ECOLOGICAL IMPACT ASSESSMENT

Sunny Oaks Renewable Energy Park Ltd.
Wootton Common, Isle of Wight.

Ridge Clean Energy Ltd

NN1418R03
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1 INTRODUCTION

1.1 Project Background

1.1.1 E3S Consulting Ltd (E3S) were engaged by Ridge Clean Energy Ltd (The Client) to undertake an Ecological Impact Assessment (EcIA). The EcIA is required to support the planning application for the Proposed Development of the Sunny Oaks Renewable Energy Park at farmland located to the south-west of Wootton Common (The Site). OS Grid Reference at approximate centre of site: SZ528908.

1.2 Proposed Development

1.2.1 The Proposed Development is for a solar park and battery energy storage system, along with associated infrastructure. For a full description of the Proposed Development, refer to the accompanying Planning Statement. The site plan is attached at the end of this report (**Figure 1**).

1.2.2 Parts of the site that will not be developed for the solar park and battery energy storage system will be used for ecological enhancements and mitigation measures.

1.3 Methodology

1.3.1 The EcIA report evaluates whether the Proposed Development will have any significant ecological impacts on the site and identifies key ecological constraints which may affect the development. This includes impacts on habitats, ecosystems and considers the conservation status of both habitats and species. This report is an Ecological impact Assessment and is separate to a TCPA Environmental Impact Assessment (EIA) Regulations 2017 (as amended).

1.3.2 Good Practice Guidelines for Ecological Assessment in the UK and Ireland (CIEEM 2018-Updated April 2022) informs this approach. The scope of the assessment is as follows:

- Identify relevant ecological features (i.e., designated sites, habitats, species, and ecosystems) which may be impacted;
- Provide an assessment of potential ecological impacts and the resultant effects of the Proposed Development whether or not they are beneficial or adverse;
- Determine the consequences of the Proposed Development in terms of regional, local policies and national policies which are relevant to nature conservation and biodiversity where the level of detail is proportionate to the scale of the development and complexity of its potential impacts; and
- Set out any required steps to adhere to legal requirements relating to relevant ecological features concerned.

1.3.3 The following reports are also used to inform the EcIA;

- E3S Consulting Ltd. (2022) 1418 Sunny Oaks Solar Farm Preliminary Ecological Appraisal (PEA);
- E3S Consulting Ltd. (2022) NN1418 Winter Bird Survey;
- E3S Consulting Ltd. (2022) NN1418 Hedgerow Survey;
- E3S Consulting Ltd. (2022) NN1418 Bat Transect;
- Biodiversity Net Gain Assessment (Section 6);
- MJC Tree Services Ltd. (2022) Tree Constraints Plan with Regard to Proposed Development at Sunny Oaks Renewable Energy Park, Whiterails Road, Wootton; and
- Montag et al**.** (2016) The Effects of Solar Farms on Local Biodiversity: A Comparative Study.

1.3.4 Documents are presented in **Appendix A** (PEA), **Appendix B** (Winter Bird Survey, Hedgerow Survey and Bat Transect). Documentation referred to above in relation to Arboriculture is submitted separately as part of this wider application for planning permission.

2 LEGISLATION, NATIONAL, AND LOCAL POLICIES

2.1 Legislation

- The Conservation of Habitats and Species Regulations (2017);
- The Wildlife and Countryside Act (1981); and
- The Natural Environment and Rural Communities (NERC) Act (2006).

2.2 National Planning Policy Framework

2.2.1 The National Planning Policy Framework (NPPF) (2021) Section 15 Conserving and Enhancing the Natural Environment Paragraphs 174 to 182;

2.2.2 **Paragraph 174.** Planning policies and decisions should contribute to and enhance the natural and local environment by:

(a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

(b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

(c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

(d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

(e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

(f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

2.2.3 **Paragraph 175.** Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

2.2.4 **Paragraph 179.** To protect and enhance biodiversity and geodiversity, plans should:

(a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity ; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

(b) Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

2.2.5 **Paragraph 180.** When determining planning applications, local planning authorities should apply the following principles:

(a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

(b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

(c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

(d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

2.2.6 **Paragraph 181.** The following should be given the same protection as habitats sites:

(a) potential Special Protection Areas and possible Special Areas of Conservation;

(b) listed or proposed Ramsar sites ; and

(c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

2.2.7 **Paragraph 182.** The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

2.3 Local Planning Policy

2.3.1 Policy DM12 of the Island Plan Core Strategy (March 2012), provides development control policy in relation to biodiversity. The council will support proposals that conserve, enhance and promote the landscape, seascape, biodiversity, and geological interest of the island. Development proposals are expected to:

2.3.2 Protect the integrity of international, national and local designations relating to landscape, seascape, biodiversity and geodiversity including the reasons for these designations, the weight given to them and, enhance their features of interest wherever possible;

2.3.3 Ensure new development avoids both direct and indirect adverse effects upon the integrity of designated sites and if necessary, provides appropriate mitigation measures;

2.3.4 Promote the maintenance and enhancement of the links between designated sites, especially through the provision of, and/or enhancement to green infrastructure (GI) and appropriate local designations;

2.3.5 Reflect the aims and objectives of the Area of Outstanding Natural Beauty (AONB) Management Plan, the Council's Landscape Character Assessment, Historic Landscape Characterisation and, any further relevant landscape assessment;

2.3.6 Positively contribute to meeting the aims and objectives of the Isle of Wight's local Biodiversity Action Plan and Local Geodiversity Action Plan; and

2.3.7 Minimise the threats and promote the opportunities arising from climate change on the island's landscape, seascape, biodiversity, and geodiversity.

2.4 Isle of Wight Biodiversity Action Plan (BAP)

2.4.1 Based on the above legislation, the Isle of Wight Council is committed to the following species action plans:

2.4.2 Red Squirrels - The Red squirrel (*Sciurus vulgaris*) has been identified by the UK Biodiversity Steering Group as a priority species for conservation action; and

2.4.3 Woodland Bats - The Woodland Bat habitat action plan (HAP) covers a suite of old forest bat species, which are dependent upon woodland and wood-pasture habitat for their survival.

And the following habitat action plans:

2.4.4 Farmland Biodiversity - Farmland is not defined as a habitat in the UK BAP but contains a mosaic of different habitat types e.g., arable and horticulture, improved grassland, boundary and linear features, standing and open water. Collectively, these habitats can be of high biodiversity and nature conservation importance;

2.4.5 Woodland Habitat - Identifies a total of six native woodland types as priority habitats, of which, four can be found on the Isle of Wight: lowland mixed deciduous woodland, wet woodland, wood pasture and parkland; and

2.4.6 Lowland Meadows Habitat - Lowland meadows have been selected as a HAP for the Isle of Wight. This is to ensure that national objectives for this priority habitat (identified under the UK BAP) are translated into effective action on the island, considering local issues.

3 SITE DETAILS AND CONDITIONS

3.1 Site Walkover

3.1.1 Site visits were undertaken by E3S Consulting Ltd. during 2021/2022 to conduct a PEA, winter bird surveys, bat transects, and a hedgerow survey against '97 regulations.

3.2 Site Activities

3.2.1 Activities likely to cause bio-physical changes during the construction, operation, or decommissioning phase of the development are outlined in **Table 3**. The Site area incorporates all areas where potential significant effects and potential significant indirect effects could occur throughout the life of the Proposed Development.

3.3 Ecological Survey Findings

3.3.1 The PEA found the habitats on-site have potential to provide foraging and commuting opportunities for invertebrates, amphibians, badgers, red squirrels, hedgehogs, hares, reptiles, and dormice as well as nesting opportunities for birds and bats. However, overall, it was assessed as having limited potential to support an important number of protected and/or notable species in its current use/state. Further information can be found within the PEA report included in **Appendix A**. Details of the bat, hedgerow, and bird surveys can be found in **Appendix B** and the tree survey conducted by MJC Ltd. has been referenced.

4 IMPACT ASSESSMENT

4.1.1 The PEA and associated further surveys provide baseline data that can be used to evaluate the potential impacts on identified ecological receptors due to the Proposed Development. Potential impacts are separated into the following categories: construction and post construction. These are then assessed, and a conclusion made on whether the resultant effect on species/habitat conservation status, structure, and function is likely to be significant. A sequential process should be adopted to avoid, mitigate, and compensate for negative ecological impacts and effects. The mitigation hierarchy

should be followed where possible. The key principles are:

- Avoidance: seek options which avoid harm to ecological features;
- Mitigation: negative effects should be avoided or minimised through mitigation measures either by project design, or subsequent guaranteed measures;
- Compensation: when there are significant residual negative ecological effects despite mitigation proposals, these effects should be offset through appropriate compensation methods; and
- Enhancements: seek to provide net benefits for biodiversity over and above the requirements for avoidance, mitigation, and compensation.

The mitigation hierarchy for each ecological receptor has been outlined in **Table 3**.

4.2 Detailed Assessment

4.2.1 This section looks at ecological receptors identified in the PEA which may be subject to developmental impacts without the use of the mitigation hierarchy.

4.3 Designated Sites and Protected Areas

4.3.1 Three statutory Sites of Importance for Nature Conservation (SINC) have been identified as having ecological connectivity to the site and need to be considered regarding the Proposed Development. Fattingpark Copse is both a SINC and ancient woodland recognised for its importance to protected species and social value. Ancient woodlands are unique in their flora and fauna composition; thus, ancient woodlands require special protection for the purpose of nature conservation. Natural England and Forestry Commission's 'standing advice' recommends a minimum 15m buffer zone between the woodland boundary and the development site. This 15m buffer zone must be free from development activities and access. Furthermore, the buffer zone should contribute to wider ecological networks and be considered as part of the area's green infrastructure. As per government guidance, a buffer zone should consist of semi-natural habitats e.g., native scrub mix and grassland.

4.3.2 The fields north of Whiterails Road lie adjacent to Fattingpark Copse, and a proposed 15m buffer is to be planted with a native scrub species mix. This is to establish a transitional habitat gradient from grassland-scrub-woodland which would be found naturally. This habitat mosaic provides foraging and sheltering opportunities for animals including (but not limited to) invertebrates, birds, and mammals. A species mix would provide a range of food sources, age classes and structures. This creates ecological niches necessary to support various species as well as promoting biodiversity in the area.

4.3.3 The 15m buffer during and post construction would be sufficient to protect the ancient woodland. Furthermore, the habitat mosaic resulting from the buffer zone would benefit the area's wildlife, thus the Proposed Development would have a positive impact in terms of promoting biodiversity.

4.3.4 The second SINC, Wootton Common Cemetery, is an area of unimproved grassland recognised for its social value. Whilst the site has indirect connectivity to this area via hedgerows, the scale and nature of the Proposed Development is unlikely to have any significant adverse impact.

4.3.5 Quarrel's Copse is recognised a SINC due to the presence of ancient semi-natural woodlands, agriculturally unimproved grassland, protected or red data species, and nationally scarce species.

4.3.6 The copse is indirectly connected via tree line along Park Road; however, the tree-line along this road lie outside the site's boundary and therefore beyond the scope of the Proposed Development.

4.3.7 Stapler's Heath is a SINC comprising of agriculturally unimproved and semi-improved grassland. The site is indirectly connected to this SINC via hedgerows which lead to canopies meeting across the road, which is beneficial for arboreal species. However, the Proposed Development will not impact connectivity to this crossing point.

4.3.8 Although not a recognised SINC, Little Briddlesford Moor is an area of ancient woodland located 937m southeast of the site with little to no connectivity to the site. A single tree connects this ancient woodland across the road which then links networks of hedgerows either side; however, it would be highly unlikely that the Proposed Development would impact this route. The Proposed Development aims to strengthen hedgerow corridors on-site so connectivity to this access route will not be

negatively affected.

4.3.9 Briddlesford Copses SSSI is comprised of the Briddlesford Copses, Firestone Copse, and Combley Great Wood. These woodlands together represent the most varied, structurally diverse, and species rich cluster of ancient broadleaved woodland on the island. A nationally important breeding population of Bechstein's bat (*Myotis bechsteinii*), a rare native species, can also be found within this SSSI complex. Due to the presence of Bechstein's bat, this SSSI is also recognised as a SAC (Special Areas of Conservation).

4.3.10 Briddlesford Copses SSSI/SAC is located 900m from the development site, therefore the site lies within the Bechstein's bat foraging/hunting range. Bechstein bats may therefore use the site for foraging/hunting purposes. However, the bat transects did not identify this species on-site.

4.3.11 Bechstein's bats forage primarily for woodland invertebrates collected from substrate or close to vegetation and roost in trees and occasionally bat/bird boxes. The Proposed Development would continue to provide this species with both foraging/hunting opportunities as it aims to promote invertebrate biodiversity on-site as well as increase roosting spaces via bat box installation. Furthermore, the strengthening of wildlife corridors across the site would benefit bat populations.

4.3.12 The site falls into a Network Enhancement Zone 2 (NEZ), which are areas of land connecting existing patches of primary and associated habitats less likely to be suitable for creation of primary habitat. Actions which improve the biodiversity value through land management changes and/or green infrastructure provision can be targeted here as outlined in enhancement measures.

4.3.13 Statutory sites within 1km of The Site have been summarised in **Table 1** below.

Table 1*: Statutory Sites Identified within 1km of The Site*

Statutory Sites	Name	Within ≤1km (Y/N)	Approx. distance from centre of site (m)	Approx. direction from the site	Connectivity (Direct/Indirect/No)
SSSI	Briddlesford Copses	Y	900	East	Indirect
SAC	Briddlesford Copses	Y	900	East	Indirect
Areas of Ancient Woodland (ASNW)	Quarrel's Copse	Y	315	Northwest	Indirect
	Fattingpark Copse	Y	Adjacent	West	Direct
	Little Briddlesford Moor	Y	937	Southeast	No

4.4 Hedgerows, Trees, and Grassland

4.4.1 As identified, the site consists of agriculturally improved grassland with hedgerows, and mature scattered oak trees with some scrub and tussocky areas. Whilst these are undoubtedly important in ecological terms, the Proposed Development aims to improve through ecological enhancements.

4.4.2 The Proposed Development has been specifically designed to minimise hedge removal. Limited hedge removal will only be required to allow for access tracks and power cable installation across the site.

4.4.3 Seventeen hedgerows were surveyed, 5 of which qualified as important (E3S 2022). Nine of the hedgerows were further classified as species-rich.

4.4.4 Overall hedgerow connectivity will not be affected and its value as an ecological corridor for commuting and foraging species will remain despite the required access tracks and power cable installation.

4.4.5 Further to this, the proposed hedgerow planting of native species mix to fill in gaps will not only strengthen the corridor network but will also provide foraging and sheltering opportunities for an array of animal species.

4.4.6 As the function of the hedgerow will not be impacted by the development, and ecological enhancement

proposals aim to substantially strengthen its function, it is unlikely that the Proposed Development will have a significant negative impact on this ecological feature. This also applies to field margins. Furthermore, with the enhancement proposals, the Proposed Development would positively impact this ecological feature, providing a range of benefits to wildlife and biodiversity.

4.4.7 The trees on-site were identified as early mature and mature common oaks (*Quercus robur*) and do not provide a range of age classes. Additional tree planting would provide a range of age classes increasing diversity (MJC Ltd. 2022). Diverse age classes will provide diverse habitat conditions for different wildlife species to utilise.

4.4.8 A total of 3 trees so far have been proposed for felling due to existing disease and terminal decline and not due to the Proposed Development. Two of these are ash (*Fraxinus excelsior*) affected by Chalara ash dieback caused by the fungus *Hymenoscyphus fraxinus,* which has devastated ash trees across the country. The remaining tree is a common oak in terminal decline (MJC Ltd. 2022).

4.4.9 As trees are to be retained other than those felled due to disease and terminal decline, the proposed development is not likely to have an overall negative significant impact on the trees on-site. Additional planting will also provide benefits to wildlife, with the addition of enhanced foraging opportunities, nesting, sheltering, commuting, and increased habitat for a range of flora and fauna.

4.4.10 The Proposed Development will result in the loss of agriculturally improved grassland, however, given its current low value to wildlife, the proposed ecological enhancements as identified in **Table 3** will result in an overall gain (see section 5).

4.5 Plants

4.5.1 Butcher's broom (*Ruscus aculeatus*) which was identified along a northern boundary hedgerow will be retained as part of the Proposed Development, thus there will be no significant adverse impact to this species.

4.6 Invasive Species

4.6.1 No invasive species were identified during the site walkover; however, the Proposed Development includes planting a laurel hedge (*Prunus laurocerasus*) as a temporary visual screen whilst the native scrub is allowed to grow to the desired height (2m). As laurel is a non-native species, its ecological impact must be taken into consideration. The laurel hedgerow is temporary, and a buffer between the laurel and the native scrub planting would provide sufficient room for the native scrub to grow without impediment. The Proposed Development will create a management plan to control the laurel so that it does not spread beyond its original placement and eventual removal. With the proposed management plan adhered to, the laurel will not have a significant negative impact on the species, habitat, or wider environment.

4.6.2 The outline items for management of the enhancement work are identified in the Landscape and Visual Impact Assessment (LVIA) which accompanies the EcIA for the Proposed Development. A full management plan will be secured by way of planning condition.

4.7 Hazel Dormice (*Muscardinus avellanarius*)

4.7.1 Hazel dormice are arboreal mammals which rely on hedgerows, trees, and scrub to provide suitable habitat. Furthermore, plant diversity is key for providing a suite of food to maintain a dormouse population throughout the year.

4.7.2 Although the site lacks the required diverse vegetation, it still provides some suitable habitat e.g., bramble scrub and ecological connectivity to woodlands.

4.7.3 As scrub and hedgerow will be retained where possible on-site, the Proposed Development would not impact this important food source or ecological connectivity.

4.7.4 Where scrub and hedgerow are being removed during the construction phase, it will first be checked by a suitably qualified ecologist for evidence of dormice and nests, e.g., searching for feeding signs.

4.7.5 The planting of diverse range of native hedgerow species will strengthen connectivity and will enhance the existing range of food plants necessary for sustaining a dormouse population. Thus, the Proposed Development will optimise the site's potential for supporting dormice.

4.7.6 Overall, the Proposed Development would not cause any significant adverse impacts to any potential local dormouse population, with enhancements making a positive impact.

4.8 Bats

4.8.1 The bat transects have not found evidence of Bechstein's bat on-site. Species identified during the transect surveys include common pipistrelle (*Pipistrellus pipistrellus*), barbastelle (*Barbastella barbastellus*), noctule (*Nyctalus noctula*), and serotine (*Eptesicus serotinus*). A separate bat report provides further detail.

4.8.2 Suitable habitat for bats is present on-site; hedgerows provide a network for foraging and commuting bats, whilst the mature oaks provide potential roosting places.

4.8.3 Overall, the Proposed Development will not have a significant negative impact on the local bat population as neither habitat features are at risk of adverse impacts. Mitigation measures are proposed during construction works e.g., limiting construction during daylight when bats are not active. Appropriate lighting will need to be installed if works need to be undertaken outside of these hours. Appropriate lighting includes LED sensor operated, downward-facing and/or hooded lights as these are less likely to impair bat activity.

4.8.4 Enhancements include additional hedgerow and tree planting which would strengthen ecological corridors, foraging opportunities, and roosting opportunities. The installation of bat boxes on existing trees would provide further additional roosting places.

4.8.5 The Proposed Development will not have a significant adverse impact on the local bat population with these measures and enhancements in place.

4.9 Reptiles

4.9.1 Whilst no reptiles were identified by the LRC or during the PEA site visit, reptiles can be found in a wide range of habitats, including rough grassland which is present on-site.

4.9.2 The Proposed Development will result in the temporary loss of suitable reptile habitat i.e., tussocky grassland. However, this loss will be compensated for through the establishment of tussocky areas and hibernacula across the site post-construction.

4.9.3 Prior to construction, the removal of tussocky areas and scrub should be undertaken using a staged clearance method which will allow reptiles to seek suitable habitat nearby.

4.9.4 Total land area considered suitable reptile habitat which will be affected by the Proposed Development is 0.55ha out of 24ha = 2%. The 15m buffer zone will account for approx. 2ha which will grow post construction and provide suitable habitat for reptiles. As the reptile population in the area is low (0 records within 1km), staged clearance using hand tools is an acceptable method to allow any reptiles which may be present to access suitable habitat nearby. This temporary reduction in reptile habitat quality will be mitigated for through the establishment of quality habitat in the 15m buffer zone. Reptiles will be free to relocate to the original habitat which will re-establish post construction and still include habitat in the 15m buffer zone. There is no loss of reptile habitat, only a temporary reduction in habitat quality of the original habitat. However, the establishment of the 15m buffer would overall contribute to reptile habitat gain.

4.9.5 The 15m buffer protecting Fattingpark Copse would also protect any reptiles found along this boundary.

4.9.6 The enhancement of hedgerows will strengthen the ecological corridors and provide further reptile habitat. The installation of log piles and reptile refugia/hibernacula will encourage reptiles to the area through the provision of shelter.

4.9.7 With these mitigation and enhancements in place, the Proposed Development would increase the site's value to reptiles by strengthening connectivity to woodland/surrounding landscape and increasing sheltering opportunities. Therefore, the Proposed Development will not have a significant adverse impact on reptiles.

4.9.8 Grass snake (*Natrix helvetica*) was identified in the PEA as the only reptile species potentially present (albeit transitorily) on-site due to the site's waterlogged conditions at the time of the PEA walkover. However, this species is most likely to be found in the adjacent woodland close to bodies of water.

4.9.9 The staged clearance method, mitigation, and enhancement measures combined are substantial as to protect grass snakes if they are on-site.

4.10 Birds

4.10.1 The Proposed Development will not result in a significant loss of suitable habitat on-site as hedgerows, scrub, and trees are to be left where possible. However, there will be a temporary loss of rough grassland. This is due to the grass needing to be cut to ground level to prevent ground nests e.g., skylark nests, establishing to avoid disturbing nesting birds (March-August) during the construction phase.

4.10.2 Previous studies have shown that skylarks include solar parks in their territory, thus the Proposed Development is highly unlikely to have a significant negative impact on this species (Montag et al. 2016).

4.10.3 Any required scrub and hedge removal should be conducted outside of bird nesting season. Scrub and hedgerows will need to be checked by an ecologist for nesting birds if this is not possible.

4.10.4 Ecological enhancements such as bird boxes will provide additional nesting places post development and will benefit the local bird population. The planting of wildflower meadow and grass mixes would attract an array of invertebrates which in turn provide increased foraging opportunities for birds (increased seed and invertebrate availability) as well as the re-establishment of rough grassland for ground nesting birds e.g., skylarks.

4.10.5 Whilst there will be a temporary loss of some suitable bird habitat, the enhancements would provide good habitat for birds post construction e.g., installing bird boxes.

4.10.6 The Proposed Development is unlikely to have a long-term significant adverse impact on bird species.

4.11 Amphibians

4.11.1 Amphibians are unlikely to be significantly impacted by the development proposal given the mitigation hierarchy. The 15m buffer zone between Fattingpark Copse and the site will provide additional protection from the construction phase. The temporary loss of suitable habitat i.e., tussocky areas will be compensated for by re-establishment of tussocky areas post construction.

4.12 Invertebrates

4.12.1 Deadwood provides vital habitat for scarce invertebrates and should be left where possible. If deadwood needs moving, then it should be moved to a shady place close to its origin.

4.12.2 Hedge and scrub removal will be compensated for by planting of additional scrub and hedge species post construction. The loss of improved grassland will also be compensated for through the establishment of a native grass and wildflower meadow mix. Management plans would allow for various sward heights to create microhabitats and niches necessary for various invertebrate species.

4.12.3 The Proposed Development will not have a significant negative impact on invertebrates. Avoidance and mitigation measures as well as ecological enhancements would positively impact invertebrate diversity.

4.12.4 The proposed enhancements to the site will provide additional habitat for the local bee population. Once wildflower areas have been established, area will be suitable for the location of bee hives.

4.13 Badgers (*Meles meles*)

4.13.1 Badgers rely on connectivity for foraging and commuting purposes. The Proposed Development is to include mammal gaps along the perimeter of security fencing so that connectivity is not impacted. Furthermore, the enhancement of existing hedgerow will reinforce connectivity to the wider landscape as identified in the LVIA.

4.13.2 These measures are sufficient as to not have a significant negative impact on the local badger population.

4.14 Other Notable Species

4.14.1 The retention of ecological features such as trees, hedgerow, scrub, and deadwood where possible on-site would be sufficient as to not have a significant impact on red squirrels, hedgehogs, and brown hares. In fact, a study conducted by Montag et al. (2016) found brown hare abundance to be significantly higher on solar plots compared to controls.

4.15 Summary

Table 2: *Summary of benefits to be gained for each species by the Proposed Development*

Species	Proposed Development benefits to species
Plants	The proposed development will increase floral biodiversity through native hedgerow, tree, and grass/wildflower planting
Hazel dormice	Strengthening of hedgerows through native planting will provide additional resources for dormice as well as reinforcing corridors across the site
Bats	Reinforce corridors via hedgerow planting as well as providing additional foraging and roosting opportunities e.g., attracting more insects (by increasing floral diversity) and bat boxes
Reptiles	Strengthening corridors via hedgerow planting and placing hibernacula/establishing rough grassland to provide shelter
Birds	Additional hedgerow and tree planting provides foraging, sheltering, and nesting opportunities for birds. Bird boxes would provide further nesting/sheltering opportunities
Amphibians	Establishing tussocky areas will provide shelter. Attracting more invertebrates to the site would also provide foraging opportunities
Invertebrates	Planting native hedgerow, tree, and wildflower species will attract various invertebrates including bees to the site, increasing biodiversity
Badgers	Reinforcing hedgerow corridors will help badgers with access across the site and surrounding landscape
Other notable species	Trees and hedgerow planting will provide connectivity, shelter, and foraging opportunities

5 ECOLOGICAL RECEPTORS AND MITIGATION

A summary of activities which are likely to generate ecological impacts and proposed actions based on the mitigation hierarchy are presented in **Table 3** below.

Table 3: *Summary of ecological receptors and mitigation hierarchy*

Ecological Receptor	Observations	Stage	Mitigation Hierarchy			
			Avoidance	**Mitigation**	**Compensation**	**Enhancement**
Impact on designated sites and protected areas	Developers are required to assess any potential impacts on any designated sites and protected areas. The PEA identified the following within 1km of the site: SINCs Quarrel's Copse/Wootton Common (C219A/B), Stapler's Heath (C127C), Fattingpark Copse (C275A), Wootton Common Cemetery (C293A). SSSI: Briddlesford Copses SAC: Briddlesford Copses. Areas of Ancient Woodland (ASNW): Quarrel's Copse, Fattingpark Copse, Little Briddlesford Moor. AONB: IoW AONB.	During construction	Designated sites with direct/indirect connectivity with The Site are Fattingpark Copse, Stapler's Heath, Briddlesford Copses*, Quarrel's Copse, and Wootton Common Cemetery. Fattingpark Copse will have a 15m buffer zone to avoid impacts to the SINC. Wootton Common Cemetery will not be affected by construction and is therefore not considered further. *in relation to Bechstein bats only	A CEMP (to be secured by way of planning condition) will govern the construction phase of the Proposed Development to limit any potential impact on the habitat(s).	None	None
		Post construction	15m buffer zone. Retaining hedgerows to maintain ecological connectivity across the site.	None	None	Planting herb/scrub layer for natural progression from improved grassy area to woodland in the 15m buffer zone. Strengthening of ecological corridors across the site by additional native hedgerow planting.
Physical disturbance to site vegetation and surrounding habitats: hedgerows and trees	Site consisted of 17 hedgerows, 9 of which were species rich. Five qualified as important under the Hedgerow Regulations 1997. A singular butcher's broom plant was identified in hedgerow 1. The field north of Whiterails Road is adjacent to Fattingpark Copse, and the field south of Whiterails Road is connected to an area of woodland.	During construction	Hedgerows will be retained where possible other than to allow for an access track and cable installation. Hedgerows 1, 2, and 5 will have a 2m buffer to protect it and any notable species which may be present as these hedgerows connect to Fattingpark Copse. Majority of trees to be retained, with exception of ash affected by Chalara ash dieback and an oak in terminal decline (MJC Tree Services Ltd. 2022).	None	None	None
		Post construction	Allowing decaying wood to be retained on-site as far as safety allows for the benefit deadwood provides to the ecosystem.	None	Replanting of trees felled due to disease.	Enhance existing hedgerow by planting of native species to increase biodiversity and habitat suitability. Additional tree planting will create a range of age classes (MJC Tree Services Ltd. 2022).
Physical disturbance to site vegetation and surrounding habitats: arable/improved grassland and field margins	Grassland	During construction	None	None	None	None
		Post construction	None	None	Planting of native grass and wildflower mix.	Planting native grass and wildflower mix.
Running and standing water, rivers, streams, ditches, and ponds	No water bodies were identified on-site.	During construction	On-site controls of hazardous and contaminate materials through development of a CEMP (to be secured by way of planning condition). Fencing.	None	None	None
		Post construction	None	None	None	Management plan.
Invasive species	No invasive species were identified during the site visits. However, the proposed development includes planting a laurel hedge (*Prunus laurocerasus*) to form a temporary visual screen.	During construction	Biosecurity measures identified in a CEMP (to be secured by way of planning condition) must be followed to ensure no import of invasive species (other than laurel) from site workers or materials.	Managing the laurel hedge so that it does not spread further than its proposed layout.	None	None
		Post construction	None	Managing the laurel hedge so that it does not spread further than its proposed layout and eventual removal.	None	None
Physical disturbance to protected species and habitat: hazel dormice	No field evidence of dormice was identified during the site visit, and the habitat on-site was suboptimal.	During construction	Retaining scrub on-site. A search for dormice nests and feeding signs is recommended prior to and where scrub is being removed.	None	None	None
		Post construction	None	None	None	Additional native species planting to reinforce gaps in the existing hedgerow. This will increase suite of food available and strengthen overall site connectivity.
Physical disturbance to protected species and	The site walkover identified suitable habitat: the mature oak trees have some roosting potential, and the hedgerows provide	During construction	Retaining hedgerows and trees where possible. Conducting works during daylight hours.	Select LED sensor operated downward facing, hooded, and low-level lights to minimise disturbance to commuting and foraging bats.	None	None

habitat: bats	connectivity to the woodlands and surrounding landscape.	Post construction	None	None	None	Additional tree and hedgerow planting will provide areas to roost and forage as well as reinforcing ecological corridors. Bat boxes on trees will increase roosting potential.
Physical disturbance to protected species and habitat: reptiles	Some suitable habitat was identified during the site-visit, but overall, not considered ideal. May use site transiently to access woodland and neighbouring fields.	During construction	Retaining scrub on-site where possible.	Employ staged clearance strategy where scrub is being removed to allow reptiles (if present) to seek habitat elsewhere.	None	None
		Post construction	None	None	Planting/allowing tussocky grass areas to re-establish to compensate for loss during construction.	Planting/allowing tussocky areas to grow near to scrub/hedgerow and field margins for basking and sheltering reptiles. Installing refugia will provide further sheltering opportunities. Avoid waterlogged areas.
Physical disturbance to protected species and habitat: birds	Trees, grass, scrub, and hedgerows on-site provide habitat for birds.	During construction	Cut grass to ground level prior to 1 March (beginning of bird nesting season) to prevent establishment of ground nests. Scrub and hedgerow removal conducted outside of bird nesting season (March-August). Retain and fence hedgerows, scrub, and trees where possible.	If works are necessary during bird nesting season which would cause disturbance, then the area should be checked first by a suitably qualified ecologist.	None	None
		Post construction	None	None	Replace losses to hedgerow and scrub areas through native planting.	Enhancing the existing hedgerow and scrub area through additional native planting. Installing bird boxes on trees to provide additional nesting opportunities.
Physical disturbance to protected species and habitat: amphibians	Suboptimal habitat for amphibians due to agricultural farming practices and lack of ponds on-site. However, could utilise drainage ditches and Fattingpark Copse boundary.	During construction	15m buffer will protect Fattingpark Copse boundary. Installation of fencing around drainage ditches will protect these features from disturbances.	None	None	None
		Post construction	None	None	Planting/allowing regrowth of tussocky areas.	Establishing tussocky areas around ditches and woodland boundary to provide sheltering and foraging opportunities. Additional native hedgerow planting to reinforce corridors and connectivity.
Physical disturbance to protected species and habitat: invertebrates	Although no invertebrates were identified during the site walkover, the deadwood, trees, hedgerows, grass, and scrub provide suitable habitat for invertebrates.	During construction	Retaining suitable habitat where possible.	If deadwood needs removing, then it should be relocated to shady areas close to its place of origin.	None	None
		Post construction	None	None	Replanting of suitable habitat lost to construction.	Planting native grass and wildflower species mix suitable for the local ecology. Allowing various sward heights will create and maximise niches and microhabitats necessary for invertebrate populations to thrive. Installing deadwood features and allowing wood to naturally decay on-site will provide further benefits to invertebrates, including the scarce stag beetle (*Lucanus cervus*) which relies on decaying wood to complete its life cycle.
Physical disturbance to protected species and habitat: badgers	Despite the lack of evidence during the site visit, badgers may use the site for foraging and commuting purposes.	During construction	Retaining hedgerows where possible.	Allowing gaps along the bottom of security fencing so that accessibility across the site remains intact.	None	None
		Post construction	None	None	None	Enhancing existing hedgerow corridors by planting additional native species.
Physical disturbance to protected species and habitat: water voles	No evidence or suitable habitat for water voles was identified during the site walkover. This species is not considered further.	During construction	N/A	N/A	N/A	N/A
		Post construction	N/A	N/A	N/A	N/A
Physical disturbance to protected species and habitat: other notable species	No signs of hedgehogs, red squirrels, or brown hares were identified during the site visit despite the presence of suitable habitat.	During construction	Retaining deadwood, hedgerows, and trees where possible. 15m buffer zone along Fattingpark Copse perimeter.	Allowing gaps along the bottom of security fencing so that accessibility across the site remains intact. If deadwood needs removing, then it should be relocated to shady areas close to its place of origin.	None	None
		Post construction	15m buffer zone.	None	Replanting of tussocky areas.	Sowing of native grass and wildflower mix to provide sheltering, foraging, and nesting opportunities. Installing log piles and allowing wood to naturally decay on-site. Enhancing existing hedgerows for connectivity and foraging purposes. Allowing tussocky areas to grow around field margins.

6 BIODIVERSITY NET GAINS ASSESSMENT

The Biodiversity Net Gain Assessment (BNG) demonstrates how the Proposed Development at Sunny Oaks Renewable Energy Park, would provide biodiversity net gain compared to the existing site. To achieve BNG, an assessment of the existing on-site habitats, proposed losses and post-intervention provision was undertaken using the Defra Biodiversity Metric 3.0 Calculation Tool.

The Headline Results Summary is reproduced below (**Table 4**) and identifies that the proposed landscaping will result in a net biodiversity gain of 31.46% for habitat units and 12.62% for hedgerow units; thus, exceeding the minimum recommendation target of 10% net gain. The headline results summary is reproduced below and has identified that the proposed landscaping will conservatively result in a gain of 31.46% in habitat units. This allows for the fact that seed mix sown under the panels may not establish as successfully as that sown around the panels. As a best case scenario, a BNG of 62.33% is achievable in habitat units with successful sowing and establishment under panels.

The overall net gain was achieved by mitigating the total loss of current on-site habitats (improved grazed/arable farmland, short sections of hedgerow), with creation of appropriate habitat to achieve a biodiversity gain. The proposal consists of the development of new habitats which include mixed native boundary scrub, wildflower meadow grassland, tree planting, and replacement and enhancement of hedgerows with native species.

BNG was calculated using the BNG Metric 3.0 (DEFRA), the results show that the Proposed Development, with ecological enhancements included (see **Appendix C**), will be beneficial to wildlife and thus can be concluded that it will not have a negative impact on the site's habitats, species, and ecosystems, but will provide a significant gain for biodiversity.

Table 4 – Biodiversity Net Gain Headline Results Summary

SUNNY OAKS SOLAR FARM

Headline Results

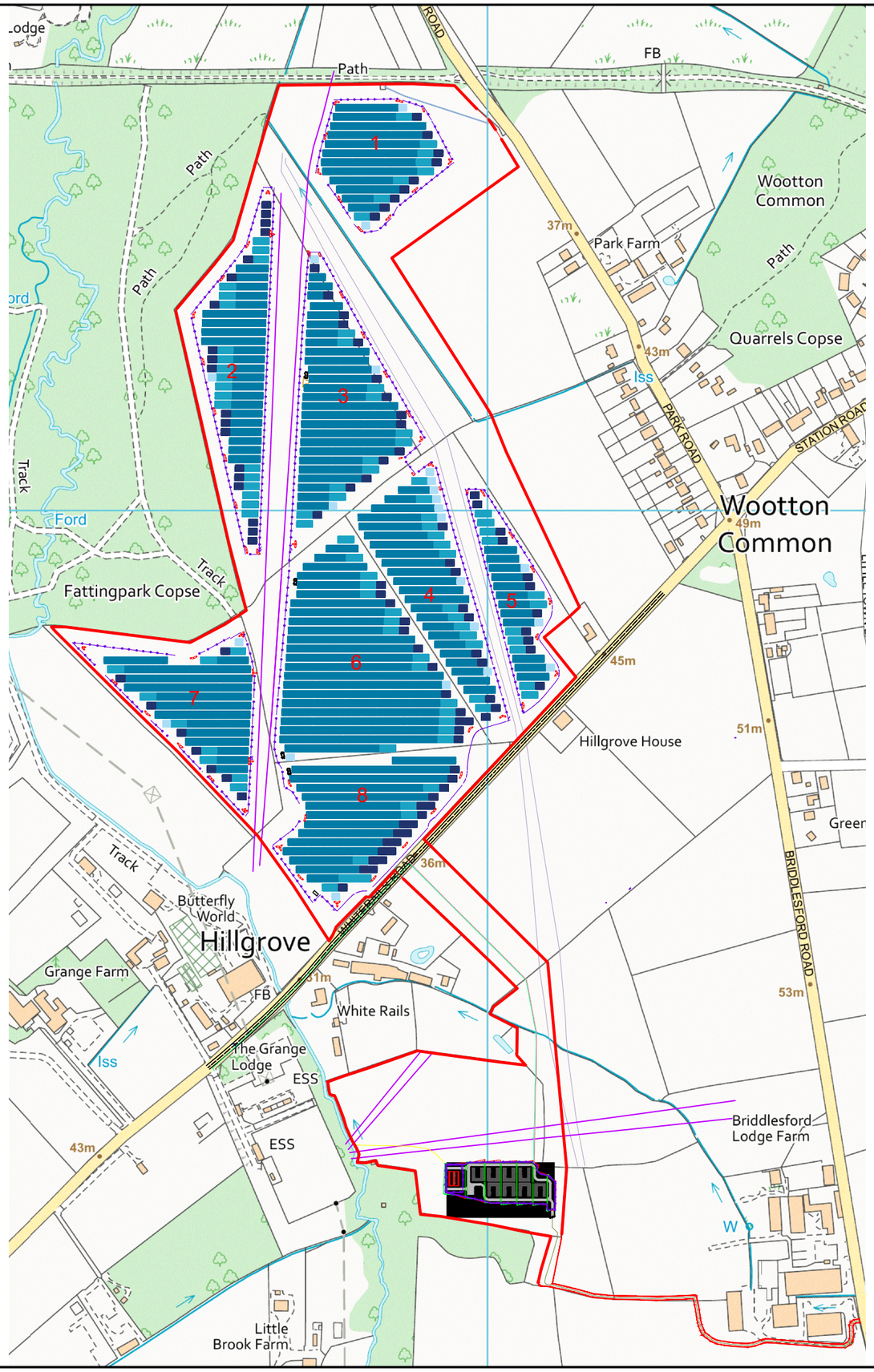
Return to results menu

On-site baseline	*Habitat units*	143.00
	Hedgerow units	32.82
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	187.99
	Hedgerow units	36.96
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	31.46%
	Hedgerow units	12.62%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	44.99
	Hedgerow units	4.14
	River units	0.00
Total on-site net % change plus off-site surplus	*Habitat units*	31.46%
	Hedgerow units	12.62%
	River units	0.00%
Trading rules Satisfied?		Yes

7 CONCLUSION

The proposed Sunny Oaks Renewable Energy Park Development layout has benefited from proactive and early engagement by the client in relation to design specifications for habitat Biodiversity Net Gain. The adoption of both multi discipline input and a unifying design focus by the client has enabled substantial gain opportunities to be incorporated. The outcome of this process avoids negative ecological impacts and greatly enhances biodiversity as an integral part of the development. The approach has also had the added benefit of minimising any predicted time-lag between potential losses and gains which forms a metric component of the biodiversity calculation.

The Proposed Development includes restoration and enhancement of habitat on-site which will rejuvenate ecosystem composition, structure, and function increasing ecological diversity and suitability for protected species. Thus, with wildlife focused management at its core, the Proposed Development would increase the site's biodiversity compared to its current agricultural land use.



Notes:

Do not scale off this drawing.

Current map showing the site and its layout as updated August 2022.

Key:

- SITE BOUNDARY
- PERIMETER FENCE
- SOLAR PARK MAINTENANCE TRACKS
- ACCESS ROUTE TO BESS AND SUBSTATION
- BESS AND SUBSTATION ACCESS
- TRANSFORMER STATION
- CUSTOMER CABINET
- TABLE OF 78 MODULES (285 PCS.)
- TABLE OF 39 MODULES (93 PCS.)
- TABLE OF 21 MODULES (41 PCS.)
- TABLE OF 18 MODULES (41 PCS.)
- GATE
- SUBSTATION
- BATTERY CONTAINER/TRANSFORMERS
- SGN INTERMEDIATE PIPELINE
- SGN MEDIUM PIPELINE
- 33KV OVERHEAD POWER LINE
- INDICATIVE ROUTE A FOR EXPORT CABLE
- INDICATIVE ROUTE B FOR EXPORT CABLE
- CABLE ROUTE FROM SOLAR PANELS TO THE BESS AND SUBSTATION

e3S Consulting

CLIENT: Ridge Clean Energy LTD

SITE: Sunny Oaks Renewable Energy Park LTD.

TITLE: Figure 1 - Site Plan

PROJECT Number: NN 1418	DATE: August 2022
	Map Not To Scale

APPENDIX A – Preliminary Ecological Appraisal (PEA)

PRELIMINARY ECOLOGICAL APPRAISAL

Sunny Oaks Renewable Energy Park Ltd.
Wootton Common, Isle of Wight.

Ridge Clean Energy Ltd

NN1418R01
31 March 2022

DOCUMENT CONTROL

DOCUMENT TITLE	PRELIMINARY ECOLOGICAL APPRAISAL	REVISION	R01
DOCUMENT NUMBER	R01	ISSUE DATE	MARCH 2022
PROJECT NUMBER	NN1418	STATUS	

AUTHOR	E. Mason	DATE	31/03/2022
REVIEW	T. Pullan	DATE	31/03/2022
AUTHORISATION	J. Owen	DATE	31/03/2022

REVISION HISTORY

REVISION NUMBER	DETAILS	DATE
R01	Client Modifications	20/04/2022
R02	Client Modifications	27/04/2022
R03	Client Modifications	15/07/2022

CONTENTS

1 INTRODUCTION

1.1 Project Background

E3S Consulting Ltd (E3S) were engaged by Ridge Clean Energy Ltd (The Client), to undertake a Preliminary Ecological Appraisal (PEA) in March 2022 and updated in July 2022. The PEA is required to support the proposed planning application for development of a Renewable Energy Park at farmland located at Wootton (The Site). OS Grid Reference at approximate centre of site: SZ528908.

1.2 Proposed Development

It is understood that the development proposal is for a solar park and battery energy storage system. The site plan is attached at the end of this report (Figure 1).
Parts of the site that will not be developed for the solar park and battery energy storage system will be used for ecological enhancements and mitigation measures.

1.3 Methodology

The desktop appraisal methodology establishes whether there are any ecological influences on the site. This includes searching for designated nature conservation areas e.g., statutory Sites of Special Scientific Interest (SSSI) or non-statutory Local Wildlife sites within a 1km radius of the site and, internationally important sites such as Special Areas of Conservation (SAC) or Special Protection Areas (SPAs).

Publicly available information relating to the known presence of notable species and/or habitats within the site's proximity is also selected at this stage. Following this, a site walkover assesses the potential for any identified ecological factors that could influence or be influenced by the Proposed Development. Any further assessment work is subsequently identified and scoped.

2 LOCAL AND NATIONAL POLICIES AND LEGISLATION

2.1 Local Planning Policy and Legislation

Policy DM12 of the Island Plan Core Strategy provides development control policy in relation to biodiversity. The council will support proposals that conserve, enhance and promote the landscape, seascape, biodiversity, and geological interest of the island. Development proposals are expected to:

- Protect the integrity of international, national and local designations relating to landscape, seascape, biodiversity and geodiversity including the reasons for these designations, the weight given to them and, enhance their features of interest wherever possible;

- Ensure new development avoids both direct and indirect adverse effects upon the integrity of designated sites and if necessary, provides appropriate mitigation measures;

- Promote the maintenance and enhancement of the links between designated sites, especially through the provision of, and/or enhancement to, green infrastructure (GI) and appropriate local designations;

- Reflect the aims and objectives of the AONB Management Plan, the Council's Landscape Character Assessment, Historic Landscape Characterisation and, any further relevant landscape assessment;

- Positively contribute to meeting the aims and objectives of the Isle of Wight's local Biodiversity Action Plan and Local Geodiversity Action Plan; and

- Minimise the threats and promote the opportunities arising from climate change on the island's landscape, seascape, biodiversity, and geodiversity.

2.2 ISLE OF WIGHT BIODIVERSITY ACTION PLAN (BAP)

Based on the above legislation, the Isle of Wight Council is committed to the following species action plans:

- Red Squirrels - The Red squirrel (*Sciurus vulgaris*) has been identified by the UK Biodiversity Steering Group as a priority species for conservation action; and,

- Woodland Bats - The Woodland Bat habitat action plan (HAP) covers a suite of old forest bat species, which are dependent upon woodland and wood-pasture habitat for their survival.

And the following habitat action plans:

- Farmland Biodiversity - Farmland is not defined as a habitat in the UK BAP but contains a mosaic of different habitat types e.g., arable and horticulture, improved grassland, boundary and linear features, standing and open water. Collectively, these habitats can be of high biodiversity and nature conservation importance. A total of four broad habitat types identified in the UK BAP are found predominantly on farmland;

- Woodland Habitat - Identifies a total of six native woodland types as priority habitats, of which, three can be found on the Isle of Wight: lowland mixed deciduous woodland, wet woodland, wood pasture and parkland; and,

- Lowland Meadows Habitat - Lowland meadows have been selected as a HAP for the Isle of Wight. This is to ensure that national objectives for this priority habitat (identified under the UK BAP) are translated into effective action on the island, considering local issues.

3 SITE DETAILS

3.1 Site Walkover

For ease of reference, the site has been split into two distinct areas by Whiterails Road: Area A – solar panel installation area and Area B – battery energy storage system and associated infrastructure. The application boundary is 35.2ha.

3.1.1 Area A

Area A is further divided into smaller fields by hedgerows. These hedgerows consisted predominantly of bramble (*Rubus fruticosus*) and hawthorn (*Crataegus monogyna*), thus was identified as species poor. Species commonly associated with improved grassland were identified in the area, these included: Nettle (*Urtica dioica*), red dead nettle (*Lamium purpureum*), bull thistle (*Cirsium vulgare*), and dock (*Rumex obtusifolius*). Other common species associated with grazed farmland and hedgerows were identified in the area. These were: common chickweed (*Stellaria media*), speedwell (*Veronica chamaedrys*), common dandelion (*Taraxum officinale*), primrose (*Primula vulgaris*), lesser celandine (*Ranunculus ficaria*), field horsetail (*Equisetum arvense*), common gorse (*Ulex europaeus*), goat willow (*Salix caprea*), and teasel (*Dipsacus fullonum*). Ivy (*Hedera helix*) was also identified in the area. An area of waterlogged tussocky grassland with rush (*Juncus* sp.) and a patch of bramble scrub were identified to the north of the site. Mature oak trees (*Quercus robur*) were scattered throughout the area. To the west of the area lies Fattingpark Copse, a semi-natural ancient woodland. A separate tree survey has been undertaken. The site is approximately 27.2ha.

3.1.2 Area B

Area B is also divided by hedgerows into smaller fields. Tall ruderal vegetation was identified along a species poor hedgerow. A tussocky area of grassland was located at the northern border of the area. Trees bordered the area with sections of deadwood along the eastern boundary. This area has been identified as agriculturally improved grassland. Deciduous woodland borders the area to the southwest. Running through

Area B were some unidentified pathways, possibly attributable to mammals. Wootton Common Cemetery, an area of unimproved grassland is northeast of the area and indirectly connected via hedgerows.

The habitat surrounding the overall site consists of open farmland with areas of woodland. A solar farm is located to the west of the site. The site is approximately 5.3ha.

3.1.3 July 2022

Further site visits were undertaken in July 2022 whilst undertaking a Hedgerow Survey.

3.2 Habitat Classification

The habitats present on-site have been defined using the UK Habitat Classification Key (UK Habitat Classification Working Group 2018). The following habitats were identified on-site:

- Modified grassland (g4);
- Hedgerows (h2); and,
- Bramble scrub (h3d).

See Figure 1 for the map of the site's habitat classification.

3.3 Public Records

Public records were assessed to include any recorded habitats or species on or near the site. Relevant SINC designations are presented below in Table 1.

Table 1: *Sites of Importance to Nature Conservation (SINCs) within 1km of the site*

Site/subsite code	Name	1a	1c	2a	2b	6a	6bi	6bii	6c	8a	Approx. distance from site (m)	Approx. direction	Connectivity to the site	Description
C219*/A	Quarrel's Copse	✓				✓	✓				315	Northeast	Indirect	Woodland
C219*/B	Quarrel's Copse/ Wootton Common			✓		✓	✓				785	North	Indirect	Unimproved Grassland
C127*/C	Staplers Heath			✓	✓						1,000	Southwest	No	Unimproved Grassland
C275*/A	Fattingpark Copse	✓	✓			✓			✓	✓	Adjacent	West	Direct connectivity to Area A	Woodland
C293/A	Wootton Common Cemetery			✓						✓	80	Northeast	Indirect connectivity to Area B via hedgerows	Unimproved Grassland

*Sites partially within search area

3.3.1 Designation criteria

1a: All ancient semi-natural woodlands. This comprises all sites on the Natural England Provisional Ancient Woodland Inventory.

1c: Other semi-natural woodland, they comprise important community types of a restricted distribution in

the country, particularly semi-natural wet woodlands and species-rich secondary woodlands.

2a: Agriculturally unimproved grassland. These grasslands are composed of an indigenous species assemblage in semi-natural communities. These assemblages have developed without the major use of herbicides and inorganic fertilisers. Moreover, they have benefitted without the added influence of processes such as ploughing, re-seeding and drainage management.

2b: Semi improved grassland. Supports an average of about 9 flowering plants per square metre, however these may be rarer on site as a whole or found in patches. Some of the UK's rarest and most threatened grassland species can be found. These indicate that the grassland has not been improved through intensive agricultural management.

6a: Species – Any site supporting a variable population of one or more species protected under The Habitats Regulations or listed in Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981 (as revised and amended) or in Red Data of Britain and Ireland.

6bi: Species – Nationally scarce in Britain.

6c: Any site that supports a significant proportion of the Island's population, or contributes significantly to the range in the Island, of a national BAP priority species, or a local BAP species which could be at risk because of very small populations, recent rapid decline, or habitat loss/decline.

8a: Social Value – A site which has value for the appreciation of nature.

3.4 Recorded Statutory Sites

Recorded Statutory Sites within 1km of the site were identified using the Isle of Wight Local Records Centre. Species records from The National Biodiversity Network Gateway were also referenced (www.data.nbn.org.uk). Further information was gathered on the designated sites using publicly available online resources. The information has been presented in Table 2 below.

Table 2: *Statutory Sites identified within 1km of the site*

Statutory Sites	Name	Within ≤1km (Y/N)	Approx. distance from centre of site (m)	Approx. direction from site	Connectivity to site (Direct/Indirect/No)
SSSI	Briddlesford Copses	Y	900	East	Indirect
SAC	Briddlesford Copses	Y	900	East	Indirect
SPA and potential SPA (pSPA)	N/A	N	N/A	N/A	N/A
Local Nature Reserves (LNR)	N/A	N	N/A	N/A	N/A
Ramsar	N/A	N	N/A	N/A	N/A
Areas of Ancient Woodland (ASNW)	Quarrel's Copse	Y	315	Northeast	Indirect
	Fattingpark Copse	Y	Adjacent	West	Direct
	Little Briddlesford Moor	Y	937	Southeast	No
Area of Outstanding Natural Beauty	The Isle of Wight AONB	Y	1,000	Southeast	No

4 PROTECTED AND NOTABLE SPECIES

4.1 Local Records (LRC)

Local Records provide details of rare and protected species within 1km of the site, these records, along with an assessment of the relevance of the site to those species can be summarised as follows;

4.1.1 Plants

LRC records found quaking grass (*Briza media*), heather (*Calluna vulgaris*), common centaury (*Centaurium eryhraea*), chaffweed (*Centunculus minimus*), small toadflax (*Chaenorhinum minus*), crosswort (*Cruciata laevipes*), bell heather (*Erica cinerea*), wild strawberry (*Fragaria vesca*), french oat-grass (*Gaudinia fragilis*), dyer's greenweed (*Genista tinctoria*), bluebell (*Hyacinthoides non-scripta*), bitter-vetch (*Lathyrus linifolius*), water-purslane (*Lythrum portula*), common cow-wheat (*Melampyrum pratense subsp. pratense*), wood-sorrel (*Oxalis acetosella*), early meadow-grass (*Poa infirma*), tormentil (*Potentilla erecta subsp. erecta*), narrow-leaved lungwort (*Pulmonaria longifolia*), lesser spearwort (*Ranunculus flammula*), butcher's broom (*Ruscus aculeatus*), creeping willow (*Salix repens*), sanicle (*Sanicula europaea*), marsh ragwort (*Senecio aquaticus*), ragged-robin (*Silene flos-cuculi*), goldenrod (*Solidago virgaurea*), autumn lady's-tresses (*Spiranthes spiralis*), field woundwort (*Stachys arvensis*), devil's-bit scabious (*Succisa pratensis*), heath speedwell (*Veronica officinalis*).

Butcher's broom was the only protected plant species identified during the site visit in Area A along a gappy, species poor hawthorn hedgerow. As the hedgerows are being retained wherever possible, and is to include the butcher's broom, no mitigation measures have been recommended.

Including ecological enhancements in the Proposed Development will allow the site's vegetation to become more biodiverse than in its current state. These enhancements can be found in Table 3.

Please refer to the hedgerow survey (NN1418RO4 - July 2022 - Hedgerow Survey) for an in-depth analysis on the hedgerows on-site.

4.1.2 Invertebrates

LRC records include species from the orders Diptera (true flies), Coleoptera (beetles), Lepidoptera (butterflies and moths), Odonata (dragonflies and damselflies), and Orthoptera (crickets and grasshoppers) within 1km of the site.

Although no invertebrates were identified during the site visit, the hedgerows, trees, and deadwood on-site provide potential habitat which could support various species of beetles, flies, moths, and butterflies. The Proposed Development aims to retain the majority of the hedgerows and trees on-site, so no further surveys for invertebrates have been recommended. However, mitigation measures will be required if the scrub and deadwood are to be removed during the construction phase of the development.

As part of the development, enhancements can be put in place which could attract a greater diversity of invertebrate species, thus improving the site's overall value to invertebrates. Details regarding the ecological enhancements and mitigation measures can be found under section 7.

4.1.3 Amphibians

There are three records of common toad (*Bufo bufo*) and five reports of common frog (*Rana temporaria*) within 1km of the site.

No field evidence of amphibians was seen during the site visit and no ponds for breeding amphibians were identified on-site.
In terms of habitat, there were two identified ditches in Area A, one to the north and one to the south. These ditches, as well as the hedgerows, connect the site to the woodland boundary and could be used by amphibians. Furthermore, the patch of bramble scrub, tussocky area, and the woodland edge could provide habitat for foraging. In Area B, the tall ruderals, hedgerows, and adjacent woodland also provide some suitable habitat. However, the site overall was considered sub-optimal habitat for amphibians due to agricultural farming practices.
Some hedgerow loss may occur to allow for an access tracks and power cable installation; however, overall hedgerow loss will be minimal. Mitigation measures have been suggested where suitable habitat features may be impacted during the construction phase (see Table 3). For these reasons, further surveys have not been recommended but as a precaution, site workers should be given a toolbox talk, and an ecologist contacted if amphibians are discovered during site works.

Various ecological enhancements can be implemented as part of Proposed Development to attract amphibians to the site. Section 7 will outline these enhancements in detail.

4.1.4 Reptiles

There are no records of reptiles within 1km of the site.

No reptiles or evidence of reptiles were identified during the site visit. The majority of the site's vegetation was not structurally diverse as to provide important shelter or basking sites for reptiles.
A section of tussocky grassland was identified in Area A with areas of scrub providing potential shelter and basking sites for reptiles. However, the fields were considered too waterlogged for reptile species other than grass snakes (*Natrix helvetica*) which may occasionally use the area to forage for small mammals, birds, and amphibians (if present). Additionally, grass snakes may use the area to access the adjacent woodland.
The tussocky grassland in Area B could potentially provide shelter and basking sites for reptiles, and the hedgerows provide connectivity to Wootton Common Cemetery to the northeast, and deciduous woodland to the south.

Although the site currently has limited potential to support reptiles, they may use the site transiently to access neighbouring woodlands and use tussocky areas for basking. Although most of the hedgerows are being retained, mitigation measures have been recommended where other suitable habitat features may be lost due to the construction process. The loss of tussocky grassland areas during the construction phase of the development will be compensated for through the site's ecological enhancement post construction.
Due to the site's current unfavourable condition together with the mitigation measures, no reptile surveys have been recommended. An ecologist should be informed immediately if reptiles are identified during the construction phase.

To increase the site's suitability for reptiles, ecological enhancements have been suggested and can be found alongside the mitigation measures in Table 3.

4.1.5 Birds

LRC data of bird species identified within 1km of the site include: reed warbler (*Acrocephalus scirpaceus*), common sandpiper (*Actitis hypoleucos*), teal (*Anas crecca*), common kingfisher (*Alcedo atthis*), mallard (*Anas platyrhynchos*), dark-bellied brent goose (*Branta bernicla*), black-headed gull (*Chroicocephalus ridibundus*), mute swan (*Cygnus olor*), little egret (*Egretta garzetta*), pied flycatcher (*Ficedula hypoleuca*),), great northern diver (*G. immer*), swallow (*Hirundo rustica*), herring gull (*Larus argentatus*), yellowhammer (*Emberiza citrinella*), oystercatcher (*Haematopus ostralegus*), common gull (*Larus canus*), lesser black-headed gull (*Larus fuscus*), bar-tailed godwit (*Limosa lapponica*), black-tailed godwit (*L. limosa*), common scoter (*Melanitta nigra*), grey wagtail (*Motacilla cinerea*), linnet (*Linaria cannabina*), spotted flycatcher (*Muscicapa striata*), curlew (*Numenius arquata*), osprey (*Pandion haliaetus*), black redstart (*Phoenicurus ochruros*), redstart (*P. phoenicurus*), marsh tit (*Poecile palustris*), firecrest (*Regulus ignicapilla*), woodcock (*Scolopax rusticola*), bullfinch (*Pyrrhula pyrrhula*), starling (*Sturnus vulgaris*), shelduck (*Tadorna tadorna*), greenshank (*Tringa nebularia*), redshank (*T. totanus*), song thrush (*T. philomelos*), and barn owl (*Tyto alba*).
Bird species seen during site visit but not recorded in the LRC include the red-listed skylark (*Alauda arvensis*) and buzzard (*Buteo buteo*), both in Area A, east and west respectively. Furthermore, what appeared to be a buzzard's nest was identified on the woodland edge of Fattingpark Copse, below where the buzzard was seen flying. Wood pigeon (*Columba palumbus*), carrion crow (*Corvus corone*), magpie (*Pica pica*), blackbird (*Turdus merula*), blue tit (*Cyanistes caeruleus*), long-tailed tit (*Aegithalos caudatus*), robin (*Erithacus rubecula*), and sparrow sp. were also identified on-site. Other species identified both on-site and from the LRC search: song thrush, common gull, and mallard.

The vegetation present on-site does provide suitable habitat for nesting and foraging birds. These habitat features include the hedgerows, trees, grassland, and scrub, of which the trees and hedgerows are being retained where possible. For the construction to have minimal impact, mitigation measures have been recommended under section 7.

Ecological enhancements incorporated with Proposed Development can provide further habitat to support nesting, foraging and sheltering birds, increasing the site's value for bird species. These enhancements can also be found under section 7.

4.1.6 Bats

LRC records have identified the following species of bats within 1km of the site: western barbastelle (*Barbastella barbastellus*), serotine (*Eptesicus serotinus*), long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), and soprano pipistrelle (*P. pygmaeus*).

Common pipistrelles, serotines, noctules (*Nyctalus noctula*) and one barbastelle bat were detected during a bat transects which were undertaken in September 2021 and July 2022.

The hedgerows provide potential habitat for foraging and commuting bats as well as functional links to the adjacent woodland. Bats may also use the mature oak trees on-site as potential roosts. It is understood that these important ecological features are to be retained where practical, thus the development is considered unlikely to impact the site's overall foraging and roosting potential for bats. However, if trees are to be removed, then they should be inspected for bat roosting potential prior to removal.
Mitigation measures have been recommended to minimise disturbance to any bat species during the construction phase.

The site can increase its foraging, commuting, and roosting potential for bats by implementing ecological enhancements post construction (see Table 3).

4.1.7 Badgers

The LRC search identified records of badgers (*Meles meles*) within 1km of the site.

No evidence of badger foraging activity or setts were identified during the site visit. Area A was considered too wet for badgers to build a sett but may provide suitable foraging ground. Area B may also provide suitable foraging ground. Both areas are linked to woodland, via hedgerow corridors, where badgers may be present. There were tracks identified in Area B, but these could not be directly attributed to badgers. Other than to allow for a single access track, the hedgerows are being retained as part of the development proposal. As a result, no further detailed badger surveys are required but mitigation measures have been provided so that the site remains accessible to this species.

Ecological enhancements have also been provided under section 7, which could increase foraging opportunities for this species.

4.1.8 Dormice

There are four records of dormice (*Muscardinus avellanarius*) within 1km of the site.

A visual survey on-site found no suitable habitat for dormice. The species poor hedgerows comprising of bramble and hawthorn, do not provide the suite of food necessary to support healthy populations of dormice. The bramble scrub was also considered to be defunct as to provide suitable dormouse habitat. However, dormice may be present in the woodlands connected to both areas, and the hedgerows and scrub on-site do provide connectivity to these woodlands. Hedgerow/scrub fingertip searches are recommended where the development proposal is to impact the scrub, and hedgerows (see Table 3).

Ecological enhancements can increase the suite of food available on-site as well as reinforcing links to adjacent woodlands, in turn increasing the site's overall value for the local dormice population. These enhancements are discussed in further detail under section 7.

4.1.9 Water voles

There are no LCR records of water voles (*Arvicola amphibious*) within 1km of the site.

No signs of water voles were identified during the site walkover. The site has no water bodies considered suitable for water voles. Taking into consideration the absence of suitable habitat, and the absence of water vole records within 1km of the site, no further water vole surveys have been recommended.

4.1.10 Other species

LRC data search provided limited records of hedgehogs (*Erinaceus europaeus*) within 1km of the site, with 3 records of one hedgehog being on-site from 2005.

There were no signs of hedgehogs identified during the site-visit, although there were some suitable habitat features present on-site. The hedgerows provide corridors and nesting sites for hedgehogs and the short grass to forage for invertebrates. The tussocky areas of grassland could provide further foraging sites and nesting materials. There were some areas of leaf litter and decaying wood/vegetation, but these were small and isolated patches in relation to the overall site. Thus, whilst the site provides some suitable hedgehog habitat, it is not considered to be ideal. Most of the hedgerows are to be retained and no further hedgehog surveys have been recommended. However, both mitigation measures and ecological enhancements have been recommended under section 7 so that suitable habitat remains on-site post construction.

There are various LRC records of red squirrels (*Sciurus vulgaris*) within 1km of the site.

Fattingpark Copse provides ideal habitat for red squirrels. The mature oak trees in Area A provide potential habitat as well as corridors to the adjacent copse. Red squirrels could also be present in the deciduous woodland of Area B, with links via the hedgerows. However, no evidence of red squirrels or their dreys were observed during the site visit. As the mature oak trees are to be retained as part of the development, no further surveys have been recommended.
Due to the presence of potential habitat, mitigation measures have been recommended under section 7. Furthermore, ecological enhancements could provide further habitat for red squirrels. This will be discussed in finer detail under section 7.

Brown hares (*Lepus europaeus*) have been identified within 1km of the site.

No signs of brown hare were identified during the site visit. However, brown hare habitat includes open arable grassland and woodland edges, so the site does provide suitable habitat. Mitigation measures have been recommended under section 7 so that development does not negatively impact the local hare population. Enhancements have also been recommended (see section 7) to increase foraging opportunities for this species.

4.1.11 Invasive and non-native species

The LRC have records have identified the following invasive and non-native plant species within 1km of the site: three-cornered garlic (*Allium triquetrum*), New Zealand pygmy weed (*Crassula helmsii*), and Japanese knotweed (*Fallopia japonica*).

Invasive and non-native animal species recorded within 1km of the site identified by the LRC are ring-necked parakeets (*Psittacula krameria*).

No invasive and/or non-native plant species were identified during the site visit. During any works, on-site vigilance for the invasive/non-native species identified in this report should be maintained. Optimum surveying period for flora is from April to September.
There was one non-native species identified during the site-visit, which was not recorded in the LRC, pheasant (*Phasianus colchicus*). Species recorded in the LRC but not seen during the site-visit were ring-necked parakeets which can be seen all year round.

5 LIMITATIONS

5.1.1 General

The survey provides a single snapshot of the site and does not account for seasonal variation or species which may take up residence after the published report. Furthermore, lack of signs of a particular species

does not confirm its absence, merely that there was no indication of its presence at the time of the site survey. However, the survey work undertaken does provide a baseline upon which further surveys, as well as various mitigation measures and ecological enhancements can be recommended in order to benefit wildlife.

5.1.2 Badgers

Although the site was examined for signs of badgers and their setts, there is no guarantee that sett entrances can be located, especially if the sett is currently inactive, seasonally used and/or concealed.

5.1.3 Vegetation

March is a suboptimal time for surveying vegetation, including hedgerows. Thus, some vegetation may have been missed at the time of the site visit.

6 CONCLUSION

Overall, the site in its current use is considered unsuitable to support an important number of protected species. The site walkover survey identified a limited number of protected plants and animals. However, ecologically important habitat features identified on-site include the hedgerows, deadwood, areas of scrub, and the mature oak trees. It is understood that the development will retain the majority of the hedgerows and mature oak trees on-site, other than where to allow for an access space. Mitigation measures and ecological enhancements have been recommended, as well as some further surveys where some ecological features are being impacted.
Surveys undertaken to date include, bat transect surveys, hedgerow surveys, and bird surveys. An Ecological Impact Assessment (EcIA) has been undertaken for the site.

The site does have both direct and indirect ecological links to surrounding areas, including designated sites. These are Fattingpark Copse, Briddlesford Copses, Quarrel's Copse, and Wootton Common Cemetery. The Proposed Development aims to protect and strengthen these ecological links so that species dispersal as well as foraging range is not impacted. The Proposed Development will do this through the planting and maintenance of existing hedgerows on-site. Furthermore, a 15m buffer zone between Area A and Fattingpark Copse will protect the woodland from development during the construction phase as well as creating an ecologically important transitional habitat mosaic post development.

The Proposed Development aligns with the Island's BAP, in that it will avoid impacts to red squirrels, woodland bats, and the lowland mixed deciduous woodland. The Proposed Development aims to strengthen connectivity throughout the site through tree planting, which would benefit both red squirrels and tree roosting bats. The 15m buffer between the site and the lowland mixed deciduous woodland (Fattingpark Copse) is sufficient as to avoid negative impacts. Planting within the 15m buffer zone would create a transitional habitat which would benefit many species by creating microhabitats leading from grassland/meadow to woodland. This lowland mixed deciduous woodland is also a designated site known as Fattingpark Copse, also recognised as ancient woodland. Again, this 15m buffer would be sufficient as to protect this designated site. The Proposed Development includes the management, and re-planting of hedgerows which will ensure that these fundamental ecological links are retained, especially where they link to designated sites. The Proposed Development itself aims to provide green energy for islanders, which is a positive step towards combating climate change risks. Overall, the Proposed Development aligns with the Isle of Wight's BAP and NPPF.

7 MITIGATION MEASURES AND ECOLOGICAL ENHANCEMENTS

The table below shows various mitigation measures and ecological enhancements that can be implemented as part of the development. The ecological enhancements will benefit wildlife by creating more ecological niches than are currently present.

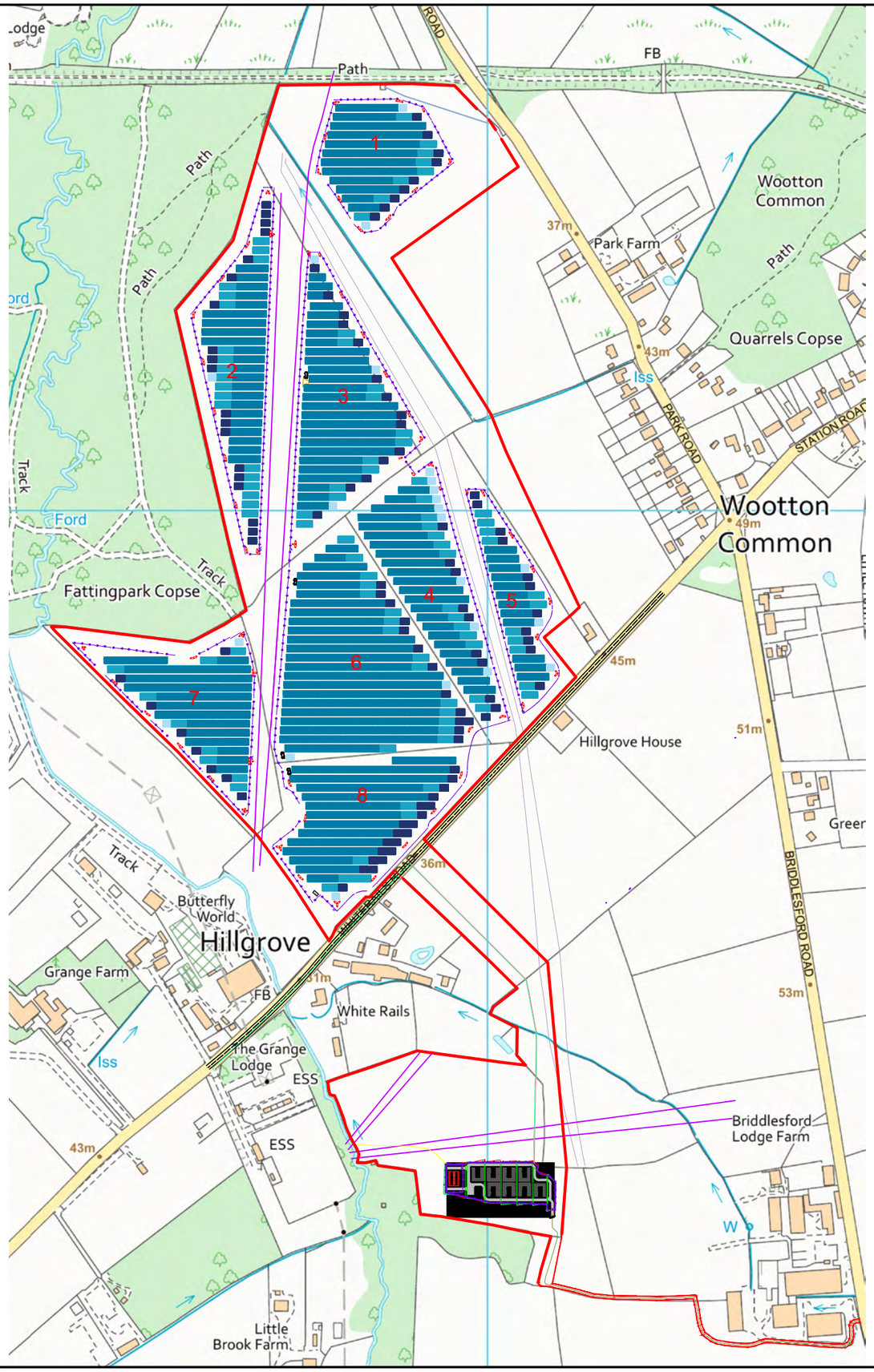
Table 3: Proposed mitigation measures and ecological enhancements for the benefit of wildlife

Protected and notable species	Mitigation measures	Ecological enhancements
Plants	N/A	Planting native grasses, wildflowers and trees should diversify the current arable grassland, making it more attractive to wildlife.
Invertebrates	Retain the scrub and deadwood on-site. If deadwood needs to be moved, then it should be relocated to a shady area as close to its place of origin as possible.	Planting a native grass and wildflower species mix, suitable for the area, around the solar panel arrays. This should provide plenty of foraging opportunities for various invertebrate species. Various sward heights can maximise niches and microhabitats for invertebrates. Planting additional tree species will provide additional habitat for invertebrates to forage, shelter, hibernate and breed. Installing deadwood features and allowing wood to decay on-site would tremendously benefit invertebrate species, including the scarce stag beetle (*Lucanus cervus*), which relies on decaying wood to complete its life cycle.
Amphibians	Retain the scrub and include 15m buffer zones between the construction site and woodland edges.	Allowing the vegetation to grow during the spring and summer and planting a native tussocky area should provide additional sheltering and feeding opportunities for amphibians. The loss of tall ruderals and tussocky areas during the construction phase will be compensated for by establishing a tall ruderal/tussocky area post-construction. Field margins should also be less regularly managed for a tussocky habitat to establish which would benefit amphibians. Reinforcing hedgerow corridors by planting additional native tree species will be beneficial to amphibians using the hedgerows to access neighbouring woodlands as well as providing places to shelter. The additional plant species attracting invertebrates should provide greater foraging opportunities for amphibians. Log piles can also provide shelter and foraging opportunities for amphibian species.
Reptiles	Retention of scrub on-site. If this is to be affected during construction, a staged clearance should be undertaken to allow species to seek refuge off site and recolonise site post works.	Installing log piles and/or other refugia near to scrub will provide places for reptiles to shelter. Note: these should not be placed in areas that are waterlogged. The loss of tall ruderals and tussocky areas during the construction phase will be compensated for by establishing a tall ruderal/tussocky area post-construction. Allowing vegetation to grow in order to provide basking areas, especially next to scrub/hedgerow. Field margins outside of security fencing should be less regularly managed for a tussocky habitat to establish which would be valuable to reptiles.
Birds	At the onset of the construction phase, fields should be cut to ground level prior to March 1st (beginning of bird nesting season) to prevent ground nesting birds establishing nests. Retention of scrub areas. Where scrub and/or hedgerows are being removed, this should be conducted outside of bird nesting season (March-August inclusive).	Post construction, planting of native grasses, wildflowers, scrub, hedgerows, and trees will provide shelter for ground nesting and tree nesting birds. The additional vegetation should also provide plenty of foraging opportunities. Site management post construction should also allow vegetation to grow in spring and summer so that ground nesting birds are sheltered. Bird boxes on trees can provide extra places for birds to nest.
Bats	Conducting works during daylight hours, and if not possible, selecting LED sensor operated downward facing, hooded and low-level lights to minimise disturbance to commuting and foraging bats which are active outside of daylight hours. Any artificial lighting used during the operational phase should be compliant with bat sensitive lighting.	Additional tree and hedgerow planting should provide more opportunities for roosting and foraging, as well as reinforcing the connectivity to the adjacent woodland and wider landscape. Installing bat boxes will provide additional opportunities for roosting bats.
Badgers	Gaps along the bottom of security fencing so that accessibility is not	Additional hedgerow and tree/woodland planting will provide foraging and sheltering opportunities as well as connectivity for commuting

	affected by the development.	badgers.
Dormice	Retaining scrub on-site. Where hedgerow is being removed, a visual/fingertip search for dormice nests and opened hazelnuts may be necessary.	Additional hedgerow planting with native species e.g., hazel, will benefit dormice by providing a larger suite of food necessary to support this species. Hazel trees should be coppiced as this is most beneficial to dormice. Reinforcing the hedgerows will also strengthen the corridor network to the adjacent woodlands. These enhancements should encourage dormice to the area by providing sheltering, nesting, and foraging opportunities.
Water voles	N/A	N/A
Other species	Leaving areas of decaying wood and allowing gaps along security fencing so that animals can access the site and surrounding landscape. 15m buffer to protect the Fattingpark woodland edge.	Sowing of native grass and wildflower mix will attract food sources upon which various mammal species can forage, as well as providing shelter and nesting materials. Field margins outside of security fencing should be less regularly managed for a tussocky habitat to establish which small mammals can utilise. Additional planting of native trees will be beneficial to red squirrels as a place to forage and build their dreys. The loss of tall ruderals and tussocky areas during the construction phase will be compensated for by establishing a tall ruderal/tussocky area post-construction.

Table 4: *Site photograph ID with descriptions*

Site photograph ID	Description
Area A photograph 1	Tussocky field with bramble scrub and view of Fattingpark Copse
Area A photograph 2	Modified grassland with scattered trees
Area A photograph 3	Drainage ditch with species poor hedgerow
Area A photograph 4	Modified grassland with gappy, species poor hedgerow
Area B photograph 1	Fallen tree and area of deadwood
Area B photograph 2	Small area of tussocky grassland and species poor hedgerow
Area B photograph 3	Unidentified pathway
Area B photograph 4	Area of tall ruderal vegetation along species poor hedgerow



Notes:

Do not scale off this drawing.

Current map showing the site and its layout as updated August 2022.

Key:

- SITE BOUNDARY
- PERIMETER FENCE
- SOLAR PARK MAINTENANCE TRACKS
- ACCESS ROUTE TO BESS AND SUBSTATION
- BESS AND SUBSTATION ACCESS
- TRANSFORMER STATION
- CUSTOMER CABINET
- TABLE OF 78 MODULES (285 PCS.)
- TABLE OF 39 MODULES (93 PCS.)
- TABLE OF 21 MODULES (41 PCS.)
- TABLE OF 18 MODULES (41 PCS.)
- GATE
- SUBSTATION
- BATTERY CONTAINER/TRANSFORMERS
- SGN INTERMEDIATE PIPELINE
- SGN MEDIUM PIPELINE
- 33KV OVERHEAD POWER LINE
- INDICATIVE ROUTE A FOR EXPORT CABLE
- INDICATIVE ROUTE B FOR EXPORT CABLE
- CABLE ROUTE FROM SOLAR PANELS TO THE BESS AND SUBSTATION

e3S Consulting

CLIENT: Ridge Clean Energy LTD

SITE: Sunny Oaks Renewable Energy Park LTD.

TITLE: Figure 1 - Site Plan

PROJECT Number: NN 1418	DATE: August 2022
	Map Not To Scale

Area A (North)

1

2

3

4

Area B (South)

1

2

3

4

Notes:

Photographs taken during site visit, highlighting areas of ecological interest.

e3S Consulting

CLIENT: Ridge Clean Energy LTD	
SITE: Sunny Oaks Renewable Energy Park LTD	
AUTHOR: HO	
TITLE: Figure 2 - Site Photographs	
PROJECT Number: NN 1418	DATE: March 2022
	Not To Scale

APPENDIX B – Bird Survey
Hedgerow Survey
Biodiversity Net Gain Assessment

WINTERING BIRD SURVEYS

Sunny Oaks Renewable Energy Park Ltd.
Wootton Common, Isle of Wight.

Ridge Clean Energy Ltd

NN1418R02
21 June 2022

DOCUMENT CONTROL

DOCUMENT TITLE	WINTERING BIRD SURVEYS	REVISION	00
DOCUMENT NUMBER	R02	ISSUE DATE	JUNE 2022
PROJECT NUMBER	NN1486	STATUS	

AUTHOR	T. Pullan BSc (Hons)	DATE	21/06/22
REVIEW	C. Barron BSc (Hons) MIEnvSc CGeol FGS	DATE	21/06/22
AUTHORISATION	J. Owen	DATE	21/06/22

REVISION HISTORY

REVISION NUMBER	DETAILS	DATE

CONTENTS

FIGURES

1 INTRODUCTION

1.1 Project Background

1.1.1 E3S Consulting Ltd (E3S) were engaged by Ridge Clean Energy Ltd (The Client), to undertake a Wintering Bird Survey to support the planning application for the Proposed Development of the Sunny Oaks Renewable Energy Park at farmland located to the south-west of Wootton Common (The Site). OS Grid Reference at approximate centre of site: SZ528908.

1.1.2 The surveys were undertaken in order to assess the value of the habitat/land to winter bird species and any significant effects the Development Proposal may have on the species identified.

2 SITE DESCRIPTION

2.1.1 The whole site is divided by Whiterails Road. Solar panel installation area (and associated infrastructure) will be located to the north of Whiterails Road and the battery storage system (with associated infrastructure) will be located to the south of Whiterails Road. The site was surveyed and identified as agricultural land divided into smaller fields by hedgerows. These hedgerows consisted predominantly of bramble (*Rubus fruticosus*) and hawthorn (*Crataegus monogyna*), and assessed as species poor. Species commonly associated with improved grassland were identified in the area, these included: Nettle (*Urtica dioica*), red dead nettle (*Lamium purpureum*), bull thistle (*Cirsium vulgare*), and dock (*Rumex obtusifolius*). Other common species associated with grazed farmland and hedgerows were identified in the area. These were: common chickweed (*Stellaria media*), speedwell (*Veronica chamaedrys*), common dandelion (*Taraxum officinale*), primrose (*Primula vulgaris*), lesser celandine (*Ranunculus ficaria*), field horsetail (*Equisetum arvense*), common gorse (*Ulex europaeus*), goat willow (*Salix caprea*), and teasel (*Dipsacus fullonum*). Ivy (*Hedera helix*) was also identified in the area. An area of waterlogged tussocky grassland with rush (*Juncus* sp.) and a patch of bramble scrub was identified to the north of the site. Mature oak trees (*Quercus robur*) were scattered throughout the area. To the west of the area lies Fattingpark Copse, a semi-natural ancient woodland. A separate tree survey has been undertaken.

3 SURVEY OBJECTIVES

Survey objectives included:

- Identify the presence and distribution of birds on and adjacent to the site;
- Evaluate the importance of local bird populations;
- Evaluate the conservation importance of the site;
- Identify ornithological interest; and
- Recommend mitigation, compensation, and enhancements to minimise the potential impact of the development on overwintering birds.

4 LEGISLATION

A summary of the main statutory provisions for biodiversity conservation relevant to birds at this site is provided in **Table 1** below.

Table 1 – Biodiversity Legislation Relevant to Survey

Biodiversity Legislation	Ecological Features
Wildlife and Countryside Act 1981 (as amended)	Schedule 1 Birds
Conservation of Habitats and Species (Amendment) Regulations 2012	Wild Birds

4.1.1 The wildlife and Countryside Act 1981 (as amended) is the principle legislation affording protection to all wild birds in the UK. Additional, species listed on Schedule 1, Part 1 of the Act are protected by special penalties at all times.

4.1.2 Under the 2017 amendment to the Conservation of Habitats and Species Regulations, 'a competent authority (public body) in exercising any function in the UK must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild bird (Reg. 9A (8)).

4.1.3 In addition to legal protection, some bird species are classified according to their conservation status. This includes their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC5) in the UK which was updated in 2021, and whether they been identified as Priority Species on the UK Biodiversity Action Plan (UKBAP).

5 METHODS OF SURVEY

5.1.1 Survey methods were based on those described by EWBS Bird Survey. All bird sightings were recorded and mapped, including birds flying over site. A field recording sheet was used to map sightings in 200m transects across the site. Surveys were undertaken in favourable weather conditions between the hours of 8am and 11am. Survey dates and conditions are presented in **Table 2** below.

Table 2 – Survey Dates, Weather Conditions and Surveyors

Date	Cloud Cover	Wind	Rain	Visibility	Surveyors
26/11/2021	0-33%	Calm	None	Good	JO/FO/TP
31/01/2022	33-66%	Light	None	Very Good	JO/FO/TP
14/02/2022	0-33%	Light	Light/None	Good	JO/FO
10/03/2022	33-66%	Light	None	Good	TP/EM

5.2 Survey Limitations

5.2.1 The entire site was accessible and weather conditions were suitable. Surveys were undertaken in suitable seasons. Surveys only provide information at time of surveys and considered to be valid for 1 year, after which, surveys may require updating.

6 SURVEY RESULTS

6.1 Designated Sites

6.1.1 Designated sites identified within 1km of the site are presented in **Table 3** below.

Table 3 – Designated Sites within 1km of the Site

Designation/Name	Details	Justification/Interest Feature
SSSI-Briddlesford Copses	900m – East – No direct connectivity to site	The SAC represents a varied and structurally diverse and species-rich cluster of ancient broadleaved woodlands. They also support a nationally important breeding population of the rare Bechstein's bat.
SAC – Briddlesford Copses	900m – East – No direct connectivity to site	The SAC represents a varied and structurally diverse and species-rich cluster of ancient broadleaved woodlands. They also support a nationally important breeding population of the rare Bechstein's bat.

6.2 Pre-existing information from LRC data.

6.2.1 The LRC has provided records for numerous bird species identified within 1km of the site as shown below in **Table 4**.

Table 4 – Bird Species Recorded within 1KM of the site

Bird Species	Conservation Species
Reed Warbler	Local Priority Species (LPS)
Common Sandpiper	Amber List
Kingfisher	LPS/Amber List/EU Birds Directive Annex 1/Wildlife & Countryside Act Schedule 1, Part 1
Teal	LPS/Amber List
Mallard	Amber List
Brent Goose	Amber List/Natural Environment and Rural Communities Act 2006 Section 41
Black-headed Gull	Amber List
Mute Swan	Amber List
Little Egret	EU Birds Directive Annex 1
Yellowhammer	UK Priority Species/ Natural Environment and Rural Communities Act 2006 Section 41
Pied Flycatcher	Red List
Great Northern Diver	EU Birds Directive Annex 1/ Wildlife & Countryside Act Schedule 1, Part 1/Amber List
Oystercatcher	LPS/Amber List
Swallow	LPS
Herring Gull	Natural Environment and Rural Communities Act 2006 Section 41/LPS/Red List
Common Gull	Amber List
Lesser Black-backed Gull	Amber List
Bar-tailed Godwit	LPS/ EU Birds Directive Annex 1/Amber List
Black-tailed Godwit	Wildlife & Countryside Act Schedule 1, Part 1/ Natural Environment and Rural Communities Act 2006 Section 41/Red List
Linnet	Natural Environment and Rural Communities Act 2006 Section 41/Red List
Common Scoter	Wildlife & Countryside Act Schedule 1, Part 1/ Natural Environment and Rural Communities Act 2006 Section 41/Red List/Red List
Grey Wagtail	Red List
Spotted Flycatcher	Natural Environment and Rural Communities Act 2006 Section 41/Red List/Red List/LPS/UKPS/Red List
Curlew	Natural Environment and Rural Communities Act 2006 Section 41/UKPS/Red List
Osprey	EU Birds Directive Annex 1/ Wildlife & Countryside Act Schedule 1, Part 1/Amber List
Black Redstart	Sensitive species/ Wildlife & Countryside Act Schedule 1, Part 1/Red List
Redstart	Amber List
Marsh Tit	Natural Environment and Rural Communities Act 2006 Section 41/LPS/Red List
Bullfinch	Natural Environment and Rural Communities Act 2006 Section 41/LPS/Amber List
Firecrest	Sensitive species/ Wildlife & Countryside Act Schedule 1, Part 1
Woodcock	LPS/Red List
Starling	Natural Environment and Rural Communities Act 2006 Section 41/LPS/Red List
Shelduck	LPS/Amber List
Greenshank	Amber List/ Wildlife & Countryside Act Schedule 1, Part 1
Redshank	LPS/Amber List
Song Thrush	Natural Environment and Rural Communities Act 2006 Section 41/Red List
Barn Owl	Wildlife & Countryside Act Schedule 1, Part 1/LPS

6.3 Bird Species Identified During Survey

6.3.1 A total of 16 bird species were recorded within the survey area during the 4 site visits between November 2021 and March 2022. **Table 5** identifies bird species recorded.

Table 5 – Total Numbers of Bird Species Identified

Bird Species	November 2021	January 2022	February 2022	March 2022
Common Wood Pidgeon (Amber List)	6	0	7	6
Magpie	9	1	2	5
Crow	26	9	7	5
Gull	3	2	4	2
Male Blackbird	1	0	2	3
Dunnock (Amber List)	1	0	0	0
Male Pheasant (Introduced)	4	2	2	0
Buzzard	1	0	1	0
Red-legged Partridge (Red List)	1	0	0	0
Robin	0	0	2	2
Blue Tit	0	1	6	3
Rock Dove	0	0	1	5
Seagull	0	0	4	0
Song Thrush (Amber List)	0	0	1	0
Long Tailed Tit	0	0	1	0
Skylark (Red List)	0	0	0	1

7 EVALUATION

7.1 Survey Aims

7.1.1 The aims of the surveys were to assess any potentially negative significant effects that the Proposed Development may have on the bird population on and near the site.

8 IMPACT ASSESSMENT

8.1 Direct Impacts

8.1.1 The species identified during the surveys are not expected to be impacted by the loss of habitat due to their negligible usage of the site.

8.1.2 A single skylark (Red List Species) was identified flying across the site and landing in the survey area. No active nests were identified. Skylarks are ground nesting birds that breed from April to early August with nesting sites influenced by the height and density of the crop; the ideal vegetation height is 20-50cm.

8.1.3 Previous studies have shown (RSPB, 2018) skylarks use solar panel arrays to sing from: flying high and then parachuting down between the rows. Studies have shown that there was no overall difference in numbers of skylarks when comparing solar plots to control plots. The study shows that although skylarks may not nest between the arrays, they do nest within solar farms, and they do incorporate solar farms into their territorial boundaries and foraging. (The Effects of Solar Farms on

Local Biodiversity: A Comparative Study. Montag et al 2016).

8.2 Indirect Impacts: Disturbance

8.2.1 Potential impacts during the construction period include noise and physical disturbance. This will have a temporary impact and not cause a permanent long term negative effect.

8.2.2 Post construction disturbance to bird species will be negligible due to limited maintenance required on site with solar panel area fenced reducing human activity including dog walking.

9 MITIGATION

9.1 Construction Stage

9.1.1 A Construction and Environmental Management Plan (CEMP) will be provided to ensure that construction works consider all aspects of environmental protection to mitigate any potential impacts to the site and surrounding areas. A CEMP will be secured by way of planning condition.

9.2 Long Term Usage

9.2.1 The Proposed Development has been designed to limit human interaction with the retained land that will be allowed to naturalise and enhanced to provide suitable areas for the local bird population and wider species.

10 CONCLUSIONS

10.1.1 A total of 16 bird species were recorded during the surveys, 5 of which were identified as 'notable' species. The arable habitats on-site were identified in Network Enhancement Zone 2 (Magic Mapping™); these are areas of land connecting existing patches of primary and associated habitats which are less likely to be suitable for creation of primary habitat. Action in these zones that improve the biodiversity value through land management changes and/or green infrastructure provision are recommended in these areas. The site has also been identified as a Priority Species for Countryside Stewardship for Lapwing habitat issues.

10.1.2 The impacts of the Proposed Development were considered in relation to bird species identified and assessed as having a negligible effect, with added beneficial effects through enhancement measures. A range of enhancement measures are proposed that will achieve a biodiversity gain, that include sensitive planting and habitat creation with provision of a range of nest boxes suitable for the local bird population.

Hedgerow Survey

Sunny Oaks Renewable Energy Park Ltd.
Wootton Common, Isle of Wight.

Ridge Clean Energy Ltd

NN1418R04
05 July 2022

DOCUMENT CONTROL

DOCUMENT TITLE	Hedgerow Survey	REVISION	00
DOCUMENT NUMBER	R04	ISSUE DATE	JULY 2022
PROJECT NUMBER	NN1418	STATUS	

AUTHOR	E. Mason BSc (Hons) MSc	DATE	27/07/22
REVIEW	T. Pullan BSc (Hons)	DATE	27/07/22
AUTHORISATION	J. Owen	DATE	27/07/22

REVISION HISTORY

REVISION NUMBER	DETAILS	DATE
R01	CLIENT MODIFICATIONS	05/08/2022

CONTENTS

FIGURES

APPENDICES

1 INTRODUCTION

1.1 Project Background

1.1.1 E3S Consulting Ltd (E3S) have been engaged by Ridge Clean Energy Ltd (The Client) to undertake a hedgerow survey to inform the Ecological Impact Assessment (EcIA). This survey, in conjunction with the EcIA, is required to support the planning application for the Proposed Development at farmland located in Wootton, Isle of Wight (The Site). OS Grid Reference at approximate centre of site: SZ528908.

1.2 Proposed Development

1.2.1 It is understood that the Proposed Development is for a solar park and battery energy storage system with associated infrastructure. Areas of the site that will not be developed for the solar park and battery energy storage system will be used for its ecological enhancements and mitigation measures.

1.2.2 The illustrative site plan has been attached (Figure 1).

1.3 Survey Objectives

The objectives of the hedgerow survey/assessment are:

- To assess hedgerows on site which are located entirely or partially within the application boundary in accordance with the Hedgerow Regulations 1997 criteria and to determine which are classified as 'Important';
- To identify any hedgerows which may not meet important criteria but are still considered species rich;
- To provide the above information to inform the completion of the Ecological Impact Assessment (EcIA) in relation to determining the extent of hedgerow to be affected, either temporarily or permanently by the Proposed Development; and
- To inform the landscaping assessment regarding appropriate hedgerow and tree species to include in enhancement planting schemes.

1.4 Site Details

1.4.1 Site visits were undertaken by E3S surveyors between 12-13 July 2022. The site areas surveyed are located to the north and south of Whiterails Road. The northern area is located adjacent to Fattingpark Copse, a SINC, identified as an Area of Ancient Woodland (ASNW). An established solar park can be found located west of the proposed site with agricultural land divided by hedgerows.

1.4.2 The area to the south of Whiterails Road, is agricultural land divided by hedgerows with Briddlesford Farm located to the east of the site. Industrial units are located adjacent to Whiterails Road. The Proposed Development of the Battery Storage/substation area will be located to the south of the site. An existing electricity station is located to west of the site.

1.4.3 Hedgerow Removal Notices (HRN's) are presented in Appendix A.

1.4.4 Both sites were identified as agriculturally improved grassland areas, each divided into smaller fields by hedgerows/trees. These hedgerows/trees were recognised as being ecologically important in terms of providing shelter and foraging opportunities as well as a network of corridors connecting to the wider surrounding landscape.

2 BACKGROUND INFORMATION, LEGISLATION, AND POLICY

2.1 Background to Hedgerows

2.1.1 A hedgerow is defined as a boundary line of trees or shrubs over 20m long and less than 5m wide at the base (Defra 2007).

2.1.2 Hedgerows are characteristic of the English countryside and are ecologically, agriculturally, and historically important, with the first recorded hedgerows dating back to prehistoric times. They provide myriad uses; they help prevent soil erosion, water run-off, control livestock, provide shelter, and function as corridor networks for many species to travel and disperse.

2.1.3 Hedgerows are an important habitat for globally threatened and rapidly declining species. Around 130 UK priority species are associated with hedgerows including invertebrates, herptiles, birds, bats, and small mammals (Hedgelink 2009). Therefore, the loss and decline in quality of hedgerows would have an adverse effect on already struggling populations.

2.2 The Hedgerow Regulations 1997

2.2.1 The Hedgerow Regulations 1997 provide a comprehensive list of assessments for identifying 'important' hedgerows. The hedgerow must comply with the following criteria to qualify (note that criteria relating to archaeology and history are not considered here):

- Continuous length of, or exceeding, 20m;
- Continuous length of less than 20m but meets another hedgerow at each end; and
- Existed for at least 30 years.
- The hedgerow includes one or more of the following:
- At least 7 woody species, on average, in a 30m length;
- At least 6 woody species, on average, in a 30m length, and has at least 3 associated features (see section 2.3);
- At least 6 woody species, on average, in a 30m length, including black poplar, large-leaved lime, small-leaved lime, or wild service tree; or
- At least 5 woody species, on average, in a 30m length and has at least 4 associated features.

2.3 The Associated Features are as Follows:

- A bank or wall for at least half the length of the hedgerow;
- A ditch for at least half the length of the hedgerow;
- Gaps no more than 10% of the length of the hedgerow;
- On average, at least 1 standard tree per 50m of hedgerow;
- At least 3 woodland species from a list of 57 woodland plants (as defined in Schedule 2 of the Regulations) within 1m of the hedgerow;
- Connections scoring 4 or more points, where connection with a hedgerow counts as 1, a broadleaved woodland or pond counts as 2; and
- A parallel hedgerow within 15m.

2.4 Species Poor vs. Species Rich Hedgerows

2.4.1 A species rich hedgerow must include at least 5 native woody species (excluding climbers and bramble, except for roses) making up the 30m section (Defra 2007).

2.4.2 Hedgerows containing fewer woody species can still be classified as species rich if the hedgerows have rich ground flora. However, the criteria must be set on a local basis as there is no national definition (Defra 2007).

2.5 Hedgerow Removal

2.5.1 Under the Hedgerow Regulations 1997, it is against the law to remove important hedgerows or sections of important hedgerow without a Hedgerow Removal License granted from the Local Planning Authority (LPA).

2.5.2 The LPA cannot refuse permission to remove a non-important hedgerow.

2.5.3 The removal of an important hedgerow is permitted if the removal is required for carrying out a development already granted permission.

2.6 Legislation and Guidance Relating to Hedgerows

2.6.1 Table 1 below provides details on several statutes and official guidance relating to the protection of hedgerows.

Table 1: *Legislation/Policies relating to hedgerows*

Legislation/Policy	Description
Hedgerow Regulations 1997	These regulations intend to protect important hedgerows from damage or destruction. Criteria are used to assess whether hedgerows are important in relation to their archaeology, history, wildlife, and landscape. Any person wishing to remove a hedgerow must submit a hedgerow removal notice to the LPA who then decide whether to approve the notice or issue a hedgerow retention license. Approved planning permission automatically grants the right to remove 'important' hedgerows.
The Wildlife and Countryside Act 1981 (as amended)	Mechanism for statutory site designation e.g., Sites of Special Scientific Interest (SSSI) and protects (to varying levels) individual species listed under Schedules 1, 2, 5, and 8 of the Act. Also lists invasive species under Schedule 9 which prohibits release, spread, and sale.
The Countryside and Rights of Way Act 2000	Places a statutory obligation on Local Authorities and other public bodies to further the conservation of biodiversity, providing the basis for Biodiversity Action Plans (BAP). Section 74 lists habitat types and species of principal importance in England.
Natural Environment and Rural Communities (NERC) Act 2006	Created by Natural England, the NERC Act 2006 brings together the function of English Nature and certain functions performed by the Countryside Agency and the Rural Development Service. Makes additional provisions with respect to pesticides harmful to wildlife, invasive non-native species, protection of biodiversity, and the protection of birds.
UK Post 2010 Biodiversity Framework	The UK BAP launched in 1994 and was succeeded in 2012 by the UK Post 2010 Biodiversity Framework. UK BAP comprised of Habitat Action Plans (HAPs) and Species Action Plans (SAPs) and are still relevant under the Biodiversity Framework. The Hedgerow HAP includes all hedgerows, consisting of ~80% of at least 1 native woody tree/shrub species.

3 METHODOLOGY

3.1 Initial Scope Assessment

3.1.1 The following surveys were used to inform the hedgerow assessment:

3.1.2 The Preliminary Ecological Appraisal (PEA) – conducted in (March) 2022 and updated in July 2022. The PEA mapped the field boundaries and gave an initial assessment of hedgerows conditions i.e., gappy, species poor, species rich etc. Assessment was updated in July 2022.

3.1.3 Desk study_–The LRC was contacted for information regarding any important hedgerows identified within 1km of the site.

3.2 Field Survey

3.2.1 The hedgerows were surveyed following the Defra (2007) methodology.

3.2.2 Parameters including connections, species, characteristics (height, length etc.), associated features

(ditches, banks etc.), and integrity were recorded for each hedgerow.

3.2.3 The survey data were assessed against the Hedgerow Regulations 1997 to identify any important hedgerows.

3.3 Ecological Assessment

3.3.1 The field survey data were assessed against the Hedgerow Regulations 1997 to classify important hedgerows.

3.3.2 The data were also used to assess the species richness of each hedgerow i.e., species rich or species poor depending on whether the hedgerow contained more than 4 woody species.

3.3.3 Hedgerows containing 4 or more woody species but did meet other criteria set out by the Hedgerow Regulations 1997 have been classified as species rich. Hedgerows with less than 4 woody species and do not meet other criteria have been classified as species poor.

3.3.4 A species rich hedgerow can be categorised as non-important i.e., because it does not meet other 'important' criteria. Conversely, a hedgerow can be species poor but classified as 'important' due to other criteria being met.

4 RESULTS

4.1 Consultation/HRNs

4.1.1 Local records of HRNs were provided by the LRC and identified that 2 of the hedgerows on-site were categorised as important (as identified in Appendix A). These were HRN99-08/09 and HRN00-06/21C, identified as Hedgerows 1 and 2 in this report. Both hedgerows connect to the Fattingpark Copse SINC.

4.2 Field Results

4.2.1 A total of 17 hedgerows were surveyed across the site. Five of them have been categorised as 'important' following the criteria set out by the Hedgerow Regulations 1997. Nine of them have been identified as species rich (containing ≥4 species). Figure 2 identifies the hedgerows that have been classified as important. Table 2 shows the collated data from the on site hedgerow survey.

Table 2: *Hedgerow ID, species, and classification*

Hedgerow ID	Species	No. Native Woody Species	Species Rich (Y/N)	Hedgerow Type	No. Associated Features	Important (Y/N)
1	Blackthorn, hawthorn, bramble, oak sp., rose sp., sycamore, spindle, apple, goat willow, dogwood, elm sp., birch sp.	9	Y	Shrubby hedgerow with trees	5	Y
2	Willow sp., field maple, bramble, oak sp., elder, blackthorn, rose sp., hawthorn	7	Y	Shrubby hedgerow with trees	3	Y
3	Hawthorn, blackthorn, bramble, oak sp., field maple, honeysuckle, rose sp., spindle, willow sp.	7	Y	Shrubby hedgerow with trees	3	Y
4	Bramble, blackthorn, hawthorn	2	N	Not identified as a hedgerow. Gappy, occasional shrub	0	N
5	Bramble, rose sp.,	7	Y	Shrubby	2	Y

	hawthorn, blackthorn, oak sp., spindle, ash, willow sp.			hedgerow with trees		
6	Oak sp., hawthorn, blackthorn, rose sp., bramble, willow sp., spindle	6	Y	Shrubby hedgerow	1	N
7a	Hawthorn, bramble, blackthorn, sycamore, oak, dogwood, willow sp., ash, gorse, elm sp.	7	Y	Shrubby hedgerow with trees	1	Y
7b	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	1	N
8	Hawthorn, bramble, blackthorn, oak sp., spindle, willow sp., rose sp.	6	Y	Shrubby hedgerow	2	N
9	Bramble, hawthorn, rose sp., blackthorn, willow sp., apple sp., oak	6	Y	Shrubby hedgerow	2	N
10	Hawthorn, bramble, blackthorn, goat willow, spindle, rose sp.	5	Y	Shrubby hedgerow	2	N
11	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	2	N
12	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	1	N
13	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	2	N
14	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	1	N
15	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	1	N
16	Hawthorn, bramble, blackthorn, rose sp.	4	N	Shrubby hedgerow	1	N
17	Hawthorn, bramble, blackthorn	3	N	Shrubby hedgerow	1	N

4.2.2 Hedgerow 1 (HRN99-08/09) has been classified as 'important' as it contains 9 woody native species and is adjacent to a footpath, bank, ditch, and connects to Fattingpark Copse SINC, which is an Area of Ancient Woodland. This was identified as a species rich hedgerow. This hedgerow marks the northern boundary of the site with Fattingpark Copse to the west, in an E-W orientation. This hedgerow will not be affected by the Proposed Development.

4.2.3 Hedgerow 2 (HRN00-06/21C) has also been classified as 'important" and species rich. Its associated features included a ditch, 1 tree per 50m section, and gaps <10% of hedgerow length. It also connects to the Fattingpark Copse SINC. This hedgerow runs from NW-SE. An access track and power cable is proposed to transect this hedgerow. The identified space through this hedgerow avoids trees and identified root protection zones, and is located in a section of hedgerow that is in a less species rich section. Location of proposed track and power cable is between tree T64-A2 and T65-A2 as identified in Tree Survey (Tree Survey – MJC-22-0111). A Hedgerow Removal Notice will be required to remove the identified section of approximately 8m.

4.2.4 A section of hedgerow 3 (HRN00-06/22) has been classified as 'important' and species rich, with 3 associated features. Identified features were a ditch, 1 tree per 50m section, and gaps <10% of hedgerow length. Hedgerow 3 runs NE-SW. The Proposed Development identifies that the access track and power cable space through this hedgerow avoids trees and identified root protection zones of nearest tree (T20-A2) and is located in a section of hedgerow that had been identified as a less species rich section. A Hedgerow Removal Notice will be required to remove the identified section of approximately 8m in length.

4.2.5 ID 4 was identified as containing gappy, occasional shrubs, neither 'important' nor species rich with no associated features. As such it is not identified as a hedgerow. This sparce gappy species poor section is proposed for removal.

4.2.6 Hedgerow 5 was both 'important' and species rich with 2 associated features: 1 tree per 50m section and gaps <10% of hedgerow length. Its connectivity to the Fattingpark Copse SINC is also ecologically important. Its layout followed a NW-SE orientation. This hedgerow will not be affected by the Proposed Development.

4.2.7 Hedgerow 6 was not considered 'important'; although it had 6 woody species it had only 1 associated feature which were gaps <10% of hedgerow length. Despite this, hedgerow 6 was species rich. This ran from a SW-NE orientation. The Proposed Development identifies that the 8m access track and power cable space through this hedgerow avoids any trees and identified root protection zones and is located in a section of hedgerow that had been identified as a less species rich section.

4.2.8 Hedgerow 7a was identified as both 'important' with 1 associated feature (gaps <10% of hedgerow length) and species rich, and 7b 'not important'. This hedgerow borders Whiterails road from a SW-NE orientation. A power cable transect space of 2m is proposed to transect 7a, a Hedgerow Removal Notice will be required. Hedgerow 7b will not be affected by the proposed Development. 7a and 7b hedgerows will be allowed to grow in height and width creating a visual screen.

4.2.9 Although Hedgerow 8 was considered species rich, the hedgerow did not meet important criteria. Its associated features included a bank and gaps <10% hedgerow length. SE-NW orientation. This hedgerow will not be negatively affected by the Proposed Development.

4.2.10 Hedgerow 9 was species rich but not important. Associated features included a bank and gaps <10% of hedgerow length. NW-SE orientation. An 8m access track and power cable space is proposed to transect this hedgerow.

4.2.11 Hedgerow 10 was species rich but not identified as 'important'. Associated features included a ditch and gaps <10% of hedgerow length. Hedgerow is positioned in a SW-NE orientation. An 8m access track and power cable space is proposed to transect this hedgerow.

Hedgerows 11 to 17 were not identified as 'important' or species rich. As shown in site plan (Figure 1), at this stage there are two indicative space options to export the electricity from the BESS/substation to the point of connection to the local distribution network. The exact routing of the cable has not been finalised and is subject to confirmation and a separate consenting process. Hedgerow 11, 13, 14 and 15 may require a potential power cable space of approximately 2m in width. Hedgerows will be reinstated post works causing a temporary limited negative effect. No further consideration is given in this document.

4.2.12 A floating access track is proposed from the Battery Energy Storage area to Briddlesford Road. The access track will require the widening of the existing gaps/entrances with the requirement to install cattle grids in hedgerows 16 and 17. The access track will connect with the existing track adjacent to the Briddlesford farm buildings.

4.3 Designated Sites

4.3.1 Three of the 17 hedgerows had direct connectivity to Fattingpark Copse, a SINC recognised for its ancient woodland status and protected species. These were hedgerows 1, 2, and 5.

5 CONCLUSIONS

5.1.1 A total of 5 hedgerows qualified as 'important' under the Hedgerow Regulations 1997.

5.1.2 Hedgerows to be transected by 8m access tracks and power cable spaces were identified as No. 2, 3, 6, 9 and 10. 2m power cable spaces are proposed to transect hedgerow 7a, 11, 13, 14 and 15.

5.1.3 Hedgerow Removal Notices will be required for hedgerow No. 2, 3 and 7a as these are identified as 'important' hedgerows.

5.1.4 Hedgerows 6, 9, 10, 11, 13, 14 and 15 do not require a HRN's but will require re- instatement and enhancement measures as outlined in the EcIA.

5.1.5 Although hedgerow 3 was not identified as important in the HRN records, it was classified as important by the recent assessment. The update between the classifications can be explained by the period between the HRN record (2000) and the assessment (2022) giving a 22-year gap where changes to the habitat have occurred. The Proposed Development identifies that the access track and power cable space through this hedgerow avoids trees and identified root protection zones of nearest tree (T20-A2) and is located in a section of hedgerow that had been identified as a less species rich section. A Hedgerow Removal Notice will be required to remove the identified section of approximately 8m in length.

5.1.6 Hedgerow 5 had not been classified in the previous LRN records but was classified as important by this assessment. This hedgerow connects to the Fattingpark Copse SINC. The Proposed Development will not have any negative impact on this hedgerow.

5.1.7 Hedgerow 7 is divided into two sections, one section, 7a, is identified as 'important' and one section, 7b, as 'not important'.

5.1.8 A total of 9/17 hedgerows were deemed species rich, irrespective of their classification as being important or not important. Hedgerow 4 was the only hedgerow with less than 4 woody species and was thus classified as species poor.

5.1.9 The hedgerow lengths required for removal are in sections of 8m in order to accommodate the access road linking solar arrays for access points with infrastructure and 2m to enable access for cable trench to be excavated.

5.1.10 Table 3 identifies hedgerow ID and length, with proposed lengths of access spaces, power cable spaces and track. Total of hedgerow to be removed equals 1.87%.

Table 3 – *Hedgerow ID/Approximate Length/Proposed* - Length measured using MAGIC Mapping

Hedgerow ID	Length (m)	Proposed Hedgerow Transect (m)	Comments
1	208	0	No negative effect on hedgerow
2*	404	8	AT/PC to be located between trees avoiding RPA. Hedgerow transect equates to 1.9% of hedgerow
3*	351	8	AT/PC to be located avoiding RPA. Hedgerow transect equates to 2.27% of hedgerow length
4	0	0	Not assessed as a hedgerow, identified as gappy occasional shrub sections. No connectivity to wider habitats.
5	327	0	No negative effect on hedgerow
6	260	8	AT/PC to be located in areas without trees. Hedgerow transect equates to 3.07% of hedgerow length
7a*	291	2	PC to be located through hedgerow. Transect equates to 0.68% of hedgerow length.
7b	110	0	No negative effect on hedgerow
8	238	0	No negative effect on hedgerow
9	295	8	AT/PC to be located in area without trees. Hedgerow transect equates to 2.7% of hedgerow length
10	260	8	AT/PC to be located in area without trees. Hedgerow transect equates to 2.61 % of hedgerow length
11	47	2	PC to be located in area without trees. Hedgerow transect equates to 4.25% of hedgerow length
12	173	0	No negative effect on hedgerow
13	44	2	PC to be located in area without trees. Hedgerow transect equates to 4.44% of hedgerow length
14	76	2	PC to be located in area without trees. Hedgerow transect equates to 2.63% of hedgerow length
15	151	2	PC to be located in area without trees. Hedgerow transect equates to 1.32% of hedgerow length
16	111	8	AT to be located at existing entrance with requirement to widen 4m for cattle grid. Hedgerow transect equates to 7.2% of hedgerow length
17	170	8	AT to be located at existing entrance with requirement to widen 4m for cattle grid. Hedgerow transect equates to 4.7% of hedgerow length
Total Existing Hedge Length = 3,516		Total Proposed Hedge Length Removal = 66	Hedgerow lengths required for removal equates to 1.87% of total hedgerow length. At this stage in the Proposed Development, there are indicative space options to export the electricity from the BESS/substation to the point of connection to the local distribution network. The exact routing of the cable has not been finalised and is subject to confirmation and a separate consenting process. Hedgerows 11, 13, 14 and 15 may require a potential power cable space of approximately 2m in width. All hedgerows will be reinstated post works causing a temporary limited negative effect.

**Important Hedgerow. AT – Access Track. P/C – Power Cable*

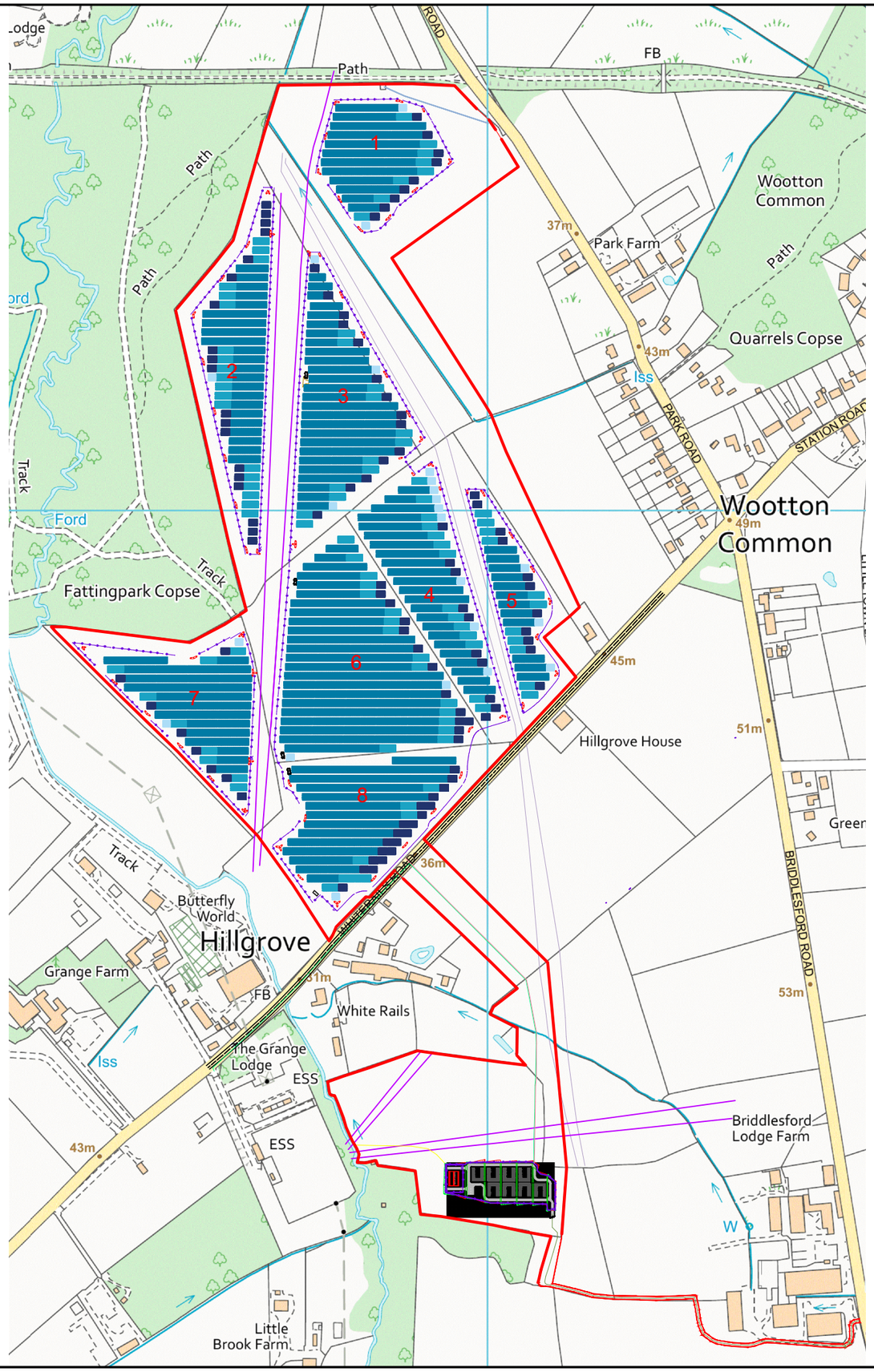
5.1.11 Hedgerow Enhancements

- Hedgerows will be retained where possible other than to allow for access tracks and cable installation;
- Enhancement of existing hedgerows/gaps by proposed planting of native species will increase biodiversity and habitat connectivity;
- Hedgerow along Whiterails Road will be allowed grow in height and width to improve biodiversity and screening; and
- Existing gaps in hedgerow that allow access to fields will be planted with native hedgerow species.

6 REFERENCES

Defra (2007) Hedgerow Survey Handbook- A Standard Procedure for Local Surveys in the UK. 2nd Ed. London.

Hedgelink (2009) UK Biodiversity Action Plan: Priority Species Linked to Hedgerows. Available from: Hedgerow biodiversity | Hedgelink [accessed 15/07/2022].



Notes:

Do not scale off this drawing.

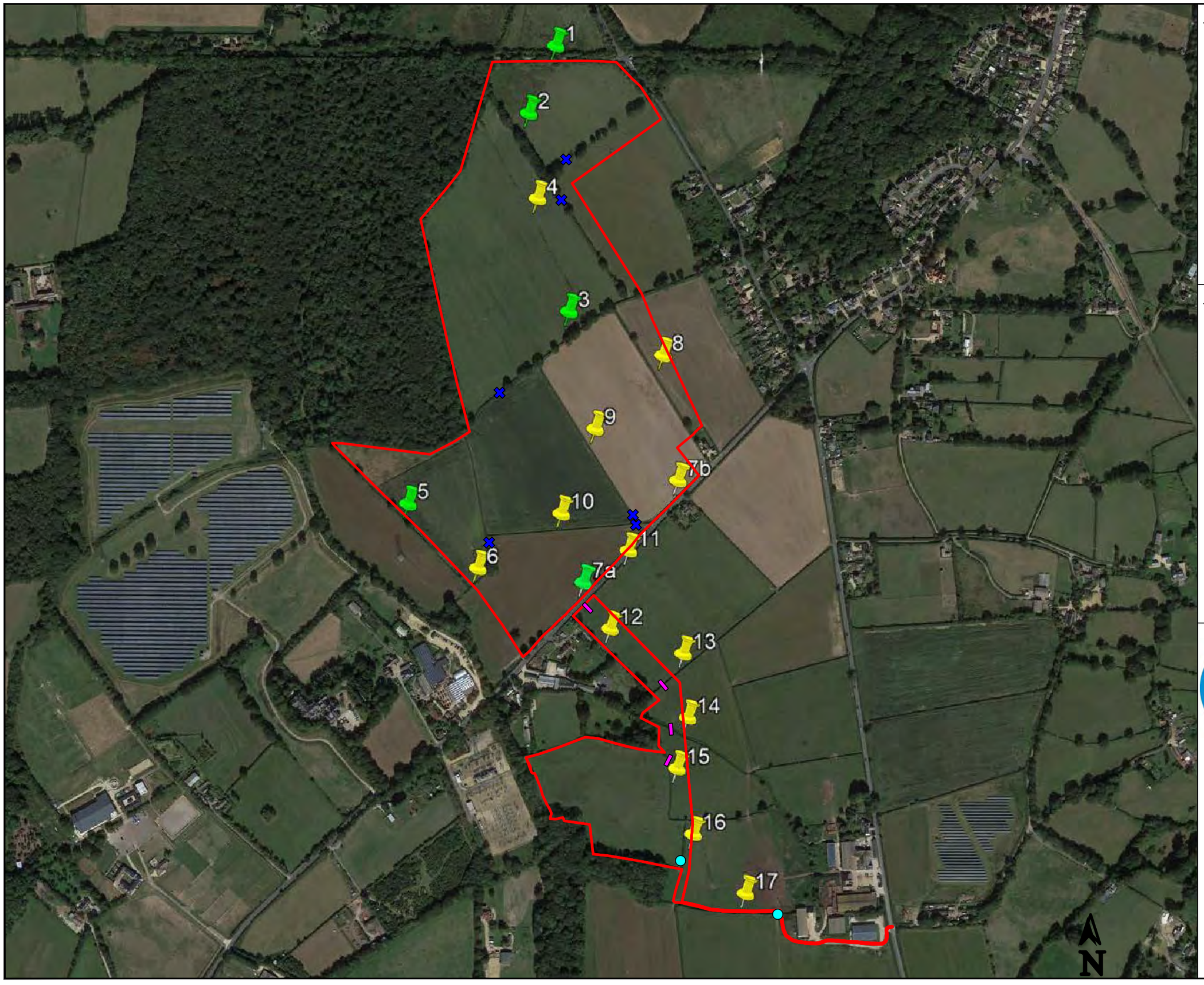
Current map showing the site and its layout as updated August 2022.

Key:

- SITE BOUNDARY
- PERIMETER FENCE
- SOLAR PARK MAINTENANCE TRACKS
- ACCESS ROUTE TO BESS AND SUBSTATION
- BESS AND SUBSTATION ACCESS
- TRANSFORMER STATION
- CUSTOMER CABINET
- TABLE OF 78 MODULES (285 PCS.)
- TABLE OF 39 MODULES (93 PCS.)
- TABLE OF 21 MODULES (41 PCS.)
- TABLE OF 18 MODULES (41 PCS.)
- GATE
- SUBSTATION
- BATTERY CONTAINER/TRANSFORMERS
- SGN INTERMEDIATE PIPELINE
- SGN MEDIUM PIPELINE
- 33KV OVERHEAD POWER LINE
- INDICATIVE ROUTE A FOR EXPORT CABLE
- INDICATIVE ROUTE B FOR EXPORT CABLE
- CABLE ROUTE FROM SOLAR PANELS TO THE BESS AND SUBSTATION

e3S Consulting

CLIENT: Ridge Clean Energy LTD	
SITE: Sunny Oaks Renewable Energy Park LTD.	
TITLE: Figure 1 - Hedgerow Survey	
PROJECT Number: NN 1418	DATE: August 2022
	Map Not To Scale



Notes:

Do not scale off this drawing.

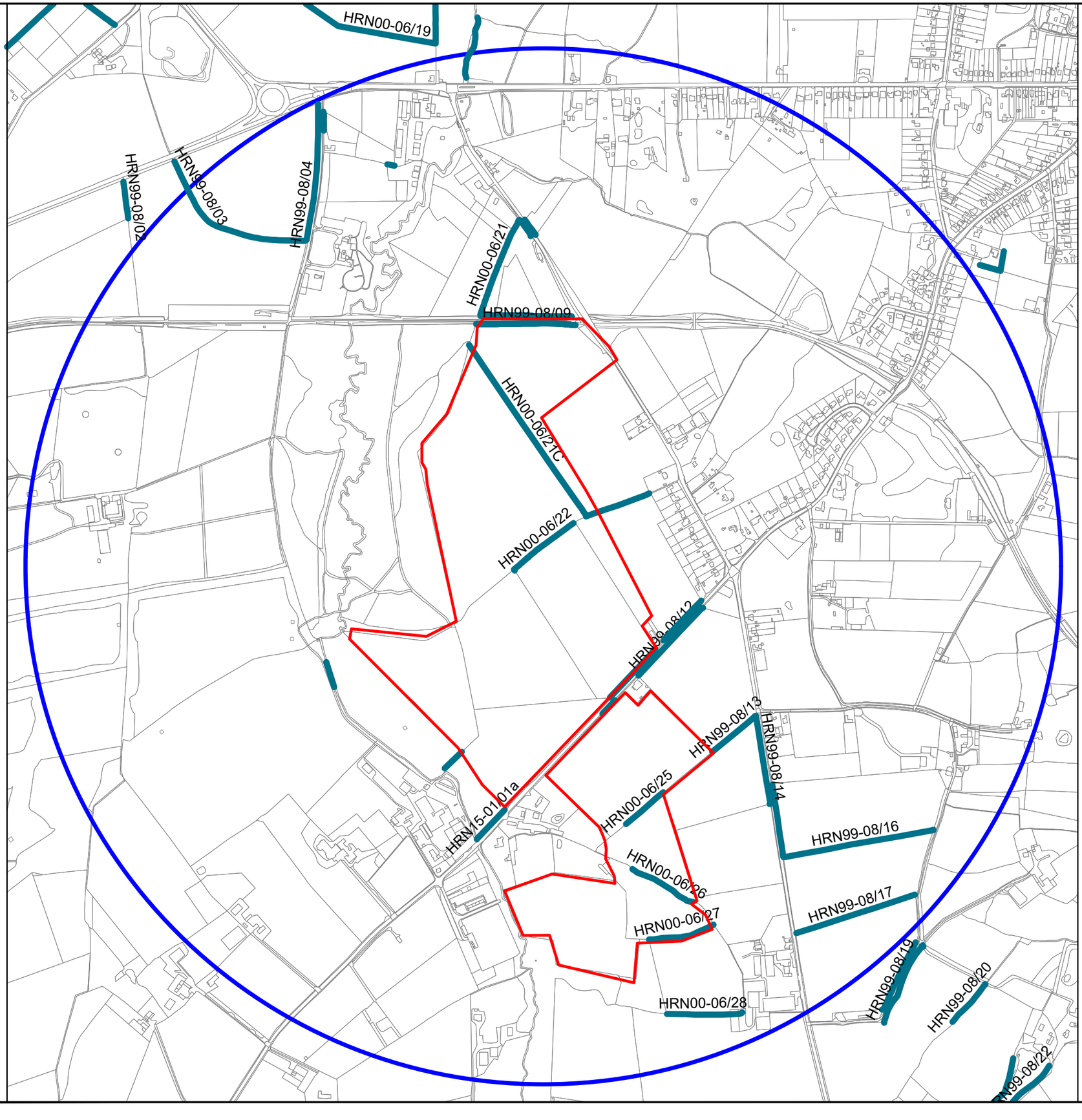
Current map showing the site, as well as all hedgerows with attaching numbers that we have given them. (linking to report)

Key:

- Site Boundary
- Important Hedgerow
- Other Hedgerows
- Access Track + Cable
- Cable
- Floating Track

e3s Consulting

CLIENT: Ridge Clean Energy LTD	
SITE: Sunny Oaks Renewable Energy Park.	
Drawn By: HO	
TITLE: Figure 2 - Hedgerow Identification	
PROJECT Number: NN 1418	DATE: July 2022
	Map Not To Scale



Notes:

Do not scale off this drawing.

Current map showing the site, as well as all hedgerow removal notices within 1km of the site.

Key:

- 1km HRM Boundary
- Site Boundary
- Hedgerow Removal Notices

Note - hedgerow information provided by 3rd party using correct application boundary at that time.

e3S Consulting

CLIENT: Ridge Clean Energy LTD	
SITE: Sunny Oaks Renewable Energy Park.	
Drawn By: HO	
TITLE: Appendix A - Hedgerow Removal Notices	
PROJECT Number: NN 1418	DATE: July 2022
	Map Not To Scale

BAT SURVEY REPORT

Sunny Oaks Renewable Energy Park Ltd.
Wootton Common, Isle of Wight.

Ridge Clean Energy Ltd

NN1418R01
19 July 2022

DOCUMENT CONTROL

DOCUMENT TITLE	BAT TRANSECT SURVEY REPORT	REVISION	R01
DOCUMENT NUMBER	R01	ISSUE DATE	July 2022
PROJECT NUMBER	NN1418	STATUS	

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REVISION HISTORY

REVISION NUMBER	DETAILS	DATE
R01	Client modification	05/08/22

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1 INTRODUCTION

1.1 Project Background

1.1.1 E3S Consulting Ltd (E3S) surveyors have been engaged by Ridge Clean Energy Ltd (The Client), to undertake 2 transect surveys in relation to bat activity at a site known as Wootton Common Solar Park. The objective was to determine the site's current use by bats. The data have been collected to determine the potential impacts (if any) of the Proposed Development by establishing:

- Whether any bats are roosting on-site;
- The general level of bat activity on the site; and
- The population of species using the site.

1.1.2 The data will then inform which actions are needed to minimise development impacts on the local bat population, if necessary. It is important to note that these surveys take no account of seasonal variation or fluctuations in the presence of any species that might take up residence outside of the survey period. Lack of signs of a particular species does not confirm its absence, merely that there was no indication of its presence at the time of survey. Should the proposed development not commence within 24 months of the date of report issue, an updated assessment will be required.

1.2 Existing Information

1.2.1 The LRC records have identified the following species of bats within 1km of the site;

- western barbastelle (*Barbastella barbastellus*);
- serotine (*Eptesicus serotinus*) ;
- common pipistrelle (*Pipistrellus pipistrellus*); and
- soprano pipistrelle (*P. pygmaeus*).

1.2.2 The Preliminary Ecological Assessment (PEA) found that the hedgerows on-site provided potential habitat for foraging and commuting bats as well as functional links to the adjacent woodland (E3S Consulting Ltd. 2022). Bats may also use the mature oak trees (*Quercus* sp.) on-site as potential roosts. It is understood that these important ecological features will be retained where practical and thus the development is considered unlikely to impact the site's overall foraging and roosting potential for bats.

2 LEGISLATION

2.1.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as amended. All bat species are also included on Schedule 2 of the Conservation of Species and Habitats Regulations 2010. Taken together, these pieces of legislation make it an offence to:

- Intentionally or recklessly kill, injure, or capture bats;
- Deliberately or recklessly disturb bats (whether in a roost or not); and
- Damage, destroy, or obstruct access to bat roosts.

2.1.2 A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, it is considered within legal opinion that a roost is protected whether bats are present at the time of survey.

2.1.3 Barbastelle bats, Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle, brown long-eared bat (*Plecotus auritus*), greater horseshoe bat (*Rhinolophus ferrumequinum*), and lesser horseshoe bat (*R. hipposideros*) are listed as species of principle importance to the

conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities Act 2006.

3 SURVEY METHODOLOGY

3.1.1 The methodology is based on CIEEM's Guidelines for Ecological Assessment in the UK (CIEEM 2022), Bat Surveys for Professional Ecologists: Good Practice Guidelines (BCT 2016). Although the assessment does not constitute a formal Ecological Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level. The following assessment criteria have been utilised to scope the activity survey methodology:

- On-site roosts – **Low,** no onsite roosts known;
- Foraging opportunities – **Low,** the majority of habitat on site and nearby is in rotational sown grass production and of low foraging value;
- Habitat diversity – **Low;**
- Surrounding habitat diversity – **Medium,** the surrounding woodland to the west of the site offers roosting and foraging opportunities.
- Surrounding roosting habitat – **Low,** no known roosts within proximity; and
- Surrounding foraging habitats – **Low,** with rotational grassland, residential properties, and amenity grassland.

3.1.2 Based on the above assessment, and client consultation with the county ecologist, one transect survey was undertaken 16 September 2021 and another transect survey was completed on 12 July 2022.

4 SURVEYS SUMMARY

4.1.1 The transect surveys were undertaken during favourable weather conditions when bat activity is deemed likely (dry, little to no wind and temperatures greater than 8°C).

4.1.2 The surveys commenced shortly before sunset and finished approximately 2 hours after sunset. An Echo Meter Touch Pro 2™ acoustic detector (with auto ID and audio recording software) was used during the transect survey with data recorded and plotted on Google Earth™. The surveyor walked the site on a pre-selected route and noted adlib sightings. The surveyor also used a Batton HD™ detector at predetermined listening points. Bat activity was recorded at these listening points for at least 10 minutes.

4.1.3 The site survey and data assessment were undertaken by E3S surveyor John Owen (Bat Survey Class License WML CL18 (Class 2) Registration Number 2021-55380-LS-CLS) qualified in bat surveying techniques by the BCT. The transect survey results are detailed in **Table 1** below:

Table 1: *September 2021 survey results including weather conditions measured at the beginning and end of the transect survey*

September 2021	Start	Finish
Time	20.15	22.15
Temp (°C)	9	9
Cloud Cover (Okta)	8/8	8/8
Wind (Beaufort)	F0	F0

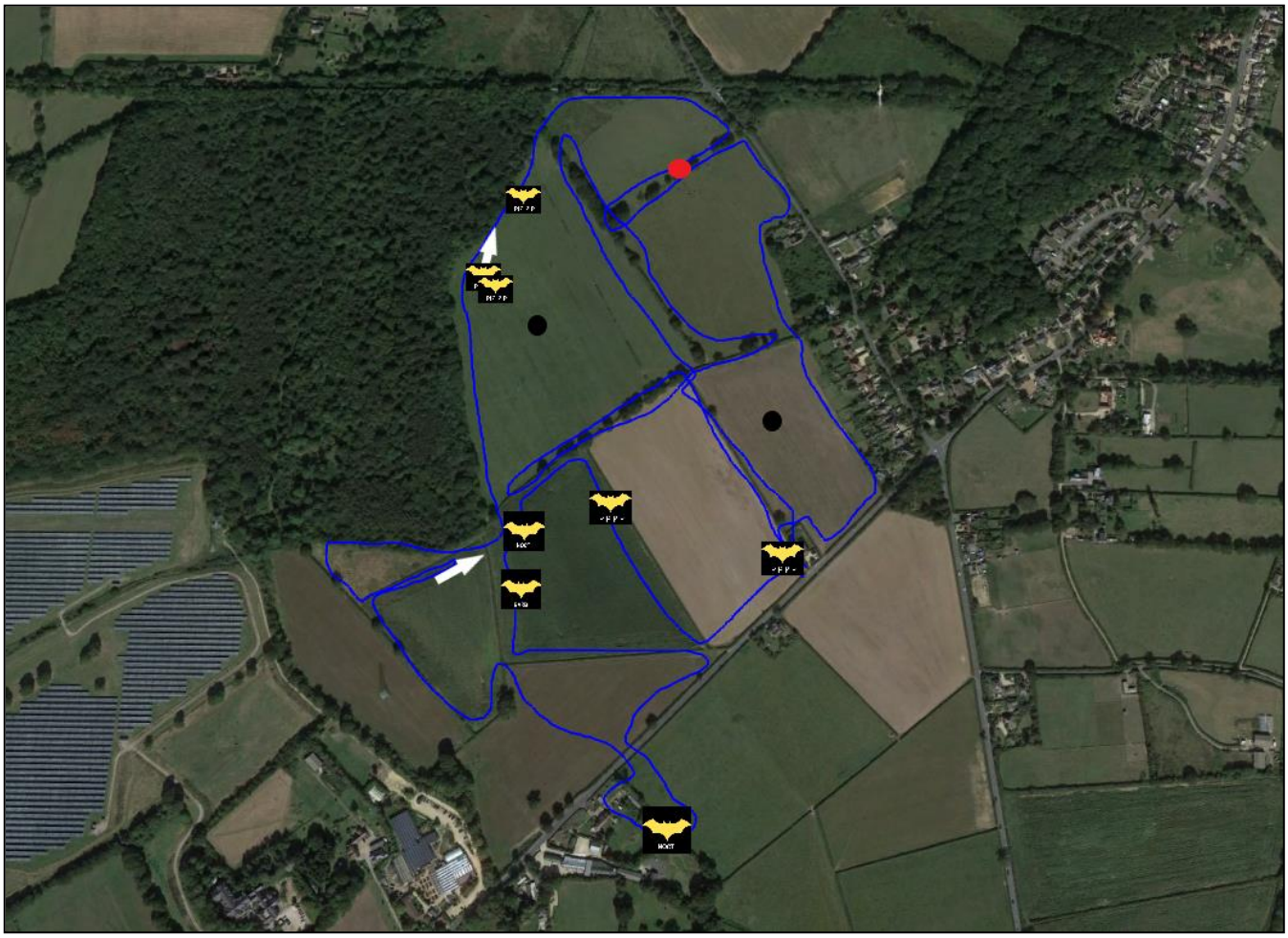

Figure 1*: September transect route (blue line), listening points (black dots), and the static detector position (red dot). Black boxes with yellow bat symbols show areas where bats were detected and recorded*

Table 2: *July 2022 survey results including weather conditions measured at the beginning and end of the transect survey*

July 2022	Start	Finish
Time	21.00	23.00
Temp (°C)	22	22
Cloud Cover (Okta)	7/8	7/8
Wind (Beaufort)	F1	F1

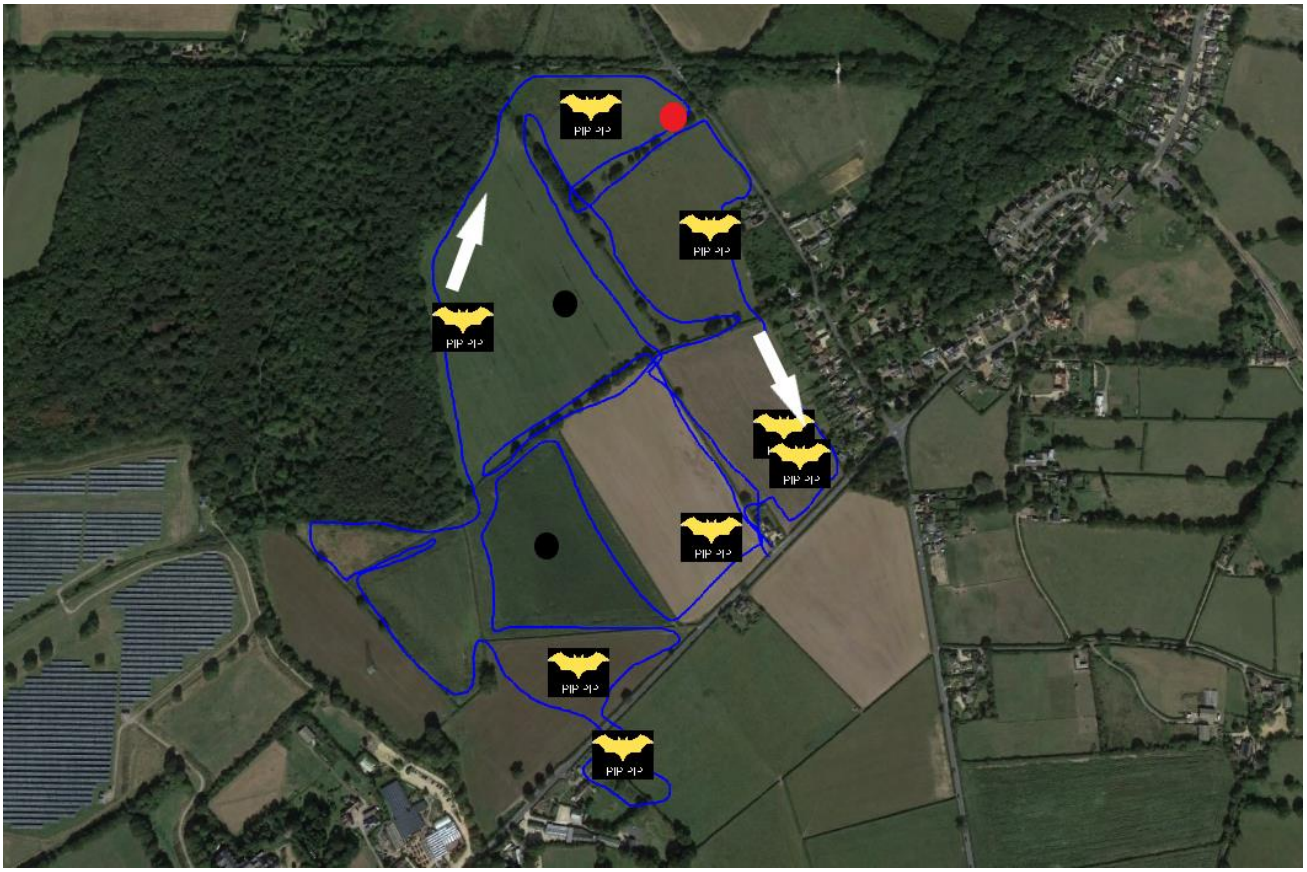

Figure 2: *Map showing the July transect route (blue line), listening points (black dots), and the static detector position (red dot). Black boxes with yellow bat symbols show areas where bats were detected and recorded*

4.1.4 For each survey an Anabat Express™ static detector (S/N 382121) was placed on-site for 5 consecutive nights to coincide with each transect survey. The results from each period are detailed in **Tables 3** and **4** below:

Table 3: *September bat activity data results collected using EM Touch Pro™, Anabat Express™ static detector, and baton™*

Species	EM Touch	Anabat Express per night (av.)	Listening point 1	Listening point 2
Common pipistrelle	5	22	1	2
Soprano pipistrelle	0	4	0	0
Barbastelle bat	1	0	0	0
Brown long-eared bat	0	0	0	0
Grey long-eared bat (*Plecotus austriacus*)	0	0	0	0
Noctule	1	3	0	0
Leisler's bat (*Nyctalus leisleri*)	0	0	0	0
Serotine	1	3	0	0

Myotis sp.	0	0	0	0
Total	**8**	**32**	**1**	**2**

Table 4*: July bat activity data results collected using EM Touch Pro™, Anabat Express™ static detector, and baton™*

Species	EM Touch	Anabat Express per night (av.)	Listening point 1	Listening point 2
Common pipistrelle	8	34	1	0
Soprano pipistrelle	0	6	0	0
Barbastelle bat	0	0	0	0
Brown long-eared bat	0	0	0	0
Grey long-eared bat	0	0	0	0
Noctule	0	2	0	0
Leisler's bat	0	0	0	0
Serotine	0	8	0	0
Myotis sp.	1	2	0	0
Unknown	1	2	0	0
Total	**10**	**54**	**1**	**0**

5 ASSESSMENT

5.1 September Transect

5.1.1 The level of bat activity for the September transect was 2 passes per hour which equates as low; less than 10 bat passes per hour qualifies as low (Russ & Montgomery 2002). The number of species recorded was also low with 4 species identified out of a total of 17. This suggests that the bat population visiting the site is low. This could be due to the area being suboptimal for various bat species, with low foraging and roosting potential.

5.1.2 The most recorded bat species by the Echo Meter Pro™ was common pipistrelle.

5.1.3 The static detector also recorded low levels of bat activity with 4.5 bat passes per hour. However, static detectors cannot distinguish between one individual bat going back and forth foraging constantly, or many different individual bats flying past.

5.1.4 The overall number of species recorded by the static detector was also low at 4/17 similar to the Echo Meter Touch Pro™ bat detector.

5.1.5 Common pipistrelle was the most recorded species by the static detector, similar to the results of the Echo Meter Touch Pro™. Common pipistrelles are a highly flexible species, found in almost all habitats. They often forage along linear features such as hedgerows and are generalist feeders.

5.2 July Transect

5.2.1 The level of bat activity for the July transect was 5 passes per hour which equates as low; less than

10 bat passes per hour qualifies as low (Russ & Montgomery 2002). The number of species recorded was also low with 4 species identified out of a total of 17. This suggests that the bat population visiting the site is low. This could be due to the area being suboptimal for various bat species, with low foraging and roosting potential, with frequently cut grassland or arable crops such as forage maize less likely to support the insects that the bats feed upon.

5.2.2 The most recorded bat species by the Echo Meter Pro™ was common pipistrelle.

5.2.3 The static detector also recorded low levels of bat activity with 7.7 bat passes per hour. However, static detectors cannot distinguish between one individual bat going back and forth foraging constantly, or many different individual bats flying past.

5.2.4 The overall number of species recorded by the static detector was also low at 4/17 similar to the Echo Meter Touch Pro™ bat detector.

5.2.5 Common pipistrelle was the most recorded species by the static detector, similar to the results of the Echo Meter Touch Pro™. Common pipistrelles are a highly flexible species, found in almost all habitats. They often forage along linear features such as hedgerows and are generalist feeders.

5.2.6 At the listening points only 1 bat was seen foraging along the boundary hedgerow.

6 CONCLUSIONS

6.1.1 The transect survey and static detector results show that a low number of bat species commute and forage around the site's boundary, with common pipistrelles being the highest recorded species. The lack of variation in habitat and poor quality of the grassland are likely contributors. Low quality grassland will attract fewer insects than higher quality grassland. Thus, the hedgerows are likely to provide the highest potential for foraging opportunities. The retention of the hedgerows where possible will continue to benefit species such as common pipistrelle which rely on such features for foraging activity.

6.1.2 Of the species listed as species of principle importance, 3 were identified on-site. The barbastelle bat was recorded on the EM Touch™, noctule on both EM Touch™ and Anabat Detector™ and soprano pipistrelle on Anabat Detector™. The Proposed Development will not impact the woodland edge habitat and thus will not have a negative impact on the 3 identified species.

6.1.3 It is understood that the Proposed Development will not involve lighting, and that CCTVs will be infrared. Thus, lighting impacts to bats (other than for construction) is not considered further.

6.1.4 Enhancement measures suitable for bat species can be designed for this site which will increase its capacity to support the local bat population.

Table 5: *Bat species present on-site with habitat preferences and possible improvements*

Species	Echo Meter Touch™	Anabat Express ™	LRC (Y/N)	Primary Habitats/Features	Secondary Habitats/Features	Boosting Connectivity
Common pipistrelle	Sept 5 July 8	Sept 22 July 34	N	Forages over grazed pasture and deciduous woodland	Woodland edges	No specific needs known
Soprano pipistrelle	Sept 0 July 0	Sept 4 July 6	Y	Frequently uses riparian habitat	Woodland edges	No specific needs known

Western barbastelle	Sept 1 July 0	Sept 0 July 0	Y	Deciduous woodland, wet meadows, and water bodies e.g., woodland streams, riparian margins, and unimproved grassland	Field margins and hedgerows	Commutes along hedgerows, riparian corridors, and treelines
Serotine	Sept 1 July 0	Sept 3 July 8	Y	N/A	Range of habitats including cattle pasture, woodland edge and tree-lined hedgerows	Commutes along hedgerows, and treelines
Noctule	Sept 1 July 0	Sept 3 July 2	N	N/A	Range of habitats foraging in open or over trees, pasture, and water	No specific needs

6.1.5 Overall, it is considered that the Proposed Development will have a negligible impact on bats and has potential to have a positive impact with enhancement measures implemented.

6.2 Mitigation and Enhancement

6.2.1 The following mitigation and enhancement measures have been recommended on-site;

- Construction works should not be carried out at night if possible, in order to not disturb the bats feeding and commuting behaviour on-site. If night work is deemed necessary then all form of lighting should be directional, and face away from linear features such as hedgerows and trees;
- Provision of additional roosting features for bats by placing bat boxes on the mature oak trees will improve roosting potential;
- Sowing native wildflowers on-site will encourage more insects to the site, thus providing more foraging opportunities for bat species; and
- Enhancing the hedgerow through additional native planting, both strengthening connectivity and increasing prey availability.

7 REFERENCES

Bat Conservation Trust (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Ed.

BCT (2020) Core Sustenance Zones and Habitats of Importance for Designing Biodiversity Net Gain for Bats.

CIEEM (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland.

E3S Consulting Ltd. (2022) NN1418 Preliminary Ecological Appraisal, Sunny Oaks Renewable Energy Park, Wootton Common, Isle of Wight.

Russ J.M. and Montgomery W.I (2002) Habitat Associations of Bats in Northern Ireland: Implications for Conservation. Biol. Conserv. **108**:49-58.

APPENDIX C – Biodiversity Net Gain Assessment

APPENDIX C – Biodiversity Net Gain Assessment

The Biodiversity Metric 3.0 - Calculation Tool
Start page

Project details	
Planning authority:	IOW
Project name:	SUNNY OAKS SOLAR FARM
Applicant:	RIDGECLEAN ENERGY
Application type:	
Planning application reference:	
Assessor:	
Reviewer:	
Metric version:	3
Assessment date:	20/05/2022
Planning authority reviewer:	

Instructions

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	Enter data
	Automatic lookup
	Result

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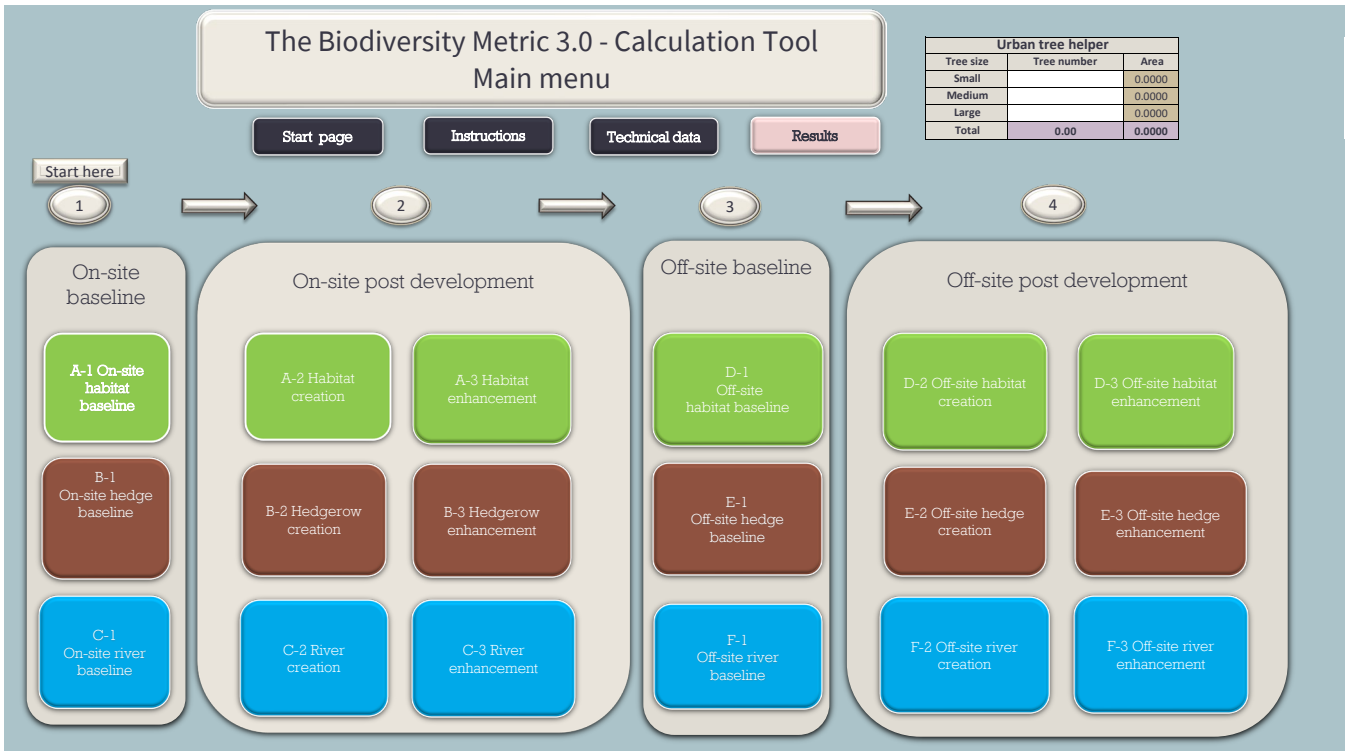
On-site baseline map — Insert

On-site post intervention map — Insert

Off-site baseline map — Insert

Off-site post intervention map — Insert


The Biodiversity Metric 3.0 - Calculation Tool
Main menu
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Instructions
Technical data
Results
Urban tree helper
Tree size
Tree number
Area
Small
0.0000
Medium
0.0000
Large
0.0000
Total
0.00
0.0000
Start here
1
2
3
4
On-site baseline
A-1 On-site habitat baseline
B-1 On-site hedge baseline
C-1 On-site river baseline
On-site post development
A-2 Habitat creation
A-3 Habitat enhancement
B-2 Hedgerow creation
B-3 Hedgerow enhancement
C-2 River creation
C-3 River enhancement
Off-site baseline
D-1 Off-site habitat baseline
E-1 Off-site hedge baseline
F-1 Off-site river baseline
Off-site post development
D-2 Off-site habitat creation
D-3 Off-site habitat enhancement
E-2 Off-site hedge creation
E-3 Off-site hedge enhancement
F-2 Off-site river creation
F-3 Off-site river enhancement

The Biodiversity Metric 3.0 - Calculation Tool
Start page

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Headline results

Detailed results

Habitat trading summary

SUNNY OAKS SOLAR FARM

Headline Results

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On-site baseline	*Habitat units*	143.00
	Hedgerow units	32.82
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	187.99
	Hedgerow units	36.96
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	31.46%
	Hedgerow units	12.62%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	44.99
	Hedgerow units	4.14
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	31.46%
	Hedgerow units	12.62%
	River units	0.00%
Trading rules Satisfied?		Yes

SUNNY OAKS SOLAR FARM
Detailed Results

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Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)		
	Habitat units	44.99
	Hedgerow units	4.14
	River units	0.00

Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)		
	Habitat units	31.46%
	Hedgerow units	12.62%
	River units	0.00%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total area / length	32.50	3.73	0.00
Total units	143.00	32.82	0.00
Area / length retained	6.49	3.71	0.00
Units Retained	28.56	32.65	0.00
Area / length proposed for enhancement	20.10	0.00	0.00
Baseline units proposed for enhancement	88.44	0.00	0.00
Area / length lost	5.91	0.02	0.00
Units lost	26.00	0.18	0.00

Area habitats

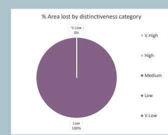
Area Habitats

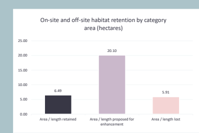
On site change by broad habitat type

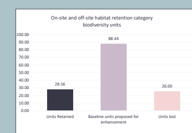
	Baseline		Post development on site		Onsite Change	
Habitat group	Existing area	Existing value	Proposed area	Proposed value	Area change	Onsite Unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	32.49	142.96	26.59	178.93	-5.90	35.97
Heathland and shrub	0.01	0.04	1.23	9.06	1.23	9.01
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Combined area lost by distinctiveness band

Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0	
Medium	0.005	0
Low	5.9	100
V.Low	0	

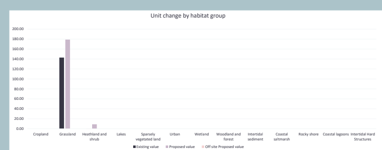






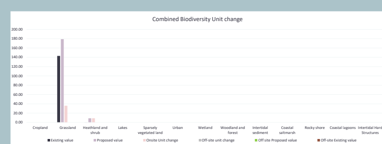
Off site change by broad habitat type

	Baseline		Post development Off-site		Off-site Change	
Habitat group	Existing area	Off-site Existing value	Off-site proposed area	Off site Proposed value	Off-site area change	Off-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.00	0.00	0.00	0.00	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00



Combined on site and off site change by broad habitat type

	Baseline		On-site and Off-site post development		Combined change	
Habitat group	Existing area	Existing value	Combined proposed area	Combined proposed value	Proposed area	Proposed value
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	32.49	142.96	26.59	178.93	-5.90	35.97
Heathland and shrub	0.01	0.04	1.23	9.06	1.23	9.01
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00



Hedgerows and lines of trees

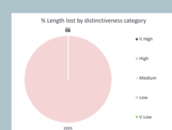
Hedgerows and Lines of Trees

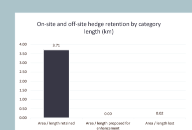
On site change by hedgerow type

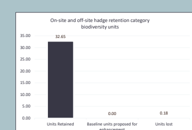
	Baseline		Post development on site		Onsite Change	
Hedgerow type	Existing length on-site	Existing value	Proposed length on-site	Proposed value on-site	On-site length change	On-site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	3.73	32.82	4.36	36.29	0.63	3.47
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.70	0.68	0.70	0.68

Combined length lost by distinctiveness band

Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0.02	100
Low	0	
V.Low	0	

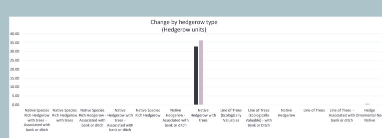






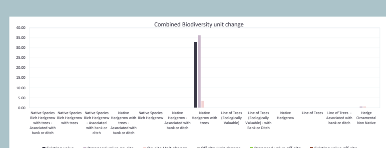
Off site change by hedgerow type

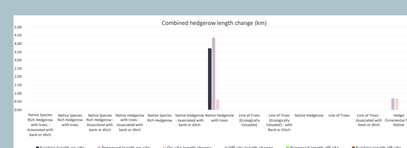
	Off site baseline		Post development off site		Off site Change	
Hedgerow type	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00



Combined on and off site change by hedgerow type

	Baseline		Post development on site		Onsite Change	
Hedgerow type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	3.73	32.82	4.36	36.29	0.63	3.47
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.70	0.68	0.70	0.68





Rivers and Streams

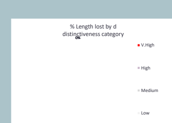
Rivers and Streams

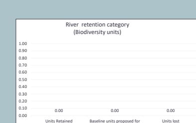
On site change by river type

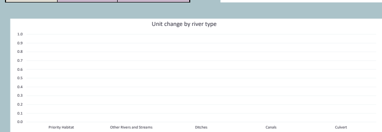
	Baseline		Post development on site		Onsite Change	
River type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Combined length lost by distinctiveness band

Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	

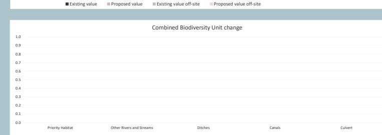


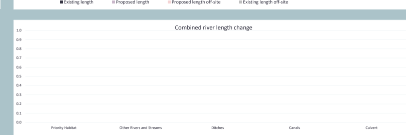




Off site change by river type

	Baseline		Post development off-site		Off-site Change	
River type	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off-site unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0





Combined on and off site change by river type

	Baseline		Post development on site		Onsite Change	
River type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Return to results menu

Trading Summary

Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Bespoke compensation likely to be required	Yes
High	Same habitat required	Yes
Medium	Same broad habitat or a higher distinctiveness habitat required	Yes
Low	Same distinctiveness or better habitat required	Yes

Very High Distinctiveness

Habitat group	Group	On Site Unit Change	Off Site Unit Change	Project wide Unit Change	Unit Losses
Grassland - Lowland dry acid grassland	Grassland	0.00	0.00	0.00	
Grassland - Lowland meadows	Grassland	0.00	0.00	0.00	
Grassland - Upland hay meadows	Grassland	0.00	0.00	0.00	
Heathland and shrub - Mountain heaths and willow scrub	Heathland and shrub	0.00	0.00	0.00	
Lakes - Aquifer fed naturally fluctuating water bodies	Lakes	0.00	0.00	0.00	
Sparsely vegetated land - Calaminarian grasslands	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Limestone pavement	Sparsely vegetated land	0.00	0.00	0.00	
Wetland - Blanket bog	Wetland	0.00	0.00	0.00	
Wetland - Depressions on Peat substrates (H7150)	Wetland	0.00	0.00	0.00	
Wetland - Fens (upland and lowland)	Wetland	0.00	0.00	0.00	
Wetland - Lowland raised bog	Wetland	0.00	0.00	0.00	
Wetland - Oceanic Valley Mire(1) (D2.1)	Wetland	0.00	0.00	0.00	
Wetland - Purple moor grass and rush pastures	Wetland	0.00	0.00	0.00	
Wetland - Transition mires and quaking bogs (H7140)	Wetland	0.00	0.00	0.00	
Woodland and forest - Wood-pasture and parkland	Woodland and forest	0.00	0.00	0.00	
Rocky shore - High energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Rocky shore - Moderate energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Rocky shore - Low energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Rocky shore - Features of littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Intertidal sediment - Littoral seagrass on peat, clay or chalk	Intertidal sediment	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00

Very High Distinctiveness Summary

Very High Distinctiveness Units available to offset lower distinctiveness deficit	0.00

High Distinctiveness

Habitat group	Group	On Site Unit Change	Off Site Unit Change	Project wide Unit Change	Losses not yet accounted for
Grassland - Traditional orchards	Grassland	0.00	0.00	0.00	
Grassland - Floodplain Wetland Mosaic (CFGM)	Grassland	0.00	0.00	0.00	
Grassland - Lowland calcareous grassland	Grassland	0.00	0.00	0.00	
Grassland - Tall herb communities	Grassland	0.00	0.00	0.00	
Grassland - Upland calcareous grassland	Grassland	0.00	0.00	0.00	
Heathland and shrub - Lowland Heathland	Grassland	0.00	0.00	0.00	
Heathland and shrub - Sea buckthorn scrub (Annex 1)	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Upland Heathland	Heathland and shrub	0.00	0.00	0.00	
Lakes - High alkalinity lakes	Lakes	0.00	0.00	0.00	
Lakes - Low alkalinity lakes	Lakes	0.00	0.00	0.00	
Lakes - Marl Lakes	Lakes	0.00	0.00	0.00	
Lakes - Moderate alkalinity lakes	Lakes	0.00	0.00	0.00	
Lakes - Peat Lakes	Lakes	0.00	0.00	0.00	
Lakes - Ponds (Priority Habitat)	Lakes	0.00	0.00	0.00	
Lakes - Temporary lakes, ponds and pools	Lakes	0.00	0.00	0.00	
Sparsely vegetated land - Coastal sand dunes	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Coastal vegetated shingle	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Inland rock outcrop and scree habitats	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Maritime cliff and slopes	Sparsely vegetated land	0.00	0.00	0.00	
Urban - Open Mosaic Habitats on Previously Developed Land	Urban	0.00	0.00	0.00	
Wetland - Reedbeds	Wetland	0.00	0.00	0.00	
Woodland and forest - Felled	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Lowland beech and yew woodland	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Lowland mixed deciduous woodland	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Native pine woodlands	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Upland birchwoods	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Upland mixed ashwoods	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Upland oakwood	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Wet woodland	Woodland and forest	0.00	0.00	0.00	
Coastal lagoons - Coastal lagoons	Coastal lagoons	0.00	0.00	0.00	
Rocky shore - High energy littoral rock	Rocky shore	0.00	0.00	0.00	
Rocky shore - Moderate energy littoral rock	Rocky shore	0.00	0.00	0.00	
Rocky shore - Low energy littoral rock	Rocky shore	0.00	0.00	0.00	
Rocky shore - Features of littoral rock	Rocky shore	0.00	0.00	0.00	
Intertidal sediment - Littoral mud	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00	
Coastal saltmarsh - Saltmarshes and saline reedbeds	Coastal Saltmarsh	0.00	0.00	0.00	
Intertidal sediment - Littoral biogenic reefs - Mussels	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral biogenic reefs - Sabellaria	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Features of littoral sediment	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral muddy sand	Intertidal sediment	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00

High Distinctiveness Summary

High Distinctiveness Units available to offset lower distinctiveness deficit	0.00
Unit Deficit: Like for like not satisfied	0.00

Medium Distinctiveness

Habitat Group	Group	On site unit change	Off Site Unit Change	Project wide unit change	Cumulative Broad Habitat Change
Cropland - Arable field margins cultivated annually	Cropland	0.00	0.00	0.00	
Cropland - Arable field margins game bird mix	Cropland	0.00	0.00	0.00	0.00
Cropland - Arable field margins pollen & nectar	Cropland	0.00	0.00	0.00	
Cropland - Arable field margins tussocky	Cropland	0.00	0.00	0.00	
Cropland - Cereal crops winter stubble	Cropland	0.00	0.00	0.00	
Grassland - Other lowland acid grassland	Grassland	150.37	0.00	150.37	150.37
Grassland - Other neutral grassland	Grassland	0.00	0.00	0.00	
Grassland - Upland acid grassland	Grassland	0.00	0.00	0.00	
Heathland and shrub - Blackthorn scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Bramble scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Gorse scrub	Heathland and shrub	0.00	0.00	0.00	9.01
Heathland and shrub - Hawthorn scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Hazel scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Mixed scrub	Heathland and shrub	9.01	0.00	9.01	
Lakes - Ponds (Non- Priority Habitat)	Lakes	0.00	0.00	0.00	0.00
Lakes - Reservoirs	Lakes	0.00	0.00	0.00	
Sparsely vegetated land - Other inland rock and scree	Sparsely vegetated land	0.00	0.00	0.00	0.00
Urban - Brown roof	Urban	0.00	0.00	0.00	
Urban - Cemeteries and churchyards	Urban	0.00	0.00	0.00	0.00
Urban - Intensive green roof	Urban	0.00	0.00	0.00	
Woodland and forest - Other Scot's Pine woodland	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Other woodland: broadleaved	Woodland and forest	0.00	0.00	0.00	0.00
Woodland and forest - Other woodland: mixed	Woodland and forest	0.00	0.00	0.00	
Intertidal sediment - Littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral sand	Intertidal sediment	0.00	0.00	0.00	0.00
Intertidal Hard Structures - Artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI)	Intertidal	0.00	0.00	0.00	
		159.38	0.00	159.38	

Medium Distinctiveness Summary

Medium Distinctiveness Units available to offset lower distinctiveness deficit	159.38
Medium Distinctiveness Broad Habitat Deficit to be offset by trading up	0.00
Higher distinctiveness surplus units minus Medium Distinctiveness Broad Habitat Deficit	0.00
Cumulative surplus of units	159.38

Low Distinctiveness

Habitat group	Group	On site unit change	Off Site Unit Change	Project wide unit change
Cropland - Cereal crops	Cropland	0.00	0.00	0.00
Cropland - Cereal crops other	Cropland	0.00	0.00	0.00
Cropland - Horticulture	Cropland	0.00	0.00	0.00
Cropland - Intensive orchards	Cropland	0.00	0.00	0.00
Cropland - Non-cereal crops	Cropland	0.00	0.00	0.00
Cropland - Temporary grass and clover leys	Cropland	0.00	0.00	0.00
Grassland - Modified grassland	Grassland	-114.40	0.00	-114.40
Grassland - Bracken	Grassland	0.00	0.00	0.00
Heathland and shrub - Rhododendron scrub	Heathland and shrub	0.00	0.00	0.00
Lakes - Ornamental lake or pond	Lakes	0.00	0.00	0.00
Sparsely vegetated land - Ruderal/Ephemeral	Sparsely vegetated land	0.00	0.00	0.00
Urban - Bioswale	Sparsely vegetated land	0.00	0.00	0.00
Urban - Allotments	Urban	0.00	0.00	0.00
Urban - Facade-bound green wall	Urban	0.00	0.00	0.00
Urban - Ground based green wall	Urban	0.00	0.00	0.00
Urban - Ground level planters	Urban	0.00	0.00	0.00
Urban - Extensive green roof	Urban	0.00	0.00	0.00
Urban - Introduced shrub	Urban	0.00	0.00	0.00
Urban - Rain garden	Urban	0.00	0.00	0.00
Urban - Sand pit quarry or open cast mine	Urban	0.00	0.00	0.00
Urban - Urban Tree	Urban	0.00	0.00	0.00
Urban - Sustainable urban drainage feature	Urban	0.00	0.00	0.00
Urban - Vacant/derelict land/ hardground	Urban	0.00	0.00	0.00
Urban - Vegetated garden	Urban	0.00	0.00	0.00
Woodland and forest - Other coniferous woodland	Woodland and forest	0.00	0.00	0.00
Coastal saltmarsh - Artificial saltmarshes and saline reedbeds	Coastal saltmarsh	0.00	0.00	0.00
Intertidal sediment - Artificial littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral mud	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral sand	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral muddy sand	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral seagrass	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral biogenic reefs	Intertidal sediment	0.00	0.00	0.00
Intertidal Hard Structures - Artificial hard structures	Intertidal	0.00	0.00	0.00
Intertidal Hard Structures - Artificial features of hard structures	Intertidal	0.00	0.00	0.00
Heathland and shrub - Sea buckthorn scrub (other)	Heathland and shrub	0.00	0.00	0.00
		-114.40		-114.40

Low Distinctiveness Summary

Low Distinctiveness Net Change in Units	-114.40
Cumulative surplus of units	44.98

SUNNY OAKS SOLAR FARM
A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows

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Habitats and areas			Distinctiveness		Condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value					Bespoke compensation agreed for unacceptable losses	Comments	
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier		Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost		Assessor comments	Reviewer comments
1	Grassland	Modified grassland	32.49	Low	2	Moderate	2	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same distinctiveness or better habitat required	142.96	6.49	20.1	28.58	88.44	5.86	25.86			
2	Heathland and shrub	Mixed scrub	0.005	Medium	4	Moderate	2	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required	0.04	0	0	0.00	0.00	0.01	0.04			
3																					
4																					
5																					
			32.50									143.00	6.49	20.10	28.59	88.44	5.91	25.90			

SUNNY OAKS SOLAR FARM

A-2 Site Habitat Creation

Condense / Show Columns | Condense / Show Rows

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Check Areas - Area of development footprint and habitat creation exceeds the area of habitats lost

Post development/ post intervention habitats

			Distinctiveness		Condition		Strategic significance			Temporal multiplier						Difficulty multipliers					Comments	
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered	Assessor comments	Reviewer comments
Heathland and shrub	Mixed scrub	1.23	Medium	4	Moderate	2	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	9.06		
	Total area	1.23																	Total Units	9.06		

B-1 Site Hedge Baseline

Condense / Show Columns | Condense / Show Rows

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	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedge number	Hedgerow type	Length KM	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		Total hedgerow units
1		Native Hedgerow with trees	3.73	Medium	4	Moderate	2	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Like for like or better	32.82
2												
3												
4												
5												
6												
			3.73									32.82

	Retention category biodiversity value						Comments	
Baseline ref	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
1	3.71		32.65	0.00	0.02	0.18		
2								
3								
4								
5								
6								
	3.71	0.00	32.65	0.00	0.02	0.18		

B-2 Site Hedge Creation

Condense / Show Columns | Condense / Show Rows

Main Menu | Instructions

		Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance			Temporal multiplier						Difficulty risk multipliers					Comments	
Baseline ref	New hedge number	Habitat type	Length km	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Hedge units delivered	Assessor comments	Reviewer comments
1		Native Hedgerow with trees	0.65	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10	0	0	Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	3.64		
2		Hedge Ornamental Non Native	0.7	V.Low	1	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.68		
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