Fosse Green Energy

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EN010154

6.3 Environmental Statement Appendices

Appendix 8-J: Riparian Mammals

VOLUME

6

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(Applications: Prescribed Forms and
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6.3 Environmental Statement Appendices

Appendix 8-J: Riparian Mammals

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1. Introduction

1.1 Background

1.1.1 This report forms a technical appendix to the Environmental Statement (ES), specifically to accompany **Chapter 8: Ecology and Nature Conservation** of this ES **[EN010154/APP/6.1]**. The report characterises the baseline conditions for riparian mammals (i.e. Water Vole (*Arvicola amphibius*), Otter (*Lutra lutra*) and American Mink (*Neovison vison*)) relevant to Fosse Green Energy (hereafter referred to as the Proposed Development), reporting on a desk study and the results of surveys undertaken.

1.1.2 Further information on the Proposed Development is included within **Chapter 3: The Proposed Development** of this ES **[EN010154/APP/6.1]**.

1.2 Aims and Objectives

1.2.1 The aim of this report is to determine the presence and distribution of riparian mammals relevant to the Proposed Development (see **Section 3.1**).

1.2.2 The objectives, therefore, are to:

a. Review existing ecological data to identify any records of riparian mammals occurring within the Study Area (see **Section 3.1**);

b. Identify and assess watercourses and waterbodies present within the DCO Site and any areas immediately outside of the DCO Site where there may be potential for direct or indirect effects (the “Zone of Influence” (ZoI) (see **Section 3.1**)), for their potential to support riparian mammals;

c. Undertake detailed surveys to determine the status of Water Vole and Otter within the ZoI; and

d. Ascertain the status of American Mink within the ZoI (because this can affect the likelihood of Water Vole being present as it is a significant predator of the species).

1.2.3 Combined, this is being used to:

a. Determine the biodiversity importance of the DCO Site for riparian mammals; and

b. Determine the potential impacts of the Proposed Development on riparian mammals and any required mitigation (as presented in **Chapter 8: Ecology and Nature Conservation** of this ES **[EN010154/APP/6.1]**).

2. Relevant Legislation, Policy and Guidance

2.1 Legislation

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

a. Intentionally kill, injure or take these species;

b. Possess or control live or dead individuals of these species or their derivatives;

c. Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for their shelter or protection;

d. Intentionally or recklessly disturb these species whilst occupying a structure or place of shelter used for that purpose;

e. Sell these species or offer or expose for sale or transport for sale; and

f. 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 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) (Ref 2) as a species requiring strict protection in Europe. In the UK this was implemented by The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations) (Ref 3). Otter is also included in the following international legislation / conventions:

a. Appendix II and IV of the Habitats Directive, Appendix II of the Bern Convention (Ref 4) and Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora) (CITES) (Ref 5); and

b. Globally threatened on the International Union for Conservation of Nature (IUCN) Red List (Ref 6).

2.1.3 American Mink is listed as an invasive species on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 1) making it an offence to:

a. Release or allow the escape of this species into the wild.

2.1.4 Compliance with the above legislation may require the attainment of relevant protected species licences prior to the implementation of the Proposed Development.

2.2 Protected Species Licensing

Water Vole

2.2.1 For Water Vole, a licence is required from Natural England where development works have the potential to disturb, damage or destroy their places of shelter (burrows); stop Water Voles from accessing places they use for shelter or protection; kill or injure them; or to take, move, possess or control them.

2.2.2 Development and other construction activities may be licensed by Natural England under "*reasons of overriding public interest*". Such works should be carried out under a Mitigation Licence, issued by Natural England. This licence requires demonstration of a conservation benefit for Water Vole and this benefit can be achieved by delivering a net gain in the amount of habitat available to the Water Vole population. This is typically achieved through habitat creation, improving existing habitat and significantly improving linkages between Water Vole colonies.

2.2.3 Minor works may also be undertaken under the supervision of an ecologist registered to use a Natural England Water Vole Class Licence. This approach does not require a specific development licence for Water Vole and would permit the displacement of Water Vole through vegetation removal from areas of bankside habitat not exceeding 50 metres (m). There are seasonal constraints applied to the displacement works, with initial vegetation removal (and thus displacement of Water Vole) only permitted during the period 15 February to 15 April and 15 September to 31 October inclusive.

2.3 Otter

2.3.1 Any operations that may impact upon Otters or their places of rest or shelter may require a Natural England European Protected Species (EPS) Mitigation Licence.

2.3.2 An EPS Mitigation Licence is required where development/ and or construction activity will impact Otter through:

a. Capturing, killing, disturbing or injury;

b. Damaging or destroying their breeding/ resting place; or

c. Obstructing access to their resting/ sheltering place.

2.3.3 In the first instance impacts to Otter should be avoided through considerate construction practices (e.g., minimising work to daylight hours) and through the implementation of "buffer zones" from known places of shelter. Where breeding holts are affected, the buffer zone would need to be 200m, but for other shelters this can be reduced to 30m (Ref 7).

2.3.4 Where such buffer zones cannot be implemented it is likely that the works will require a licence from Natural England.

2.3.5 The licence will stipulate how Otter will benefit from mitigation measures, habitat creation, habitat management and habitat maintenance.

2.4 Species of Principal Importance

2.4.1 In England, the Natural Environment and Rural Communities Act 2006 (Ref 8) (NERC) requires the Secretary of State for Environment, Food and Rural Affairs to publish and maintain a list of habitats and species that are of 'principal importance' for the purpose of conserving biodiversity and are regarded as conservation priorities under the UK Biodiversity Framework (Ref 9), which supersedes the UK Biodiversity Action Plan (UKBAP) (Ref 10). The UKBAP was launched in 1994 and established a framework and criteria for identifying species (and habitat types) of conservation concern.

2.4.2 Therefore, in addition to the above legislation, Water Vole and Otter are listed as being Species of Principal Importance (SPI) for conservation in England. These species are of material consideration during the planning process and are used to guide decision-makers such as public bodies (including local and regional authorities) in implementing their duty under Section 40 of NERC (Ref 8).

2.5 Local Priority Species

2.5.1 The Proposed Development is located within the county of Lincolnshire. Formerly, the Lincolnshire Biodiversity Action Plan (BAP) (3rd edition) (Ref 11) provided context to inform identification of threatened or uncommon species of local relevance, alongside priorities for conservation and enhancement targeted at a local level. However, under the Environment Act 2021 (Ref 12), BAPs are being replaced by Local Nature Recovery Strategies (LNRSs), which are a system of spatial strategies for nature which will support delivery of biodiversity net gain (BNG) and provide more focussed action for nature recovery. Whilst this is still being developed for Lincolnshire and with no specific habitat or species plans currently in place, this report references those species formerly included on the Lincolnshire BAP.

2.5.2 Water Vole is included as a local priority species on the Lincolnshire BAP, (Ref 11) however Otter is not.

2.5.3 The following threats to Water Vole populations in Lincolnshire have been identified by the Lincolnshire BAP:

a. Damage to (and loss of) habitat due to insensitive routine maintenance of channel and bankside vegetation and the engineering of watercourses;

b. Developments within the floodplain can result in the direct loss of water vole habitat;

c. Fluctuations in water level due to land drainage, flood control, irrigation schemes and drought. When water levels are lowered in the winter, burrow entrances can be left exposed and vulnerable to predation;

d. 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;

e. Predation, particularly by American Mink;

f. Pollution of the aquatic environment by contaminants discharged from industry, agriculture and urban waste treatment; and

g. Persecution through the improper use of rodenticides.

3. Methods

3.1 Characterising the Baseline

3.1.1 Within this report, the following terminology is used when referring to the geographic areas within which assessments were made:

a. Study Area – the area within which the Proposed Development will be located and a 2km radius which was subject to collection of background information e.g., collation of desk study records to supplement the findings of the survey work;

b. ZoI – the area over which riparian mammals may be affected by the Proposed Development which, using the criteria below and proportionate to the Proposed Development's impacts, is up to 200m from the DCO Site Boundary for Otter and 10m for Water Vole. Through review of likely impacts of the Proposed Development and results of the desk study, the scope of field surveys was then defined. The ZoI was based on the following criteria, proportionate to the Proposed Development's potential to impact on each feature:

   i. the nature of the project (a solar farm, and associated infrastructure), associated project activities, and the potential for effects at all development stages (construction, operational (including maintenance) and decommissioning);

   ii. the nature of the current land use (predominantly arable) and habitats in the vicinity (majority being arable), their connectivity (e.g. through hedgerows, ditches or grassland margins), and how they may be used by different species;

   iii. the presence and assemblages of species which may be in the area, identified during the desk study and based on the location of the Proposed Development; and

   iv. the different habits, behaviours and preferences of riparian mammals that could be affected, and how these vary both spatially and seasonally.; and

c. Survey Area – the area within which survey work was undertaken (the DCO Site plus up to 10m and 200m upstream/downstream of watercourses (i.e. rivers, drains) and from water bodies (i.e. ponds) for Water Vole and Otter respectively (where suitable habitat exists).

3.2 Desk Study

3.2.1 A desk study was undertaken as part of the Preliminary Ecological Appraisal (PEA) in 2024. This desk study obtained records of riparian mammals within the Study Area from Greater Lincolnshire Nature Partnership (GLNP) and this was sufficient in determining the presence or absence of riparian mammals occurring within the ZoI.

3.2.2 Only records of riparian mammals up to ten years from the data request date were considered within the assessment, as any records older than ten years are unlikely to be still representative of presence in the local area.

3.3 Field Survey

Habitat Suitability Assessment

3.3.1 A review of habitat data and a walkover of the Survey Area was undertaken by experienced surveyors in May 2023, and to other areas of the DCO Site as access became available, to undertake a habitat suitability assessment of watercourses and waterbodies for riparian mammals, comprising Water Vole and Otter. Four watercourses and three waterbodies were identified within the Survey Area (see **Figure 8-I-1** in **Annex A [EN010154/APP/6.3]** of this report).

3.3.2 The habitat suitability assessment for Water Vole, based on "Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys" (Ref 13) and with reference to the indices presented in **Table 1**. For Otter, the indices presented in **Table 1** were assessed, based on criteria presented in "Monitoring the Otter" (Ref 14). American Mink would use similar habitats to Otter and Water Vole.

Table 1: Summary of riparian mammal habitat suitability assessment criteria

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

3.3.3 Water Vole 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.

3.3.4 With reference to **Table 1**, the suitability of each watercourse and waterbody to support Water Vole was defined using the assessment criteria presented in **Table 2**.

Table 2: Habitat suitability for Water Vole

Habitat category	Dry areas for burrows			Herbaceous vegetation	Water
	Bank profile	Bank substrate	Variation in water level		
Optimal (all criteria need to be met)	Steep (approaching 1:1) on at least one side. Steep or shallow banks on static waterbodies or fen-type habitat, where levels do not fluctuate significantly.	Earth or peat	No noticeable variation during the summer months; banks are not overtopped regularly.	Continuous swathe of tall and luxurious riparian vegetation providing 90-100% cover (tall tussocky grassland) and marginal and in-channel vegetation is present.	Permanent water
Good (all criteria need to be met)	Steep (approaching 1:1) on at least one side. Steep or shallow banks on static waterbodies or fen-type habitat, where levels do not fluctuate significantly.	Earth or peat banks, or stony/ reinforced bank with gaps allowing access to earth behind.	No noticeable variation during the summer months; banks are not overtopped regularly.	Continuous swathe of bankside or in-channel vegetation providing at least 60% cover. May be dominated by grasses and weeds. The vegetation should generally be tall, except in urban or suburban areas, where shorter bankside vegetation may also qualify.	Permanent water. Or routinely wet for at least 2-3 months during the summer, and where other 'good' habitat is present in immediately adjacent areas with permanent water.
Suitable but poor	Any habitat that falls short of the criteria to qualify as 'good' but does not meet the criteria of 'unsuitable' could reasonably be considered to be 'suitable but poor'.				
Unsuitable – will generally need to meet the criteria for herbaceous vegetation and at least one other	Shallow bank profile	Rocky or gravel unsuitable for burrowing	Considerable variation in water level – the bank toe can move by more than 1m horizontally over the breeding season.	No or limited bankside and marginal vegetation (due to shading or other 'permanent' factors - note that management is often a temporary factor).	No water

Habitat category	Dry areas for burrows			Herbaceous vegetation	Water
	Bank profile	Bank substrate	Variation in water level		
	Vertical bank face with no burrowing opportunities behind it.	Reinforced banks with no gaps	N/A		

3.3.5 For Otter, whilst the criteria presented in **Table 1** were referenced to determine the suitability of each watercourse and water body to support this species, it should be noted that Otter is a mobile species of riparian mammal and has a large home range (up to 32km). Therefore, any watercourse may potentially be used by this species for commuting.

3.3.6 The habitat suitability assessment for riparian mammals was undertaken on all the water bodies within the Survey Area. This survey 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 inspection for riparian mammals, as follows:

a. Optimal or Good habitat – full survey (see below) along all margins of watercourses or water body;

b. Suitable, but poor habitat - spot checks of margins of watercourse or water body, approximately every 50m; or

c. Unsuitable – no formal survey undertaken, scoped out.

Water Vole Survey

3.3.7 The aim of the survey was to identify evidence of Water Vole activity along a bank and up to 5m from the bank of the surveyed watercourse or water body. Field surveys were based on the standard methods as described by Strachan *et al*. (2011) (Ref 15) and Dean *et al*. (2016) (Ref 16). Field signs searched for included:

a. 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;

b. Feeding stations – areas with distinct neat piles of chewed lengths of vegetation along pathways or haul out platforms along the water's edge;

c. 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;

d. Lawns – short, grazed areas at the entrances to burrows;

e. Prints – identifiable prints in soft margins of the watercourse; and

f. Runways – low tunnels that are pushed through the vegetation and often leading to burrows or feeding stations.

3.3.8 In accordance with the guidance set out in the Water Vole Mitigation Handbook (Ref 16), one survey should be conducted in the second half of the breeding season (between July and September) and a second survey should be carried out in the first half of the breeding season (April to June). Surveys were carried out on 25th and 26th May 2023 (with limitations, see **Section 3.5**), 4th to 6th September 2023, 8th to 9th May 2024 and 17th July 2024 and comply with the survey timing guidance. All surveys were undertaken during suitable weather conditions and by experienced AECOM ecologists.

3.3.9 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 water bodies 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.

3.3.10 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 16).

Otter Survey

3.3.11 The aim of the survey was to determine the presence or absence of Otter on water bodies and watercourses deemed suitable for Otter, following the habitat suitability assessment. The method used was in accordance with guidance in the New Rivers and Wildlife Handbook (Ref 17); the Environment Agency's Fifth Otter Survey of England 2009-2010 (Ref 18) and Monitoring the Otter (Ref 14).

3.3.12 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 at the same time as the Water Vole surveys in May 2023, September 2023, May 2024 and July 2024. An additional survey was carried out in November 2024 to confirm any signs of Otter at a potential Otter holt feature within a woodland next to the River Witham. A remote camera was deployed from 6th November to 3rd December to confirm Otter presence/absence at this feature.

3.3.13 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:

a. 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;

b. 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;

c. Feeding remains – feeding remains may include partially eaten fish, frogs, piles of mussel shells or crayfish remains;

d. 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;

e. 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

f. 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.

3.4 Biodiversity Importance

3.4.1 An essential prerequisite step to allow an ecological impact assessment of the Proposed Development, as presented in **Chapter 8: Ecology and Nature Conservation** of this ES **[EN0010154/APP/6.1]**, is an evaluation of the relative biodiversity importance of the DCO Site for riparian mammals. This is necessary to set the terms of reference for the subsequent ecological impact assessment.

3.4.2 The method of evaluation that was utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (Ref 19). This gives guidance on scoping and carrying out environmental assessments and places appraisal in the context of relevant policies and at a geographical scale at which feature matters (i.e., international, national, regional, county, district, local or site). Data received through desk study and field-based surveys were used to identify the importance of the species addressed in this report. Professional judgement was also applied, where necessary. Relevant published national and local guidance and criteria has been used, where available, to inform the assessment of biodiversity importance and to assist consistency in evaluation.

3.5 Assumptions and Limitations

Desk Study

3.5.1 The aim of the desk study was to help characterise the baseline context of the Proposed Development and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of the desk study was dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species does not occur in the study area. Likewise, the presence of records of species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Proposed Development.

Field Survey

3.5.2 Access to the channels of the River Brant, River Witham and Wet Drain 18 was not possible as the water levels were too high making for deep water, or the bed substrate was unsuitable to wade in. This would be the same at any time of the year. Presence or likely absence surveys on these watercourses were restricted to areas of accessible bankside habitat where it was safe to do so, and as a result field signs on these watercourses could be missed.

3.5.3 The presence of dense vegetation in the summer months poses a constraint to surveyors as access to banksides can be restricted and field signs can be missed. During the late May 2023 surveys vegetation was tall and obscured views of the banks in places. To address this limitation an additional survey was carried out in early May 2024 when bank vegetation was lower.

3.5.4 Therefore, these limitations are not considered a restraint on the efficacy of the surveys.

4. Results

4.1 Desk Study

4.1.1 Records of Water Vole and Otter within 2km of the DCO Site Boundary and from the last ten years were returned from the data search. There were no American Mink records.

4.1.2 Most of the records for both Otter and Water Vole related to Whisby Pits Local Nature Reserve (LNR) located 413m to the north of the DCO Site Boundary. There were two Otter records within the DCO Site Boundary along the River Witham near Bassingham. There were no records of Water Vole within the DCO Site.

4.1.3 Desk study data, including maps and aerial photography and previous habitat data was used in the habitat suitability assessment.

4.2 Field Survey

Habitat Suitability Assessment

4.2.1 The habitat suitability assessment was undertaken on all watercourses and waterbodies within the Survey Area. This assessment was used to further refine the scope of surveys and determine whether they were suitable (i.e., scoped in for further survey) or unsuitable (i.e., scoped out of further survey) for riparian mammals. Many watercourses and waterbodies in the Survey Area were assessed as being unsuitable for riparian mammals (i.e. dry ponds or dry ditches and/or shallow, heavy shaded ponds with no aquatic/marginal vegetation) and scoped out. Four watercourses (River Brant, West Brant Syke, River Witham and Wet Drain 18) and three waterbodies (Ponds 8, 15 and 61) were identified with potential suitability (Optimal or Sub-optimal) for further riparian mammals surveys within the Survey Area (as presented in **Figure 8-J-1** in **Annex A [EN010154/APP/6.3]** of this report and **Table 3**).

Table 3: Riparian Mammal Habitat Suitability assessment data

Reference (see Figure 8-J-1)	Summary Description of Suitability	Unsuitable / Sub-optimal / Optimal	Photograph
River Brant	Slow-flowing river between arable fields where it is within the DCO Site. Plentiful marginal, ruderal and aquatic vegetation present throughout, including dense reedbeds and floating weeds, with earth banks suitable for burrowing by water vole. Limited opportunities for Otter rest or holt sites where trees are present along the river's banks, and no woodlands are present within 100m of the watercourse within the DCO Site. No bank poaching by livestock observed. Connects to multiple streams, tributaries and drains along its length, providing excellent commuting and migrating opportunities. Optimal habitat for Otter and Water Vole.	Optimal	

Reference (see Figure 8-J-1)	Summary Description of Suitability	Unsuitable / Sub-optimal / Optimal	Photograph
West Brant Syke	Overgrown drain with arable field boundaries, with occasional shading by trees. Plentiful marginal, ruderal and aquatic vegetation present throughout, including dense reedbeds, with steep earth banks suitable for burrowing by Water Vole. Limited opportunities for otter rest or holt sites where trees are present along the ditch, and no woodlands are present within 100m of the watercourse. No bank poaching by livestock observed. Does not appear to dry out and connects to the River Brant directly, providing good commuting or migrating opportunities. Optimal habitat for Water Vole and suitable for commuting Otters.	Optimal	

Reference (see Figure 8-J-1)	Summary Description of Suitability	Unsuitable / Sub-optimal / Optimal	Photograph
River Witham	Slow-flowing river between arable fields where it is within the DCO Site, with a small woodland (>1 ha) adjacent to the south which was not accessed. Plentiful marginal, ruderal and aquatic vegetation present throughout, including dense reedbeds, with earth banks suitable for burrowing by Water Vole. Limited opportunities for Otter rest or holt sites where trees are present along the river's banks, but good opportunities may be present within the adjacent woodland. No bank poaching by livestock observed. Connects to multiple streams, tributaries and drains along its length, providing excellent commuting and migrating opportunities. Optimal habitat for Otter and Water Vole.	Optimal	

Reference (see Figure 8-J-1)	Summary Description of Suitability	Unsuitable / Sub-optimal / Optimal	Photograph
Wet Drain 18	Overgrown drain on arable field boundaries, with occasional shading by trees. Plentiful marginal, ruderal and aquatic vegetation present throughout, including dense reedbeds, with steep earth banks suitable for burrowing by Water Vole. Limited opportunities for otter rest or holt sites where trees are present along the ditch, and no woodlands are present within 100m of the watercourse. No bank poaching by livestock observed. Does not appear to dry out and extends close to the River Witham, providing good commuting or migrating opportunities. Optimal habitat for Water Vole and suitable for commuting Otters.	Optimal	
Pond 9	Small pond on arable field boundaries, heavily shaded with dense ruderal vegetation and scrub. Identified from previous habitat surveys as potentially suitable for riparian mammals but found to be dry on both survey visits. Unsuitable for Water Vole or Otter.	Initially Sub-optimal downgraded to Unsuitable	

Reference (see Figure 8-J-1)	Summary Description of Suitability	Unsuitable / Sub-optimal / Optimal	Photograph
Pond 15	Small pond on arable field boundaries, heavily shaded with little marginal vegetation and no aquatic vegetation. Identified from previous habitat surveys as potentially suitable for riparian mammals as contained water. Lack of aquatic plants and no signs. Found dry on the second survey visit. Unsuitable for Water Vole or Otter.	Initially Sub-optimal downgraded to Unsuitable	
Pond 61	Large pond in grassland next to the River Witham. Dense scrub and swamp with Bulrush (*Typha latifolia*), Reed Canary-grass (*Phalaris arundinacea*) and Reed Sweet-grass (*Glyceria maxima*). Small patch of open water with duckweed (Lemna species). Dense tall herb, Nettle (*Urtica dioica*) and scattered willows (Salix species). Limited opportunities for Otter rest or holt sites, but good opportunities may be present within nearby woodland. Some bank poaching by livestock observed. Close to the River Witham, providing excellent commuting and migrating	Optimal	

Reference (see Figure 8-J-1)	Summary Description of Suitability	Unsuitable / Sub-optimal / Optimal	Photograph
	opportunities. Optimal habitat for Water Vole and suitable for foraging Otters.		

Riparian Mammal Survey

4.2.2 Four watercourses (River Brant, West Brant Syke, the River Witham and Wet Drain 18) and one waterbody (Pond 61) were scoped in for further survey during the habitat suitability assessment survey, to determine presence, or absence of either Water Vole or Otter. (see **Figure 8-J-1** in **Annex A [EN010154/APP/6.3]** of this report). Evidence of Water Vole was found along the River Witham, with an estimated 208 visible holes near Bassingham (see **Figure 8-J-2** in **Annex A [EN010154/APP/6.3]** of this report).

4.2.3 One potential Otter holt was found in woodland to the east of the River Witham, comprising a hole under the base of a tree within 10m of the riverbank. A survey using a remote camera between 6th November and 3rd December 2024 found no evidence of Otter using this feature, or passing the cameras. Otter spraints and footprints were found along the River Witham and River Brant.

4.2.4 No evidence of American Mink was recorded anywhere within the DCO Site. Mink traps were noted on the River Witham and West Brant Syke, indicating the potential presence of Mink whilst also providing evidence of an eradication program that should benefit the local Water Vole population.

4.2.5 A summary of the field signs observed during the riparian mammal survey is presented in **Table 4** illustrated in **Figure 8-J-2** in **Annex A [EN010154/APP/6.3]** of this report .

Table 4: Riparian Mammal survey data

Watercourse Reference (see Figure 8-J-2)	Feature	Location	Photograph
River Brant	Otter spraint (Recent) x4 Otter spraint (Old) x4	On concrete structure for Environment Agency land	
River Witham	Otter spraint (Old) x1	On exposed roots of a willow tree on a small mud bank	
River Witham	Otter footprints	On exposed mud bank with spraint recorded above.	

Watercourse Reference (see Figure 8-J-2)	Feature	Location	Photograph
River Witham	Potential Otter Holt	Large hole under a tree within woodland c.10m east of the river.	
River Witham	Water Vole Burrows	Located close to the water line in numerous locations along the River Witham to the south of the DCO Site, west of Bassingham village. Total estimate of 208 visible holes.	 

5. Evaluation

5.1.1 The desk study returned two Otter records just outside the DCO Site Boundary from the River Witham near Bassingham (see **Figure 8-J-1** in **Annex A [EN010154/APP/6.3]** of this report).

5.1.2 There are records of Water Vole and Otter at Whisby Pits LNR located 413m north of the DCO Site Boundary.

5.1.3 Beyond this there are six Water Vole Records; from 0.5km to 2km to the north west of DCO Site Boundary, a record 1.2km to the east near Thorpe-on-the-Hill, and a record 2km south east along the West Brant Syke.

5.1.4 No records of American Mink were returned from the desk study or field survey.

5.2 Water Vole

5.2.1 Surveys of watercourses and waterbodies within the DCO Site identified the presence of Water Vole along a section of the River Witham to the south of the DCO Site, near to Bassingham (see **Figure 8-J-2** in **Annex A [EN010154/APP/6.3]** of this report). Whilst it is not possible to estimate Water Vole population from burrows, the presence of at least 200 burrows within a 1km length of the river, suggests a relatively high density of Water Vole.

5.2.2 Whilst Water Vole is restricted in its distribution across the DCO Site, although potentially locally abundant, in consideration of this species' declining status in a national and county context, the population of Water Vole along the River Witham is of District importance.

5.3 Otter

5.3.1 Surveys of watercourses and waterbodies within the DCO Site identified the presence of Otter along the River Witham and River Brant. One woodland (to be buffered and protected from the Proposed Development) was deemed suitable for Otter holts with a large hole recorded under a tree within 10m of the bank during surveys of terrestrial areas. This was concluded as not used by Otter but has the potential to be used in future. The data search returned records (from within the last ten years) of Otter along the River Witham (immediately adjacent to the DCO Site Boundary) and River Brant (albeit outside the 2km search area).

5.3.2 Otter was recorded using the River Witham and River Brant, with footprints and spraints recorded. (see **Figure 8-J-2** in **Annex A [EN010154/APP/6.3]** of this report).

5.3.3 Otter has an estimated British population of 11,000 (Ref 20), with an increasing population size and range and are of IUCN Least Concern Status in England. Therefore, in consideration of the limited number of records of Otter (restricted to the River Witham and River Brant), the DCO Site is of value to a population of Otter at a Local level (within approximately 2km of the DCO Site).

5.4 American Mink

5.4.1 No evidence of American Mink was recorded anywhere within the DCO Site. Mink traps were noted on the River Witham and West Brant Syke, indicating the potential presence of Mink whilst also providing evidence of an eradication program that should benefit the local Water Vole population.

6. Conclusions

6.1.1 The primary purpose of this report is to provide an assessment of the presence or absence of Water Vole and Otter and their biodiversity importance within the DCO Site to inform **Chapter 8: Ecology and Nature Conservation** of this ES **[EN010154/APP/6.1]**. An assessment of potential impacts (considering embedded mitigation), any additional mitigation and residual effects on these species has been undertaken and is included within **Chapter 8: Ecology and Nature Conservation** of this ES **[EN010154/APP/6.1]**.

6.1.2 The desk study returned records of Water Vole and Otter within 2km of the DCO Site Boundary and from the last ten years. There were no records returned of either species within the DCO Site, with two Otter records just outside the DCO Site Boundary along the River Witham near Bassingbourn. The surveys undertaken in May and September 2023, and May and July 2024, identified the presence of Water Vole and Otter within the DCO Site.

6.1.3 Based on the assessment of presence presented within this appendix, the Proposed Development will embed sufficient avoidance and mitigation measures, formalised through a Construction and Environmental Management Plan (CEMP), to ensure that Water Vole and Otter occurring within the DCO Site are not negatively impacted upon, in line with legislation, policy and guidance as described in **Section 2** of this report.

7. References

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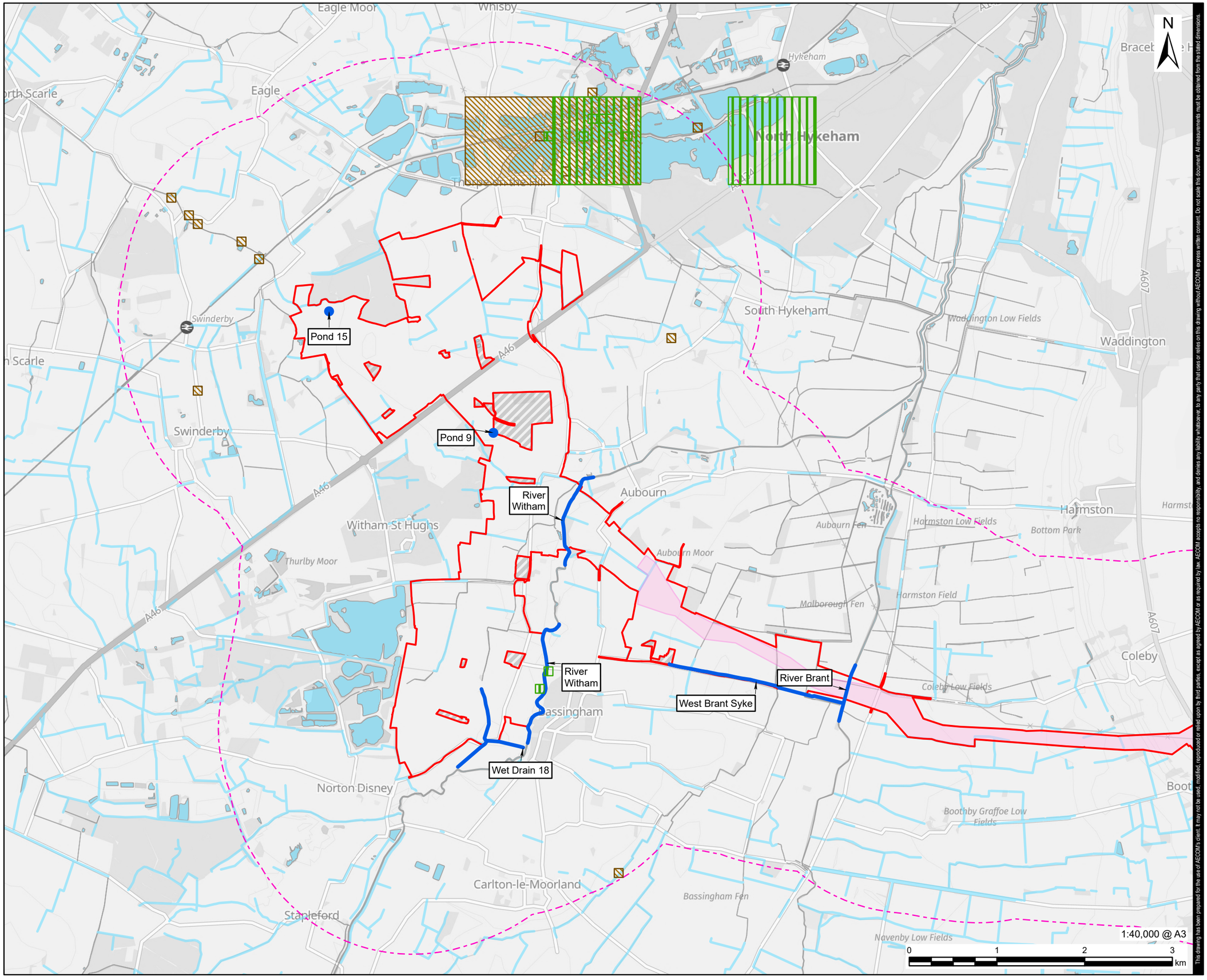
Annex A Figures

Figure 8-J-1: Riparian Mammal Survey Area

Figure 8-J-2: Riparian Mammal Field Survey Results



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LEGEND

- DCO Site Boundary
- Land not included in the DCO Site Boundary
- Grid Connection Corridor
- 2km Study Area

Riparian Mammal Survey Area

- Watercourse
- Pond

Riparian Mammal Desk Study Records (within 2km)

- Otter
- Water Vole

NOTES

LEGISLATION

Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.

ISSUE PURPOSE

DCO Submission

FIGURE TITLE

Riparian Mammal Survey Area

FIGURE NUMBER	REV.
Figure 8-J-1	01

DOCUMENT REFERENCE

EN010154/APP/6.3.

Revision: 0 Drawn: BF Checked: AB Approved: TH Date: 2025-07-16

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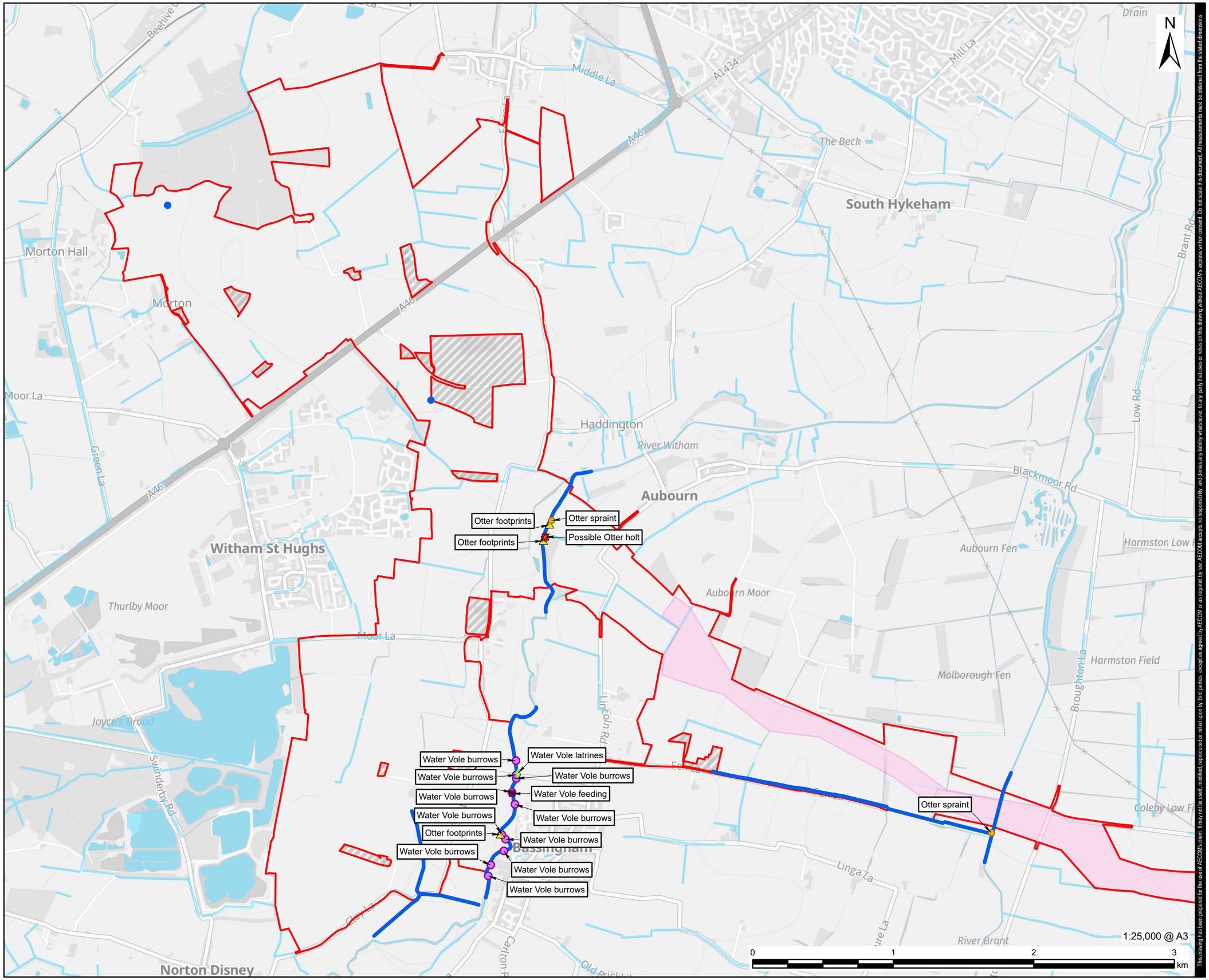

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LEGEND

- DCO Site Boundary
- Land not included in the DCO Site Boundary
- Grid Connection Corridor

Riparian Mammal Survey Results

- Possible Otter Holt
- Otter Spraint
- Otter Footprints
- Water Vole Burrows
- Water Vole Feeding
- Water Vole Latrines

Riparian Mammal Survey Area

- Watercourse
- Pond

NOTES

LEGISLATION

Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.

ISSUE PURPOSE

DCO Submission

FIGURE TITLE

Riparian Mammal Survey Results

FIGURE NUMBER	REV.
Figure 8-J-2	01

DOCUMENT REFERENCE

EN010154/APP/6.3.