



Park House Farm Wind Farm, Lowca, Cumbria

Report to Inform Habitats Regulations Assessment Screening



For Cannock Wind Farm Services Ltd

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Executive Summary

Contents	Summary
Site Location	The 'site' is located on land at Park House Farm, to the north of the village of Lowca, in Cumbria - Ordnance Survey National Grid Reference NX 98376 23260. The site comprises seven wind turbines set within predominantly grassland habitat.
Development Proposals	The planning application seeks to extend the life of the seven existing turbines on site until the end of March 2030.
Existing site information	The following reports have been reviewed to inform the assessment: <ul style="list-style-type: none"> • WYG (2020a) Ecological Appraisal
Scope of this assessment	WYG was commissioned to prepare a report to inform Habitats Regulations Assessment Screening.
Results of Stage 1 Screening; Natura 2000 sites screened in.	Using a precautionary approach, this screening assessment has concluded that in the absence of mitigation, there are LSE on qualifying interest features of the following Natura 2000 site: <ul style="list-style-type: none"> • The Solway Firth pSPA
Conclusion	Appropriate Assessment will be required for the following pathways of effect: <ul style="list-style-type: none"> • Direct mortality or injury of birds from collision with turbine blades or towers (alone and in combination); • Loss of habitat (in combination); • Displacement of bird populations (in combination); • Barrier effects (in combination); and, • Pollution (alone or in combination).



Glossary

AA	Appropriate Assessment
ALSE	Assessment of Likely Significant Effects
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
Habitats Regulations	Conservation of Habitats and Species Regulations 2017
DTA	David Tyldesley Associates
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LSE	Likely Significant Effect
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
MCZ	Marine Conservation Zone
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
OSNGR	Ordnance Surveys National Grid Reference
pSPA	potential SPA
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSSI	Site(s) of Special Scientific Interest
VP	Vantage Point
W&CA	Wildlife & Countryside Act 1981 (as amended)
WeBS	Wetland Bird Survey
ZoI	Zone of Influence



1.0 Introduction

1.1 Background

WYG was commissioned by Cannock Wind Farm Services in January 2020 to prepare a report to inform Habitats Regulations Assessment Screening (also known as an Assessment of Likely Significant Effect or ALSE) for a proposed extension to the life of Park House Farm Wind Farm in Lowca, Cumbria.

This report has been prepared by WYG Principal Ecologist Kirstin Aldous BSc (Hons) MSc MCIEEM and should be read in conjunction with the Report Conditions in Appendix A.

1.2 Site Location

The 'site' is located on land at Park House Farm, to the north of Lowca, in Cumbria – see Figure 1. The site is centred at Ordnance Survey National Grid Reference (OSNGR) NX 98376 23260 and comprises seven wind turbines set within grass dominated habitat. The west coast railway line forms the western boundary of the site, separating the site from coastal habitats and the Solway Firth. In the wider area there are arable and grassland habitats to the north, south and east.

1.3 Planning Application

The section 73 planning application seeks to vary the planning condition, which requires the wind farm to cease operating at the end of March 2020 with the effect of extending the life of the seven existing turbines on site until 2030.

The existing planning permission was granted consent in 1998 following a successful appeal against a refusal of planning permission by Copeland Borough Council - reference no: 4/98/0486/0. Construction commenced in 1999 and the existing wind turbines are currently consented to be operational until the end of March 2020

1.4 Requirements for Habitats Regulations Assessment

The European Directive (92/43/EEC), termed 'the Habitats Directive,' was introduced to protect and enhance species and habitats of nature conservation importance at the European level (European Commission, 2020). As outlined in Article 6 (3) and 6 (4) of this directive, an 'Appropriate Assessment' (AA) must be carried out on any plans or projects where it is considered that they are likely to have significant effects on Natura 2000 sites, either alone or in-combination with other plans or projects.

This report covers the Stage 1 of HRA - Assessment of Likely Significant Effect (ALSE). Details regarding methods and relevant case law which steers assessment methodology is presented within Section 2.1.



1.5 Purpose of the Report

This report aims to inform the HRA screening process, identifying any likely significant effects (LSE) from the project on European (Natura 2000) designated sites within a defined Zone of Influence (ZoI).



2.0 Assessment Methodology

2.1 HRA Guidance

The HRA process involves the following tasks split according to the guidance stages, these are described below:

- **Stage 1: Screening** – the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. This is also known as an ‘assessment of likely significant affects’ (ALSE);
- **Stage 2: Appropriate assessment** – the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in-combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts (in accordance with guidance following the recent decision by the CJEU; People Over Wind and Sweetman v Coillte Teoranta (C-323/17) regarding application of embedded mitigation at Stage 1 or Stage 2 of an HRA (Freeths, 2018));
- **Stage 3: Assessment of alternative solutions** – the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and
- **Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain** – an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Over-riding Public Interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of IROPI).

The Stage 1 Screening Assessment comprises four steps, as described below:

- **Step 1.** Determining whether the project or plan is directly connected with or necessary to the management of the Natura 2000 site(s);
- **Step 2.** Describing the project or plan and the description and characterisation of other projects or plans that in-combination have the potential for having significant effects on the Natura 2000 site(s);
- **Step 3.** Identifying the potential effects on the Natura 2000 site(s); and
- **Step 4.** Assessing the likely significance of any effects on the Natura 2000 site(s).

The Stage 2: Appropriate Assessment should identify the effects of those plans or projects on qualifying features of the European sites in relation to the Conservation Objectives of those sites and determine whether these effects will result in an adverse effect on the integrity of the designated site. Only where the decision maker (the Competent Authority), is satisfied that there will be no adverse effect on integrity, or where there are imperative reasons of overriding public interest, can the plan or project be approved.

It is important to note that Stage 1 has recently been called into question by recent European case law. In April 2018 the Court of Justice of the European Union published it’s ruling in the Case C323/17 (People Over Wind case) with regards to the Habitats Directive. Prior to this ruling standard practice was to incorporate mitigation into development proposals and assess within the HRA Screening stage.



Mitigation could be used to determine whether a project had the potential to have LSE on a European/International designated site. In employing this method, the need to proceed to a full Appropriate Assessment was sometimes negated.

Ruling on the recent case determines that mitigation cannot be taken into account when considering the screening test for LSE (i.e. Stage 1). This may have implications for whether other projects can be screened out of requiring an AA (Freeths, 2018).

Compliance with this judgement is still under consideration with key statutory bodies and competent authorities; although, in the interim it is advised that this ruling be taken into account to avoid future legal challenge.

2.2 Information used in the Assessment

2.2.1 Desk Study

The following sources have been consulted during the preparation of this report for information relating to designated sites:

- The Joint Nature Conservation Committee (JNCC) website (www.jncc.defra.gov.org.uk) for information on Natura 2000 designated sites;
- The MAGIC website (www.magic.gov.uk) for information on statutory designated sites within 10 km of the site;
- The Copeland Borough Council Planning Portal (copeland.gov.uk) to search for existing planning applications within 10 km of the site;
- Copeland Local Plan 2013-2028: Core Strategy and Development Management Policies (Copeland Borough Council, 2013).

2.2.2 Field Surveys

WYG has produced a range of technical reports to accompany the planning submission. Of relevance to this assessment are:

- Ecological Appraisal (WYG 2020a).

2.2.3 Consultation

WYG consulted Natural England (NE) via its Discretionary Advice Service in August 2019. Following a meeting on the 12th August 2019, NE stated "*s73 application to be submitted - Baseline surveys have commenced in preparation. Natural England have no concerns. Though standard ecology surveys are likely to be required by the LPA*".

A later clarification from NE was sought with regard to the scope of survey works on 26th September 2019, and NE responded as follows: "*We have no concerns of any designated site impacts at Lowca, despite its proximity, as there is nothing that will be attract the pSPA birds inland to cause flights through the site, so these surveys are not required here*".

The local authority Copeland Borough Council was informed of the scope of works to be undertaken at Park House Farm wind farm to support the extension of life application and its response on the 9th



January 2020 was as follows: *"It is considered that the scope of works outlined in your email of the 31st October 2019 is reasonable and appropriate given nature of the proposed development etc.. It is recommended that any justification or reasoning for the scoping out of specific works be explicitly detailed in the submission for the avoidance of doubt. Details of the consultation with Natural England should also be included for completeness."*



3.0 Ecological Baseline of the Site

3.1 Ecological Appraisal

3.1.1 Habitats

An Ecological Appraisal was completed on the 23rd September 2019 (WYG, 2020a). The following habitats were recorded within the site:

- Semi-improved acid grassland;
- Semi-improved neutral grassland;
- Improved grassland;
- Marshy grassland;
- Scattered scrub;
- Dense scrub;
- Bracken;
- Tall ruderal;
- Intact species poor hedgerow;
- Running water; and,
- Open water.

Habitats present within the site are shown in Figure 2.



4.0 Scope of the Assessment

4.1 Zone of Influence

Projects may have spatial implications, which can have further reaching effects than those predicted to fall within the development footprint. Specifically, it is recognised that distance between a proposed route and a designated site is not a definitive determinant as to the likelihood or severity of an impact occurring. Site variables such as prevailing wind conditions, surface and groundwater flow direction will all have an influence on the relative distance at which an impact can occur.

Additionally, the mobile nature of qualifying interest species must also be considered, since an adverse effect on the qualifying species of a designated site, even if they are present outside the designated site for which they are a qualifying feature, may still result in a significant adverse effect upon that designated site. Hence, a development some distance away from a European site could still have effects on the site and, therefore, needs to be considered as part of the screening process.

For this scheme, Natura 2000 sites within a maximum radius of 10 km of the site were considered and are provided in Table 1 below, along with a summary of the qualifying features. This ZoI was considered adequate to address potential LSEs on qualifying species within designated sites and on functionally linked land (as SPA birds may be affected). Marine Conservation Zones are included below. The boundaries of the designated sites are illustrated in Figure 3.

4.2 Identification and characterisation of Natura 2000 Sites



Table 1: Qualifying Features of Internationally Designated Sites

Designated Site	Features	Conservation Objectives	Site Condition /Vulnerabilities
<p>Solway Firth pSPA - 242m west of the site at closest point (this site is to include the whole of the Upper Solway Flats and Marshes SPA)</p>	<p>The proposed marine features are:</p> <ul style="list-style-type: none"> ○ Common <i>scoter Melanitta nigra</i> (non-breeding); 1590 individuals representing 2% of GB population; ○ Goosander <i>Mergus merganser</i> (non-breeding), 150 individuals representing 1% of GB population; ○ Red throated diver <i>Gavia stellata</i> (non-breeding); 530 individuals representing 3% of GB population. <p>Proposed additional SPA review features:</p> <ul style="list-style-type: none"> ○ Lapwing <i>Vanellus vanellus</i> (non-breeding); 5040 individuals representing 1% of GB population; ○ Ringed plover <i>Charadrius hiaticula</i> (non-breeding) 980 individuals representing 1% of GB population; ○ Cormorant <i>Phalacrocorax carbo</i> (non-breeding) 580 individuals representing 2% of the GB population; ○ Black-headed gull <i>Chroicocephalus ridibundus</i> (non-breeding) 13,730 individuals representing 1 % of GB population; 	<p>This proposed SPA has been specifically selected to protect areas used by non-breeding red-throated diver, common scoter and goosander (Natural England, 2019).</p> <p>The conservation objectives for the Solway Firth proposed SPA are:</p> <ul style="list-style-type: none"> ○ To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species. <p>This contribution will be achieved through delivering the following objectives for each of the site’s qualifying features:</p> <p>a) Avoid significant mortality, injury and disturbance of the qualifying features, so that the</p>	<p>The following activities are considered likely to affect the qualifying features of the pSPA:</p> <ul style="list-style-type: none"> ○ Fishing – mobile gear; ○ Fishing – static gear; ○ Harvesting – intertidal shellfish, bait and blue mussel fishery; ○ Navigational and maintenance dredging; ○ Ports and harbours; ○ Recreational users (angling, boating, wildlife tours, wildfowling, jet skiing); ○ Renewables (wind, tidal). <p>SNH anticipate that for activities not covered by the Advice to Support Management document, and for existing activities where no need for additional management has been identified, that impacts from these activities on the qualifying features can be scoped out at</p>



Designated Site	Features	Conservation Objectives	Site Condition /Vulnerabilities
	<ul style="list-style-type: none"> ○ Common gull <i>Larus canus</i> (non-breeding) 12,490 individuals representing 2% of GB population; ○ Herring Gull <i>Larus argentatus</i> (non-breeding) 3030 individuals representing 0.4% of the GB population. <p>Qualifying features of the existing Upper Solway Flats and Marshes SPA are non-breeding: barnacle goose <i>Branta leucopsis</i>, golden plover <i>Pluvialis apricaria</i>, bar-tailed godwit <i>Limosa lapponica</i>, pink footed goose <i>Anser brachyrhynchus</i>, shelduck <i>Tadorna tadorna</i>, teal <i>Annas crecca</i>, pintai <i>Anas acuta</i>, shoveler <i>Anas clypeata</i>, scaup <i>Aythya marila</i>, goldeneye <i>Bucephala clangula</i>, whooper swan <i>Cygnus cygnus</i>, oystercatcher <i>Haematopus ostralegus</i>, knot <i>Calidris canutus</i>, grey plover <i>Pluvialis squatarola</i>, dunlin <i>Calidris alpina</i>, sanderling <i>Calidris alba</i>, redshank <i>Tringa totanus</i>, turnstone <i>Arenaria interpres</i> and curlew <i>Numerius arquata</i> (SNH, undated).</p>	<p>distribution of the species and ability to use the site are maintained in the long-term;</p> <p>b) To maintain the habitats and food resources of the qualifying features in favourable condition.</p>	<p>an early stage of HRA (SNH, 2016).</p>
<p>Cumbria Coast MCZ - 4.8 km south-west of the site</p>	<p>The MCZ designation protects the following features (DEFRA, 2019):</p> <ul style="list-style-type: none"> ○ High energy intertidal rock; ○ Honeycomb worm <i>Sabellaria alveolate</i>; reefs, ○ Intertidal biogenic reefs; ○ Intertidal sand and muddy sand; 	<p>The general management approach is to maintain the protected features in favourable condition.</p> <p>Razorbill are to be recovered to favourable condition (DEFRA, 2019).</p>	<p>Most marine activity is already regulated by the relevant regulatory bodies. There are existing byelaws, national laws and European Regulations which regulators use to manage fishing, coastal development, recreation and pollution. These also apply in MCZs.</p>



Designated Site	Features	Conservation Objectives	Site Condition /Vulnerabilities
	<ul style="list-style-type: none"> ○ Intertidal under-boulder communities; ○ Moderate energy infralittoral rock; ○ Peat and clay exposures; and, ○ Razorbill <i>Alca torda</i>. 		<p>Regulators will manage each site according to the features and activities in, or near, a specific area. Management measures will be implemented at sites most at risk of damage first, regulating only those activities, which have a detrimental impact on the designated features. Any management measures that are required for MCZs will be applied on a case-by-case basis (DEFRA, 2019).</p>
<p>River Derwent and Bassenthwaite Lake SAC - 6.1 km north and 7.8 km east of the site.</p>	<p>Annex I habitats that are a primary reason for selection of this site (JNCC, 2015):</p> <ul style="list-style-type: none"> ○ Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>; <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p> <ul style="list-style-type: none"> ○ Watercourses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. <p>Annex II species that are a primary reason for selection of this site:</p>	<p>To ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:</p> <ul style="list-style-type: none"> ○ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ○ The structure and function (including typical species) of qualifying natural habitats; 	<p>The River Derwent and Tributaries SSSI (which underlies the SAC) comprises 29 units. 45% of SSSI units are favourable or unfavourable recovering (Natural England, 2020).</p> <p>The Bassenthwaite Lake SSSI (which also underlies the SAC) comprises 11 units, 20.35% of which are favourable or unfavourable recovering (Natural England, 2020a).</p> <p>The site improvement plan for the SAC (Natural England, 2014) lists the following threats / pressures:</p>



Designated Site	Features	Conservation Objectives	Site Condition /Vulnerabilities
	<ul style="list-style-type: none"> ○ Marsh fritillary butterfly <i>Euphydryas aurinia</i>; ○ Sea lamprey <i>Petromyzon marinus</i>; ○ Brook lamprey <i>Lampetra planeri</i>; ○ River lamprey <i>Lampetra fluviatilis</i>; ○ Atlantic salmon <i>Salmo salar</i>; ○ Otter <i>Lutra lutra</i>; and, ○ Floating water-plantain <i>Luronium natans</i>. 	<ul style="list-style-type: none"> ○ The structure and function of the habitats of qualifying species; ○ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; ○ The populations of qualifying species, and, ○ The distribution of qualifying species within the site (Natural England, 2018). 	<ul style="list-style-type: none"> ○ Water pollution; ○ Siltation; ○ Invasive species; ○ Physical modification; ○ Water abstraction; ○ Changes in species distribution; ○ Forestry and woodland management; ○ Fisheries; ○ Hydrological changes; and, ○ Air pollution.
<p>River Ehen SAC - 10 km south -east of site</p>	<p>Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> ○ Freshwater pearl mussel <i>Margaritifera margaritifera</i>. <p>Annex II species present as a qualifying feature, but not a primary reason for site selection:</p> <ul style="list-style-type: none"> ○ Atlantic salmon (JNCC, 2015a). 	<p>To ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:</p> <ul style="list-style-type: none"> ○ The extent and distribution of the habitats of qualifying species; ○ The structure and function of the habitats of qualifying species; 	<p>The River Ehen (Ennerdale Water to Keekle Confluence) SSSI, which underlies the SAC, comprises two units with conditions of Unfavourable – Declining (Natural England, 2020b).</p> <p>The site improvement plan for the SAC (Natural England, 2014a) lists the following threats / pressures:</p>



Designated Site	Features	Conservation Objectives	Site Condition /Vulnerabilities
		<ul style="list-style-type: none"> ○ The supporting processes on which the habitats of qualifying species rely ○ The populations of qualifying species, and, ○ The distribution of qualifying species within the site (Natural England, 2018a & 2019). 	<ul style="list-style-type: none"> ○ Water abstraction (freshwater pearl mussel only); ○ Low breeding success/poor recruitment (freshwater mussel only); ○ Siltation; ○ Water pollution; ○ Inappropriate weirs, dams and other structures; ○ Agricultural management practices; ○ Invasive species; ○ Forestry and woodland management; ○ Public access/disturbance; and, ○ Transportation and service corridors.

Solway Flats and Marshes is not highlighted in the above table but is located within the ZoI. The reasons for this are presented within the citation for this designated site which states: "This document provides Scottish Natural Heritage's (SNH) and Natural England's (NE) advice on the proposed extension to the existing Upper Solway Flats and Marshes Special Protection Area (SPA) in the marine waters of the "Solway Firth" for inshore non-

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breeding waterfowl and non-breeding gulls. The proposal includes a name change from the Upper Solway Flats and Marshes SPA to the Solway Firth proposed SPA to include the marine extension. From this point forward, the site will be referred to as the Solway Firth proposed SPA (pSPA).”



5.0 Stage 1: Screening

This section considers the pathways of potential effects as a result of the proposed on-going operation and decommissioning works and assesses whether or not these pathways could result in a significant effect on qualifying features of the Natura 2000 sites listed in Section 4.0. Potential threats to the integrity of each Natura 2000 site have been listed above in Table 1.

The Habitats Regulations Assessment Handbook (DTA, 2020) confirms that during the Screening Stage, *'If significant effects cannot be excluded on the basis of objective information without extensive investigation, a plan or project should be considered to have a likely significant effect and taken through to an appropriate assessment'*.

5.1 Is the Project Directly Connected with or Necessary to Site Management for Nature Conservation?

The development proposals are not connected with and are not necessary for the management of any internationally designated sites, although it does have the potential to affect them.

5.2 Threats / Pathways of Effect Potentially Likely to Arise during Continued Operation

With reference to SNH guidance on assessing the significance of impacts from onshore wind farms (SNH 2018), potential threats / pathways of effect are:

- Direct mortality or injury of birds from collision with turbine blades or towers;
- Loss of habitat due to wind farm infrastructure;
- Displacement of birds from designated site and functionally linked habitat within and surrounding the wind farm area;
- Barrier effects if bird populations are prevented from reaching a destination due to wind farms acting as a barrier along the flight path.

5.3 Threats / Pathways of Effect Potentially Likely to Arise during Decommissioning

The following threats / pathways could occur during decommissioning:

- Noise and visual disturbance of during decommissioning works;
- Pollution.

5.4 Assessment of Likely Significant Effects - Operation

5.4.1 The Solway Firth pSPA

Direct mortality or injury of pSPA birds from collision with turbine blades or towers

Death of bird species through collision or interaction with turbine blades and other infrastructure is cited as one of the main potential risks to bird species (SNH 2017). Regular mortality events as a result of collision with the operational turbines on site have the potential to significantly reduce



population numbers of qualifying feature populations in the local area. Such reduction will adversely affect the favourable conservation status of qualifying features of the designated site.

Therefore, Likely Significant Effects on this designated site as a result of this pathway of effect are anticipated.

Loss of habitat due to wind farm infrastructure

Continued operation of the wind farm is located beyond the boundary of the designated site and therefore will not result in direct loss of habitat availability to support associated qualifying features. Nor is the continued operation of the wind farm considered likely to result in the direct loss of functionally linked habitat, which supports qualifying features associated with this designated site

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

Displacement of pSPA birds from designated site and functionally linked habitat within and surrounding the wind farm area

Displacement effects (including those caused by noise and visual disturbance of the operational wind farm) of operational wind farms are known to be one of the main potential risks to bird species (SNH 2017). However, as part of its DAS (received on 26th September 2019), NE has confirmed that it considers displacement is unlikely to result in adverse effects upon the favourable conservation status of bird species associated with the designated site. This is due to the fact that turbines are set back from the coast and are not located near any key roosts, feeding areas, or nesting sites for qualifying features associated with this designated site.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

Barrier effects if bird populations are prevented from reaching a destination due to wind farms acting as a barrier along the flight path.

WYG consulted NE regarding the scope of bird surveys necessary to inform the application. NE advised "we have no concerns of any designated site impacts at Lowca, despite its proximity, as there is nothing that will attract the pSPA birds inland to cause flights through the site" (Natural England, via email, 26th September 2020). Therefore, adverse effects upon the favourable conservation status of qualifying features of the designated site are considered highly unlikely.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

5.4.2 The Cumbria Coast MCZ

Direct mortality or injury of birds from collision with turbine blades or towers

Razorbill breed at St Bees Head, which is approximately 8.7 km south of the site (Cumbria Naturalists Union, 2019). Due to the distance between the wind farm and the breeding site along with a lack of connectivity to foraging habitat between these sites it is considered highly unlikely that the operational wind farm will cause direct mortality to individual razorbills. Therefore, no adverse effect upon the favourable conservation status of this qualifying feature of the designated site is likely.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.



Loss of habitat due to wind farm infrastructure

The operational wind farm will not result in any direct loss of habitats, which form qualifying features of this designated site. Nor will operation of the wind farm result in the loss of habitats or habitat features which support qualifying features of the designated site. It is therefore considered that favourable conservation status of qualifying features of this designated site will not be affected as a result of this impact pathway.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

Displacement of birds from designated site and functionally linked habitat within and surrounding the wind farm area

Razorbill breed at St Bees Head, which is approximately 8.7 km south of the site (Cumbria Naturalists Union, 2019). The operational wind farm will not result in the direct or indirect loss of suitable breeding habitat for razorbills. Nor will the operational wind farm adversely affect functionally linked habitat associated with this designated site. Adverse effects upon the favourable conservation status of this qualifying feature as a result displacement is considered highly unlikely.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

Barrier effects if bird populations are prevented from reaching a destination due to wind farms acting as a barrier along the flight path.

WYG consulted NE regarding the scope of bird surveys necessary to inform the application. NE advised "we have no concerns of any designated site impacts at Lowca, despite its proximity, as there is nothing that will attract the pSPA birds inland to cause flights through the site" (Natural England, via email, 26th September 2020). Therefore, adverse effects upon the favourable conservation status of qualifying features of the designated site are considered highly unlikely.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

5.4.3 River Derwent and Bassenthwaite Lake SAC

Bird species do not form qualifying features of this designated site, therefore potential effect pathways associated with the effects upon bird species are not considered in relation to this site.

Loss of habitat due to wind farm infrastructure

The River Derwent and Bassenthwaite Lake SAC is 6.1km north of the site at its closest point. The operational wind farm will not result in the direct or indirect loss of habitat which forms or supports qualifying features of this designated site. Therefore, no adverse effects upon the favourable conservation status of qualifying features of this designated site are anticipated.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

5.4.4 River Ehen SAC

Bird species do not form qualifying features of this designated site, therefore potential effect pathways associated with the effects upon bird species are not considered in relation to this site.



Loss of habitat due to wind farm infrastructure

The River Ehen SAC is 10 km south-east of the site. The operational wind farm will not result in the direct or indirect loss of habitat which forms or supports qualifying features of this designated site. Therefore, no adverse effects upon the favourable conservation status of qualifying features of this designated site are anticipated.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

5.5 Assessment of Likely Significant Effects - Decommissioning

5.5.1 The Solway Firth pSPA

Noise and visual disturbance of birds during decommissioning works.

The Solway Firth pSPA is designated for its assemblage of non-breeding birds. A detailed decommissioning schedule has not been prepared at this stage. However, the initial review of decommissioning and restoration requirements and costs at Askam and Park House Farm wind farms by BVG Associates (2019) indicates that works would take place over a 12 month period from cessation of energy production. Works are therefore considered likely to take place during the winter period when qualifying features associated with this site are present. Some temporary noise and visual disturbance during decommissioning could cause minor disturbance to the pSPA qualifying species. However, due to the availability of suitable habitat in the wider area, this is unlikely to have an effect on the favourable conservation status of qualifying species of this designated site.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

Pollution

There are hydrological links between the site and coastal habitats to the west in the form of the watercourses, which flow through the site. In the absence of mitigation, a pollution event on site could affect the coastal habitats, which support the qualifying species of the pSPA. Therefore, adverse effects upon the favourable conservation status of qualifying features of the designated site are considered likely.

Therefore, Likely Significant Effect is anticipated as a result of this pathway of effect.

5.5.2 The Cumbria Coast MCZ

Noise and visual disturbance during decommissioning works

A breeding population of razorbill forms a qualifying feature of the designated site. A detailed decommissioning schedule has not been prepared at this stage. However, the initial review of decommissioning and restoration requirements and costs at Askam and Park House Farm wind farms by BVG Associates (2019) indicates that works would take place over a 12 month period from cessation of energy production. Works are therefore considered likely to take place during the bird breeding season period (March – August) when qualifying features associated with this site are present. Due to the distance between the wind farm and breeding colony of razorbill along with a lack of connectivity to foraging habitat between these sites it is considered highly unlikely that the decommissioning works will adversely affect the favourable conservation status of this qualifying feature as a result of noise and visual disturbance.



Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

Pollution

The Cumbria Coast MCZ is 4.8 km south-west of the site and covers an area of 45 km². Due to the separation distances between the site and the MCZ, it is considered unlikely that a pollution event would adversely affect species or habitats, which form qualifying features of the designated site.

Therefore, no Likely Significant Effect is anticipated as a result of this pathway of effect.

5.5.3 River Derwent and Bassenthwaite Lake SAC

Noise and visual disturbance during decommissioning works

The River Derwent and Bassenthwaite Lake SAC is 6.1 km north of the site at its closest point. Due to the distance between the wind farm and this designated site it is considered highly unlikely that noise and visual disturbance will adversely affect the favourable conservation status of qualifying features of this designated site.

Therefore, Likely Significant Effects as a result of this pathway are not anticipated.

Pollution

The River Derwent and Bassenthwaite Lake SAC is 6.1 km north of the site at its closest point. There are hydrological links between the site and the SAC via the coast. The Port of Workington is 6 km north of the site and it is possible that the qualifying species (otter and fish) use the marine and coastal habitats between the SAC and the site. The SAC is upstream of the site and due to the coastal separation distances between the site and the SAC; it is considered unlikely that a pollution event would adversely effect the favourable conservation status of qualifying features of this designated site.

Therefore, Likely Significant Effects as a result of this pathway are not anticipated.

5.5.4 River Ehen SAC

Noise and visual disturbance during decommissioning works

The River Ehen SAC is 10 km north of the wind farm at its closest point. Due to the distance between the wind farm and this designated site it is considered highly unlikely that noise and visual disturbance will adversely affect the favourable conservation status of qualifying features of this designated site.

Therefore, Likely Significant Effects as a result of this pathway are not anticipated.

Pollution

The closest part of the River Ehen SAC is 10 km south-east of the site and the mouth of the river Ehen is approximately 20 km south of the site along the coast. The SAC is upstream of the site and due to the separation distances between the site and the SAC; it is considered unlikely that a pollution event would adversely effect the favourable conservation status of qualifying features of this designated site.



Therefore, Likely Significant Effects as a result of this pathway are not anticipated.

5.6 Summary of Likely Significant Effects

Table 2 summarises the aspects of the proposed scheme that could result in LSE on the qualifying features of the designated sites as a result of the proposed development, alone. Cells shaded in green have concluded no LSE and cells shaded in amber indicate that the pathways should be considered further at Appropriate Assessment.



Aspect of Project Assessed	Qualifying Features and supporting habitats/species	Pathway(s) of Effect	LSE Anticipated?	Appropriate Assessment Required?
Solway Firth pSPA				
Continuing operation of wind farm.	The proposed marine features are: <ul style="list-style-type: none"> Common scoter (non-breeding); 1590 individuals representing 2% of GB population; Goosander (non-breeding), 150 individuals representing 1% of GB population; Red throated diver (non-breeding); 530 individuals representing 3% of GB population. Proposed additional SPA review features: <ul style="list-style-type: none"> Lapwing (non-breeding); 5040 individuals representing 1% of GB population; Ringed plover (non-breeding) 980 individuals representing 1% of GB population; Cormorant (non-breeding) 580 individuals representing 2% of the GB population; Black-headed gull (non-breeding) 13,730 individuals representing 1 % of GB population; Common gull (non-breeding) 12,490 individuals representing 2% of GB population; Herring Gull (non-breeding) 3030 individuals representing 0.4% of the GB population. Additional features of the Upper Solway Flats and Marshes SPA are non-breeding: barnacle goose, golden plover, bar-tailed godwit, pink footed goose, shelduck, teal, pintail, shoveler, scaup, goldeneye, whooper swan, oystercatcher, knot, grey plover, dunlin, sanderling, redshank, turnstone and curlew.	<ul style="list-style-type: none"> Direct mortality or injury of birds from collision with turbine blades or towers. 	YES	YES
		<ul style="list-style-type: none"> Loss of habitat due to wind farm infrastructure. 	NO	NO
		<ul style="list-style-type: none"> Displacement of birds from the wind farm area (and potentially a wider zone surrounding the wind farm). 	NO	NO
		<ul style="list-style-type: none"> Barrier effects - bird populations prevented from reaching a destination due to wind farms acting as a barrier along the flight path. 	NO	NO
Decommissioning of wind farm.	Qualifying features as listed above.	<ul style="list-style-type: none"> Noise and visual disturbance 	NO	NO
		<ul style="list-style-type: none"> Pollution 	YES	YES
The Cumbria Coast MCZ				
Continuing operation of wind farm.	The MCZ designation protects the following features: <ul style="list-style-type: none"> High energy intertidal rock; Honeycomb worm; reefs, Intertidal biogenic reefs; Intertidal sand and muddy sand; Intertidal underboulder communities; Moderate energy infralittoral rock; Peat and clay exposures; and, Razorbill. 	<ul style="list-style-type: none"> Habitat degradation habitat loss; Direct mortality or injury of birds from collision with turbine blades or towers; Displacement of birds; Barrier effects. 	NO	NO
			NO	NO
Decommissioning of wind farm.	Qualifying features as listed above.	<ul style="list-style-type: none"> Noise and visual disturbance 	NO	NO
		<ul style="list-style-type: none"> Pollution 	NO	NO
River Derwent and Bassenthwaite Lake SAC				
Continuing operation of the wind farm.	Annex I habitats that are a primary reason for selection of this site: <ul style="list-style-type: none"> Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>; Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: <ul style="list-style-type: none"> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. Annex II species that are a primary reason for selection of this site: <ul style="list-style-type: none"> Marsh fritillary butterfly; 	<ul style="list-style-type: none"> No pathways of effect identified. 	NO	NO



	<ul style="list-style-type: none"> • Sea lamprey; • Brook lamprey; • River lamprey; • Atlantic salmon; • Otter; and, • Floating water-plantain. 			
Decommissioning of the wind farm	Qualifying features as listed above.	<ul style="list-style-type: none"> • Noise and visual disturbance during decommissioning works • Pollution 	NO	NO
River Ehen SAC				
Continuing operation of the wind farm.	<p>Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • Freshwater pearl mussel. <p>Annex II species present as a qualifying feature, but not a primary reason for site selection:</p> <ul style="list-style-type: none"> • Atlantic salmon. 	<ul style="list-style-type: none"> • N/A 	NO	NO
Decommissioning of the wind farm	Qualifying features as listed above.	<ul style="list-style-type: none"> • Noise and visual disturbance during decommissioning works 	NO	NO
		<ul style="list-style-type: none"> • Pollution 	NO	NO



6.0 Consideration of In-combination Effects

In-combination effects can be defined as the additional changes caused by a proposed development in conjunction with other similar developments, or as a combined set of developments, taken together (SNH, 2012).

In this section, the potential for LSE in combination with other plans and projects is considered with reference to the potential pathways where likely significant effects are possible, i.e.:

- Direct mortality or injury of pSPA birds from collision with turbine blades or towers;
- Loss of habitat due to wind farm infrastructure;
- Displacement of pSPA birds from the wind farm area (or a potentially wider zone surrounding the wind farm);
- Barrier effects whereby pSPA bird populations are prevented from reaching a destination due to wind farms acting as a barrier along the flight path.

The in-combination assessment is restricted to plans and projects, which are 'live' at the same, time as this assessment being undertaken and include:

- Incomplete or non-implemented projects already commissioned;
- Plans/projects with consent but not started;
- Plans/projects subject to application for consent;
- Projects under appeal;
- On-going plans/projects subject to regular review;
- Draft plans by Local Planning Authorities (LPA's);
- Any proposed plans/projects that are reasonably foreseeable and/or published for consultation prior to application.

6.1.1 Planning Applications

Wind Energy Developments

A search of the Allerdale Borough Council and Copeland Borough Council Planning Portals was completed to identify planning applications within 10 km of the site with the potential to have in combination effects. Table 3 summarises the wind farm developments / turbines were identified within 10 km of the site. The locations of the developments are shown in Figure 4.

Table 3: Data from cumulative wind database, which includes turbines 15m, and above that are operational, consented or awaiting determination

Planning Application Number	Name	Status	Potential for in combination effects?
2/2010/0533	Lucy Close	Consented	Yes
2/2010/0530	Outgang Farm	Consented	Yes
4/14/9005/0F2	Arelecdon Wastewater Treatment Works	Consented	Yes
4/15/2187/0F1	High Farm	Consented	Yes



Cumbria Wind Energy Supplementary Planning Document (SPD)

Cumbria County Council published a Supplementary Planning Document (SPD) dealing with onshore wind energy (Cumbria County Council, 2017). The SPD produced by Cumbria County Council was formally adopted by the LPAs in Allerdale, Carlisle, Copeland, Eden, South Lakeland and the Lake District National Park. The supplementary policies contained within it provide guidance for developers putting together development proposals for wind energy generation. With reference to assessing cumulative effects, the guidance does not seek to set thresholds that determine when cumulative effects are unacceptable. It states that the local planning authority will need to make a judgement for each individual scheme following careful consideration of the information provided by a developer.

Policy G13 states that:

“The limiting threshold for cumulative effects and wind energy developments should be based on a well-considered judgement informed by analysis of:

Degree or magnitude of change to an area, feature or species and the nature of the potential change reflecting the inherent sensitivity of the affected area, feature or species.”

Other Developments

In addition to the above wind farm developments, a list of other developments, which have the potential to act in combination, are provided in Appendix C. These are primarily residential or commercial developments, which cumulatively could result in the loss of habitat. The locations of the planning applications are shown in Figure 5.

Key developments identified in close proximity to the site are:

Planning Application 4/06/2013/0 – Land at Micklam, Lowca

This is a planning application for a holiday park and construction of an associated building complex immediately south of the site. In combination, this planning application could result in habitat loss for birds along the coast.

Planning Application 4/20/2022/0F1 – Land to the North of Woodland Nurseries, Stamford Hill, Lowca

This is a planning application for a new glasshouse comprising 3.2 ha of building with access, hardstanding, attenuation pond and landscaping in Lowca. In combination, this planning application could result in cumulative habitat loss for birds. The creation of a new attenuation pond could attract birds inland, potentially resulting in an increased risk of bird strike.

Table 4 below summarises the LSE, which could occur in combination with other plans or projects.



Table 4: Summary of In-Combination Effects

Aspect of Project Assessed	Qualifying Features and supporting habitats/species	Pathway(s) of Effect	Assessment of Likely Significant Effects in Combination	Appropriate Assessment Required?
Solway Firth pSPA				
Continuing operation of wind farm.	<p>The proposed marine features are:</p> <ul style="list-style-type: none"> Common scoter (non-breeding); 1590 individuals representing 2% of GB population; Goosander (non-breeding), 150 individuals representing 1% of GB population; Red throated diver (non-breeding); 530 individuals representing 3% of GB population. <p>Proposed additional SPA review features:</p> <ul style="list-style-type: none"> Lapwing (non-breeding); 5040 individuals representing 1% of GB population; Ringed plover (non-breeding) 980 individuals representing 1% of GB population; Cormorant (non-breeding) 580 individuals representing 2% of the GB population; Black-headed gull (non-breeding) 13,730 individuals representing 1 % of GB population; Common gull (non-breeding) 12,490 individuals representing 2% of GB population; 	Direct mortality or injury of birds from collision with turbine blades or towers.	<p>The potential for bird strike at the consented wind farm applications was assessed as part of the planning process.</p> <p>Natural England has confirmed that where >1% of any current pSPA species population has been recorded, collision risk is considered to be a LSE (Natural England, via email, 11th March 2020).</p> <p>Therefore, direct mortality from collision risk in-combination with plans and projects involving other wind farms and/or vertical structures along the coast will be considered further at AA.</p>	YES
		Loss of habitat due to wind farm infrastructure.	There is the potential for in-combination loss of habitat from new and existing wind farms and developments within 10 km of the site.	YES
		Displacement of birds from the wind farm area (and potentially a wider zone surrounding the wind farm).	There is the potential for in-combination displacement effects from new and existing wind farms within 10 km of the site.	YES
		Barrier effects - bird populations prevented from	Natural England advised "we have no concerns of any designated site impacts at Lowca,	YES



	<ul style="list-style-type: none"> Herring Gull (non-breeding) 3030 individuals representing 0.4% of the GB population. <p>Existing qualifying features of the SPA are non-breeding: barnacle goose, golden plover, bar-tailed godwit, pink footed goose, shelduck, teal, pintail, shoveler, scaup, goldeneye, whooper swan, oystercatcher, knot, grey plover, dunlin, sanderling, redshank, turnstone and curlew.</p>	reaching a destination due to wind farms acting as a barrier along the flight path.	<p>despite its proximity, as there is nothing that will attract the pSPA birds inland to cause flights through the site” (Natural England, via email, 26th September 2020).</p> <p>However, there is potential for LSE in-combination with other wind farm plans or projects, particularly along the coasts of Copeland and Allerdale.</p>	
Decommissioning of wind farm.	Qualifying features as listed above.	Noise and visual disturbance	Decommissioning of wind farm developments within 10 km could cause temporary noise and visual disturbance to qualifying features of the designated site during decommissioning. In the absence of mitigation decommissioning could have a LSE alone or in combination with other plans and/or projects. .	YES
		Pollution	There are hydrological links between the site and coastal habitats to the west of the site in the form of the watercourses, which flow through the site. In the absence of mitigation decommissioning could have a LSE alone or in combination with other plans and/or projects.	YES
The Cumbria Coast MCZ				
Continuing operation of wind farm.	<p>The MCZ designation protects the following features:</p> <ul style="list-style-type: none"> High energy intertidal rock; Honeycomb worm; reefs, Intertidal biogenic reefs; 	<p>Changes to habitats:</p> <ul style="list-style-type: none"> Habitat loss; Habitat degradation. 	The operational wind farm will not have any effects upon the qualifying habitats of the MCZ alone or in combination with other plans or projects due to the separation distance between the site and the MCZ.	NO



	<ul style="list-style-type: none"> o Intertidal sand and muddy sand; o Intertidal under-boulder communities; o Moderate energy infralittoral rock; o Peat and clay exposures; and, Razorbill. 	<ul style="list-style-type: none"> o Direct mortality or injury of birds from collision with turbine blades or towers; o Displacement of birds; o Barrier effects. 	Razorbill breeds around the coast of the UK, including St Bees Head. The future of this species is linked to the health of the marine environment. Fishing nets, pollution and declining fish stocks all threaten the razorbill. The operational wind farm is unlikely to have any effects upon razorbill either alone or in combination with other plans or projects.	NO
Decommissioning of wind farm.	Qualifying features as listed above.	Noise and visual disturbance	The Cumbria Coast MCZ is 4.8 km south-west of the site and covers an area of 45 km ² . Due to the separation distances between the site and the MCZ, it is considered unlikely noise or visual disturbance would have a likely significant effect upon the qualifying bird species (razorbill) either alone or in combination.	NO
		Pollution	The Cumbria Coast MCZ is 4.8 km south-west of the site and covers an area of 45 km ² . Due to the separation distances between the site and the MCZ, and the likely dilution effects from the sea, it is considered unlikely that a pollution event would have a LSE upon the qualifying habitats or species associated with the MCZ either alone or in combination.	NO
River Derwent and Bassenthwaite Lake SAC				
Continuing operation of the wind farm.	Annex I habitats that are a primary reason for selection of this site: Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> .	No pathways of effect identified.	The river Derwent and Bassenthwaite Lake SAC is 6.1km north of the site at its closest point. Due to the separation distances between the SAC and the site, there are unlikely to be any LSE on the qualifying habitats or species of the SAC. No LSE are	NO



	<p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.</p> <p>Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> ○ Marsh fritillary butterfly; ○ Sea lamprey; ○ Brook lamprey; ○ River lamprey; ○ Atlantic salmon; ○ Otter; and, ○ Floating water-plantain. 		<p>anticipated alone or in combination with other plans or projects.</p>	
Decommissioning of the wind farm	Qualifying features as listed above.	Pollution	The river Derwent and Bassenthwaite Lake SAC is 6.1km north of the site at its closest point. Due to the separation distances between the SAC and the site, there are unlikely to be any LSE on the qualifying habitats or species of the SAC either alone or in combination.	NO
River Ehen SAC				
Continuing operation of the wind farm.	<p>Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> ○ Freshwater pearl mussel. 	N/A	The River Ehen SAC is 10 km south-east of the site. There are no pathways of effect between the site and the SAC and no LSE are anticipated alone or in combination during operation.	NO

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	<p>Annex II species present as a qualifying feature, but not a primary reason for site selection:</p> <ul style="list-style-type: none"> o Atlantic salmon. 			
Decommissioning of the wind farm	Qualifying features as listed above.	Pollution	The River Ehen SAC is 10 km south-east of the site. The SAC is upstream of the site and due to the separation distances between the site and the SAC, it is considered unlikely that a pollution event would have a LSE upon the qualifying habitats or species associated with the SAC, either alone or in combination.	NO

7.0 Summary – Stage 1

Using a precautionary approach, this assessment has concluded that LSEs on qualifying interest features associated with the above designated sites **are anticipated, either alone or in combination with other plans and projects.**

As such, the 'Competent Authority', in consultation with Natural England is considered likely to require further assessment under the Habitats Regulations in order to determine if this project can proceed without any adverse effects on the integrity of the internationally designated sites within 10 km of the proposed development.

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FIGURES

Figure 1 – Site location

Figure 2 – Phase 1 habitat plan

**Figure 3 – Natura 2000 designated sites
within 10 km**

**Figure 4 – Wind Farm Developments within
10 km (cumulative assessment)**

**Figure 5 – Other relevant developments
within 10 km (cumulative
assessment)**

Appendix A – Report Conditions

Park House Farm Wind Farm: Report to Inform HRA Screening

REPORT CONDITIONS

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Park House Farm Wind Farm: Report to Inform HRA Screening



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