Bicker Fen Solar Farm

Riparian Mammal Survey Report

Low Carbon

June 2023

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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position

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1. Introduction

1.1 Background

1.1.1 AECOM (on behalf of Low Carbon) undertook a Preliminary Ecological Appraisal (PEA) (Ref 5-1) for the Bicker Fen Solar Farm (hereafter referred to as the Scheme). The PEA identified the need for follow-up surveys for riparian mammals (Water Vole *Arvicola amphibius* and Otter *Lutra lutra*) to determine the potential impacts of the Scheme on riparian mammals.

1.1.2 Therefore, AECOM was instructed to undertake surveys of riparian mammals within the main sites, proposed for solar photo-voltaic (PV) panels and an appropriate survey buffer to record the presence and distribution of riparian mammals within these areas.

1.2 The Scheme

1.2.1 The Bicker Fen Solar Farm (see Figures 1.1 to 1.2, Appendix B) is a proposed new solar energy farm, co-located with battery storage. The proposals include grid infrastructure to connect the solar farm to the National Grid. The Scheme would export or import up to 500MW of electricity to and from the National Grid. The proposed generation capacity of the Scheme means it is a Nationally Significant Infrastructure Project (NSIP) and as such would require a Development Consent Order (DCO).

1.3 Site Description

1.3.1 The Scheme is located on two sites (termed the ‘northern site’ and ‘southern site’ hereafter, where referring to specific locations and collectively as ‘the Site’). The northern site is located to the east of the villages of Howell and Ewerby Thorpe (Ordnance Survey (OS) grid reference TF145474) and the southern site is located in the vicinity of Thorpe Latimer (OS grid reference at TF122404). The location of the Scheme is presented in Figures 1.1 to 1.2 (Appendix B). Both sites are within the district of North Kesteven.

1.3.2 Both sites are dominated by arable fields with game crop strips, hedgerows, woodland blocks, numerous mature trees and plantation woodland. The Site is surrounded by mainly arable and improved grassland used for grazing livestock.

1.3.3 Details of any grid connections between sites and to substations were unknown at the time of undertaking the surveys for riparian mammals and did not form part of the commissioned scope reported in this document.

1.4 Scope of the Report

1.4.1 The objective of the surveys for riparian mammals, reported in this document, is to determine the presence and distribution of Water Vole and Otter, within the Site and relevant zones of influence.

1.4.2 This report includes the following information:

- relevant legislation and policy;
- methods for field-based assessments undertaken in 2022 and 2023;
- limitations to the surveys undertaken and any assumptions made as a result of incomplete data; and
- survey results.

2. Legislation and Planning Policy

2.1 Relevant legislative context

2.1.1 Water Vole and Otter are both fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) (Ref 5-2). They are afforded protection under Section 9 parts 9 (1), (2), (4) and (5) of the Act, making it an offence to:

- intentionally kill, injure or take these species;
- possess or control live or dead individuals of these species or their derivatives;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for their shelter or protection;
- intentionally or recklessly disturb these species whilst occupying a structure or place of shelter used for that purpose;
- sell these species or offer or expose for sale or transport for sale; and
- publish or cause to be published any advertisement which conveys the buying or selling of these species.

2.1.2 Otter is also classified under the Habitats Directive (92/43/EEC) (Ref 5-3) as a species requiring strict protection in Europe. In the UK this is enabled by The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 5-4). Otter is also included in the following international legislation / conventions:

- Appendix II and IV of the Habitats Directive, Appendix II of the Bern Convention (Ref 5-5) and Appendix I of CITES (Ref 5-6); and
- globally threatened on the IUCN/WCMC Red Data List (Ref 5-7).

2.2 Natural England licencing

2.2.1 A licence is required from Natural England to intentionally damage or destroy burrows or displace Water Voles from their burrows for lawful development. Any operations that may impact upon Otters or their places of rest or shelter will require a Natural England European Protected Species (EPS) licence. There is no provision for licencing development or other construction activities under the Wildlife and Countryside Act. Such works should therefore be undertaken under a conservation licence. This licence requires demonstration of a conservation benefit for Water Vole and Otter and this benefit can be achieved by delivering a net gain in the amount of habitat available to the Water Vole and Otter population.

2.3 Priority species

2.3.1 The Natural Environment and Rural Communities (NERC) list of Species of Principal Importance (Ref 5-8) is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act (Ref 5-8); under Section 40 every public

authority (*e.g*. a local authority or local planning authority) must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

2.3.2 In addition, with regard to those species on the list of Species of Principal Importance listed under Section 41 (S41), the Secretary of State must:

"*(a) take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or*

(b) promote the taking by others of such steps."

2.3.3 The UK Biodiversity Action Plan (UKBAP) (Ref 5-9) was launched in 1994 and established a framework and criteria for identifying species of conservation concern. From this list, action plans for priority species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 5-10). The UK Post 2010 Development Framework is relevant in the context of Section 40 of the NERC Act, meaning that Priority Species are material considerations in planning. These species are identified as those of conservation concern due to their rarity or a declining population trend.

2.3.4 Water Vole and Otter are included as a priority species under Section 41 of the NERC Act (Ref 5-8).

2.4 Local biodiversity action plan

2.4.1 The Site is located within the county of Lincolnshire. The Lincolnshire Biodiversity Action Plan (3rd edition) (Ref 5-11) provides the local nature conservation strategy for identifying threats to species within each of the counties and sets out the action plans necessary to conserve them. These action plans provide context to inform identification of threatened or uncommon species within the district and, or county. The plans also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.

2.4.2 Water Vole is listed as a Priority Species on the Lincolnshire Biodiversity Action Plan (Ref 5-11), with the following threats identified to Water Vole populations in the county:

- damage to (and loss of) habitat due to insensitive routine maintenance of channel and bankside vegetation and the engineering of watercourses;
- developments within the floodplain can result in the direct loss of Water Vole habitat;
- fluctuations in water level due to land drainage, flood control, irrigation schemes and drought. Water Voles create access holes to their burrows based on water levels during the active summer months and when water levels are lowered in the winter, burrow entrances can be left exposed and vulnerable to predation;

- population fragmentation leaves colonies remote from their neighbours. Colonies isolated by lack of continuity of habitat are more at risk of local extinctions with no chance of repopulation;
- predation, particularly by American Mink *Mustela vison* and domestic cats;
- pollution of the aquatic environment by contaminants discharged from industry, agriculture and urban waste treatment; and
- persecution through the improper use of rodenticides.

2.4.3 Otter is not listed as a Priority Species on the Lincolnshire Biodiversity Action Plan (Ref 5-11).

3. Methods

3.1 Survey area

3.1.1 Aerial photographs and information gathered during the PEA survey (Ref 5-1) was used to identify riparian and wetland habitats within an appropriate buffer (up to 10m either side of the Site) and this information was used to refine the survey area for riparian mammals. Therefore, the survey area included any water bodies within the Site and watercourses within and, or, connected to the Site (up to 10m). The survey area also included terrestrial habitats (such as woodland) where Otter holts and resting places may be present near to watercourses.

3.2 Habitat suitability assessment

3.2.1 A walkover of the survey area (see section 3.1.1) was undertaken by an experienced surveyor in autumn 2022 to undertake a habitat suitability assessment of watercourses and water bodies for Water Vole and Otter. Seventy-five watercourses (32 on the southern site and 43 on the northern site) were identified within the Site.

3.2.2 The habitat suitability assessment for Water Vole was undertaken based on *"A Method for Assessing Water Vole Habitat Suitability"* (Ref 5-12) and with reference to the indices presented in Table 3-1. For Otter, the indices presented in Table 3-1 were also assessed, based on criteria presented in '*Monitoring the Otter*' (Ref 5-13).

Table 3-1: Summary of riparian mammal habitat suitability assessment criteria

Otter	Water Vole
• proximity to the Site; • presence of barriers to dispersal and movement through the territory; • habitats present and suitability for use by Otter (including terrestrial habitats); • availability of food sources (such as fish); • adjoining land use and level of disturbance; • features of watercourse or water body (estimated depth, level of flow, width of channel); • connectivity with other areas of suitable or sub-optimal habitat; and • pollution.	• connectivity to other watercourses • extent of suitable emergent and bankside herbaceous vegetation for shelter, food and nesting material; • year-round availability of food sources; • rate of water flow; • bank profile; • degree of shading from overhanging trees or scrub; • levels of site disturbance (e.g. proximity to public rights of way, farm vehicle access tracks or road traffic); • potential for the water body or watercourse to dry out; • suitability of bank substrates for burrowing; and • pollution and water quality.

3.2.3 Water Voles typically inhabit slow-moving streams, canals, ditches, dykes and rivers, feeding mostly on waterside vegetation. They are active in daylight hours and leave several indications of their presence and these signs can be used to identify the presence of Water Vole.

3.2.4 With reference to Table 3-1, the suitability of each watercourse and water body to support Water Vole, or Otter, was defined as:

- **Optimal** - Watercourses and water bodies that were identified as being 'optimal' for Water Vole included those that were wet throughout the survey period; had sufficient year-round food sources; had steep banks suitable for burrowing and with the presence of a berm or sufficient bankside cover. For Otter, these were defined as those that would form part of an Otter's territory (/ home range) and are those that were wet throughout the year, connected to other suitable watercourses and provided food sources (such as fish).
- **Sub-optimal** – Watercourses and water bodies had a small number of features that could be suitable to support Water Vole or Otter, but unlikely to support a population of either species throughout the year.
- **Unsuitable** - Watercourses and water bodies that were identified during the habitat suitability assessment as being dry; were heavily shaded; were in heavy agricultural use with no marginal vegetation; or where there were significant barriers to movement between the water body or watercourse and the Site, were considered as being unsuitable for Water Vole and Otter as they lack the food, cover and habitat features necessary for the species.

3.2.5 For Otter, whilst the criteria presented in Table 3-1 was referenced to determine each watercourse and water bodies suitability to support this species, it should be noted that Otter are a mobile species of riparian mammal and any watercourse may potentially be used by this species for commuting.

3.3 Riparian mammal survey

3.3.1 The habitat suitability assessment for riparian mammals was undertaken on 75 watercourses within the survey area. This survey was used to determine whether they were suitable (optimal or sub-optimal) or unsuitable for riparian mammals. In most cases, this information was used to determine whether further survey for riparian mammals was required (and the likelihood of future occupation by riparian mammals), however where safe to do so, the margins of all watercourses and water bodies within the survey were subject to further survey for riparian mammals, as follows:

- Optimal habitat for Water Vole or Otter – full survey (see below) along all margins of watercourses or water body;
- Sub-optimal habitat for Water Vole or Otter - spot checks of margins of watercourse or water body, approximately every 50m; and
- Unsuitable – no formal survey undertaken although casual checks of margins made.

Water Vole

3.3.2 The Water Vole survey involved identification of evidence of Water Vole activity up to 5m from the bank of any surveyed watercourses and water body. Field surveys were based on the standard methodologies as described by Strachan et al. (2011) (Ref 5-14) and Dean et al. (2016) (Ref 5-15). Field signs searched for included:

- latrine sites – distinct piles of Water Vole droppings found near burrows, at the ranges of territorial boundaries and where the animals enter and leave the water;
- feeding stations – areas with distinct neat piles of chewed lengths of vegetation along pathways or haul out platforms along the water's edge;
- burrows – burrow entrances are typically wider than high with a diameter between 4 and 8cm. Burrow entrances are generally located at the water's edge;
- lawns – short grazed areas at the entrances to burrows;
- prints – identifiable prints in soft margins of the watercourse; and
- runways – low tunnels that are pushed through the vegetation and often leading to burrows or feeding stations.

3.3.3 In accordance with the guidance set out in the Water Vole Mitigation Handbook (Ref 5-15), one survey was conducted in the second half of the breeding season (between July and September) and a second survey was carried out in the first half of the breeding season (April to June). All surveys were undertaken during suitable weather conditions and by experienced AECOM ecologists.

3.3.4 Any information gathered during the survey on Water Vole signs were used to calculate and estimate Water Vole population and, or activity within those specific waterbodies or watercourses. The presence or absence of American Mink and Brown Rat *Rattus norvegicus* was also recorded if the species or signs of their presence were noted.

3.3.5 It is not possible to make robust estimates of the number of Water Voles from latrine counts, but latrines do provide an indication of activity suitable for assessment of impacts and designing mitigation (Ref 5-15).

Otter

3.3.6 The aim of the survey was to determine the presence or absence of Otter within the survey area, in accordance with guidance in the New Rivers and Wildlife Handbook (RSPB, NRA & RSNC, 1994) (Ref 5-16); the Environment Agency's Fifth Otter Survey of England 2009-2010 (Ref 5-17) and '*Monitoring the Otter'* (Ref 5-13).

3.3.7 Otter surveys can be carried out at any time of year, though the period May to September is optimal when water levels are less variable. Surveys were not undertaken following periods of heavy rain and, or, high-water levels as it can obscure or remove signs of Otter and result in false negative survey results. Ideally, there should be a period of at least five days without rain before

surveying. Therefore, surveys were undertaken during appropriate weather conditions for survey.

3.3.8 Due to the low likelihood of making an actual observation of Otter, the survey concentrated on locating field signs indicating Otter presence or use within the survey area. Such field signs include:

- spraints (droppings) – characteristic sweet-smelling, black tar-like (where fresh/relatively recent *i.e*. within a few weeks) or grey crumbly (when old) faecal deposits usually containing fish scales, bones and occasionally invertebrate exoskeleton and bird feathers;
- footprints – in good substrate typically asymmetrical and showing five toes arched around a large pad and, depending on substrate, webbing and claw marks. Poorer, generally coarser substrates do not often enable the identification of Otter footprints. Additional signs of Otter presence may occur, although without additional evidence is not usually conclusive proof of current Otter presence;
- feeding remains – feeding remains may include partially eaten fish, frogs, piles of mussel shells or crayfish remains;
- slides/ haul-outs – routes into and out of the water, which are usually associated with terrestrial routes such as short cuts around meanders or along traditionally used otter paths/routes;
- couches/ hovers – above ground resting places. Usually associated with cover such as dense scrub, rushes or reed, flood debris or fallen trees. Many couches are rarely used whilst others more so. Difficult to prove use without radio tracking; and
- holts – below ground resting site, usually associated with sprainting. Sometimes used with greater frequency than couches and can be important for breeding (natal holts) where other signs are usually absent. Notoriously difficult to find or prove without radio tracking.

3.3.9 Furthermore, any areas of woodland and the bases of mature trees near to watercourses, were also searched for Otter holts.

3.4 Assumptions and limitations

3.4.1 The watercourse descriptions for 33 and 34, in the northern site, were not taken during surveys in autumn 2022 or May 2023 due to human error. However, during both surveys, these watercourses were searched for evidence of riparian mammals and therefore whilst no watercourse description was taken, absence of riparian mammals was recorded and there will be no impacts to either species if these watercourses are impacted upon.

3.4.2 Photographs of watercourses 3, 4, 5, 10, 16, 19 on the southern site and 16, 17, 33 and 34 on the northern site were inadvertently lost during transcription although this is not considered a limitation on the efficacy of the survey as surveys for riparian mammals and habitat suitability surveys were undertaken in both autumn 2022 and May 2023.

3.4.3 There are a large number of Badger setts within the Site and therefore it is possible that some of these may be used by Otter, however, no evidence of Otter was recorded during surveys.

4. Results

4.1 Habitat suitability assessment

4.1.1 Of the 75 watercourses surveyed, 65 were deemed unsuitable for Water Vole; 10 were sub-optimal; and none were deemed optimal. For Otter, watercourse 24 in the southern site was deemed sub-optimal for this species and all other watercourses were deemed unsuitable. Two watercourses (Midfodder Dike and Hodge Dike) are outside of the Site boundary and were assumed that no impacts to watercourses would occur as part of the Scheme. Whilst these were not surveyed for evidence of riparian mammals, they were deemed suitable to support both Otter and Water Vole.

4.1.2 A summary of the 75 watercourses surveyed during the habitat suitability assessment, alongside their suitability for Water Vole, is presented in Appendix A. The majority of watercourses within the survey area are unsuitable for Otter and therefore where suitable features for this species was recorded, these data are also included within Appendix A.

4.2 Riparian mammal survey

4.2.1 No evidence of Water Vole or Otter was recorded anywhere within the Site. Furthermore, no evidence of American Mink was recorded.

4.2.2 The majority of watercourses within the Site are unsuitable for riparian mammals. Midfodder Dike, on the eastern boundary of the northern site and Hodge Dike, which bisects the northern site are both optimal habitat for Otter and Water Vole, although these watercourses were not surveyed in detail for riparian mammals.

4.2.3 Evidence of Brown Rat was recorded in watercourse 2 (southern site, see Figure 1.1) in autumn 2022.

5. References

Ref 5-1 AECOM. (2021) Bicker Fen Solar Farm Preliminary Ecological Appraisal.

Ref 5-2 HMSO. (1981). Wildlife & Countryside Act 1981 (as amended).

Ref 5-3 EC (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels

Ref 5-4 HMSO (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London.

Ref 5-5 Anon, 2001. Appendices of the Convention and Amendments to the Appendices. Bern Convention. Council of Europe.

Ref 5-6 Anon, 2020. Appendices I, II and III. CITES

Ref 5-7 IUCN, 2020. The IUCN Red List of Threatened Species.

Ref 5-8 HMSO (2006). The Natural Environment and Rural Communities Act. HMSO, London

Ref 5-9 JNCC (1994). UK Biodiversity Action Plan

Ref 5-10 UK Post-2010 Biodiversity Framework (2012). Joint Nature Conservation Committee and Department for Environment, Food and Rural Affairs.

Ref 5-11 Lincolnshire Biodiversity Action Plan. (2012-2020) 3rd edition. Available at: http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0

Ref 5-12 Harris et al, (2009). A method for assessing Water Vole Habitat Suitability. IEEM In Practice, Issue 65, September 2009

Ref 5-13 Chanin P (2003). Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough

Ref 5-14 Strachan, R, Moorhouse, Y & Gelling, M. 2011. The Water Vole Conservation Handbook (Third Edition).

Ref 5-15 Dean, M., Strachan, R., Gow, D. and Andrews, R. 2016. The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

Ref 5-16 Holmes, N., Ward, D. and Jose, P. 2001 The New Rivers and Wildlife Handbook. RSPB.

Ref 5-17 Environment Agency, (2010). Fifth Otter Survey of England 2009-2010. Technical Report. Environment Agency.

Appendices

Appendix A: Survey Data – Habitat Suitability Assessment

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
1 – southern site	▪ Connected to two on-Site watercourses (6 and 2) ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, shallow (<30cm) water in April 2023 ▪ No shading from bankside vegetation ▪ Steep banks suitable for burrowing ▪ Heavily disturbed, adjacent to arable and bankside vegetation managed through mowing / cutting ▪ Some litter debris	Unsuitable	
2 – southern site	▪ Connected to three on-Site watercourses (1, 3 and 6) ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ Limited year-round food sources ▪ Dry in autumn 2022, shallow (<30cm) water in April 2023 but deeper (c 50cm) where culvert joins 6 and 1 ▪ Hedgerow along eastern end of watercourse, open along western end ▪ Steep banks suitable for burrowing ▪ Heavily disturbed, adjacent to arable and bankside vegetation managed through mowing / cutting ▪ Some litter debris	Unsuitable	

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
3 – southern site	▪ Connected to off-Site watercourses and 2, 4 (on-Site) ▪ No herbaceous vegetation, little to no bankside vegetation ▪ No year-round food sources ▪ Shallow (<50cm) water in autumn 2022 and April 2023 ▪ Hedgerow along majority of watercourse, heavily shaded ▪ Steep banks suitable for burrowing ▪ Heavily disturbed, adjacent to arable and bankside vegetation managed through mowing / cutting. Poor water quality ▪ Some litter debris	Unsuitable	No photo taken
4 – southern site	▪ Not a watercourse – dry ditch with scrub / trees	Unsuitable	No photo taken
5 – southern site	▪ Not a watercourse – dry ditch with hedgerow	Unsuitable	No photo taken
6 – southern site	▪ Connected to on-Site (1 and 2) watercourses ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and shallow (30cm) in April 2023 ▪ Hedgerow along majority of northern bank of watercourse, overhanging watercourse and shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Some litter debris and poor water quality with green algae	Unsuitable	

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
7 – southern site	▪ Connected to on-Site (5, 6 and 11) watercourses ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and shallow (30-50cm) in April 2023 ▪ Watercourse runs through woodland block, therefore shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Some litter debris and poor water quality with green algae	Unsuitable	
8 – southern site	▪ Boundary watercourse, connected to other on-Site (7, 9, 15) watercourses and continuation of 17 ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and shallow (30-50cm) in some places in April 2023 ▪ Watercourse runs through woodland block, therefore shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Some litter debris and poor water quality with green algae	Unsuitable	No photo taken – see 17
9 – southern site	▪ Dry ditch with some wet patches in April 2023, but completely dry in autumn 2022. ▪ Hedgerow along majority of watercourse.	Unsuitable	

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
10 – southern site	▪ Not a watercourse – dry ditch with hedgerow	Unsuitable	No photo taken
11 – southern site	▪ Connected to 12 and 7 (on-Site) ▪ No herbaceous vegetation, little to no bankside vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and April 2023 ▪ Trees / hedgerow along majority of watercourse, heavily shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable and Public Right of Way ▪ Some litter debris	Unsuitable	
12 – southern site	▪ Connected to 13 and 11 (on-Site) ▪ Some herbaceous vegetation ▪ Dry in autumn 2022 and shallow (<30cm) water in April 2023 ▪ Trees / hedgerow along majority of watercourse, overgrown with bankside vegetation and heavily shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable and Public Right of Way ▪ Some litter debris and signs of polluted water with slick on surface	Unsuitable	

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
13 – southern site	▪ Roadside watercourse, connectivity to off-site watercourses ▪ Little to no herbaceous vegetation, bankside vegetation predominantly grass ▪ Limited year-round food sources ▪ Dry in autumn 2022 and shallow (30-50cm) water in April 2023 ▪ Hedgerow on northern bank of watercourse where watercourse runs on-Site ▪ Bank profile not suitable for burrowing ▪ Heavily disturbed, adjacent to arable, road and Public Right of Way ▪ Some litter debris	Unsuitable	
14 – southern site	▪ Roadside watercourse, connectivity to off-site watercourses ▪ Little to no herbaceous vegetation, bankside vegetation predominantly grass ▪ Limited year-round food sources ▪ Dry in autumn 2022 and shallow (30-50cm) water in April 2023 ▪ Watercourse overgrown with bankside vegetation, occasional trees ▪ Bank profile not suitable for burrowing ▪ Heavily disturbed, adjacent to arable and road ▪ Some litter debris	Unsuitable	
15 – southern site	▪ Not a watercourse – dry ditch with hedgerow	Unsuitable	

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
16 – southern site	▪ Not a watercourse – dry ditch with hedgerow	Unsuitable	No photo taken
17 – southern site	▪ Boundary watercourse, connected to 18 and 8 (on-Site) ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and shallow (<30cm) water in April 2023 (although dry in part) ▪ Trees / hedgerow along majority of watercourse, overgrown with bankside vegetation and heavily shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Some litter debris and signs of polluted water with slick on surface	Unsuitable	
18 – southern site	▪ Boundary watercourse, connected to 17 (on-Site) ▪ Bankside vegetation predominantly grass, little to no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and shallow (<30cm) water in April 2023 (although dry in part) ▪ Trees / hedgerow along majority of watercourse, overgrown with bankside vegetation and heavily shaded ▪ Shallow banks, not suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Some litter debris and signs of polluted water with slick on surface	Unsuitable	See 17
19 – southern site	▪ Not a watercourse – dry ditch with hedgerow	Unsuitable	No photo taken
20 – southern site	▪ Connected to 19 and 22a (on-Site) ▪ Bankside vegetation predominantly grass ▪ Limited year-round food sources ▪ Dry in autumn 2022 and shallow (15cm) water (in some parts) in April 2023 ▪ Hedgerow along majority of watercourse and with overhanging bankside vegetation	Unsuitable	No photo taken – see 22a

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
	▪ Bank profile shallow unsuitable for burrowing ▪ Heavily disturbed, adjacent to arable and farm track ▪ Some litter debris		
21 – southern site	▪ Not a watercourse – dry ditch with hedgerow	Unsuitable	
22 – southern site	▪ Connected to 22a (on-Site) ▪ Some herbaceous vegetation, bankside vegetation predominantly grass ▪ Limited year-round food sources ▪ Dry in autumn 2022 and shallow (15cm) water in April 2023 ▪ Hedgerow along majority of watercourse and with overhanging bankside vegetation ▪ Steep banks, suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Some litter debris	Unsuitable	

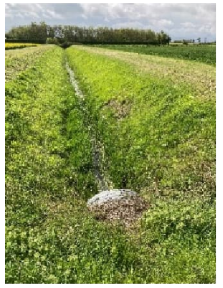
Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
22a – southern site	▪ Connected to 20, 21 and 22 (on-Site) ▪ Some herbaceous vegetation, bankside vegetation predominantly grass ▪ Limited year-round food sources ▪ Dry in autumn 2022 and shallow (15cm) water in April 2023 ▪ Little to no shading along majority of watercourse ▪ Bank profile shallow but suitable for burrowing ▪ Heavily disturbed, adjacent to arable and farm track ▪ Some litter debris	Unsuitable	
23 – southern site	▪ Connected to on-site watercourses (25a and 25) ▪ Bankside vegetation is, in places, herbaceous, some grass vegetation ▪ Year-round food sources along some sections of watercourse ▪ Predominantly dry in autumn 2022 and wet in May 2023 (<50cm) ▪ Shading where watercourse runs adjacent to woodland ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality, overall, is good with some green algae in sections	Sub-optimal	
24 - southern site	▪ Connected to on-site watercourse (27) ▪ Bankside vegetation is predominantly grass ▪ No year-round food sources for Water Vole, but could support fish populations (for Otter) ▪ Held water in autumn 2022 (50cm) and May 2023 (50cm), sluggish ‘flow’ ▪ Shading where watercourse runs adjacent to trees ▪ Steep banks suitable for burrowing – wide channel for Otter ▪ Some disturbance, adjacent to arable and watercourse is managed through dredging ▪ Water quality good	Sub-optimal for Water Vole and for Otter	

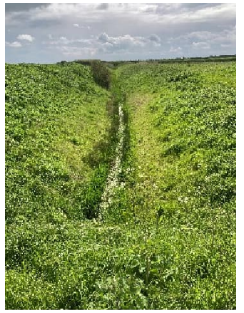
Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
25 – southern site	▪ Connected to on-site watercourses (25a and 26) ▪ Mixture of grass and herbaceous vegetation on banksides ▪ Limited year-round food sources ▪ Dry in autumn 2022 and wet in May 2023 (<30cm) ▪ Heavily shaded by overgrown bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is good	Sub-optimal	
25a - southern site	▪ Connected to on-site watercourses (23 and 25) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Wet in autumn 2022 (<50cm) and May 2023 (<1m) ▪ No shading, open water ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is very poor, lots of green algae	Sub-optimal	
26 - southern site	▪ Connected to on-site watercourse (25) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and May 2023 ▪ No shading, except from bankside vegetation which is heavily overgrown ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ No litter debris	Unsuitable	

Watercourse reference (see Figure 1.1 to 1.2)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal (see section 3.1.5)	Photograph
27 - southern site	▪ Connected to on-site watercourses (24 and 27) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation restricted to southern end ▪ Limited year-round food sources ▪ Dry in autumn 2022 and May 2023, although slightly wetter at southern end throughout ▪ No shading, except from bankside vegetation which is heavily overgrown ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and farm track ▪ No litter debris	Sub-optimal	
28 - southern site	▪ Connected to on-site watercourse (27 and 29) ▪ Bankside vegetation is predominately grass ▪ No year-round food sources ▪ Dry in autumn 2022 and May 2023 ▪ No shading, except from bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ No litter debris	Unsuitable	
29 - southern site	▪ Connected to on-site watercourse (28) ▪ Bankside vegetation is predominately grass ▪ No year-round food sources ▪ Dry in autumn 2022 and May 2023 ▪ No shading, except from bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ No litter debris	Unsuitable	

Northern Site

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
1 – northern site	▪ Connected to one on-site watercourse (2) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ Partially shaded by bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and track ▪ Water quality is moderate, some green algae, gets poorer further east	Unsuitable	
2 – northern site	▪ Connected to one on-site watercourse (1) and Hodge Dike (off-site) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, bottom of ditch filled with grass ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ Partially shaded by bankside vegetation, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and track ▪ Water quality is poor, lots of green algae	Unsuitable	
3 – northern site	▪ Connected to three on-site watercourses (3a and 13) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, bottom of ditch filled with grass ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ Partially shaded by bankside vegetation, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is poor, lots of green algae the further east	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
3a – northern site	▪ Connected to three on-site watercourses (3, 14 and 15) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation, bottom of ditch filled with grass ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ Partially shaded by bankside vegetation, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is moderate, some green algae	Unsuitable	
4 – northern site	▪ Connected to Hodge Dike (off-site) ▪ Bankside vegetation is grass, patches of grass in bottom of ditch ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ Partial shading by grass at bottom of ditch ▪ Shallow banks, just under 45°, therefore unsuitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is poor, lots of green algae and some litter debris	Unsuitable	
5 – northern site	▪ Connected to Hodge Dike (off-site) ▪ Bankside vegetation is grass ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and bankside vegetation managed through mowing ▪ Water quality is poor, lots of green algae	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
6 and 7 – northern site	▪ Connected to Hodge Dike (off-site) ▪ Bankside vegetation predominantly herbaceous, limited grass vegetation, bottom of ditch filled with grass ▪ Year-round food sources ▪ Dry in autumn 2022 and May 2023 ▪ Shading from bankside vegetation and shrubs, 1/3 is heavily shaded by a hedgerow, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is poor, lots of green algae	Sub-optimal	
8 – northern site	▪ Connected to off-site watercourses ▪ Mixture of grass and herbaceous vegetation on banksides ▪ Limited year-round food sources ▪ Wet in May 2023 (50cm-1m) ▪ Some shading from bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and track ▪ Water quality is good	Sub-optimal	
9 – northern site	▪ Connected to one on-site watercourse (21) ▪ Mixture of herbaceous, grass and woody vegetation on banksides, bottom of ditch filled with grass ▪ Limited year-round food sources ▪ Wet in autumn 2022 (<10cm) and May 2023 (<10cm) ▪ Heavily shaded from bankside vegetation and shrubs, heavily shaded by grass at bottom of ditch ▪ One side just under 45°, the other side very shallow ▪ Some disturbance, adjacent to arable and track and bankside vegetation managed through mowing.	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
	▪ Water quality is poor, lots of green algae		
10 – northern site	▪ Connected to one on-site watercourse (9) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation, bottom of ditch filled with grass ▪ Limited year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (varying depths, >10cm) ▪ Some shading from patches of bankside vegetation leaving no open water, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and track ▪ Water quality is poor, some green algae, some litter debris	Unsuitable	
11 – northern site	▪ Connected to two on-site watercourses (10 and 12) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ Limited year-round food sources ▪ Wet with some dry patches in May 2023 (>10cm) ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable and track ▪ Water quality is poor, some green algae, very poor where drains run into ditch	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
12 – northern site	▪ Connected to two on-site watercourses (19 and 20) ▪ Bankside vegetation predominantly grass and woody, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ ¾ of ditch shaded by hedgerow ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is poor, some green algae, some litter debris	Unsuitable	
13 – northern site	▪ Connected to an on-site watercourse (14 and 18) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation, 2/3 with woody bankside vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ No shading on southern half of ditch, then shaded from encroaching hedgerow ▪ Banks just reaching 45° ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, lots of green algae	Unsuitable	
14 – northern site	▪ Connected to an on-site watercourse (3a, 13 and 16) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, some green algae, some litter debris	Unsuitable	

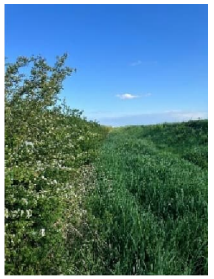
Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
15 – northern site	▪ Connected to one on-site watercourse (3a) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet with some dry patches in May 2023 (<10cm) ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, some green algae	Unsuitable	
16 – northern site	▪ Connected to one on-site watercourse (14) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet with some dry patches in May 2023 (<10cm) ▪ Hedgerow along majority of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, some green algae	Unsuitable	No photo taken
17 – northern site	▪ Connected to on-site watercourses (18 and 34) ▪ Bankside vegetation predominantly grass, no herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, damp in May 2023 (<10cm) ▪ No shading ▪ Banks just reaching 45° ▪ Some disturbed, adjacent to farm track and arable ▪ Water quality is poor	Unsuitable	No photo taken
18 – northern site	▪ Connected to an on-site watercourse (18 and 34) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<10cm) ▪ No shading on southern half of ditch, then shaded from encroaching hedgerow ▪ Banks just reaching 45°	Unsuitable	See ‘13’

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
	▪ Some disturbance, adjacent to arable ▪ Water quality is poor, lots of green algae		
19 – northern site	▪ Connected to an on-site watercourse (20) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2002 and dry with wet patches from recent rain in May 2023 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, some green algae, some litter debris	Unsuitable	
20 – northern site	▪ Connected to an on-site watercourse (19, 21, 22 and 22a) ▪ Bankside vegetation predominantly grass, some woody and herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022, shallow water in May 2023 (<10cm) ▪ North-eastern side moderately shaded from bankside vegetation and shrubs, western half entirely shaded by encroaching hedgerow ▪ Banks not suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, some green algae and some litter debris	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
21 – northern site	▪ Connected to several on-site watercourses (20) ▪ Mixture of herbaceous, grass and woody vegetation on banksides, bottom of ditch filled with grass ▪ No year-round food sources ▪ Wet in autumn 2022 and May 2023 (<10cm) ▪ Heavily shaded from bankside vegetation and grass at bottom of ditch ▪ Bankside shallow ▪ Some disturbance, adjacent to arable and track and bankside vegetation managed through mowing ▪ Water quality is poor, lots of green algae	Unsuitable	
22 – northern site	▪ Connected to one on-site watercourse (23) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation, bottom of ditch filled with grass ▪ No year-round food sources ▪ Dry in autumn 2022, wet in May 2023 (<20cm) ▪ Heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, lots of green algae	Sub-optimal	
23 – northern site	▪ Connected to one on-site watercourse (22) and Midfodder Dike (off-site) ▪ Mixture of herbaceous, grass and woody vegetation on banksides, bottom of ditch filled with grass, open water to south-east end ▪ Limited year-round food sources ▪ Wet in autumn 2022 (<10cm) and in May 2023 (<20cm), gets deeper to south-east end (<50cm), shallow to north-west (<10cm) and channel width decreases ▪ Heavily shaded by shrubs on north-west end, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor overall, some patches of green algae	Sub-optimal	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
24 – northern site	▪ Connected to Midfodder Dike and off-site watercourse that runs alongside road to farmhouse ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation, bottom of ditch filled with grass ▪ No year-round food sources ▪ Dry in autumn 2022 and May 2023 ▪ Heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ No litter debris	Unsuitable	
25 – northern site	▪ Connected to one on-site watercourse (26) and off-site ditch that runs up the road to the farmhouse ▪ Mixture of grass and herbaceous vegetation on banksides, bottom of ditch filled with grass ▪ Limited year-round food sources ▪ Dry in autumn 2022 and wet (<30cm) in May 2023 ▪ Heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, lots of green algae	Sub-optimal	
26 – northern site	▪ Connected to one on-site watercourse (25) and off-site ditch that runs up the road to the farmhouse ▪ Mixture of grass and herbaceous vegetation on banksides, bottom of ditch filled with grass ▪ Limited year-round food sources ▪ Wet in May 2023 (<30cm) ▪ Heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, some of green algae, some litter debris	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
27 – northern site	▪ Connected to off-site ditch that runs up the road to the farmhouse ▪ Mixture of grass and herbaceous vegetation on banksides ▪ Limited year-round food sources ▪ Dry with wet patches in May 2023, gets deeper towards south-east end (<20cm) ▪ Heavily shaded by herbaceous vegetation towards the middle of the ditch, heavily shaded by grass at bottom of ditch ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable and bankside vegetation managed through mowing ▪ Water quality is poor, lots of green algae, water quality improves towards south-east end	Unsuitable	
28 – northern site	▪ Not connected to other watercourses ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and dry with wet patches in May 2023 ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable and bankside vegetation managed through mowing ▪ No litter debris	Unsuitable	
29 – northern site	▪ Connected to on-site watercourses (21 and 30) ▪ Mixture of grass and herbaceous vegetation on banksides, bottom of the ditch is mainly grass ▪ Limited year-round food sources ▪ Wet in autumn 2022 and May 2023 (<10cm) ▪ Heavily shaded by grass at bottom of ditch ▪ North-east side less than 45°, south-west side steep ▪ Some disturbed, adjacent to arable and bankside vegetation managed through mowing ▪ Water quality is poor, lots of green algae	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
30 – northern site	▪ Connected to one on-site watercourse (29) and off-site watercourses ▪ Mixture of grass and herbaceous vegetation on banksides, bottom of the ditch is mainly grass ▪ Limited year-round food sources ▪ Wet in autumn 2022 and May 2023 (<20cm) ▪ Partial shading by bankside shrubs, heavily shaded by grass at bottom of ditch ▪ North-east side less than 45°, south-west side steep ▪ Some disturbed, adjacent to arable and bankside vegetation managed through mowing ▪ Water quality poor	Unsuitable	
31 – northern site	▪ Connected to on-site watercourses (29 and 32) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Predominantly dry in autumn 2022 and wet in May 2023 (<5cm), gets deeper towards south-east end ▪ Heavily shaded by grass at bottom of ditch, last ¼ of southeast end heavily shaded by woodland edge ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, lots of green algae	Unsuitable	
32 – northern site	▪ Connected to one on-site watercourse (31) ▪ Bankside vegetation predominantly grass, limited herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and wet in May 2023 (<10cm) ▪ Heavily shaded by woodland edge at south-west end, predominantly open ditch ▪ Bank profile unsuitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is poor, lots of green algae	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
35 – northern site	▪ Connected to one on-site watercourse (36) ▪ Bankside vegetation predominantly grass, herbaceous vegetation towards bottom of ditch ▪ Limited year-round food sources ▪ Wet in May 2023 (<10cm) ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable but has large margins between them ▪ Water quality is good	Unsuitable	
36 – northern site	▪ Connected to two on-site watercourses (35 and 37) Bankside vegetation predominantly grass, herbaceous vegetation towards bottom of ditch Limited year-round food sources ▪ Wet in May 2023 (<10cm) ▪ No shading ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable but has large margins between them ▪ Water quality is good	Unsuitable	
37 – northern site	▪ Connected to two on-site watercourses (36 and 38) ▪ Bankside vegetation predominantly grass, some patches of herbaceous vegetation ▪ No year-round food sources ▪ Wet in May 2023 (<10cm) ▪ Shading at ends of ditch from shrubs ▪ Steep banks suitable for burrowing ▪ Some disturbed, adjacent to arable ▪ Water quality is good	Unsuitable	

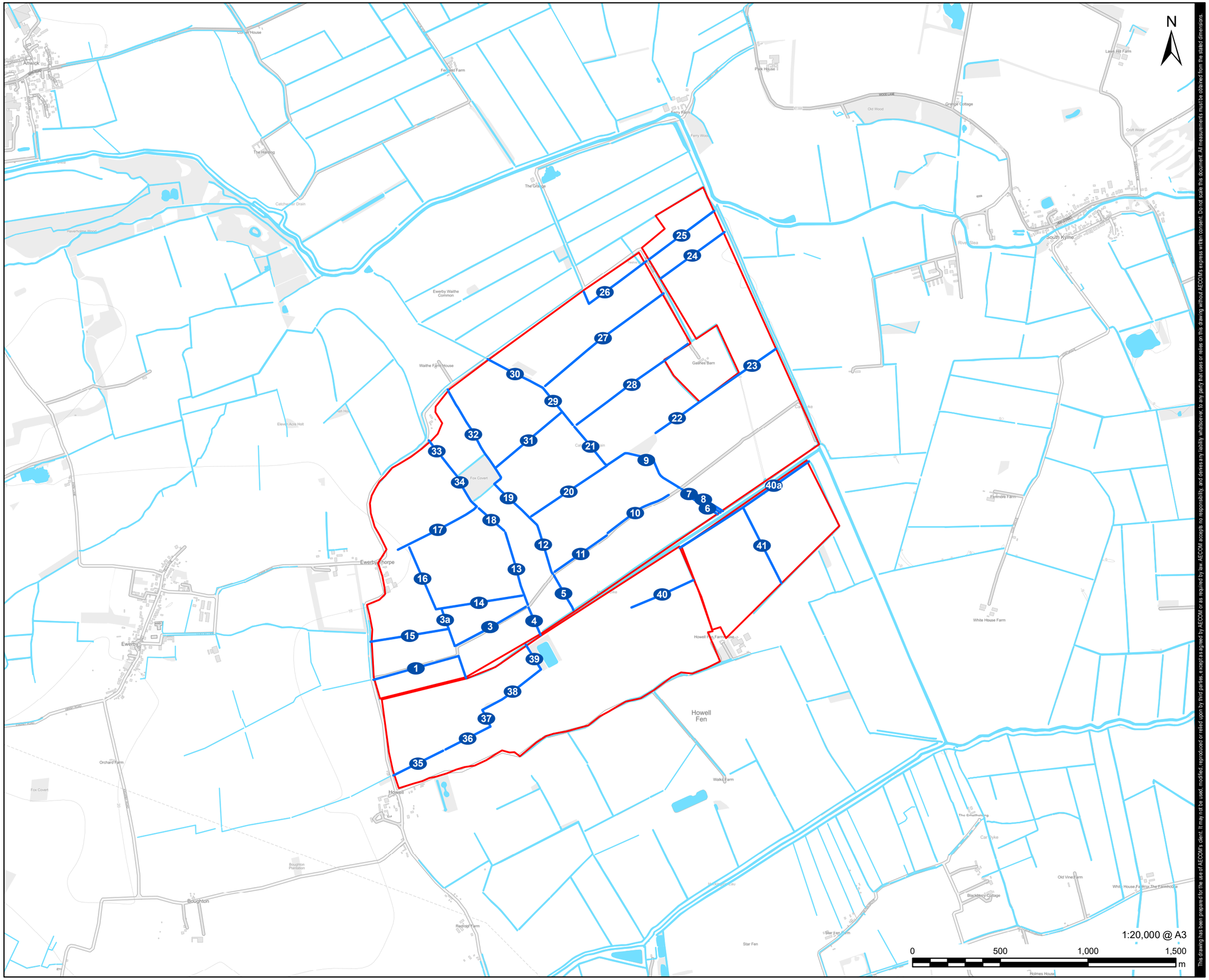
Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
38 – northern site	▪ Connected to two on-site watercourses (37 and 39) ▪ Bankside vegetation predominantly grass, pockets of herbaceous vegetation ▪ No year-round food sources ▪ Dry in autumn 2022 and wet in May 2023 (<30cm) ▪ Heavily shaded by hedgerow on one bankside ▪ Hedgerow side is sometimes steep and then shallow, clear side is consistently very steep ▪ Some disturbance, adjacent to arable ▪ Water quality is good	Unsuitable	
39 – northern site	▪ Connected to one on-site watercourse (38) ▪ Mixture of herbaceous and grass vegetation on one bankside, hedgerow on the other which encroaches over the ditch ▪ Limited year-round food sources ▪ Dry in autumn 2022 and wet in May 2023 (<10cm) ▪ Heavily shaded by hedgerow ▪ Hedgerow side is very steep, clear side is less steep ▪ Some disturbance, adjacent to arable and woodland ▪ Water quality is moderate, some green algae	Unsuitable	
40 – northern site	▪ Not connected ▪ Mixture of herbaceous and grass vegetation on one bankside, hedgerow on the other which encroaches over the ditch ▪ Limited year-round food sources ▪ Dry in autumn 2022 and dry with wet patches (from recent rain) in May 2023 ▪ Heavily shaded by hedgerow and bankside vegetation ▪ Steep banks suitable for burrowing ▪ Heavily disturbed, adjacent to arable and livestock ▪ Some litter debris	Unsuitable	

Watercourse reference (see Figure 8-K1)	Summary description of suitability	Unsuitable / Sub-optimal / Optimal	Photograph
40a – northern site	▪ Connected to one on-site watercourse (40) ▪ Mixture of herbaceous and grass vegetation on banksides ▪ Limited year-round food sources ▪ Wet in May 2023 (>30cm) ▪ Some shading by bankside vegetation ▪ Steep banks suitable for burrowing ▪ Some disturbance, adjacent to arable ▪ Water quality is moderate - poor to the east end of the ditch (lots of green algae), good to the west	Unsuitable	
41 – northern site	▪ Connected to one on-site watercourse (40a) ▪ Bankside vegetation is predominately grass, limited herbaceous vegetation ▪ Limited year-round food sources ▪ Dry in autumn 2022 and May 2023 ▪ Heavily vegetated within the channel ▪ Banks just reaching 45° ▪ Some disturbance, adjacent to arable ▪ No litter debris	Unsuitable	

Appendix B: Figures

Figure 1-1 and 1-2 Surveyed watercourses for riparian mammals

Revision: 0 Drawn: BF Checked: MC Approved: XX Date: 2023-06-15



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LEGEND
- Site boundary
- Watercourses surveyed for riparian mammals
- Other watercourses

PAGE LAYOUT
1
2

NOTES

ISSUE PURPOSE
FOR INFORMATION

PROJECT NUMBER
60644715

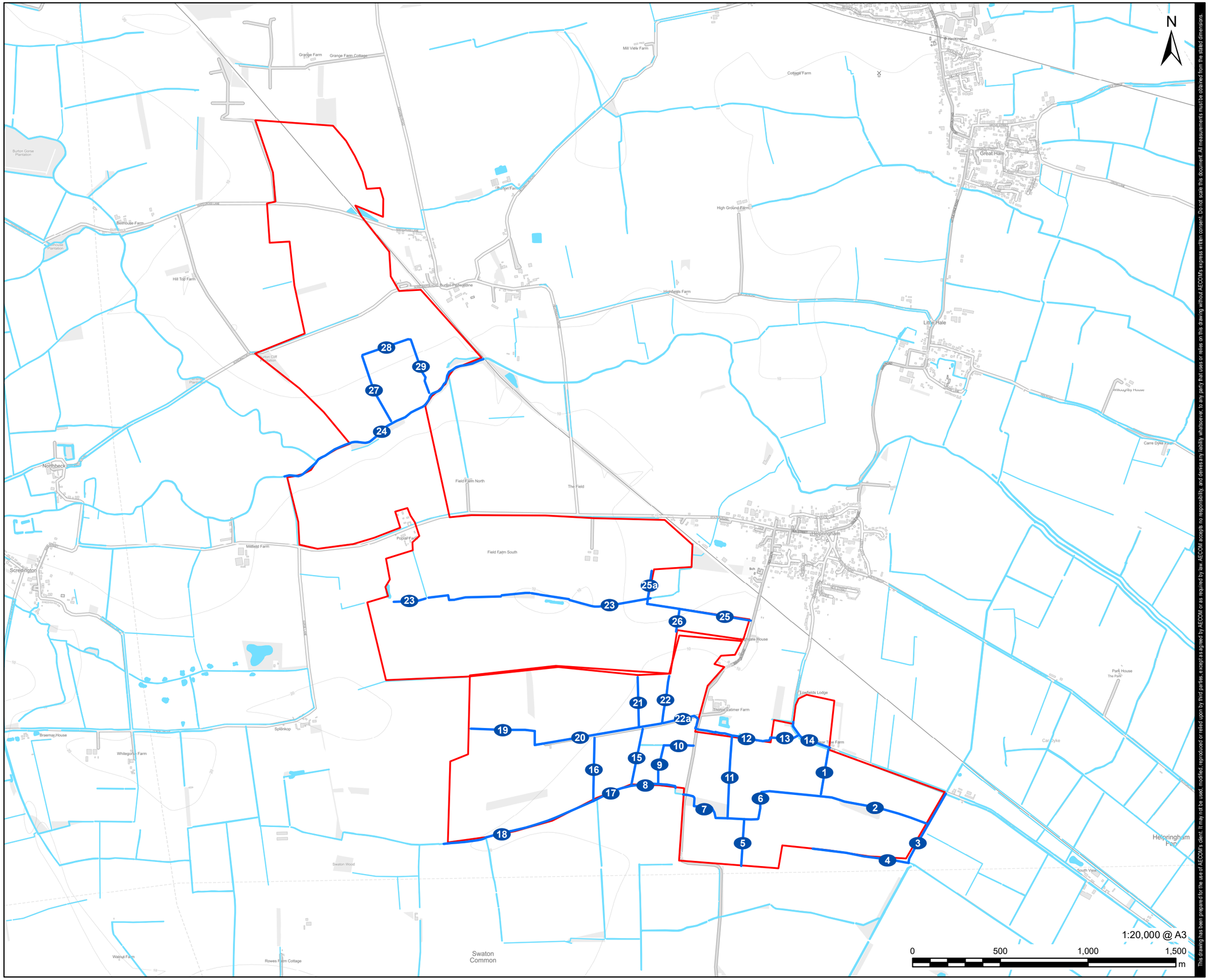
FIGURE TITLE
RIPARIAN MAMMAL SURVEY
WATERCOURSE LOCATIONS

FIGURE NUMBER
FIGURE 1.1

Filename: W:\Active Projects\Low Carbon - Bicker Fen Solar Farm\3. GIS\02_Maps\BickerFen_Riparian Mammals.mxd

Revision: 0 Drawn: BF Checked: MC Approved: XX Date: 2023-06-15

Filename: W:\Active Projects\Low Carbon - Bicker Fen Solar Farm\3. GIS\02_Maps\BickerFen_Riparian Mammals.mxd



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LEGEND

- Site boundary
- Watercourses surveyed for riparian mammals
- Other watercourses

PAGE LAYOUT

1

2

NOTES

ISSUE PURPOSE

FOR INFORMATION

PROJECT NUMBER

60644715

FIGURE TITLE

RIPARIAN MAMMAL SURVEY
WATERCOURSE LOCATIONS

FIGURE NUMBER

FIGURE 1.2

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