

Steeple Renewables Project

Appendix 7.4: Breeding bird report

Issuing office

3 Brunel House | Hathersage Park | Station Approach | Hathersage | Derbyshire | S32 1DP
 T: 01433 651869 | W: www.bsg-ecology.com | E: info@bsg-ecology.com

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	Name	Position	Date
Originated	Daniel Foster	Principal Ecologist	11 August 2024
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1 Introduction

1.1 This report is a technical appendix to accompany the Preliminary Environmental Information Report (PEIR) Chapter 7: Ecology and Biodiversity and includes the following information:

- Methods.
- Results including relevant Figures, and summary interpretation.

1.2 For ease of reference the following will be terms referred to within this report to define areas within the Site:

- Proposed Solar Areas: areas within the Site which have been provisionally identified for locating the solar panels, battery storage and other associated infrastructure.
- Biodiversity Mitigation Areas (Eastern and Western): areas of the Site that would not be used for development, and provisionally identified for use as biodiversity mitigation and enhancement.
- The Site: collectively including the Proposed Solar Areas and Biodiversity Mitigation Areas.

2 Methods

Desk study

- 2.1 A data search for records of protected and notable species, including wintering birds, within 2km of the Site was requested from Nottinghamshire Biodiversity Records Centre (NBRC) and Lincolnshire Environmental Records Centre (LERC) in March 2024.
- 2.2 Consideration of records up to twenty years old as of the request date is included within this report where relevant, as older records are less likely to be of relevance to the current baseline in the local area. Older records were reviewed as part of the desk study and are included where considered to be relevant to the Site, for example they occur on or adjacent to the Site.
- 2.3 Nottinghamshire County Council planning application reference 1/46/06/00014 is a quarry scheme (not yet implemented) that is located adjacent the Site's northeast boundary on the farmland between the Site and the River Trent. The survey boundary for the quarry application included areas of the Site to the south of West Burton Power Station. The ecology report for that application (ESL Ltd, 2010) presents the results of breeding bird surveys undertaken in 2010 and these were reviewed as part of the desk study for this report.
- 2.4 Several designated sites with features of interest / qualifying features that include breeding birds are located within the search area for designated sites. This is dealt with in the baseline report for designated sites (Appendix 7.2 of the Ecology Chapter).
- 2.5 The Birds of Nottinghamshire Annual Report for 2020 (Nottinghamshire Birdwatchers, 2023) was reviewed in an effort to establish the status of the bird species recorded at the Site. The Nottinghamshire Annual Report does not give population estimates for the species, but provides the following terms and definitions in relation to Nottinghamshire:
- Very rare: 10 or fewer records ever.
 - Rare: 11 to 50 records ever.
 - Uncommon: Resident species with a very limited distribution in the county or non-resident species usually recorded in very limited numbers.
 - Fairly common: Resident or migrant species likely to be seen in modest numbers during most visits to suitable habitats.
 - Common: Resident or migrant species likely to be seen in reasonable numbers of all visits to suitable habitats.
- 2.6 Nottinghamshire Birdwatchers were contacted by email in May 2024 regarding bird population estimates, and they confirmed that the only source of bird populations in the county is the Nottinghamshire Annual Report.

Field survey

- 2.7 Surveys to characterise the breeding bird community were undertaken between March and July 2023 (inclusive) and March to July 2024 (inclusive) (as shown on Figures 7.4.1 and 7.4.2) with one morning visit per month, and one dusk / crepuscular survey in June 2023 and June 2024. Surveys were undertaken with reference to methods suggested by the Bird Survey & Assessment Steering Group (2023). Owing to the size of the survey area, each survey was split over a number of days to permit full coverage of the Site. Appendix 7.4.1 presents the dates of breeding bird characterisation survey visits and weather conditions
- 2.8 During each visit, the surveyor walked across the survey area scanning all habitats present (within the survey boundary and the immediate surrounding area) using binoculars as required. Frequent stops were made to listen and scan for singing, calling, and displaying birds. Birds observed beyond the boundary were also noted. Bird locations were mapped and behaviour recorded using standard British Trust for Ornithology (BTO) codes and symbols (Gilbert, G., Gibbons, D.W. & Evans, J., 1998).

The resultant data were subsequently analysed to create maps of breeding bird activity and to estimate the numbers of breeding pairs within the Site.

- 2.9 The evidence of breeding behaviour observed during the surveys (e.g. song; courtship behaviour or display; alarm calling; birds apparently visiting a nest site or evidence of nest building; distraction display; the presence of a used nest or eggshells; the presence of recently fledged or downy young; adults commuting to and from a nest hole; or carrying faecal sacs or food for young) was used to identify of birds were likely to be breeding on the Site.
- 2.10 The conservation status of each species of bird was also taken into account and the following lists were considered:
- The Wildlife and Countryside Act 1981 (as amended), Schedule 1;
 - Species of Principal Importance (SPI) for the Conservation of Biodiversity in England as listed in accordance with section 41 of the Natural Environment and Rural Communities Act (NERC) 2006 (S41);
 - Species of high and medium conservation concern (Red and Amber listed species respectively) included in Birds of Conservation Concern 5 (Stanbury *et al.*, 2021)
- 2.11 During the surveys, Green listed species were not mapped unless they are also an SPI or a Schedule 1 species. A list of Green listed species present within the survey area was made, along with consideration of whether they were likely to be breeding or not breeding, but numbers of territories were not estimated.

Estimation of territory numbers

- 2.12 The principle behind the estimation of territory numbers is that over the course of the programme of surveys a bird that is holding territory at any particular location is likely to be recorded there over several visits and on each visit is more likely to be observed showing territorial behaviour or breeding behaviour.
- 2.13 Multiple observations of the same bird species from the same or similar location showing territorial or breeding activity is identified as a territory. This is adjusted to account for some species that have only a brief period of territorial activity before becoming less visible during incubation and chick rearing. This can apply to some resident species and some summer migrants for which the observation of territorial activity on a single visit is taken to identify a territory. It can also apply to those summer migrants that arrive later in the spring to breed. Caution is applied when applying the single observation approach to summer migrants that may only be moving through on passage.
- 2.14 Birds observed beyond the boundary of the Site or flying over the Site showing no apparent association with it were also noted to contextualise the information gained but those observations do not form part of the reported territory numbers.

Personnel

- 2.15 The breeding bird characterisation surveys were undertaken by Andrew Cockroft. Andrew is an experienced ornithological surveyor who regularly undertakes breeding and wintering bird surveys based on established methodologies.

Consideration of potential limitations

- 2.16 Full access to the Site was not available during the 2023 breeding bird characterisation surveys, and this work was limited to surveying from public rights of way only. There is an extensive network of public rights of way across the Site which allowed much of the Site to be accessed, although certain areas were not accessible. The Site comprises large, flat open arable fields which did allow for good visual observations using binoculars to be made, particularly of species within the arable fields that are more detectable this way such as skylark *Alauda arvensis*.

- 2.17 Whilst the 2023 breeding bird survey was constrained by the access restrictions, its main purpose was to gain an early indication of skylark and other territories to inform the early phases of the design process. It also provided a useful baseline of the breeding bird assemblage at the Site upon which the 2024 surveys (with full access) have built. In this way (and taking into account the full-access survey was undertaken in 2024) the early access constraints of the 2023 survey are not considered to be significant.
- 2.18 Modifications to the Site boundary following the completion of the 2023 and 2024 breeding bird surveys has resulted in the removal of certain surveyed areas, and the inclusion of areas that were not surveyed (refer to Figures 7.4.1 and 7.4.2). There is one area within the Site that has not been fully accessed during either the 2023 or 2024 surveys, which is the area within West Burton Power Station. This area is formed mainly of buildings, pylons, hardstanding with small areas of grassland and occasional trees, and it totals approximately 11ha (ca. 1.2% of the total Site area); it is considered to be of limited suitability for most nesting bird species due to the limited amounts of semi-natural vegetation and high levels of disturbance from ongoing operation of the Power Station. These areas of the Site within the Power Station and access road will largely be retained and used for cable routing into existing power grid infrastructure.
- 2.19 The potential limitations that have been considered are not assessed as being significant, as the majority of the Site, including the areas to be impacted by the Proposed Solar Areas, were extensively surveyed. The breeding bird characterisation survey is considered to be robust and has enabled the identification of any protected or sensitive ornithological receptors.

3 Results and summary interpretation

Desk study

Biological records centre data

- 3.1 NBRC provided 201 records and LERC 11,377 records of birds that were recorded during the typical breeding period (March to August inclusive).
- 3.2 There are three records of birds from within the Site boundary which all relate to Littleborough Lagoon in the Eastern Biodiversity Mitigation Area (see Figure 7.1 of the Ecology Chapter in the Preliminary Environmental Information Report) in May 2012, including: pochard *Aythya farina* (one pair), gadwall *Mareca strepera* (seven male, four female), shoveler *Spatula clypeata* (one male).
- 3.3 A summary of relevant records of bird species identified for conservation action¹ is provided below.
- 3.4 There are 24 records of birds recorded during the breeding period adjacent to the southern boundary of the Eastern Biodiversity Mitigation Area at Littleborough dated between 2008 and 2019. The descriptions provided with the records suggests that some of these records could relate to Littleborough Lagoon (which is within the Eastern Biodiversity Mitigation Area) and Out Ings (600 m north of the Eastern Biodiversity Mitigation Area), particularly water or wading bird species, such as: mute swan *Cygnus olor*, common shelduck *Tadorna tadorna*, gadwall, curlew *Numenius Arquata*, Eurasian wigeon *Mareca Penelope*, Bewick's swan *Cygnus columbianus*, little egret *Egretta garzetta* and green sandpiper *Tringa ochropus*. Other bird records within the Littleborough area include cuckoo *Cuculus canorus*, peregrine falcon *Falco peregrinus*, meadow pipit *Anthus pratensis* and yellow wagtail *Motacilla flava*; however the records did not specify if these were breeding or non-breeding birds. A further 17 records are provided for Out Ings which is an area of wetland adjacent the River Trent and to the north of Eastern Biodiversity Mitigation Area, typically for a similar assemblage of water and wading birds listed above, but also for marsh harrier *Circus aeruginosus* (a non-breeding male bird) and red kite *Milvus milvus* (flying over the area).
- 3.5 The desk study provided 47 bird records associated with the West Burton Power Station site adjacent to the north of the Site, between 2008 and 2019. This includes records of confirmed breeding peregrine falcon, turtle dove *Streptopelia turtur*, great spotted woodpecker *Dendrocopos major*, green woodpecker *Picus viridis*, skylark and sand martin *Riparia riparia*. Further records of breeding water and wading birds include mute swan, mallard *Anas platyrhynchos* and little grebe *Tachybaptus ruficollis*.
- 3.6 Further records were returned by LERC including numerous records at Trent Port and Marton ca. 1.7km southeast of the Site including species such as Cetti's warbler *Cettia cetti*, little ringed-plover *Charadrius dubius*, turtle dove, marsh harrier, merlin *Falco columbarius* and hobby *Falco Subbuteo*, and quail *Coturnix coturnix* ca. 1km northeast of the Site. LERC also provided over 600 records of skylark and 150 of barn owl *Tyto alba*.

Pre-existing site survey data

- 3.7 Six breeding bird surveys were undertaken in support of the adjacent quarry application from March to June 2010). In total, 82 bird species were recorded of which 57 were considered to be breeding within the survey area. This included a number of species identified for conservation action including breeding quail, skylark, curlew, dunnock *Prunella modularis*, yellow wagtail *Motacilla flava*, song thrush *Turdus philomelos*, lapwing *Vanellus vanellus*, tree sparrow, linnet *Linaria cannabina*, yellowhammer *Emberiza citrinella*, grey partridge *Perdix perdix*, and barn owl.

¹ Species that are on the red list of Birds of Conservation Concern (Eaton et al., 2021), Species listed on Schedule 1 of The Wildlife and Countryside Act 1981 (as amended), Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006, and / or the Nottinghamshire Biodiversity Action Plan (BAP).

- 3.8 It was noted overall the breeding bird assemblage was considered to be typical of lowland farmland in the region, and that the areas of wetland and grassland pasture adjacent the River Trent (which are located to the north of the Eastern Biodiversity Mitigation Area) provided more notable habitat.

Field survey

- 3.9 The 2024 data, which was gathered across the whole of the Site with no significant restrictions on access, is used as the principal field survey baseline. The 2023 survey was subject to access restrictions and is considered to be a partial dataset that nonetheless provides useful context in some cases.
- 3.10 During the 2024 breeding bird surveys, 100 species were recorded at the Site, of which 47 were confirmed or considered likely to be breeding. Of the breeding species, 22 are species that have been identified for conservation action.
- 3.11 Table 1 presents a summary of the 2024 species recorded with the estimated numbers of territories in different parts of the Site. This is shown on Figure 7.4.4.1 to 7.4.4.3.
- 3.12 Table 1 also indicates whether each of the species was recorded in 2023 (Y or N). For information, Figures 7.4.3.1 to 7.4.3.3 show the territories that were mapped in 2023.
- 3.13 A summary of the Green listed or non-native species recorded breeding at the Site during 2023 and 2024 is provided in Appendix 7.4.2.

Table 1: Summary of breeding bird species recorded within the Proposed Solar Area that are red listed, Species of Principal Importance (SPI), Nottinghamshire Local Biodiversity Action Plan Species of Conservation Concern, and / or are 'Noteworthy fauna' bird species associated with the Humber Estuary Ramsar Site Ramsar.

Common name	Scientific name	Estimated breeding territories in 2024 by Site area			Conservation status*	Species status in Nottinghamshire (Nottinghamshire Birdwatchers, 2023)	Species recorded as breeding / likely breeding during 2023 surveys (Y / N) ²
		Proposed Solar Area	Western Biodiversity Mitigation Area	Eastern Biodiversity Mitigation Area			
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	-	-	Amber listed SPI LBAP	A fairly common resident.	Yes
Barn owl	<i>Tyto alba</i>	Information presented separately in barn owl baseline report Appendix 7.5.			Green listed Sch 1 LBAP	An uncommon resident.	Yes
Dunnock	<i>Prunella modularis</i>	15	4	2	Amber listed SPI LBAP	A common resident.	Yes
Greenfinch	<i>Chloris chloris</i>	1	-	-	Red listed	A common resident.	Yes
Kestrel	<i>Falco tinnunculus</i>	2	-	-	Amber listed LBAP	A fairly common resident.	Yes
Lapwing	<i>Vanellus vanellus</i>	-	-	6	Red listed SPI LBAP	A common resident, passage migrant and winter visitor.	No
Linnet	<i>Linaria cannabina</i>	18	6	5	Red listed SPI LBAP	A common resident and passage migrant.	Yes
Mallard	<i>Anas platyrhynchos</i>	1	-	2	Amber listed LBAP	A common resident.	Yes
Meadow pipit	<i>Anthus pratensis</i>	-	-	1	Amber listed LBAP	A fairly common resident and passage migrant.	No
Moorhen	<i>Gallinula chloropus</i>	-	-	1	Amber listed	A common resident.	No
Grey partridge	<i>Perdix perdix</i>	5	-	1	Red listed LBAP	A fairly common resident.	Yes
Reed bunting	<i>Emberiza schoeniclus</i>	17	2	-	Amber listed LBAP	A fairly common resident.	Yes

² The 2023 surveys were undertaken from PRow only and areas of the Eastern Biodiversity Mitigation area was outside of the survey area. Therefore, the numbers of birds recorded was influenced by those limitations to the survey method, particularly for species that typically nest in hedgerow or other shrubby vegetation and would be challenging to detect from distance. Presence of species recorded in 2023 is noted in this table for information.

Common name	Scientific name	Estimated breeding territories in 2024 by Site area			Conservation status*	Species status in Nottinghamshire (Nottinghamshire Birdwatchers, 2023)	Species recorded as breeding / likely breeding during 2023 surveys (Y / N) ²
		Proposed Solar Area	Western Biodiversity Mitigation Area	Eastern Biodiversity Mitigation Area			
Skylark	<i>Alauda arvensis</i>	90	17	13	Red listed SPI LBAP	A common resident.	Yes
Stock dove	<i>Columba oenas</i>	4	1	-	Amber listed LBAP	A fairly common resident.	Yes
Song thrush	<i>Turdus philomelos</i>	5	3	1	Amber listed SPI LBAP	A common resident.	No
Tawny owl	<i>Strix aluco</i>	1	-	-	Amber listed SPI LBAP	A fairly common resident.	No
Whitethroat	<i>Curruca communis</i>	25	6	2	Amber listed	A common summer visitor.	Yes
Wren	<i>Troglodytes troglodytes</i>	31	6	2	Amber listed	A common resident.	Yes
Willow warbler	<i>Phylloscopus trochilus</i>	4	2	-	Amber listed SPI LBAP	A common summer visitor.	Yes
Woodpigeon	<i>Columba palumbus</i>	4	3	-	Amber listed	A common resident.	No
Yellowhammer	<i>Emberiza citrinella</i>	38	11	4	Red listed SPI LBAP	A fairly common resident and passage migrant.	Yes
Yellow wagtail	<i>Motacilla flava</i>	8	-	-	Red listed SPI LBAP	A fairly common summer visitor.	Yes
<p>* Red / Amber / Green listed= Birds of Conservation Concern (Eaton et al., 2021) listing assesses bird species on the basis of their population status, reflecting changes in their abundance and range. Red list species are of high nature conservation concern; Amber list species are of medium conservation concern.</p> <p>Sch1 = Listed on Schedule 1 of The Wildlife and Countryside Act 1981 (as amended)</p> <p>LBAP = Nottinghamshire Biodiversity Action Plan Species of Conservation Concern</p> <p>SPI = Species of Principal under the provisions of the NERC Act 2006</p> <p>Bold = indicated species associated with the Humber Estuary Ramsar Site as 'Noteworthy fauna' bird species</p>							

Summary of Green listed and non-native species likely breeding at the Site

- 3.14 In addition to the above, a further 25 species were recorded during the 2024 survey visits that were considered to be breeding at the Site. Twenty-one of these species were BoCC5 Green list and four were non-native species that are not assessed in the BoCC5 process. These species are considered to form part of a typical breeding bird assemblage for the habitats present within the Site; the full list is presented in Appendix 7.4.2 to this report. Green list species such as great tit *Parus major*, chiffchaff *Phylloscopus collybita*, blackcap *Sylvia atricapilla* and blackbird *Turdus merula* were breeding within hedgerows, trees, woodland a scrub. The wetland areas, such as Littleborough Lagoon supports breeding coot *Fulica atra*, great crested grebe *Podiceps cristatus* and Canada goose *Branta canadensis*).

Summary of non-breeding birds at the Site

- 3.15 Fifty-three bird species were recorded during the 2024 survey visits for which no evidence of breeding was noted. This included individuals flying over the Site or species which may breed locally but for which suitable nesting habitat either does not occur on Site, or where no behaviour suggesting breeding was recorded. A full list of such species is presented in Appendix 7.4.3 to this report for information.
- 3.16 Several of the non-breeding birds are birds of conservation concern and are considered to be notable due to their status in Nottinghamshire (with reference to the county bird report (Nottinghamshire Birdwatchers, 2023)), including:
- Peregrine falcon (an 'uncommon resident' in Nottinghamshire) was regularly recorded within the Site, typically flying over or occasionally perched on a powerline pylon. Peregrine falcon is a Schedule 1 species and a Species of Conservation Concern in the Nottinghamshire BAP. The desk study provided three records of a pair of breeding peregrine within the West Burton Power Station during 2009, 2014 and 2016, which is adjacent the Site's northern boundary. One of the records identified the nest location as being on a cooling tower. Observations made during the breeding bird surveys in 2023 and 2024 suggested it is likely that birds recorded within the Site are nesting adults, or offspring, from the Power Station as birds were seen flying to / from that area. West Burton Power Station is currently undergoing decommissioning, which will include the demolition of buildings and cooling towers. There is one building in the Site which could provide suitable nesting opportunities for peregrine; this is located in the north of the Site within the Power Station complex and is tall (over 10 m) and appears to have a multi-pitched sawtooth roof, and may offer potentially suitable flat nesting ledges around the roof periphery. There was no evidence recorded during the surveys that suggested peregrine falcon currently nest on the Power Station buildings that are present within the Site boundary. However, as demolition of the Power Station outside of the Site continues, the breeding peregrine may be displaced and could potentially utilise the building within the Site. It is considered likely that peregrine falcon from the off-site breeding pair, including juvenile birds, regularly hunt within the Site as part of a wider foraging resource in the local area.
 - A female marsh harrier (an 'uncommon visitor and very rare breeding bird' in Nottinghamshire) was recorded on a single occasion in May 2024 flying through the Proposed Solar Areas towards the River Trent. Marsh harrier is Amber listed, a Schedule 1 species and a Species of Conservation Concern in the Nottinghamshire BAP. This species typically nests in reedbeds but has on rare occasions been recorded nesting in arable fields close to wetlands (Underhill-Day, 1998). The habitats at the Site are considered to be sub-optimal for nesting marsh harrier due to the lack of reedbeds, and levels of disturbance from farming activities and no evidence to suggest breeding at the Site was recorded during the surveys.
 - A pair of curlew was recorded breeding approximately 800 m north of the Eastern Biodiversity Mitigation Area in the area of Out Ings Local Wildlife Site (LWS). Individual curlew were recorded occasionally within the Site foraging in the grassland and arable habitats in the Eastern Biodiversity Mitigation Area. Curlew is Red listed, an SPI, a Species of Conservation Concern in the Nottinghamshire BAP, and noted in the Nottinghamshire bird report to be 'an uncommon passage migrant and very rare breeding bird'. In lowland areas, this species typically nests in rough and damp pastures, unimproved hay meadows and boggy ground. They may occasionally

nest in arable habitat close to wet grassland that are invertebrate-rich feeding areas for chicks³. The Proposed Solar Areas and Western Biodiversity Mitigation Area are considered to be suboptimal nesting habitat due to the limited amount of suitable rough grassland. Favourable nesting habitat is present in the Eastern Biodiversity Mitigation Area but no evidence of breeding was recorded.

- Hobby (a Schedule 1 species and 'uncommon summer visitor' in Nottinghamshire) were recorded occasionally flying though the Site and hunting, typically along watercourses. Typically, these were individual birds although a pair were seen in May 2024. Some suitable breeding habitat (mature trees) is present, but no breeding behaviour noted.
- A single common crane *Grus grus* (Amber listed) flew over the Site in April 2024. In Nottinghamshire, this species is 'a scarce visitor, peak numbers in spring'. The Site is not considered to support suitable breeding habitat.
- A single spoonbill *Platalea leucorodia* (Amber listed and Schedule 1 species) was recorded in June 2024 which landed briefly in the Eastern Biodiversity Mitigation Area before flying off-site. In Nottinghamshire this species is 'a rare vagrant'. The Site is not considered to support suitable breeding habitat.

Summary interpretation of breeding birds of conservation concern recorded

Schedule 1 species

- 3.17 Barn owl is the one breeding Schedule 1 species present at the Site within buildings and large tree cavities, and hunting along grassland field and drain margins. The results of the barn owl surveys are presented in a separate report (Appendix 7.5).

Species typically associated with open arable and grassland habitats

- 3.18 Skylark territories are present widespread throughout the Site, typically associated with the central areas of large, arable fields, and occasionally in grassland fields also. There was a peak count during 2024 of 90 territories in the Proposed Solar Areas, 17 in the Western Biodiversity Mitigation Area and 14 within the Eastern Biodiversity Mitigation Area. The density of skylark territories between 2023 and 2024 was broadly consistent when comparing areas with good survey coverage in 2023 (i.e., taking into account access limitations) with similar habitats and crop types in 2024. However, the peak count of skylark territories within the Proposed Solar Areas during 2023 was higher than during 2024 with 105 territories recorded (15 more than in 2024). Seventeen skylark territories were recorded in the Western Biodiversity Mitigation Area in both 2023 and 2024. During 2023, 11 skylark territories were recorded in the Eastern Biodiversity Mitigation Area that was included in the survey boundary at that time (noting that the entirety of the current Eastern Biodiversity Mitigation Area was not surveyed); for comparison purposes, nine territories were recorded on the same area of land within the Eastern Biodiversity Mitigation Area in 2024 with a total of 14 territories in the entire Eastern Biodiversity Mitigation Area in 2024. Given the variation in arable land management year-on-year, for example changes in crop types or sowing periods, some variation in skylark territory numbers and density is to be expected. Weather effects can also be a factor, for instance the winter and early spring of 2024 was unusually wet which resulted in the farmers at the Site undertaking spring sowing of crops which is considered to have likely disturbed breeding attempts, and several of the fields were still waterlogged throughout spring which may have discouraged nesting in those areas.
- 3.19 Eight yellow wagtail territories were recorded during the 2024 surveys and six during the 2023 surveys in the Proposed Solar Areas with none recorded in the Western or Eastern Biodiversity Mitigation Areas. All territories were associated with arable fields. There were broadly consistent repeat territories recorded during 2023 and 2024 in the large arable fields to the west of Fenton. During 2024 several territories were also recorded in fields to the east of Fenton and west of Littleborough.

³ <https://www.rspb.org.uk/helping-nature/what-we-do/influence-government-and-business/farming/advice-for-farmers-helping-bird-species/curlew-advice-for-farmers>

- 3.20 Six pairs of lapwing were likely breeding within an arable field in the Eastern Biodiversity Mitigation Area during 2024 with a further pair nesting approximately 50 m from the boundary of the Eastern Biodiversity Mitigation Area in a grassland field. No lapwing were recorded nesting elsewhere within the Site during 2024 or 2023. Flocks of 30 to 50 lapwing (including juveniles) were recorded foraging in arable and grassland fields during June and July 2024 in the Eastern Biodiversity Mitigation Area. Lapwing will typically nest in or close to lightly grazed pasture or wet grassland where there are higher levels of prey items such as earthworms and other insects and their larvae⁴, and these habitats are available within and adjacent to the Eastern Biodiversity Mitigation Area but are absent or very scarce within the Proposed Solar Areas. As such much of the Proposed Solar Areas and Western Biodiversity Area of the Site is considered to be suboptimal habitat for lapwing.
- 3.21 One pair of meadow pipit was recorded as likely breeding in the Eastern Biodiversity Mitigation Area during 2024.
- 3.22 Meadow pipit will typically nest in open habitats such as less intensively managed grassland which is restricted within the Site to small areas in the Eastern Biodiversity Mitigation Area. As such much of the Proposed Solar Areas and Western Biodiversity Mitigation Area is considered to be suboptimal habitat for meadow pipit.
- 3.23 Skylark, yellow wagtail and lapwing are Red listed, SPIs and a Species of Conservation Concern in the Nottinghamshire BAP. Meadow pipit is Amber listed and a Species of Conservation Concern in the Nottinghamshire BAP. It is noted in the Nottinghamshire bird report (Nottinghamshire Birdwatchers, 2023) that skylark is a 'common resident' and yellow wagtail is 'a fairly common summer visitor' and given the large amounts of suitable nesting habitat in the local area around the Site, these species are likely to be widespread in the surrounding countryside and at similar territory densities to those found at the Site.
- 3.24 Lapwing is noted to be 'a common resident, passage migrant and winter visitor' in the county, but breeding is likely to be largely restricted to areas of suitable habitat with close proximity to good foraging habitat such as lightly grazed pasture and wet grassland. Meadow pipit is 'a fairly common resident and passage migrant' in Nottinghamshire, and likely to be well-represented where suitable rough grassland is present. Suitable grassland habitats for lapwing and meadow pipit are scarce within the Site beyond the Eastern Biodiversity Mitigation Area but are frequent in the local area along the River Trent corridor where these species are likely to present.

Species typically associated with arable field margins

- 3.25 Grey partridge was recorded occasionally throughout the Site during the 2023 and 2024 surveys, typically considered to be likely breeding within grassland margins of arable fields and occasionally further into arable fields. Grey partridge is Red listed, a Species of Conservation Concern in the Nottinghamshire BAP and noted in the Nottinghamshire bird report as 'a fairly common resident'. This species is likely to be widespread in the local area owing to the large amounts of arable and field margin habitats that provide suitable breeding and foraging habitats.

Species typically associated with hedgerows, trees and woodland

- 3.26 The majority of the breeding bird species recorded at the Site are associated with hedgerows, trees and woodland habitats. There were increased numbers of territories and species diversity in areas of the Site where the hedgerows are taller, wider and support more mature trees.
- 3.27 Linnet and yellowhammer are Red listed, SPI and Nottinghamshire BAP species, and greenfinch is a Red listed species. Breeding linnet and yellowhammer were widespread throughout the Site typically within hedgerows. Greenfinch was more rarely recorded, with one territory during 2024 and two territories in 2023, associated with hedgerows.
- 3.28 Dunnock, reed bunting, stock dove, whitethroat, wren, willow warbler and woodpigeon are all Amber listed and several are SPI and Nottinghamshire BAP species. These species were recorded breeding

⁴ <https://www.rspb.org.uk/helping-nature/what-we-do/influence-government-and-business/farming/advice-for-farmers-helping-bird-species/lapwing-advice-for-farmers>

throughout the Site associated with hedgerows and trees. Kestrel (Amber listed and a Species of Conservation Concern in the Nottinghamshire BAP) was recorded to be likely breeding in a mature tree cavity in a field boundary hedgerow adjacent Cross Common Lane in the Proposed Solar Areas in 2024, with off-site likely breeding observed in 2023 to the west of the Western Biodiversity Mitigation Area.

- 3.29 A pair of tawny owl (Amber listed, SPI and a Species of Conservation Concern in the Nottinghamshire BAP) was recorded as likely breeding within the woodland towards the south-east of the Proposed Solar Areas. Barn owl (a Schedule 1 species) were also possibly nesting within large tree cavities.
- 3.30 All of these species are noted to be 'common' or 'fairly common' in the Nottinghamshire bird report, and as hedgerows, trees and woodland habitats are frequent in the local area, it is likely that these species are widespread.

Species typically associated with wetland habitats

- 3.31 Littleborough Lagoon in the Eastern Biodiversity Mitigation Area is a large waterbody which supports low numbers of breeding birds of conservation concern including mallard (Amber listed and a Species of Conservation Concern in the Nottinghamshire BAP) and moorhen *Gallinula chloropus* (Amber listed) within marginal vegetation. The margins of Littleborough Lagoon support some marginal and aquatic vegetation, but these are not extensive and there are no well-established reed beds. Potential bird nesting areas around the margins are also likely to be regularly disturbed by grazing livestock. These factors are considered to reduce the suitability of the lagoon for nesting birds.
- 3.32 There is a network of drains and wet ditches throughout the Site. The larger drains including Mother Drain and Catchwater Drain support low numbers of breeding mallard, with one pair recorded in the Proposed Solar Areas during 2023 and two pairs off-site just beyond the Site boundary in 2024 (one pair adjacent to the Proposed Solar Areas and one pair adjacent the Eastern Biodiversity Area).
- 3.33 Mallard and moorhen are noted to be 'common residents' in the Nottinghamshire bird report. Waterbodies that are likely support breeding water birds are widespread in the local area including the River Trent and lakes along the course of the river to the north and south of the Site. Out Ings which is located 600 m to the north of the Eastern Biodiversity Mitigation Area which is a wetland mosaic of standing water, wet woodland and grassland that is designated as a LWS. Out Ings was included in the survey area for the 2024 breeding bird surveys and was noted to support breeding oystercatcher *Haematopus ostralegus*, mute swan, moorhen and greylag goose *Anser anser*. There are extensive wetland habitats along the River Idle valley around Lound which is approximately 4 km west of the Site, including Sutton and Lound Gravel Pits Site of Special Scientific Interest which is notified on account of its 'exceptionally rich assemblage of breeding wetland birds'.

Species typically associated with buildings and structures

- 3.34 One pair of barn owl (a Schedule 1 species and a Species of Conservation Concern in the Nottinghamshire BAP) and a pair of kestrel (Amber listed and a Species of Conservation Concern in the Nottinghamshire BAP) were recorded as likely breeding in agricultural buildings in the Proposed Solar Areas. Barn owl is an 'uncommon resident' and kestrel is 'fairly common' in Nottinghamshire. Suitable nesting opportunities for these species are likely to be widespread, although potentially infrequent, in the local area within farms and mature trees.
- 3.35 House martin *Delichon urbicum* (Red listed and a Species of Conservation Concern in the Nottinghamshire BAP) and house sparrow *Passer domesticus* (Red listed, SPI, and a Species of Conservation Concern in the Nottinghamshire BAP) were not recorded to be nesting within the Site but were associated with buildings adjacent to the Site boundary and were seen foraging within the Site. House martin were nesting on houses at North Leverton, close to the southern boundary of the Proposed Solar Areas. House sparrow were nesting off-site at a house on Leverton Lane, approximately 15 m from the Proposed Solar Areas boundary. These species are noted to be 'common' in the Nottinghamshire bird report. There are many buildings that are likely to be suitable for these species in the local area, and as such they are likely to be widespread.

Overall summary

- 3.36 A total of 47 bird species were recorded within the Site during the breeding bird surveys in 2024 that were breeding / likely breeding. These included seven that are 'Red listed', 14 that are 'Amber listed' and one Green listed species (barn owl) which is listed on Schedule 1 of The Wildlife and Countryside Act 1981 (as amended). Seventeen of these are listed as SPI or are a Species of Conservation Concern in the Nottinghamshire BAP. The remaining species in the Site are all 'Green listed' or are non-native species and are of least conservation concern. Overall, the Site is considered to support a typical breeding bird assemblage for the habitats present and the Site's geographic location.
- 3.37 Breeding bird activity was widespread across the Site, with main habitat types used including:
- Open habitats, such as arable and grassland pasture fields. These habitats are widespread across the Site and locally, and were typically used by skylark and occasionally yellow wagtail which are species of conservation concern. Six pairs of lapwing (Red listed, SPI and a Species of Conservation Concern in the Nottinghamshire BAP) were also recorded as likely breeding in the Eastern Biodiversity Mitigation Area, and flocks of 30 to 50 lapwing were recorded foraging in this area during June and July 2024. One pair of meadow pipit were likely breeding in the Eastern Biodiversity Mitigation Area.
 - Scrub, trees, woodland, hedgerows and associated grassland margins. These habitats are widespread across the Site and locally and are typically used for breeding by species of conservation concern such as yellowhammer, linnet, grey partridge, dunnock, reed bunting, stock dove, whitethroat, wren, willow warbler and woodpigeon. A wide variety of Green listed species also used these habitats for breeding.
 - Wetland habitats such as waterbodies and drains ditches are used by low numbers of mallard (Amber listed and a Species of Conservation Concern in the Nottinghamshire BAP) and moorhen (Amber listed) and several Green listed and non-native species.
- 3.38 A number of birds of prey species of conservation concern were recorded, with barn owl and kestrel likely breeding at the Site within trees and buildings. Tawny owl is likely breeding within a woodland block at the Site. Peregrine falcon was regularly recorded at the Site and is considered to be likely breeding on buildings within West Burton Power Station adjacent the Site to the north, and these birds are likely to hunt within the Site as part of a wider feeding resource in the local area. Marsh harrier and hobby were recorded flying through the Site occasionally, probably hunting but not on a regular basis. Little owl *Athene noctua* is a non-native species that is likely breeding in trees or buildings at the Site.
- 3.39 Skylark territories were recorded consistently across the Site at a relatively consistent density, primarily within arable fields and occasionally in grassland fields. This comprised peak counts of 105 territories within the Proposed Solar Areas in 2023 (90 in 2024), 17 in the Western Biodiversity Mitigation Area (in both 2023 and 2024) and 13 in the Eastern Biodiversity Mitigation Area in 2024 (11 in 2023 but in a slightly smaller survey area). There are no skylark population data available for Nottinghamshire, although the Nottinghamshire bird report notes the species is a 'common resident' and it is likely that it is widespread and well-represented within suitable habitat. A review of aerial photography (Google Earth Pro, accessed August 2024) shows that there are extensive areas of large arable fields within the district area (Bassetlaw) and county (Nottinghamshire) which are likely to support breeding populations of skylark at similar densities to those present at the Site. Further extensive areas of arable land are also present beyond the River Trent to the east of the Site within Lincolnshire.

4 References

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5 Appendices

Appendix 7.4.1: Breeding bird survey dates and weather conditions

Date	Cloud Cover (Oktas)	Precipitation	Wind (Beaufort)	Visibility
2023 breeding bird characterisation surveys				
28.03.23	6	None	2	Excellent
29.03.23	6	None	2	Excellent
30.03.23	5	None	2	Excellent
21.04.23	8	Occasional showers	3	Excellent
22.04.23	5	Occasional showers	1	Excellent
23.04.23	6	Occasional showers	2	Excellent
20.05.23	2	None	1	Excellent
21.05.23	2	None	1	Excellent
22.05.23	5	None	1	Excellent
23.05.23	6	None	2	Excellent
19.06.23	4	None	2	Excellent
19.06.23 (evening)	4	None	1	Excellent
20.06.23	6	None	1	Excellent
21.06.23	5	None	2	Excellent
21.06.23 (evening)	5	None	2	Excellent
22.06.23	4	None	2	Excellent
23.06.23	4	None	1	Excellent
23.06.23 (evening)	5	None	2	Excellent
11.07.23	4	Occasional showers	2	Excellent
12.07.23	4	Occasional showers	2	Excellent
13.07.23	4	Occasional showers	2	Excellent
2024 breeding bird characterisation surveys				
18.03.24	5	None	2	Excellent
19.03.24	3	None	3	Excellent
20.03.24	8	Light drizzle	2	Excellent
21.03.24	8	None	2	Excellent
22.03.24	5	None	2	Excellent
25.03.24	8	Light drizzle	3	Fair
15.04.24	5	Heavy showers	4	Fair
16.04.24	5	None	3	Excellent

Date	Cloud Cover (Oktas)	Precipitation	Wind (Beaufort)	Visibility
17.04.24	5	None	3	Excellent
18.04.24	2	None	2	Excellent
19.04.24	2	None	3	Excellent
20.04.24	2	None	2	Excellent
13.05.24	6	None	3	Excellent
14.05.24	8	None	2	Excellent
15.05.24	8	None	2	Excellent
16.05.24	8	None	1	Fair
17.05.24	7	None	1	Fair
18.05.24	8	None	2	Fair
10.06.24 (evening)	4	None	2	Excellent
11.06.24	4	None	2	Excellent
12.06.24	4	None	1	Excellent
12.06.24 (evening)	7	None	3	Excellent
13.06.24	6	None	2	Excellent
14.06.24	8	None	3	Excellent
14.06.24 (evening)	7	Occasional light rain	3	Fair
24.06.24 (evening)	2	None	2	Excellent
25.06.24 (evening)	7	None	2	Excellent
26.06.24	5	None	2	Excellent
27.06.24 (evening)	7	None	2	Excellent
28.06.24	1	None	3	Excellent
28.06.24	3	None	2	Excellent
29.06.24	1	None	3	Excellent
15.07.24	4	None	2	Excellent
16.07.24	8	Light drizzle	3	Fair
17.07.24	6	None	2	Excellent
18.07.24	4	None	2	Excellent
19.07.24	4	None	2	Excellent
20.07.24	5	None	3	Excellent

Appendix 7.4.2. Green listed or non-native bird species breeding at the Site in 2023 and 2024

Common name	Scientific name	Summary of breeding activity at the Site
Blackbird	<i>Turdus merula</i>	Widespread in trees and hedgerows
Blackcap	<i>Sylvia atricapilla</i>	Widespread in trees and hedgerows
Blue tit	<i>Cyanistes caeruleus</i>	Widespread in trees and hedgerows
Canada goose	<i>Branta canadensis</i>	Numbers at wetland habitats at Littleborough Lagoon
Carrion crow	<i>Corvus corone</i>	Occasional in trees / woodland
Chaffinch	<i>Fringilla coelebs</i>	Widespread in trees and hedgerows
Chiffchaff	<i>Phylloscopus collybita</i>	Widespread in trees and hedgerows
Coal tit	<i>Periparus ater</i>	One or two pairs in trees
Coot	<i>Fulica atra</i>	Wetland habitats at Littleborough Lagoon
Feral pigeon	<i>Columba livia</i>	Widespread in trees, hedgerows and buildings
Goldfinch	<i>Carduelis carduelis</i>	Widespread in trees and hedgerows
Great crested grebe	<i>Podiceps cristatus</i>	Wetland habitats at Littleborough Lagoon
Great spotted woodpecker	<i>Dendrocopos major</i>	Occasional in trees
Great tit	<i>Parus major</i>	Widespread in trees and hedgerows
Jackdaw	<i>Coloeus monedula</i>	Occasional in trees / woodland
Jay	<i>Garrulus glandarius</i>	Occasional in trees / woodland
Lesser whitethroat	<i>Curruca curruca</i>	Occasional in hedgerows
Little owl	<i>Athene noctua</i>	Small number possibly breeding in buildings / trees
Long-tailed tit	<i>Aegithalos caudatus</i>	Occasional in trees and hedgerows
Magpie	<i>Pica pica</i>	Occasional in trees / woodland
Pheasant	<i>Phasianus colchicus</i>	Widespread woodland and hedgerows
Pied wagtail	<i>Motacilla alba</i>	Small number possibly breeding in buildings
Red-legged partridge	<i>Alectoris rufa</i>	Occasional in arable field margins and hedgerow bases
Robin	<i>Erithacus rubecula</i>	Widespread in trees and hedgerows
Swallow	<i>Hirundo rustica</i>	Small number possibly breeding in buildings

Appendix 7.4.3. List of non-breeding bird species recorded at the Site in 2023 and 2024

Common name	Scientific name	Conservation status*
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Amber listed LBAP
Buzzard	<i>Buteo buteo</i>	Green listed
Brambling	<i>Fringilla montifringilla</i>	Green listed
Collared dove	<i>Streptopelia decaocto</i>	Green listed
Common gull	<i>Larus canus</i>	Amber listed
Common crane	<i>Grus grus</i>	Amber listed
Cormorant	<i>Phalacrocorax carbo</i>	Green listed LBAP
Cuckoo	<i>Cuculus canorus</i>	Red listed LBAP
Curlew	<i>Numenius arquata</i>	Red listed SPI LBAP
Fieldfare	<i>Turdus pilaris</i>	Red listed Sch 1
Garden warbler	<i>Sylvia borin</i>	Green listed
Gadwall	<i>Anas strepera</i>	Amber listed LBAP
Golden plover	<i>Pluvialis apricaria</i>	Green listed
Great black-backed gull	<i>Larus marinus</i>	Amber listed
Great white egret	<i>Ardea alba</i>	Amber listed
Green sandpiper	<i>Tringa ochropus</i>	Amber listed
Green woodpecker	<i>Picus viridis</i>	Green listed
Grey heron	<i>Ardea cinerea</i>	Green listed LBAP
Greylag goose	<i>Anser anser</i>	Amber listed
Hen harrier	<i>Circus cyaneus</i>	Red listed Sch1 SPI LBAP
Herring gull	<i>Larus argentatus</i>	Red listed
Hobby	<i>Falco subbuteo</i>	Green listed Sch1
House martin	<i>Delichon urbicum</i>	Red listed
House sparrow	<i>Passer domesticus</i>	Red listed SPI LBAP
Jack snipe	<i>Lymnocyptes minimus</i>	Green listed LBAP
Kingfisher	<i>Alcedo atthis</i>	Green listed

Common name	Scientific name	Conservation status*
		Sch1 LBAP
Lesser black-backed gull	<i>Larus fuscus</i>	Amber listed LBAP
Little egret	<i>Egretta garzetta</i>	Green listed
Little grebe	<i>Tachybaptus ruficollis</i>	Green listed
Marsh harrier	<i>Circus aeruginosus</i>	Amber Sch1 LBAP
Merlin	<i>Falco columbarius</i>	Red listed Sch 1
Mistle thrush	<i>Turdus viscivorus</i>	Red listed LBAP
Mute swan	<i>Cygnus olor</i>	Green listed LBAP
Oystercatcher	<i>Haematopus ostralegus</i>	Amber listed LBAP
Peregrine falcon	<i>Falco peregrinus</i>	Green listed Sch 1 LBAP
Pochard	<i>Aythya ferina</i>	Red listed LBAP
Raven	<i>Corvus corax</i>	Green listed LBAP
Rook	<i>Corvus frugilegus</i>	Green listed
Red kite	<i>Milvus milvus</i>	Green listed Sch1 LBAP
Redwing	<i>Turdus iliacus</i>	Amber listed
Sand martin	<i>Riparia riparia</i>	Green listed LBAP
Shelduck	<i>Tadorna tadorna</i>	Amber listed LBAP
Shoveler	<i>Spatula clypeata</i>	Amber listed LBAP
Snipe	<i>Gallinago gallinago</i>	Amber listed LBAP
Sparrowhawk	<i>Accipiter nisus</i>	Amber listed
Spoonbill	<i>Platalea leucorodia</i>	Amber listed Sch1
Starling	<i>Sturnus vulgaris</i>	Red listed SPI LBAP
Swift	<i>Apus apus</i>	Red listed LBAP

Common name	Scientific name	Conservation status*
Teal	<i>Anas crecca</i>	Amber listed LBAP
Treecreeper	<i>Certhia familiaris</i>	Green listed
Tufted duck	<i>Aythya fuligula</i>	Green listed
Widgeon	<i>Mareca penelope</i>	Amber listed LBAP
Wheatear	<i>Oenanthe oenanthe</i>	Amber listed
Whooper swan	<i>Cygnus cygnus</i>	Amber listed Sch1 LBAP
<p>* Red / Amber / Green listed= Birds of Conservation Concern (Eaton et al., 2021) listing assesses bird species on the basis of their population status, reflecting changes in their abundance and range. Red list species are of high nature conservation concern; Amber list species are of medium conservation concern. Sch1 = Listed on Schedule 1 of The Wildlife and Countryside Act 1981 (as amended) LBAP = Nottinghamshire Biodiversity Action Plan Species of Conservation Concern SPI = Species of Principal under the provisions of the NERC Act 2006</p>		

6 Figures

(overleaf)