



Wether Hill Windfarm Extension

Volume 1: Non-Technical Summary

November 2015

Preface

This document is the Non-Technical Summary of the Environmental Statement (ES) and has been prepared to accompany the planning application for the proposed Wether Hill Windfarm Extension. The proposed development is approximately 5 km north west of the village of Moniaive and 12 km east of the village of Carsphairn within Dumfries and Galloway.

The Environmental Statement comprises the following:

- Volume 1 Non-Technical Summary,
- Volume 2 Written Statement,
- Volume 3 Figures, and
- Volume 4 Technical Appendices.

Copies of the ES, for the proposed Wether Hill Windfarm Extension may be obtained from:

Wether Hill Windfarm Extension Project Team
ScottishPower Renewables (UK) Ltd
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Cathcart Business Park
Spean Street
Glasgow
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Or by emailing: wetherhillwindfarmextension@scottishpower.com

CD copies of the ES are available on request, as are hard copies of the Non-Technical Summary.

The ES is available for viewing by the public during normal opening hours at the following locations:

Dumfries and Galloway Council Development Management Kirkbank English Street Dumfries DG1 2HS	Watsons Grocers High Street Moniaive Thornhill DG3 4HN
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Comments in relation to the Planning Application should be forwarded to the address below:

Dumfries and Galloway Council
Development Management
Kirkbank
English Street
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1.0 Introduction

1. This Non-Technical Summary (NTS) summarises the Environmental Statement (ES) for the proposed Wether Hill Windfarm Extension. The ES accompanies an application for planning permission being made to Dumfries and Galloway Council, for the construction of a windfarm, under the Town and Country Planning (Scotland) Act 1997 as amended.
2. Wether Hill Windfarm Extension is referred to in this NTS and in the ES as ‘the proposed Development’. The proposed Development forms an extension to the adjacent 14 turbine Wether Hill Windfarm, and comprises 11 turbines with a maximum height to blade tip of 100 metres (m) providing an installed capacity in the region of 22 megawatts (MW), together with associated infrastructure.
3. The area required for the proposed Development is approximately 534 hectares, located immediately to the east and north of Wether Hill Windfarm, approximately 5 km north west of the village of Moniaive and 12 km east of the village of Carsphairn within Dumfries and Galloway as shown on Figure 1.
4. Environmental effects of the proposed Development have been considered as part of an iterative design process and included within the Environmental Impact Assessment (EIA). The results of the EIA are presented within the ES and summarised in this NTS. The ES informs readers of the nature of the proposed Development, likely significant environmental effects and measures proposed to protect the environment, during site preparation, construction, and the operation of the proposed Development.
5. Assessments as reported in this ES have been informed by work undertaken as part of the EIA process. Further details on the site history and selection are provided Section 4 of this NTS.
6. ScottishPower Renewables (UK) Limited (SPR) is part of Iberdrola, the world’s largest wind energy developer, with an operating portfolio of over 14,000 megawatts (MW). SPR is responsible for progressing Iberdrola’s onshore wind and marine energy projects in the UK and offshore windfarms throughout the world, managing the development, construction and operation of all projects.
7. Securing its position at the forefront of the renewable energy industry, SPR now has 30 operational windfarm sites producing over 1,600 MW including West of Duddon Sands, its first offshore windfarm project.
8. With a further 500 MW of onshore wind projects due to be constructed, SPR is set to maintain its position as the UK’s leading wind developer. With its 350 MW Wikingier Offshore Windfarm in the German Baltic Sea due to be constructed in 2017, and its East Anglia ONE Offshore Windfarm, which has full planning consent and a contract which will allow the company to develop up to 714 MW, they are set to position Iberdrola as the world’s leading offshore wind developer.

2.0 Renewable Energy Policy

9. The UK Government and the Scottish Government are committed to ensuring that an increased proportion of electricity is generated from wind power and other renewable energy sources. Improvements in technology have resulted in the cost of wind power converging towards the costs of conventional sources of electricity.
10. The Climate Change Delivery Plan: Meeting Scotland's Statutory Climate Change Targets (Ref 2-1) was published in 2009, setting out the high level measures required in each sector to meet Scotland's statutory climate change targets to 2020. The Climate Change (Scotland) Act (Ref 2-2) was passed in August 2009, creating a statutory framework for greenhouse gas emission reductions and required Scottish Ministers to set annual targets for Scottish emissions from 2010 to 2050
11. The Climate Change (Scotland) Act 2009 (Ref. 2-2) aims for an 80% reduction in Scotland's greenhouse gas emissions by 2050 and includes an interim target of a 42% reduction by 2020 (compared to 1990 levels). In 2007 the Scottish Government set a target for the supply of 50% of Scotland's electricity from renewable sources by 2020, and in May 2011 revised its targets and now aims to provide 100% of Scotland's electricity generation from renewable sources by 2020.
12. The 2020 Routemap for Renewable Energy was published in June 2011 (Ref. 2.3) This document sets out a Scottish Government target to meet an equivalent of 100% demand for electricity from renewable energy by 2020. Given the proven status of the technology, and the known and anticipated quantity of applications in the system, the Routemap notes that onshore wind is expected to provide the majority of capacity in the timeframe of the 2020 renewable electricity targets.
13. In September 2015, the Scottish Government published the 2020 Routemap for Renewable Energy in Scotland-Update (Ref. 2-4). The foreword of this document advises that provisional figures show that renewable sources generated 49.8% of gross electricity consumption in 2014. While this suggests that Scotland is on target to meet the interim target of 50% by 2015 it is clear that Scotland should not underestimate the challenges that lie ahead in meeting future targets. The document is clear that onshore wind has a pivotal role in delivering the 2020 renewable energy targets for Scotland.

3.0 Environmental Impact Assessment (EIA)

14. Under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 ('the EIA Regulations') (Ref. 3-1), the Proposed development is considered likely to have significant effects on the environment must undergo the process of EIA and an ES must be submitted with the application.
15. Potential environmental effects have been assessed to identify any that may be significant in the context of the EIA Regulations. Mitigation is proposed where possible to prevent, reduce or offset significant effects.
16. In accordance with the EIA Regulations, the assessment has also considered 'cumulative effects'. By definition these are effects that result from incremental changes caused by past, present or reasonably foreseeable actions together with the proposed Development.

4.0 Site Selection, Alternatives and Design Strategy

Site selection

17. SPR's site selection process is designed to identify potential windfarm sites that are financially and technically viable, environmentally acceptable, most likely to obtain planning approval, and make meaningful contributions to Scotland's targets for renewable energy generation.
18. SPR is committed to avoiding the development of windfarms in areas where there would be an unacceptable effect on environmentally designated sites and where mitigation measures are likely to be unacceptable. SPR is also committed to not considering sites that have an unacceptable effect on landscape character or amenity of National Parks and National Scenic Areas, and special consideration is attributed to internationally and nationally important species and habitats in the wider area.
19. Site selection work by SPR is an ongoing process, whereby a list of candidate sites is maintained and updated as new opportunities are identified and candidate sites move into development. Candidate sites are identified initially through a desk based exercise which includes the consideration of issues such as site capacity, distance from properties, exposure and topography, site access and proximity to a potential electricity grid connection point.
20. The proposed Development site was short-listed due to a number of factors, including the following:
 - the majority of the site is Located within an Area of Greatest Potential for Largescale Typologies (over 80 m to tip) development as identified in the Dumfries and Galloway Local Development Plan;
 - opportunity to extend an existing windfarm, which increases operational efficiency while reducing additional effects when compared to a new site for a project of a similar size;
 - use of existing infrastructure;
 - good wind resource;
 - suitable topography;
 - potential to coexist with existing land use;
 - it is accessible for construction traffic and turbine deliveries;
 - lack of statutory nature conservation designations on the site;
 - potential to achieve satisfactory relationship with landscape; and
 - location in which a development can accord with the principles set out in Scottish Planning Policy (SPP) (Ref. 4-1) in relation to renewable energy.

Design approach

21. The purpose of a windfarm is to harvest the energy of the wind and convert this to electricity. The process of turbine siting is a balance between maximising energy yield, and minimising potential for adverse environmental effects. The main environmental parameter affecting design is often landscape and visual effect, but other factors such as ornithology, noise and ecological effects also carry considerable weight.
22. This combination of environmental, design and technical parameters has, through the iterative process of the environmental assessment, resulted in the proposed layout. It is considered that the proposal therefore represents an optimum fit within the technical and environmental parameters of the project. A range of layout options were refined through an iterative process of design.
23. Based on analysis and field work observations, a design concept for the proposed Development was generated identifying the preferred areas for turbines within the site. The main design objectives were as follows:
 - create a windfarm of a size and number of turbines that relates to the scale and nature of the landscape in which it is located;

- create a simple and coherent layout,
 - create a design which relates to the Wether Hill Windfarm;
 - create a design which respects other technical constraints including ecological, geological and hydrological constraints; and
 - create a design which takes account of relevant national, regional and local policy and guidance.
24. Considerable effort was made to produce a turbine layout which achieves the most satisfactory relationship with the landform of the site and would achieve a satisfactory relationship with the existing Wether Hill Windfarm, whilst respecting other environmental, economic and technical considerations, including several landscape and visual objectives which were identified in consultation with SNH and DGC. On numerous occasions, a multi-disciplinary team met to discuss the various issues which were identified as part of the constraints mapping process described below. The team identified the optimal locations for the proposed turbines and associated infrastructure. The use of a similar sized turbine (100 m compared to 91 m turbines at Wether Hill Windfarm) provides reasonable visual consistency.

5.0 Windfarm Proposal

25. The layout of the proposed Development is shown on NTS Figure 2. The operational windfarm would include the following key components:
- 11 turbines of up to 100 m in height to blade tip and associated concrete foundations;
 - hardstanding areas at each turbine base;
 - one permanent meteorological mast and associated access track;
 - one substation building and compound;
 - 11 transformer/switchgear housings, potentially located adjacent to turbines with associated underground cable runs;
 - onsite underground electrical and communication cables;
 - a total of 5.4 km of new onsite access tracks (including passing places and turning circles) and associated watercourse crossings;
 - site signage;
 - installation of close circuit television and communication mast; and
 - one radar unit and associated compound and associated access track
26. In addition to the above components of the operational windfarm, the construction phase would involve the following:
- a temporary construction compound and laydown area;
 - two laydown areas;
 - felling of approximately 71.6 ha of forestry to accommodate turbines and associated infrastructure;
 - three temporary borrow pits for the extraction of stone and associated 60 m of temporary access tracks; and
 - up to three temporary Power Performance Masts (PPM).
27. It is estimated that approximately 69,255 m³ of stone aggregate would be required for construction of the proposed Development. It is anticipated that stone aggregate would be sourced from up to three onsite borrow pits and used for the construction of the proposed Development including access tracks, crane hardstandings, substation compound, construction compound and laydown areas. This includes suitable capping material to form a hard wearing surface on the access tracks. However for the purposes of considering the worst case traffic impact within this ES, it has been assumed that 30% of the required aggregate would be imported.
28. An area of approximately 71.6 ha of forestry would require to be felled during the construction phase to accommodate the proposed turbines and associated infrastructure. There would be a 12.76 ha net loss of stocked woodland area as a result of the Development. In line with the Scottish Government's Control of Woodland Removal Policy, compensatory planting of an area equivalent to the net loss will be undertaken.
29. As a result of any possible issues encountered during site construction (e.g. unsuitable ground conditions), it may be necessary to microsite elements of the proposed Development (i.e. revise the location of infrastructure to a more suitable place). It is proposed that a 50 m micro-siting tolerance from turbines and other infrastructure would be applied to the proposed Development and that within this distance any micrositing would be agreed in advance with specialist advisors such as ecologists and/or archaeologists. Technical studies have been undertaken to identify potential access routes to the proposed Development site, and these have been supplemented by the experience gained during the construction of Wether Hill Windfarm. This has enabled the identification of routes for the road transportation of abnormal loads such as wind turbine components (e.g. tower sections, nacelle and blades) using specialised heavy transport vehicles as well as Heavy Goods Vehicles (HGVs) and other vehicles.

30. It is anticipated that turbine towers, nacelles and blades would be delivered to Port of Ayr harbour. These would then be transported to site via the A702 and B729 roads, using the same route that was used for the delivery of turbine components for Wether Hill Windfarm.
31. The principal construction access to the proposed Development would be from the existing Wether Hill Operations entrance off the B729, 9.5 km north west of the village of Moniaive.
32. The proposed Development would require an electrical connection to the main grid network. A new substation compound location has been identified within the site, which would be utilised for a grid connection. The grid connection does not form part of this planning application and would be subject to a separate design and consent process undertaken by the National Grid Company and or ScottishPower Energy Networks.
33. The lifespan of the proposed Development is 25 years. The decommissioning period for a windfarm of this size would be approximately one year.

6.0 Legal and Policy Framework

Legislative context

34. The proposed Development comprises 11 turbines with a maximum height to blade tip of 100 m providing an installed capacity in the region of 22 megawatts (22 MW), together with associated infrastructure and as such an application for planning permission is being made to Dumfries and Galloway Council (D&GC), under the Town and Country Planning (Scotland) Act 1997 as amended (Ref 6-1).
35. The proposed Development is a 'major' development as defined by the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009 (Ref 6-2). Regulation 2(1)(b) of the Hierarchy Regulations advises that an extension whether to an existing major or local development is to be treated as major where the extension alone would meet or exceed the relevant threshold or criteria, which in this case is "the capacity of the generating station is or exceeds 20 megawatts".

Development Plan Position

36. Sections 25 and 37 (2) of the Town & Country Planning (Scotland) Act 1997 as amended by the Planning etc. (Scotland) Act 2006 require that planning decisions be made in accordance with the Development Plan unless material considerations indicate otherwise.
37. The Development Plan for the proposed Development comprises the Dumfries and Galloway Council Local Development Plan 2014 (DGCLDP) (Ref 6-3). The DGCLDP policies against which the application will be assessed are detailed below.

The Dumfries and Galloway Local Development Plan (29 September 2014)

38. The DGCLDP was adopted by Dumfries and Galloway Council on 29th September 2014.
39. The Interim Spatial Framework Guidance for Large Typologies (over 80 m to blade tip) Map 9, of the DGCLDP, shows the majority of the proposed Development as being within an Area of Greatest Potential.
40. The key policies relating to windfarm development set out in the DGCLDP are IN1 and IN2. These policies are set out in full in the ES.

Dumfries and Galloway Local Development Plan Supplementary Guidance: Part 1 Wind Energy Development: Development Management Considerations, March 2015 (DGCSPG)

41. The DGCSPG (Ref 6-4) is supplementary to the DGCLDP and has the same status as the DGCLDP. Part 1 provides additional guidance and supports Policy IN1 and IN2 within the DGCLDP as set out in the above section. It was formally adopted in March 2015 following review by Scottish Ministers.
42. The DGCSPG provides advice on a number of development management matters when considering the acceptability of a windfarm development in the context of the DGCLDP. This document is considered in the ES.

Material Considerations

43. There are a number of material considerations which are considered to be relevant to the proposed Development. These include those documents relating to planning policy in Scotland, in particular those that are relevant to the proposed Development and its potential effects. This group includes the Third National Planning Framework, Scottish Planning Policy, National Planning Advice and the Scottish Governments Online Renewables Advice for onshore wind turbines. The second group of documents are international, UK, and Scottish renewable energy policy documents.

7.0 Scoping and Consultation

44. The purpose of scoping and pre-application consultation is to:
- ensure that statutory consultees and other bodies with a particular interest in the environment are informed of the proposal and provided with an opportunity to comment at an early stage in the EIA process;
 - obtain baseline information regarding existing environmental site conditions;
 - establish key environmental issues and identify potential effects to be considered during the EIA;
 - identify those issues which are likely to require more detailed study and those which can be justifiably excluded from further assessment; and
 - provide a means of confirming the most appropriate methods of assessment.

Scoping

45. Scoping was undertaken at the outset of the assessment process according to the guidance provided in Planning Advice Note (PAN) 1/2013: Environmental Impact Assessment (Ref. 7-1).
46. A request for a scoping opinion was submitted by SLR Consulting Limited to D&GC. The scoping opinion was received from D&GC in July 2013
47. The request for a scoping opinion formed the basis for early consultation with a number of organisations, who were asked for relevant information, opinions on the proposed Development and views on the proposed assessment methodologies.
48. The output from all the consultation responses collated during the Scoping process is addressed in the ES.

Consultation

49. The process of consultation is critical to the development of a comprehensive and balanced ES. Views of the key statutory and non-statutory consultees serve to focus the environmental studies and to identify key specific issues which may require further investigation.
50. A comprehensive understanding of the requirements/views of consultees has been sought as part of the EIA process. This has informed the project development and EIA process undertaken for the proposed Development. In addition to the public consultation undertaken between 2013 and 2015, a range of statutory bodies, non-statutory bodies, community councils and landowners were consulted specifically in relation to the proposed Development.
51. Public consultation is seen as a key element of the environmental assessment process. Further information on this is contained in the Pre Application Consultation Report.

8.0 Technical Information

Landscape and Visual Impact Assessment

52. The Landscape and Visual Impact Assessment (LVIA), Chapter 7 of the ES, identifies the anticipated effects of the proposed Development on the landscape fabric of the site, as well as the effects on the landscape character, designated landscapes and visual amenity of a 30 km study area. It also assesses the cumulative effects of the proposed Development with operational, consented and proposed windfarms within 35 km. The approach to the LVIA, extent of study areas, viewpoint locations and list of cumulative windfarms included in the assessment were all agreed through consultation with D&GC and Scottish Natural Heritage (SNH). Consultation with members of the public was also carried out at public information days held in Carsphairn and Moniaive.
53. The LVIA has been carried out in accordance with current best practice guidance, in particular the Guidelines for Landscape and Visual Impact Assessment, 3rd edition (Ref. 8-1).
54. The baseline conditions of the study area are described with reference to current landscape planning policy and the Dumfries and Galloway Landscape Assessment, review of maps and Zones of Theoretical Visibility (ZTV) for the study area, as well as field survey observations.
55. The proposed Development would be located adjacent to the operational Wether Hill Windfarm in the Ken Unit of the Southern Uplands with Forest Landscape Character Type. The majority of the proposed Development would be located in an area identified in the Dumfries and Galloway Local Development Plan (Ref. 6-3), as being an Area of Greatest Potential for 'Large Typologies' (over 80 m to blade tip).
56. The siting and layout of the proposed Development was subject of a landscape led design process described in Chapter 3 of the ES. Particular attention was given to the relationship of the proposed turbines with the operational Wether Hill Windfarm (100 m compared to 91 m turbines at Wether Hill Windfarm), the landform of the site and immediately surrounding area, the existing baseline conditions, as well as other environmental and technical constraints in producing the proposed Development. This has resulted in two groups of turbines: one to the north west; and one to the south east of the operational turbines; of similar size as the Wether Hill Windfarm. The proposed Development has a very similar ZTV to the operational Wether Hill Windfarm and is quite limited in extent, being mainly confined to higher ground within the southern part of the study area and parts of the valley landscapes close to the site. There are very few areas of additional visibility where only the turbines of the proposed Development would be visible. These areas would mainly occur immediately to the east of the site.
57. As a consequence of this approach, the occurrence of significant effects on landscape character and visual amenity from the proposed Development with the operational and consented windfarms in the study area would be limited in geographic extent, and mainly confined to areas within approximately 10 km of the site. There are a large number of proposed windfarms within the study area. The cumulative magnitude of change attributable to the proposed Development would reduce if all of these windfarms were constructed.

Ornithology

58. Chapter 8 of the ES, Ornithology considers the potential effects of the proposed Development on ornithology. It details the methods used to establish the bird species and populations present, together with the process used to determine their Nature Conservation Importance. The ways in which birds might be affected (directly or indirectly) by the construction and operation of the proposed Development are explained and an assessment is made with regards the significance of these effects.
59. The assessment is structured around the consideration of potential effects, including cumulative effects, of: construction and operation of the proposed Development upon those ornithological receptors identified during survey work.

60. The assessment method follows the process set out in the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 ('the EIA Regulations') (Ref. 3-1).
61. A number of desk-based studies and field surveys were carried out in and around the proposed Development over respective 'study areas' to establish baseline conditions and the species and populations present.
62. Surveys revealed a typical bird assemblage for the area in and around the proposed Development with a total of 85 species recorded, of which a number bred within respective study areas.
63. It was possible to 'scope out' the effects on a number of species of higher Nature Conservation Importance by virtue of their ecology, absence, distance from the proposed Development, small numbers, low levels of activity and the nature and location of this activity.
64. Only two bird species were included in the assessment, red kite and peregrine. Both species were considered of Moderate Nature Conservation Importance due to their listing as Annex I (Birds Directive) and Schedule 1 (Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004) (Ref. 8-2) birds.
65. All disturbance and displacement effects during construction and operation of the proposed Development on red kite and peregrine are considered to be Negligible.
66. Collision mortality estimates during windfarm operation for are low, with collision risk estimates of 0.0298 and 0.00128 per annum for red kite and peregrine respectively.
67. All effects on red kite and peregrine are considered to be Minor or Negligible and Not Significant under the terms of the EIA Regulations.
68. Good practice measures have also been proposed prior to construction and during construction in order that these effects identified can be avoided or reduced further, where appropriate. All residual effects are also assessed as Minor or Negligible and Not Significant under the terms of the EIA Regulations.
69. The cumulative assessment concludes that it is not considered likely that any significant cumulative effects would arise on red kite and peregrine as a result of the proposed Development.

Non-Avian Ecology

70. Chapter 9 of the ES, Non-Avian Ecology chapter considers the potential effects of the proposed Development on non-avian ecology. It details the methods used to establish the ecological receptors present and the value of these ecological receptors. An assessment is made with regards to the effects the proposed Development may have on non-avian ecology along with the significance of these effects.
71. The assessment is structured around the consideration of potential effects, including cumulative effects, of: construction and operation of the proposed Development upon those valued ecological receptors identified during survey work.
72. The assessment method follows the process set out in the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 ('the EIA Regulations') (Ref. 3-1).
73. A number of desk-based studies and field surveys were carried out in and around the proposed Development over respective 'study areas' to establish baseline conditions and habitats and species present.
74. Extended Phase 1 Habitat and National Vegetation Classification (NVC) surveys in 2013 revealed a dominance of wet modified bog and semi-improved acid grassland communities within the respective study area, a substantial area of commercial conifer plantation also exists in the north. A number of other habitat types (e.g. marshy grassland and flushes) also exist but their extents are much smaller. A number of potentially Groundwater Dependent Terrestrial Ecosystems (GWDTEs) were identified as well as Habitats Directive Annex I habitats.

75. Various protected species surveys carried out throughout 2013 recorded the presence of badger, bats, otter, red squirrel, adder and common lizard at or near the proposed Development. Activity by all protected species recorded was low; furthermore many field signs recorded in the study area were large distances from any proposed infrastructure and were outwith the application boundary. Fisheries surveys also recorded juvenile salmon and trout in greatly varying numbers within a number of watercourses draining the catchment of the proposed Development.
76. It was possible to 'scope out' effects on a number of Valued Ecological Receptors (VERs), i.e. valued habitats and species, by virtue of their absence, distance from the proposed Development, or small number or extent.
77. The effects on three 'scoped in' VERs were considered within this assessment; wet modified bog, badger, and bats. All VERs identified and assessed were attributed no greater than Local nature conservation value.
78. Wet modified bog losses as a result of the proposed Development would be small with 2.91 ha, or 2.04% of the site, predicted to be lost as a direct result of windfarm construction.
79. All effects on badgers and bats were considered to be Negligible given their low levels of activity in and around the proposed Development and their distribution in relation to any proposed infrastructure.
80. The effects on all VERs assessed, including cumulative effects, were considered to be Minor or Negligible and Not Significant under the terms of the EIA Regulations, prior to any mitigation. All residual effects were also considered to be Minor or Negligible.

Soils, Geology and the Water Environment

81. Chapter 10 of the ES considers matters relevant to hydrology, geology and hydrogeology. The proposed Development has been assessed in relation to the potential impact on the soils, geology and water environment during the construction and operational phases.
82. Information on the study area was compiled using baseline information from a desk study and field work. The assessment was undertaken considering the sensitivity of any receptors identified during the baseline study and considering any mitigation measures incorporated as part of the site design.
83. The proposed Development is located in an area which is not considered to be sensitive in relation to soils, land use and geology.
84. The site design has largely avoided the few smaller areas of deep peat and it has been shown that the shallow soils that would be excavated as a consequence of development can be readily accommodated on site.
85. The proposed Development is located in the catchments of the Water of Ken, the River Dee and the River Nith which are salmonid protected watercourses. The proposed Development is also located in a Drinking Water Protection Area with a very small number of identified private water supplies downstream of the development. It is therefore considered to be in the vicinity of sensitive receptors relating to the water environment. The site lies outside any floodplains.
86. Mitigation measures have been identified, either through the site design or in accordance with good practice guidance.
87. Specifically, measures have been proposed to safeguard the local watercourses which discharge to the River Nith and Water of Ken. Measures have also been proposed to safeguard local water abstractions. These measures include, maintaining a standoff of at least 50 m from any part of the proposed site infrastructure to watercourses and establishing a water quality monitoring programme to record water quality which can be used to assess for trends in water quality during site construction and operation.
88. Measures have also been proposed to manage the quantity and quality of runoff that could be generated by the proposed Development. Sustainable Drainage Systems (SuDS) have been proposed to assure that the rate of runoff from the site post development is no greater than

that prior to development so as not to increase flood risk. The proposed SuDS measures allow the quality of water to be managed at source prior to any discharge being made. No direct discharge of water is proposed to watercourses.

89. These measures have been shown to eliminate any significant residual effect associated with the construction and operation of the proposed Development on soils, geology and the water environment after the incorporation of mitigation measures. In addition, it is concluded that the proposed Development would not result in a cumulative effect on soils, geology or the water environment.

Cultural Heritage

90. Cultural Heritage is considered in Chapter 11 of the ES. A baseline study and impact assessment of the cultural heritage of the site and the surrounding region has been undertaken. The baseline study has considered data from a diverse range of sources in order to determine the presence of cultural heritage assets which may be affected by the proposed Development. The baseline has found that there are nine heritage assets within the site. None of these are designated. The potential for unknown assets at the site is low.
91. The region surrounding the site has a wide range of cultural heritage assets, including a number of nationally designated ones. The landscape visible today largely appears to be a result of post-medieval activity, particularly in the upland parts, including the site. The earlier records of human activity, especially those relating to the Bronze Age are more prevalent in the lower lying parts of the region.
92. The proposed Development has been designed such that, with appropriate mitigation measures during construction, there would be no direct impacts on heritage assets within the site.
93. Significance of effect of impacts on the settings of designated assets or assets of designatable quality within the wider landscape are expected to be Negligible or in the case of Castle Hill fort and Moniaive Conservation Area, Minor.

Noise

94. Chapter 12 of the ES, Noise presents an assessment of the potential construction and operational noise effects of the proposed Development on the residents of nearby dwellings. Noise would be emitted by equipment and vehicles used during construction of the windfarm and by the turbines during operation. The level of noise emitted by the sources and the distance from those sources to the receiver locations are the main factors determining levels of noise at receptor locations. The assessment takes into account residential dwellings located in the vicinity of both the proposed windfarm and the proposed construction traffic routes. An assessment of the potential cumulative operational effects of the proposed Development with other known windfarms is also included.
95. Construction noise has been assessed by a desk based study of a potential construction programme and by assuming the windfarm is constructed using standard and common methods. Noise levels have been calculated for receiver locations closest to the areas of work and compared with guideline and baseline values. Construction noise, by its very nature, tends to be temporary and highly variable and therefore much less likely to cause adverse effects. Various mitigation methods have been suggested to reduce the effects of construction noise, the most important of these being suggested restrictions of hours of working. It is concluded that noise generated through construction activities would have Negligible to Minor effects and considered Not Significant in EIA terms.
96. Some rock extraction from borrow pits by means of blasting operations would be required. Given the relatively large separation distances between the location of borrow pits and the nearest noise sensitive receptors it is unlikely that these activities would cause unacceptable effects. These activities are best controlled following the use of good practice during the setting and detonation of charges, carried out in consultation with D&GC.

97. Noise levels from operation of the turbines have been predicted for those locations around the site most likely to be affected by noise. Surveys performed for the Wether Hill Windfarm established existing baseline noise levels at two properties. Noise limits have been derived from this established baseline in accordance with the planning permission for Wether Hill Windfarm and agreed through consultation with D&GC. Predicted noise levels take full account of the potential combined effect of the noise from the proposed Development along with the operating Wether Hill Windfarm and the proposed Longburn Windfarm. There are other windfarms nearby: the proposed Euchanhead Windfarm, the proposed Stroanshalloch Windfarm and the proposed Lorg Windfarm but these schemes are at scoping and not yet submitted so have not been included within the cumulative assessment. Other, more distant windfarms were not considered as they do not make an acoustically relevant contribution to cumulative noise levels. Predicted operational noise levels have been compared to the limit values to demonstrate that turbines of the type and size which would be installed can operate within the limits so derived. It is concluded therefore that operational noise levels from the windfarm would be within levels deemed, by national guidance, to be acceptable for wind energy schemes and considered Not Significant in EIA terms.

Access, Traffic and Transport

98. Chapter 13 of the ES, Access, Traffic and Transport, considers the transportation impacts associated with the proposed Development.
99. Site access would be via the B729 and the Wether Hill Windfarm access track, used for the construction of the existing Wether Hill Windfarm turbines. This route would be used during all stages of the development, from construction to decommissioning.
100. Turbine components would be delivered to the port of Ayr by sea and from there to the proposed site access by road, carried as abnormal loads to the Wether Hill Windfarm Extension access on the B729. Construction materials would be sourced as locally as possible (with the majority of aggregate materials required for track construction sourced from on-site borrow pits) and would utilise the same access road as the abnormal loads.
101. The Access, Traffic and Transport chapter has been prepared according to the guidance document Transport Assessment and Implementation: A Guide published by the Development Department of the Scottish Executive in 2005 (Ref. 8-3). The chapter also takes account of the Institute of Environmental Management and Assessment (IEMA) Guidelines and other departmental design standards as referenced.
102. Windfarm developments are associated with two key forms of potential impact: those from the transport of wind turbine components in transport configurations which are abnormal loads (ALLs), and those as a result of the import of general construction materials. Both forms of potential impact are considered in this chapter.
103. During operation, the proposed development would generate occasional maintenance trips, which would not lead to any variation in the baseline traffic flows beyond that of every day fluctuation. Therefore the focus of the assessment within this chapter is the construction phase.
104. The construction phase of the proposed Development would lead to HGV trips, the quantity of which would vary through the construction period.
105. Light vehicle trips will be associated with construction workers' trips to site, together with trips during the day (couriers, site visits etc). It is estimated that there would be 50 light vehicle movements per day.
106. The effects of the development on receptors including road capacity, road safety, pedestrians / cyclists etc. has been assessed in accordance with the current guidelines. The assessment identifies that the majority of effects would only be of Minor significance during the construction phase, rising to a moderate significant effect on days when concrete foundations are poured (22 isolated and non-sequential days).
107. The anticipated effects of the development would be mitigated through the implementation of a Traffic Management Plan for the movement of abnormal loads and other construction vehicles

to the site, including a trial run of abnormal loads, road conditions surveys and the provision of special traffic management measures on the days of concrete pouring of turbine foundations.

Socio-economics, Tourism, Recreation and Land Use,

108. Chapter 14 of the ES, Socio-economics, Tourism, Recreation and Land Use, sets out the likely socio-economic, tourism and recreation effects associated with the proposed Wether Hill Windfarm Extension (the proposed Development) and the likely significance of these.
109. The assessment of the socio-economic (employment and economic) impact of the proposed Development has been broken down into two phases with indicative timescales: construction (1.5 years) and operation (25 years).
110. The assessment of the proposed Development on socio-economic, tourism and recreation has reached the following conclusions:
- moderate positive effects on direct and indirect local employment and the local economy are predicted due to the proposed Development during the construction phase;
 - minor positive effects on direct and indirect local employment and the local economy are predicted due to the proposed Development during the operations phase;
 - the proposed Development would make a small contribution of high quality permanent jobs in the study area and for Scotland as a whole; and
 - in terms of recreation there is a wealth of substitutes for walking and cycling which would not have views of the proposed Development. The ready availability of alternative substitutes means that the potential impacts on the tourism and recreation industries in the study area are expected to be Negligible.
111. It is estimated that Wether Hill Windfarm Extension would create the following economic benefits during its lifetime (development, construction, operation and maintenance):
- £65.34 million in the UK economy, including;
 - £31.46 million in Scotland, of which; and
 - £17.77 million in Dumfries and Galloway.
112. Overall the proposed Development is therefore expected to have a moderate positive economic impact and a Negligible impact on tourism and recreation.
113. Across our windfarm projects, SPR has provided community benefit of more than £15 million, with more than £1.13 million delivered within Dumfries and Galloway through our existing Wether Hill and Harestanes Windfarm Community Benefit payments (Wether Hill has contributed more than £430,000). Through SPR's community benefit and other sponsorships, SPR has supported, sponsored and facilitated a number of tourist and local events in the area, including the Moniaive Folk Festival, Moniaive Blue Grass Festival, Carsphairn Show, British Pipe Band Championships, 'Tour Doon Hame' road race and various other local initiatives. Although not a material consideration for the planning process, SPR would provide further community benefit from the proposed Development.
114. The proposed Development is predicted to provide a minor positive contribution to the policy targets of Low Carbon Economic Strategy (LCES) (Ref. 8-4) to increase the low carbon sector jobs and in delivery of the Routemap in developing the skills needed for the energy sector in Scotland. The proposed Development is also relevant to the sustainable development principles for onshore windfarms contained within Scottish Planning Policy (Ref. 4-1) having direct impacts on net economic benefit, supporting climate change mitigation and having regard to the principles for sustainable land use.

Other Issues

115. A number of other issues associated with windfarm development were considered, including potential effects on aviation and defence, telecommunications, television reception, air quality, ice throw, shadow flicker and carbon balance.
116. No significant disruption to telecommunications and television reception is anticipated as a result of the proposed Development, and no effects on aviation safety have been identified that cannot be mitigated by technical solutions.
117. Shadow flicker can arise from the moving shadow of the turbine rotor blade passing over a narrow opening such as the window of a nearby residence. However, the separation distance between nearby properties and the proposed turbine locations is sufficient that no shadow flicker effects would occur as a result of the proposed Development.
118. The risk to public safety from ice throw (ice building up on turbine blades and falling to the ground) is considered to be low. Appropriate measures are proposed in order to safeguard the safety of operations staff and members of the public.
119. The potential for adverse effects on local air quality during construction is considered to be minor, temporary and Not Significant. During operation, the proposed Development would contribute to a beneficial effect on local and global air quality, by avoiding emissions due to the generation of electricity by burning fossil fuels. A carbon assessment has been undertaken to estimate the potential savings in carbon dioxide (CO₂) emissions by the proposed Development replacing other electricity sources. The proposed Development has a payback time of between 1.3 and 3.7 years, which is substantially shorter time than the 25 year operation period. This would positively contribute to meeting Scotland's targets for reducing greenhouse gas emissions.

9.0 Summary

120. Environmental constraints and considerations have been taken into account in the site layout and windfarm design. This has enabled potentially significant effects to be avoided. Further measures to prevent or reduce any remaining significant environmental effects are described within each environmental discipline chapter of the ES.
121. Mitigation measures as detailed in the ES have been identified to protect the environment prior to or during construction, during operation and decommissioning of the proposed Development.
122. SPR and the Principal Contractor would oversee operations and ensure that mitigation measures are implemented and activities carried out in such a manner as to minimise or prevent effects on the environment. The Principal Contractor would be supported by specialists such as an Ecological Clerk of Works to ensure that the mitigation measures are implemented effectively.
123. The proposed Development represents various design changes including a reduced number of turbines to address the key considerations raised during the public consultation phase with regard to local landscape and visual aspects and in particular potential effects on nearby residential receptors to the north and west of the proposed Development.
124. Provided that the proposed mitigation measures are successfully implemented, the residual effects related to most environmental disciplines would not be considered significant effects in the context of the EIA regulations, with the exception of the effect on road users on concrete pour days, and landscape and visual effects.
125. The proposed Development together with the operational Wether Hill Windfarm would be perceived as a single windfarm, the turbines of which are considered to relate to the underlying landform and the immediately surrounding area in terms of extent and scale. The proposed Development would result in some localised and significant effects within the Dalwhat Water valley, on the adjacent summits and on the summits above the valleys of Cairn Water and Shinnel Water. However, the extent of significant effect through the wider landscape would be localised and limited in extent as described in Chapter 7, Landscape and Visual Impact Assessment.
126. All onshore windfarm development is likely to give rise to some significant landscape and visual effects. In the case of the proposed Development, the significant effects on landscape character and visual amenity would be limited in geographic extent.
127. The proposed Development would represent an important environmental benefit in that it involves the generation of electricity from a renewable energy source that would reduce or avoid the use of fossil fuels through the contribution of electricity generated from other sources of energy. Burning fossil fuels produces carbon dioxide which contributes to global warming. The proposed Development has a payback time of between 1.3 and 3.7 years, which is substantially shorter time than the 25 year operation period. The proposed Development would also lead to moderate positive beneficial effects in relation to its employment creation during construction.
128. Through the existing Wether Hill Windfarm Community Benefit payments, SPR has so far contributed more than £430,000 to local communities. An extension to the existing scheme would see contributions rise further.

References

Ref. 2-1 Climate Change Delivery Plan: Meeting Scotland's Statutory Climate Change Targets. Scottish Government, June 2009

Ref. 2-2 The Climate Change (Scotland) Act 2009. The Scottish Government, August 2009

Ref. 2-3 Routemap for Renewable Energy in Scotland to 2020, Scottish Government, June 2011

Ref. 2-4 2020 Routemap for Renewable Energy in Scotland-Update, The Scottish Government, September 2015

Ref. 3-1 Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011, June 2011

Ref. 4-1 Scottish Planning Policy, The Scottish Government, June 2014

Ref. 6-1 The Town and Country Planning (Scotland) Act 1997 HM Government, February 1997

Ref. 6-2 The Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009, Scottish Government, April 2009

Ref. 6-3 Dumfries and Galloway Local Development Plan. Dumfries and Galloway Council, September 2014

Ref 6-4 Supplementary Guidance Wind Energy Development, Dumfries and Galloway Council, March 2015

Ref. 7-1 Planning Advice Note (PAN) 1/2013: Environmental Impact Assessment. The Scottish Government, 2013

Ref. 8-1 Guidelines for Landscape and Visual Impact Assessment, 3rd edition. Landscape Institute, March 2011

Ref. 8-2 Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004), June 2004

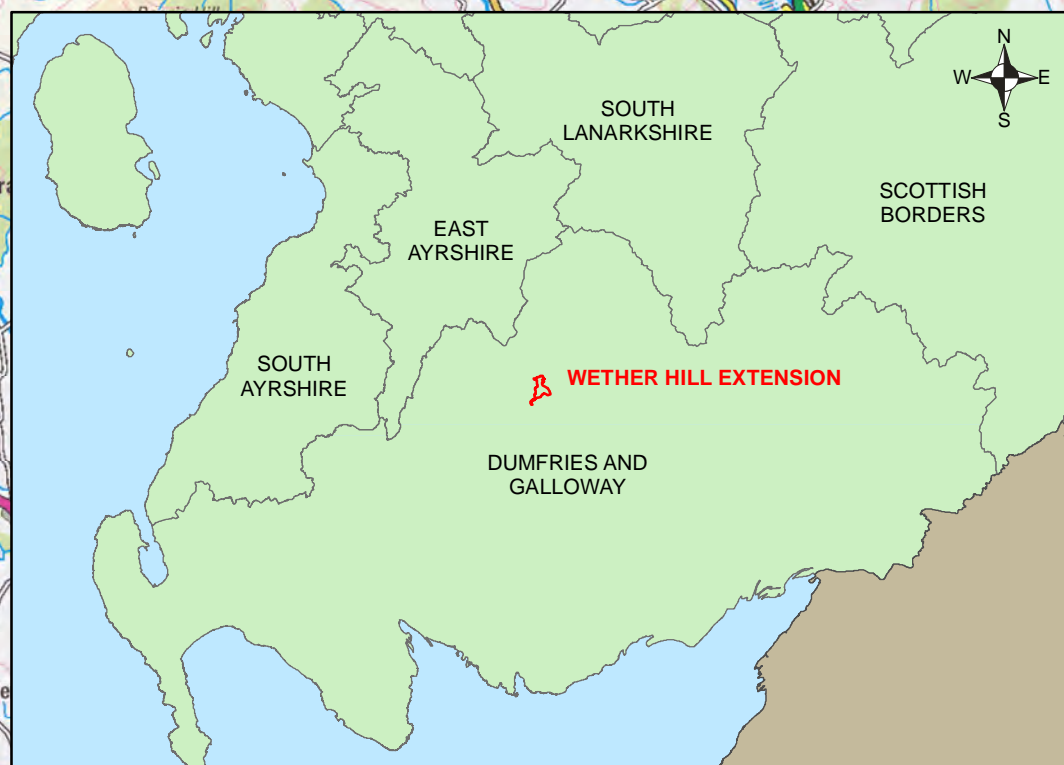
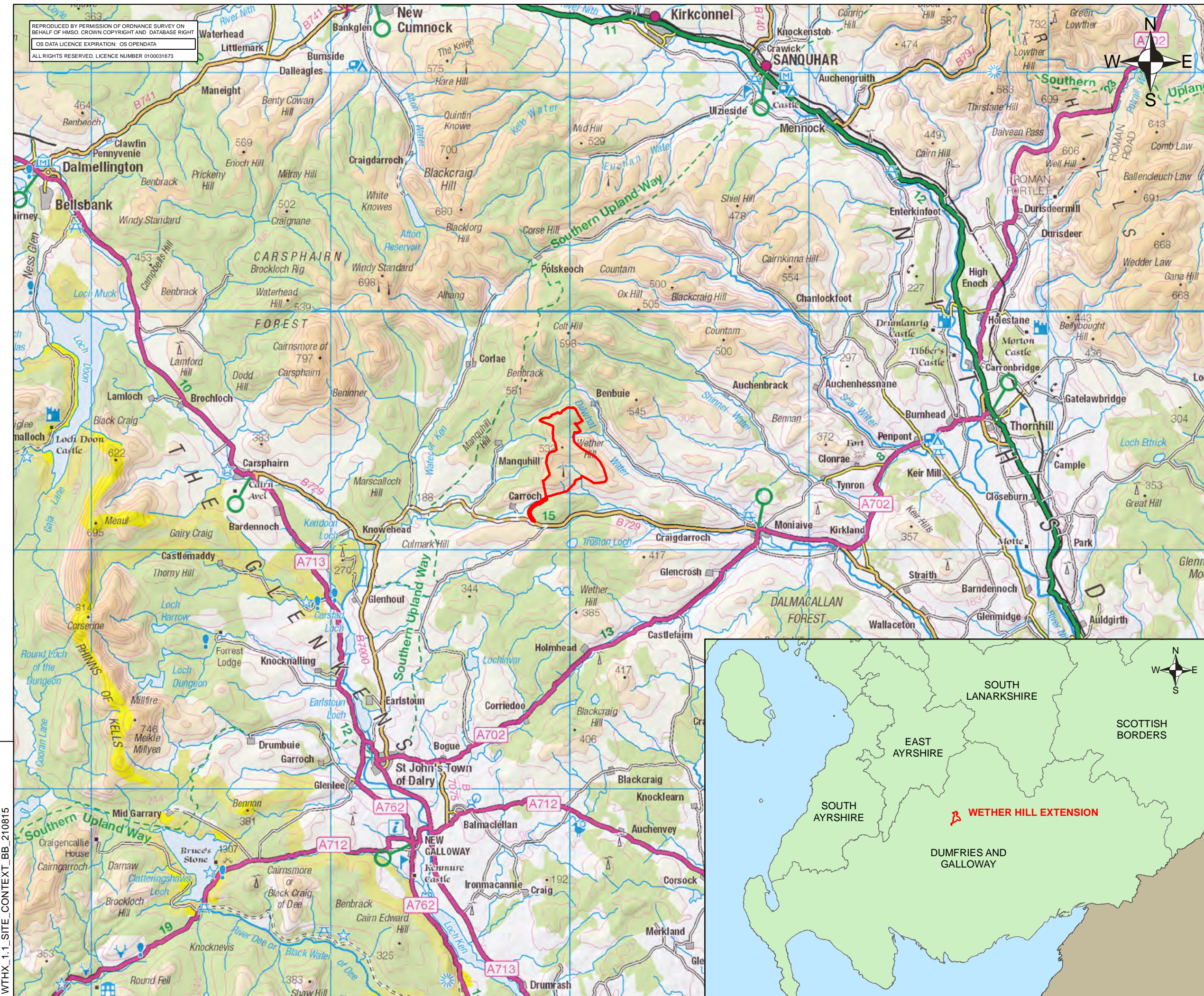
Ref. 8-3 Transport Assessment and Implementation. Scottish Executive, August 2005

Ref. 8-4 A Low Carbon Economic Strategy for Scotland. The Scottish Government, November 2010

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LEGEND
 APPLICATION BOUNDARY



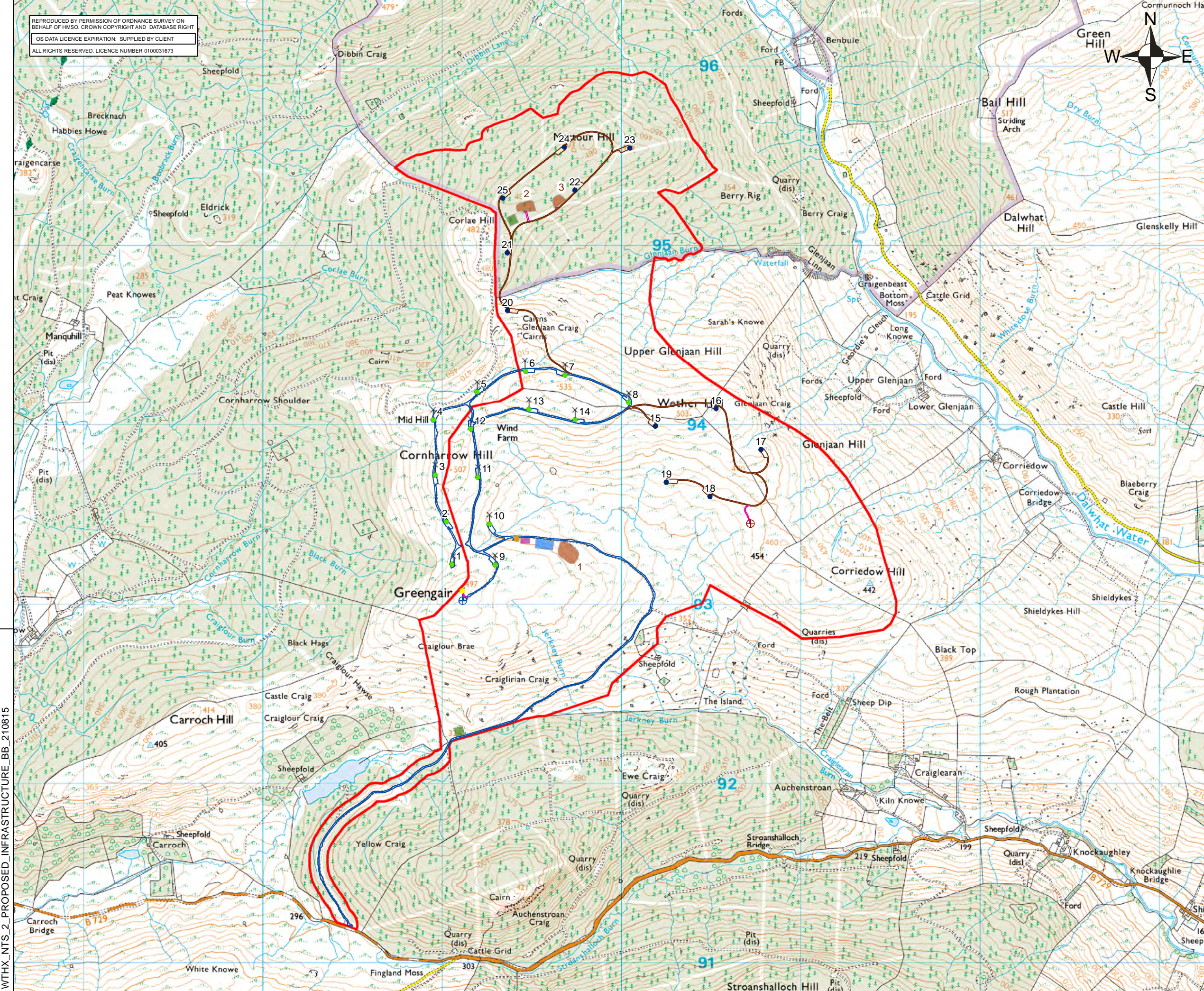

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WETHER HILL WINDFARM EXTENSION
ENVIRONMENTAL STATEMENT
SITE CONTEXT
NTS FIGURE 1

Scale 1:150,000 @ A3 Date NOVEMBER 2015

WTHX_1.1_SITE_CONTEXT_BB_210815

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LEGEND

- WETHER HILL WINDFARM EXTENSION FEATURES:**
-  APPLICATION BOUNDARY
 -  WETHER HILL WINDFARM EXTENSION PROPOSED TURBINES
 -  WETHER HILL WINDFARM EXTENSION PROPOSED ACCESS TRACKS
 -  PERMANENT METEOROLOGICAL MAST / RADAR / BORROW PIT TRACK
 -  INDICATIVE EXTENT OF BORROW PIT
 -  INDICATIVE EXTENT OF CONSTRUCTION COMPOUND
 -  INDICATIVE EXTENT OF LAYDOWN AREA
 -  INDICATIVE EXTENT OF SUBSTATION BUILDING AND COMPOUND
 -  INDICATIVE LOCATION OF RADAR UNIT (12X12M)
 -  PERMANENT METEOROLOGICAL MAST
- EXISTING WETHER HILL WINDFARM FEATURES:**
-  EXISTING WETHER HILL WINDFARM TURBINES
 -  EXISTING WETHER HILL WINDFARM ACCESS TRACKS
 -  EXISTING WETHER HILL WINDFARM METEOROLOGICAL MAST
 -  EXISTING WETHER HILL WINDFARM SUBSTATION

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**WETHER HILL WINDFARM EXTENSION
 ENVIRONMENTAL STATEMENT
 PROPOSED INFRASTRUCTURE LAYOUT**

NTS FIGURE 2

Scale: 1:20,000 @ A3 Date: NOVEMBER 2015

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