

APPENDIX 11.11 RIPARIAN MAMMALS

1.1 Introduction

- 1.1.1 The riparian mammal survey results presented in this appendix reflect the survey information available at the time of writing. The findings will be reviewed and updated, if necessary, following completion of the wider ecological survey programme and any subsequent design or mitigation updates.

1.2 Methodology

- 1.2.1 Detailed surveys for otter and water vole were undertaken by Ethos in 2025 and 2026. The surveys included an assessment of the site to support riparian mammals such as otter (*Lutra lutra*) and water vole (*Arvicola amphibius*). This included an assessment of the riparian habitats on site or within the wider environment to support these species.
- 1.2.2 The 2017 survey methodology was informed by Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No.10 (Chanin, 2003) and the *Water Vole Mitigation Handbook* (Dean et al. 2016).



Figure 1 Survey area 2025 and 2026

Otter survey methodology

- 1.2.3 The surveys involved searching along a tributary of the Bitham Brook for signs of otter activity. In addition, suitable terrestrial habitats within the site boundary were also searched for evidence of otters and their holts.
- 1.2.4 The survey methodology was informed by the national otter survey of Wales 2009-2010 and used non-invasive survey methods. The survey also included an inspection of the banks from the river using waders as certain parts of the bank were obscured by vegetation. Also used to inform the survey methods was English Nature's advice sheet Monitoring the Otter, Conserving Natura 2000 Rivers Monitoring Series No. 10.
- 1.2.5 Principal field signs for otter are:
- **Holts** - underground shelters, often found under tree roots, in rock piles, earth banks, and can be located within existing structures such as badger setts, rabbit burrows, fox earths. Above ground shelters in dense scrubby vegetation.
 - **Couches** - lying up places above ground. Often found in long grasses, dense vegetation or rushes near watercourses or in wetland areas.
 - **Feeding sites** - where food remains are found, mainly fish, shellfish or amphibians.
 - **Spraints** - faeces left by the otter, showing food remains. Typically, in prominent positions on rocks, trees or tree roots, beneath bridges, at crossing points of fences or walls, or confluence of river systems. Spraints can be placed in one of three categories: old, recent or fresh. This provides some indication of the level and most recent occurrence of activity.
 - **Tracks** - otter tracks (typically footprints) are highly distinctive and diagnostic and clearly differentiated from mink tracks by both size and shape.

Water Vole survey methodology

- 1.2.6 Standard survey methodology based on that found in the 'Water Vole Conservation Handbook' 2nd edition (Strachan 2006) was undertaken for all water bodies and ditches within the site and along the Whitewater River. Data is then recorded on the standard water vole survey form (Strachan et al.) which records background and habitat information, which can inform the relative suitability of a water body for water voles. All water bodies within the site have been visited on foot from the bank, and from the river with the use of waders by experienced surveyors. The survey entailed a search for the following evidence:
- Sightings;
 - Footprints;
 - Run-ways in vegetation;
 - Burrows;
 - Lawns;

- Nests;
- Feeding stations;
- Faeces and latrines.

1.3 Limitations

- 1.3.1 Only the southern bank, along the site boundary area was surveyed due to access and permission constraints, however given the results recorded, it has been assessed that this is not a significant limitation to the assessment.
- 1.3.2 The watercourse surveyed along the eastern site boundary has been densely vegetated throughout the survey period, and therefore only limited viewpoints of the watercourse have been achieved.

1.4 Data search

- 1.4.1 There were 2 records of Otter (*Lutra lutra*) returned in the data search. The 2019 record was located 0.98km southeast from the site boundary by the public pond, and the 2023 record was located 1.41km north of the site boundary along the road.
- 1.4.2 There were 4 records of Water vole (*Arvicola amphibius*) returned in the data search, from 2021 to 2023. These were all located within 300m of the public pond approximately 1km southeast of the site.

1.5 Results

Habitat assessment

- 1.5.1 The key habitat on site in relation to riparian mammals is the tributary of the Bitham Brook on the eastern site boundary, and associated vegetation. The rest of the habitats on site are of limited value for riparian mammals as it is dominated by intensive cropland.
- 1.5.2 It is noted that this channel has some human intervention with stone and concrete as part of the banks and is choked with vegetation (see Photos 1-4).
- 1.5.3 The watercourse contains suitable areas for commuting and foraging, with water being present at varied points throughout the year, however not consistently as it was dry during the summer months of survey effort. The natural banks could be utilised by water vole for burrow creation.
- 1.5.4 Overall, the watercourse is considered to have potential for otter and water vole and will be subject to further survey to inform mitigation measures during detailed design.



Photo 1 Watercourse with mammal trail through vegetation and stone bank



Photo 2 Watercourse and varied vegetation in channel



Photo 3 Dense vegetation in channel



Photo 4 Watercourse and varied vegetation in channel

Otter survey results

- 1.5.5 Earth banks were present along part of the watercourse with tree roots projecting into the river although no holts were observed in these locations. Otter spraint was found in two locations along the watercourse.
- 1.5.6 One potential otter (or mink) couch was found during the survey under the bridge just south of the site boundary of the northern field (see Figure 2). One otter spraint was recorded in the vegetation in the northern section of the site and watercourse.
- 1.5.7 No feeding remains were recorded on the surveys.



Photo 5 Potential southern otter spraint/couch, 2025



Photo 6 Potential southern otter spraint/couch, 2025



Photo 7 Potential southern otter spraint/couch location, 2025 and 2026



Photo 8 Northern otter spraint recorded (April 2026)

Water vole survey results

- 1.5.8 The river contained suitable habitat for this species with uneven earthen banks which presented opportunities for tunnelling as well as dense vegetation present on the banks to provide possible feeding couches.
- 1.5.9 Burrows were found in two sections of watercourse (Figure 4), the northern burrow also recorded a pile of droppings (Photo 9).



Photo 9 Northern burrow and dropping pile, 2026



Photo 10 Southern water vole burrow location,
on and under water line, 2026



Figure 2 Riparian mammal survey results

1.6 Assessment of impacts and mitigation measures

Loss

- 1.6.1 The watercourse is on the eastern site boundary and will be protected with a significant buffer and mitigation measures that will include surface-water management, preventing site run-off from entering the watercourse.
- 1.6.2 The terrestrial habitat along the eastern boundary will be improved for riparian mammals as part of the SANG and open space strategies, and therefore, no habitat fragmentation will occur as a result of the development.
- 1.6.3 Therefore, at this stage no habitat loss (directly or indirectly) is expected as a result of the development.

Construction impacts

- 1.6.4 A surface water management strategy is required to avoid impacts on the watercourse during the construction period.
- 1.6.5 Through the implementation of the surface water management strategy, the risk of impacts to otter and water vole during construction will be avoided. The strategy should include, but not be limited to, the following:
- The watercourse and drainage infrastructure will be kept well maintained and fully operational at all times.
 - All spills, regardless of size will be reported to the site management. All refuelling activities will be conducted away from water courses and drains.
 - On the project, all hazardous substances i.e. fuels, oils and greases will be stored in accordance with the COSHH regulations 2002 and The Control of Pollution (Oil Storage) Regulations 2004. This will protect any contaminates reaching groundwater or a watercourse if a spillage or leakage occurs.
 - Silty water will not be discharged to a watercourse. Suspended solids in silty water will be allowed to settle out before proper disposal.

Operational impacts

- 1.6.6 Despite the existing public right of way along this area, there is, however, likely to be an increase in the number of people (and dog-walkers) using the watercourse and associated habitats for recreational purposes. Without mitigation, this could result in disturbance to otter and water vole.

- 1.6.7 To mitigate for the operational impacts, any otter or water vole holts identified during the further survey will be protected where possible by additional planting and screening.
- 1.6.8 Overall, with the implementation of the mitigation and method statement during operation, no significant impacts on riparian mammals are predicted as part of the development.