
New Rides - Proposed Solar Farm
on behalf of Energiekontor UK Ltd.
Ecological Assessment Report



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CONTENTS

1	INTRODUCTION	1
1.2	Site Overview	1
1.3	Scope of Assessment	2
1.4	Legislative Framework, Planning Policy and Guidance	3
1.5	European Protected Species (EPS) Policies.....	4
2	METHODOLOGY	5
2.1	Desk Study	5
2.2	Extended Phase 1 Habitat Survey	6
3	BASELINE	9
3.1	Designated and Sites for Nature Conservation	9
3.2	Protected and Notable Species	15
3.3	Invasive Non-native Species.....	20
4	ASSESSMENT	23
4.1	Overview.....	23
4.2	Designated Sites and Habitats.....	23
4.3	Habitats	23
4.4	Biodiversity Net Gain	24
4.5	Protected and Notable Species	25
5	SUMMARY - ECOLOGY PRIORITY MATRIX.....	34

FIGURES

- Figure 1: Site Location Plan
- Figure 2: Phase 1 Habitat Plan
- Figure 3: Statutory Designated Sites Plan
- Figure 4: Solar Array Layout
- Figure 5: New Rides Wind Farm HMP enhancements

APPENDICES

- Appendix 1: New Rides Wind Farm - Post-contruction Monitoring Bird Data
- Appendix 2: Site Photographs
- Appendix 3: Ornithological Records - Kent Ornithological Society (KOS)
- Appendix 4: Reasonable Avoidance Measures Method Statement
- Appendix 5: Report to inform a Habitat Regulations Assessment (HRA)
- Appendix 6: Biodiversity Management Plan (BMP)
- Appendix 7: Biodiversity Net Gain (BNG) Calculation

1 INTRODUCTION

- 1.1.1 Avian Ecology Ltd. was commissioned by Energiekontor UK Ltd. to undertake an Ecological Assessment in relation to a proposed solar development located on land at New Rides Farm, Isle of Sheppey, Kent.
- 1.1.2 The proposed development includes the construction, at least 35 year operation and subsequent decommissioning of a solar farm, with a capacity of up to 10MWp, plus associated infrastructure as illustrated on the *Landscape Masterplan (Revision 1)*.

1.2 Site Overview

- 1.2.1 The Site as illustrated by the red-line application boundary shown on (**Figure 1**) comprises an area of agricultural land of approximately 16.6 ha, located to the south of Eastchurch, Isle of Sheppey, Kent at approximate central grid reference TQ 9933 6991.
- 1.2.2 Habitats within the Site and immediately surrounding land include arable crop fields, with field boundaries marked by ditches, hedgerows and gravel tracks associated with the operational New Rides Wind Farm.
- 1.2.3 In the wider context the Site is surrounded by further extensive areas of arable and pastoral farmland and scattered pockets of deciduous woodland. To the south of the Site lies Capel Fleet, the wider Swale Estuary with associated coastal grazing marshes and floodplain.

New Rides Wind Farm

- 1.2.4 The Site is located within the operational New Rides Wind Farm site. The New Rides Wind Farm was consented in 2018 (Planning Ref: SW/13/1571; Appeal Ref: APP/V2255/W/15/3014371) and comprises a four wind turbine scheme together with associated infrastructure. The scheme was constructed in 2018 and has been operational since December 2018.
- 1.2.5 Of relevance to this assessment, Condition 14 and 15 of the appeal decision notice for the New Rides Wind Farm specify:

14. No development shall commence until a scheme for post construction bird monitoring (of bird strike bird disturbance and bird numbers during summer and winter), to verify the predicted environmental effects of the construction and operation of the turbines on land at Great Bells Farm has been submitted to and approved in writing by the Local Planning Authority. The scheme shall include provisions for management actions should there be a demonstrable detrimental effect on the bird populations at the Great Bells Farm site from the operation of development hereby approved. The scheme shall also include a timetable for the implementation of any monitoring or management requirements. The scheme shall be implemented as approved.

15. No development shall commence until a Habitat Management Plan ("HMP") has been submitted to and approved in writing by the Local Planning Authority. The HMP shall include details of habitat enhancement for the 24 hectare area of land referred to as field 14 on Figure 8.3 of the Environmental Statement addendum. The HMP will also include biodiversity enhancement measures defined in Table 7.22 and illustrated on Figure 7.6 of the Environmental Statement and Table 8.51 of the Environmental Statement Addendum. The scheme shall be implemented as approved.

- 1.2.6 In accordance with Condition 14 of the appeal decision notice an Ornithological Monitoring Strategy (OMS) was prepared by Avian Ecology Ltd. and submitted to Swale Borough Council, Natural England and the Royal Society for the Protection of Birds (RSPB) in 2018. The OMS was approved and implemented in January 2019, following commissioning of the scheme.

- 1.2.7 Full details of the OMS are contained within the 'New Rides Wind Farm: Ornithological Monitoring Strategy v1 (Planning Conditions 14 and 16)'¹, with monitoring required in Years 1, 2, 3, 5, 10 and 15 of operation.
- 1.2.8 In accordance with Condition 15 of the of the appeal decision notice a Habitat Management Plan (HMP) was similarly prepared by Avian Ecology Ltd. and submitted to Swale Borough Council, Natural England and the RSPB in 2018.
- 1.2.9 Full details of the HMP are contained within the 'New Rides Wind Farm: Habitat Management Plan (Planning Condition 15)'². In summary the New Rides Wind Farm HMP includes for the following biodiversity enhancements, as illustrated on **Figure 5**
- Hedgerow Enhancements: new native hedgerow planting and management to increase and maintain the diversity of field boundary habitats and their value and connectivity for wildlife within the New Rides Wind Farm site;
 - Reptile Habitat Creation: the creation of enhanced foraging and basking opportunities and increased habitat connectivity for reptile species within the New Rides Wind Farm site, through the creation of tussocky grassland strips margins;
 - Cropping Regime Manipulation: a sensitive cropping regime within the 300m of operational turbine locations within the New Rides Wind Farm site, and within which the planting of oil seed rape is restricted to reduce the attractiveness of habitats to foraging migratory waterbirds and raptors (notably geese, swans and marsh harriers);
 - Grazing Marsh Enhancement: the creation and maintenance of wet grazing marsh for breeding and wintering waterbirds associated with The Swale Special Protection Area (SPA) through hydrological and grassland management of a previously intensified grazing pasture to the south of the operational New Rides Wind Farm, referred to as 'Field 14'.
- 1.2.10 Biodiversity enhancements prescribed under the New Rides Wind Farm HMP were implemented in 2018 and 2019. Monitoring of the efficacy of the HMP commenced in 2020, following the completion of implementation works, with monitoring to be undertaken annually until at least 2025.

1.3 Scope of Assessment

- 1.3.1 The objectives of the Ecological Assessment presented within this Report are to:
- Identify the proximity of any designated sites for nature conservation interest and provide an assessment of any potential effects the proposed development may have on these;
 - Provide baseline information on the current habitats and ecological features both within the Site and immediate surrounding area;
 - Identify the presence or potential presence of any protected species or habitats and provide an assessment of any potential effects the proposed development may have on these; and,
 - Provide recommendations for further pre-construction checks and / or mitigation measures, if required.
- 1.3.2 In addition, this assessment has also considered the potential for implications upon the delivery of biodiversity enhancements under the New Rides Wind Farm HMP, and seeks to ensure that the

¹ Avian Ecology Ltd. (2018a) New Rides Wind Farm Ornithological Monitoring Strategy v1: Planning Conditions 14 and 16. A report prepared on behalf of Energiekontor UK Ltd. Dated 19/11/2018.

² Avian Ecology Ltd. (2018b) New Rides Wind Farm Habitat Management Plan: Planning Condition 15. A report prepared on behalf of Energiekontor UK Ltd. Dated 19/11/2018.

construction and operation of the proposed development would not negatively impact upon management prescriptions outlined within the HMP and includes measures to complement the HMPs objectives.

- 1.3.3 The Assessment has comprised a desk study review of existing ecological and ornithological information for the Site and surrounding area, together with an Extended Phase 1 habitat survey.

1.4 Legislative Framework, Planning Policy and Guidance

- 1.4.1 During the preparation of this report, reference has been made to the following key pieces of legislation, planning policy and guidance listed in **Table 1.1** below.

Table 1.1: Key legislation, planning policy and guidance.

International
• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the 'the Ramsar Convention')³ • Convention on the Conservation of European Wildlife and Natural Habitats 1979 (hereafter referred to as the 'the Bern Convention')⁴; • UNESCO convention on the protection of the World Cultural and Natural Heritage (1972)⁵
National
• The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019⁶; • The 'Conservation of Habitats and Species Regulations 2017 (as amended)' • The Wildlife and Countryside Act 1981 (as amended); • The Environment Bill 2020 (currently being processed through the House of Commons)⁷; • Countryside and Rights of Way Act 2000; • The Invasive Alien Species (Enforcement and Permitting) Order 2019⁸ • Infrastructure Act 2015; • Protection of Badgers Act 1992; • Hedgerow Regulations 1997 • The Wild Mammals (Protection) Act 1996 • Natural Environment and Rural Communities (NERC) Act (2006); • The National Planning Policy Framework 2 (NPPF2, 2019)⁹; • 'Birds of Conservation Concern 4' (Eaton <i>et al.</i>, 2015)¹⁰;

³ <https://www.ramsar.org/>

⁴ <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104>

⁵ <https://whc.unesco.org/en/convention/>

⁶ <https://www.legislation.gov.uk/ukxi/2019/579/contents/made>

⁷ <https://services.parliament.uk/Bills/2019-21/environment.html>

⁸ <https://www.legislation.gov.uk/ukxi/2019/527/introduction/made>

⁹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹⁰ Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. and Gregory, R (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds, 108, pp708-746.

- The United Kingdom Biodiversity Action Plan (UK BAP);
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development;
- Biodiversity Net Gain. Good practice principles for development¹¹;

Local

- Kent Biodiversity Action Plan¹²

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

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

1.5 European Protected Species (EPS) Policies

1.5.1 European Protected Species (EPS), such as bats, great crested newts *Triturus cristatus* and otters *Lutra lutra*, receive full protection under The Conservation of Species and Habitats Regulations 2017 (as amended) (‘the Habitat Regulations’).

1.5.2 This makes it an offence to:

- deliberately capture, injure or kill any EPS;
- to deliberately disturb them; and,
- to damage or destroy a breeding site or resting place.

1.5.3 In addition, the Wildlife and Countryside Act 1981 (as amended) makes it an offence to intentionally or recklessly disturb a EPS while it is occupying a structure or place which it uses for shelter or protection, or to obstruct access to any structure or place the species uses for shelter or protection.

1.5.4 Natural England is the primary enforcing body of the Habitat Regulations and therefore responsible for implementation and compliance in England. In February 2016 Natural England published ‘*Wildlife licensing: comment on new policies for European protected species licence*’¹³. Natural England sought (on DEFRA’s behalf) wide ranging views on whether four new policies could be permitted under licence to benefit EPS whilst improving flexibility for development. Following from this consultation period, in December 2016 Natural England officially introduced the four licensing policies throughout England¹⁴.

¹¹ <https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/>

¹² https://www.medway.gov.uk/downloads/file/279/kent_biodiversity_action_plan

¹³ <https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-NEw-policies-for-european-protected-species-licences>

¹⁴ <https://www.gov.uk/government/NEws/NEw-licensing-policies-great-for-wildlife-great-for-business>

- 1.5.5 The four policies seek to achieve better outcomes for EPS and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:
- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
 - Policy 2; provides greater flexibility in the location of compensatory habitat;
 - Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
 - Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.
- 1.5.6 The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations 2017 (as amended) legal framework now applies to 'local populations' of EPS and not individuals/site populations.

2 METHODOLOGY

2.1 Desk Study

- 2.1.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected and notable species and habitats within proximity to the Site as follows:
- Non-statutory Designated Sites for Nature Conservation within 2km of the Site;
 - Statutory Designated Sites for Nature Conservation, within 5km of the Site, extended to 10km for European sites; and,
 - Existing records of protected and notable faunal species, within 2km of the Site.
- The following key sources were consulted:
- Natural England and JNCC websites;
 - The Multi Agency Geographic Information for the Countryside (MAGIC) website; and,
 - Kent and Medway Biological Records Centre (KMBRC)¹⁵.
- 2.1.2 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area.
- 2.1.3 Year 1 and Year 2 ornithological monitoring data collected under the New Rides Wind Farm OMS, spanning the period January to March 2019 and to October 2019 to March 2020 has been made available by New Rides Wind Farm Ltd. for the purposes of this assessment and is summarised in **Appendix 1**.
- 2.1.4 In addition, publicly available EIA¹⁶ documentation for the adjacent Stanford Hill Wind Energy Development and New Rides Wind farm has also been reviewed.

¹⁵ Which included the provision of ornithological records by the Kent Ornithological Society (KOS) and bat records from the Kent Bat Group (KBG).

- 2.1.5 The 'New Rides Wind Farm Construction Phase Water Vole Mitigation Strategy: Planning Condition 19'¹⁷ prepared and submitted to Swale Borough Council in 2018 has also been reviewed.

2.2 Extended Phase 1 Habitat Survey

- 2.2.1 An extended Phase 1 habitat survey of the Site was undertaken 27th January 2021 by S. Clifton BA (Hons.) MSc MCIEEM, a suitably competent and qualified ecologist.
- 2.2.2 The survey followed UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology (JNCC, 2010¹⁸) with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM), Technical Guidance Series *Guidelines for Preliminary Ecological Appraisal – Version 2* (CIEEM, 2017¹⁹).
- 2.2.3 The survey area comprised all areas within the Site, with additional notes made on any habitats of interest immediately adjacent to the Site.
- 2.2.4 Habitats were mapped and described using a series of 'target notes' (TNs).
- 2.2.5 The survey was extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance.

Limitations of Survey

- 2.2.6 An extended Phase 1 habitat survey does not constitute a detailed botanical survey or faunal species list or provide a full protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the site in order to:
- Broadly identify the nature conservation value of a site and assess the significance of any potential impacts on habitat/species recorded; and/or,
 - Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site (if any).
- 2.2.7 The Extended Phase 1 habitat survey visit was undertaken in January 2021 and therefore outside the optimal period for botanical surveys (approximately April to September). As the Site is predominantly arable farmland, this is not considered to represent a significant limitation to the survey results or their validity for impact assessment purposes.

¹⁶ TNEI Services Ltd. (2010) Environmental Statement (Volume 1 – Written Statement), HMP Stanford Hill Wind Energy Development.

¹⁷ Avian Ecology Ltd. (2017^a) New Rides Wind Farm Construction Phase Water Vole Mitigation Strategy: Planning Condition 19. A report prepared on behalf of Energiekontor UK Ltd.

¹⁸ <https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf>

¹⁹ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal – Second Edition - <https://cieem.net/resource/guidance-on-preliminary-ecological-appraisal-gpea/>

3 BASELINE

3.1 Designated and Sites for Nature Conservation

Statutory Designated Sites

- 3.1.1 This Section should be read with reference to **Figure 3**.
- 3.1.2 A summary of statutory designated sites for nature conservation located within 5km of the Site, and European sites located within 10km of the Site is provided in **Table 3.1**.
- 3.1.3 In review the Site is not located within any statutory designated sites for nature conservation.
- 3.1.4 The Swale Special Protection Area (SPA), Ramsar site and Site of Special Scientific Interest (SSSI) are however located approximately 990m to the south east of the Site at their nearest points. The Site is also located within the Natural England SSSI 'Impact Risk Zone' (IRZ) for the Swale SSSI.

Table 3.1.: Statutory designated sites.

(SSSI: Site of Special Scientific Interest, SPA: Special Protection Area)

Site Name	Distance and Direction from Site	Description
The Swale Ramsar site	990m South East	The site supports an internationally important assemblage of birds, in particular during winter months and spring/autumn passage. The site holds internationally important populations of: • Black-tailed godwit <i>Limosa limosa islandica</i> (1,504 individuals (4.2% of population*)) (Wintering); • Wigeon <i>Mareca penelope</i> (15,296 individuals (1% of the UK population)) (Wintering); • Pintail <i>Anas acuta</i> (763 individuals (1.2% of the UK population)) (Wintering); • Shoveler <i>Spatula clypeata</i> (483 individuals (1.2% of the UK population)) (Wintering); and, • Ringed plover <i>Charadrius hiaticula</i> (917 individuals (1.2% of the UK population)) (Spring/Autumn Passage). Population estimates came from 5 year averages between 1998/99 and 2002/03. The site also supports internationally important assemblage of breeding species including: • Black-headed gull <i>Chroicocephalus ridibundus</i> (3835 nests (2.9% of the UK population)) (Breeding); • Little tern <i>Sterna albifrons</i> (20 nests (1% of the UK population)) (Breeding); and, • Mediterranean gull <i>Ichthyophaga melanocephalus</i> (13 nests (12% of the UK population)) (Breeding). Population estimates come from the Seabird 2000 Census In addition, there are notable spring/autumn passage peak counts of: greenshank <i>Tringa nebularia</i>, Eurasian curlew <i>Numenius arquata</i>, little egret <i>Egretta garzetta</i>, spotted

		redshank <i>Tringa erythropus</i> and whimbrel <i>Numenius phaeopus</i> as well as notable winter peak counts of shelduck <i>Tadorna tadorna</i>, dunlin <i>Calidris alpina</i>, oystercatcher <i>Haematopus ostralegus</i>, teal <i>Anas crecca</i>, golden plover <i>Pluvialis apricaria</i>, white-fronted goose <i>Anser albifrons</i>, little grebe <i>Tachybaptus ruficollis</i>, lapwing <i>Vanellus vanellus</i>, avocet <i>Recurvirostra avosetta</i>, knot <i>Calidris canutus</i> and ruff <i>Philomachus pugnax</i>. *Percentages of population based on time of designation.
The Swale SPA	990m South East	An internationally important site for waterbirds with species notified within the designation including: • Dark-bellied brent goose <i>Branta bernicla bernicla</i> (Non-breeding); • Dunlin (Non-breeding); • Breeding birds assemblage; and, • Waterbird assemblage.
The Swale SSSI	990m South East	One of the largest remaining freshwater grazing marshes in Kent with habitats comprising freshwater grazing marsh, mud flats and saltmarsh. The estuary is diverse in species including over 350 species of invertebrate including polychaete worm <i>Clymenella torquata</i> found nowhere else in Britain. The saltmarsh also boasts one of the most diverse list of plant species in Britain with species including several species of saltmarsh-grasses <i>Puccinellia</i> and the glassworts <i>Salicornia</i>. The Swale SSSI is also notable for its population of wintering wildfowl.²⁰
Sheppey Cliffs and Foreshore SSSI	2.6km North	Site mostly qualifies for its geological interest, however the site also holds botanical interest with a good population of nationally rare dragon's teeth <i>Tetragonolobus maritimus</i> and several uncommon species including the nationally scarce Bithynian vetch <i>Vicia bithynica</i>.²¹
Outer Thames Estuary SPA	3km North	Internationally important numbers of: • Red-throated diver <i>Gavia stellata</i>; (Non-breeding); • Common tern <i>Sterna hirundo</i> (Breeding); and, • Little tern (Breeding).
Medway Estuary & Marshes SPA	6.3km West	An internationally important site for waterbirds with species notified within the designation including: • Dark-bellied brent goose (Non-breeding); • Shelduck (Non-breeding); • Pintail <i>Anas acuta</i> (Non-breeding); • Avocet (Breeding); • Ringed plover <i>Charadrius hiaticula</i> (Non-breeding); • Grey plover <i>Pluvialis squatarola</i> (Non-breeding); • Knot (Non-breeding) • Dunlin (Non-breeding) • Redshank <i>Tringa totanus</i> (Non-breeding); • Little tern (Breeding); • Waterbird assemblage; and, • Breeding bird assemblage.

²⁰ <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1003678.pdf>

²¹ <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001313.pdf>

Medway Estuary & Marshes Ramsar	6.3km West	Internationally designated site for a waterbird assemblage of over 20,000 individuals in winter. Species notified for numbers of international importance within the designation include: • Dark-bellied brent goose (3205 individuals (1.1% of population*)); • Dunlin (25,936 individuals (1.9% of population)); • Grey plover (3,406 individuals (2% of the population)); • Knot (541 individuals (0.2% of population)); • Pintail (697 individuals (1.2% of population)); • Redshank (3,690 individuals (2.1% of population)); • Ringed plover (768 individuals (1.6% of population)); • Shelduck (4,465 individuals (1.5% of population)); and, • Black-tailed godwit (957 individuals (1.5% of population)). Species notified for number of national importance within the designation include: • Avocet (28 breeding pairs (6.2% of UK population)); • Common tern (77 breeding pairs (0.6% of UK population); and, • Little tern (28 breeding pairs (1.2% of UK population)). *Percentages of population based on time of designation.
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Non-statutory Designated Sites

- 3.1.5 A review of the data provided by KMBRC confirms that the Site is not located within any non-statutory designated site for nature conservation. The search identified no Local Wildlife Sites (LWS) or Roadside Nature Reserves (RNR) within a 2km radius of the Site boundaries.
- 3.1.6 Due to the spatial separation of the Site to any non-statutory designated sites, the potential for impacts to any such site as a result of the proposed development is therefore not considered further within this report.

Great Bells Farm

- 3.1.7 Great Bells Farm is located approximately 1.12km to the south west of the Site, and comprises approximately 194ha of former arable land, intertidal saltmarsh and mudflats, which was purchased by the Environment Agency, as part of The Regional Habitat Creation Programme.
- 3.1.8 The Great Bells Farm site lies adjacent to the RSPB Elmley Marshes Reserve and is now managed by the RSPB, for the benefit of waterfowl species and to provide approximately 20ha of intertidal habitat within the Thames Estuary as compensation for the loss of habitats from within European sites, caused by the implementation of the Medway Estuary and Swale Shoreline Management Plan.
- 3.1.9 As the site is provided and managed as compensation for habitats lost within a European Site (the Outer Thames Estuary SPA), in accordance with NPPF (Paragraph 176) the site is afforded the same protection as the land for which it compensates.

Priority Habitats – Existing Records

- 3.1.10 In review of MAGIC, five habitats of Principal Importance (also known as priority habitats) under Section 41 of the NERC Act/UK Biodiversity Action Plan were identified within 2km of the Site.
- 3.1.11 The MAGIC website, Ordinance Survey Maps and the Kent Biodiversity Action Plan provided no records of priority habitats within the Site boundaries; however Lowland Farmland and Hedgerow Local Biodiversity Action Plan habitats were present within the Site.

- 3.1.12 Information on priority habitats within 2km of the Site is presented in **Table 3.3** below. Where numerous records of a particular habitat were recorded, only the closest record to the Site has been provided, in order to provide context for the Site and surrounding area.

Table 3.3: Priority habitats – existing records.

Priority habitat name	Designation	Distance from site
Hedgerows	LBAP	Onsite
Lowland Farmland	LBAP	Onsite
Deciduous woodland	NERC S.41, UKBAP, LBAP	<10m North West
Coastal and floodplain grazing marsh	NERC S.41, UKBAP	460m South West
Good quality semi-improved grassland	NERC S.41, UKBAP	1.35km South East
Traditional orchards	NERC S.41, UKBAP, LBAP	1.35km North
Reedbeds	NERC S.41, UKBAP	1.84km South

Key

NERC S.41: Natural Environment and Rural Communities (NERC) Act (2006)

UKBAP: UK Biodiversity Action Plan Priority Habitat

LBAP: Kent Biodiversity Action Plan habitat

Extended Phase 1 Habitat Survey

- 3.1.13 This section should be read in conjunction with the Phase 1 Habitat Plan presented as **Figure 2**, Target Notes (TNs) presented in **Table 3.4** and photographs presented in **Appendix 2**
- 3.1.14 The Site occupies an area of land totalling 16.6ha (excluding any grid connection), set within a rural landscape. Habitats within the Site and wider survey area predominantly comprised arable fields and improved grassland pasture; linear features present along the Site boundaries include hedgerows and wet and dry ditches. A gravel road runs through the centre of the Site, and which provides access to the operational New Rides Wind Farm.
- 3.1.15 The dominant habitat type within the Site and wider survey area is arable farmland and improved grassland/pastoral farmland, in particular arable stubble (with evidence of previous maize *Zea mays* crop) and bare ground (at the time of survey). Improved grassland fields were dominated by cock's-foot *Dactylis glomerata* and perennial rye grass *Lolium perenne* with patches of bristly ox-tongue *Helminthotheca echioides* and other tall ruderals including common chickweed *Stellaria media*. Grazing by sheep *Ovis aries* and cattle *Bos taurus* is undertaken throughout grassland habitats within the Site and immediate surrounding area.
- 3.1.16 The majority of field boundaries within the Site are lined by drainage ditches varying between dry, occasionally wet and wet. A flowing watercourse is located along the western boundary of the north-western-most field flowing south through a boundary hedgerow. Along most field boundaries, there is a defunct hedgerow boundary with occasional species-poor intact hedgerows dominated by hawthorn *Crataegus monogyna*. Field edge habitats generally comprise tall ruderals dominated by annual mercury, bristly ox-tongue and common chickweed with the north eastern-most field's western boundary having a strip of scattered scrub towards the field boundary comprising spread encroachment from the adjacent hedgerows

- 3.1.17 There are no ponds onsite; however two ponds are located within the wider New Rides Farm site. The closest pond is found within the farm building complex c.10m outside of the northern boundary of the Site. The second pond is located c.70m south of the Site and is used as a duck pond. At the time of survey, there had been a period of heavy rain and several fields in the area, including within the Site were waterlogged.
- 3.1.18 Habitats recorded within the Site are considered to be typical of dominant habitats within the wider landscape.

Table 3.4: Target notes (TNs).

Target Note	Comment
TN1	Small fenced Improved Grassland field, low diversity, dominated by perennial rye grass, cock's-foot and bristly ox-tongue. 1.5m high Earth Bank (bund) near northern boundary. Various piles of stored materials and several manholes. The field is bordered by tracks on the west and south sides.
TN2	Improved Grassland field, low diversity and of uniform composition, possibly recently Arable. Dominated by perennial rye grass and cock's-foot with occasional bristly ox-tongue and other common tall ruderals and herbs.
TN3	Intact (mostly) species-poor hedge along western border of field 2 (TN2), with fence on western side. 4m high, 3 – 4m wide, dense in places. Dominated by hawthorn, with occasional blackthorn <i>Prunus spinosa</i> , dog rose <i>Rosa canina</i> , and bramble <i>Rubus fruticosus</i> . Ground flora includes cow parsley <i>Anthriscus sylvestris</i> and red dead-nettle <i>Lamium purpureum</i> . At northern end the hedge is absent adjacent to a small building. A wet ditch is present c10m long and 1m wide. No aquatic vegetation was noted. Tall Ruderals here include cow parsley, common mallow <i>Malva neglecta</i> and common nettle <i>Urtica dioica</i> .
TN4	A short strip of Tall Ruderals and Improved Grassland, dominated by cock's-foot, bristly ox-tongue and cow parsley.
TN5	Species-poor hedgerow, mostly Intact but less dense than hedge at TN3. Up to 4m high, 3m wide, with some gaps. Rabbit <i>Oryctolagus cuniculus</i> droppings and some old rabbit burrows present. Mammal pathways present, most likely created by rabbits.
TN6	Mostly Intact species-poor hedgerow, height varies from 2 to 3.5m. There is a belt of tall ruderals and scattered scrub (mostly hawthorn seedlings, and some patches of dog rose and bramble) along the hedge, behind electric fence. Several rabbit pathways and droppings. Width ranges from 1 to 5m. There is a wet ditch along the middle of the hedgerow.
TN7	Culverted wet ditch, allowing pedestrian access to the adjacent field.
TN8	Species-poor hedgerow, mostly intact but some gaps, especially at western end. New planting of gaps with Hawthorn within last few years. No fenced off belt adjacent. 2 – 4m high, 1.5 -2m wide.
TN9	Strip of (dead) maize, with sparsely scattered tall ruderals and herbs similar to elsewhere on the Site, more abundant along field edges. Wet in places, and poached by recent grazers. Track alongside. Ditch along field edge by track, mostly dry.
TN10	Improved grassland probably formerly arable: very uniform and level, but quite poached by recent grazers. Dominated by common chickweed, bristly ox-tongue,

Target Note	Comment
	perennial rye grass and toadflax <i>Linaria vulgaris</i> .
TN11	A short strip of field with belts of dead maize and improved grassland, both heavily poached, and a less poached belt of improved grassland dominated by perennial rye grass, cock's-foot and common chickweed, with some dog rose, bramble and hawthorn seedlings from the adjacent hedge.
TN12	A short section of Species-poor defunct hedge, with a dry ditch in the centre. 2.5m high, 3m wide. Dominated by hawthorn, bramble, creeping thistle <i>Cirsium arvense</i> and dog rose.
TN13	Similar habitat to TN10, slightly less poached, currently grazed by sheep.
TN14	Former track well vegetated with semi-improved neutral grassland and tall ruderal species, dominated by bristly ox-tongue, cow parsley and perennial rye grass, and a greater diversity of herb species noted than elsewhere on the Site. To note: this section of habitat is part of the reptile habitat creation as agreed upon the New Rides Wind Farm HMP.
TN15	Arable field with former crop, now overgrown with: large bitter-cress <i>Cardamine amara</i> and bristly ox-tongue.
TN16	Former arable field, now partly overgrown with common chickweed and bristly ox-tongue and partly bare earth. Along the western edge of field a narrow belt of semi-natural broadleaved woodland (outside the survey boundary), up to 6m high, dominated by hawthorn. On the eastern boundary, a fenced off belt of newly planted hedgerow species dominated by hawthorn, but also including hazel <i>Corylus avellana</i> .
TN17	Small field of improved grassland, currently sheep grazed, dominated by perennial rye grass, cock's-foot and white clover <i>Trifolium repens</i> , with occasional herb species.
TN18	Large field of improved grassland, not recently grazed, dominated by perennial rye grass, cock's-foot, common chickweed, with occasional bristly ox-tongue and other tall ruderals.
TN19	A narrow belt of Semi-natural Broadleaved Woodland (outside the south western Site boundary), up to 6m high. Tree/scrub species are mainly hawthorn but other species include elder <i>Sambucus nigra</i> and English elm <i>Ulmus minor</i> . A low density allowed for a quite abundant, but low diversity, ground flora, dominated by cow parsley, occasional alexanders <i>Smyrniolololus</i> , broad-leaved dock <i>Rumex obtusifolius</i> and wood dock <i>Rumex sanguineus</i> , common nettle and creeping thistle.
TN20	Species-poor hedgerow, mostly intact, up to 4m high, mostly 2m wide and up to 5m wide at the southern end. Small stream, 0.5m wide, flowing southwards through the middle of the hedgerow, and an adjacent belt of Scrub seedlings along most of its length, about 3m wide.
TN21	Species-poor hedgerow, mostly intact, up to 4m high, 2 - 3m wide. Rabbits present. Dominated by hawthorn with some bramble and dog rose. Ground flora includes alexanders, common nettle, common mallow, cleavers <i>Galium aparine</i> and cow parsley.
TN22	Short earth bank around garden. Some new and some older tree planting and tall

Target Note	Comment
	ruderals including alexanders and cow parsley.
TN23	Active farm yard.
TN24	Intact species-poor hedgerow dominated by hawthorn, up to 2.5m high, 2m wide, dense in places, leggy elsewhere, with dry ditch.

3.2 Protected and Notable Species

Birds

Existing Records – Kent Ornithological Society

- 3.2.1 Existing ornithological records within 2km of the Site provided by the Kent Ornithological Society (KOS) via the KMBRC comprised a suite of species typical of the habitats and locale, and including records of several species (including Mediterranean gull *Ichthyaeetus melanocephalus*, swallow *Hirundo rustica*, yellow wagtail *Motacilla flava*, wheatear *Oenanthe oenanthe*, lesser whitethroat *Curruca curruca* and whitethroat *Curruca communis*) from within the Site or wider surrounding New Rides Farm. Records returned included species protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and/or red or amber listed 'Birds of Conservation Concern' (BoCCs) (Eaton *et al.*, 2015) red or amber listed 'Birds of Conservation Concern'²² and Kent Biodiversity Action Plan species.
- 3.2.2 KOS ornithological records received from the KMBRC are further summarised in **Appendix 3**.

Existing Records – New Rides Wind Turbines Environmental Statement (Airvolution, 2013)

- 3.2.3 Baseline ornithological surveys to inform the design and assessment of the New Rides Wind Farm were undertaken between 2012 and 2013, with the results of breeding and wintering bird surveys summarised within Appendix 3 of the New Rides Wind Farm OMS.
- 3.2.4 In summary baseline wintering bird surveys recorded a range of non-breeding wading and waterbirds, including non-breeding qualifying interests of The Swale SPA, with areas of higher bird interest primarily identified within fields within the southern extent of the New Rides Wind Farm site and wetland habitats within the wider surrounding Swale SPA and Great Bells Farm. Areas of no and lesser bird interest were recorded across the remaining New Rides Wind Farm site and which includes lands within the proposed development Site.
- 3.2.5 The New Rides Wind Farm layout was therefore designed to minimise potentially adverse effects upon sensitive ornithological features, away from areas of higher bird interest. The Habitats Regulations Assessment (HRA) undertaken by the Swale Borough Council subsequently concluded no likely significant adverse effects upon European sites.

Existing Records – New Rides Wind Farm OMS

Wintering Birds

²² MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD. (2015). *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man*. British Birds 108, 708–746

- 3.2.6 As part of the New Rides Wind Farm HMP, Field 14' located approximately 500m to the south of the Site, has been subject to extensive wetland creation works, to encourage the development of grazing marsh for the benefit of wading birds and wildfowl throughout the year. Habitat creation works were completed in 2018 and 2019, with ongoing hydrological and grassland management and monitoring being undertaken to maintain suitable in-field sward conditions for non-breeding waterbirds and ground nesting species.
- 3.2.7 Habitat improvements within 'Field 14' remain in their infancy and the monitoring of the efficacy of management prescriptions are ongoing.
- 3.2.8 Post-construction ornithological monitoring as part of the New Rides Wind Farm OMS has been undertaken in Year 1 (January to September 2019) and 2 (October 2019 to September 2020) of operation.
- 3.2.9 During Year 1 monitoring, wintering bird surveys were carried out monthly between January-March 2019. The survey area included all fields within the New Rides Wind Farm site and out to 600m from the New Rides Wind Farm turbine locations. This has provided coverage of all lands located within the Site of the proposed development and areas out to 600m.
- 3.2.10 It is pertinent that the Site of the proposed development is located on higher ground within the wider New Rides Wind Farm site, and which slopes upward from 'Field 14' and the surrounding floodplains of The Swale SPA. The habitats within the Site of the proposed development are therefore less suitable for wintering wetland birds, particularly where arable fields are bounded and enclosed by hedgerows or are immediately adjacent to residential and agricultural buildings (see Section 3.3).
- 3.2.11 Areas within 300m of the New Rides Wind Farm turbines, including fields within and immediately surrounding the southern extent of the Site of the proposed development are also managed sensitively under the New Rides Wind Farm HMP, to reduce their attractiveness to migratory waterfowl, notably geese and swans.
- 3.2.12 During Year 1 of post-construction monitoring undertaken as part of the New Rides Wind Farm OMS, winter walkover surveys recorded a very narrow range of bird species within the proposed development Site as summarised in **Appendix 1** and which included small numbers of gulls, commoner waterfowl (mallard and coot) and a single observation of marsh harrier. The majority of species activity was recorded in flight over the proposed development Site.
- 3.2.13 During Year 2 of post-construction monitoring, winter walkover surveys similarly recorded a very narrow range of bird species within the proposed development Site as summarised in **Appendix 1** and which included small number of gulls and commoner waterfowl.
- 3.2.14 During Year 1 and Year 2 of post-construction monitoring, areas beyond the Site boundary of the proposed development, within the wider New Rides Wind Farm site and study area were found to support a more diverse range and higher numbers of non-breeding waterfowl including several species considered under The Swale SPA waterbird assemblage: mute swan *Cygnus olor*, Bewick's swan *C. bewickii*, greylag goose *Anser anser*, gadwall *Mareca strepera*, mallard, lapwing *Vanellus vanellus*, golden plover *Pluvialis apricaria* and curlew *Numenius arquata*, with the majority of observations made of birds being located within 'Field 14' and adjacent wet grassland habitats to the south of the New Rides Wind Farm site.
- 3.2.15 Overall, the wintering bird surveys conducted within the Site and surrounding area as part of the New Rides Wind Farm OMS over the 2018/2019 and 2019/2020 wintering periods, suggest that although present in the wider area, the Site does not provide attractive habitat non-breeding waterfowl as either a foraging or roosting resource. Bird distribution within the Site is also potentially influenced by the presence of the operational New Rides Wind Farm wind turbines, two

of which are located immediately adjacent to the Site and around which habitats are currently managed to reduce their attractiveness to non-breeding waterfowl.

Breeding Birds

- 3.2.16 During Year 1 monitoring as part of the New Rides Wind Farm OMS (in 2019), breeding bird surveys were carried out monthly between April and July. The survey area adopted the same survey area as with wintering bird surveys and included the fields within the Site boundary of the proposed development and wider New Rides Wind Farm site.
- 3.2.17 Within the redline boundary of the proposed solar farm, breeding bird activity was generally low, which is typical of arable farmland. Within the arable dominated habitats of the Site, small numbers of breeding skylark *Alauda arvensis* were recorded, with the majority of breeding bird territories recorded restricted to boundary hedgerow habitats and which included a narrow range of farmland species typical of the habitats present, namely dunnoek *Prunella modularis* and linnet *Linaria cannabina*.
- 3.2.18 During Year 1 monitoring, evidence of a single pair of breeding barn owls was recorded within farm buildings located within New Rides Farm, where nesting boxes are provisioned.
- 3.2.19 No evidence of breeding marsh harrier was recorded within the New Rides Wind Farm site or wider breeding bird survey area. The habitats within proximity to the New Rides Wind Farm turbines are sensitively managed under the New Rides Wind Farm HMP, to reduce their attractiveness to nesting marsh harrier, through the restriction of planting of oil seed rape within 300m of the operational turbines.
- 3.2.20 Within the wider survey area, peak breeding bird activity was confined to hedgerow boundary habitats and wet grassland habitats to the south of the Site within 'Field 14'.
- 3.2.21 A breeding bird territories recorded during Year 1 of the New Rides Wind Farm OMS is presented in **Appendix 1**.
- 3.2.22 Breeding bird survey data collected during Year 2 of ornithological monitoring as part of the New Rides OMS is not currently available due to the relatively recent completion of surveys in 2020.

Bats

- 3.2.23 A data search requested from the Kent Bat Group via the KMBRC returned 59 records of five species of bat: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, brown long-eared bat *Plecotus auritus*, Leisler's *Nyctalus leisleri* and noctule *N. noctula* within 2km of the Site. This included records of two roosts within Her Majesty's Prison (HMP) Swaleside/Elmley to the west of the Site.
- 3.2.24 A review of the MAGIC website identifies three EPS licences in relation to bats within 2km of the Site, comprising EPSM2013-5399, EPSM2013-5592 and EPSM2010-2366 relating to the destruction of resting places.
- 3.2.25 EPSM2013-5399 and EPSM2013-5592 were both granted in 2013 in relation to roosts of common pipistrelle and soprano pipistrelle and are located approximately 1km west of the Site.
- 3.2.26 EPSM2010-2366 was granted in 2010 for a roost of common pipistrelle and soprano pipistrelle located approximately 1.1km west of the Site.

Roosting Bats

- 3.2.27 During the Extended Phase 1 habitat survey no mature trees or structures within the Site were noted as having suitable bat roost features, suggesting that the Site offers negligible potential for roosting bats.
- 3.2.28 Bat roost assessments were carried out for the New Rides Wind Farm (Airvolution, 2013) assessing mature and semi-mature trees within 250m of the wind turbine locations and buildings within New Rides Farm. No bat roosts were found and most trees and buildings provided negligible-low bat roost potential. New Rides Farm House, located adjacent to the Site was assessed as having low-moderate bat roost potential.
- 3.2.29 During the extended Phase 1 survey, two small buildings were noted within the centre of the Site; however these were intact buildings with no potential bat features noted. They were both considered to be of 'Negligible' bat roost potential.

Foraging and Commuting Bats

- 3.2.30 Activity surveys carried out for the New Rides Wind Farm (Airvolution, 2013) recorded eight species of bat: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule, Leisler's, serotine *Eptesicus serotinus*, brown long-eared and non-determined *Myotis* bats. With the exception of common pipistrelle, all activity was considered to be very low. Increased activity was generally confined to boundary habitats including along the woodland belt along the western boundary of the Site.
- 3.2.31 Habitats within the Site are considered to most closely fit the description for land of 'moderate' interest for foraging bats in accordance with BCT guidance²³, with continuous habitat connected to the wider landscape that could be used for commuting and also foraging habitats that are well connected to the wider landscape.
- 3.2.32 Linear features within and around the Site such as hedgerows, dry and wet ditches are considered to offer the most favourable habitats for foraging / commuting bats as do the ponds and woodland belts present within the wider survey area and immediately adjacent to the Site.

Badger

- 3.2.33 No records of badger *Meles meles* were returned by the KMBRC, with the species is generally considered to be absent from the Isle of Sheppey according to the East Kent Badger Group²⁴.
- 3.2.34 Badger surveys carried out for the New Rides Wind Farm in October 2013 found no signs of any badger within New Rides Farm site or within 250m of the wind turbine locations. A pre-construction badger survey was carried out in October 2017 and also found no signs of badger within 100m of the turbine locations or access track through the Site.
- 3.2.35 No signs of badger, including setts, prints, latrines or pathways were found during the extended Phase 1 habitat survey.
- 3.2.36 It is not considered likely that badgers are present within or regularly use the Site and the species is not considered further within this report.

²³ Bat Conservation Trust (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition).

²⁴ Ecology Solutions (2015) *Ecological Assessment*. Land at Plover Road, Minster, Isle of Sheppey, Kent.

Otter

- 3.2.37 The KMBRC returned a single historical record (1980) of otter within 2km of the Site.
- 3.2.38 Otter surveys carried out for the New Rides Wind Farm in September and October 2013 (Airvolution, 2013) found no signs of otter within a survey area of all ditches within 250m of the wind turbine locations. A pre-construction survey was carried out in October 2017²⁵ with follow-up survey in February 2018²⁶ and also found no signs of otter within 100m of the turbine locations or access track through the Site.
- 3.2.39 There are no habitats within the Site that are considered suitable for foraging otter or habitats suitable for the creation of otter holts. Any watercourses found within the survey area are confined to ditches along the Site boundary. No signs of otter were found during the extended Phase 1 habitat survey. The species may however, occasionally use the boundary ditch network and surrounding ditch network for commuting.
- 3.2.40 Habitats to the immediate south of the Site and extensively within the surrounding Swale and Medway estuaries are considered suitable for otter, and the species is likely to be present.

Water Vole

- 3.2.41 The KMBRC returned 25 records of water vole *Arvicola amphibius* within 2km of the Site, including records from within the Great Bells Farm.
- 3.2.42 No signs indicative of the presence of water voles were observed during the extended Phase 1 habitat survey. There are no permanently wet ditches present within the Site although two ditches present along the western and eastern Site boundaries may present potentially suitable habitat for the species.
- 3.2.43 The recent presence of water voles within the wider New Rides Wind Farm site is established within the 'New Rides Wind Farm Construction Phase Water Vole Mitigation Strategy: Planning Condition 19'.
- 3.2.44 This includes the species known presence within a drainage ditch located approximately 460m to the south of the Site boundary and which was identified to support a high population of water voles in 2017. Construction works associated within the New Rides Wind Farm in the vicinity of this drainage ditch, were therefore undertaken under a Natural England issued Class Licence (CL31).
- 3.2.45 It is subsequently established that this species is present in ditches around the perimeter of the Site.

Amphibians

- 3.2.46 There are no ponds within the Site but two located within 250m of the Site, however both ponds are isolated and surrounded by farm infrastructure with poor habitat connectivity to the wider environment.
- 3.2.47 The dominant arable and pastoral farmland habitats on Site provide sub-optimal amphibian terrestrial habitat, however, field boundary features such as hedgerows and ditches potentially provide suitable albeit limited terrestrial habitat for amphibians if present.

²⁵ Avian Ecology Ltd. (2017b) *Pre-construction Ecology Survey – Badger and Otter*. New Rides Wind Farm. A Report prepared on behalf of Energiekontor UK Ltd.

²⁶ Avian Ecology Ltd. (2018c) *Pre-construction Ecology Survey – Badger and Otter February 2018*, New Rides Wind Farm. A Report prepared on behalf of Energiekontor UK Ltd.

- 3.2.48 KMBRC returned eight records of four amphibian species: common frog *Rana temporaria*, marsh frog *Pelophylax ridibundus*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* within 2km of the Site.
- 3.2.49 There were no records of great crested newt returned within 2km of the Site. A review of MAGIC identified no EPS licences granted for great crested newt or great crested newt class licences returns within 2km of the Site. During baseline field surveys carried out for New Rides Wind Farm (Airvolution, 2013), there were no recent (as of 2013) records of great crested newt within 2km of the Site and presence/absence surveys carried out on ponds within New Rides Farm between April-May 2013 found no great crested newts present. Great crested newts are therefore considered to be absent locally and are not considered further within this Report. A single palmate newt *Lissotriton helveticus* was the only newt noted during surveys.

Reptiles

- 3.2.50 KMBRC returned three records of reptiles: common lizard *Zootoca vivipara* and grass snake *Natrix helvetica* within 2km of the Site.
- 3.2.51 The Site is dominated by arable and pastoral farmland, which is considered to be of a negligible value for reptile species, however, the field boundary habitats such as hedgerows, woodland edge and ditches do provide limited habitats for foraging/hibernation purposes, but is poorly connected to more extensive areas of suitable reptile habitat.
- 3.2.52 Surveys carried out previously for the HMP Stanford Hill Wind Farm (TNEI, 2010) located c.1.5km west of the Site was surveyed in 2010 and found all four species of common reptiles: grass snake, adder *Vipera berus*, common lizard and slow worm *Anguis fragilis*. It was considered that due to the similar habitat makeup of HMP Stanford Hill and New Rides Farm, there is likelihood that reptile species would be present within the linear boundary habitats within the Site.
- 3.2.53 No reptiles surveys were carried out for the New Rides Wind Farm (Airvolution, 2013), however an assessment of all habitats within 500m of the turbine location were considered to be 'moderate' along boundary habitats and negligible within the arable fields of the New Rides Wind Farm site.
- 3.2.54 As part of the New Rides Wind Farm HMP, a linear strip of vegetation habitat has been created for the benefit of reptiles that may use the Site. This habitat was observed during the Extended Phase 1 and was considered to be still establishing.

Other Notable Species

- 3.2.55 The data search by KMBRC returned several records of Western hedgehog *Erinaceus europaeus*.
- 3.2.56 With the exception of brown hare *Lepus europaeus* no other protected or notable species are considered likely to occur within or immediately surrounding the Site.

3.3 Invasive Non-native Species

- 3.3.1 Several records of invasive non-native species were returned by KMBRC within 2km of the Site including water fern *Azolla filiculoides*, Japanese rose *Rosa rugosa* and Himalayan cotoneaster *Cotoneaster simonsii*.
- 3.3.2 In addition, there were three records of American mink *Neovision vision*.
- 3.3.3 No invasive non-native species were recorded within the Site during the extended Phase 1 habitat survey.

4 ASSESSMENT

4.1 Overview

- 4.1.1 This section seeks to identify the potential for effects to occur on habitats and protected and notable species which could be considered as reasonably likely to occur, as a result of the proposed development. The Site's proximity to statutory and non-statutory designated sites and potential effects on their qualifying interests is discussed. Measures are proposed for the protection of sensitive habitats and species throughout the construction phase of development and recommendations are made for further pre-construction surveys and mitigation, if required.
- 4.1.2 This section also introduces opportunities for post-development habitat enhancement as part of the proposed project for the benefit of local biodiversity.

4.2 Designated Sites and Habitats

Statutory Designated Sites

- 4.2.1 The Site does not form part of any statutory designated site for nature conservation. Three statutory designated sites were identified within 5km of the Site: The Swale SPA, Ramsar site and SSSI.
- 4.2.2 Additionally, two further internationally designated site: Medway Estuary & Marshes SPA, and Outer Thames Estuary SPAs are located within 10km of the Site (see **Figure 3**).
- 4.2.3 There will be no direct effect on habitats within any statutory designated site for nature conservation. Standard measures to ensure runoff control and pollution prevention will also be implemented during the construction of the proposed Development and which will serve to prevent the potential for indirect habitat impacts, through the protection of retained habitats within the Site and the wider aquatic environment.
- 4.2.4 The potential for impacts upon qualifying ornithological interests of the above-mentioned European sites are considered separately in Section 4.4 and a 'Report to inform a Habitats Regulations Assessment (HRA)' is presented in **Appendix 5**.

4.3 Habitats

- 4.3.1 The proposed development has been designed to avoid field boundary features such as hedgerows, trees and ditches and aquatic habitats along Site boundaries and immediately surrounding the Site in so far as has been possible.
- 4.3.2 No mature trees will be affected by the development. A 5m buffer away from ditches has also been included in the design of the proposed development, as shown in **Figure 4**.
- 4.3.3 During the operational phase periodic cleaning of PV modules will be required; these will be cleaned with a soft brush hose using clean water with a recommended pressure less than 690kPa, which is typical of most municipal water systems. Solar PV modules are designed to withstand high snow loads; a brush will be used to gently remove snow. No chemicals are required.
- 4.3.4 Standard measures to ensure runoff control and pollution prevention will also be implemented during the construction of the proposed Development; these measures will safeguard the drainage network on Site and downstream habitats and the species they support.
- 4.3.5 Habitats which will be directly affected by the construction of the proposed developments are primarily restricted to arable farmland fields and a 30m section of isolated hedgerow close to the

centre of the Site. Such farmland habitat is ubiquitous within the local landscape and due to the nature of the proposed development vegetative ground-cover will be largely retained beneath the solar array, with effects primarily comprising temporary compaction and soil disturbance from plant machinery and vehicles, together with the minor temporary loss of ground vegetative cover within the Site.

- 4.3.6 Negative effects on this farmland habitat will therefore be largely temporary and the overall ecological effect is considered to be low.
- 4.3.7 The Site as a whole comprises an area of approximately 16.6ha; however construction of the proposed development will require a very low level of direct and permanent land take. Current BRE guidance (BRE, 2014²⁷) states that, as panels are raised above the ground on posts, over 95% of a site used for solar farm development is still accessible for plant growth and complementary agricultural activities, such as conservation grazing. The current RSPB briefing note on Solar Energy (RSPB, 2014²⁸) also states that biodiversity gains are possible where intensively cultivated arable or grassland is converted to extensive grassland and/or wildflower meadows between and/or beneath solar panels and in field margins.
- 4.3.8 Opportunities have therefore been sought for biodiversity enhancement within the Site as part of the proposed development, in order to provide an overall biodiversity net-gain; in line with National Planning Policy Framework 2 (2019) and BS42020 – *A Code of Practice for Biodiversity in Planning and Development*.
- 4.3.9 Biodiversity enhancement measures proposed as part of the proposed development and which are illustrated in *Landscape Masterplan (Revision 1)* consist of:
- 0.6ha of grassland under and around the solar panel (existing land used comprising both improved grassland and intensively managed arable cropping)
 - The creation of approximately 1ha of species-rich scrub is proposed using six pockets of scrub situated towards field boundaries within the Site.
 - Approximately 0.2km of new native species-rich hedgerows are proposed as part of the solar farm development's boundaries. In addition, there would be 100m of gapping up and enhancing existing native species hedgerows within the Site.
- 4.3.10 It is considered that a significant benefit to wildlife within the Site will be achieved through the addition of further native hedgerow and scrub planting will also create and enhance potentially important wildlife corridors within and around the Site, improving the functionality of habitats for birds, mammals, amphibians, reptiles and invertebrates locally complementing the objectives of the New Rides Wind Farm HMP.
- 4.3.11 Biodiversity mitigation and enhancement measures are described further in the Biodiversity Management Plan (BMP), provided as **Appendix 6**, which describes ongoing management and monitoring for the lifetime of the development.

4.4 Biodiversity Net Gain

- 4.4.1 The habitat creation and associated biodiversity net gain that will accompany the proposed development has been assessed using the Defra Biodiversity Net Gain Calculator Metric (version 2.0). This shows a clear net gain of over 10.67% in habitat units, plus 11.02% gain in hedgerow units

²⁷ BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene.

²⁸ RSPB (2014) *Solar Energy: RSPB Policy Briefing, December 2014*. RSPB: Sandy. Available at https://www.rspb.org.uk/Images/Solar_power_briefing_tcm9-273329.pdf (accessed 23/02/2021).

as summarised in **Appendix 7**. The full calculation is provided as a separate Excel spreadsheet (available on request).

- 4.4.2 With the implementation of these measures, construction-related impacts on more ecologically valuable boundary habitats within the Site and surrounding area will be negligible. The creation of new habitat areas will lead to a clear biodiversity net gain.

4.5 Protected and Notable Species

Birds

Wintering (Non-breeding) Birds

- 4.5.1 The desk study, including a review of recent ornithological monitoring data collected as part of the New Rides OMS, identifies that the Site is of low interest to non-breeding migratory wading and waterfowl species, including qualifying interests of The Swale SPA, Ramsar site and SSSI. Higher bird interest, is provided within 'Field 14' to the south of the Site, managed for the benefit of such species under the New Rides HMP and within the wider wetlands of the surrounding Swale Estuary and Great Bells Farm to the south of the New Rides Wind Farm site.
- 4.5.2 Habitat suitability for non-breeding wading and waterfowl species within the Site are inherently minimised due to topography and the sensitive management of habitats within proximity to the operational New Rides Wind Farm turbines to reduce their attractiveness to such species. Boundary habitats within the Site, comprising mature hedgerows together with field size also reduce the Site's attraction to certain species of migratory waterfowl, including geese and swans, whose habitat preference is for larger fields with open vistas.
- 4.5.3 The Site is located over 1.12km to the north east of Great Bells Farm and based on separation alone, there are no likely adverse effects on birds associated with Great Bells Farm. It is generally considered within conservation organisations that the maximum distance of occurring disturbance to wildfowl populations and solar farms is 600m, so Great Bells Farm RSPB falls outside of this range of potential disturbance impacts.
- 4.5.4 'Field 14' is located 500m to the south of the Site and is separated from the Site by two operational wind turbines as well as the visual buffer of a mature hedgerow along the northern end of 'Field 14'.
- 4.5.5 Due to the nature of the proposed development only causing human led disturbance during a short period of construction, it is not considered likely that the proposed development will have a noticeable impact on the use of 'Field 14', the wider Swale Estuary and Great Bells Farm RSPB by non-breeding birds.
- 4.5.6 As such the proposed development will not result in implications for the delivery of habitat management prescriptions within 'Field 14' for the benefit of non-breeding wading birds and wildfowl.
- 4.5.7 Potential disturbances will be restricted to species known to utilise habitats within the Site, and which includes a narrow range and small number of gulls and commoner wildfowl.

Breeding Birds

- 4.5.8 All wild birds, their nests, eggs and dependent young are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Additional protection is also afforded to those species listed on Schedule 1 of the Act, with regards to disturbance at or around their nest sites
- 4.5.9 The Site is not considered to be of high interest for breeding bird species with species most likely to regularly breed within the Site being skylark and dunnoek, with opportunities for most species

restricted to field boundaries. Low numbers of breeding bird species were recorded within and bordering the Site during Year 1 of post-construction monitoring surveys undertaken as part of the New Rides Wind Farm OMS.

- 4.5.10 During the breeding bird season, the main potential effect of construction is the displacement (albeit temporary) of foraging and nesting birds. In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended), it is recommended that construction and any associated vegetation removal takes place outside of the bird breeding season (March-August inclusive). If vegetation works are necessary during the breeding season any suitable nesting habitat to be affected by works; including agricultural cropland habitats, should be checked by a suitably experienced ecologist prior to works commencing. Works would be permitted to proceed only when the ecologist is satisfied that no offence will occur under the legislation.
- 4.5.11 Birds nesting on open ground such as skylark may be temporarily displaced if construction takes place during the breeding season; however, in the context of comparable habitats locally, the area lost will be small and will comprise habitats of sub-optimal quality. Furthermore, it has also been noted in the literature²⁹ that ground nesting bird species may potentially nest between rows of panels, so displacement is unlikely to be permanent.
- 4.5.12 The presence of breeding barn owl, listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) is known to occur within the farm buildings of the New Rides Wind Farm. The buildings are located within an operational farm yard, with existing levels of machinery and bale storage facilities ongoing throughout the year. As such, no potential disturbance impacts to nesting birds at this location are likely to occur as a result of construction activities associated with the proposed development.
- 4.5.13 No evidence of marsh harrier within the Site or wider New Rides Wind Farm site was recorded during Year 1 ornithological monitoring under the New Rides Wind Farm OMS and which concurs with findings of baseline surveys undertaken to inform the design and assessment of the New Rides Wind Farm (Airvolution, 2013). The construction of the proposed development will also likely serve to further reduce the attractiveness of habitats within the vicinity of operational wind turbines for marsh harrier, complementary to the objectives of the New Rides Wind Farm HMP.
- 4.5.14 Opportunities for farmland nesting birds, within and bordering the Site will in large be retained and enhanced as part of the proposed development. In the recently published '*The Effects of solar Farms on Local Biodiversity: A Comparative Study*' (Montag *et al.* 2016)³⁰ investigated whether solar farms can lead to greater ecological diversity when compared with equivalent undeveloped sites. To assess changes in biodiversity relating to the solar farms, wildlife in the solar farm to wildlife at a "control" plot nearby was compared accordingly. The control plot was outside the solar array, but within the same farm. The study revealed that overall, both a higher diversity and abundance of birds of conservation concern utilise solar arrays when compared with control plots, thereby indicating that solar farms may be able to provide an important resource for declining species such as skylark. Within this study the difference in numbers of skylarks within solar plots and control plots was found to be not significant. This shows that skylarks will likely utilise the habitats within the proposed solar development footprint within their territorial boundaries.
- 4.5.15 Overall the proposed development is considered to provide improved opportunities for farmland nesting birds within the Site, and which will not result in implications for the delivery of management objectives under the New Rides Wind Farm HMP.

²⁹ https://www.rspb.org.uk/Images/Solar_power_briefing_tcm9-273329.pdf (accessed 29/01/2021)

³⁰ <http://www.solar-trade.org.uk/wp-content/uploads/2016/04/The-effects-of-solar-farms-on-local-biodiversitystudy.pdf> (accessed 01/02/2021)

Bats

- 4.5.16 All species of British bat are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are further protected under the Conservation of Habitats and Species Regulations 2017 (as amended).
- 4.5.17 The Act and Regulations make it an offence to:
- Kill, injure or take any wild bat;
 - Damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection; or,
 - Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection.
- 4.5.18 Seven bat species in the UK are also listed as species of principal importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006. All UK bat species are also listed as a priority species within the *Kent Biodiversity Action Plan*.
- 4.5.19 The habitats within the Site, largely comprising open agricultural habitats provide little foraging interest for bats.
- 4.5.20 No buildings or trees with bat roost potential are identified within the Site. The majority of hedgerows within the Site will also be retained and protected during construction, with the exception of a section of existing hedgerow approximately 30m in length towards the central part of the Site. This hedgerow will however, be replaced with 280m of native species-rich hedgerow along adjacent Site boundaries.
- 4.5.21 No new hedgerow will be created within 250m of the operational wind turbines, which is well in excess of the 50m 'stand-off' distance currently recommended between bat habitat features and wind turbines (see SNH 2019³¹). Subsequently increased risks of collision with wind turbines are not anticipated as a consequence of new hedgerow provision. Although intensively grazed, grassland located within the perimeter fences of the Site will encroach to within 10m of the turbine bases. A minimum of 50m 'stand-off' should be introduced through a grazing scheme to ensure bats are not encouraged to increase foraging within the 50m 'stand-off' area.
- 4.5.22 The construction of the proposed development will primarily be undertaken during daylight hours. Any temporary lighting where required will be temporary and focused on working areas within open fields and therefore away from hedgerows. As such temporary lighting, if required, is unlikely to affect bat foraging patterns.
- 4.5.23 During operation the solar array will not be lit, apart from very limited emergency lighting at for example the existing wind farm substation entrance for occasional maintenance visits. Any lighting installed will be directed away from trees, hedgerows and ditch corridors with reference to *Lighting in the UK, Bats and the Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers*³².

³¹ Scottish Natural Heritage, Natural England, Natural Resources Wales, Renewable UK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT). (2019). Bats and Onshore Wind Turbines: Survey Assessment and Mitigation. Available online at

<https://www.nature.scot/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation>

³² Institution of Lighting Professionals & the Bat Conservation Trust. (2018). *Guidance Note 08/18: Bats and artificial lighting in the UK Bats and the Built Environment series* (Accessed on 03/03/2020)

4.5.24 Overall, the proposed development provides positive measures for bats, through the new native hedgerow planting, enhancement of existing hedgerows, and creation new scrub habitat within the Site boundary.

Otter

4.5.25 Otters are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); they receive further protection under the Conservation of Habitats and Species Regulations 2017 (as amended).

4.5.26 The Act and Regulations make it an offence to:

- Deliberately capture, injure or kill an otter
- Damage or destroy a breeding site or resting place
- Deliberately disturb an otter, particularly in a way which is likely to:
 - a) to impair their ability to survive, breed or reproduce, rear or nurture young, and;
 - b) to affect significantly the local distribution or abundance of the species.

4.5.27 Otter is also listed under Section 41 of the NERC Act 2006 and listed as a priority species within the Kent Biodiversity Action Plan and is therefore, a material consideration within the planning process.

4.5.28 Habitats within the Site are considered to provide limited interest to otters, with wet ditches confined to boundary habitats and no signs indicative the species presence within the Site were recorded during the extended Phase 1 habitat survey.

4.5.29 Standard pollution prevention measures will be employed to ensure runoff control and pollution prevention will be implemented in order to protect aquatic habitats within the surrounding area, potentially used by otters.

4.5.30 No potential impacts upon otter are therefore likely to occur as a result of the construction or operation of the proposed development.

Water Vole

4.5.31 Water voles and their habitats receive full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Water vole is also listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

4.5.32 Ditches along the Site boundary are considered to provide low suitability for water vole and no signs identifying the species presence were recorded.

4.5.33 Watercourses located adjacent to the southern boundary of New Rides Farm and located 460m south of the Site are however known to support high populations of water vole recorded in 2018.

4.5.34 No ditch crossings are required to facilitate the proposed development. Scheme design has sought to ensure a minimum 5m excavation buffer is established between the top of ditch banks and all proposed infrastructure, and within which no excavations, storage of machinery or materials shall either occur.

4.5.35 Standard pollution prevention measures will be employed to ensure runoff control and pollution prevention will be implemented in order to protect aquatic/marginal habitats within the surrounding area, potentially used by water vole.

- 4.5.36 No direct or indirect impacts upon water vole and their habitats are therefore likely to occur as a result of the proposed development.

Amphibians

- 4.5.37 Arable farmland habitats within the Site offers negligible opportunities for amphibians (foraging/hibernation), however, field boundary features, such as hedgerows, field margins and wet/dry ditches and their banksides potentially provide suitable foraging habitat and shelter opportunities.
- 4.5.38 There are no ponds located within the Site, although two ponds are found within New Rides Farm, with the nearest pond being located 10m from the Site boundary, although the proposed design of the solar farm shows the closest perimeter fence to be more than 25m from the pond.
- 4.5.39 Both ponds were surveyed in 2013 for New Rides Wind Farm (Airvolution, 2013) and didn't record the presence of great crested newts, with the species considered to be absent locally.
- 4.5.40 The construction of the proposed development will require a very low level of direct and permanent land take. The proposed development will also be constructed within habitats that are considered to be sub-optimal for amphibians and scheme design has sought to avoid impacts to hedgerows, field margins, ditches within and surrounding the Site and which may provide some higher interest to such species.
- 4.5.41 Habitat retention and proposed enhancements (hedgerow enhancements, hedgerow and scrub planting) will seek to provide enhanced terrestrial habitat for foraging/hibernation purposes and connectivity for amphibians in the landscape, with animals able to move more freely across grassland habitats.
- 4.5.42 In order to avoid and minimise and risk of harm to amphibians through construction a series of Reasonable Avoidance Measures (RAMs) will be implemented during construction, as presented in **Appendix 4**.

Reptiles

- 4.5.43 Widespread reptile species namely the common lizard, slow-worm, grass snake and adder are protected against killing, injuring and sale under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). These species are also listed as priority species under Section 41 of the NERC Act 2006.
- 4.5.44 The arable farmland fields located within the Site offer negligible opportunities for reptile species, however, field boundary features such as: hedgerows, field margins and wet/dry ditches provide suitable habitats; the majority of which will be retained and enhanced as part of the proposed development. In addition, the creation of six plots of newly-created scrub will provide increased habitat opportunities for reptile populations in and surrounding the Site.
- 4.5.45 Condition 15 of the New Rides Wind Farm HMP, included for reptile habitat creation through the establishment of a tussocky grassland strip, which intersects the southern extent of the current Site boundary.
- 4.5.46 Increased reptile habitat creation through the establishment of additional suitable reptile habitat (scrubland creation) along field boundaries outside of the perimeter fencing within the redline boundary is also proposed under the BMP for the proposed development (**Appendix 6**), and which will provide additional suitable habitat for transient populations of reptiles (and amphibians).
- 4.5.47 Overall, the application will deliver increased reptile habitat across the Site.

- 4.5.48 In order to avoid and minimise and risk of harm to reptiles through construction a series of Reasonable Avoidance Measures (RAMs) will be implemented during construction, as presented in **Appendix 4**.

Other Species

- 4.5.49 The Site may support brown hare (a priority species listed on Section 41 the NERC Act 2006) and has sufficient vegetative cover located along the field boundaries and nearby woodlands for the rearing of young hares. The habitats on Site are typical of habitats in the wider environment, and therefore the loss of suitable arable farmland foraging habitat as a result of the proposed development is not considered to negatively impact local populations of brown hare. The mature hedgerows and adjacent woodland which are likely to be utilised by the species, will be retained within the final development..
- 4.5.50 The field boundary habitats located within the Site may also be utilised by Western hedgehog (a priority species listed on Section 41 of the NERC Act 2006) as part of a wider population. The hedgerows located on Site may also be suitable for hibernation purposes; these will be generally retained and enhanced within the proposed solar developments final layout. Additionally, the hedgerow screening and proposed scrubland on site will provide additional habitats for both species within the Site boundaries.
- 4.5.51 Security fencing located around the Site perimeter will have sufficient gaps positioned at several locations along the base of fences in order to allow mammal species such as brown hare and Western hedgehog to continue to use the habitats on Site during the operational period.
- 4.5.52 The retention/enhancement of hedgerows on Site and adjacent to the Site will likely continue to provide a variety of invertebrate species with suitable habitats, the planting of additional hedgerow screening and the development six plots of new species-rich scrubland will enhance the sites potential to support a diverse invertebrate assemblage, including species of Principal Importance.

Invasive Non-native Species

- 4.5.53 No species invasive non-native species listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) were recorded on Site during the Extended Phase 1 habitat survey. It is an offence to plant or otherwise cause such species to grow in the wild. This includes allowing the species to grow/spread, spreading the species or transferring polluted ground material from one area to another.
- 4.5.54 These species and soil containing these species are also classed as controlled waste and as such must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.
- 4.5.55 Should any invasive species encountered on Site prior to or during construction, the advice of a suitably qualified ecologist should be sort and the appropriate measures taken.

5 SUMMARY - ECOLOGY PRIORITY MATRIX

5.1.1 An Ecological Assessment was undertaken for the proposed solar farm development on at Land at New Rides Farm, Eastchurch, Isle of Sheppey, Kent.

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

Table 5.1.1: Ecological Constraints and Opportunities

Feature		Details
Statutory and Non-statutory designated sites for Nature Conservation	Constraints & Opportunities	a. The Swale SSSI is located approximately 990m south west of the Site. It is located within the SSSI IRZ and does meet the criteria whereby Natural England would need to be consulted in relation to the potential impacts on statutory designated sites.. b. The Site is not considered to act as a functional link to the SSSI for species of birds designated within the SSSI c. The Swale SPA/Ramsar is located 990m south east of the Site. A Report to Inform Habitats Regulations is provided as Appendix 5. d. The Site is not located within any non-statutory designed sites for nature conservation and none occur within 2km of the Site.
	Protection Measures	e. Standard measures to ensure runoff control and pollution prevention will be implemented; these measures will safeguard Statutory designated sites. No indirect effects are therefore anticipated on statutory designated sites in the wider area.
Habitats & Flora	Constraints & Opportunities	f. The main habitat within the development footprint is arable farmland, which is generally of low value to wildlife. Field boundary features include hedgerows, ditches and woodland edge located in and surrounding the Site potentially support a diverse range of species. g. Habitat enhancement measures are proposed as part of the development and will serve to enhance the development for local biodiversity. Enhancement measures include the planting of hedgerow screening, enhancement of existing hedgerows and creation of newly planted hedgerows and scrub creation. h. Landscape plans indicate that nature conservation enhancement of the Site will be achieved, resulting in an overall biodiversity gain; in line with NPPF (2018) and BS 42020 – <i>A Code of Practice for Biodiversity in Planning and Development</i>.
	Protection Measures	i. Standard measures to ensure runoff control and pollution prevention will be implemented; these measures will safeguard the drainage ditches habitats on and immediately surrounding the Site, retained terrestrial habitats and habitats within the wider environment.
Birds	Constraints & Opportunities	j. The habitats on Site (most notably the field boundary features) provide some suitable nesting habitat and may support breeding birds typical of rural areas in the region, including some of local conservation concern species. k. The proposed development also provides positive measures for breeding birds, through enhancement and maintenance of hedgerows and scrubland. l. The Site falls within the 300m crop exclusion zone of the adjacent New Rides Wind Farm.
	Legislative Compliance – WCA**	m. Removal of nesting bird habitats should be undertaken outside of the bird breeding season (01 March to 31 August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed.

Feature		Details
Bats	Constraints & Opportunities	n. Field boundary features such as hedgerows, ditches, watercourses and scattered trees providing the highest value foraging and commuting habitat will be retained with no suitable roosting habitat to be removed during construction. o. The proposed development also provides positive measures for bats, through the enhancement of hedgerows, creation of hedgerows and scrubland within the Site.
	Legislative Compliance – WCA**, HR***	p. New hedgerows not created within 250m of operational wind turbines so as to avoid increased bat activity (and therefore collision risk) around turbines. q. No new grassland to be created within 50m of operational wind turbines. r. Any lighting required during construction and/or operation of the solar farm should be directed away from trees, hedgerows, ditches and watercourses (further information is provided in Lighting in the UK, Bats and the Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers).
Badger	Constraints & Opportunities	s. No badger setts or signs of badgers were found during the Extended Phase 1 survey t. Badgers are generally considered to be absent from Isle of Sheppey and therefore unlikely to be present on site or within the immediate surrounding area.
	Legislative Compliance – PBA****	u. N/A
Otter	Constraints & Opportunities	v. No otter holts were recorded on or immediately surrounding the Site. However, the drainage ditch along the eastern boundary of the Site connects to the wider, flowing ditch to the south of the Site, which may be suitable for otters. Otters may rarely use the drainage ditch along the eastern boundary for foraging and commuting. w. Standard pollution prevention measures should be employed to ensure runoff control and pollution prevention will be implemented in order to protect aquatic/marginal habitats potentially used by water vole.
	Legislative Compliance – WCA**, HR***	x. N/A
Water Vole	Constraints & Opportunities	y. The watercourse habitats to the south of the Site, close to the habitat enhancement area support this species. The drainage ditch along the eastern boundary of the Site flows into this ditch and may be suitable for water vole. An exclusion buffer zone of at least 5m will be maintained between the construction impact areas and the top of the watercourse banks. z. Standard pollution prevention measures should be employed to ensure runoff control and pollution prevention will be implemented in order to protect aquatic/marginal habitats potentially used by water vole.
	Legislative Compliance – WCA**	aa. N/A
Amphibians	Constraints & Opportunities	bb. The area for the solar panel array layout has been designed to avoid impact to hedgerows, field margins and ditches within and surrounding the Site. The proposed habitat retention and proposed enhancements (hedgerow enhancements, hedgerow planting and scrubland) will provide a clear habitat gain for amphibians by providing enhanced terrestrial habitat for foraging/hibernation purposes.
	Legislative Compliance - WCA*, HR**	cc. Reasonable Avoidance Measures (RAMs) will be implemented to minimise risk of harm to individual animals.

Feature		Details
Reptiles	Constraints & Opportunities	dd. The area for the solar panel array layout has been designed to avoid impact to hedgerows, field margins and ditches within and surrounding the Site. The proposed habitat retention and proposed enhancements (hedgerow enhancements, hedgerow planting and scrubland) will provide a clear habitat gain for reptiles by providing enhanced terrestrial habitat for foraging/hibernation purposes.
	Legislative Compliance – WCA**	ee. Reasonable Avoidance Measures (RAMs) will be implemented to minimise risk of harm to individual animals.
Other Species	Constraints & Opportunities	ff. The Site is likely to support brown hare which may use the field boundaries and woodland/hedgerow habitats to breed. gg. The field boundary habitats located within the Site may also be utilised by Western hedgehog; these will be retained and enhanced within the proposed solar developments final layout. Additionally, the hedgerow planting and proposed scrubland on site will provide additional habitats for both species within the Site boundaries. hh. Security fencing located around the Site perimeter will have sufficient gaps positioned at several locations along the base of fences in order to allow mammal species such as brown hare and Western hedgehog to continue to use the habitats on Site during the operational period. ii. The retention/enhancement of hedgerows on site and surrounding the Site will likely continue to provide a variety of invertebrate species with suitable habitats, the planting of additional hedgerows and scrubland will enhance the Site's potential to support a diverse invertebrate assemblage.
	Legislative Compliance – WCA**	kk. Should any invasive species encountered on Site prior to or during construction, the advice of a suitably qualified ecologist should be sought and the appropriate measures taken.

Legislative Compliance Key

* The Hedgerows Regulations 1997

**Wildlife & Countryside Act 1981 (as amended)

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

****Protection of Badgers Act 1992

FIGURES

Figure 1: Site Location Plan

Phase 2: Phase 1 Habitat Plan

Figure 3: Statutory Designated Sites Plan

Figure 4: Solar Array Layout

Figure 5: New Rides Wind Farm HMP enhancements

Figure 1: Site Location Plan



Figure 2: Phase 1 Habitat Plan



Figure 3: Statutory Designated Sites Plan

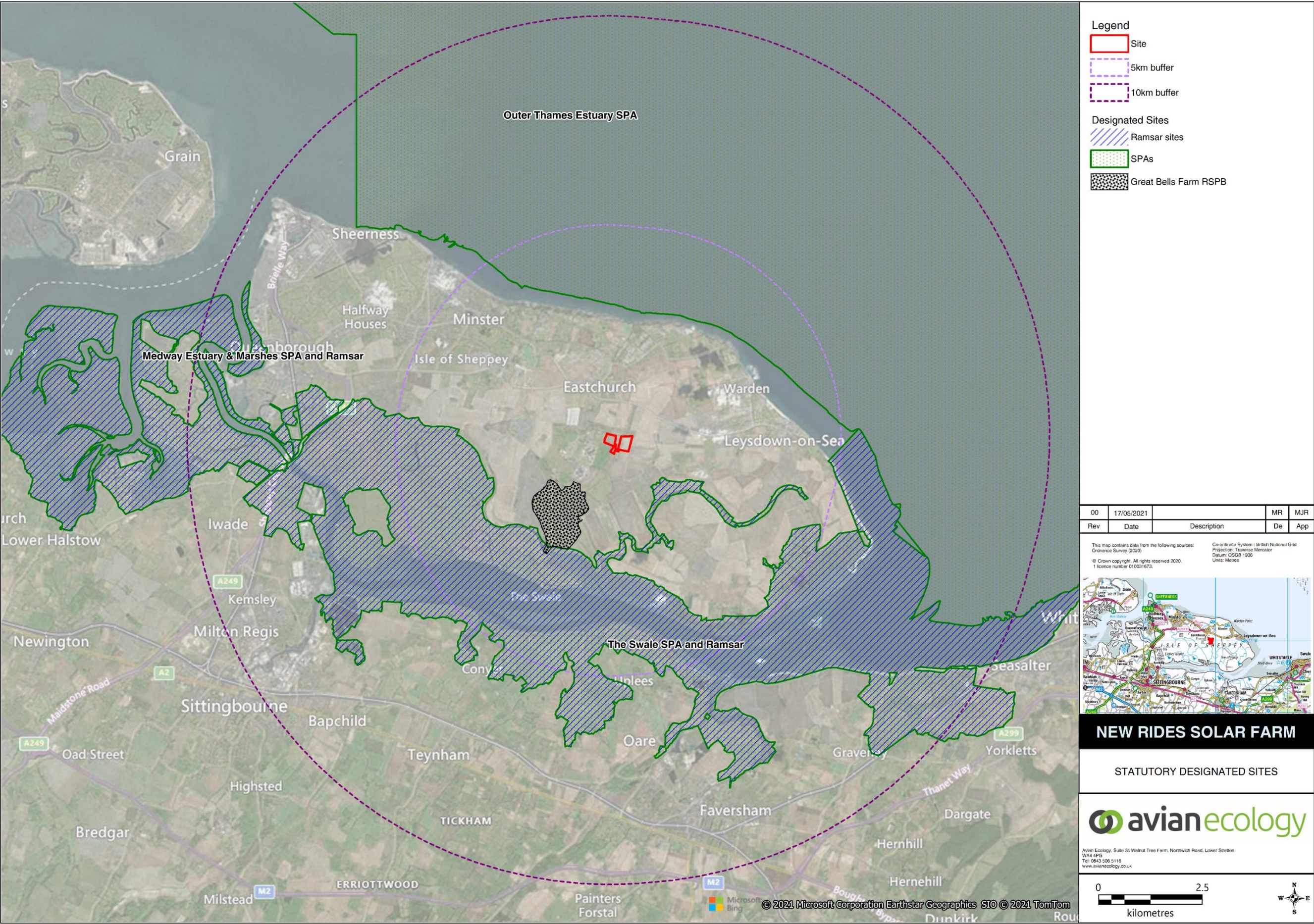


Figure 4: Solar Array Layout

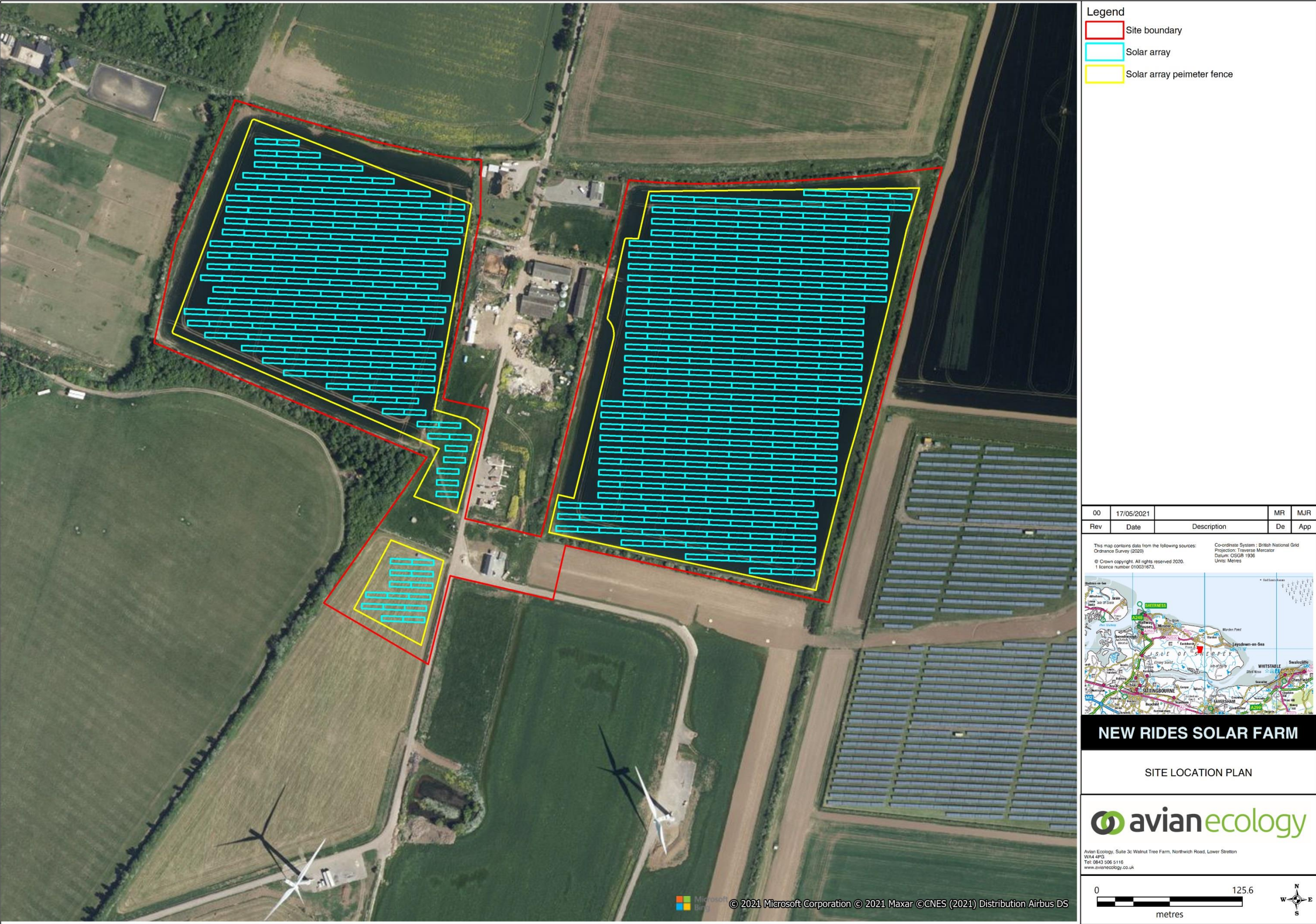
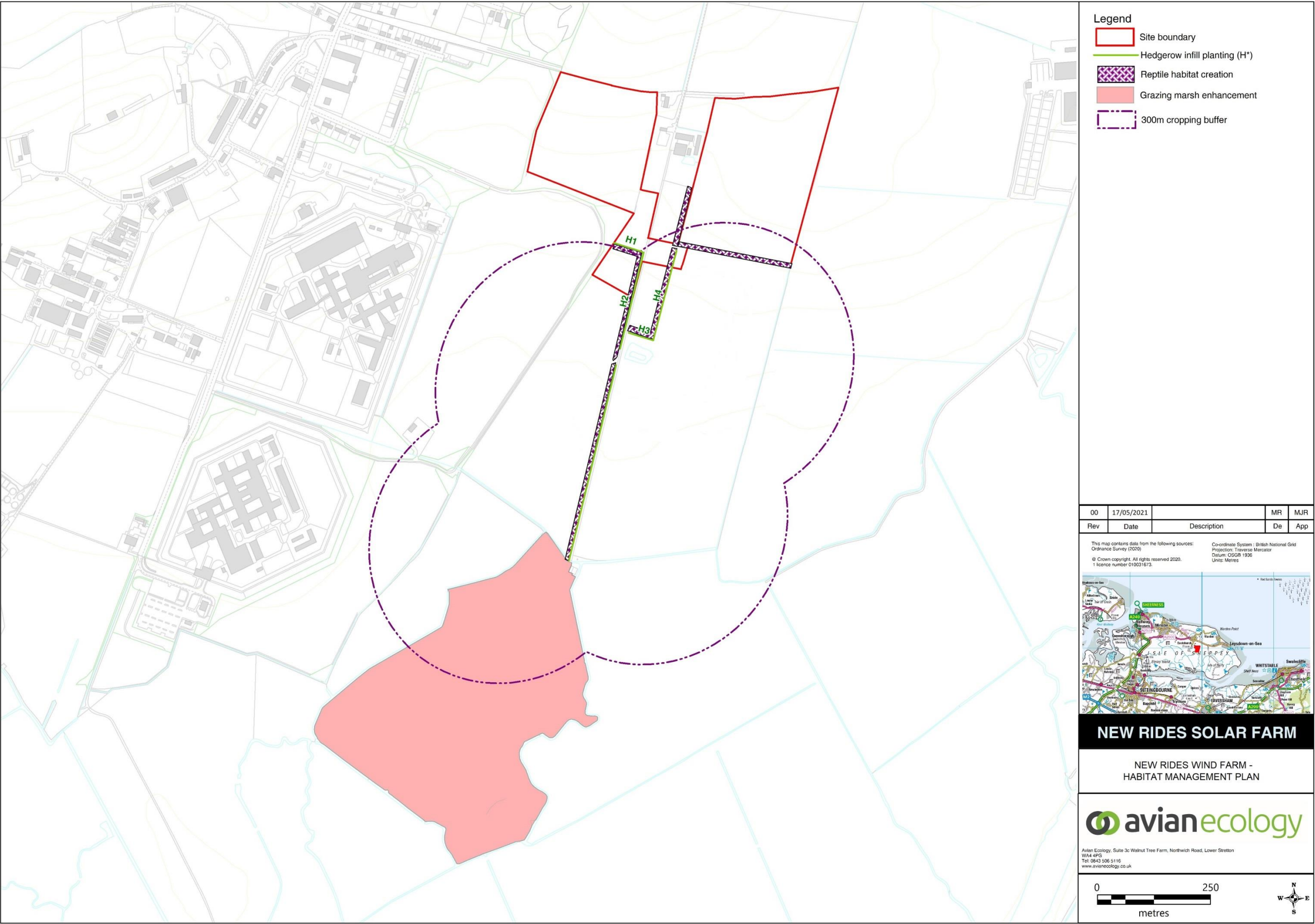


Figure 5: New Rides Wind Farm HMP enhancements



APPENDIX 1

New Rides Wind Farm - Post-contruction Monitoring Bird Data

New Rides Solar Farm

on behalf of EnergieKontor UK Ltd.

Appendix 1: New Rides Wind Farm - Post-construction Monitoring Bird Data



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CONTENTS

1	PROJECT BACKGROUND	4
2	YEAR 1	4
1.2	Breeding Bird Survey.....	4
1.3	Winter Walkover Surveys.....	6
3	YEAR 2	8
1.4	Winter Walkover Surveys.....	8

FIGURES

Figure A1.1 – Ornithological Monitoring Strategy (OMS) Plan

Figure A1.2 - Year 1: Breeding Bird Survey Results – Ornithological Monitoring Strategy Plan

1 PROJECT BACKGROUND

- 1.1.1 Avian Ecology Ltd. was commissioned in December 2020 by Energiekontor UK Ltd. to undertake an Ecological Assessment in relation to a proposed solar development at New Rides Farm on Isle of Sheppey, Kent, henceforth referred to as 'the Site'. Energiekontor UK Ltd. Already owns and operates a wind farm on the Site.
- 1.1.2 This Appendix presents post-construction ornithological monitoring data undertaken to satisfy Objective 1 of the New Rides Wind Farm Ornithological Monitoring Strategy (OMS), in Year 1 and Year 2 of operation.
- 1.1.3 The information presented has been made available by New Rides Wind Farm Ltd. and comprises survey methodologies and results of breeding and wintering bird surveys completed between January 2019 and March 2020.

Objective 1 of the New Rides Wind Farm OMS is:

- To provide information relating to the number and distribution of key ornithological interests within Great Bells Farm and additional 'focal species' within the core study area by carrying out year round walkover surveys.
- 1.1.4 The core study area comprises the New Rides Wind Farm site and an 800m buffer around the operational wind turbines, as shown in Figure A1.1.

2 YEAR 1

- 1.1.5 In accordance with the New Rides Wind Farm OMS, ornithological monitoring undertaken in Year 1 to satisfy Objective 1 of the OMS comprised wintering walkover surveys completed between January and March 2019, and a breeding bird survey completed between April and July 2019.

1.2 Breeding Bird Survey

- 1.2.1 A breeding bird survey was undertaken in the spring and summer of 2019,
- 1.2.2 The methodology employed was based upon a scaled-down version of the British Trust for Ornithology (BTO) Common Bird Census (CBC) technique, as detailed in Gilbert *et al.* (1998), comprising four staggered survey visits between April and July.
- 1.2.3 During survey a route was walked through the core study area and all species and behaviours of birds indicative of breeding within the core study area (as shown in Figure A1.1) were recorded onto field plans, using standard BTO species and activity codes, in order to enable an estimation of the number of breeding bird territories present.
- 1.2.4 Visits were undertaken between dawn and midday in weather conditions conducive to survey.
- 1.2.5 Survey effort is presented in **Table A1.1**.

Table A1.1: Breeding bird survey effort – Year 1.

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)	Weather Conditions*
1	19/04/2019	06:45	09:30	Wind speed: 1; wind direction: NE; cloud height: -; cloud cover: 0; visibility: 2.
2	19/05/2019	05:10	07:35	Wind speed: 0-1; wind direction: NE; cloud height: 1; cloud cover: 8; visibility: 1-2.
3	18/06/2019	05:30	08:05	Wind speed: 0; wind direction: -; cloud height: 2; cloud cover: 2; visibility: 3.
4	19/07/2019	05:45	07:50	Wind speed: 0; wind direction: -; cloud height: 2; cloud cover: 1-7; visibility: 3.

* Wind speed (Beaufort scale: 0-12) Cloud cover (Okta: 0-8) Cloud height (0: <150m, 1: 150-500m, 2: >500m) Visibility (0: Poor, 1: Moderate, 2: Good)

- 1.2.6 In Year 1 of monitoring, breeding evidence for a total of 39 bird species within the core study area as summarised in **Table A1.2**. Estimated territory centres are shown on **Figure A1.2**.

Table A1.2. Breeding bird species recorded in Year 1 (2019).

Species	Year 1 Pair Estimate
Greylag goose	1
Shelduck	1
Mallard	5
Shoveler	1 (Field 14)
Buzzard	1
Kestrel	1
Moorhen	1
Coot	1
Oystercatcher	1
Lapwing	3 (Field 14)
Stock dove	2
Woodpigeon	2
Collared dove	1
Barn owl	1
Green woodpecker	1
Great spotted woodpecker	1
Skylark	7
Swallow	1
Meadow pipit	1

Species	Year 1 Pair Estimate
Wren	16
Dunnock	4
Robin	3
Blackbird	6
Song thrush	1
Cetti's warbler	1
Lesser whitethroat	1
Whitethroat	8
Blackcap	1
Chiffchaff	1
Long-tailed tit	1
Blue tit	2
Great tit	2
Starling	2
House sparrow	2
Chaffinch	3
Greenfinch	1
Goldfinch	2
Linnet	2
Corn bunting	1

1.3 Winter Walkover Surveys

- 1.3.1 Winter walkover surveys were undertaken at least once monthly between January and March 2019.
- 1.3.2 Survey effort is presented in **Table A1.3**.
- 1.3.3 In Year 1 of operational monitoring an additional winter walkover survey was undertaken in January 2019, to allow for surveyor familiarity with the study area and to identify any limitations to monitoring protocols such as access and/or health and safety considerations. No limitations were identified.
- 1.3.4 The methodology employed was based upon the Wetland Bird Survey (WeBS) Core Count methodology (Gilbert *et al.*, 1998).
- 1.3.5 During each survey visit, a route was walked through the core study area to record the numbers and distribution of 'focal' species within the study area according to field numbers (as shown in **Figure A1.1**).
- 1.3.6 The following bird species are considered to be key 'focal' species:

- All wildfowl;
- All Schedule 1¹ and Annex 1² raptors and owls;
- All waders; and,
- All gulls.

1.3.7 Visits were undertaken during high tide conditions and in weather conditions conducive to survey.

Table A1.3: Winter Walkover Surveys – Year 1 (January to March 2019).

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)	Weather Conditions*
1	10/01/2019	09:30	11:45	Wind speed: 2; wind direction: NW; cloud height: 1; cloud cover: 7; visibility: 2-3.
2	28/01/2019	08:30	11:00	Wind speed: 3-4; wind direction: NW; cloud height: 1; cloud cover: 1; visibility: 3.
3	18/02/2019	08:40	11:15	Wind speed: 2-3; wind direction: SSW; cloud height: 1; cloud cover: 6; visibility: 2-3.
4	18/03/2019	08:00	10:15	Wind speed: 1; wind direction: NE; cloud height: 1; cloud cover: 0; visibility: 2.

* Wind speed (Beaufort scale: 0-12) Cloud cover (Okta: 0-8) Cloud height (0: <150m, 1: 150-500m, 2: >500m) Visibility (0: Poor, 1: Moderate, 2: Good).

1.3.8 For the purposes of this report results are summarised in Table A1.4 detailing the species and total number birds recorded within the Site, 'Field 14' and the remaining wider core study area over the entire survey effort.

1.3.9 The total number of birds recorded within the Site comprise observations of species made within Fields 1-5, 9 and 10 and which the Site boundary encompasses.

1.3.10 Figures enclosed in brackets indicate birds were recorded in flight, passing over the core study area.

Table A1.4: Winter Walkover Surveys – Year 1 (January to March 2019).

Species	Total Number of Birds		
	Site	Field 14	Remaining Wider Core Study Area
Mute swan			350
Bewick's swan			1
Greylag goose			252 (1)
Canada goose			2

¹ As listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended.

² As listed on Annex 1 of the Directive 2009/147/EEC (The Birds Directive).

Species	Total Number of Birds		
	Site	Field 14	Remaining Wider Core Study Area
Dark-bellied brent goose			6
Shelduck		36	41
Gadwall			12 (2)
Mallard	7	38	27
Grey heron			4
Little egret			1
Marsh harrier	(1)	1	3 (17) ³
Moorhen		1	1
Coot	3	3	3
Oystercatcher		2	6
Lapwing		1	537
Golden plover			4 (1)
Curlew			78
Black-headed gull	3	3	78 (7)
Common gull	3 (2)		84 (18)
Herring gull	22 (20)	14	38 (25)
Lesser black-backed gull	(1)	(1)	
Great black-backed gull			1

3 YEAR 2

1.3.11 In accordance with the New Rides Wind Farm OMS, ornithological monitoring undertaken in Year 2 to satisfy Objective 1 of the OMS comprised wintering walkover surveys completed between October 2019 and March 2020, and a breeding bird survey completed between April and July 2020.

1.3.12 Due to the relatively recent completion of breeding bird surveys, only data derived from winter walkover surveys has been made available for the purposes of this Appendix.

1.4 Winter Walkover Surveys

1.4.1 Winter walkover surveys were undertaken once monthly between October 2019 and March 2020.

³ Likely multiple observations of a small number of birds (male and female) hunting through the core study area.

- 1.4.2 Survey effort is presented in **Table A1.5**, with the survey methodology employed consistent with that in Year 1.

Table A1.5: Winter Walkover Surveys – Year 2 (October 2019 to March 2020).

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)	Weather Conditions*
1	04/10/2019	07:30	10:00	Wind speed: 2; wind direction: W; cloud height: 2; cloud cover: 3; visibility: 3.
2	14/11/2019	07:30	10:05	Wind speed: 2; wind direction: SE; cloud height: 2; cloud cover: 8; visibility: 2.
3	16/12/2019	08:15	11:20	Wind speed: 1; wind direction: SW; cloud height: 2; cloud cover: 8; visibility: 3.
4	18/01/2019	08:15	11:20	Wind speed: 1; wind direction: W; cloud height: 0; cloud cover: 0; visibility: 3.
5	20/02/2020	07:45	10:30	Wind speed: 4; wind direction: SW; cloud height: 2; cloud cover: 6-8; visibility: 3.
6	17/03/2020	08:20	11:15	Wind speed: 3; wind direction: SW; cloud height: 0; cloud cover: 0; visibility: 3.

* Wind speed (Beaufort scale: 0-12) Cloud cover (Okta: 0-8) Cloud height (0: <150m, 1: 150-500m, 2: >500m) Visibility (0: Poor, 1: Moderate, 2: Good).

- 1.4.3 Results are summarised in **Table A1.6** detailing the species and total number birds recorded within the Site, 'Field 14' and the remaining wider core study area over the entire survey effort.
- 1.4.4 The total number of birds recorded within the Site comprise observations of species made within Fields 1-5, 9 and 10 and which the Site boundary encompasses.

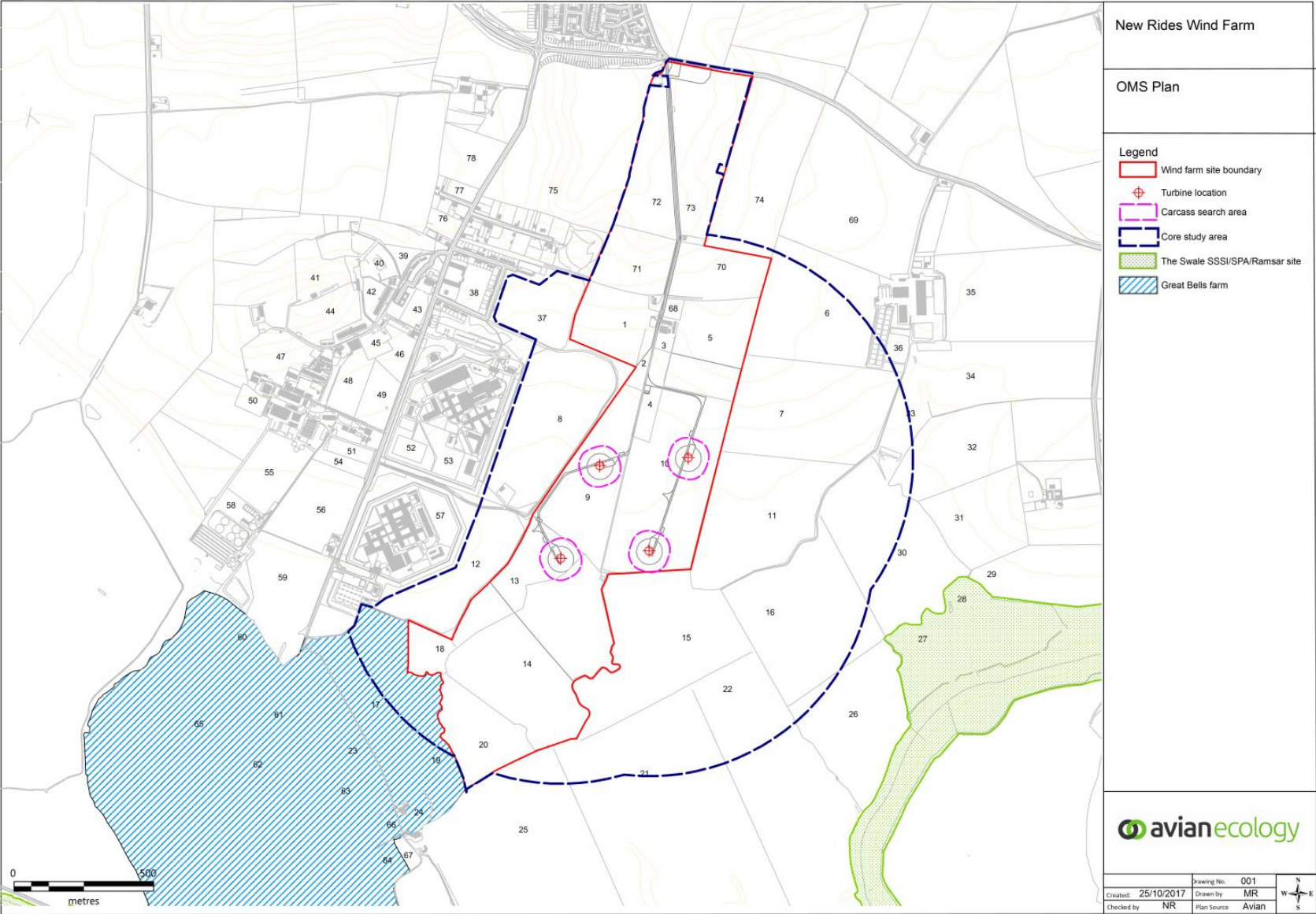
Table A1.6: Winter Walkover Surveys – Year 2 (October 2019 to March 2020).

Species	Total Number of Birds		
	Site	Field 14	Remaining Wider Core Study Area
Mute swan		16	51
Bewick's swan			5
Greylag goose		2	25
Pink-footed goose			5
Canada goose		2	2
Dark-bellied brent goose			(5)
Shelduck		13	2

Species	Total Number of Birds		
	Site	Field 14	Remaining Wider Core Study Area
Wigeon			7 (5)
Gadwall		2	
Teal			3 (40)
Mallard	75 ⁴	32	20
Cormorant		4	(1)
Grey heron		1	3
Marsh harrier		(5)	1 (8)
Hen harrier		(1)	1
Moorhen		3	4 (1)
Coot	3	3	3
Oystercatcher		2	2
Lapwing		18	9
Curlew		11	
Redshank		3	
Black-headed gull	132	429	26 (3)
Common gull	23	61	7 (3)
Herring gull	1	340	(7)

⁴ Associated with a large duck pond located in Field 10.

Figure A1.1: Ornithological Monitoring Strategy (OMS) Plan.



Legend

- [Red outline] Site Boundary
- [Blue outline] New Rides Wind Farm Site Boundary
- [Red cross symbol] Airvolut Energy Turbines
- [Dashed blue outline] Core Study Area

Species Recorded

B.: Blackbird	ST: Song thrush
BC: Blackcap	SU: Shelduck
BO: Barn owl	SV: Shoveler
BT: Blue tit	WH: Whitethroat
BZ: Buzzard	WP: Woodpigeon
CB: Corn bunting	WR: Wren
CC: Chiffchaff	
CD: Collared dove	
CH: Chaffinch	
CO: Coot	
D: Dunnock	
G: Green woodpecker	
GJ: Greygull goose	
GO: Goldfinch	
GR: Greenfinch	
GS: Great spotted woodpecker	
GT: Great tit	
HS: House sparrow	
K.: Kestrel	
L.: Lapwing	
LI: Linnet	
LW: Lesser whitethroat	
MA: Mallard	
MH: Moorhen	
MP: Meadow pipit	
OC: Oystercatcher	
R: Robin	
S: Skylark	
SD: Stock dove	
SG: Starling	
SL: Swallow	

This map contains data from the following sources:
Ordnance Survey (2018)
© Crown copyright. All rights reserved 2018
1: National Grid (OSGB36)

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB36
Units: Metres

Scale: 0 400 metres

Inset Map: Shows the location of the solar farm relative to surrounding areas.

Rev	Date	Description	ZH	NR
00	17/05/2021			

NEW RIDES SOLAR FARM

avianecology

BBS RESULTS 2019 - YEAR 1 OF ORNITHOLOGICAL MONITORING AT NEW RIDES WIND FARM

Avian Ecology, Suite 2c, Walnut Tree Farm, Northmoor Road, Lower Overton, GWA, WPC
Tel: 01462 506 5116
www.avianecology.co.uk

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APPENDIX 2

Site Photographs

Plate	Description
	Photo 1: Improved grassland field (un-grazed) (TN18)
	Photo 2: Former arable field with encroached tall ruderals (TN15).
	Photo 3: Example of intact species-poor hedgerow with wet ditch internally (TN6).



Photo 4: Example of intact hedgerow with no wet/dry ditch present (TN21)



Photo 5: Semi-improved grassland track (part of the Reptile Habitat Creation as agreed in the New Rides Wind Farm HRA) (TN14)



Photo 6: Example of arable strip of maize (TN9)



Photo 7: Newly-planted row of trees (TN22)

APPENDIX 3

Ornithological Records - Kent Ornithological Society (KOS)

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Red-throated diver	<i>Gavia stellata</i>	Annex 1, S1	9
Black-throated diver	<i>Gavia arctica</i>	UKBAP, Annex 1, S1, BoCC – Amber	8
Great northern diver	<i>Gavia immer</i>	Annex 1, S1, BoCC – Amber	2
Little grebe	<i>Tachybaptus ruficollis</i>		148
Great crested grebe	<i>Podiceps cristatus</i>		49
Slavonian grebe	<i>Podiceps auritus</i>	Annex 1, S1, BoCC – Red	2
Leach's petrel	<i>Oceanodroma leucorhoa</i>	Annex 1, S1, BoCC – Amber	1
Gannet	<i>Morus bassanus</i>	BoCC - Amber	3
Cormorant	<i>Phalacrocorax carbo</i>		133
Bittern	<i>Botaurus stellaris</i>	UKBAP, NERC S.41, Annex 1, S1, BoCC - Amber	12
Cattle egret	<i>Bubulcus ibis</i>	Annex 1	6
Little egret	<i>Egretta garzetta</i>	Annex 1	291
Great white egret	<i>Egretta alba</i>	Annex 1	102
Grey heron	<i>Ardea cinerea</i>		358
Purple heron	<i>Ardea purpurea</i>	Annex 1, S1	3
White stork	<i>Ciconia ciconia</i>	Annex 1	1
Spoonbill	<i>Platalea leucorodia</i>	Annex 1, S1, BoCC – Amber	30
Mute swan	<i>Cygnus olor</i>	BoCC – Amber	442
Bewick's swan	<i>Cygnus columbianus</i>	UKBAP, NERC S.41, Annex 1, S1, BoCC – Amber	154
Whooper swan	<i>Cygnus Cygnus</i>	Annex 1, S1, BoCC – Amber	73
Bean goose sp	<i>Anser fabalis</i>		59
Tundra bean goose	<i>Anser rossicus</i>	BoCC – Amber	20
Taiga bean goose	<i>Anser fabalis fabalis</i>	BoCC – Amber	1
Pink-footed goose	<i>Anser brachyrhynchus</i>	BoCC - Amber	77
White-fronted goose	<i>Anser albifrons</i>	UKBAP, NERC S.41, BoCC – Amber	264
Greylag goose	<i>Anser anser</i>	BoCC – Amber	300
Snow goose	<i>Anser caerulescens</i>		6
Canada goose	<i>Branta canadensis</i>		54
Barnacle goose	<i>Branta leucopsis</i>	Annex 1, BoCC – Amber	41
Brent goose	<i>Branta bernicla</i>	UKBAP, NERC S.41, BoCC – Amber	95
Pale-bellied brent goose	<i>Branta bernicla hrota</i>		3
Egyptian goose	<i>Alopochen aegyptiacus</i>		8
Shelduck	<i>Tadorna tadorna</i>	BoCC – Amber	294

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Wigeon	<i>Mareca penelope</i>	BoCC – Amber	125
Gadwall	<i>Mareca strepera</i>	BoCC – Amber	124
Teal	<i>Anas crecca</i>	BoCC – Amber	220
Mallard	<i>Anas platyrhynchos</i>	BoCC – Amber	396
Pintail	<i>Anas acuta</i>	S1, BoCC - Amber	2
Garganey	<i>Spatula querquedula</i>	S1, BoCC – Amber	12
Shoveler	<i>Spatula clypeata</i>	BoCC – Amber	148
Pochard	<i>Aythya ferina</i>	BoCC - Amber	75
Tufted duck	<i>Aythya fuligula</i>		77
Eider	<i>Somateria mollissima</i>	BoCC - Amber	2
Common scoter	<i>Melanitta nigra</i>	UKBAP, NERC S.41, S1, BoCC – Red	7
Goldeneye	<i>Bucephala clangula</i>	S1, BoCC – Amber	3
Red-breasted merganser	<i>Mergus serrator</i>		12
Goosander	<i>Mergus merganser</i>		1
Ruddy duck	<i>Oxyura jamaicensis</i>	INNS	7
Honey buzzard	<i>Pernis apivorus</i>	S1, BoCC – Amber	8
Black kite	<i>Milvus migrans</i>	Annex 1	3
Red kite	<i>Milvus milvus</i>	Annex 1, S1	12
White-tailed eagle	<i>Haliaeetus albicilla</i>	Annex 1, S1, BoCC – Red	2
Marsh harrier	<i>Circus aeruginosus</i>	Annex 1, S1, BoCC – Amber	971
Hen harrier	<i>Circus cyaneus</i>	Annex 1, NERC S.41, S1, BoCC – Red	597
Montagu's harrier	<i>Curcus pygargus</i>	Annex 1, S1, BoCC – Amber	36
Goshawk	<i>Accipiter gentilis</i>	S1	1
Sparrowhawk	<i>Accipiter nisus</i>		144
Common buzzard	<i>Buteo buteo</i>		501
Rough-legged buzzard	<i>Buteo lagopus</i>		187
Osprey	<i>Pandion haliaetus</i>	S1, BoCC – Amber	10
Kestrel	<i>Falco tinnunculus</i>	BoCC – Amber	467
Red-footed falcon	<i>Falco vespertinus</i>		3
Merlin	<i>Falco columbarius</i>	Annex 1, S1, BoCC – Red	306
Hobby	<i>Falco subbuteo</i>	S1	48
Peregrine	<i>Falco peregrinus</i>	Annex 1, S1	248
Red-legged partridge	<i>Alectoris rufa</i>		406
Grey partridge	<i>Perdix perdix</i>	UKBAP, NERC S.41, BoCC – Red	52

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Quail	<i>Coturnix coturnix</i>	S1, BoCC – Amber	7
Pheasant	<i>Phasianus colchicus</i>		273
Golden pheasant	<i>Chrysolophus pictus</i>		1
Water rail	<i>Rallus aquaticus</i>		22
Corncrake	<i>Crex crex</i>	UKBAP, NERC S.41, S1, BoCC – Red	1
Moorhen	<i>Gallinula chloropus</i>		140
Coot	<i>Fulica atra</i>		337
Crane	<i>Grus grus</i>	Annex 1, BoCC – Amber	61
Oystercatcher	<i>Haematopus ostralegus</i>	BoCC – Amber	137
Black-winged stilt	<i>Himantopus himantopus</i>	Annex 1, S1	1
Avocet	<i>Recurvirostra avosetta</i>	Annex 1, S1, BoCC – Amber	71
Stone curlew	<i>Burhinus oedicecemus</i>	UKBAP, Annex 1, NERC S.41, S1, BoCC – Amber	1
Little ringed plover	<i>Charadrius dubius</i>	S1	13
Ringed plover	<i>Charadrius hiaticula</i>	BoCC – Red	45
Dotterel	<i>Charadrius morinellus</i>	Annex 1, S1	1
Golden plover	<i>Pluvialis apricaria</i>	Annex 1	247
Grey plover	<i>Pluvialis squatarola</i>	BoCC – Amber	52
Lapwing	<i>Vanellus vanellus</i>	UKBAP, NERC S.41, BoCC –Red	483
Knot	<i>Calidris canutus</i>	BoCC – Amber	24
Sanderling	<i>Calidris alba</i>	BoCC – Amber	32
Little stint	<i>Calidris minuta</i>		7
Temminck's stint	<i>Calidris temminckii</i>	S1	2
Pectoral sandpiper	<i>Calidris melanotos</i>		4
Curlew sandpiper	<i>Calidris ferruginea</i>	BoCC – Amber	1
Purple sandpiper	<i>Calidris maritima</i>	S1, BoCC - Amber	5
Dunlin	<i>Calidris alpina</i>	Annex 1, BoCC - Amber	59
Ruff	<i>Philomachus pugnax</i>	Annex 1, S1	114
Jack snipe	<i>Lymnocyrtus minimus</i>		6
Snipe	<i>Gallinago gallinago</i>	BoCC – Amber	61
Woodcock	<i>Scolopax rusticola</i>	BoCC – Red	3
Black-tailed godwit	<i>Limosa limosa</i>	UKBAP, NERC S.41, S1, BoCC – Red	45
Bar-tailed godwit	<i>Limosa lapponica</i>	Annex 1, BoCC – Amber	23
Whimbrel	<i>Numenius phaeopus</i>	S1, BoCC – Red	11

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Curlew	<i>Numenius arquata</i>	UKBAP, NERC S.41, BoCC – Red	187
Spotted redshank	<i>Tringa erythropus</i>	BoCC – Amber	16
Redshank	<i>Tringa tetanus</i>	BoCC – Amber	118
Greenshank	<i>Tringa nebularia</i>	S1, BoCC - Amber	25
Green sandpiper	<i>Tringa ochropus</i>	S1, BoCC – Amber	212
Wood sandpiper	<i>Tringa glareola</i>	Annex 1, S1, BoCC - Amber	36
Common sandpiper	<i>Actitis hypoleucos</i>	BoCC – Amber	5
Turnstone	<i>Arenaria interpres</i>	BoCC – Amber	44
Pomarine skua	<i>Stercorarius pomarinus</i>		1
Arctic skua	<i>Stercorarius parasiticus</i>	UKBAP, BoCC - Red	1
Long-tailed skua	<i>Stercorarius longicaudus</i>		1
Great skua	<i>Stercorarius skua</i>	BoCC – Amber	2
Mediterranean gull	<i>Ichthyaeus melanocephalus</i>	Annex 1, S1, BoCC – Amber	46
Little gull	<i>Hydrocoloeus minutus</i>	Annex 1, S1	2
Black-headed gull	<i>Chroicephalus ridibundus</i>	BoCC – Amber	274
Common gull	<i>Larus canus</i>	BoCC – Amber	135
Lesser black-backed gull	<i>Larus fuscus graelsii</i>	BoCC – Amber	155
Herring gull	<i>Larus argentatus argenteus</i>	UKBAP, NERC S.41, BoCC - Red	171
Yellow-legged gull	<i>Larus michahellis</i>	BoCC – Amber	1
Iceland gull	<i>Larus glaucoides</i>	BoCC – Amber	1
Glaucous gull	<i>Larus hyperboreus</i>	BoCC – Amber	1
Great black-backed gull	<i>Larus marinus</i>	BoCC – Amber	106
Kittiwake	<i>Rissa tridactyla</i>	BoCC – Red	2
Common tern	<i>Sterna hirundo</i>	Annex 1, BoCC – Amber	6
Little tern	<i>Sterna albifrons</i>	Annex 1, S1, BoCC – Amber	1
Black tern	<i>Chlidonias niger</i>	Annex 1, S1	2
White-winged black tern	<i>Chlidonias leucopterus</i>		1
Little auk	<i>Alle alle</i>		2
Puffin	<i>Fratercula arctica</i>	BoCC – Red	1
Feral pigeon	<i>Columba livia</i>		23
Stock dove	<i>Columba oenas</i>	BoCC – Amber	248
Woodpigeon	<i>Columba palumbas</i>		278
Collared dove	<i>Streptopelia decaocto</i>		59
Turtle dove	<i>Sterptopelia turtur</i>	UKBAP, NERC S.41, BoCC – Red	20

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Ring-necked parakeet	<i>Psitacula krameri</i>		3
Cuckoo	<i>Cuculus cuculus</i>	UKBAP, NERC S.41, BoCC - Red	33
Barn owl	<i>Tyto alba</i>	S1	207
Little owl	<i>Athena noctua</i>		1
Tawny owl	<i>Strix aluco</i>	BoCC – Amber	63
Long-eared owl	<i>Asio otus</i>		8
Short-eared owl	<i>Asio flammeus</i>	Annex 1, BoCC - Amber	272
Swift	<i>Apus apus</i>	BoCC – Amber	19
Kingfisher	<i>Alcedo atthis</i>	Annex 1, S1, BoCC – Amber	22
Hoopoe	<i>Upupa epops</i>	S1	1
Green woodpecker	<i>Picus viridis</i>		80
Great spotted woodpecker	<i>Dendrocopus major</i>		33
Lesser spotted woodpecker	<i>Dendrocopus minor</i>	UKBAP, NERC S.41, BoCC – Red	2
Skylark	<i>Alauda arvensis</i>	UKBAP, NERC S.41, BoCC – Red	232
Shore lark	<i>Eremophila alpestris</i>	S1, BoCC – Amber	3
Sand martin	<i>Riparia riparia</i>		6
Swallow	<i>Hirundo rustica</i>		105
House martin	<i>Delichon urbica</i>	BoCC – Amber	18
Richard's pipit	<i>Anthus novaeseelandiae</i>		1
Tree pipit	<i>Anthus trivialis</i>	UKBAP, NERC S.41, BoCC – Red	1
Meadow pipit	<i>Anthus pratensis</i>	BoCC – Amber	206
Rock pipit	<i>Anthrhus petrosus</i>		9
Water pipit	<i>Anthus spinoletta</i>	BoCC – Amber	2
Yellow wagtail	<i>Motacilla flava flava/flavissima/thunbergi</i>	UKBAP, NERC S.41, BoCC – Red	91
Grey wagtail	<i>Motacilla cinerea</i>	BoCC – Red	11
Pied wagtail	<i>Motacilla alba yarelli</i>		177
White wagtail	<i>Motacilla alba alba</i>		1
Waxwing	<i>Bomycilla garrulus</i>		5
Wren	<i>Troglodytes troglodytes</i>		76
Dunnock	<i>Prunella modularis</i>	UKBAP, NERC S.41, BoCC – Amber	50
Robin	<i>Erithacus rubecula</i>		117
Nightingale	<i>Luscinia megarhynchos</i>	BoCC - Red	1
Bluethroat	<i>Luscinia svecica</i>	Annex 1, S1	1

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Black redstart	<i>Phoenicurus ochruros</i>	S1, BoCC – Red	4
Redstart	<i>Phoenicurus phoenicurus</i>	BoCC – Amber	6
Whinchat	<i>Saxicola rubetra</i>	BoCC – Red	83
Stonechat	<i>Saxicola torquata</i>		235
Wheatear	<i>Oenanthe oenanthe</i>		55
Ring ouzel	<i>Turdus torquatus</i>	UKBAP, NERC S.41, BoCC – Red	2
Blackbird	<i>Turdus merula</i>		163
Fieldfare	<i>Turdus pilaris</i>	S1, BoCC – Red	156
Song thrush	<i>Turdos philomelos</i>	UKBAP, NERC S.41, BoCC – Red	31
Redwing	<i>Turdus iliacus</i>	S1, BoCC – Red	55
Mistle thrush	<i>Turdus viscivorus</i>	BoCC – Red	35
Cetti's warbler	<i>Cettia cetti</i>	S1	54
Grasshopper warbler	<i>Locustella naevia</i>	UKBAP, NERC S.41, BoCC – Red	1
Sedge warbler	<i>Acrocephalus schoenobaenus</i>		20
Reed warbler	<i>Acrocephalus scirpaceus</i>		33
Lesser whitethroat	<i>Curruca curruca</i>		5
Whitethroat	<i>Curruca communis</i>		18
Blackcap	<i>Sylvia atricapilla</i>		4
Yellow-browed warbler	<i>Phylloscopus inornatus</i>		1
Chiffchaff	<i>Phylloscopus collybita</i>		25
Willow warbler	<i>Phylloscopus trochilus</i>	BoCC – Amber	9
Goldcrest	<i>Regulus regulus</i>		17
Firecrest	<i>Regulus ignicapillus</i>	S1	3
Spotted flycatcher	<i>Muscicapa striata</i>	UKBAP, NERC S.41, BoCC – Red	5
Pied flycatcher	<i>Ficedula hypoleuca</i>	BoCC – Red	7
Bearded tit	<i>Panurus biarmicus</i>	S1	64
Long-tailed tit	<i>Aegithalus caudatus</i>		30
Coal tit	<i>Periparus ater</i>		2
Blue tit	<i>Cyanistes caeruleus</i>		57
Great tit	<i>Parus major</i>		43
Golden oriole	<i>Oriolus oriolus</i>	S1, BoCC - Red	2
Red-backed shrike	<i>Lanius collurio</i>	Annex 1, S1, BoCC – Red	1
Lesser grey shrike	<i>Lanius minor</i>	Annex 1	13
Great grey shrike	<i>Lanius excubitor</i>		2

Kent Ornithological Society Bird Records within 2km of the Site			
Common Name	Scientific Name	Conservation Status	N0. of Records
Jay	<i>Garrulus glandarius</i>		8
Magpie	<i>Pica pica</i>		160
Jackdaw	<i>Corvus monedula</i>		115
Rook	<i>Corvus frugilegus</i>		113
Carrion crow	<i>Corvus corone</i>		306
Hooded crow	<i>Corvus cornix</i>		28
Raven	<i>Corvus corax</i>		8
Starling	<i>Sturnus vulgaris</i>	UKBAP, NERC S.41, BoCC – Red	318
House sparrow	<i>Passer domesticus</i>	UKBAP, NERC S.41, BoCC – Red	67
Tree sparrow	<i>Passer montanus</i>	UKBAP, NERC S.41, BoCC – Red	5
Chaffinch	<i>Fringilla coelebs</i>		215
Brambling	<i>Fringilla montifringilla</i>	S1	14
Greenfinch	<i>Chloris chloris</i>		67
Goldfinch	<i>Carduelis carduelis</i>		180
Siskin	<i>Spinus spinus</i>		7
Linnet	<i>Linaria cannabina</i>	UKBAP, NERC S.41, BoCC – Red	232
Twite	<i>Linaria flavirostris</i>	UKBAP, NERC S.41, BoCC – Red	4
Lesser redpoll	<i>Acanthis cabaret</i>	UKBAP, NERC S.41, BoCC – Red	2
Bullfinch	<i>Pyrrhula pyrrhula</i>	UKBAP, NERC S.41, BoCC – Amber	3
Lapland bunting	<i>Calcarius lapponicus</i>	S1, BoCC – Amber	49
Snow bunting	<i>Plectrophenax nivalis</i>	S1, BoCC – Amber	9
Yellowhammer	<i>Emberica citronella</i>	UKBAP, NERC S.41, BoCC – Red	5
Reed bunting	<i>Emberiza schoeniclus</i>	UKBAP, NERC S.41, BoCC – Amber	189
Corn bunting	<i>Emberiza calandra</i>	UKBAP, NERC S.41, BoCC - Red	489

Key:

Annex 1: Birds Directive Annex 1

S1: Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)

NERC S41: Section 41 of the Natural Environment and Rural Communities Act (2006)

UKBAP: United Kingdom Biodiversity Action Plan species

BoCC -Red: Birds of Conservation Concern 4 – Red listed species

BoCC -Amber: Birds of Conservation Concern 4 – Amber listed species

INNS: Invasive Non-native Species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)

APPENDIX 4
Reasonable Avoidance Measures (RAMs)

Reptile and Amphibian Reasonable Avoidance Measures (RAMs)

Method Statement Objectives

1. Any development related activities on the Site, such as vegetation clearance or excavations in areas of suitable habitat (hedgerows, field margins, ditches, watercourses) for reptiles and amphibians may potentially affect these species. As a result, safeguards must be implemented to protect these species and the Method Statement below details measures to be implemented to ensure these objectives are achieved. If these measures are followed then no impacts are likely to occur.

Method Statement

2. This Method Statement should be followed for the installation of the solar panels and associated minor works within the Site, which may affect the surrounding terrestrial habitat. Minor or short term destructive or disturbance works (e.g. grid connection, cable laying, ground mountings, construction of substations) will also follow this Method Statement to ensure legal compliance and to ensure the objectives are achieved.
3. The following measures will be adopted throughout the construction period of the proposed development:
 - Site operatives will be informed by 'tool box' talk of the potential for reptile and amphibian species to occur on-site, what to look out for and what to do in the event that animal is found.
 - Works to be carried out within field margins and hedgerows habitats on site should only commence after a careful visual inspection has determined that no animals are present. Vegetation should be reduced (by hand strimmer or similar hand tools) to a height of c.150mm prior to ground works commencing to aid visual searches and encourage individuals to temporarily move away from the working areas.
 - Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than 45 degrees in angle. Ideally, any holes should be covered.
 - All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling.
 - Any excavated material stored overnight should be searched prior to being used as infill.

If a reptile or amphibian is found, work must stop immediately and until the animal has moved away from the works area, if this is not possible contact should be made with a suitably experienced ecologist.

APPENDIX 5

Report to Inform a Habitat Regulations Assessment (HRA)

New Rides – Proposed Solar Farm
on behalf of Energiekontor UK Ltd.

Appendix 5: Report to Inform a Habitats Regulations Assessment



Document Control				
Project Name:		New Rides - Proposed Solar Farm		
Project Number:		Energ-427-1401		
Report Title:		Appendix 5: Report to Inform a Habitats Regulations Assessment		
Issue	Date	Notes	Prepared	Reviewed
V1	18/02/2021	Draft	Z Hinchcliffe <i>MRes BSc (Hons.)</i>	N. Robinson <i>MSc BSc (Hons.) ACIEEM</i>
V2	17/05/2021	Revision 1	Z Hinchcliffe <i>MRes BSc (Hons.)</i>	H. Fearn <i>MSc MCIEEM</i>

This Report has been prepared in accordance with the terms and conditions of appointment [on request]. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this Report by any third party.

CONTENTS

1	INTRODUCTION	1
2	INFORMATION TO INFORM THE ASSESSMENT.....	1
2.2	European Sites	2
2.3	Project Information.....	1
2.4	Site Information	1
2.5	Information on European Site Qualifying Features	3
3	POTENTIAL EFFECTS FOR EUROPEAN SITES	6
3.2	Habitat Loss or Change	6
3.3	Disturbance or Displacement of Faunal Species.....	7
3.4	Other Considerations	8
3.5	Conclusions.....	8

1 INTRODUCTION

- 1.1.1 This Report has been prepared by Avian Ecology Ltd. on behalf of Energiekontor UK Ltd., to provide Swale Borough Council (SBC), as the Competent Authority, with the information they will likely require to undertake a Habitats Regulations Assessment (HRA) of the New Rides Proposed Solar Farm (hereafter the proposed development), with regards to its potential to have likely significant effects upon European sites, in accordance with “Article 63” of “The Conservation of Habitats and Species Regulations 2017 (as amended)”¹ (hereafter the Habitats Regulations).
- 1.1.2 Where accepted it may also be adopted by SBC, as a record of the undertaking of their HRA, subject to the advice of Natural England as the relevant statutory nature conservation body.

2 INFORMATION TO INFORM THE ASSESSMENT

- 1.1.3 The following information has been used to inform the preparation of this Report:

- *New Rides Solar Farm (Energiekontor UK Ltd.) - Landscape Management Plan (Revision 1);*
- *New Rides – Proposed Solar Farm: Ecological Assessment Report (Avian Ecology Ltd., 2021²);*
- *Relevant information contained within EIA documentation for the consented New Rides Wind Farm [Planning Ref: SW/13/1571; Appeal Ref: APP/V2255/W/15/3014371], as referred to within the *Ecological Assessment Report*;*
- *European Site Conservation Objectives for The Swale Special Protection Area (SPA) Site Code: UK9012011³;*
- *The Swale SPA Citation (1993)³;*
- *The Swale Ramsar site - Ramsar Information Sheet (RIS) (2005)⁴;*
- *European Site Conservation Objectives for Outer Thames Estuary Special Protection Area (SPA) Site Code: UK9020309⁵;*
- *Outer Thames Estuary SPA Citation (2013)⁵;*

¹ *The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place following from the United Kingdom’s (UK’s) withdrawal from the European union (EU) with only relatively minor changes coming into force on 31 December 2020, with the 2017 regulations being transposed into national (England and Wales) legislation via the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 from 31st December 2020. The European Commission’s (EC’s) role in the Habitats Regulations Assessment (HRA) derogation test process is now replaced by the Secretary of State for the Environment, Food and Rural Affairs (DEFRA); and there will be changes to the procedures for designation / classification to both Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The HRA regime set out in the Conservation of Habitats and Species Regulations 2017 (as amended) will therefore continue to apply in largely the same way as prior to the UK’s departure from the EU.*

² Avian Ecology Ltd. (2021) *New Rides – Proposed Solar Farm: Ecological Assessment Report*. A Report prepared on behalf of Energiekontour UK Ltd. (dated 16/02/2021).

³ <http://publications.naturalengland.org.uk/publication/5745862701481984>

⁴ Information Sheet on Ramsar Wetlands (RIS). The Swale. Available at: <https://jncc.gov.uk/jncc-assets/RIS/UK11040.pdf> [Accessed 16/02/2021]

⁵ <http://publications.naturalengland.org.uk/publication/4927106139029504>

- European Site Conservation Objectives for Medway Estuary and Marshes Special Protection Area (SPA) Site Code: UK9012031⁶;
- Medway Estuary and Marshes SPA Citation (1993)⁶;
- Medway Estuary and Marshes Ramsar site – RIS (1993)⁷;
- Appropriate Assessment: Guidance on the Use of Habitats Regulations Assessment (MHCLG (2019)⁸); and,

2.2 European Sites

- 2.2.1 A plan of the location of the proposed development Site (illustrated by the red-line planning application boundary) in relation to European sites is provided in **Figure A5.1**.
- 2.2.2 The proposed development Site is not located within any European site.
- 2.2.3 The Swale Special Protection Area (SPA) and Ramsar site⁹ are however located, approximately 990m to the south east of the Site, at their nearest points.
- 2.2.4 The Outer Thames Estuary SPA is also located within 5km of the Site and the Medway Estuary and Marshes SPA and Ramsar site are located within 10km of the Site.

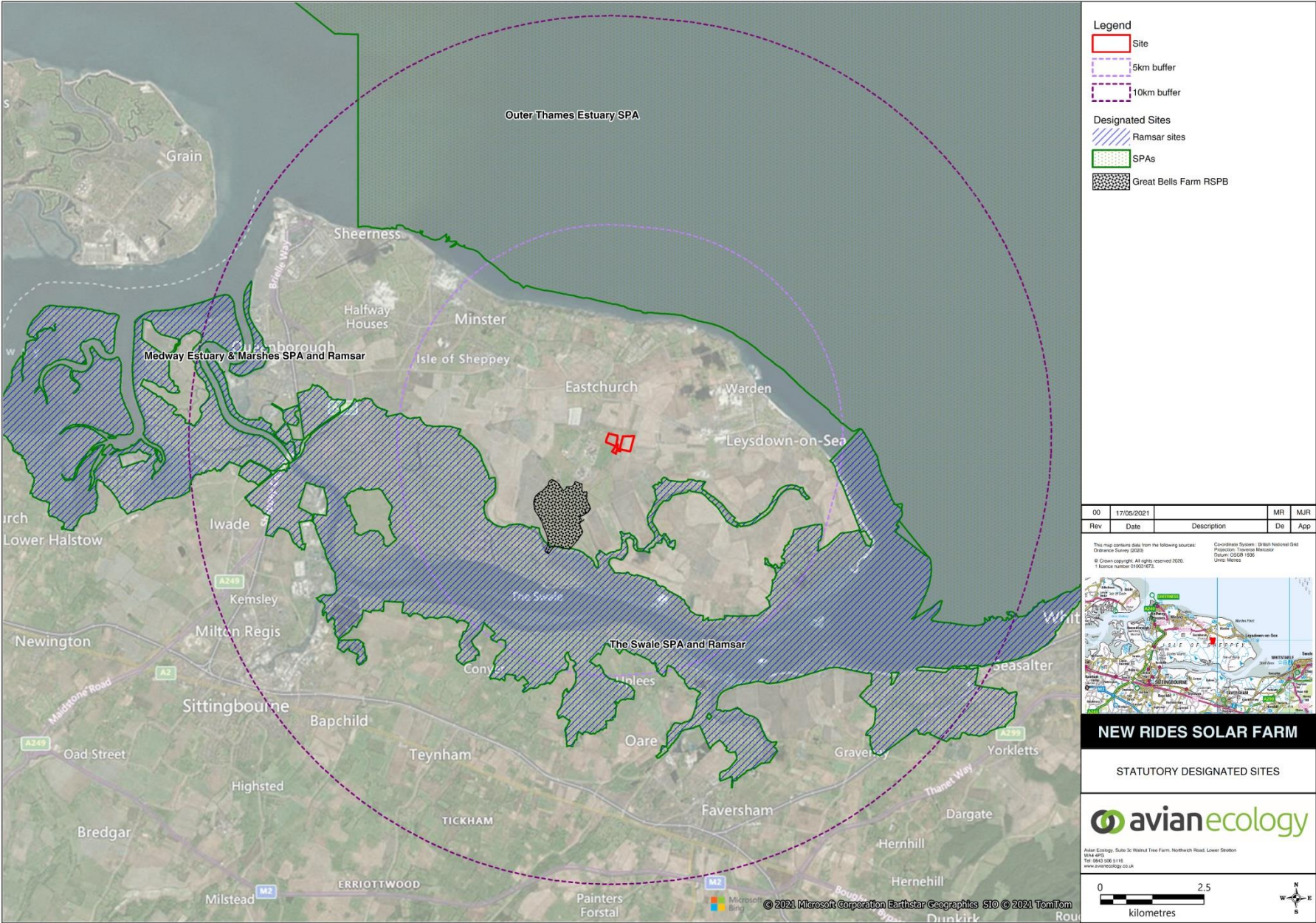
⁶ <http://publications.naturalengland.org.uk/publication/6672791487119360>

⁷ <https://jncc.gov.uk/jncc-assets/RIS/UK11040.pdf>

⁸ Available here: <https://www.gov.uk/guidance/appropriate-assessment> [Accessed 11/02/2021]

⁹ In accordance with the National Planning Policy Framework (NPPF) (Paragraph 176), Ramsar sites should be given the same protection as European sites.

Figure A5.1 – Statutory Designated Sites



Great Bells Farm

- 2.2.5 Great Bells Farm located 1.12km to the south west of the Site, comprises approximately 194ha of former arable land, intertidal saltmarsh and mudflats, and was purchased by the Environment Agency, as part of The Regional Habitat Creation Programme.
- 2.2.6 The Great Bells Farm site lies adjacent to the RSPB Elmley Marshes Reserve and is now managed by the RSPB, for the benefit of waterfowl species and to provide approximately 20ha of intertidal habitat within the Thames Estuary as compensation for the loss of Natura 2000 sites caused by the implementation of the Medway Estuary and Swale Shoreline Management Plan.
- 2.2.7 As the site is provided and managed as compensation for habitats lost within the Outer Thames Estuary SPA, in accordance with NPPF (Paragraph 176) the site is afforded the same protection as the land for which it compensates.

European Site Qualifying Features

- 2.2.8 **Table A5.1** identifies the qualifying features of The Swale SPA and Ramsar site.
- 2.2.9 This Report considers only the potential for likely significant effects upon the qualifying features of the Swale SPA and Ramsar site; although given the degree of overlap between the designations qualifying features, those of the Ramsar site are not considered exclusively.
- 2.2.10 By virtue of spatial separation and the nature of the proposed development, the potential for significant effects upon qualifying features of the Outer Thames Estuary SPA, the Medway Estuary and Marshes SPA and Ramsar sites are concluded as unlikely¹⁰ and are not further discussed within this Report.
- 2.2.11 The potential for likely significant effects upon waterfowl interests of Great Bells Farm are however, considered.

Table A5.1 below identifies The Swale SPA and Ramsar site and outlines its qualifying features.

Table A5.1: Qualifying features - The Swale SPA and Ramsar site.

Site name and designation	Distance and direction	Details
The Swale SPA	990m South East of the Site	SPA qualifying features¹¹: • Dark-bellied brent goose <i>Branta bernicla bernicla</i> (Non-breeding); • Dunlin <i>Calidris alpina alpina</i> (Non-breeding); • Breeding birds assemblage; and, • Waterbird assemblage.
The Swale Ramsar Site	990m South East of the Site	Ramsar qualifying features Criterion 6 • Ringed plover <i>Charadrius hiaticula</i> (Spring/Autumn Passage) • Black-tailed godwit <i>Limosa limosa islandica</i> (Wintering); • Wigeon <i>Mareca penelope</i> (Wintering);

¹⁰ This follows the approach taken by Swale Borough Council in their HRA of the consented New Rides Wind Farm: Record of appropriate assessment undertaken by Swale Borough Council under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (Planning Ref. SW/13/1571).

¹¹ The Swale SPA Conservation Objectives (2019). Available at: <http://publications.naturalengland.org.uk/publication/5745862701481984>

Site name and designation	Distance and direction	Details
		• Pintail <i>Anas acuta</i> (Wintering); and, • Shoveler <i>Spatula clypeata</i> (Wintering).

European Site Conservation Objectives

2.2.12 The most recently published Conservation Objectives for The Swale SPA (dated 21st February 2019) state as follows:

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (“the Qualifying Features” listed below), and subject to national change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- *The extent and distribution of the habitats of the qualifying species;*
- *The structure and function of the habitats of the qualifying features;*
- *The supporting processes on which the habitats of the qualifying features rely;*
- *The population of each of the qualifying features; and,*
- *The distribution of the qualifying features within the site.*

2.3 Project Information

2.3.1 The proposals include the construction, at least 35 year operation and subsequent decommissioning of a solar farm, with a capacity of up to 10MWp.

2.3.2 On the basis of this information:

- The proposed development is a ‘project’ within the meaning of the Habitats Regulations; and,
- The ‘project’ is not directly connected with or necessary to the management of any European site.

2.3.3 As such the proposed development is not excluded from a Habitats Regulations Assessment (HRA) under the Habitats Regulations.

2.4 Site Information

2.4.1 The Site, as shown in **Figure 2** comprises an area of agricultural land of approximately 16.6ha, located at New Rides Farm, south of Eastchurch, on the Isle of Sheppey, Kent.

2.4.2 The Site occupies several land parcels, primarily separated by boundary hedgerows within New Rides Farm.

2.4.3 In the wider context the Site is surrounded by further extensive areas of arable and pastoral farmland and scattered pockets of deciduous woodland. To the south of the Site is the Swale Estuary with surrounding coastal grazing and floodplain.

New Rides Wind Farm

2.4.4 The New Rides Wind Farm (Planning Ref: SW/13/1571; Appeal Ref: APP/V2255/W/15/3014371) comprises a four wind turbine scheme together with associated infrastructure. The scheme was constructed in 2018 and has been operational since December 2018.

2.4.5 Of relevance, Condition 14 and 15 of the appeal decision notice for the New Rides Wind Farm specify:

14. No development shall commence until a scheme for post construction bird monitoring (of bird strike bird disturbance and bird numbers during summer and winter), to verify the predicted environmental effects of the construction and operation of the turbines on land at Great Bells Farm has been submitted to and approved in writing by the Local Planning Authority. The scheme shall include provisions for management actions should there be a demonstrable detrimental effect on the bird populations at the Great Bells Farm site from the operation of development hereby approved. The scheme shall also include a timetable for the implementation of any monitoring or management requirements. The scheme shall be implemented as approved.

15. No development shall commence until a Habitat Management Plan ("HMP") has been submitted to and approved in writing by the Local Planning Authority. The HMP shall include details of habitat enhancement for the 24 hectare area of land referred to as field 14 on Figure 8.3 of the Environmental Statement addendum. The HMP will also include biodiversity enhancement measures defined in Table 7.22 and illustrated on Figure 7.6 of the Environmental Statement and Table 8.51 of the Environmental Statement Addendum. The scheme shall be implemented as approved.

2.4.6 In accordance with Condition 14 of the appeal decision notice an Ornithological Monitoring Strategy (OMS) was prepared by Avian Ecology Ltd. and submitted to Swale Borough Council, Natural England and the Royal Society for the Protection of Birds (RSPB) in 2018. The scheme was approved and implemented in January 2019, following commissioning of the scheme.

2.4.7 Full details of the OMS are contained within the 'New Rides Wind Farm: Ornithological Monitoring Strategy v1 (Planning Conditions 14 and 16)' (Avian Ecology, 2017a¹²), with monitoring required in Years 1, 2, 3, 5, 10 and 15 of operation.

2.4.8 In accordance with Condition 15 of the of the appeal decision notice a Habitat Management Plan (HMP) was similarly prepared by Avian Ecology Ltd. and submitted to Swale Borough Council, Natural England and the RSPB in 2018.

2.4.9 Full details of the HMP are contained within the 'New Rides Wind Farm: Habitat Management Plan (Planning Condition 15)' (Avian Ecology, 2017b¹³) and of relevance, the New Rides Wind Farm HMP includes for the following:

- Cropping Regime Manipulation: a sensitive cropping regime within the 300m of operational turbine locations within the New Rides Wind Farm site, and within which the planting of oil seed rape is restricted to reduce the attractiveness of habitats to foraging migratory waterbirds and raptors (notably geese, swans and marsh harriers *Circus aeruginosus*);

¹² Avian Ecology Ltd. (2017a) *New Rides Wind Farm – Ornithological Monitoring Strategy: Planning Conditions 14 & 16*. A report prepared on behalf of Energiekontor UK Ltd.

¹³ Avian Ecology Ltd. (2017b) *New Rides Wind Farm – Habitat Management Plan: Planning Condition 15*. A report prepared on behalf of Energiekontor UK Ltd.

- Grazing Marsh Enhancement: the creation and maintenance of wet grazing marsh for breeding and wintering waterbirds associated with The Swale Special Protection Area (SPA) through hydrological and grassland management of a previously intensified grazing pasture to the south of the operational New Rides Wind Farm, referred to as 'Field 14'.

2.4.10 Biodiversity enhancements prescribed under the New Rides Wind Farm HMP were implemented in 2018 and 2019. Monitoring of the efficacy of the HMP commenced in 2020, following the completion of implementation works, with monitoring to be undertaken annually until at least 2025.

2.5 Information on European Site Qualifying Features

- 2.5.1 This Section summarises the known and/or potential presence of qualifying features of The Swale SPA within proximity to the proposed development, as derived from sources listed in **Section 2**.
- 2.5.2 For the purposes of clarity, species accounts are also provided separately for breeding and non-breeding (wintering) birds.
- 2.5.3 No records of qualifying feature species were returned from Kent Ornithological Society (KOS) from within the Site or within New Rides Farm site. As such, records returned by KOS are not considered further within this Report.

Breeding Birds

The Swale SPA citation (1993) lists a number of species which comprise a typical assemblage of breeding species associated with the designations grazing marsh habitats and which includes: shelduck *Tadorna tadorna*, mallard *Anas platyrhynchos*, moorhen *Gallinulus chloropus*, coot *Fulica atra*, lapwing *Vanellus vanellus*, redshank *Tringa totanus*, reed warbler *Acrocephalus scirpaceus* and reed bunting *Emberiza schoeniclus*.

In review of recent advice provided by Natural England with regards to the Wheelabrator Kemsley Generating Station (K3) Waste to Energy Facility Kemsley Paper Mill and presented within the projects Habitats Regulations Assessment (HRA) Report¹⁴, the Breeding Bird Assemblage qualifying feature of The Swale SPA should also be expanded to include: breeding ducks, waders, yellow wagtail *Motacilla flava* and marsh harrier.

- 2.5.4 In a review of existing records detailed within the 'New Rides – Proposed Solar Farm: Ecological Assessment Report' (Avian Ecology Ltd., 2021), the proposed development Site is not known to support species forming part of The Swale SPA Breeding Bird Assemblage qualifying feature.
- 2.5.5 During Year 1 monitoring as part of the New Rides Wind Farm OMS, breeding bird surveys undertaken in 2019 recorded low levels of breeding activity within the Site, largely restricted to a narrow range of farmland species.
- 2.5.6 'Field 14' located approximately 500m to the south of the Site, and which is currently managed for the benefit of qualifying features of The Swale SPA, was found during Year 1 monitoring (in 2019) to support a small number of breeding waterfowl territories including shelduck, shoveler, mallard, coot and lapwing which may be considered under The Swale SPA Breeding Bird Assemblage.

Non-breeding (Wintering) Birds

Qualifying non-breeding features of The Swale SPA comprise dark-bellied brent goose, and dunlin.

¹⁴ Available here: https://consult.environment-agency.gov.uk/psc/me10-2td-k3-chp-operations-limited/supporting_documents/Appendix%20G%20Ecology%20Assessment.pdf [accessed 18/02/2021].

The Swale SPA citation (1993) also details that The Swale also qualified by virtue of supporting a diverse assemblage of wintering migratory waterfowl, but does not specifically list them. As such, in review of recent advice provided by Natural England with regards to the Wheelabrator Kemsley Generating Station (K3) Waste to Energy Facility Kemsley Paper Mill and presented within the projects HRA report, important components of the Waterbird Assemblage qualifying feature of The Swale SPA should include: dark-bellied brent goose, shelduck, teal *Anas crecca*, shoveler, wigeon, pintail, little egret *Egretta garzetta*, oystercatcher *Haematopus ostralegus*, avocet *Recurvirostra avosetta*, lapwing, golden plover *Pluvialis apricaria*, grey plover, ruff *Philomachus pugnax*, sanderling *Calidris alba*, knot *Calidris canutus*, dunlin, green sandpiper *Tringa ochropus*, greenshank *Tringa nebularia*, black-tailed godwit, bar-tailed godwit *Limosa lapponica* and curlew *Numenius arquata*.

- 2.5.7 Baseline ornithological surveys to inform the design and assessment of the New Rides Wind Farm, undertaken between 2012 and 2013, do not historically identify the proposed development Site to be of importance to non-breeding qualifying features of The Swale SPA. With areas of higher interest primarily identified within fields in the southern extent of the New Rides Wind Farm site, including 'Field 14' and surrounding wetland habitats within The Swale SPA and Great Bells Farm.
- 2.5.8 During Year 1 and Year 2 monitoring as part of the New Rides Wind Farm OMS, winter walkover surveys recorded a very narrow range of bird species within the proposed development Site and which did not include qualifying features of The Swale SPA.
- 2.5.9 Areas beyond the proposed development Site boundary, within 'Field 14' and wetland habitats in wider surrounding area were found to support a more diverse range and higher numbers of non-breeding waterfowl including several species which may be considered under The Swale SPA waterbird assemblage including: shelduck, teal and curlew.

Site Habitat Suitability

- 2.5.10 The proposed development Site is set in a sloped farmland landscape with southern aspect, with a mix of arable and sheep-grazed pastoral farmland. Field boundaries are predominantly hedgerow, often with mature standards and several dry, partially wet and wet ditches within or adjacent to boundary hedgerows.
- 2.5.11 The four operational wind turbines forming the New Rides Wind Farm development, are present immediately adjacent to the Site, with habitats in proximity to the operational wind turbines (within 300m) sympathetically managed to reduce their attractiveness to foraging waterfowl and breeding marsh harrier under the New Rides Wind Farm HMP.
- 2.5.12 Habitat suitability for breeding and non-breeding qualifying features of The Swale SPA are therefore inherently minimised due to topography and the sensitive management of habitats within proximity to the operational New Rides Wind Farm turbines, to reduce their attractiveness to such species.
- 2.5.13 Boundary habitats within the Site, comprising mature hedgerows together with field size also reduce the Site's attraction to certain species of migratory waterfowl, including geese and swans, whose habitat preference is for larger fields with open vistas.

Summary of Qualifying Feature Use of the Site and Surrounding Land

- 2.5.14 The value of the proposed development Site for bird species which represent qualifying features of The Swale SPA is considered to be negligible, as has been established through information presented within the 'New Rides – Proposed Solar Farm: Ecological Assessment Report' (Avian Ecology Ltd., 2021).

- 2.5.15 Such information, including operational monitoring results collected as part of the New Rides Wind Farm OMS between January 2019 and March 2020, do not identify the use of the Site by breeding or non-breeding qualifying features of The Swale SPA.
- 2.5.16 Small numbers of qualifying feature species (dark-bellied brent goose as well as species included within the waterbird assemblage e.g. shelduck, mallard, moorhen, coot, oystercatcher and lapwing (breeding) and additional little egret, golden plover and curlew (non-breeding) were recorded within surrounding areas, including the wider New Rides Wind Farm site and wetland habitats to the south. Such species may however, use or overfly the Site in small numbers on occasion however, there is no evidence of regular usage in significant numbers and habitats within the Site are largely unsuitable.
- 2.5.17 Overall the Site presents limited to negligible opportunities for non-breeding waterfowl and current evidence demonstrates the area is not an important foraging, breeding or roosting resource for qualifying features of The Swale SPA.
- 2.5.18 The Site is not considered to be functionally linked to any European site for ornithological qualifying interests.

3 POTENTIAL EFFECTS FOR EUROPEAN SITES

3.1.1 The potential effects of the proposed solar farm development may potentially affect qualifying interests of European sites via;

- Habitat loss or change; and,
- Disturbance or displacement of qualifying bird features.

3.1.2 These potential effects can occur either through construction-related activity or due to the operation of the proposed development.

3.2 Habitat Loss or Change

3.2.1 The proposed development is not located directly within any European site. There will be no direct effect on habitats within any UK or European site and subsequently direct habitat loss is screened out.

3.2.2 The qualifying interests, for which The Swale SPA is designated may however, also rely on habitats outside of European Site boundaries. Critically, such habitats (also known as 'functionally linked' land) can play an essential role in maintaining SPA bird populations, and proposals affecting these habitats and/or the birds /populations using them may therefore have the potential to affect the integrity of the European Site.

3.2.3 The value of the Site for bird species which represent a qualifying feature of the above mentioned European sites is considered to be negligible, as has been demonstrated through a combination of desk based review of record searches and previously carried out field surveys onsite and within the immediate surrounding habitats.

3.2.4 Whilst some very low level usage of the project Site and/or surrounding land by qualifying features cannot be entirely precluded; the Site is not considered to be functionally linked and the loss of its use for by qualifying ornithological features is considered to be inconsequential in the context of the Conservation Objectives of the The Swale SPA.

3.2.5 It is also possible that there may be indirect habitat losses (and/or degradation) from surrounding lands as a consequence of unmitigated impacts on contaminated water runoff and/or the escape of pollutants from the project Site during both the construction and operational phase of the development. In view of the nature of the development, the construction processes involved and the current agricultural use of the Site, such effects are considered highly unlikely. The implementation of standard pollution prevention measures in accordance with current guidelines (a normal requirement for any construction processes and not specifically required in relation to European sites) will prevent the escape of pollutants and contaminated run-off beyond the Site boundary entering surrounding watercourses and the wider water environment.

3.2.6 During the operational phase periodic cleaning of PV modules will be required; these will be cleaned with a soft brush hose using clean water with a recommended pressure less than 690kPa, which is typical of most municipal water systems. Solar PV modules are designed to withstand high snow loads; a brush will be used to gently remove snow. No chemicals are required.

3.2.7 Direct and indirect habitat effects upon qualifying features of European sites or ornithological interests of Great Bells Farm are subsequently screened out.

3.3 Disturbance or Displacement of Faunal Species

- 3.3.1 The project site is located approximately 990m to the north west of The Swale SPA at its nearest point.
- 3.3.2 A distance of 600m is generally considered by many nature conservations organisations, to be the distance to which negative effects upon many waterfowl species, occur as a result of displacement from onshore wind turbines¹⁵ and solar developments. As such by virtue of spatial separation there will be no disturbance or displacement to qualifying bird, within The Swale SPA and Ramsar site.
- 3.3.3 Similarly, by virtue of spatial separation, there will be no disturbance or displacement to qualifying bird features utilising habitats within Great Bells Farm, located 1.12km to the south west of the Site at its nearest point.
- 3.3.4 As above, mobile qualifying species (birds) associated with the Swale SPA and Ramsar site may also rely on habitats outside of European site boundaries. The proposed development Site is however not considered to be located within an area of significant and/or regular use by SPA bird populations and does not itself characterise as functionally linked land.
- 3.3.5 The potential for disturbance and displacement of qualifying features utilising habitats outside the European site boundaries, during the construction and operational phase of the proposed development is therefore considered to be inconsequential, in the context of the Conservation Objectives of The Swale SPA.
- 3.3.6 'Field 14' located 500m to the south of the Site, managed under the New Rides Wind Farm HMP is an establishing wetland habitat that is predicted over time to increase in its attractiveness to and use by wetland birds associated with The Swale SPA.
- 3.3.7 Between the Site and 'Field 14' are four operational wind turbines, an intact hedgerow and wet channel providing, visual and geographical barriers to the proposed development. Such barriers will serve to screen temporary construction works associated with the proposed development, from birds choosing to use the establishing wetlands within Field 14. Once operational, onsite human activity within the Site will be limited to occasional maintenance. The construction and operation of the proposed development will also result in a reduction in current more regular agricultural use and activities with the Site.
- 3.3.8 Construction and operational disturbance and displacement effects upon the qualifying features of The Swale SPA/Ramsar site and Great Bells Farm, utilising habitats beyond the European site designation boundaries, are therefore considered to be negligible and will not result in an adverse impact upon the integrity of any European site.
- 3.3.9 For similar reasoning above, by virtue of separation from 'Field 14' from the Site by the operational turbines of the New Rides Wind Farm, the construction and operation of the proposed development will not result in implications for the delivery of the New Rides Wind Farm HMP objectives. The presence of the proposed development, will also serve to complement the current sympathetic management of areas within proximity to the operational wind turbines, to reduce their attractiveness to migratory waterbirds and potential collision risks to such species.

¹⁵ BirdLife International (2003) Windfarms and Birds: An analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues. A report written by BirdLife International on behalf of the Bern Convention.

3.4 Other Considerations

In-combination Effects

- 3.4.1 It should be noted that guidance (EC, 2001¹⁶) and The Planning Inspectorate¹⁷ state that Step 1 of the HRA process (Screening) must consider the potential for a likely significant effect of a proposed development either alone or in combination with other plans and projects. In-combination effects are subsequently considered restricted to potential habitat loss to and the disturbance and displacement of SPA bird populations.
- 3.4.2 Due to the nature of the proposed development, its restricted spatial scale, location within the operational New Rides Wind Farm site and the Sites established negligible importance for qualifying features of The Swale SPA and Ramsar site, the potential for likely significant effects in-combination with any other project is not predicted to occur.

3.5 Conclusions

- 3.5.1 **No likely significant effects upon any European sites as a result of the proposed development alone or in-combination with any other project or plan, are predicted to occur.**

¹⁶ https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

¹⁷ <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/06/Advice-note-10v4.pdf>

APPENDIX 6

Biodiversity Management Plan (BMP)

New Rides – Proposed Solar Farm
on behalf of Energiekontor UK Ltd.

Appendix 6: Biodiversity Management Plan (BMP)



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CONTENTS

1	INTRODUCTION	1
2	ECOLOGICAL BASELINE – PRE-DEVELOPMENT	1
3	ECOLOGICAL MITIGATION MEASURES	2
3.1	Designated Sites and Habitats.....	2
3.2	Birds.....	2
3.3	Bats.....	2
3.4	Otter & Water vole	3
3.5	Amphibians.....	3
3.6	Reptiles.....	4
3.7	Brown Hare & Western Hedgehog.....	4
4	ECOLOGICAL ENHANCEMENT MEASURES	4
4.1	Habitat Enhancement	4
4.2	Wildlife Enhancement.....	7
5	HABITAT MANAGEMENT.....	8
5.2	Hedgerow and Scrub Management	8
6	ECOLOGICAL MONITORING	10
7	INDICATIVE MANAGEMENT SCHEDULE.....	11

Figures

Figure A6.1: Biodiversity Management Plan (BMP)

1 INTRODUCTION

- 1.1.1 This Biodiversity Management Plan (BMP) sets out habitat protection and enhancement measures for a proposed solar farm located on land at New Rides Farm, Eastchurch, Isle of Sheppey, Kent.
- 1.1.2 Habitat enhancement measures and management are proposed in line with guidance produced by BRE guidance *Biodiversity Guidance for Solar Developments* (BRE, 2014¹) and will seek to enhance and safeguard key habitats for the benefit of wildlife, and improve the ecological value sections of land within and surrounding the proposed development.
- 1.1.3 BRE guidance *Biodiversity Guidance for Solar Developments* (BRE, 2014) states that; ‘with appropriate land management, solar farms have the potential to support wildlife and contribute to national biodiversity targets. Indeed, solar farms may have several additional advantages in that they are secure sites with little disturbance from humans and machinery once construction is complete. Recent research suggests biodiversity gains on solar farms can be significant’.
- 1.1.4 The site-specific approach provided within this BMP therefore provides recommendations for long-term management of habitats throughout the lifetime of the proposed development to conserve and improve habitat connectivity with the wider landscape for wildlife through protecting and enhancing potentially important wildlife corridors and habitats. This will contribute to the establishment of coherent ecological networks, supporting the targets of the National Planning Policy Framework (NPPF2, 2019²).

2 ECOLOGICAL BASELINE – PRE-DEVELOPMENT

- 2.1.1 This BMP should be read in conjunction with the *Landscape Masterplan (Revision 1)*. Detailed descriptions of habitats and species can be found in the *Ecological Assessment Report* (Avian Ecology Ltd., 2021³).
- 2.1.2 The Site is located within an agricultural landscape with scattered pockets of woodland and occasional farm dwellings. To the south of the Site is Capel Fleet. Together with the waterways, intertidal habitats and grazing marshes of the wider Swale Estuary.
- 2.1.3 Habitats within the proposed development Site (shown by the red line application boundary in **Figure 1** of the *Ecological Assessment Report*) include arable farmland and improved grassland, with boundary features including hedgerows, wet, dry and semi-wet ditches. The Site is located within the operational New Rides Wind Farm, which comprises four operational wind located on land immediately adjacent to the Site.
- 2.1.4 The Site is not located within any statutory and non-statutory designated site for nature conservation.

¹ BRE (2014). *Biodiversity Guidance for Solar Developments*. Eds G E Parker and L Greene.

² <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

³ Avian Ecology Ltd. (2021) *New Rides – Proposed Solar Farm: Ecological Assessment Report*. A report prepared on behalf of Energiekontor UK Ltd.

3 ECOLOGICAL MITIGATION MEASURES

3.1 Designated Sites and Habitats

- 3.1.1 No designated sites for nature conservation will be affected by the proposed development.
- 3.1.2 Standard good practice measures to ensure runoff control and pollution prevention will be implemented during the construction, operation and decommissioning of the proposed development; these measures will serve to safeguard both on and off-site habitats and species as well as watercourses and boundary habitats.
- 3.1.3 Approximately 30m of species poor hedgerow will be removed as part of the development. These are not considered to be protected habitats and will be mitigated for as part of the landscaping works. All remaining hedgerows will be retained on Site and protected in-line with BS 5837:2012 *Trees in relation to design, demolition and construction*.
- 3.1.4 There will be clear delineation of working areas and access routes for vehicles entering the Site (generally considered to be using pre-existing access routes for the New Rides Wind Farm, and instructions on these will be given to all site construction staff, delivery drivers and subcontractors).
- 3.1.5 During the operation of the solar farm over time, dirt and dust can accumulate on the glass surface of the module, reducing its power output. Periodic cleaning of PV modules where required will be undertaken with a soft brush and using soft, clean water which is considered to have no potential to adversely affect habitats or species.

3.2 Birds

- 3.2.1 Site clearance works should be undertaken outside of the breeding bird season in so far as reasonably practicable. The breeding bird season is generally considered to be 01st March to 31st August inclusive. Where this cannot be avoided, a suitably experienced ecologist will be appointed to undertake a pre-site clearance survey to identify the presence of any wild bird nests being built or in use (including those of ground nesting birds such as skylarks *Alauda arvensis*). Only once the appointed ecologist is satisfied that an offence under Part 1 of the Wildlife and Countryside Act 1981 (as amended) will not occur, may works proceed.
- 3.2.2 If a nesting bird is identified within working areas, a suitable work exclusion zone will be established around a nest site where required by the appointed ecologist, in line with best practice guidance.
- 3.2.3 During operation, disturbance will be minimal and limited to intermittent maintenance activities. However, it is recommended that the cleaning of panels is undertaken outside of the breeding bird season in so far as reasonably practical to minimise disturbance to nesting birds.

3.3 Bats

- 3.3.1 In order to protect foraging / commuting bats, lighting required during construction and/or operation of the solar farm will be used in a sensitive manner and directed away from field boundary habitats, including habitats bordering the Site. Operational lighting for the solar farm, if required, will be restricted to ancillary buildings and required only for occasional maintenance and inspection visits. The Site itself will not be lit. Building lighting will employ suitable low level lighting to minimise

the potential for light spill (further information is provided in Bat Conservation Trust (BCT) guidance (2018) *Bats and Lighting in the UK: Bats and the Built Environment Series*⁴).

- 3.3.2 Any planting within the Site should be mindful of positioning in relation to the operational adjacent New Rides Wind Farm. Bat sensitive landscaping has been proposed and serves to avoid the increased mortality risk to bats from the operational New Rides Wind Farm. Landscape plans have therefore been designed to maintain a 50m standoff between newly created linear features (which may be used by bats) and turbine blade tips in line with statutory guidance (NatureScot, 2019⁵).

3.4 Otter & Water vole

- 3.4.1 The adoption of a minimum 5m buffer zones for the protection of water courses within and intersecting the Site will serve to safeguard potentially suitable habitats or habitats connecting to suitable habitats for otters *Lutra lutra* and water voles *Arvicola amphibius* and maintain potential foraging and commuting opportunities.
- 3.4.2 In addition, the adoption of standard good practice pollution prevention and site runoff control measures will ensure the species are not impacted by the works.
- 3.4.3 In the event changes to the layout of the proposed development are required and impacts to ditch/bankside habitat are unavoidable, a pre-construction otter and water vole survey will be undertaken by a suitably competent ecologist, prior to development works commencing.
- 3.4.4 If otter or water vole are found to be present within and or adjacent to working areas, the appointed ecologist will advise on the implementation of mitigation measures to ensure legislative compliance including, if necessary, further amendments to scheme design and/or a derogation licence from Natural England.

3.5 Amphibians

- 3.5.1 Land within the Site is dominated by arable and pasture fields, which are intensively managed and considered to be unsuitable habitat to support and maintain viable amphibian populations. However, habitats such as field boundaries, hedgerows and dry ditches, which will largely be retained and protected, may provide suitable terrestrial habitat for commoner species.
- 3.5.2 Two ponds are located within 250m of the Site, both of which being located within the wider New Rides Farm site with the closest being within 10m of the Site boundary although no works are proposed within 25m of the nearest pond.
- 3.5.3 Baseline information does not identify the previously known presence of great crested newt within the Site or immediately surrounding area, with the species considered to be absent locally.
- 3.5.4 The development has been designed to protect and safeguard the most favourable habitats for amphibians; maintaining a suitable protection buffer around ditches, hedgerows and field edges habitats most likely to be used by such species.
- 3.5.5 Standard measures to ensure runoff control and pollution prevention will be implemented; these measures will safeguard ponds, watercourses and boundary habitats within the wider surrounding area.

⁴ Bat Conservation Trust. (2018). *Bats and Lighting in the UK: Bats and the Built Environment Series*.

⁵ <https://www.nature.scot/sites/default/files/2019-01/Bats%20and%20onshore%20wind%20turbines%20-%20survey%2C%20assessment%20and%20mitigation.pdf> (Accessed; 25/02/2021)

- 3.5.6 A series of Reasonable Avoidance Measures (RAMs) will be adopted to safeguard individual amphibians during construction as detailed in **Appendix 4** of the *Ecological Assessment Report*. Such measures will include the establishment of exclusion/protection zones along hedgerows and woodland edges during construction, timing of certain works, tool box talks to site staff on ecological responsibilities and precautionary measures to adopt in relation to protected species, and vegetation management ahead of some earth stripping locations to make working areas unattractive to amphibians. Certain activities may be required to be undertaken under the supervision of a suitably competent ecologist.
- 3.5.7 Total land take for solar farm developments is typically low (less than 5% footprint on the ground) and construction works are low impact; requiring limited disturbance for a temporary period of time. Overall, the proposed habitat retention and enhancements will provide a habitat net-gain for local amphibian populations by providing enhanced terrestrial habitat for foraging/hibernation purposes.

3.6 Reptiles

- 3.6.1 Land within the Site is dominated by arable and pasture fields, which are intensively managed and considered to be unsuitable habitat to support and maintain viable reptile populations. However, habitats such as watercourses, hedgerows and field boundaries provides potentially suitable habitat for reptile species if present. All four common species: grass snake *Natrix helvetica*, adder *Vipera berus*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* are known to be present within the Isle of Sheppey.
- 3.6.2 Any works requiring the removal/cutting back of short sections of hedgerow for access and visibility splays will follow RAMs under the supervision of an ecologist to avoid any risk of adverse effects on reptile species. Outline RAMs are provided at **Appendix 4** of the *Ecological Assessment Report*.
- 3.6.3 The creation of additional linear hedgerow features and pockets of scrubland within the Site will provide reptile species with additional favourable habitat. Overall, the proposed habitat retention and enhancements will provide a habitat net-gain for local reptile populations (if present) by providing enhanced terrestrial habitat for foraging/hibernation purposes.
- 3.6.4 The creation of suitable reptile habitat as part of the New Rides Wind Farm HMP running north through the Site is continuing to establish within New Rides Farm.

3.7 Brown Hare & Western Hedgehog

- 3.7.1 The dominant habitats within the Site (arable and grassland) are considered to be of low value for Western hedgehog *Erinaceus europaeus* although may be used by brown hare *Lepus europeaeus*. As such, gaps between the perimeter fencing will be incorporated to allow ease of passage for species including brown hare present within the Site and surrounding area.
- 3.7.2 Hedgerows are considered to be more favourable habitats for Western hedgehog and are to be largely retained and protected during works, with additional planting to strengthen the network and add connectivity, thereby securing potential Western hedgehog habitat.

4 ECOLOGICAL ENHANCEMENT MEASURES

4.1 Habitat Enhancement

- 4.1.1 Management practices are proposed that will enhance the Site for the benefit of local wildlife. The design and long-term management of the land seeks to maintain and improve functionality through

protecting and enhancing potentially important wildlife corridors i.e. through new hedgerow creation and infill planting to strengthen existing hedgerows within and around the Site.

- 4.1.2 The inclusion of pockets of scrub within the Site will also serve to increase the biodiversity value of the Site as well as increasing the potential breeding, foraging and hibernating habitats for nesting birds and protected species.

Hedgerows and scrub

- 4.1.3 New and infill hedgerow planting will be carried out as shown in the **Figure A6.1**.
- 4.1.4 This will serve to strengthen the existing species-poor hedgerow network within and intersecting the Site, with the planting up of sections with native hedgerow species. This will provide more species diverse and well-structured hedgerows of increased value for wildlife around the Site and which link to adjacent woodland copses to the west of the Site.
- 4.1.5 In addition the inclusion of pockets of scrub plantation within the Site as shown on **Figure A6.1** will further the favourable biodiversity value of habitat features within the Site.
- 4.1.6 The following native species are recommended and considered suitable to form the new hedgerow and scrub within the Site;

- Hawthorn *Crataegus monogyna*;
- Blackthorn *Prunus spinosa*.
- Field maple *Acer campestre*;
- Hazel *Corylus avellana*;
- Dog rose *Rosa canina*;
- Bramble *Rubus fruticosus*; and,
- Honeysuckle (wild) *Lonicera periclymenum*.

- 4.1.7 In addition, further native species to be included within the native scrub creation include:

- Grey willow *Salix cinerea*; and,
- Goat willow *Salix caprea*.

- 4.1.8 All planting stock supplied shall be healthy and viable and comply with BS 3936 Nursey Stock Parts 1 3.2.5 to 10 and BS 4043, as relevant.

- 4.1.9 All planting shall be undertaken in accordance with BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces).

Hedgerow Ground Preparation

- 4.1.10 Where necessary existing weeds will be manually removed or treated with a suitable herbicide as specified within the herbicide handbook (English Nature, 2003) or hand-weeding.
- 4.1.11 Any extraneous matter such as plastic, large pieces of wood and metal will be removed from Site to a registered waste disposal facility.

Hedgerow Planting

- 4.1.12 Hedgerows will be notch planted in a double staggered row at 5 plants per linear metre or infilled as per planting schedule.
- 4.1.13 The exact timing of the proposed hedgerow planting will be dependent on the ground conditions but bare-root planting should ideally take place between the months of December-February inclusive. It is expected that ground conditions and climate will allow for earlier planting (i.e. before January), and this will allow the plants more time to establish a network of feeder roots before the onset of spring. Planting should avoid freezing and water logged conditions.
- 4.1.14 Planting slots shall be made using a planting spade. Plant notches should be L- shaped, using spades of a design suitable for this purpose. The planting notches must be vertical and deep enough for the roots to hang freely, with the transplant being planted so that the root collar is exactly level with the ground surface. The notch must then be closed and the soil will be well firmed round the roots in line with the guidelines as set out in BS 4428 (1989).
- 4.1.15 If ground conditions are dry during the time of planting (unlikely during December-February) then all individual plants should be well watered following planting.
- 4.1.16 All hedgerow planting stock will be protected from rabbit damage using spiral guards, supported with canes as advised by the manufacturer.

Scrub Ground Preparation and Tree Pit Excavation

- 4.1.17 If the formation level is compacted it will be ripped through before topsoiling.
- 4.1.18 Where necessary existing weeds will be uprooted or will be treated with a suitable herbicide as specified within the herbicide handbook (English Nature, 2003). No use of chemicals within 10m from the top of ditches/pond will be undertaken.
- 4.1.19 Select standard trees/shrubs are to be placed into pits that will accommodate the roots comfortably, with approximately 75mm space outside the extent of the roots.
- 4.1.20 The bottom and sides shall be forked to break up the subsoil. All extraneous matter such as plastic, wood, metal and stones greater than half brick size will be removed from site.
- 4.1.21 Topsoil to be stored in accordance with British Standards or other guidance current at the time of planting. Imported topsoil to conform to requirements of British Standards or other guidance current at the time of planting.

Scrub Planting

- 4.1.22 The exact timing of the proposed planting will be dependent on the ground conditions but planting should ideally take place between the months of December and February inclusive, this will allow the plants more time to establish a network of feeder roots before the onset of spring. Planting should avoid freezing and water-logged conditions.
- 4.1.23 Trees/shrubs are to be placed into the pits and backfilled with local topsoil previously stripped from the Site. A general-purpose slow release fertiliser (at the rate of 75gm/m²) and Tree Planting and Mulching Compost (at the rate of 20litres/m²) are to be incorporated into the top 150mm of topsoil during backfilling. Where tree pits are more than 300mm deep, backfilled material shall be consolidated / firmed in 150mm layers. Additional topsoil will be imported onto the site if topsoil stripping operations do not provide sufficient topsoil for the entire tree planting.

- 4.1.24 Trees shall be well firmed-in and secured with stakes, proprietary rubber tree ties and spacers as below.
- 4.1.25 All select standard trees will be held so that movement at the root collar is minimised until new roots have developed to anchor the tree. Therefore low staking (75mm diameter x 1.5m length) will be used and attached to the tree at approximately 1200mm above ground level. Stakes will be driven 300mm into undisturbed ground of the bottom of the tree pit before planting the tree, taking care to avoid underground services and cables. The trees will be staked using proprietary rubber ties and must be firmly fixed with a spacing device used to prevent chafing against the tree.
- 4.1.26 All trees will be protected from grazing damage by the fitting of approved tree guards. If the bushiness of the tree prevents the use of standard tree guards then an alternative design of guard shall be used in agreement with the project landscape architect. Composted bark mulch will be spread to a depth of 75mm in a 1m diameter circle around all individual trees, ensuring that desirable groundcover plants (where present) are not buried.
- 4.1.27 All trees/shrubs shall be watered in at the end of each day of planting.

4.2 Wildlife Enhancement

Other species

- 4.2.1 The perimeter fence will incorporate suitably sized (approximately 20cm x 25cm) gaps at its base at suitable locations around the Site to allow the free movement of wildlife, including brown hare and Western hedgehog, thereby maintain and strengthening habitat connectivity and dispersal opportunities across and through the proposed development.

5 HABITAT MANAGEMENT

- 5.1.1 Habitat management will be reviewed and undertaken periodically throughout the lifetime of the solar farm (see Section 7). Management will be the responsibility of the current or any subsequent owner of the proposed development.
- 5.1.2 All works associated with the implementation of the BMP will be undertaken by experienced contractors. The costs of any such works will be borne by the owner or any subsequent owner of the proposed development. Monitoring and reporting will be undertaken by a suitably qualified ecologist and the costs associated with monitoring reporting and any rectification works will be borne by the owner or any subsequent owner of the proposed development.

5.2 Hedgerow and Scrub Management

Hedgerows

- 5.2.1 During the first five years after planting, all dead, dying or diseased stock will be replaced with stock of similar size and species by the appointed contractor at their own cost.
- 5.2.2 If the failure of the plant is due to disease and the disease is considered likely to re-occur then an alternative native species of local provenance may be used as a replacement. The exact timing of the planting of replacement hedgerow is dependent on the ground conditions; however, planting should ideally take place between the months of December and February inclusive, this will allow the plants more time to establish a network of feeder roots before the onset of spring.
- 5.2.3 The planting areas will be kept weed-free during the first two years of planting, , using approved hand-weeding or if necessary herbicide treatment (applications in April, June and August). The herbicide handbook (English Nature, 2003⁶) provides guidance on appropriate herbicide use in relation to nature conservation works. Where used, herbicides will be sprayed in appropriate weather conditions, to avoid affecting adjacent grassland areas.
- 5.2.4 During the first five years after planting, hedgerows will be trimmed outside each growing season; hedgerows will be cut back by half the growth of that year with pruning aiming to encourage the development of healthy well-shaped specimens.
- 5.2.5 Five years after planting, hedgerows will cut on a 2-3 year flexible basis as necessary to avoid shading of the panels and protect the perimeter fencing from encroachment. Ideally not all hedgerows will be cut in the same year for the benefit of wildlife and to allow plants to flower and set seed/fruit.
- 5.2.6 Hedgerow cutting will be ideally be undertaken in late January/February. No cutting or trimming is to be undertaken during the breeding bird season (1st March to 31st August inclusive).
- 5.2.7 After the establishment period planting guards (where used) will be removed and all hedgerows will be maintained at a height of approximately 2-4m or higher as appropriate for the operation of the Site.

⁶ English Nature (2003) *The Herbicide Handbook*: Guidance on the use of herbicides on nature conservation sites. (https://www.whatdotheyknow.com/request/574168/response/1408137/attach/4/The%20Herbicide%20Handbook%202003%20PT1.pdf?cookie_passthrough=1)

Scrubland

- 5.2.8 During the first five years after planting, all dead, dying or diseased stock will be replaced with stock of similar size and species by the appointed contractor at their own cost.
- 5.2.9 If the failure of the plant is due to disease and the disease is considered likely to re-occur then an alternative native species of local provenance may be used as a replacement. The exact timing of the planting of new scrub species is dependent on the ground conditions; however, planting should ideally take place between the months of December and February inclusive, this will allow the plants more time to establish a network of feeder roots before the onset of spring.
- 5.2.10 The planting areas will be kept weed-free during the first two years of planting, using approved hand-weeding or if necessary herbicide treatment (applications in April, June and August). The herbicide handbook (English Nature, 2003⁷) provides guidance on appropriate herbicide use in relation to nature conservation works. Where used, herbicides will be sprayed in appropriate weather conditions, to avoid affecting adjacent grassland areas.
- 5.2.11 Trees within the scrubland patches will be allowed to establish with no cutting required. Any cutting will be limited to pruning to ensure trees remain healthy and any trees that may impact nearby solar panels or pose any potential danger to nearby infrastructure.
- 5.2.12 Any trimming to be carried out within the scrubland will ideally be undertaken in late January/February. No cutting or trimming is to be undertaken during the breeding bird season (1st March to 31st August inclusive).
- 5.2.13** After the 5-year establishment period, or when plants grow trunks of 2-3in in diameter, planting guards (where used) will be removed.

⁷ English Nature (2003) *The Herbicide Handbook*: Guidance on the use of herbicides on nature conservation sites. (https://www.whatdotheyknow.com/request/574168/response/1408137/attach/4/The%20Herbicide%20Handbook%202003%20PT1.pdf?cookie_passthrough=1)

6 ECOLOGICAL MONITORING

- 6.1.1 The development of the biodiversity interest of the Site will be monitored over time by a suitably experienced ecologist. A walkover survey will be undertaken on years 1, 2, 5 and 10. This will involve an inspection of the hedgerows, scrub and any other ecological features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest. The results of these monitoring surveys will be used to inform future changes in management. The management plan will be amended if necessary based on the monitoring recommendations.
- 6.1.2 Following the outcomes of each monitoring survey it will be the duty of “the Owner” of the site to amend the BMP to inform future changes in management including amending the grazing and cutting regime, if needed.
- 6.1.3 Monitoring procedures are outlined in **Table 6.1** (adapted from BRE guidance):

Table 6.1: Monitoring procedures and key indicators.

Biodiversity feature	Monitoring procedure	Key indicators
Hedgerows	Walk full length of planted hedgerows	Browse damage, dead whips, weeds, gaps, dead or damaged hedgerow plants. Note areas requiring replacement planting and (after year five) removal of spiral guards.
Scrub	Walkover of planted areas	Browse damage, dead whips, weeds, gaps, dead or damaged plants. Note areas requiring replacement planting and (after year five) removal of spiral guards.

7 INDICATIVE MANAGEMENT SCHEDULE

- 7.1.1 The following management programme shows possible months in which activities will commence within the first planting period after construction:

Initial Habitat Enhancement Year 1

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year 1												
Hedgerow and scrub planting	✓	✓										✓*

*avoid periods of extended frost or persistent heavy rain.

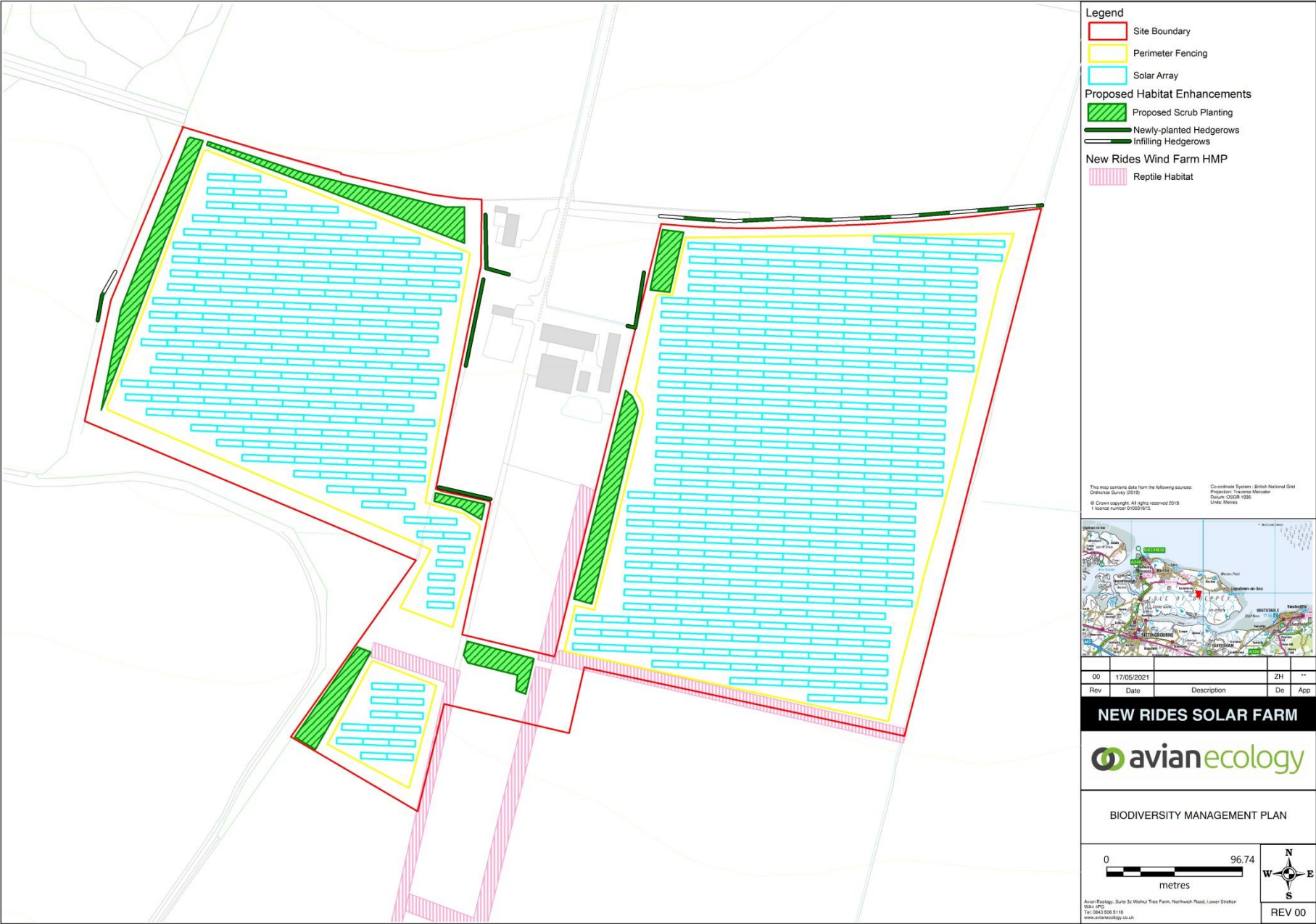
Habitat Management Year 2

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year 2												
Herbicide treatment or hand-weeding of hedgerow/scrub planting bed				✓		✓		✓				
Trimming of new hedgerows to encourage bushy side growth	✓	✓							✓	✓	✓	✓

Ongoing Annual Management

Management Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year 3-5 onwards												
Herbicide treatment or hand-weeding of hedgerow/scrub planting bed (establishment period up to first five years)				✓		✓		✓				
Periodic trimming of hedgerows as required	✓	✓							✓	✓	✓	✓
Pruning any trees where necessary for health and safety of health of plants	✓	✓										
Removal of tree guards	✓	✓							✓	✓	✓	✓

FIGURE A6.1: Biodiversity Management Plan



APPENDIX 7

Biodiversity Net Gain (BNG) Calculation

New Rides – Proposed Solar Farm
on behalf of Energiekontor UK Ltd.
Appendix 7: Biodiversity Net-Gain



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CONTENTS

1	INTRODUCTION	1
1.1	Background.....	1
1.2	Legislation and Guidance	1
1.3	Site Overview.....	2
2	METHODOLOGY	3
2.2	Defra Biodiversity Metric 2.0	3
3	RESULTS	4
3.1	Habitat Survey Results	4
4	DEFRA METRIC 2.0 BIODIVERSITY NET-GAIN RESULTS.....	4
5	BIODIVERSITY NET-GAIN STRATEGY	5
5.1	Discussion	5
5.2	Quantifiable Biodiversity Net-Gain Proposals	6
5.3	Additional Qualitative Biodiversity Net-Gain Proposals	6

1 INTRODUCTION

1.1 Background

- 1.1.1 This Biodiversity net-gain Note has been prepared by Avian Ecology Ltd. (AEL) on behalf of Energiekontor UK Ltd. in relation to the proposed solar development on land at New Rides Farm, Eastchurch, Isle of Sheppey, Kent (the Site).
- 1.1.2 The Site location is provided in **Figure 1** of the *Ecological Assessment Report* and habitats located within the Site are provided in **Figure 2**.
- 1.1.3 The proposals include the construction, at least 35 year operation and subsequent decommissioning of a solar farm, with a capacity of up to **10MWp**, plus associated infrastructure as illustrated on the *Landscape Masterplan (Revision 1)*.

1.2 Legislation and Guidance

- 1.2.1 Biodiversity net-gain in development is defined as “development that leaves biodiversity in a better state than before”.
- 1.2.2 The National Planning Policy Framework 2 (NPPF2, 2019¹) requires the demonstration of biodiversity net-gain with any planning applications. The accompanying National Planning Practice Guidance (NPPG²) states that using a metric is a pragmatic way to calculate the impact of a development and the net gain that can be achieved. It goes on to state that *‘tools such as the Defra biodiversity metric can be used to assess whether a biodiversity net-gain outcome is expected to be achieved’*.
- 1.2.3 In addition the NPPG states that *‘Biodiversity net-gain can be achieved on-site, off-site or through a combination of on-site and off-site measures’* and that this can involve the creation of new habitats, enhancement of existing habitats, creation of green infrastructure (street trees, public open space, green roofs etc.) and sustainable drainage systems and that *‘relatively small features can often achieve important benefits for wildlife, such as incorporating swift bricks and bat boxes in developments and providing safe routes for hedgehogs between different areas of habitat’*.
- 1.2.4 In addition, the document adopts guidance provided within the NPPF2, stating that development proposals should seek to *‘provide opportunities to incorporate biodiversity improvements in and around developments... especially where this can secure measurable net gains for biodiversity’* and that the local plan will *‘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’*.
- 1.2.5 The forthcoming Environment Bill 2019-21³ is currently at the consideration of amendments stage at the House of Commons and House of Lords (and therefore not yet adopted), it is understood that (once adopted – likely to be after Autumn 2021) the majority of developments in England will be required to provide a minimum of 10% biodiversity net-gain. Whilst this is not yet mandatory, Local Planning Authorities (LPAs) have begun to incorporate biodiversity net-gain policies into their Local Plans; currently Swale Borough Council has not adopted a commitment to a minimum of 10% biodiversity net-gain.

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>.

² <https://www.gov.uk/guidance/natural-environment>

³ <https://services.parliament.uk/bills/2019-21/environment.html>

1.3 Site Overview

- 1.3.1 The Site comprises an area of agricultural land of approximately 16.6ha, located to the south of Eastchurch, Isle of Sheppey, Kent at approximate central grid reference TQ 9933 6991.
- 1.3.2 Habitats within the Site and immediately surrounding land include arable crop fields, with field boundaries marked by ditches, hedgerows and gravel tracks associated with the New Rides Wind Farm.
- 1.3.3 In the wider context the Site is surrounded by further extensive areas of arable and pastoral farmland and scattered pockets of deciduous woodland. To the south of the Site is the Swale Estuary with coastal grazing and floodplain.
- 1.3.4 The Swale SPA/Ramsar/SSSI is present 990m to the south east of the Site. The estuary is designated for its population of non-breeding and breeding waterbird assemblages and specifically non-breeding populations of dark-bellied brent goose *Branta bernicla bernicla* and dunlin *Calidris alpina*.

2 METHODOLOGY

Extended Phase 1 Habitat Survey

- 2.1.1 The survey was undertaken on 27th January 2021 by S. Clifton BA (Hons.) MSc MCIEEM, a suitably competent and qualified ecologist, following the UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology (JNCC, 2010)⁴, with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Preliminary Ecological Appraisal, 2nd Edition* (CIEEM, 2017)⁵.
- 2.1.2 The Study Area comprised the red line boundary as shown on **Figure 1**; the habitats identified within the Site are presented in **Figure 2** of the *Ecological Assessment Report*.
- 2.1.3 A full breakdown of survey methodology is outlined in Section 2.2 of the *Ecological Assessment Report*. In addition, target notes are detailed in within the body of the *Ecological Assessment Report* within **Table 3.4**. The survey was extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation value.

2.2 Defra Biodiversity Metric 2.0

- 2.2.1 The Defra Biodiversity Metric 2.0 provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change and has been used to inform this Biodiversity net-gain Assessment.
- 2.2.2 The baseline habitat types were recorded using survey methodology following the UK industry standard JNCC Phase 1 Habitat Methodology (JNCC, 2010)⁶ and with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM), Technical Guidance Series '*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*' (CIEEM, 2017)⁷.
- 2.2.1 The G-9 Translation Phase 1 tab within the Biodiversity Metric 2.0 was used to translate the Phase 1 habitat types into the UK Habitat Classification categories. Habitat areas (hectares) were calculated using GIS software. For scattered trees the Street Tree Helper tool was used to obtain a habitat area; guidance for the Street Tree Helper tool states that all trees should be classified as medium size.
- 2.2.2 Criteria set out within the Defra Biodiversity Metric 2.0 Technical Supplement⁸ were used to calculate the condition, ecological connectivity and strategic significance of the existing habitats, with discretion used where the habitats potentially provided additional ecological functions not included within the conditions.
- 2.2.3 The Defra Biodiversity Metric 2.0 Technical Supplement states that all High and Very High distinctiveness habitats should be assigned a Medium ecological connectivity multiplier, other habitats a Low connectivity multiplier. This approach has been adopted in this assessment.
- 2.2.4 Where habitats are located within a designated site or if they are specifically covered by a local planning policy or management plan the strategic significance has been categorised as high. If a

⁴ <http://jncc.defra.gov.uk/page-2468>

⁵ CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁶ JNCC (2010). *Handbook for Phase 1 habitat survey – a technique for environmental audit*. JNCC, Peterborough.

⁷ CIEEM. (2019). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁸ <http://publications.naturalengland.org.uk/publication/5850908674228224>

habitat has functional value but is not formally recognised in local policy the strategic significance has been categorised as medium. Where the habitat does not fall under any local policies and has limited functional value the strategic significance has been categorised as low.

- 2.2.5 Proposed habitat types, including for creation, enhancement and restoration, were directly assigned a UK Habitat Classification category. The target condition of these proposed habitats was determined using the G-4 Temporal Multipliers, G-5 Enhancement Temporal, G-6 Hedgerow Data and G-7 Rivers Data tabs, where appropriate. Ecological connectivity and strategic significance were assigned using the same method as for the existing habitats.
- 2.2.6 Hedgerows are accounted for separately in the Biodiversity Metric 2.0 as these are linear habitats and therefore are measured in kilometres.

3 RESULTS

3.1 Habitat Survey Results

Extended Phase 1 Habitat Survey

- 3.1.1 The habitats identified within the Site are presented in **Figure 2**. Photographs are presented in **Appendix 2** within the *Ecological Assessment Report*. The Extended Phase 1 habitat survey was conducted in suitable weather, with good visibility.
- 3.1.2 The Site is dominated by three main habitat types including:
- Arable Farmland - At the time of survey, land parcels towards the southern part of the Site were dominated by arable farmland including maize cover crops and arable stubble.
 - Improved Grassland - The most dominant habitat within the site was improved pasture used for sheep grazing with fields dominated by cock's-foot *Dactylis glomerata* and perennial rye grass *Lolium perenne*.
 - Species-poor Hedgerows - Most field boundaries within the Site were dominated by species-poor hedgerows with hawthorn *Crataegus monogyna* as the dominant species.

4 DEFRA METRIC 2.0 BIODIVERSITY NET-GAIN RESULTS

- 4.1.1 The proposed development will build a solar farm within arable and pasture-dominated farmland. Current BRE guidance (BRE, 2014⁹) states that, as panels are raised above the ground on posts, over 95% of a site used for solar farm development is still accessible for plant growth and complementary agricultural activities, such as conservation grazing.
- 4.1.2 The current landowner will use habitats under and around the solar panels for sheep grazing meaning that improved pasture (re-sown with a similar species composition as found during pre-construction surveys) will remain under the panels with additional grassland grazing on sections of currently arable farmland inside perimeter fencing towards the southern boundary of the Site.
- 4.1.3 A total of 15.4ha of improved grassland is located within the Site boundary and there will be a 3-5% of land uptake by the solar array leaving c14.5ha of land available under and around the panels.

⁹ BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene.
New Rides – Proposed Solar Farm
Appendix 7: Biodiversity Net Gain

- 4.1.4 Biodiversity enhancements within the Site include the inclusion of 1ha of species-rich scrubland outside of the perimeter fences within the Site.
- 4.1.5 The BNG calculation, based on the existing and proposed habitat areas before and after completion of the solar farm, demonstrates that a net gain of 10.67% Habitat Units can be achieved.
- 4.1.6 Additionally, 200m of new native species hedgerow planting will form part of the proposed solar farm development. This would increase the hedgerow net gain by 11.02%. Whilst linear features do not add to the overall BNG assessment, this increase in linear features within the Site will demonstrably benefit biodiversity, both by providing additional habitat in its own right and supporting a range of species and also by strengthening habitat links and connectivity in the local area over the long term as the hedgerow matures.
- 4.1.7 **Table 3.1** summarises the results of the Biodiversity Net-Gain Assessment. A breakdown of the calculations is provided in the Defra Biodiversity 2.0 Metric Excel spreadsheet which is provided separately in **Appendix 3**.

Table 5.1: Biodiversity Net-Gain Headline Results

On-site baseline	Habitat units	35.38
	Hedgerow units	7.88
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	Habitat units	39.15
	Hedgerow units	8.74
	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 & succession)	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)	Habitat units	3.77
	Hedgerow units	0.87
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	Habitat units	10.67%
	Hedgerow units	11.02%
	River units	0.00%

5 BIODIVERSITY NET-GAIN STRATEGY

5.1 Discussion

- 5.1.1 Currently there is no statutory requirement for the use of the DEFRA Biodiversity Metric 2.0 (or similar metric)¹⁰ to provide quantifiable evidence of biodiversity net-gain and a measurable quantifiable biodiversity net-gain assessment is not currently a requirement under Swale Borough Councils local planning policies. However, as part of progressing the planning application and

¹⁰ The forthcoming Environment Bill 2019-21 is currently at the consideration of amendments stage at the House of Commons and House of Lords (and therefore not yet adopted), it is understood that (once adopted – likely to be after Autumn 2021) the majority of developments in England will be required to provide a minimum of 10% biodiversity net-gain. Whilst this is not yet mandatory, Local Planning Authorities (LPAs) have begun to incorporate biodiversity net-gain policies into their Local Plans; currently Swale Borough Council has not adopted a commitment to a minimum of 10% biodiversity net-gain.

reflecting National Planning Policy the Site Promoters seek to enshrine biodiversity net-gain within the final Site proposals.

- 5.1.2 The production of an indicative development design was an iterative process and in-line with current guidance¹¹ AEL were brought into the project team at an early stage to ensure that biodiversity impacts were considered and avoided/mitigated for as far as reasonably possible.
- 5.1.3 The DEFRA Biodiversity Metric 2.0 provides a quantitative biodiversity net-gain assessment based on habitat impacts alone; however, the values produced do not take into account other proposed qualitative biodiversity enhancements. Current guidance²⁰ advises that both quantitative and qualitative biodiversity gains should inform a biodiversity assessment to demonstrate that the net-gains are commensurable with biodiversity affected by the development.

5.2 Quantifiable Biodiversity Net-Gain Proposals

- 5.2.1 The following habitat enhancement and creation methods are proposed within the Biodiversity 2.0 Metric and once formerly adopted, these enhancement and creation methods can be informed by a thirty year Biodiversity Management Plan:
- 5.2.2 Multiple areas of green open space; these will consist of:
- 0.6ha of grassland under and around the solar panel (existing land used comprising both improved grassland and intensively managed arable cropping)
 - 1ha of newly created scrub habitat; and,
 - 0.2km of native species-rich hedgerow planting

5.3 Additional Qualitative Biodiversity Net-Gain Proposals

- 5.3.1 Gaps will be provided at suitable intervals at the base of the perimeter fence to allow free movement of wildlife into and out of the site, allowing species such as brown hare *Lepus europaeus* and Western hedgehog *Erinaceus europaeus* access to relatively secure and undisturbed habitat for refuge and foraging and maintaining connectivity between the Site and other nearby habitats.

¹¹<https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf>