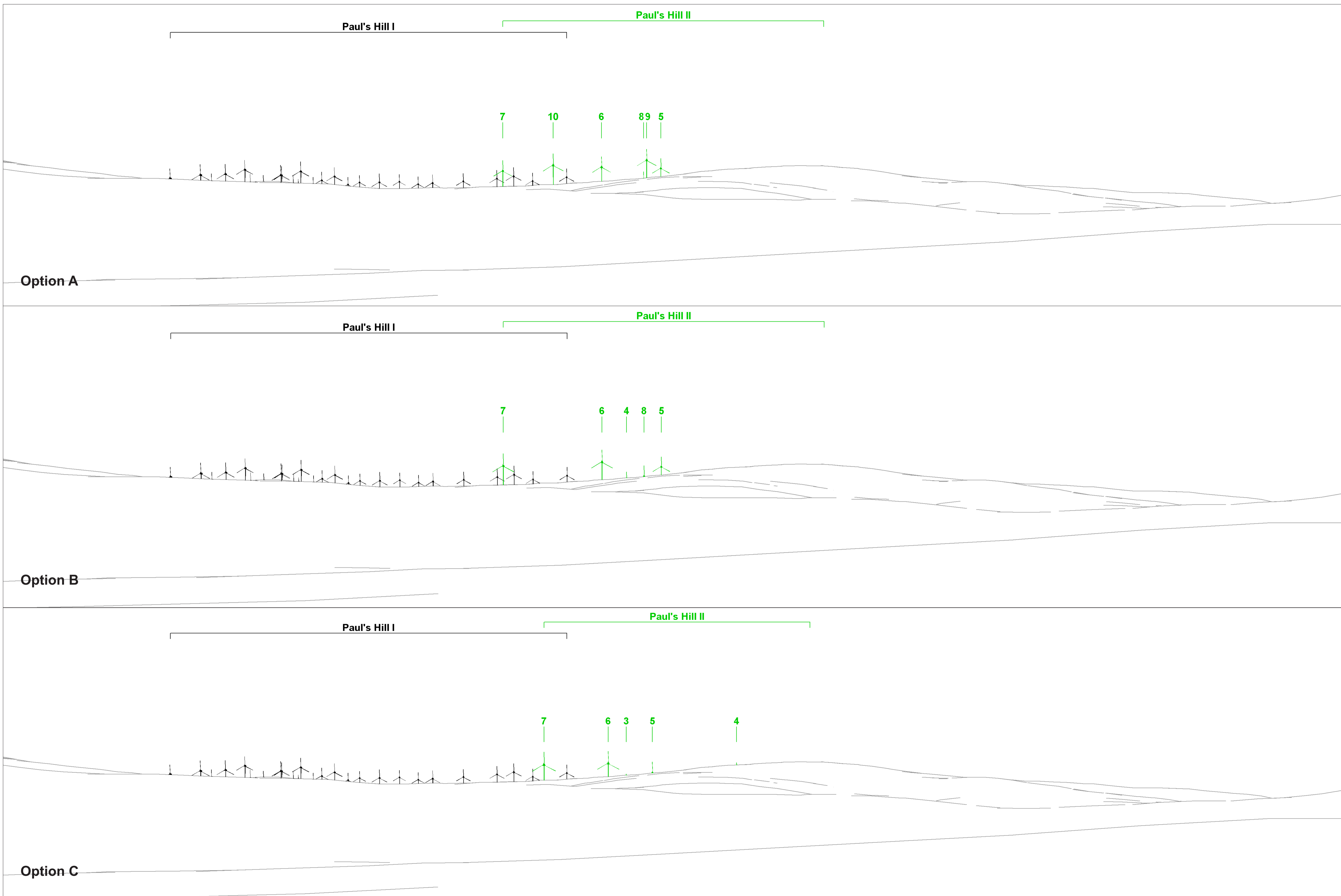
**Drawing by:**

Natural Power Consultants Ltd  
 The Green House  
 Forrest Estate, Dalry  
 Castle Douglas, DG7 3XS, UK  
 Tel: +44 (0)1644 430008  
 Fax: +44 (0)845 299 1236  
 Email: sayhello@naturalpower.com  
 www.naturalpower.com



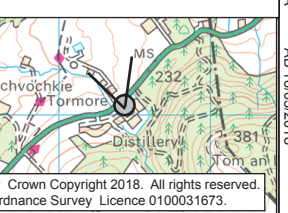
Client:

**Fred.Olsen Renewables**

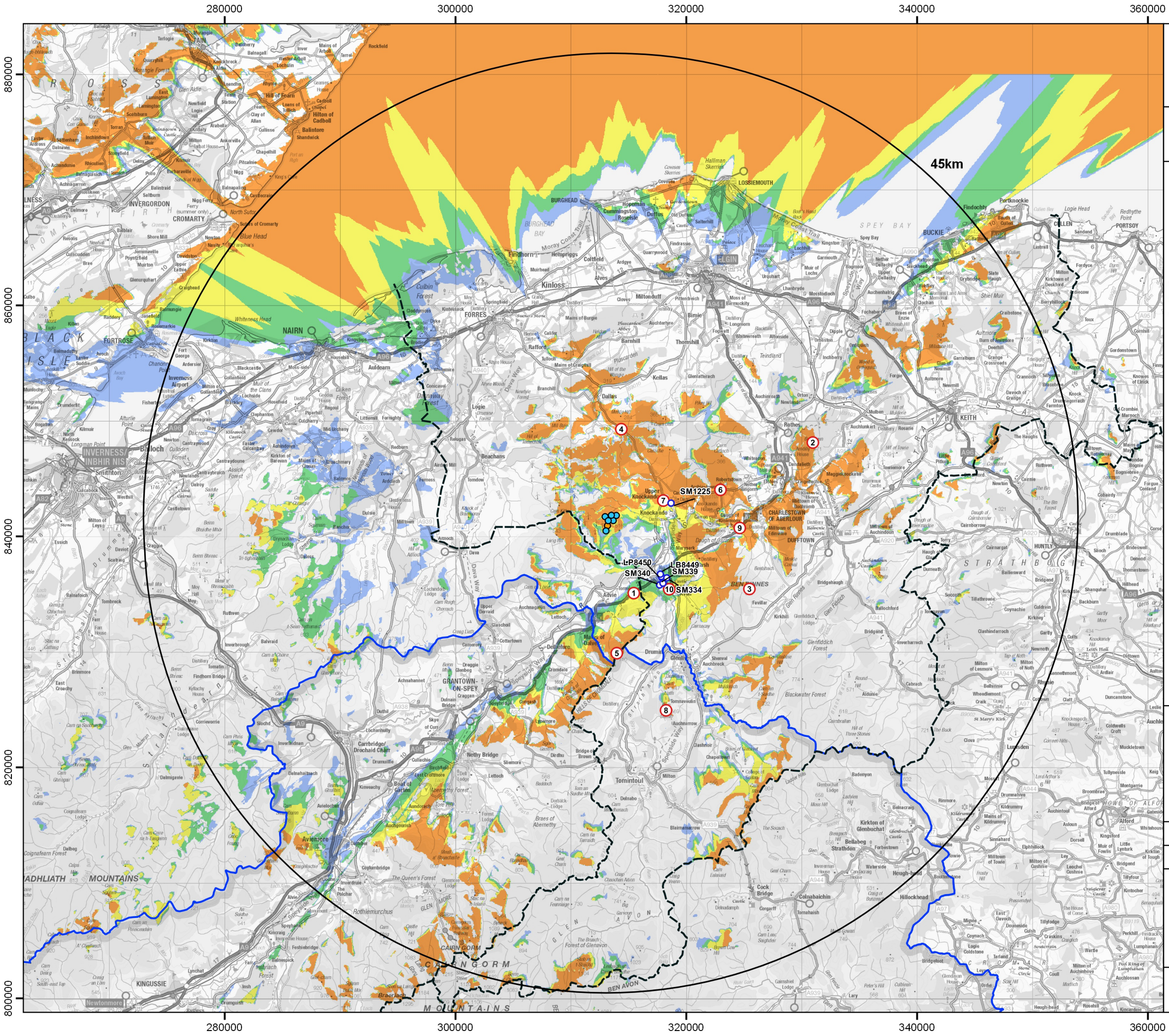


Paul's Hill II Wind Farm, Moray  
 NTS Figure 1.5: Layout Evolution Wirelines from Tormore Distillery

OS reference:	315441 E 835091 N	Horizontal field of view:	53.5° (planar projection)
Eye level:	229 m AOD	Vertical field of view:	12.5°
Direction of view:	341°	Paper size:	841 x 594 mm (A1)
Principal distance:	812.5 mm		



© Crown Copyright 2016. All rights reserved.  
 Ordnance Survey Licence 100031673



Project:  
**Paul's Hill II Wind Farm,  
 Moray**

Title:  
**NTS Figure 1.6: Blade Tip ZTV**

- Key**
- Proposed Paul's Hill II turbine (134 m to tip)
  - Proposed Paul's Hill II turbine (149.9 m to tip)
  - LVIA viewpoint
  - Cultural heritage viewpoint
  - Cairngorm National Park
  - Local Authority boundary

- Number of turbines theoretically visible to tip height:**
- 1-2
  - 3-4
  - 5-6
  - 7

**ZTV Notes:**

- \* Visibility takes earth curvature and atmospheric refraction into account but not buildings, trees or other surface obstacles.
- \* ZTV produced for 7 turbines, of which 6 are 149.9 m to tip, and 1 is 134 m to tip.
- \* Viewpoint height set to 2 m AGL.

- Notes:**
- a) Information on this map is directly reproduced from digital and other material from different sources. Minor discrepancies may therefore occur. Where further clarification is considered necessary, this is noted through the use of text boxes on the map itself.
  - b) For the avoidance of doubt and unless otherwise stated:
    1. where a line recorded in the key demarcates a boundary on this plan, the boundary edge is the outside edge of the line.
    2. where a line or feature recorded in the key of this plan is also shown as a line or feature by the Ordnance Survey, and that line or feature is located in a different position on the ground than shown by the Ordnance Survey, then the line or feature shall be deemed to follow the position as existing on the ground.
    3. this plan should be used for identification purposes only, unless specifically stated above or in accompanying documentation.
    4. Natural Power Consultants Ltd. accepts no responsibility for the accuracy of data supplied by third parties.

**Scale @ A3: 1:325,000**

Coordinate System: British National Grid  
 Contains Ordnance Survey data © Crown copyright and database right 2018  
 Contains public sector information licensed under the Open Government Licence v3.0.

0 2.5 5 7.5 10 km

Date: 23-03-18	Prepared by: AB	Checked by: TG
Ref: GB200325_M_457_A	Layout: 57_070917_7t_A	

Drawing by:  
 Natural Power Consultants Ltd  
 The Green House  
 Forrest Estate, Dalry  
 Castle Douglas, DG7 3XS, UK  
 Tel: +44 (0)1644 430008  
 Fax: +44 (0)845 299 1236  
 Email: sayhello@naturalpower.com  
 www.naturalpower.com

Client:  
**Fred. Olsen Renewables**



Natural Power acting as lead consultants  
on behalf of Fred. Olsen Renewables.

