



Wyberton Fen, Boston
Water Vole Survey Report

**On Behalf of McDonald's Restaurants
Ltd.**

Version 1 | June 2021

Document Control

Version	Date	Produced by	Reviewed by	Notes
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This report does not purport to provide legal advice. This report provides the information relating to water vole surveys conducted at the above site and is considered valid for a period of 12 months from issue.

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1. Executive Summary

Following a Preliminary Ecological Appraisal Survey of a proposed development Site at Wyberton Fen, Boston, Lincolnshire, water vole (*Arvicola amphibius*) surveys were recommended. This was on the basis that the Site provided potentially suitable habitat for water vole and has connectivity to the wider landscape which includes records of water vole and likely suitable habitat for the species.

The Site includes ditches on two boundaries, one of which continues off Site and is considered to be linked to a larger ditch via a short stretch of grassland.

The first water vole survey was undertaken in April 2021; no evidence of water voles was noted and the ditches around the Site were predominantly dry, with small damp sections and only one small section with standing water; this was less than 5cm deep. The large drain to the south of the Site was considered to be suitable for transient use by water vole, lacking in marginal vegetation to support water vole in higher density. In addition to this, evidence of predators of water vole was noted, including fox (*Vulpes vulpes*) and American mink (*Neovison vison*).

2. Introduction & Background

Practical Ecology Ltd were commissioned by McDonald's Restaurants Ltd. to undertake a water vole survey of habitat which has been considered suitable for water vole located at Wyberton Fen, Boston, hereby known as the Site.

These surveys follow a Preliminary Ecological Appraisal (PEA) of the Site undertaken by Practical Ecology Ltd in September 2020¹.

The on-site ditch habitat was assessed as having potential suitability for water voles at the PEA stage, as the profile and substrate of the banks was considered suitable. A section of common reed (*Phragmites australis*) as well as a range of grasses and herbaceous plants provided potential suitable food. At the time of the PEA, water levels were considered to be notably low, but the PEA was undertaken in September when ground-water levels are generally at their lowest. The presence of some standing water and reeds in the on-site ditch indicated the ditch held water for at least part of the year. It was concluded that, should the ditch be wet during peak water-vole season, the on-site habitat was likely suitable, and that water-vole could therefore be present on site.

A survey during the peak season for water voles was considered appropriate. Ground-water levels are generally at their highest in Spring, and therefore water vole surveys would be able to determine suitability as well as look for evidence of water voles.

2.1 The Site

The Site is c.0.47ha in size (central OS grid reference TF 3019 4303, postcode PE21 7JF) and is located in Wyberton Fen, to the southwest of Boston, Lincolnshire. The Site is surrounded by a commercial estate to the north, and arable farmland to the south, east, and west. The Site is bounded by Wortley's Lane to the west, the A52 (Swineshead Road) to the north, and an arable field to the south and east. The Site comprises a portion of an arable field, and a small portion of hedgerow and wet ditch. The Site is shown highlighted yellow with a red outline in Figure 1 below, which also shows the distribution of ditches within the surrounding area.

2.2 Proposals

Proposals for the Site include the construction of a McDonald's Restaurant with associated access, parking, and Drive-thru facilities. A proposal plan is included in Appendix 1 (Drawing No: 7489-SA-8675-P104 C).

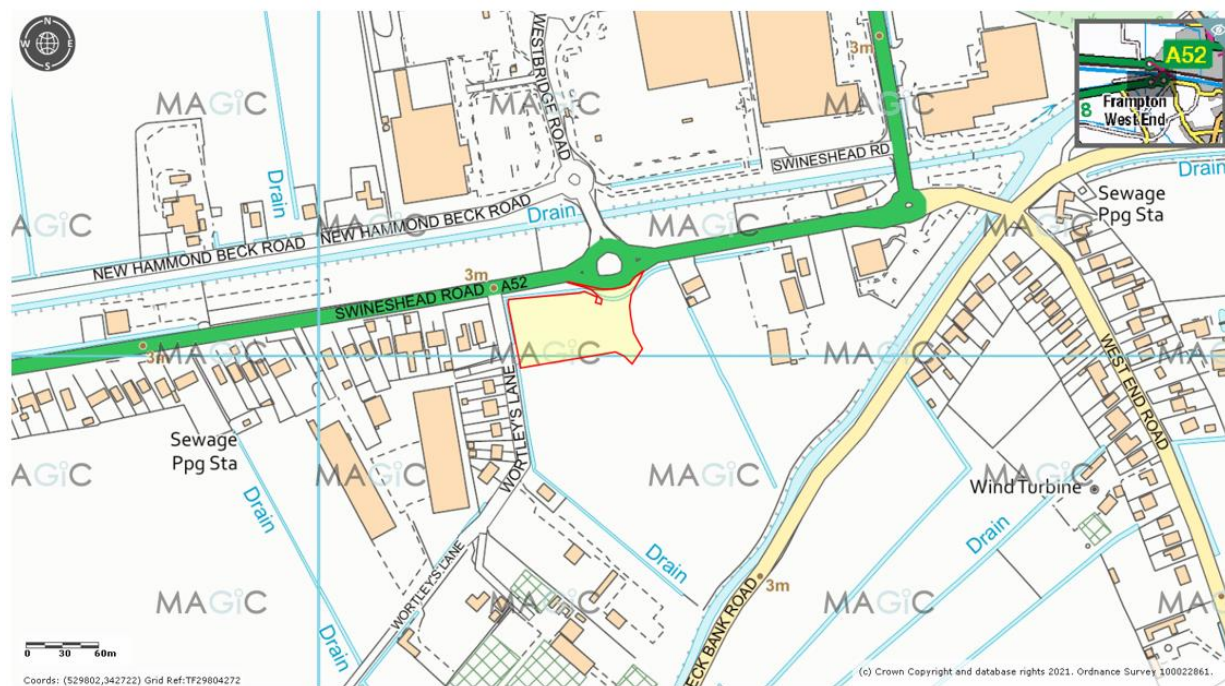


Figure 1: The Site

3. Legislation

3.1 Protection

The water vole is one of the fastest declining mammals within the UK, listed as a species of principal importance for the conservation of biodiversity in England, Scotland, and Wales. The species is protected under wildlife conservation legislation in the UK.

Water voles are therefore a material consideration when planning conditions are determined.

Water vole and their breeding sites or resting places (burrows) are protected under Schedule 5 of the Wildlife and Countryside Act 1981. It is an offence to:

- Deliberately or recklessly capture, kill, disturb or injure water voles;
- Deliberately or recklessly damage or destroy a breeding or resting place;
- Deliberately or recklessly disturb a water vole whilst in structure or place of shelter or protection;
- Deliberately or recklessly obstruct access to their resting or sheltering places; or
- Possess, sell, control or transport live or dead water voles, or parts of water voles.

NB: In the case of water voles, a place of shelter or breeding or resting place is only likely to constitute an 'active' burrow.

3.2 Trapping and Displacement

The trapping and displacement of water voles needs to be carried out under a license issued by the relevant SNCO (Natural England or Natural Resources Wales). In England and Wales there is no provision for licensing development or other construction works under the Wildlife and Countryside Act. Such works should therefore be carried out under a conservation licenses, which requires the applicant to demonstrate a conservation benefit for water voles. The conservation benefit can be achieved by delivering a net gain in the amount of available habitat available to the existing population, or by improving the quality of existing habitat. It may also be possible to deliver a conservation benefit by linking existing populations.

Operations aimed and displacing water voles from a development footprint (in England and Wales) have previously been routinely undertaken without a license. However, Natural England and Natural Resources Wales have reviewed their position and now take the view that displacement activities are not covered by the 'incidental result' defence and should therefore be licensed.

In England, displacement operations can be carried out under a Class License by a registered person and under specific conditions relating to distance of displacement, seasonal restraints, and under a project which already has planning consent. In some instances, a site-specific license is required. In Wales, site specific licenses are required for all displacement operations.

4. Methodology

4.1 Survey Methodology

Methodology for water vole surveys is provided within *The Water Vole Mitigation Handbook*ⁱⁱ.

The methods used for water vole surveys to support planning applications, or other construction activities, vary from methods used for national surveys, which are undertaken by the Vincent Wildlife Trust.

Methods comprise of desk study, habitat assessment and a field sign survey. Desk study and habitat assessment is first considered within the PEA stage and is further considered within this document.

Desk Study

This includes a search from a local biodiversity records centre or similar in addition to a review of aerial and OS maps of the Site and surrounding areas to assess connectivity to the wider landscape.

The Data Search from Lincolnshire Environmental Records Centreⁱⁱⁱ was undertaken on 2nd September 2020 by Alexander Hendry MSc Q:CIEEM, an Assistant Ecologist with over two years of experience (at the time, a Graduate Ecologist with 18 months of experience).

Habitat Assessment

A search for habitat within the Site and surrounding areas where the following features are considered:

- Dry area above water level for nesting, in either burrows or above-ground woven nests.
 - Bank profile
 - Bank substrate
 - Daily fluctuations in water level
 - Availability of above ground nesting sites
- Herbaceous vegetation to provide food and cover
 - Level of vegetation cover throughout the year
 - Food sources, including vegetation but also amphibians, invertebrates, and fish can be eaten
 - hedgerows
- Water as a means of escape from predators
 - Water voles can use areas with only a shallow water course

Field Survey

Where water voles may be present, a map of the area should be created with each water course named and described. The Site or water course is then divided into sections defined by a number of factors including bank profile and substrate, water depth, water level change, shading, bankside vegetation, aquatic vegetation, and management.

The surveys should be undertaken during the breeding season, in spring and summer; with a first survey undertaken between mid-April and the end of June, and a second survey between July and September (inclusive). Visits should be undertaken at least two months apart to allow for changes in vegetation.

If water voles are confirmed as present on the first survey a second survey may not be needed in all circumstances if mitigation can be defined.

A search for field signs should be undertaken by a suitably experienced surveyor, assessing where signs are likely to be present. This is generally considered to be the strip of marginal vegetation at the toe of the watercourse's bank – extending 1m into the water and at least 1m up the bank. This is usually undertaken either from the bank or by wading. A boat may be required in some cases.

The survey will involve a search for the following signs of water vole; droppings or latrines, burrows, runs, and foraging signs. Latrines and droppings are the only field sign that can be used reliably on its own. Experience is needed to distinguish between feeding remains, burrows, and footprints and only a combination of these should be used if droppings or latrines are not present. All field signs should be mapped and recorded.

In some instances rafts can be deployed to act as artificial latrine sites, increasing the chance of confirming water vole as present.

Field signs of predators of water vole should also be recorded, these include fox (*Vulpes vulpes*), cat (*Felis catus*), and American mink (*Neovison vison*).

4.2 Site Field Surveys

The first survey was undertaken on 20th April 2021 by Alex Jessop MSc, an Ecologist with over three years of experience and over 6 years of experience in surveying for water vole. Alex was assisted by Alexander Hendry MSc Q:CIEEM, an Assistant Ecologist with over two years of experience.

4.3 Limitations

As part of standard practice, a data search has been undertaken from the local biological record centre. This is not considered to be a complete list of species present and is better considered to be a list of species recorded, with many species known to be under recorded, including water vole.

5. Results

5.1 Desk Study

The data search from Lincolnshire Environmental Records Centre^{iv} returned no records of water voles.

A map of the area surrounding the Site is included below, which shows the network of ditches and fen drains within the area. This is shown as Figure 2.

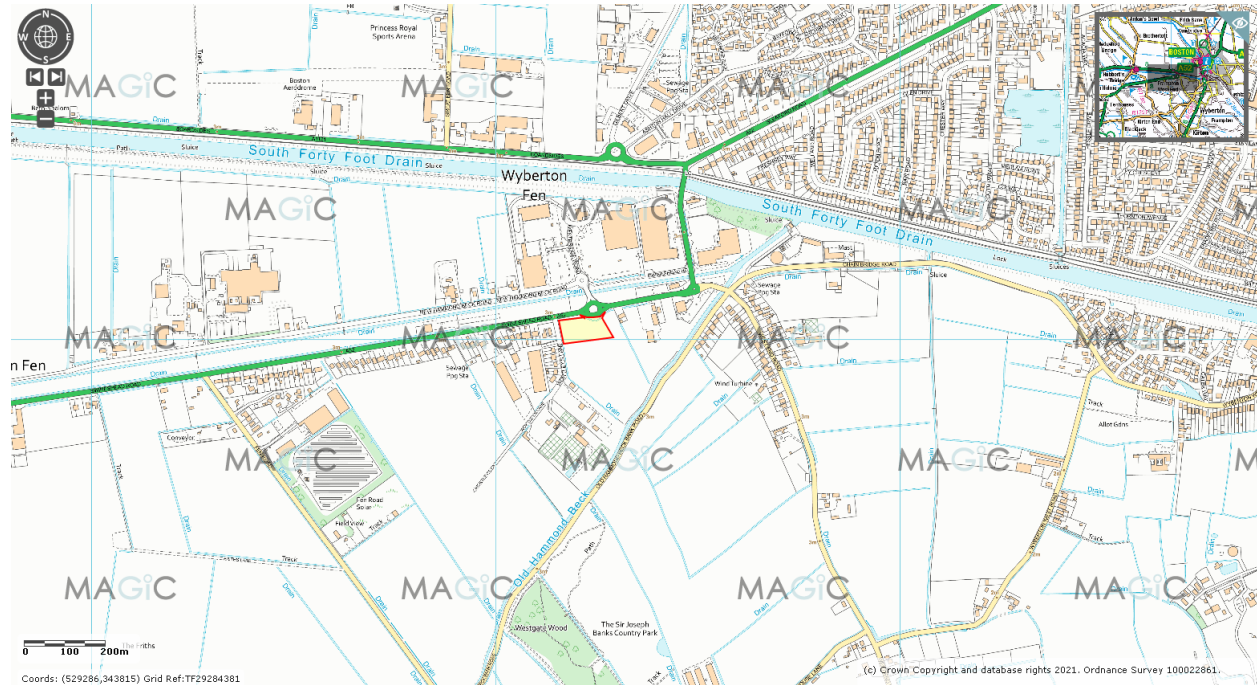


Figure 2: Site (red line, yellow fill) and surrounding network of waterways

5.2 Habitat Assessment

The habitat on-site has been broken into six sections of ditch around the Site and the wider area of land in which the Site is situated. These are seen in Figure 3, overleaf.

The following comments have been made during Survey 1:

1. The ditch was damp in the most part, with only c.3m of the ditch holding water, which was less than 5cm deep. Banks remain suitable. Vegetation for foraging was present but considered sub-optimal. The bottom of the ditch also contained a considerable amount of litter. Evidence of use by rabbit and American mink was noted.
2. The ditch was dry and dominated by bramble with areas of dried reed mace (*Typha sp*); this is not considered suitable for water vole.
3. The ditch was dry in its entirety and unsuitable for water vole.
4. The ditch was dry in its entirety and unsuitable for water vole. The bottom of the ditch also contained a considerable amount of litter.
5. The ditch had been recently dredged out and was currently wet. No vegetation was present within the ditch or along the banks and as such was considered unsuitable for water vole.

6. The ditch has suitability for water voles; however bankside management and a lack of marginal vegetation suggest that water voles are unlikely to be present in high numbers but may use the ditch transiently if present within the area. A small mammal dropping, heavily degraded, was noted along the bank. This was too degraded for DNA analysis and could have been from any number of species including brown rat, field vole, bank vole, or water vole. Given its distance from Site this is not considered significant.

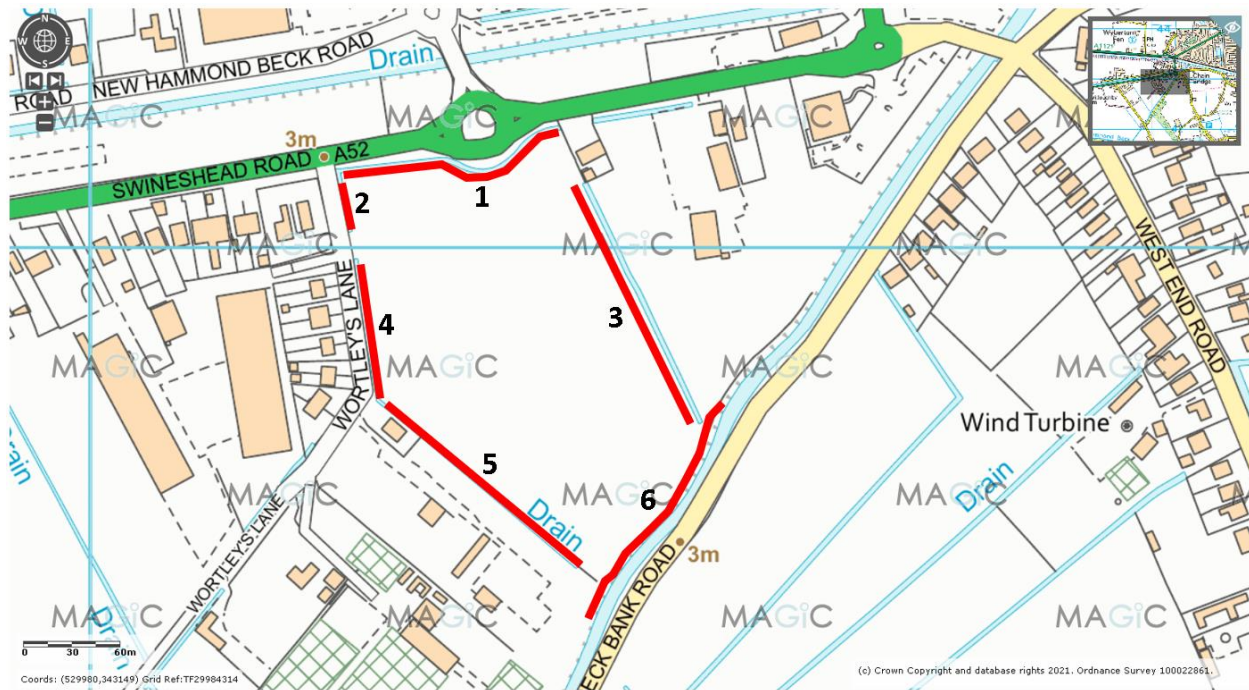


Figure 3: Ditches Surveyed

5.3 Field Surveys

The following notes were made during Field Survey 1 in April 2021 with locations shown in Figure 4 (overleaf).

1. Mammal scat attributed to American mink
2. Rabbit burrows in bank
3. Fox scats
4. A possible small mammal run
5. Degraded small mammal dropping

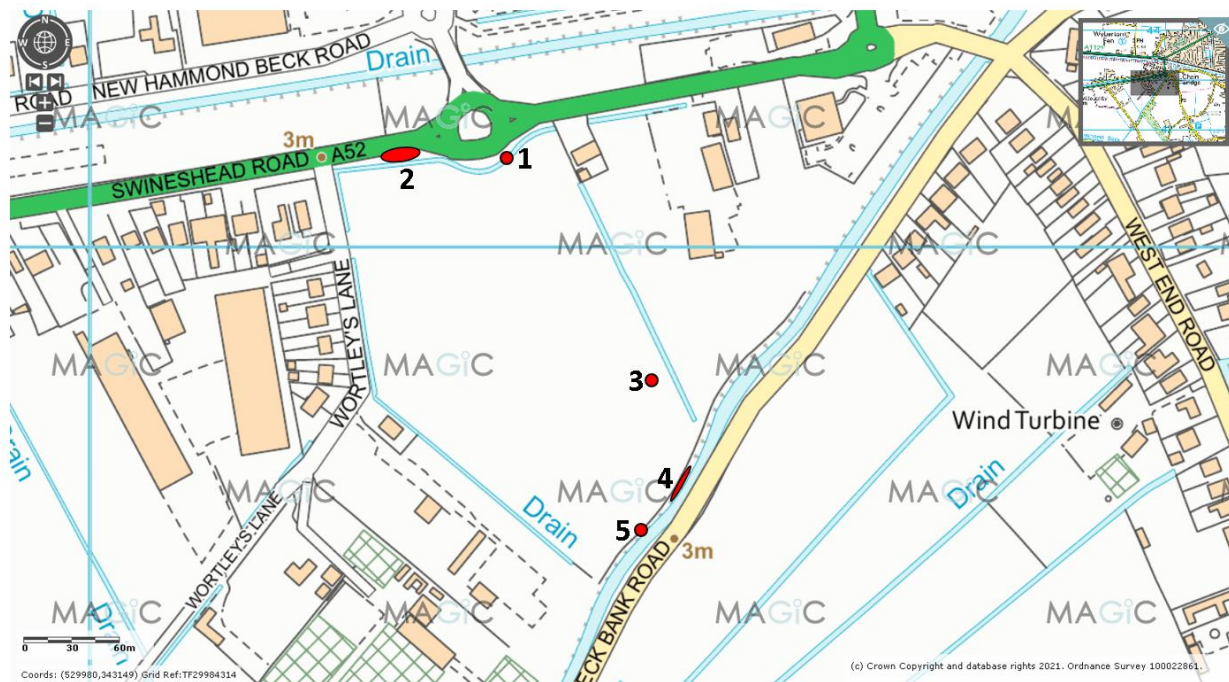


Figure 4: Target Notes from Survey 1

5.4 Survey Images

Plate 1, below, shows images from Survey 1.



Ditch 1



Ditch 2



Ditch 4



Ditch 5



Ditch 6



Mink scat in Ditch 1

6. Discussion

Survey 1 has concluded that there is negligible suitability for water vole on-site. No evidence of water voles has been noted, the only evidence noted during Survey 1 which could potentially be contributed to water vole were noted along Ditch 6 and are noted as Target Notes 4 and 5 within Figure 4; the degraded dropping was considered too degraded to be used for DNA analysis and could belong to a range of small mammals more common than water vole. Similarly, the short section of mammal run could not be attributed to water voles.

Ditch 1 has negligible suitability for water vole, Ditches 2 and 3 which also occur within 5m of the Site boundary, have no suitability for water vole. As such, it is considered that the development will not impact water voles.

Evidence of two species known to predate water voles, American mink and fox, have been recorded on-site, further reducing the quality of the habitats.

Given the assessment made above, it is considered that there is no requirement for a second survey.

If water vole are present within Ditch 6 then they are considered to be outside the scope of works and will not be affected by the proposed developments on-site.

7. Recommendations

No further recommendations are made.

8. References

ⁱ Practical Ecology Ltd, 2020, PEA Report, Land at Wyberton Fen on behalf of McDonald's Restaurants Ltd, V1

ⁱⁱ 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 Chenin. The Mammal Society, London.

ⁱⁱⁱ <https://glnp.org.uk/>

^{iv} <https://glnp.org.uk/>

Appendix 1: Proposal Plan

