

Steeple Renewables Project

Appendix 7.9: Otter and water vole report

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Appendix 7.9: Otter and water vole report

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Appendix 7.9: Otter and water vole report

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1 Introduction

- 1.1 This report is a technical appendix to accompany the Environmental Statement (ES) Chapter 7: Ecology and Biodiversity [EN010163/APP/6.2.7] 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.
- 1.3 The Site: collectively including the Proposed Solar Areas and Biodiversity Mitigation Areas.

2 Methods

Desk study

- 2.1 A desk study was undertaken to gather existing otter *Lutra lutra* and water vole *Arvicola amphibius* data in relation to the Site and the surrounding local landscape, to provide a wider ecological context to the study.
- 2.2 BSG Ecology obtained records from Lincolnshire Environmental Records Centre (LERC) and Nottinghamshire Biological and Geological Records Centre (NBGRC); data were received on 14 March 2024 and 20 March 2024 from the respective record centres. Records included within a 2 km radius of the Site boundaries. Records over 20 years old were excluded from the desk study (to ensure the results are still temporally relevant to the assessment).
- 2.3 A search of the 'Otter casualty map' (Otter Project, 2024) was undertaken to identify otter casualties local to the Site which could indicate presence in within the local landscape.
- 2.4 The Multi-Agency Geographic Information for the Countryside database (MAGiC) was accessed and online maps were reviewed to establish the ecological context for the Site (Defra, 2024; Google and Image Landsat / Copernicus, 2024). Aerial images of the Site and a buffer of 100 m (Survey Boundary) were reviewed for potentially suitable terrestrial habitat (woodland, dense scrub) for otter.
- 2.5 Previous ecological survey work carried out in the surrounding area was also reviewed as part of the desk study, including water vole data presented in:
 - Ecological baseline update survey, Sturton-Le- Steeple (ESL, 2010), Nottinghamshire County Council Planning Application Ref: ES/2089
 - Water Vole Presence/Likely Absence Survey, Development of Crossing Points for Haulage at Land North of Common Lane, Sturton-le-Steeple (Crestwood Environmental Ltd., 2016), Nottinghamshire County Council Planning Application Ref: v/3481
 - West Burton C (Gas Fired Generating Station), Field survey (AECOM, 2019), PINS Ref: EN010088

Field survey

Dry ditches and areas of potentially suitable terrestrial habitat for otter and water vole within the Site were surveyed during the extended habitat surveys during spring 2024. Dates and other details of field surveys are provided in Appendix 7.9.1 and a description of methodologies is provided below.

- 2.6 Further scoping survey of land drains and streams, collectively referred to as 'watercourses', as well as wet ditches, were conducted in the spring, on 15 and 16 April 2024 by [REDACTED], Senior Ecologist, and Dr [REDACTED], Principal Ecologist. Dr [REDACTED] has 20 years' experience as a consultant ecologist and has extensive experience in survey of wetland habitats for a range of species, including water vole and otter. The weather during the surveys was variable, with heavy intermittent rain on 15 April and an average temperature of 8°C and no rain and an average temperature of 4°C on 16 April. Rainfall in the days prior to survey was intermittent scattered showers (Ventusky, 2024).
- 2.7 All watercourses and wet ditches identified during the habitat and scoping surveys were re-surveyed on 03 and 04 September 2024 by [REDACTED], Senior Ecologist, and [REDACTED] Senior Ecologist, with assistance from [REDACTED], Ecologist. The weather during the surveys was largely overcast with no rain and temperatures of 17-19°C. The weather in the days prior to the surveys was warm with light showers.

Otter

- 2.8 During the extended habitat surveys across the Site, potentially suitable terrestrial habitats such as deciduous woodland and scrub were targeted as habitats which can provide features for natal dens (Chanin, 2003), and structures, including bridges and culverts, were identified and surveyed for the

presence of otter field signs. Field signs searched for include overland paths, across fields, under bridges, and culverts, holts in bankside trees, woodlands, and dense scrub, and couches in rough grassland.

- 2.9 During the April and September 2024 surveys, watercourses, wet ditches and riparian habitat within the Site were searched for evidence of otter, including spraints (droppings), footprints, runs (paths worn through vegetation adjacent to the water), couches (areas used by otters to rest and feed), slides (areas of steep bank showing signs of regular use by otters to access the water) and holts (burrows), in accordance with guidance in Chanin (2003). Checks for overland pathways were conducted during the September 2024 surveys (Chanin, 2003).
- 2.10 Otters often use conspicuous features as sprainting sites (Lampa *et al.*, 2015). Therefore, particular attention was paid to prominent bankside or in-stream features such as tree trunks, branches, rocks, areas of bare ground, culverts and inflowing ditches or pipes.

Water vole

- 2.11 During the scoping survey, targeted searches of watercourses (including banks and margins) within the Site were inspected for evidence of water vole, including entrances to burrows, droppings, latrine sites, footprints, runs and feeding stations, and assigned a habitat suitability score of optimal, good, 'poor but suitable' and negligible, as described by Dean (2021). With reference to this guidance, a second survey of suitable watercourses within the Site was undertaken in September 2024; if a watercourse that previously held water was dry during the second survey, spot checks were undertaken every ca. 20-50 m along its length to confirm if water was held at any point. If water was found to be present, then spot checks for water vole field signs were undertaken in that area.
- 2.12 The April 2024 habitat suitability score was reviewed and updated as necessary during the September 2024 surveys.

Consideration of potential limitations

- 2.13 The intermittent showers in the days prior to and during the April 2024 surveys could have potentially resulted in some field signs being lost or obscured (washed away or obscured by elevated water levels). It is considered that water vole burrows would have continued to be visible if present, and field signs of other small mammals were identified along a number of watercourses. It is considered unlikely that, if present, all water vole and otter signs would have been lost (although prior rainfall could have resulted in field signs being harder to identify/locate).
- 2.14 The light showers prior to the September 2024 surveys accumulated to <3 mm and are not considered to be a limitation to the survey¹.
- 2.15 During the September 2024 surveys, bankside vegetation in the north and east of the Site had been cut to ca. 10 cm height. The reduction in vegetation height increased visibility of small mammal burrows, emergent vegetation (foraging resource), and berms (where latrines may be located) but could have damaged/disturbed feeding stations and bank face foraging signs of water vole if present. This is not considered to cause a significant limitation to the survey.
- 2.16 During the September 2024 surveys, an excavator was observed undertaking management work along a section of the Catchwater Drain, and the Catchwater and Mother Drains showed signs of recent disturbance at the time of the survey. There is a possibility that the drain maintenance works could have caused temporary displacement of mammals, including water vole and otter, or destroyed field signs at the time of the survey. However, other mammal field signs were recorded, indicating that field signs of water vole and otter could be recorded if present, and this is not considered to cause a significant limitation to the survey.
- 2.17 Ditch DD8 and the north to south section in the southeast of CD1(D) was not accessed during the September 2024 surveys because of the hazard of accessing the steep banks and poor visibility

¹ Weather data taken from the closest weather station recorded on Met Office Weather Observation Website, ca. 5 km southwest of the Site (Met Office, 2024).

caused by dense vegetation growth. The more open and shallow-graded section running east to west on the central and western sections of CD1(D) was searched. Where inaccessible, the channel of DD8 and CD1(D) was surveyed from the bank where openings in the dense vegetation was present. The channel of DD8 was verified to be largely within bedrock and heavily shaded by scrub (from data collected during the April 2024 surveys) making it suboptimal for water vole burrows and foraging. It is possible that otter field signs were missed, if present, along DD8 and the un-surveyed section of CD1(D) during the September 2024 survey.

3 Results and summary interpretation

Desk study

Otter

- 3.1 [REDACTED]
- 3.2 No records of otter casualties were returned within the desk study area; the closest record is from 2011 for a location over 10 km to the southeast of the Site.
- 3.3 Previous ecological survey undertaken in support of adjacent planning applications did not identify any field signs of otter within or adjacent to the Site (ESL, 2010; Crestwood, 2016; AECOM, 2019).

Water vole

- 3.4 The desk study returned 125 records relating to water vole between 2004 and 2023³ and reported sightings of individuals, latrines, and burrows. With reference to Figures 7.9.1.3 [EN010163/APP/6.4.7] and 7.9.1.4 [EN010163/APP/6.4.7], [REDACTED]
- [REDACTED]
- [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
- 3.6 [REDACTED]

² One additional record relating to otter over 20 years old was returned, relating to the River Trent, and is not considered relevant to the study due to its age and proximity.

³ Seventeen records over 20 years old relating to water vole were also returned, three of these relate to the Site, however it is considered that they are not relevant to the study due to the number of more recent records.

Field survey

3.7

[REDACTED]

Otter

3.8

The majority of watercourses and some dry ditches at the Site could support movement of commuting otter through the landscape, but there is limited foraging habitat and limited potential for resting sites within or close to watercourses for otter on the Site. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3.9

[REDACTED]

3.10

Mammal paths were identified across the Site during the September 2024 survey. However, these were all attributed to other mammal species using the Site, including badger *Meles meles* and deer species. No definitive otter overland paths were recorded during the surveys.

3.11

[REDACTED]

3.12

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Water vole

- 3.16 Watercourses and ditches assessed as having 'optimal' suitability for water vole (Dean, 2021) on average held between 20 and 50 cm of slow flowing water at the time of the April 2024 surveys and were perceived in the field as likely to hold water throughout the year (revalidated during the September 2024 surveys). Their banks are suitable for burrowing and provide abundant foraging material, such as emergent vegetation and tall grasses.
- 3.17 The majority of watercourses and ditches assessed as having 'good' suitability for water vole (Dean, 2021) on average held between 25 and 40 cm of water, with some ditches having shallow and/or deep sections, with varying rates of flow, across the length; these were also perceived to hold water throughout the year. Foraging material was continually present along the channel and bank sides, with the majority supporting occasional emergent vegetation and abundant tall grasses.
- 3.18 Watercourses and ditches that are assessed as having suitable but poor condition habitat for water vole (Dean, 2021) vary in characteristics across the Site. Half of the watercourses and ditches in this classification have bedrock, stone, or shale as part of the shore bank, which reduces their suitability for water vole burrowing. The majority have a depth of 5-25 cm of still or slow flowing water, two are deeper at an average of 30 cm of rapid flowing water. Suitable vegetation cover also varies, but overall provides less resource than what is assessed as optimal or good; some support frequent to abundant emergent vegetation with occasional to abundant tall grasses, and others supporting no emergent vegetation but occasional to frequent tall grasses.
- 3.19 The remaining ditches across the Site are assessed as having negligible habitat suitability for water vole. This is predominantly on account of the ditches holding very shallow to no water and being perceived to dry out each year, revalidated during the September 2024 surveys. Where negligible ditches do hold deeper flowing water, these were choked by vegetation and heavily shaded.
- 3.20 Overall, watercourses and ditches supporting optimal suitability for water vole at the Site account for approximately 4% of the total length, good suitability account for approximately 28%, suitable but poor cover accounts for approximately 13%, and negligible suitability accounts for approximately 55% of all watercourses and ditches, including dry ditches.
- 3.21 Although there is a range of watercourses and ditches at the Site with optimal, good and suitable but poor water vole habitat suitability, no confirmed water vole field signs were recorded during the surveys. During the April 2024 surveys the following mammal signs were recorded:

- [REDACTED]
- A number of small mammals, predominantly rat, harvest mouse *Micromys minutus*, and vole species, field signs, were identified along the optimal and good suitability watercourses and ditches, including droppings and burrows.

3.22 During the September 2024 surveys the following mammal signs were recorded:

- [REDACTED]
- [REDACTED]
- [REDACTED]

Summary of key points

- 3.23 The desk study, including ecological surveys for adjacent planning applications and local biological data records, show that otter and water vole have historically been present across watercourses in the centre and east of the Site.
- 3.24 The field survey identified the Catchwater drain and two ditches in the east of the Site suitable for otter foraging and 37 suitable for water vole on the Site. These are predominantly in the east of the Site; all watercourses within the Site are considered as suitable for supporting commuting otter through the landscape. The highest suitability watercourses for otter foraging and resting sites are present in the Eastern Biodiversity Mitigation Area and in the centre and southwest of the Proposed Solar Area. Six areas of land within the Survey Boundary were identified as having potential to support otter resting sites. No holt sites were confirmed within the Survey Boundary and with the lack of field signs, it is considered unlikely that there are any otter natal sites present within the Site boundary. One otter spraint was identified on the Catchwater drain in the north of the Site [REDACTED] and a second spraint was incidentally recorded, outside the Survey Boundary, on the Catchwater drain [REDACTED]
- 3.25 Optimal suitability watercourses for water vole are present in the Eastern Biodiversity Mitigation Area and in the southeast of the Proposed Solar Area; good suitability watercourses are predominantly located in the eastern half of the Site and Eastern Biodiversity Mitigation Area; Oswald Beck in the Western Biodiversity Mitigation Area also supports good suitability for water vole.
- 3.26 Although the desk study returned historical records of water vole within and surrounding the Site, and there are a number of suitable watercourses within the Site, no confirmed field evidence was identified during the surveys; multiple indeterminate burrows, suitable size for water vole, were identified along the Catchwater drain and within the Eastern Biodiversity Mitigation Area, but their status has not been confirmed.

4 References

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- Ventusky (2024) *Ventusky weather application*. Available at: <https://www.ventusky.com/> (Accessed: 17 July 2024).

5 Figures

Figure 7.9.1.2 – Otter survey results Map 1 of 2

Figure 7.9.1.2 – Otter survey results Map 2 of 2

Figure 7.9.1.3 – Water vole survey results Map 1 of 2

Figure 7.9.1.4 – Water vole survey results Map 2 of 2

