



# Appendix 2.3 Bird Hazard Management Plan

Longhedge Solar Farm

30/11/2022



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Neo Environmental Ltd	
<p><b>Head Office - Glasgow:</b> Wright Business Centre, 1 Lonmay Road, Glasgow. G33 4EL T 0141 773 6262 E:</p>	
<p><b>Warrington Office:</b> Cinnamon House, Crab Lane, Warrington, WA2 0XP. T: 01925 661 716 E: <a href="mailto:info@neo-environmental.co.uk">info@neo-environmental.co.uk</a></p>	<p><b>Rugby Office:</b> Valiant Suites, Lumonics House, Valley Drive, Swift Valley, Rugby, Warwickshire, CV21 1TQ. T: 01788 297012 E: <a href="mailto:info@neo-environmental.co.uk">info@neo-environmental.co.uk</a></p>
<p><b>Ireland Office:</b> Johnstown Business Centre, Johnstown House, Naas, Co. Kildare. T: 00 353 (0)45 844250 E: <a href="mailto:info@neo-environmental.ie">info@neo-environmental.ie</a></p>	<p><b>Northern Ireland Office:</b> 83-85 Bridge Street, Ballymena, Co. Antrim, BT43 5EN. T: 0282 565 04 13 E: <a href="mailto:info@neo-environmental.co.uk">info@neo-environmental.co.uk</a></p>

**Prepared For:**


Renewable Energy Systems (RES) Ltd



**Prepared By:**

Louis Maloney



	Name	Date
Edited By:	Louis Maloney	30/11/2022
Checked By:	Dara Dunlop	30/11/2022
	Name	Signature
Approved By	Paul Neary	

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## INTRODUCTION

### Background

- 1.1. Neo Environmental Ltd has been appointed by Renewable Energy Systems (RES) Ltd (the “Applicant”) to complete a Bird Hazard Management Plan (BHMP) for a proposed 49.9MW solar farm development (the “Proposed Development”) on lands between Hawksworth and Thoroton, circa 15.5km east of Nottingham, Nottinghamshire (the “Application Site”).
- 1.2. Please see **Figure 4 of Volume 2: Planning Application Drawings** for the layout of the Proposed Development.

### Development Description

- 1.1. The Proposed Development will consist of the construction of a 49.9MW solar farm. It will involve the construction of bi-facial ground mounted solar photovoltaic (PV) panels, new access tracks, underground cabling, perimeter fencing with CCTV cameras and access gates, 2x temporary construction compounds, substation and all ancillary grid infrastructure and associated works.
- 1.2. The Proposed Development will result in the production of clean energy from a renewable energy resource (daylight) and will also involve additional landscaping including hedgerow planting and improved biodiversity management.

### Site Description

- 1.1. The Application Site is located in a semi-rural setting on lands between the settlements of Hawksworth (0.1km west) and Thoroton (0.2km southeast), circa 15.5km east of Nottingham, Nottinghamshire. (See **Figure 1 of Volume 2: Planning Application Drawings** for further detail).
- 1.2. Centred at approximate Grid Reference E476129, N343467, the Proposed Development Site comprises nine fields covering a total area of c. 94.24hectares (ha), although only 37.7ha of this area is required to accommodate the solar arrays themselves, with the remaining area being used for ancillary infrastructure and mitigation and enhancement measures. The Proposed Development Site covers low lying lightly undulating agricultural land with an elevation range of c. 20m to 25m AOD. Internal field boundaries comprise, hedgerows, tree lines and several linear strips of woodland shelter belt. External boundaries largely consist of mature to lower hedgerows with individual trees and some evident gaps. In terms of existing infrastructure; electricity pylons extend north-south through fields 5, 6 & 8, whilst electricity lines pass northwest to southwest through fields 4, 5, 6 & 9.
- 1.3. The Application Site will be accessed via the creation of a new entrance off the linear public highway Thoroton Road. The vegetation is set back from the road verge by a few metres and

therefore visibility will not be an issue. Appropriate visibility splays are included within the CTMP.

- 1.4. The haul route will be from the A46 to the southwest of the Application Site. The vehicles will exit the A46, signposted A6097 (Mansfield), take the 4th exit at the roundabout onto Bridgford Street followed by the 1st exit at the next roundabout onto Fosse Way. Vehicles will travel along this road for approximately 1.5km to the next roundabout, where they will take the 2nd exit onto Tenman Lane. This road will be travelled on in an eastern direction for approximately 3.2km before taking a left hand turn onto Hawksworth Road and vehicles will travel along here for approximately 2km before taking a right hand turn onto Thoroton Road. Vehicles will travel in a southeast direction for approximately 0.9km before turning left into the Application Site.
- 1.5. There is one recreational route located within the Proposed Development Site (Bridleway 1 & 6 that pass through the northern fields), and several located close by (**See Figure 3 of Vol 2: Planning Drawings**). National Cycle Network (NCN) route 64 shares the minor road on the east side of the Proposed Development Site.
- 1.6. The Proposed Development Site is mostly contained within Flood Zone 1 (at little or no risk of fluvial or tidal / coastal flooding), however there are some areas of Flood Zone 2 and 3a which follow the watercourse/drains within the site and have been carefully considered during the design phase.

## Consultation

- 1.7. The Application Site lies circa 3.6km from RAF Syreston base. Neo Environmental therefore consulted with the safeguarding officer Jillian Roberts from the Defence Infrastructure Organisation (DIO). An email response from Jillian stated that she would contact Rushcliffe Borough Council, informing them that they must make contact with DIO Safeguarding once the planning application for the solar farm has been submitted.

*“I will contact Craig Miles (Council planner) to ensure he is aware that DIO Safeguarding need to be consulted on this application once it is submitted to Rushcliffe Borough County Council.*

*Thank you for the update.*

*Kind regards,*

*Jill Roberts - Safeguarding | Defence Infrastructure Organisation Head Office”*

- 1.8. The current Bird Hazard Management Plan (hereafter “BHMP”) has been written as partial fulfilment of the planning application to the Rushcliffe Borough Council.

## GUIDANCE

The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002

- 1.9. This guidance<sup>1</sup>, last updated in 2016, comprises Office of the Deputy Prime Minister (“ODPM”) Circular 1/2003. It covers procedures for consultation between local authorities, aerodrome owners/operators and others regarding development applications close to certain aerodromes. These fall within:

*“[...] a 13 kilometre radius in the case of civil aerodromes and an eight mile (about 12.87 kilometre) radius in the case of military aerodromes [...]. Local planning authorities are required to consult the relevant consultee before granting planning permission for any development within the relevant radius of an officially safeguarded civil or military aerodrome which is likely to attract birds. Whether or not a development is likely to attract birds will depend on a number of factors. A local planning authority will need to consider not only the individual potential bird attractant features of a proposed development but also whether the development, when combined with existing land features, will make the safeguarded area, or parts of it, more attractive to birds or create a hazard such as bird flightlines across aircraft flightpaths.”*

CAP 772

- 1.10. The Civil Aviation Authority’s CAP 772: *Wildlife Hazard Management at Aerodromes*<sup>2</sup> sets out guidelines for the control of bird hazards in and around aerodromes. It refers to land or water within 13km of an aerodrome. The guidance concentrates on bird control on aerodromes, but also touches on landscaping measures and waste management.

## BASELINE

### Habitats

- 1.11. Under the UK Habitat classification used for net gain analysis<sup>3</sup>, the Application Site currently comprises:
- Cropland - Cereal crops (85.2ha)
  - Grassland - Modified grassland (3.8ha)

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<sup>1</sup> Available at: <https://www.gov.uk/government/publications/safeguarding-aerodromes-technical-sites-and-military-explosives-storage-areas> [accessed 19 July 2022]

<sup>2</sup> Available at: [https://publicapps.caa.co.uk/docs/33/CAP772\\_Issue2.pdf](https://publicapps.caa.co.uk/docs/33/CAP772_Issue2.pdf) [accessed 19 July 2022]

<sup>3</sup> Butcher, B. et al. (2020) *UK Habitat Classification- Habitat Definitions V1.1*. Available at: <http://ukhab.org>

- Woodland and forest - Other woodland; broadleaved (1.2ha)
- Woodland and forest - Other woodland; broadleaved (0.7ha)
- Woodland and forest – Other woodland; mixed (0.1ha)
- Grassland - Other neutral grassland (0.1ha)
- Urban – Built linear features (0.2ha)
- Line of trees (1.4km)
- Native hedgerow with trees (0.2km)
- Native species-rich hedgerow with trees (3.4km)
- Canals (0.9km)
- Ditches (0.1km)

## Birds

1.12. Three habitat surveys were conducted for the Proposed Development. An extended Phase 1 habitat survey of the Application Site, plus a 50m buffer where accessible (the Ecological Study Area; “ESA”), was undertaken by a competent ecologist and ornithologist in April 2021. In addition to this, a UK Habitats Classification survey of the Application Site, plus a 50m buffer where accessible (the Ecological Study Area; “ESA”), was undertaken by a competent ecologist and ornithologist in January and July 2022. **Table 1** lists the 15 bird species recorded during this.

**Table 1: Bird Species Recorded**

Common Name	Scientific Name
Wren	<i>Troglodytes troglodytes</i>
Skylark	<i>Alauda arvensis</i>
Pheasant	<i>Phasianus colchicus</i>
Great Tit	<i>Parus major</i>
Chaffinch	<i>Fringilla coelebs</i>



Blue Tit	<i>Cyanistes caeruleus</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Wood Pigeon	<i>Columba palumbus</i>
Dunnock	<i>Prunella modularis</i>
Great Spotted Woodpecker	<i>Dendrocopos major</i>
Robin	<i>Erithacus rubecula</i>
Carrion Crow	<i>Corvus corone</i>
Blackbird	<i>Turdus merula</i>
Buzzard	<i>Buteo buteo</i>
Grey Partridge	<i>Perdix perdix</i>

1.13. These species are all relatively common and abundant in England. None were recorded in high numbers in the ESA. Nesting habitat for several of the species is present in the form of hedgerows and nearby woodland. Some others, notably the UK red-listed<sup>4</sup> (though still relatively common) skylark and grey partridge (once widespread and now declining), may attempt to use the site's grassland or arable habitats to nest.

<sup>4</sup> Standbury, A.J, *et al.* (2021) Birds of Conservation Concern 5 - The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and the Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114, 723–747. Available online at [https://britishbirds.co.uk/sites/default/files/BB\\_Dec21-BoCC5-IUCN2.pdf](https://britishbirds.co.uk/sites/default/files/BB_Dec21-BoCC5-IUCN2.pdf)

## BIRD STRIKE RISK ASSESSMENT

1.14. The aviation hazard associated with bird populations arises largely from bird strike, where single birds or flocks collide with an aircraft. Figure 4 of CAP 772 gives the probability of aircraft damage for various common species. Generally, the severity of damage increases with bird weight. Of the species recorded in the ESA, only (buzzard) is classed as 'high' severity. Others range from moderate (wood pigeon) to very low (skylark). Two other species of relatively high body weight were recorded during the survey. These species being, pheasant and grey partridge which rarely, if ever, make flights at significant height.

1.15. CAP 772 also lists a number of offsite features that can attract wildlife to an aerodrome. These include:

- Landfill sites,
- Sewage works,
- Building developments,
- Drainage schemes,
- Reservoirs,
- Gravel pits,
- Coastal areas,
- Rivers and estuaries, and
- Woodland and agricultural land.

1.16. The Application Site currently contains 13 habitat types as defined by the UK Habitats Classification system, these being: Hedgerow (Priority Habitat (h2a), Line of Trees (w1g6), Hedgerow (h2), Broad Mixed and Yew Woodland (w1), Canals(r1e), Eutrophic Standing Water(r1a), Cereal Crops(c1c), Modified Grassland (g4), Other Woodland-Broadleaved (w1g), Coniferous Woodland (w2), Other Woodland Mixed (w1h), Other Neutral Grassland (g3c) and Built Linear Features (u1e). The following habitats will see a minor loss due to the construction proposed development: Cereal Crops, Modified Grassland, Line of Trees and Hedgerow (Priority Habitat). Compensatory measures have been outlined in the Biodiversity Management Plan found in **Appendix 2.1 of the Ecological Assessment** and if implemented will have **a significant net gain to local biodiversity**. Agricultural land will be replaced with species-rich neutral grassland. Native woodland and species-rich hedgerow planting has also been proposed.

- 1.17. Before solar farms became more common in England, some researchers raised concerns about possible attraction of birds to PV panels. However, no conclusive evidence of this has been found to date for UK solar farms. Results from the USA suggest that some small passerines are more abundant at PV facilities compared with adjacent grasslands, but corvids and raptors are less abundant<sup>5</sup>. Trends in bird numbers at solar farms are less clear<sup>6</sup>. However, the overall picture suggests that, if any change occurs, there is a move towards smaller-bodied (and thus less risky) species.
- 1.18. CAP 772 also lists 'Reservoirs, Lakes and Ponds' as potential bird attractant habitat. The Proposed Development will not include any large reservoirs or lakes. However, it will involve the construction of swales; these could potentially act as an attractant for some bird species.
- 1.19. The proposed swales will have an overall length of approximately 775m, with a base width of 0.5m, a 0.25m design depth and a 0.15m freeboard and a maximum side slope of 1 in 3. It will provide a total storage volume of approximately 242.2m<sup>3</sup>.
- 1.20. These Sustainable Drainage System (SuDS) features will hold an element of permanent water. They are likely to attract a modest range of small to medium-sized bird species (e.g. mallard and moorhen). No large flocks or significant use by large-bodied species such as geese is predicted. Moreover, the site drainage strategy (see **Volume 3, Technical Appendix 4: Flood Risk and Drainage Impact Assessment**) has been designed to:
- Mimic existing (greenfield) drainage arrangements as far as possible, and
  - Avoid increases in the greenfield rate, volume and frequency of offsite discharge.
- 1.21. There is therefore unlikely to be any major increase in bird strike risk as a result of the swales. Altogether, it is concluded that a significant increase in bird strike from the Proposed Development is **unlikely**.

## PROPOSED MANAGEMENT MEASURES

- 1.22. The Proposed Development is not considered likely to result in any increase in bird populations that present a significant strike risk. However, as a precaution, site management, cleanliness, monitoring, bird control and habitat management measures have been devised to minimise remaining risk.

## Site Management and Responsibilities

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<sup>5</sup> DeVault, T.L. *et al.* (2014). Bird use of solar photovoltaic installations at US airports: implications for aviation safety. *Landscape and Urban Planning*, 122: 122-128.

<sup>6</sup> Taylor, R. *et al.* (2019). Potential ecological impacts of ground-mounted photovoltaic solar panels. Available at: <https://avesnature.com/pl/wp-content/uploads/Solar-Panels-and-Wildlife-Review-2019.pdf> [accessed 19 July 2022]

- 1.23. The Applicant will be responsible to appoint a Site Manager for the construction and the operational phase of the Proposed Development. The Site Manager will hold the responsibility of completing site inspections. It is proposed that inspections are undertaken at least twice daily during the construction phase, and 15 times per year during the operational phase. Records of all relevant findings made in an official log book.
- 1.24. The logbook will be kept at a designated on site location, to be disclosed to RAF Syreston base upon commencement of each phase. It will be kept available for audit or review at any stage by RAF Syreston, any Bird Management Consultant appointed by RAF Syreston or the Site Manager, and / or the Civil Aviation Authority, without prior arrangement. The current Bird Hazard Management Plan, a bird control diary and relevant staff training records (e.g. ecological qualifications, shooting licences) will also be available for inspection, again without prior arrangement. Review meetings with RAF Syreston will be arranged once per quarter, with an option to reduce the frequency of meetings if both parties agree to this.
- 1.25. Site management during construction and operation will ensure that the Application Site is kept free from excess waste/spillages. Any pollution incidents dealt with as a matter of priority. If temporary onsite waste storage is required, the waste will be covered over at all times.
- 1.26. Any bird-specific management that may be required following bird monitoring will be the responsibility of the Site Manager. They should appoint suitably qualified and experienced professionals (such as ecologists or pest control agents) to undertake the relevant tasks where necessary.
- 1.27. Prior to the commencement of construction, a Bird Management Consultant (as a minimum) will be appointed formally by the Site Manager.

## Site Cleanliness

- 1.28. Pest and vermin control (not limited to bird species) will be undertaken where required.
- 1.29. There will be limited waste produced during the construction of the Proposed Development. The Site Manager or other designated site contractor (as relevant) will be responsible for monitoring and appropriate disposal of waste from the site.
- 1.30. All waste produced from construction will be collected in skips, with the construction site kept tidy at all times. All skips used during the construction phase will be of designs that exclude birds.
- 1.31. The majority of materials associated with the construction phase are unattractive to bird species, comprising artificial or chemical substances. However, the following pollution prevention measures will also be undertaken to minimise bird hazard:
  - Excavated soil will be stored on site or removed by a licensed waste disposal unit,

- Location of spill kit to be known by all construction workers, and used in the event of spillage or leakage,
- Skips will be collected regularly or when full (whichever is sooner),
- All waste from construction is to be stored within the site confines and removed to a permitted waste facility,
- Contractor to nominate member of staff as the environmental officer with the responsibility to ensure best practice measures are implemented and adhered to, and
- Any incidents or non-compliance issues will be reported to the Site Manager and project team.

1.32. Suitable kitchen and washroom/toilet facilities will be made available to all staff and contractors during the construction phase.

1.33. All waste storage and handling operations that may be susceptible to problems with windblown litter will be conducted inside a controlled area. Vehicles nets will be used to cover any vehicle with an ejector trailer. Drivers will check the nets are correctly installed and undamaged before leaving this controlled area. Only competent drivers with Category C and E licenses will be employed for such activities.

1.34. All vehicles used during the construction or operation phase should be well maintained.

## Habitat Creation and Management

1.35. It is noted that a **Biodiversity Management Plan (Appendix 2.2 of the Ecological Assessment)** has been produced to increase the site's overall attractiveness to wildlife. However, measures likely to attract large numbers of bird species have not been used. Fruit trees such as cherries *Prunus* spp. have been excluded from the proposed tree planting scheme. This measure will limit the site's attractiveness to many common bird species after construction.

1.36. New and existing hedgerows that contain hawthorn *Crataegus monogyna* will be trimmed every two years to limit berry production.

1.37. Following monitoring (see below) and the recommendations of the Bird Management Consultant, habitat management will be adapted wherever deemed necessary.

## Bird Monitoring

1.38. Monitoring of bird activity will be undertaken by a suitably competent Ecologist / Bird Management Consultant. Records of numbers and species will be recorded in the log book. The following is recommended as an initial monitoring programme:

- Twice monthly between March and August (inclusive);
- Monthly between September and February (inclusive).

- 1.39. This frequency may be varied under the direction of the Bird Management Consultant, and will be dictated by the level of bird activity and time of year. If bird numbers are seen to increase by more than 25%, advice will be sought from a Bird Control Specialist.
- 1.40. The general attractiveness of the facility for birds will also be monitored on an ongoing basis. Where required, additional measures (such as amended habitat management, surveillance or dispersal strategies) will be adopted to render the site less attractive for birds.
- 1.41. Contact will be made with the airport's Air Traffic Control Tower, NATS Prestwick (which controls much of the air traffic in the Midlands) and/or the Defence Infrastructure Organisation's safeguarding department should any significant bird issues arise.

## Bird Control

- 1.42. If activity of larger flocking species (such as gulls, crows/rooks or wildfowl) is recorded during monitoring, a Bird Control Specialist will be contacted. Humane and legal control measures will be introduced if deemed appropriate.
- 1.43. It is the responsibility of this Specialist to ensure they have the appropriate licences and act in accordance with legislation. The Site Manager is to make themselves familiar with the relevant licences, and seek to appoint a suitably qualified and experienced Specialist, unless this responsibility has already been delegated (in writing) to the Bird Management Consultant.
- 1.44. Where necessary, immediate onsite action will be taken by deploying bird deterrents. These may include netting, stringing, use of anti-bird spikes, or use of floating balls to deter unwanted birds from using features such as the swales and ditches.
- 1.45. Any unusually large aggregation of birds roosting or loafing outside the bird breeding season may be dispersed, if deemed necessary. Consideration will be given to the use of deterrent measures to encourage this, e.g. playing of recorded distress calls, or using gas cannons. Contact with East Midland Airport's Air Traffic Control Tower, NATS Prestwick and/or the DIO Safeguarding department will be made at the time, if deemed appropriate.
- 1.46. However, the decision made must take account of the legal protections afforded to birds by the Wildlife and Countryside Act 1981 (as amended), especially if species with special protection are present.

## Emergency Procedures

- 1.47. If, despite the adoption of the above, the Site Manager has concerns about bird numbers and activity due to unexpected or seasonal bird activity, the activity will be recorded in the log book. The bird management consultant and Syreston RAF base will be contacted for advice

within 72 hours. Any advice will be acted on immediately. Contact details for East Midlands Airport Air Traffic Control Tower will be on permanent display at the designated onsite log book location.