Stubsgill Farm, Cumbria

on behalf of Axis PED

Preliminary Ecological Appraisal

avian ecology

Report Verification and Declaration of Compliance

This report has been prepared with reference to best practice guidelines for Ecological Impact Assessment in the UK and Ireland, as defined by CIEEM (2022) and is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of practice for planning and development and BS 8683:2021 Process for Designing and Implementing Biodiversity Net Gain - Specification.

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V1	26/03/2024	Draft	A. Littlechild *BSc (Hons)* Senior Ecologist	C. Garratt PhD *BSc (Hons)* Principal Ecologist
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V3	08/06/2024	Minor amendments following red line boundary changes	-	A. Littlechild *BSc (Hons)* Senior Ecologist
V4	07/08/2024	Minor amendments following application change	-	A. Littlechild *BSc (Hons)* Senior Ecologist

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1. INTRODUCTION

1.1 Background and Scope

1.1.1 Avian Ecology Ltd. (AEL) was commissioned by Axis PED to undertake a Preliminary Ecological Appraisal in relation to the proposed re-powering of a single wind turbine at Stubsgill Farm, Cumbria CA14 5SP ('the Proposed Development'). The study area comprised the planning application red line boundary, at central grid ref: NY 01949 23265 ('the Site'), shown in **Figure 1**, unless otherwise stated. The extended habitat survey area was extended to also cover the landowner boundary, shown in **Figure 1**.

1.1.2 This report provides baseline information and an appraisal of potential ecological effects of the Proposed Development.

1.1.3 The objectives of the appraisal are to:

- Provide baseline information on the current habitats and ecological features both within the Site and in the immediately surrounding area;
- Identify the proximity of any designated sites for nature conservation interest and provide a preliminary overview of any potential effects the Proposed Development may have on these;
- Identify the presence or potential presence of any protected species or habitats and provide a preliminary overview of any potential effects the Proposed Development may have on these; and,
- Outline recommendations for further survey works (where required), pre-construction checks and / or mitigation measures, if required as well as providing an outline of proposed habitat enhancements.

1.1.4 The appraisal has been informed by desk-based review of relevant ecological information and an extended habitat survey; and refers to relevant legislation, planning policy and guidance as appropriate.

1.1.5 Consideration has been given to the potential presence of rare, protected, or notable habitats and species, and the location of nearby features including designated sites for nature conservation.

1.1.6 Throughout this report, common names for species are favoured over scientific names unless there is potential for confusion and in which case scientific names are also presented.

1.2 Site Overview

1.2.1 The Site is located within the hamlet of Pica, approximately 5km northeast of Whitehaven and 5km southeast of Workington in the Lake District. The Site comprises an area of approximately 0.69 hectares (ha) and consists predominantly of an existing wind turbine with substation, pastoral modified grassland and bare ground (access track). Also present in low quantities are other neutral grassland and native hedgerow. The Site is located within the wider Stubsgill Farm site, surrounded by grazed pastoral grassland fields with hedgerow and treeline field boundaries, in addition to Dyon Beck running along the south and an unnamed stream along the north.

1.2.2 In the wider context, the Site is surrounded by a combination of arable and pastoral grassland to the northwest, north and east; with areas of woodland to the south and southwest. A parcel of ancient

semi natural woodland is present 15m south-west of Stubsgill Farm, with larger areas of arable land lying beyond this.

1.2.3 The Site location is illustrated in **Figure 1**.

1.3 Proposed Development

1.3.1 The Proposed Development on Site is to replace the existing 45.5m high wind turbine with a new, larger turbine. This is in order to increase the energy production as a result of improved wind to energy conversion efficiency, heightened reliability, increased wind speeds at taller height, and a larger swept area of wind capture.

1.3.2 Key maximum parameters of the Proposed Development repower turbine are as follows:

i) Output: 250kW.
ii) Hub height: 50m.
iii) Blade length: 26m.
iv) Rotor diameter: 52m.
v) Maximum height to blade tip: 76m.
vi) Number of blades: three.

1.4 Legislative Framework, Planning Policy and Guidance

1.4.1 The key legislation, planning policy and guidance relating to ecology and ornithology which have been considered in the preparation of this report are listed in Error! Reference source not found..

Table 1.1: Key legislation.

International
• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the 'the Ramsar Convention)[1]; • Convention on the Conservation of European Wildlife and Natural Habitats 1979 (hereafter referred to as the 'the Bern Convention'[2]; • UNESCO convention on the protection of the World Cultural and Natural Heritage (1972)[3]; • The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora); and • The Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds).
National
• The Wildlife and Countryside Act 1981 (as amended). • Countryside and Rights of Way Act 2000; • Hedgerow Regulations 1997; • Infrastructure Act 2015;

[1] https://www.ramsar.org/

[2] https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104

[3] https://whc.unesco.org/en/convention/

- Natural Environment and Rural Communities (NERC) Act (2006);
- Protection of Badgers Act 1992;
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[4];
- The Environment Act 2021[5];
- The Invasive Alien Species (Enforcement and Permitting) Order 2019[6]; and,
- The Town and Country Planning Act 1990.

1.4.2 The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place following the United Kingdom's withdrawal from the European Union with only relatively minor changes coming into force on 31st December 2020, with the 2017 regulations being transposed into national (England and Wales) legislation via the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 which came into force on 31st December 2020. They are hereafter referred to as the 'Habitats Regulations'.

Policy and Guidance

1.4.3 Reference has been made to the following key pieces of policy and guidance, listed in **Table 1.2**.

Table 1.2: Policy and guidance.

National
• Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Natural England, 2022)[7];
• Biodiversity Net Gain. Good practice principles for development[8];
• BS 42020:2013 Biodiversity – Code of Practice for Planning and Development;
• BS 8683:2021 Process for designing and implementing Biodiversity Net Gain;
• European protected species policies for mitigation licences (Natural England, 2022)[9];
• Natural England European Protected Species Policies[10]
• The National Planning Policy Framework 2 (NPPF2, 2023)[11];
• The United Kingdom Biodiversity Action Plan (UK BAP); and,
• Wildlife licensing: comment on new policies for European protected species licence (Natural England, 2016)[12].

[4] https://www.legislation.gov.uk/uksi/2019/579/contents/made
[5] https://services.parliament.uk/Bills/2019-21/environment.html
[6] https://www.legislation.gov.uk/uksi/2019/527/introduction/made
[7] https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions
[8] https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/
[9] https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences
[10] https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences
[11] https://www.gov.uk/government/publications/national-planning-policy-framework--2
[12] https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-new-policies-for-european-protected-species-licences

Local
• Cumbria Biodiversity Action Plan (LBAP)[13]; • Copeland Borough Council Local Plan 2013-2028[14]; and • Copeland Brough Council Local Plan 2021-2038 (in examination)[15].

1.4.4 The 'UK Post-2010 Biodiversity Framework' succeeds the UK Biodiversity Action Plan (UK BAP) and 'Conserving Biodiversity – the UK Approach'. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report in the context of the objectives of the Biodiversity Framework. BAPs identify habitats and species of nature conservation priority on a UK (UK BAP) and Local (LBAP) scale. UK BAPs formed the basis for statutory lists of priority species and habitats in England under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006, and so are also relevant in the context of this legislation.

1.4.5 This report is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of Practice for Planning and Development.

[13] https://www.cumbriawildlifetrust.org.uk/sites/default/files/2018-05/cumbria-biodiversity-action-plan-species-updated-list-2009.pdf

[14] https://www.copeland.gov.uk/sites/default/files/attachments/copeland_local_plan_2013_2028.pdf

[15] https://www.copeland.gov.uk/content/copeland-local-plan

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected and notable species and habitats within proximity to the Site as follows:

- Statutory designated sites for nature conservation, within 5km of the Site, extending to 10km for internationally protected sites;
- Non-statutory designated sites for nature conservation within 2km of the Site; and,
- Existing records of priority habitats and protected and notable faunal species (dated within the last 10 years), within 2km of the Site.

2.1.2 The following key sources were consulted:

- Natural England and Joint Nature Conservation Committee (JNCC) websites[16];
- The Multi Agency Geographic Information for the Countryside (MAGIC) website[17;]
- District Level Licencing Data[18;]
- The Natural England Open Data Geoportal[19;]
- The Woodland Trust Ancient Tree Inventory website[20]; and,
- Cumbria Biodiversity Data Centre (CBDC)[21].

2.1.3 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area, including potential ponds and watercourses.

Desk Study Limitations

2.1.4 A desk study does not identify a comprehensive account of all species and features of ecological importance within the study area, however it improves the understanding of the Site's ecological value and the likely species and habitats within the area.

2.2 Field Surveys

Extended Habitat Survey

2.2.1 An extended habitat survey was undertaken on 6th March 2024 by L. Quarton BSc MSc (Hons) QCIEEM and A. Littlechild BSc (Hons), a suitably experienced and qualified ecologist holding a FISC

[16] http://jncc.defra.gov.uk/

[17] https://magic.defra.gov.uk/MagicMap.aspx

[18] https://naturalengland-defra.opendata.arcgis.com/datasets/great-crested-newts-edna-pond-surveys-for-district-level-licensing-england?geometry=-1.451%2C51.749%2C-1.002%2C51.823

[19] https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::peaty-soils-location-england/explore?location=53.163227%2C-0.801927%2C10.71

[20] https://ati.woodlandtrust.org.uk/

[21] http://cbdc.org.uk

(Field Identification Skills Certificate[22]) level 3 certificate. The survey followed the 2.0 UKHab Methodology[23] with reference to the CIEEM, guidance (2017)[24].

2.2.2 A follow up habitat survey was undertaken on 21st May 2024 by ecologist A. Littlechild BSc (Hons). The purpose of this Site visit was to update survey data following minor red line boundary changes with regard to the Site access area and to confirm habitats present considering the sub-optimal timing of the original survey. Update habitat survey and condition assessments were only undertaken at the Proposed access point, not the wider Site or Landowner Boundary.

2.2.3 The surveys covered the Site and the wider landowner boundary, as presented in **Figure 1**. It also covered a 250m buffer from the red line boundary, where access allowed. The extent of the Site and habitats as surveyed is shown on **Figure 4** with accompanying photographs in **Appendix 1**.

2.2.4 All habitats were mapped and described using a series of 'target notes' (TNs) to the highest level of UK habitat classification as possible, with each individual habitat feature being assigned to a primary habitat and then described with secondary codes if applicable. The survey was extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance.

2.2.5 On-Site trees were assessed from ground level for their suitability to support roosting bats by way of ground level tree assessment (GLTA) in accordance with Bat Conservation Trust guidance (Collins, 2023, Table 6.2[25]): Suitability for roosting bats was classified as follows:

- None: No Potential Roost Feature's (PRF's) present, or very unlikely to be.
- FAR: Further assessment required to identify any PRF's.
- PRF- I: PRF is only suitable for individual bats or very small numbers of bats due to size or lack of suitable surrounding habitats.
- PRF- M: PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Field Survey Limitations

2.2.6 An Extended habitat survey does not constitute a detailed botanical survey or faunal species list, or provide a full protected species survey, but enables competent ecologists to ascertain an understanding of the ecology of the site in order to:

- Broadly identify the nature conservation value of a site and assess the significance of any potential impacts on habitat/species recorded; and/or,
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site (if any).

2.2.7 The initial survey visit was undertaken in early March, and therefore was just outside the optimal period for botanical surveys (approximately April to September inclusive). Considering the current

[22] http://www.bsbi.org/field-skills

[23] http://www.ukhab.org

[24] CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

[25] Collins et al. (ed) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th edition, BCT: London.

land use and the common/low ecological value habitat types on site however, this is not considered a significant limitation to the survey.

2.2.8 Condition assessments for the majority of habitats on Site were also undertaken just outside the optimal survey season. As above, considering the type of habitats and management practices in place, this is not considered a significant limitation. Where it was considered a condition assessment criterion was unable to be accurately determined due to seasonal constraints a precautionary approach was taken and the criterion assumed to have been passed.

2.2.9 An update habitat survey and condition assessments were undertaken at the Site's proposed access point in May (as described above in 2.2.2), and as such, there is no limitation on these areas.

2.2.10 Part way through the extended habitat survey, surveyors were approached by the landowner who then restricted the remainder of the survey to the main Site boundary only. As such, parts of the wider survey boundary were not able to be fully assessed, however this restriction was put in place once most of the site had already been surveyed and is only relevant to the habitats present along the southern landowner boundary, namely the farmyard and associated treeline, plus deciduous woodland. This is not considered to be a significant limitation as all habitats within the Site boundary were fully assessed, no direct impacts will occur on any habitat type within the wider landowner boundary outside the Site, and the non-surveyed areas of the landowner boundary are too distant to be at any risk of indirect impacts.

2.2.11 GLTA surveys were undertaken in early March, the optimal time of year where tree growth is limited and allows for better inspection of potential tree features. However, not all trees within the landowner boundary were fully assessed due to access restrictions described above; priority went to trees in and around the Site application boundary which is not considered to be a limitation on the survey.

2.2.12 Buildings within the farmyard were also not able to be fully assessed and are considered likely to contain buildings with bat roost potential. This is not considered a significant limitation to the survey none of the buildings are due to be directly or indirectly impacted by the Proposed Development.

3 BASELINE

3.1 Designated Sites for Nature Conservation

Statutory Designated Sites

3.1.1 A review of the Natural England, JNCC and MAGIC websites confirmed that the Site is not located within any statutory designated site for nature conservation.

3.1.2 Two internationally designated sites with mobile qualifying species lie within 10km of the Site, in addition to another which is shown as a possible internationally designated Site. These are described in **Table 3.1** and locations shown in **Figure 2**.

Table 3.1: Internationally designated sites for nature conservation within 10km.

Designated site	Distance	Designated Interest(s)
River Derwent & Bassenthwaite Lake SAC	4.3km northeast	Bassenthwaite lake is a type of mesotrophic standing water unusual in mountainous areas. Supports protected species including sea lamprey, brook lamprey, river lamprey, Atlantic salmon, otter, marsh fritillary butterfly and floating water plantain.
River Ehen SAC (mobile qualifying species)	7.9km southeast	Supports the largest freshwater pearl mussel population in England (primary qualifying feature) whilst also supporting Atlantic salmon.
Solway Firth SPA *Identified as a Potential SPA on MAGIC website	3.76km west	Qualifying criteria include the presence of several non-breeding bird assemblages, which include whooper swan, pink-footed goose, barnacle goose, northern pintail, scaup, oystercatcher, golden plover, red knot, bar-tailed godwit, curlew and redshank. Additional qualifying features include the presence of non-breeding red-throated diver, cormorant, common scoter, goosander, ringer plover, lapwing, black-headed gull, common gull and herring gull.

Key

SAC: Special Area of Conservation

SPA: Special Protection Area

3.1.3 The search identified two statutory designated sites within a 5km radius of the survey boundary, described in **Table 3.2** and locations shown in **Figure 2**.

Table 3.2: Statutory designated sites within 5km.

Designated site	Distance	Designated Interest(s)
Harrington Reservoir LNR	3.29km northwest	Habitats including running water, fringing fen communities, damp meadow grasslands, tall herb/scrub and high-quality species rich neutral grassland, which is seasonally flooded.

Designated site	Distance	Designated Interest(s)
		Supports floral species including orchids, devils' bit scabious, betony, wood anemone and great burnet. Important site for breeding birds including warblers, redpoll and reed bunting, with kingfishers also common.
River Derwent and Tributaries SSSI	4.26km northeast	The largest oligotrophic, or nutrient poor, river in England that still retains high water quality and a natural channel. Supports an abundance of bryophytes and several protected faunal species including Atlantic salmon, sea lamprey, brook lamprey and otter.

Key

SSSI: Site of Special Scientific Interest

LNR: Local Nature Reserve

3.1.4 The Site lies within an SSSI Impact Risk Zones (IRZ) relating to River Derwent and Tributaries SSSI, whereby the Local Planning Authority should consult Natural England on developments that include airports, helipads, solar schemes with a footprint over 0.5ha and all wind turbines. This application therefore falls within the scope of an IRZ.

Non-statutory designated sites

3.1.5 Nine non-statutory designated sites are located within 2km as described in **Table 3.3** and shown on **Figure 3**. A review of the 2km data search supplied by CBDC identified that the Site is not located within any non-statutory designated sites. The closest, Beck Green Meadows Country Wildlife Site (CWS) is located over 900m away.

Table 3.3: Non-statutory designated sites for nature conservation within 2km.

Designated Site	Distance	Designated Interest(s)
Beck Green Meadows CWS	960m west	No citation has been provided but a review of MAGIC reveals parts of the site supports S41 priority habitat deciduous woodland.
Alcan Wildlife Area CWS	980m northwest	No citation has been provided but a review of MAGIC reveals part of the site supports a pond and brook habitats.
Wilson Park verge and field CWS	1.30km southeast	No citation has been provided but a review of MAGIC reveals large parts of the site support S41 priority habitat purple moor grass and rush pasture.
Special Roadside Verge MP B5 A1 (1)	1.60km southwest	No citation has been provided but it is expected that this supports comparatively diverse flora.
Sandbeds Meadows CWS	1.70km southeast	No citation has been provided but a review of MAGIC reveals the site supports a pond and S41 priority habitats purple moor grass and rush pasture, lowland dry acid grassland and deciduous woodland.
Special Roadside Verge MP K3 (4)	1.70km north	No citation has been provided but it is expected that this supports comparatively diverse flora.

Designated Site	Distance	Designated Interest(s)
Hayes Castle Meadows CWS	1.90km west	No citation has been provided but a review of MAGIC reveals parts of the site support S41 priority habitats deciduous woodland and purple moor grass and rush pasture.
Gilgarran Plantation CWS	1.90km southeast	No citation has been provided but a review of MAGIC reveals the site supports S41 priority habitat lowland heathland.
Special Roadside Verge MP K3 (3)	1.95km north	No citation has been provided but it is expected that this supports comparatively diverse flora.

Key

CWS: County Wildlife Site

3.2 Priority Habitats – Existing Records

3.2.1 There is one habitat of Principal Importance (also known as priority habitat) under Section 41 of the NERC Act 2006 (NERC) and/or listed on the UKBAP located within the Site, this being Hedgerow which forms part of a field boundary.

3.2.2 Review of the MAGIC website, together with information sourced from the 2km data search supplied by CBDC and the extended habitat survey, identified a further six priority habitats within 2km of the Site boundary. All relevant priority habitats within 2km are presented in **Table 3.4** below. Where numerous records of a particular habitat were recorded, only the closest record to the Site has been provided, to provide context for the Site and surrounding area.

Table 3.4: Priority habitats – on Site and existing records

Priority Habitat Name	Designation	Distance from Site
Native Hedgerow	NERC S41, UKBAP	On site feature
Deciduous woodland		Within Landowner Boundary
Ancient (semi natural) woodland		260m west
Open mosaic habitat		755m north
Purple moor grass and rush pasture		1.06km south east
Traditional orchards		1.46km south west
Lowland heathland		1.95km south east

Key

NERC S41: Natural Environment and Rural Communities (NERC) Act (2006)

UKBAP: UK Biodiversity Action Plan Priority Habitat

3.3 Ancient and Irreplaceable Habitats

3.3.1 No ancient woodland, veteran trees, or other potentially irreplaceable habitats were identified either on Site or within the landowner boundary, through the Ancient Woodland Inventory or Ancient Tree Inventory.

3.4 Field Survey - Habitats and Vegetation

3.4.1 This section describes the Site as shown in **Figure 1** and should be read in conjunction with the **UK Habitats Plan** presented as **Figure 4**. Descriptions for the red line boundary are provided in **Table 3.5**, with descriptions for the landowner boundary provided in Table 3:6.

3.4.2 Photographs from the Site survey are presented in **Appendix 1**, with Target Notes (TN's) provided in **Table 3.7**.

3.4.3 The 2km data search supplied by CBDC provided nine plant records of interest, though none were within 1km of Site.

Red line boundary

Table 3.5: UKhab habitats summary of red line boundary

Habitat Code	Descriptions	Photo No
u1c.839	**Artificial unvegetated, unsealed surface- track** An access track is present leading up to the base of the existing wind turbine. The access track comprises of compacted gravel or, to a lesser extent bare earth and soil. Scattered modified grassland dominated by perennial ryegrass is present along the centre and along the edges of the track.	1
u1b5	**Artificial unvegetated, sealed surface- buildings** The single wind turbine is present on a concrete base, adjacent to another small concrete base housing a substation surrounded by metal fencing. Two associated metal substation buildings are also present south of the turbine.	2, 6
g4.14.100	**Modified grassland with scattered rushes, grazed** Immediately surrounding the access track and the wind turbine are fields of modified grassland. Perennial ryegrass is dominant, with occasional common nettle, broad leaved dock and creeping buttercup. The fields were gently sloping down to the northern and eastern aspects, with locally frequent soft rush in the lower lying areas. The grassland is sheep grazed, resulting in a short sward of approximately 4cm.	2, 3, 4, 5
g3c.16	**Other neutral grassland- tall forbs** This habitat was present in the form of a road verge, one small parcel between hedgerow and tarmac roads where the new access road is proposed. This measured upto 5m wide in places but is and had evidence of recent cutting, likely a frequent regime for road safety. The species comprised of abundant Yorkshire fog; frequent cow parsley, creeping buttercup and sweet vernal grass; occasional creeping bent, cinquefoil, white clover, red clover, red fescue and annual meadow grass; with rare crested dogs' tail, meadow buttercup, ribwort plantain, dandelion, knapweed, curled dock, chickweed and tufted vetch.	19
h2a	**Native hedgerow**	3, 19

Habitat Code	Descriptions	Photo No
	A defunct native hedgerow is present along the eastern field boundary where the existing turbine is situated, on average 1.5m tall and 1m wide. This is a defunct hedgerow with numerous gaps, including one of roughly 10m where the proposed new access track will cross. Hawthorn is dominant, with a single gorse shrub also present. The understory is limited to modified grassland the same as the fields, with a base gap of c.10cm. One small (c.10m length) section of native hedgerow is present within the Site red line boundary; at the end of the proposed new access track. This hedgerow was hawthorn dominant, with occasional bramble. The understory was typical of other neutral grassland with species including frequent bramble and meadowsweet; occasional tufted vetch, sweet vernal grass, redshank, soft rush, meadow vetchling and timothy; with rare fern sp., horsetail, red campion, meadow buttercup, lesser stitchwort, knapweed, nettle, cleavers, creeping thistle and garlic mustard.	
r1.50.502	**Seasonally wet ditch** Two seasonally wet ditches are present along the field boundaries. One runs northwest to south east parallel to the defunct native hedgerow as described above. The other runs southwest to north east, where a new access track is proposed. This ditch is without a hedgerow feature but two scattered trees are present along it. The ditches were mostly dry or had a very low water level at the time of survey in early March and no aquatic plant species were observed within either ditch. Modified grassland with dominant soft rush were dominant along these features.	3, 4, 5
w1.32	**Scattered trees** A single mature oak tree *Quercus sp.* is present within the hedgerow feature as described below (TN1, Table 3.7). Whilst the trunk may lie immediately adjacent to but outside the Site boundary, the root system and crown will overlap into Site. This tree leans east into the adjacent field and supports some bat potential features on the eastern aspect. Two additional scattered trees were present along the wet ditch described above that runs east to west. Access was not permitted into the relevant field so a full assessment could not be undertaken and the tree species was not ascertained, but these were semi mature specimens.	3, 4

Landowner boundary

Table 3.6: UKhab habitats summary of landowner boundary

Habitat Code	Descriptions	Photo No
u1b	**Artificial unvegetated, sealed surface** Stubsgill Farm is present in the south of the landowner boundary. This comprises a large collection of farm buildings including residential dwellings, barns and animal units, largely with concrete or tarmac floor in-between. This area was not surveyed in detail during the habitat survey so has been collated as one area, the 'farmyard'.	-
u1c.839	**Artificial unvegetated, unsealed surface- track** An access track runs from the offsite farmyard directly to the base of the existing wind turbine. Much of the access track comprises of compacted gravel or, to a lesser extent bare earth and soil. Scattered modified grassland dominated by perennial ryegrass is present along the centre and along the edges of the track.	1
g4.14	**Modified grassland with scattered rushes** The landowner boundary is dominated by fields of modified grassland. Perennial ryegrass is dominant, with occasional annual meadow grass, common nettle, broad leaved dock and creeping buttercup, with rare chickweed. The fields were gently sloping, with locally frequent soft rush in the lower lying areas. The grassland is sheep grazed, resulting in a short sward of approximately 4cm.	9
g4.15	**Modified grassland, rushes dominant** An area of this habitat type lies within and around a seasonally wet ditch, lined with parallel hedgerows east of the access track. This is approximately 4m wide, modified grassland as described above, but with smooth rush dominant along the length of the feature. Only a small section was wet at time of survey, with a low level of visible water.	7
g4.16	**Modified grassland with tall forbs** A strip of this habitat type is present along the centre of site. It is thought to be an infilled ditch feature as it is fenced off and extends either side of the seasonally wet ditch lined by parallel hedgerows. Species comprise those within g4.14 as above, but with frequent common nettle and soft rush, occasional rosebay willowherb and rare bramble. This area is not grazed and has a longer sward, ranging from 5cm to 30cm.	-
g4.14.81	**Modified grassland with scattered rushes, and ruderal or ephemeral** This habitat is in the south of site and associated with the rear of the farmyard complex. Species comprise dominant perennial ryegrass, with rare creeping bent and chickweed. It also features some occasional scattered areas of soft rush at the lower aspect to west and ruderal vegetation (common nettle and willowherb) up slope, along the fence line to the east. The grassland is managed with a sward of 4-7cm.	-
w1.32	**Scattered trees** Scattered trees within the survey boundary include occasional ash, willow and oak trees, mostly along the stream in the north of Site. One tree was also present in the west of the survey boundary, along a native hedgerow feature.	3, 14

h2a	**Native hedgerow** Native hedgerows are present across the landowner boundary and bound the field edges. The understory for all hedgerows below is restricted to modified grassland as described above. This is due to heavy grassland grazing right up to the very edge of these linear features. <u>Northeast parcel (turbine field)</u> The defunct hedgerow along the eastern site boundary as described in Table 3.5 above extends north into the landowner boundary up to the unnamed stream. Another defunct hedgerow lies roughly northwest to southeast along the eastern field boundary where the turbine is located. This is a hawthorn dominant hedgerow, managed to 1m tall and largely less than 1m wide. The base gap is *c.*0.2m, with numerous gaps along the feature, the largest measuring 7m. Parallel hedgerows are present along the southern field boundary, with a seasonally wet ditch in between. Both hedgerows are dominated by hawthorn approximately 2.5m wide and 3m tall. These are not managed like the other hedgerows on site, with the appearance of outgrown shrubs. The intact parallel hedgerows only extend halfway along the southern field boundary, before stopping and defunct hedgerow features continue to the eastern landowner boundary. <u>Southeast parcel</u> Native hedgerow runs south along the remainder of the eastern boundary, approximately 2m tall and 1.5m wide. Hawthorn is dominant with occasional gorse and this is a functional with only a few small gaps present along its length. <u>Southwest parcel</u> A small section (*c.*33m) of defunct hawthorn hedgerow lies west of the access track, approximately 2m tall and 2m wide. A hedgerow runs roughly northeast to southwest and splits the modified grassland fields. This is a hawthorn hedge approximately 3m tall and 1.5m wide with a base gap c.0.5m. A final hedgerow lies along most of the western field boundary, based on a bank, hawthorn dominant and heavily managed. This feature measures approximately 1.5m tall and 1.5m wide with a 20cm base gap and 1m gaps along its length.	12
H2a.111.116	**Native hedgerow, hedgebank and flailed** A native hedgerow located on a bank and heavily managed by flailing was present along the western landowner boundary, although outside of the survey boundary. This lied adjacent to public footpath and corresponding parallel hedgerow. It was roughly 1.5m tall and wide, with dominant hawthorn and frequent bramble. The hawthorn shrubs were very mature and the understory contained occasional dogs mercury woodland ground flora. The ground flora also contained abundant perennial ryegrass, frequent cleavers, common nettle, creeping buttercup, moss species and rosebay willowherb, with occasional herb Robert.	11

r1.50.502	**Seasonally wet ditch** Seasonally wet ditches are present along some field boundaries, largely surrounding the northeast parcel within the landowner boundary. One ditch runs northwest to south east along the eastern boundary, approximately 0.5m wide and 30cm deep with connectivity to another ditch discussed in Table 3.4 above and streams to the north and south of the landowner boundary as discussed below. Another ditch lies south of the northeastern land parcel, between parallel hedgerows. This has an area roughly 4m wide but only 0.5m deep with gently sloping edges, more reminiscent of wet grassland than traditional arable ditch. The ditches were mostly dry or had a very low water level at the time of survey in early March and no aquatic plant species were observed within either ditch. Modified grassland with dominant soft rush were dominant along these features.	5, 7
w1.33	**Line of trees** Three lines of trees were recorded within the landowner boundary. One lies along the northwestern boundary adjacent to the unnamed stream, comprising abundant willow species, frequent outgrown hawthorn, occasional ash and oak with rare holly. It measured approximately 4m wide and 5m tall and did not appear to be managed, with apparent deadwood within. The understory comprised of modified grassland and soft rush. One runs west to east along a field edge, extending out from the western landowner boundary only by 50m before stopping. This treeline had two age groups present with some hawthorn scrub but was very gappy and canopy not continuous. The last treeline lay in the south, nearer the farmyard and along a fence line. It was situated partially within a bank and species comprised frequent outgrown hawthorn, occasional ash and beech with rare yew. The trees ranged from 5-20m tall with modified grassland understory. This treeline supported a number of trees with bat roost potential but full assessments were not able to be undertaken due to access to this area being denied.	10
r2b	**Rivers or streams** An unnamed stream located in the north of the landowner boundary, flowing roughly from east to west with a moderate flow at the time of survey. The water averages approximately 15m cm deep and 30cm wide, with shallow to non-existent banks. Smooth rush is dominant along the feature, with frequent creeping buttercup and common nettle, occasional curled dock, and rare lesser celandine. The only aquatic species observed within the stream was frequent floating sweet grass and a single rare patch of bulrush. Dyon Beck is located in and adjacent to the southern landowner boundary, passing under the unnamed farm road. This stream flows from east to west and had a moderate flow at the time of survey. It averages approximately 5cm deep and 50cm wide with moderate to steep banks. Cow parsley, lesser celandine and hemlock water dropwort were present along the waterline, with hart tongue and other fern species common along the banks.	8, 13
w1.30	**Broadleaved and mixed woodland, semi-natural** An area of broadleaved woodland lies in the south of the landowner boundary, lining Dyon Beck. Beech is abundant, with frequent ash and birch, and occasional oak. The understory comprised of ferns, lesser celandine, moss species, bramble and ground ivy. This habitat type was only viewed from the road due to access restrictions.	13

Table 3.7: Target notes (TN)

Target Note	Description	Photo Reference
TN1	Semi-mature oak tree *Quercus* sp. assessed as PRF-FAR (further assessment required). Tree leaning east across the field boundary, eastern aspect was not able to be fully assessed due to access restrictions, but it did support a broken limb. This tree likely has minimum bat PRF-I bat roost potential features, although the broken limb may lead to a larger cavity feature which would be assessed as PRF-M.	14
TN2	Mature oak tree *Quercus sp*. assessed as having PRF-M bat roost potential features. Woodpecker hole on southern elevation, in addition to broken branches.	15
TN3	Willow tree *Salix sp.* assessed as having PRF-I bat roost potential. Hollow base and cracked limb but PRFs face upwards and are exposed to the elements, reducing suitability.	16
TN4	Mature oak tree *Quercus sp*. assessed as having a minimum of PRF-I bat roost potential features. Lies just outside the landowner boundary so full assessment not possible.	17
TN5	Superficial mammal hole observed near field hedgerow boundary with no tunnel present.	18

3.5 Protected and Notable Species

3.5.1 Species relevant to the Proposed Development are referenced in the sections below.

Birds

3.5.2 A total of 2,367 records covering 108 different species of bird were provided by the 2km data search supplied by CBDC. None of these records were from the past decade, with the most recent from 2012 and only two records were from within 0.9km of Site.

3.5.3 The closest records to Site were of two sensitive species; field data from 2004 and 2006 of confirmed successful breeding, located 0.4km away and associated with off-site woodland. The sensitive records have the species name withheld; however it does refer to a nationally or locally sensitive species.

3.5.4 Seven S41 bird species were recorded 0.9km from Site; Wood warbler, house sparrow, spotted flycatcher, tree pipit, grasshopper warbler, reed bunting and skylark. All of these records however were all over a decade old, the most recent being spotted flycatcher in 2011.

3.5.5 Bird species recorded on site consisted of a single observation of two mallard ducks on the northern stream and woodpecker heard in the vicinity along the northern landowner boundary. No ground nesting bird species were heard or observed during the survey, although it is acknowledged that the survey was undertaken early in the breeding season.

3.5.6 The modified grassland and to a lesser extent, seasonally wet ditches are considered to have limited suitability for ground nesting species due to intensive sheep grazing. Other neutral grassland road verges also have limited suitability due to the small extents, proximity to the road and cutting regime

for maintaining line of sight visibility for road safety. The hedgerows and scattered tree on Site are suitable habitat for foraging and breeding birds over a wide range of common passerine species.

3.5.7 The Site and surrounding habitats are not considered likely to support any protected or notable breeding species and are largely unsuitable for species typically considered as sensitive to wind energy developments (as defined in NatureScot guidance, 2017); however occasional use by passing raptors cannot be precluded.

Bats

3.5.8 The 2km data search supplied by CBDC supplied fourteen bat records across a minimum of five species: common pipistrelle, soprano pipistrelle, noctule, Daubenton's and whiskered/brandts, along with a number of unidentified species.

3.5.9 Eight bat species are listed as Cumbria LBAP species: common pipistrelle, soprano pipistrelle, noctule, Daubenton's, whiskered, brandts, Natterer's and brown long eared.

3.5.10 Only two bat records were from within the past decade, one revealing a pipistrelle species bat roost (nine individuals) 2km away from 2014 and the other a field record of a single unidentified bat species 1.3km away from 2021. The records are generally field records that signify these species are present and roosting in the surrounding landscape, however all records lie at least 1km from site.

3.5.11 No European Protected Species (EPS) licences were required for bat species within 2km of site, although two have been issued within the wider landscape; one for common pipistrelle 3.75km away and dated from 2012, the other for common pipistrelle and Natterer's bats 3.85km away dated from 2019.

Roosting Bats

3.5.12 The buildings on Site have no features suitable for use by roosting bats due to their construction materials and design. There are a number of trees within the landowner boundary which have bat roost potential, ranging from PRF-I to PRF-M. Target notes 1-4 in **Table 3.7** detail the features, with photos in **Appendix 1** and locations shown in **Figure 4**.

3.5.13 One tree with bat roost potential lies adjacent to the Site boundary (TN1), a semi mature oak tree which lies within the hedgerow feature and adjacent to seasonally wet ditch network. This tree was leaning east over the field boundary and a broken limb was visible, however access did not allow a full assessment of this feature. As such, this tree was assessed as PRF- FAR, meaning further assessment required. This tree is not proposed for removal; however it does lie in close proximity to the proposed new access track.

3.5.14 There are numerous additional semi-mature or mature trees present within the wider landowner boundary which were either assesses as having bat roost potential or were not fully assessed, however none are proposed for removal and they lie at some distance to the Site boundary itself.

Foraging and Commuting Bats

3.5.15 The majority of Site, access track, buildings and modified grassland offer few opportunities for foraging and commuting bats. Other neutral grassland road verges and scattered trees offer better opportunities for foraging bats due to the high number of associated invertebrate species they

support, although these have negligible potential for commuting. The removal of other neutral grassland is small in size and will have negligible impact on foraging bats in the area.

3.5.16 In terms of linear habitats, seasonally wet ditch and native hedgerow lie within the Site. One small section of hedgerow with associated wet ditch is proposed for removal in order to facilitate access from the offsite road. in addition to another small section of seasonally wet ditch within the centre of Site. These sections of removal are all *c*.10m in length which will have negligible impact on foraging and commuting bats, with gaps not large enough to sever potential flightlines.

3.5.17 The wider landowner boundary comprises further areas of linear features such as, native hedgerow, seasonally wet ditches, streams and treelines which may be used by foraging or commuting bats.

3.5.18 The deciduous woodland corridor along the stream located in the south of the landowner boundary and offsite ancient woodland approximately 260m west of the Site offers more optimal opportunities for foraging and commuting bats.

3.5.19 Overall, the habitats within and adjacent to the Site were considered to most closely fit the description for land of 'moderate' suitability for foraging and commuting bats in accordance with Bat Conservation Trust (BCT) guidance.

Hazel dormouse

3.5.20 Suitable habitat for dormouse is present within the Site in terms of two small sections of native hedgerow and within the wider landowner boundary in terms of further hedgerows and optimal deciduous woodland. The hedgerows however, are generally quite gappy and lack floral diversity to support a varied dormouse diet across the year.

3.5.21 The 2km data search supplied by CBDC provided no hazel dormouse records, and no EPS licences were required for the species within 2km of Site. Their geographical range is largely absent in the north of England, although Peoples Trust for Endangered Species (PTES) distribution map shows that they are 'rare' in Cumbria. Considering the above, hazel dormouse will not be considered further in this report.

Badger

3.5.22 The data search supplied by CBDC reveals a total of five badger records within 2km of site, however the closest lies 1.6km from Site and most recent was dated from 2009.

3.5.23 No evidence of badger was found within the Site or within the wider landowner boundary during the extended habitat survey. The Site offers suitable habitat for foraging and commuting within the areas of grassland, hedgerows and scattered trees. The Site is unsuitable for sett creation due to the absence of suitable cover, however the wider site boundary is considered to offer suitable habitat for sett creation in terms of boundary hedgerows, treelines and deciduous woodland.

Otter and Water Vole

3.5.24 Both species are listed as Cumbrian LBAP species. The 2km data search supplied by CBDC provided only two historic records of water vole*,* nearly 2km away from 1999.

3.5.25 Twelve records were returned for otter, although none were within the past decade. Most relevant are records from 2005, 1km west of Site within Distington Beck, which has direct connectivity to Stubsgill Farm via Stubsgill Beck. No records were retuned for water vole.

3.5.26 No otter or water vole field signs were identified within the Site or the wider landowner boundary during the extended habitat survey. The seasonally wet ditches are not considered suitable for either species due to a lack and depth of running water present.

3.5.27 Both streams within the landowner boundary are also considered unsuitable for use by otter due to the shallow nature of the running water, and shallow bank profiles, although it is noted that the southern stream has direct connectivity to a historical otter record location.

3.5.28 The streams do have some suitability for water vole however the lack of records mean that presence is not likely. Neither waterbody will be directly impacted as a result of the development, however indirect impacts from water run-off could occur as a result of construction unless control measures are undertaken.

3.5.29 Overall, both otter and water vole are considered to be likely absent from the Site and will not be considered further within this appraisal.

Amphibians

3.5.30 The 2km data search supplied by CBDC supplied only one record of Great Crested Newt (GCN), 1.7km away from 2016. MAGIC Maps shows no EPS licences required for the species, and no GCN licence returns or GCN pond survey data were returned.

3.5.31 The 2km data search also provided thirteen records of smooth newt and fifteen records of palmate newt within the past decade, all at least 1km from Site.

3.5.32 Six records for common frog and one record for common toad were returned from the data search within the past decade, all over 1km from Site. The records highlight five native UK amphibian species have been recorded within the search area, although in low numbers and likely fragmented populations.

3.5.33 GCN, common toad and Natterjack toad are listed as Cumbrian LBAP species.

3.5.34 A review of Ordinance Survey mapping and aerial imagery identified only one pond within 500m of the Site. This lies approximately 150m northeast of site, associated with another farmyard complex and separated from Site by a minor road. No evidence of amphibians, such as frogspawn, was observed on Site.

3.5.35 The areas of access track and intensively grazed modified grassland have negligible habitat for amphibian species due to lack in cover from predation. The scattered trees and hedgerows do provide some suitable habitat for foraging, commuting and sheltering amphibians, however suitability is limited due to the lack of a diverse understory, and significant grazing impacts right up to the base of these features. Other neutral grassland strips also have limited suitability due to their proximity to roads and cutting regime. The seasonally wet ditches are most suitable for the species group, due to their potential to hold water at certain times of the year and ground cover provided by the vegetation in and around the ditches (dominated by soft rush).

3.5.36 Despite one pond being present within 250m of the Site, considering the nature of the site as intensely grazed grassland and the presence of only one GCN record 1.6km away, GCN is not considered likely to be present on Site, as a result this species will not be considered further within this assessment. Common amphibians, such as common frog and LBAP toad are less restricted in their habitat requirements; as such, the presence of these species on Site cannot be discounted.

Red Squirrel

3.5.37 The 2km data search supplied by CBDC identified a total of 52 records for red squirrel returned within the past decade, 26 of which were associated with Distington crematorium only 0.5-0.6km west of site and dated from 2014-2018. Red squirrels are listed as a Cumbrian LBAP species.

3.5.38 Red squirrels are largely associated with woodland and the Site does not support any suitable habitat for the species. No red squirrels were observed within the Site or landowner boundary during the survey.

3.5.39 The landowner boundary does contain a deciduous woodland stream corridor in the south of site, and also lies immediately adjacent to suitable woodland habitats in the form of deciduous and ancient semi natural woodlands to the south and southeast. None of these habitats however will be directly or indirectly impacted by the Development Proposals.

Reptiles

3.5.40 The 2km data search supplied by CBDC provided a total of six reptile records, one historical 1983 record for slow worm and five records of common lizard, the closest to site 1.1km from Site and dated from 2016. This indicates at least two species of common reptile may be present within the search area albeit in low numbers. Reptiles are often under-recorded species though, and low numbers of records should never be solely relied upon during an ecological appraisal process. All four common reptile species are listed as Cumbrian LBAP species.

3.5.41 Open habitat suitability within the survey area is considered to be negligible for reptile species, comprising access track, buildings and intensively grazed and structurally unsuitable grassland. Limited foraging and commuting potential is associated with linear features such as hedgerows and seasonally wet ditches due to the improved structure of these features however, suitability is limited due to significant grazing impacts right up to the base of these features. A small area of other neutral grassland road verge in the east of Site has suitability when the grassland is longer, however is subject to a cutting regime for road safety which reduces suitability when at a shorter sward with no protection afforded from predators.

3.5.42 Considering the site use, lack of more suitable habitat of field margins and low number of reptile records in the wider area, reptiles are considered unlikely to be present on Site, however they cannot be completely discounted.

Other Protected and Notable Species

3.5.43 Brown hare, harvest mouse, hedgehog and polecat are listed Cumbrian LBAP species. The 2km data search supplied by CBDC provided two records of brown hare, although the most recent is from 2005. No records for harvest mouse or polecat were returned in the data search and the Site is considered generally unsuitable for brown hare, harvest mouse and polecat.

3.5.44 The potential for presence of other notable species (as defined under Section 41 of the NERC Act 2006) is acknowledged, including hedgehog, although Site suitability is limited to the hedgerow features or grassland for opportunist foraging and commuting. Fifteen records for hedgehog were returned within the past ten years, the closest being a field record from 2021 of two individuals only 0.4km away, indicating local presence.

3.5.45 A total of five biological records were provided in the 2km data search supplied by CBDC in relation to invertebrates. The closest to site and most recent record was of Comma butterfly *Polygonia c-album*, a 2019 field record of five individuals 1.2km away. Habitats within and adjacent to the Site are not considered particularly suitable to support any large or notable invertebrate assemblages, due to the site use and land management.

3.6 Invasive Non-native Species

3.6.1 No invasive non-native species (INNS) records were returned from the 2km data search by CBDC and no INNS were encountered during the survey.

4 APPRAISAL

4.1 Overview

4.1.1 This section seeks to identify the potential for effects to occur as a result of the Proposed Development on habitats and protected and notable species which could be considered as reasonably likely to occur. The Site's proximity to statutory and non-statutory designated sites and potential effects on their qualifying interests is considered. Measures are proposed for the protection of sensitive habitats and species, and recommendations are made for further pre-construction surveys and mitigation, if required.

4.1.2 The existing turbine was granted planning permission for a term of 20 years on 15th August 2013 by Copeland Borough Council (4/13/2173/0F1). The Proposed Development is likely to be for a longer term and as such, it is acknowledged that impacts will last longer than those currently in place.

4.2 Designated Sites

Statutory Designated Sites

4.2.1 The Site does not form part of any statutory designated site for nature conservation, nor is it directly adjacent any statutory designated sites.

4.2.2 Two internationally statutory designated sites are located within 10km of the Site, the closest of which is located approximately 4.3km northeast (River Derwent & Bassenthwaite Lake SAC). One potential SPA is also present within 10km of Site, Solway Firth SPA located 3.7km west. The latter site however, is a potential boundary extension of an already existing SPA to protect migratory and coastal bird species.

4.2.3 Habitats within the Site are not suitable for species the internationally designated sites are designated for; largely priority habitat river or coastal specific species. Furthermore, there is a lack of direct connectivity from Site to these designated areas and it is not considered to be functionally linked.

4.2.4 Two statutory designated sites are located within 5km of the Site, the closest of which is located approximately 3.29km northwest (Harrington Reservoir LNR). The Proposed Development falls outside the scope of IRZ's for sites in the wider area and as such, does not represent a constraint to the development.

4.2.5 The Proposed Development will not result in any direct or indirect effect on habitats of any statutory designated sites due to the separation distance between the Site and statutory designated sites and the small-scale nature of the works.

4.2.6 In addition, standard good practice drainage management and measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development. With such measures in place, no indirect effects are anticipated on statutory designated sites and protected habitats in the wider area.

Non-statutory Designated Sites

4.2.7 The Site does not include, nor is it adjacent to, any non-statutory designated sites. Nine non-statutory designated sites are situated within 2km of the Site boundary, the closest of which is the Beck Green Meadows CWS located approximately 960m west which contains priority habitat deciduous woodland.

4.2.8 The Proposed Development will not result in any direct or indirect effect on habitats of non-statutory designated sites due to the separation distance and the small-scale nature of the works.

4.2.9 Standard good practice construction measures to ensure runoff control and pollution prevention will be implemented during construction. These measures will safeguard boundary and off-site habitats, as well as any associated species. With such measures in place, no indirect effects are anticipated on non-statutory designated sites in the wider area.

4.3 Habitats

4.3.1 The majority of the Site is unsealed surface access track, buildings and arable modified grassland, all of negligible biodiversity value or significance. Also present to a lesser extent are other neutral grassland road verge, native hedgerow, scattered tree and seasonally wet ditches**,** which are of moderate value to biodiversity.

4.3.2 One 10m section of native hedgerow with associated seasonally wet ditch in the east of Site will be required to be removed in order to facilitate the proposed access route. The ditch will be culverted and the length of hedgerow removal is not considered a significant impact, although it is advised that removal of UK BAP hedgerow is limited to as small an extent as possible. Another small section of seasonally wet ditch between the field boundaries in the centre of Site will also be culverted so they remain functional, and the new proposed access track will run alongside another seasonally wet ditch within the landowner boundary for its entire length.

4.3.3 One scattered tree, whilst not within the Site boundary or due for removal, lies immediately adjacent to the red line boundary and is likely to have root systems underneath the new proposed access track.

4.3.4 All habitats on site are common and widespread, and considering the small size of the development footprint, direct loss of habitat is considered to be minimal and will comprise low/moderate ecological value habitats only.

4.3.5 More of the same on-Site habitats exist within the wider landowner boundary and further areas of high value ecological habitats such as ancient woodland lie in the wider landscape.

4.3.6 Standard measures to protect retained trees and hedgerows such as Root Protection Zones (RPZ's) should be implemented on Site to prevent accidental degradation during construction. Standard measures to ensure runoff control and pollution prevention (such as dust mitigation measures) will be implemented; these measures will safeguard habitats on and adjacent to the Site, including running water in nearby streams).

4.3.7 In terms of biodiversity net gain, the Proposed Development results in a loss of 0.89 habitat units and 0.16 hedgerow units. The deficit of units required to reach 10% net gain post development are

1.16 habitat units and 0.19 hedgerow units, which will be met following a hierarchy and biodiversity metric principles. Units required will be sought by achieving them first within the wider landowner boundary, second within the same planning authority or lastly by an offsite provider (such as habitat bank).

4.4 Protected and Notable Species

Birds

4.4.1 All wild birds, their nests and eggs are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Species listed under Schedule 1 of the Act, have special protection with increased penalties for offences committed towards these birds. Additional protection is provided to species listed under Directive 2009/147/EC on the conservation of wild bird (the 'Birds Directive'). Over eighty species or groups of species are listed under Schedule 1 of the Act, which confers special protection with increased penalties for offences committed.

4.4.2 The Site does not have any habitats suitable to support any breeding Schedule 1 bird species, however the Site does have habitats suitable to support a range of breeding passerine species.

4.4.3 Depending on the timing of work, there is potential for breeding birds present on or adjacent to the Site to be affected by the construction of the development through minor habitat loss. However, this would reasonably only impact a very small number of breeding birds given the restricted areas of works and habitats present. Furthermore, any potential displacement is considered likely to be highly localised with ample alternative habitat available in the wider landowner boundary.

Construction

Protecting Active Nest Sites

4.4.4 In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended), it is recommended that any vegetation removal required (if necessary) takes place outside of the bird breeding season (March-August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be hand-searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed.

Operation

4.4.5 Operational effects (displacement or collision mortality) caused by the repower wind turbine are likely to be similar to those already in place from the operational turbine. It is considered that further surveys are unlikely to lead to any measurable change in predicted impacts to those assessed for the existing development.

Bats

4.4.6 All species of British bat are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are further protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The Regulations make it an offence to:

- kill, injure or take any wild bat;
- damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection; and,
- intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection.

4.4.7 Seven bat species in the UK are also listed as species of Principal Importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006, with seven species also listed under the Cumbria LBAP.

4.4.8 Following the extended habitat survey, the overall survey area is considered to be of 'moderate' habitat suitability, with open habitats being of poor suitability for foraging, although commuting and foraging opportunities are present relative to linear features present within the survey area (i.e., hedgerows and seasonally wet ditches). Removal of these features however, is of minor extent and will not significantly impact foraging for bats in the local area or sever potential flightlines.

4.4.9 No trees with bat roost potential are proposed to be removed, although one mature oak tree with PRF-FAR potential was identified immediately adjacent to the Site boundary. This tree was likely to contain PRFs suitable for day roosting on the eastern elevation due to a broken limb, although access to this area for full assessment was not possible. A review of historic aerial imagery shows the crown does not encroach into the boundary, and the limb with potential bat features lies approximately 7m east of the Site boundary. As such, even presuming a worst-case scenario where there is a roost present, disturbance of a potential roost is unlikely from nearby construction works if it occurs in the active season (April to October inclusive) and negligible during the hibernation season (November to March inclusive).

4.4.10 Overall, negligible construction impacts are likely as a result of the repower project.

4.4.11 Any lighting required during construction will be restricted and directed away from retained boundary habitats to maintain dark corridors for foraging and commuting. Light spill can be avoided in a number of ways, including the use of low-level lighting and use of hoods and careful selection of lighting; further information is available in *Bats and Lighting in the UK, Bats and the Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers*[26]. As long as lighting is designed and implemented in a sensitive manner, no discernible effects are anticipated on foraging/commuting bats.

4.4.12 Operational effects (displacement or collision mortality) caused by the repower wind turbine are likely to be similar to those already in place from the operational turbine. Given the small increase in turbine blade length, no measurable change in effects beyond existing impacts is anticipated. It is considered that further surveys are unlikely to lead to any measurable change in predicted impacts to those assessed for the existing development.

Badger

4.4.13 Badgers are afforded legislative protection under the Protection of Badgers Act 1992. Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a

[26]Institution of Lighting Professionals & the Bat Conservation Trust. (2023). *Guidance Note 08/23: Bats and artificial lighting at Night.*

badger whilst it is occupying a sett. It is not illegal, and therefore a licence is not required, to carry out disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or destroyed. Where an activity is likely to result in an offence under the Protection of Badgers Act 1992 a licence from Natural England is required.

4.4.14 No recent records or field signs indicative of badger were recorded within the survey area, although habitats present do offer limited foraging and commuting potential. The wider landowner boundary has more suitable habitats for foraging, commuting and sett creation.

4.4.15 As badgers are highly mobile, as a precaution a pre-construction survey should be undertaken to confirm continued absence of badger setts within and adjacent to the Site prior to the commencement of works. The survey should check for any newly constructed setts in and surrounding the Site. If a sett is found, suitable advice should be sought from the project ecologist to ensure necessary protection, avoidance or mitigation measures are in place before works proceed such as a licence from Natural England or works under a Reasonable Avoidance Measures (RAMs) Method Statement.

Amphibians and Reptiles

4.4.16 GCN and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations. The Act and Regulations make it an offence to:

- kill, injure or take a GCN;
- damage, destroy or obstruct access to any place that a great crested newt uses for shelter or protection; and,
- intentionally or recklessly disturb a GCN while it is occupying a structure or place that it uses for shelter or protection.

4.4.17 Widespread reptile species, namely the common lizard, slow worm, grass snake and adder, are protected against killing, injuring and sale under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

4.4.18 GCN, common toad and natterjack toad, in addition to all reptile species are further designated under Section 41 (England) of the NERC Act 2006 and UK BAP, whilst GCN, common toad, natterjack toad, common lizard, slow worm, grass snake and adder are also listed as priority species under the Cumbria LBAP. As such, the species listed are a material consideration within the planning process.

4.4.19 Only one pond is present within 500m of Site (c.150m northeast). Considering the nature of the site as intensely grazed grassland and the presence of only one GCN record 1.6km away, GCN is not considered likely to be present on Site, although the presence of common amphibians such as common frog and toad cannot be discounted. The Site may also occasionally be used by reptiles for opportunistic foraging, commuting, sheltering or basking.

4.4.20 Potential impacts stemming from the construction phase of the project primarily relate habitat clearance of hedgerow, other neutral grassland road verge, and seasonally wet ditch. Reasonable Avoidance Measures (RAMs) should be implemented as a precautionary measure to avoid any risk of accidental harm and/or mortality to individual amphibians and reptiles during removal of minor extents of suitable habitat. These measures should follow legislation and guidance applicable at the time, which will reduce the potential for a legislative offence and ensure favourable conservation status is maintained for any species present.

4.4.21 No impacts to protected and/or priority amphibian or reptile species are predicted following construction, with the operational phase of the development considered to be of negligible impact to local populations.

Red Squirrel

4.4.22 Red squirrel and their dreys are protected under the Wildlife and Countryside Act 1981 (as amended). Red squirrel is further listed as priority species under both NERC S.41 and the Cumbria LBAP and is consequently of material consideration within the planning process.

4.4.23 Red squirrels are primarily found in woodland habitats; the closest woodland is a deciduous woodland located adjacent to the Site in the south, and next to the existing access track. Due to the absence of woodland or scattered trees with canopy connectivity on or directly adjacent to the Site, any red squirrel populations present locally will not experience loss of foraging opportunities or disruption to commuting routes as a result of the Proposed Development.

4.4.24 If any red squirrels are sighted on or adjacent to the Site during construction, the animal(s) should be allowed to disperse of its own accord.

Other Species

4.4.25 Hedgehog are listed as a priority species under NERC S.41, UK BAP, and LBAP. As such, they are a material consideration within the planning process.

4.4.26 The loss of a small section of hedgerow and grassland associated with the Proposed Development is not considered likely to affect local populations of these species, especially when considered in the context of the availability of suitable habitats in the wider area.

4.4.27 However, the risk of morality or injury during the construction phase is a possibility; as such, RAMs will be implemented to safeguard small mammals during the works, including the removal of suitable areas of habitat within the Site.

4.5 Invasive Non-native Species

4.5.1 No invasive non-native species listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) or the EU Invasive Alien Species Regulation (1143/2014) were recorded onsite during the habitat survey. It is an offence to plant or otherwise cause to grow in the wild species listed within Schedule 9; this includes allowing the species to grow/spread, spreading the species or transferring polluted ground material from one area to another. Any waste containing these species can only be removed from site under appropriate waste management documentation (under the Environmental Protection Act 1990).

4.5.2 If any such invasive species be encountered within or immediately surrounding the Site during construction, the advice of a suitably qualified ecologist should be sought and the appropriate measures taken to prevent the inadvertent introduction or spread of such plants.

5 SUMMARY - ECOLOGY PRIORITY MATRIX

5.1.1 **Table 5.1** summarises the ecological constraints and opportunities associated with the Proposed Development and makes recommendations for pre-construction survey work and/or mitigation measures as required.

Table 5.1: Ecological Constraints and Opportunities

Feature		Details
Statutory and Non-statutory designated sites for Nature Conservation	Constraints & Opportunities	a. The survey area does not form part of any statutory or non-statutory designated sites. b. No direct or indirect impacts on statutory designated sites for nature conservation are anticipated by virtue of separation distance, the restricted scale and nature of the proposed development, limited habitats on Site and lack of functionally linked land.
	Protection Measures	c. The implementation of standard good practice pollution prevention and runoff control measures will suitably protect the designated sites, receiving watercourses and associated downstream habitats and species.
Habitats & Flora	Constraints & Opportunities	d. The majority of the Site is unsealed surface access track, buildings and arable modified grassland, all of negligible biodiversity value or significance. Also present to a lesser extent are native hedgerow, other neutral grassland road verge and seasonally wet ditches. e. One *c.*10m section of native hedgerow with associated ditch will be required to be removed to facilitate Site access. The ditch will be culverted and the length of hedgerow loss is not considered a significant impact, although it is advised that removal of UK BAP hedgerow is limited to as small an extent as possible. f. A small section of other neutral grassland associated with the above hedgerow and road verge is also required to be removed to facilitate Site access. The small scale of removal is not considered a significant impact above site level. g. One scattered tree, whilst not due for removal, will likely have roots underneath the new proposed access track. A small section of seasonally wet ditch is to be removed or culverted adjacent to the tree mentioned above and the new prosed access track will be immediately adjacent to another seasonally wet ditch for its entire length. h. All habitats due for removal are common and widespread, of low to moderate value but small in size and is not considered to have significant impacts on Site biodiversity. i. In terms of BNG, the Proposed Development results in a loss of 0.89 habitat units and 0.16 hedgerow units. The deficit of units required to reach 10% net gain post development are 1.16 habitat units and 0.19 hedgerow units, which will be met following a hierarchy and biodiversity metric principles.
	Protection Measures	j. Standard measures to protect retained trees and hedgerows, ensure runoff control and pollution prevention will be implemented; these measures will safeguard habitats on and immediately surrounding the Site.
Birds	Constraints & Opportunities	k. Grazed modified grassland and seasonally wet ditch being lost to the proposals poses no risk of significant impact to any Sch.1 WCA listed bird species or more common species. l. There is potential for breeding birds to be nesting within hedgerow habitat on Site which will be removed by the development.
	Legislative Compliance – WCA**	m. Vegetation works should be undertaken outside of the bird breeding season (01 March to 31 August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be inspected by a suitably experienced ecologist prior to works commencing. Only when the ecologist is

Feature		Details
		satisfied that no offence will occur under the legislation will works be permitted to proceed.
Bats	Constraints & Opportunities	n. No potential bat roosting habitat was identified on the Site, however one with PRF-FAR potential is present immediately adjacent to the Site boundary. o. This tree is not due for removal, however the limb with potential roost feature is c.7m from the boundary. As such, presuming the worst-case scenario where there is a roost present, potential disturbance is unlikely during the active season (May-September) and negligible during the hibernation season (October to March). p. Modified grassland being lost to the proposals is of negligible value to bats or their invertebrate prey. Other neutral grassland, hedgerows and seasonally wet ditch offer more value to foraging and commuting bats, although the small losses of each habitat type is not considered significant and will not significantly sever potential flightlines. q. More valuable bat habitats including woodland blocks and watercourses are present both within the survey boundary and wider landscape. r. Any lighting required during construction should be directed away from high quality bat habitats (hedgerows, trees and watercourses), however no lighting is expected to be required for operational activities.
	Legislative Compliance – WCA**, HR***	s. Any lighting required during construction of the turbine should be directed away from boundary features (further information is provided in Bats and Artificial Lighting at Night Guidance Note GN08/23, Bat Conservation Trust and Institute for Lighting Engineers).
Badger	Constraints & Opportunities	t. No setts were identified within or immediately adjacent to the Site. However, the surrounding habitats are considered suitable to support foraging badgers and sett excavation.
	Legislative Compliance – PBA****	u. A pre-construction badger survey should be completed by a suitably qualified ecologist immediately prior to the commencement of development to check for any newly constructed setts surrounding the Site. v. If an active badger sett if identified within proximity to development, then a mitigation strategy will be produced and if necessary, works in proximity to a sett will only proceed under a licence from Natural England.
Amphibians & Reptiles	Constraints & Opportunities	w. No ponds are on Site and none within 500m of Site will be affected by the proposals. Common amphibians and reptiles could use the Site opportunistically although it lacks structural diversity to support large numbers. x. Other neutral grassland road verge, hedgerow and seasonally wet ditches will be largely retained, with only small sections to be removed.
	Legislative Compliance - WCA*, HR**	y. Any potential works affecting suitable habitat (hedgerow, other neutral grassland, seasonally wet ditches), will be undertaken under Reasonable Avoidance Measures (RAMs).
Red squirrel	Constraints & Opportunities	z. No suitable habitats are present on Site, although there are some within the wider landowner boundary.
	Legislative Compliance - WCA*, HR**	aa. If any red squirrels are sighted on or adjacent to Site during construction, the animal should be allowed to disperse of its own accord.
Otter and water vole	Constraints & Opportunities	bb. The seasonally wet ditches on Site provide negligible potential suitable habitat for foraging and/ or commuting otter or water vole due to the water levels and shallow bank profile. cc. The streams within the wider landowner boundary are also considered unsuitable for otter, although they have some suitability for water vole.

Feature		Details
		dd. Neither streams will be directly impacted and they lie over 120m from the Site boundary. Indirect impacts from construction run-off could occur without mitigation.
	Legislative Compliance – WCA**, HR***	ee. The implementation of standard good practice pollution prevention and runoff control measures will suitably protect receiving watercourses and associated downstream habitats and species.
Other Species	Constraints & Opportunities	ff. Field boundary and road verge habitat could be used by hedgehogs, though these habitats will be largely retained and protected during construction. gg. The loss of arable land centrally is considered inconsequential based on its low suitability for hedgehog and prevalence in the local landscape. hh. The site will remain open and not impede mammal movements.
	Legislative Compliance – WCA**	ii. Precautionary RAMS will be implemented during suitable habitat removal.
Invasive Non-native Species	Constraints & Opportunities	jj. No invasive non-native plant species listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) were recorded on the Site.
	Legislative Compliance – WCA**	kk. Should any invasive species encountered on the Site prior to or during construction, the advice of a suitably qualified ecologist should be sort and the appropriate measures taken.

Legislative Compliance Key

* The Hedgerows Regulations 1997

**Wildlife & Countryside Act 1981 (as amended)

***The Conservation of Habitats and Species Regulations 2017 (as amended)

****Protection of Badgers Act 1992

Figure 1: Site Location Plan

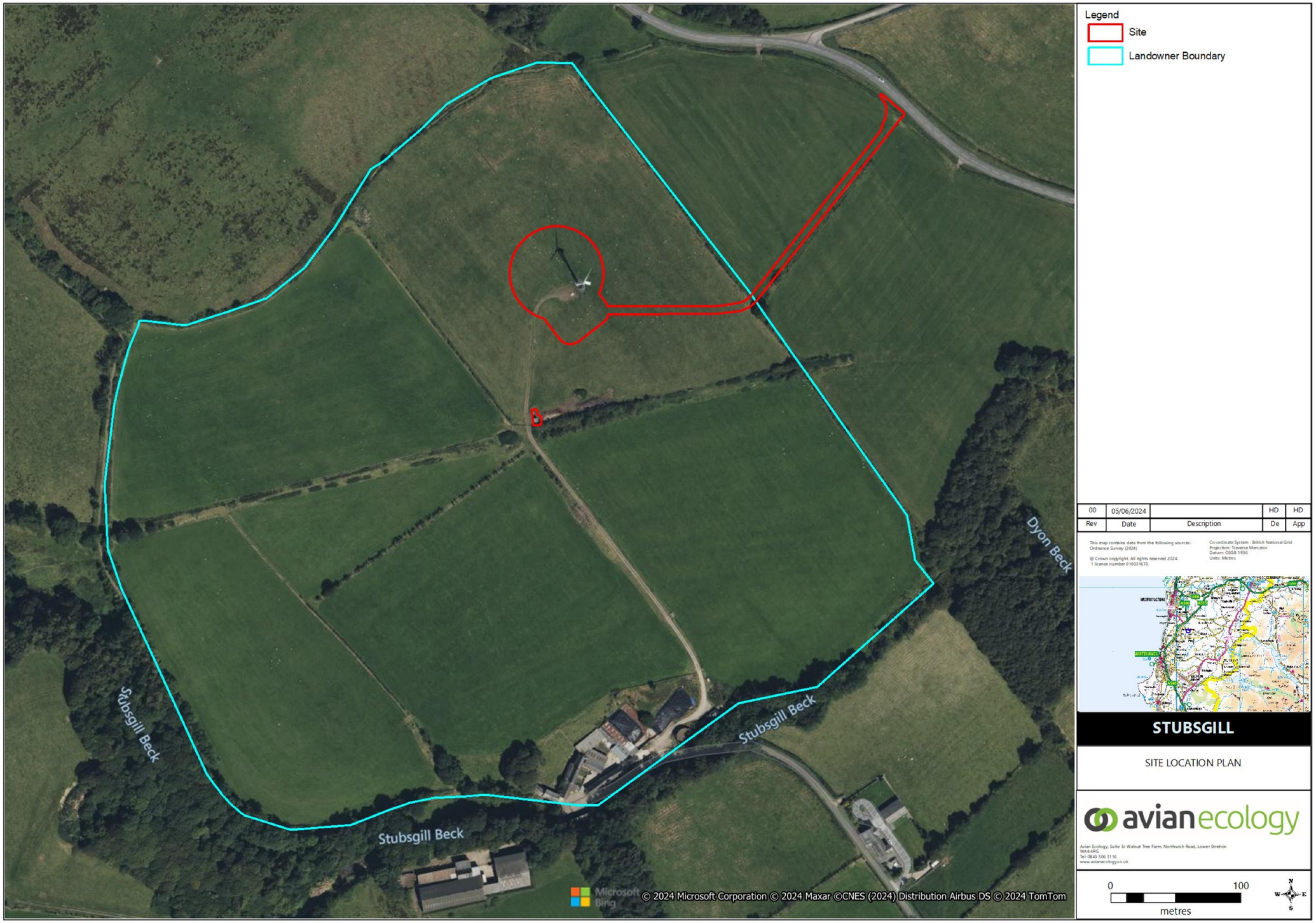


Figure 2: International and Statutory Designated Sites Plan

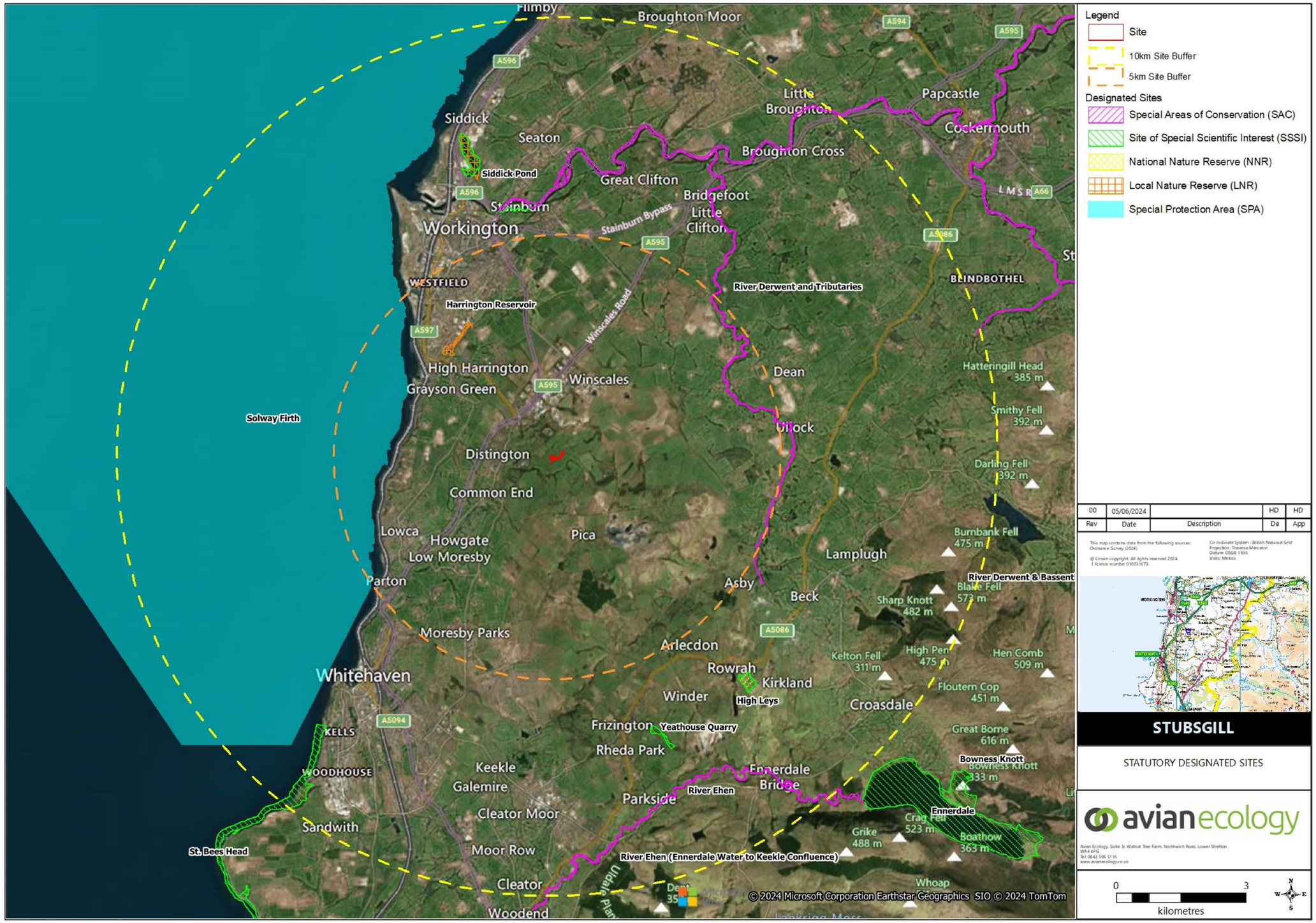


Figure 3: Non- statutory Designated Sites Plan

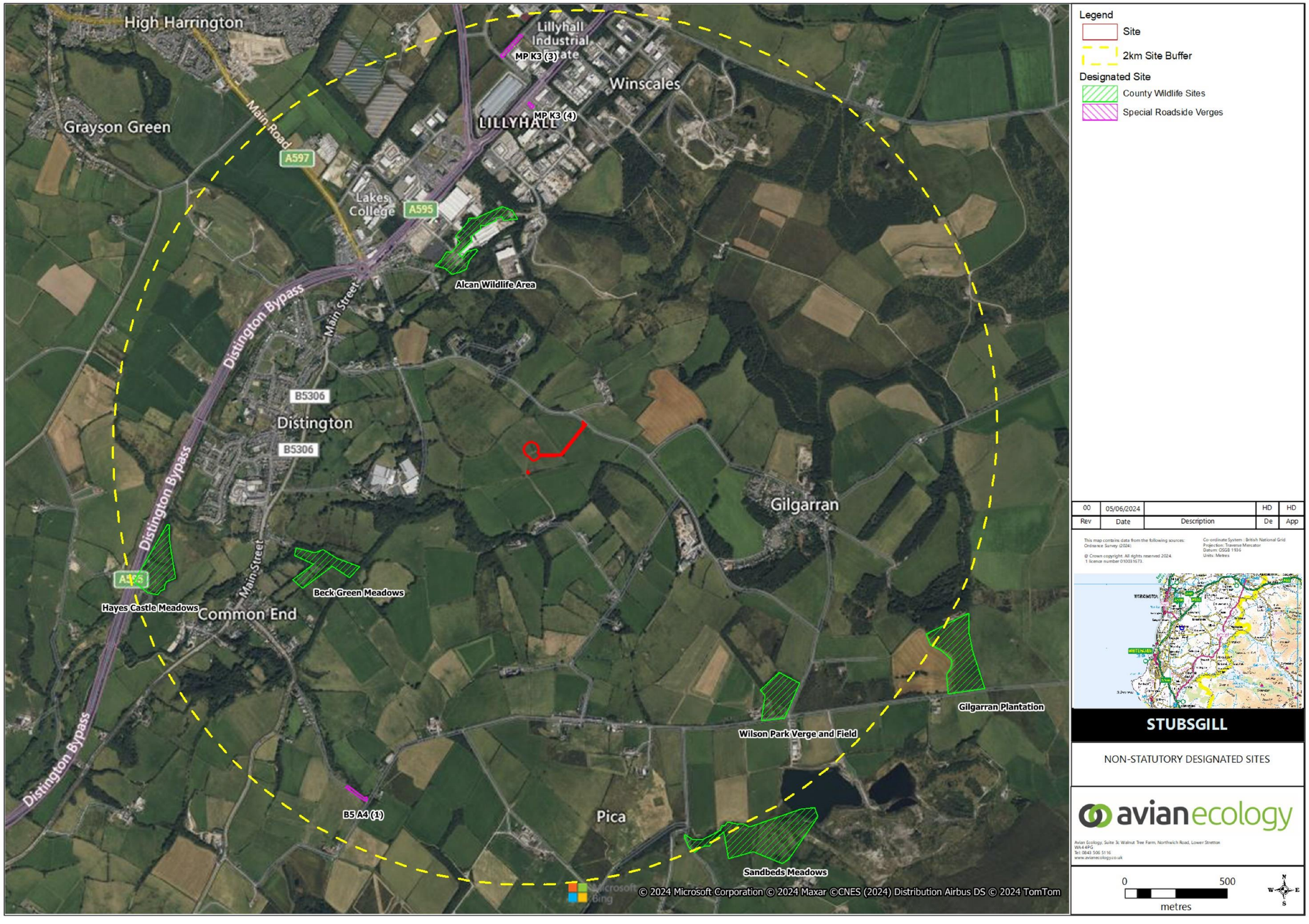


Figure 4: Habitats Plan

Appendix 1: Photographs

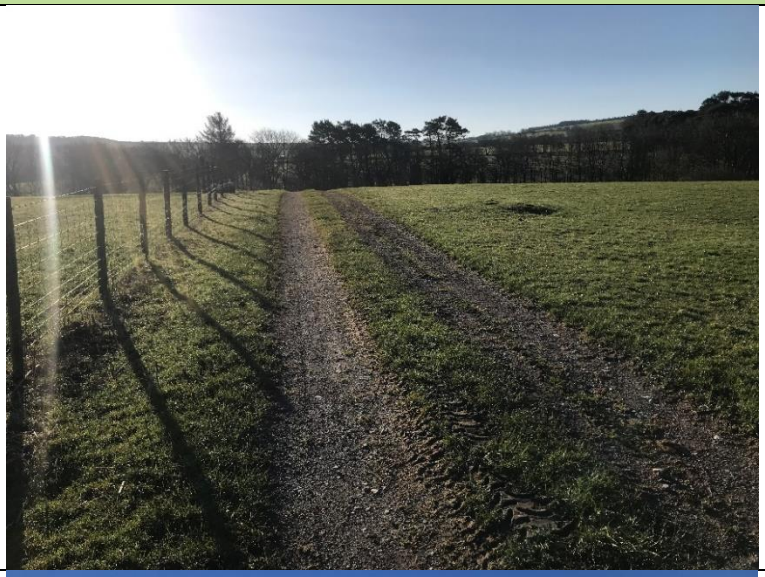
Photo No	Photographs	Description
1		Access track which runs from the farmyard directly to the base of the existing wind turbine, comprising of artificial unvegetated, unsealed surface and ephemeral vegetation.
2		Perennial ryegrass dominated modified grassland which surrounds the access track and wind turbine.
3		Native hedgerow with wet ditch and scattered tree where the red line boundary crosses from the wind turbine field into the eastern field for the proposed new access track.

Photo No	Photographs	Description
4		Seasonally wet ditch and scattered trees east of the landowner boundary but within the red line boundary for the newly proposed access track.
5		Modified grassland field with seasonally wet ditch and scattered trees east of the landowner boundary but within the red line boundary for the newly proposed access track.
6		Two small, single storey substation buildings are present south of the turbine's base and outside the red line boundary, entirely constructed of metal on concrete bases.

Photo No	Photographs	Description
7		Modified grassland and seasonally wet ditch lined by parallel hedgerows in the wider Landowner Boundary.
8		Unnamed stream which runs east to west across the northern landowner boundary.
9		Example of modified grassland across the wider Landowner Boundary, with locally frequent soft rush in lower lying areas.

Photo No	Photographs	Description
10		Treeline along the unnamed stream in the north west of the Landowner Boundary.
11		Managed hedgerow upon bank with woodland species understory along the north western extent of the Landowner Boundary.
12		Example of managed hedgerow in the centre of the wider Landowner Boundary.

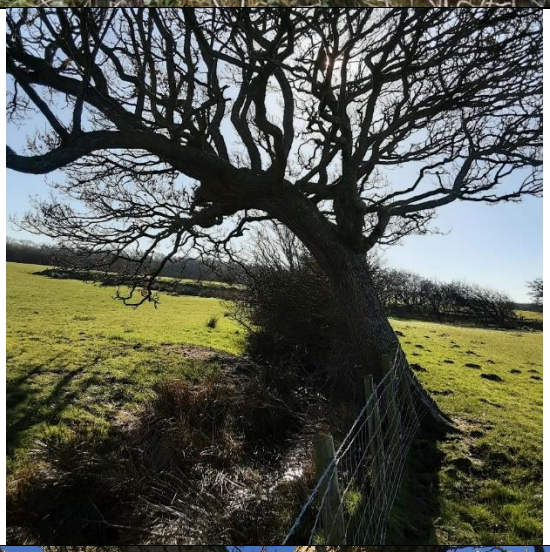
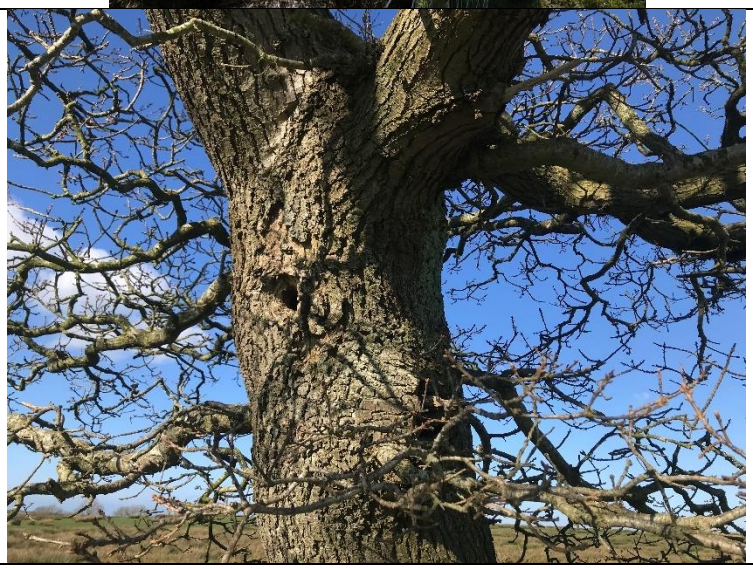
Photo No	Photographs	Description
13		Dyon Beck and deciduous woodland located adjacent to the Site boundary and immediately south of the Landowner boundary.
14		Semi-mature oak tree *Quercus sp.* Assessed as PRF-FAR (further assessment required). Tree leaning east across the field boundary, eastern aspect was not able to be fully assessed due to access restrictions, but it did support a broken limb. This tree likely has minimum bat PRF-I bat roost potential features, the broken limb may lead to a larger cavity feature which may be assessed as PRF-M.
15		Mature oak tree *Quercus sp.* assessed as having PRF-M bat roost potential features. Woodpecker hole on southern elevation, in addition to broken branches.

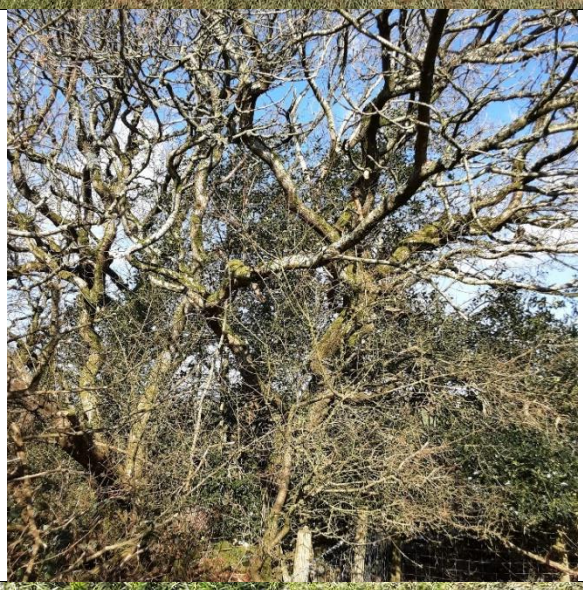
Photo No	Photographs	Description
16		Willow tree *Salix sp.* assessed as having PRF-I bat roost potential. Hollow base and cracked limb but PRFs face upwards and exposed to the elements.
17		Mature oak tree *Quercus sp.* assessed as having PRF-I bat roost potential features. Lies just outside the landowner boundary so full assessment not possible.
18		Superficial mammal hole observed near field hedgerow boundary. No tunnel present and doesn't lead anywhere.

Photo No	Photographs	Description
19		Taken during the update May survey- area where proposed new access road will be built. Showing native, species poor hedgerow and other neutral grassland road verge. Modified grazed grassland present beyond the hedgerow.