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To whom it may concern,

Report of Water Vole Presence/Likely-absence Survey at Great Birchwood Country Park Lytham Road, Lytham, Lancashire, PR4 1TE

You instructed us to undertake a Water Vole Presence/Likely-absence Survey (also referred to as the; “survey, report”) at the above-named property (also referred to as the; “site”). The survey was undertaken on 24th May 2021. My qualifications and experience along with those of the reviewer of this report are summarised at the end of this report.

A previous water vole survey was carried out by Arbtech in 2018 which found evidence of water voles in two of the ponds on site. This included a suspected water vole sighting from the vegetation of pond adjacent to the golf course followed by the characteristic "plop" sound, as well as droppings located adjacent to another pond on site. As the ponds will be retained as part of the proposed development it was concluded that there would be no impact upon water voles as a result of the proposed development.

During the most recent 2021 site visit a full inspection of the three ponds on site including a thorough search of all the banks was conducted and no evidence of water vole was found. As I have already discussed with you, no evidence of water vole activity was found on site, or around the site, meaning water vole are likely absent from site.

My full report follows.

Aims

On the basis of the brief provided by the client, Arbtech Consulting Ltd has conducted survey work to fulfil the following needs:

1. Determine the presence/likely-absence of water vole within the construction footprint and any activity at or near the site.

2. Determine the location of any breeding areas present or near the construction footprint.

Water Vole Ecology and Status

The water vole (*Arvicola terrestris*) is the largest of the British voles. They are adapted to living in burrows and used to occur on the majority of the river banks throughout Britain, favouring sites with lush waterside vegetation for food and shelter.

As a result of the first nationwide survey it was seen that the water vole had suffered a long-term decline since 1990, with 94% of the sites no longer supporting water voles (Strachan, 1998).Furthermore, the second national survey (1996 - 1998) indicated that this decline has developed into a catastrophic population crash with a further loss of 67.5% of the survey sites occupied by water voles, (or an overall 88% loss of the British population) since the first national survey.

The main cause of this decline was considered to be from changes in agricultural practices and river habitat management. Consequentially habitat degradation and loss resulted in isolation and fragmented populations of water voles in Britain. This increased the predation risk, especially from the introduced American mink Mustela vison.

Water vole, now, enjoy the same level of statutory protection as otter (see above) although this level of protection was only conferred to the species fairly recently.

Methods

A standard survey technique, as outlined in the Water Vole Conservation Handbook (Strachan,1998) was employed to determine presence of water vole activity on the Ecclesfield Brook on site. In summary, the fringing banks were intensively examined for the field signs of water voles (which included latrines (distinct area of droppings), burrows, footprints and feeding remains, often left in discrete piles frequently accompanied by droppings). Such field signs are summarised below. Where practicable the watercourse was examined from within the channel itself although the opportunities to do so in the canal were very limited. In the event of dense vegetation or other obstruction disabling a thorough search, a series of spot checks would be employed at every available access point along the fringing banks. Where present

the number of latrines and burrows found were tallied to give an indication of water vole activity. In addition to the water vole, the occurrence of three other important riparian mammals was also taken into consideration; namely the otter, mink and brown rat.

Field Signs of Water Vole

Droppings and Latrine Sites

The presence of the water vole can be determined from its droppings, which provide the most distinctive field sign. They are roughly 8-12mm long and 4-5mm wide, cylindrical with blunt ends. Their colour ranges from black, brown and green, depending on age, diet and water content. Most droppings are deposited on latrine sites, which can be found at favoured areas where the voles leave and enter the water, at discrete sites near to their burrows and are used to mark territorial boundaries. Breeding voles use regular latrine sites along water margins, and often consist of a flattened mass of old droppings with fresh ones on top.

Burrows

Water vole burrows have an approximate hole size of 4-8cm. The burrows can appear as a series of holes along the water's edge, some may open below the water line, whilst others can occur amongst the vegetation up to three metres from the water. Land holes may also show evidence of a closely cropped grazed lawn, where a female water vole has gnawed the vegetation short within easy reach of the burrow.

Grazing Remains

Water voles often bring food items to favoured feeding stations along the water's edge and at burrow entrances. Feeding remains consist of neat piles of chewed off lengths of vegetation. These grazing remains typically measure 8-10cm, showing two large incisor marks. Grazing remains also double as food caches and are often accompanied by droppings.

Footprints

Imprints from water voles show four digits from the fore foot and five digits in the hind foot.

The imprinted digits form a star shape of splayed-out toes. Water vole tracks are very difficult to distinguish between tracks made from the brown rat, particularly

young animals. Generally, water vole prints tend to be much smaller than rat prints, but it is important to note that they cannot always be used as reliable indicators in the absence of other water vole field signs.

Water Vole and Latrine Densities

Latrine counts not only provide a useful index of water vole activity they can also give an indication of the strength of the water vole colony. A predictive equation has been established to estimate the numbers of water voles from the number of latrines found in a given area (Morris et al. in Strachan, 1998):

$y = 1.48 + 0.683x$

[where y = number of water voles inhabiting a stated length of waterway, and x = number of latrines counted in that same length].

The original research leading to the equation was not aimed at producing a formula for estimating population density from latrine density. As a result, it may not be applicable to all habitats and situations where water voles occur, but it still gives a useful index of water vole densities.

Limitations

None.

Findings

The findings collate the data of the desk study, the evidence of the physical survey and any other substantiation (such as the result of DNA tests of physical evidence collected on site).

Photographs with descriptions are only included where appropriate i.e., where they enhance the reader's comprehension of the relevance of salient features on site, or provide valuable context to the evaluation, foreseen impacts and recommendations.

Description of the site and proposed development

The site largely consists of hard standing, amenity grassland, semi-improved grassland, marshy grassland and woodland. There are three ponds located across the site, designated as pond 7 (adjacent to golf course along western side of site), pond 8 (towards the southern end of the site) and pond 9 (on the eastern side of the site). All three ponds were surveyed for evidence of water vole. The survey was undertaken under favourable conditions (i.e. within the optimal season and no rain prior to the survey). No evidence of water vole was found on site during the survey. The previous survey effort concluded that there was likely a small population of water vole was present within the ponds on site. It is likely that water vole are now no longer present on site due to the lack of evidence found. The ponds will be retained as part of the proposed development and as such any water voles present would unlikely to be impacted by the proposed works. However, a precautionary approach has been recommended (please see Conclusions and Recommendations below). Small mammal tracks were identified in the grass banks on the pond towards the southern end of the site, however these could not be confirmed as water vole due to a lack of other evidence.

Site Photos

Figures 1 & 2: Pond adjacent to golf course (pond 7)

Figure 3 & 4: Pond towards southern end of site and small mammal tracks (pond 8)

Figure 5 & 6: Pond on eastern side of site (pond 9).

Site Plan

Figure 7: Site plan taken detailing pond positions

Conclusion and Recommendations

No evidence of water vole was found across either of the three ponds situated on site. The thorough search of the pond edges and surrounding habitat was conducted. The survey was carried out within the optimal period and weather conditions for finding water vole evidence. As such it is concluded that water voles are no longer present on site and therefore will not be impacted by the proposed development.

References

Google Earth (2021) accessed on 08/06/2021.

Arbtech (201). Water Vole Survey.

Strachan, R., Moorhouse, T. and Gelling, M., 2011 Water Vole Conservation Handbook. 3rdEdition. Wildlife Conservation Research Unit, Oxford.

Report ends.

I trust this is sufficient for your assessment. However, if you have any further questions please do not hesitate to contact me via 07711591700 or melreid@arbetch.co.uk.

Author

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Reviewer

Chris Formaggia BSc (Joint Hons) CBiol CEnv MCIEEM MRBS VR – Company Principal

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