

WATER VOLE SURVEY REPORT

SEPTEMBER 2024

Sandy Brow RFP

Perimeter Road

Knowsley

L33 3AN

**U R B A N
G R E E N**



QUALITY MANAGEMENT

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1 NON-TECHNICAL EXECUTIVE SUMMARY

- 1.1.1.1 Balance Power Ltd are proposing to develop land off Perimeter Road in Knowsley (hereafter referred to as 'the site'). The proposals include the development of a battery storage site, with power grid infrastructure and associated hard landscaping.
- 1.1.1.2 A Preliminary Ecological Appraisal (PEA) was conducted at the site by Urban Green (UG) in August 2023. Kirkby Brook Brook located along the southern site boundary was deemed suitable to support water vole, with connectivity to streams with confirmed records in the wider area, and as a consequence, further surveys for water vole were recommended to confirm their presence/likely absence.
- 1.1.1.3 Urban Green was subsequently appointed to complete Water Vole (*Arvicola amphibius*) surveys within suitable habitat within and surrounding the site. The presence/likely absence surveys were undertaken in June 2024 and August 2024, following standard guidance in accordance with the Water Vole Conservation Handbook (Strachan, Moorhouse & Gelling, 2011). The following characteristics for determining the presence of water voles were assessed: sightings, droppings and latrines, burrows, above-ground nests, feeding stations and lawns, prints and runs.
- 1.1.1.4 No evidence of water vole was recorded during either survey.

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Legend: Red Line Boundary		0.85 Kilometers		N
Client: Balance Power		Issue: 01	Figure: 01	U R B A N G R E E N A: Ground Floor, The Tower, Deva City Office Park, Trinity Way, Manchester M3 7BF T: +44 (0) 161 312 3131 weareurbangreen.co.uk
Project: Sandy Brow		Scale @ A4 1:10,000		
Title: Site Context		Approved by: BG	Checked by: OS	
Drawing Ref: UG_2142_SITE_CONTEXT		Author: CL	Date: 22/07/2024	



U R B A N
G R E E N

Legend

- Red Line Boundary
- Kirkby Brook

N



0 20 40 80 Meters



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Client:			Balance Power		
Project:			Sandy Brow		
Title:			Water Vole Survey Area		
Issue:		01		Figure:	
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		30/08/2024			
Dwg No:		UG_2142_ECO_WVS_01		Revision:	
		01			

Figure 3. Photographs of the Site



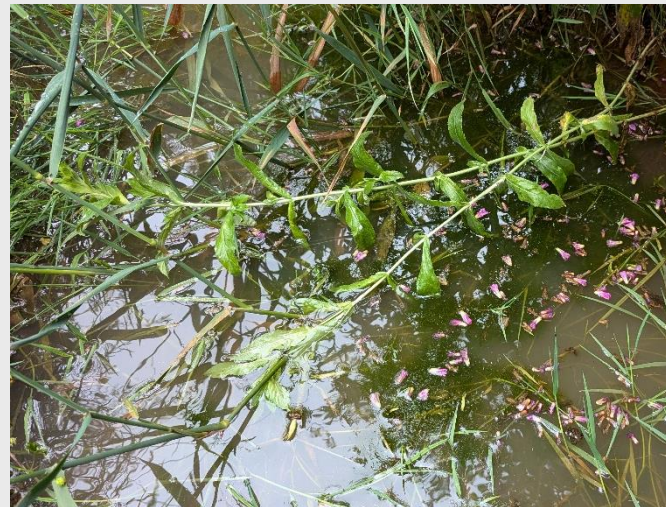
Photograph 1: The general character of the ditch and its densely vegetated banks



Photograph 2: A hole in exposed bank from which a rat was seen to emerge



Photograph 3: Banks inundated by Himalayan balsam



Photograph 4: Deeper waters exhibiting eutrophication at the site of discharge from the site's field



Photograph 5: Closeup on a likely rat burrow



Photograph 6: Bankside vegetation suitable for foraging, featuring bulrush.

2 Introduction

2.1 Background to the Scheme

- 2.1.1.1 Balance Power Ltd are proposing to develop land off Perimeter Road in Knowsley. The proposals include the development of a battery storage site, with power grid infrastructure and associated hard landscaping.
- 2.1.1.2 A Preliminary Ecological Appraisal (PEA) was conducted at the site by Urban Green in August 2023 (Urban Green, 2023). Habitats present within the site and within an adjacent brook were deemed suitable to support water vole and as a consequence, further surveys for water vole were recommended to confirm their presence/likely absence. Urban Green was subsequently appointed to complete Water Vole (*Arvicola amphibius*) surveys within the brook.
- 2.1.1.3 The author of the report is Barnaby Indio Gardner, assistant ecologist at Urban Green.

2.2 Full Site Context

- 2.2.1.1 The site is located at National Grid Reference SJ 44170 98325 and comprises a total area of approximately 2.7ha (see Figure 1).
- 2.2.1.2 The red-lined site lies within a greater area leased by the client, due for later development. The red line concerns the site detailed in this report.
- 2.2.1.3 The site is located in the rural outskirts of the greater Liverpool built-up area, ~2.2km north of Knowsley. The site is bounded west by Perimeter Road, immediately beyond which lies an extensive retail/industrial estate. Expansive rural land dominates the wider landscape to the north, east, and south of site – mostly agricultural land, and notably Knowsley Park & Safari, ~3km to the south.

2.3 Survey Site Context

- 2.3.1.1 The habitats included within the water vole survey consists of a ~500m stretch of Kirkby Brook which flows along the southern boundary of the site before culverting into adjacent farmlands. Refer to Figure 2.

2.4 Legislation and Policy

- 2.4.1.1 Full legal protection is afforded to water voles under Section 9 of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This protection makes it an offence to:
 - 1. Intentionally kill, injure or take a water vole;
 - 2. Possess or control any live or dead animal;
 - 3. Intentionally or recklessly:
 - a. damage or destroy any structure or place that a water vole uses for shelter or protection;
 - b. disturb a water vole whilst it is occupying a structure or place which it uses for shelter or protection; or
 - c. obstruct access to any structure or place which a water vole uses for shelter or protection.

- 2.4.1.2 Water voles are listed as a Species of Principal Importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 41 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

2.5 Quality Assurance & Environmental Management

- 2.5.1.1 Ecologists for Urban Green are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and are therefore bound by a code of professional conduct.
- 2.5.1.2 All surveys and assessments have been undertaken with reference to the recommendations given in British Standards: 42020:2013 Biodiversity: Code of Practice for Planning and Development and current guidance pertaining to water voles (Dean et al., 2016).

2.6 Purpose of this Report

- 2.6.1.1 This report has been produced to demonstrate the results of Water Vole surveys completed at the site to confirm the likely absence or presence of Water Voles. Appropriate mitigation and suitable habitat compensation are detailed (if required). The report has been produced in support of the proposed planning application.
- 2.6.1.2 Relevant UK legislation of the protection of all UK Water Voles are detailed in Appendix 1.

3 Previous surveys

3.1 Preliminary Ecological Appraisal (Urban Green, 2023)

- 3.1.1.1 A Preliminary Ecological Appraisal (PEA) was conducted on site in August 2023 (Urban Green, 2023). During the site visit, no evidence of water vole was identified, though five records of water vole within a 1 km radius of the site were identified during the desk study, with potential connectivity to the brook bordering the site, which was considered suitable to support water vole. As such, it was assessed that water vole have the potential to be present on site.
- 3.1.1.2 Water voles are sensitive to disturbance, and if water voles were found to use habitats within the site, then it may be necessary to obtain a license from Natural England before works can proceed. Subsequently, Reasonable Avoidance Measures and further surveys were recommended.

4 Methods

4.1 Desk Study

- 4.1.1.1 A desk study was carried out prior to the surveys to identify waterbodies and contextual information within and adjacent to the Survey Area. This included a review of OS maps, aerial photographs and the Multi-Agency Geographical Information for the Countryside (MAGIC) website. The Lancashire Environment Records Network (LERN) was also contacted to ascertain whether any records of water vole within a 1 km radius of the Survey Area had been submitted.

4.2 Habitat Assessment

- 4.2.1.1 The habitat assessment was undertaken by an experienced Ecologist on the 29th of May 2024. The weather conditions leading up to the site visit and on the day were suitable. The habitat assessment is based on descriptions provided by Dean (2021) in Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys. This assessment values habitats using five key variables: bank profile, bank substrate, variation in water level, herbaceous vegetation and water and categorises habitats as 'optimal', 'good', 'suitable but poor' and 'negligible' value. A summary for each category is provided in Table 1.

Table 1- Habitat Assessment Criteria (based on Table 2.1 in Dean (2021)).

Habitat Category	Dry areas for burrows and nests			Herbaceous Vegetation	Water
	Bank Profile	Bank Substrate	Variation in water level		
Optimal (all criteria met)	Steep (approaching 1:1) on at least one side of the water course. Steep or shallow banks on static waterbodies or fen-type habitat.	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 on the banks and marginal/in-channel vegetation is present	Permanent water
Good (all criteria need to be met)		Earth or peat banks, stony/reinforced bank with gaps allowing access to earth behind		Continuous swathe of bankside or in-channel vegetation providing at least 60% ground cover. May be dominated by grasses/weeds rather than luxurious riparian vegetation. Vegetation is generally tall*	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 quality as 'good' but does not meet the criteria of 'negligible vale' could reasonably be 'suitable but poor'				
Negligible Value (meets the criteria for vegetation and at least one other)	Shallow profile on both banks	Rock or gravel, unsuitable for burrowing	Considerable variation in water level	No or limited bankside and marginal vegetation**	N/A
	Vertical bank face with no burrowing opportunities behind it	Reinforced banks with no gaps	N/A		N/A
* Except urban/sub-urban areas where shorter bankside vegetation may qualify					
**due to shading or other 'permanent' factors (management can change and is often a 'temporary' factor)					

4.3 Field Survey

- 4.3.1.1 The water vole surveys were undertaken by two experienced ecologists on the 29th of May 2024 and the 6th of August 2024. The weather conditions leading up to the site visit and on the day were suitable, although following an extended period of dry weather with some recent rainfall.
- 4.3.1.2 Survey techniques were undertaken in accordance with the Water Vole Conservation Handbook (Strachan, Moorhouse & Gelling, 2011). The following characteristics for determining the presence of water vole were assessed: sightings, droppings and latrines, burrows, above-ground nests, feeding stations and lawns, prints and runs.

4.3.1.3 Refer to Figure 2 for approximate locations of the survey stretches.

4.4 Constraints to the Survey

- 4.4.1.1 It is not possible to provide accurate population size without undertaking detailed capture, mark and release surveys which require a substantial effort. However, it is possible to provide an indication of the relative population sizes by using peak counts of observed Water Voles (if applicable).
- 4.4.1.2 Ecological surveys are limited by factors that affect species presence such as time of year, weather, migration patterns and behaviour. Water vole surveys can be carried out at any time of year; however, the optimum time for surveying is between mid-April and September. As the survey and assessment were undertaken at an optimal time of year, there are no restraints to the survey results.

5 Results

5.1 Desk Study

- 5.1.1.1 There were five records held by the Merseyside Biobank & Lancashire Ecological Records Network, of water voles within 1 km of the Site; the closest was within Acornfield Plantation, 560m west of the site.
- 5.1.1.2 Habitats within and immediately adjacent to the site were assessed for their suitability to support water vole. The stretch of the brook adjacent to the site was assessed to be of 'suitable but poor' suitability to support water vole. The detailed results are provided in Appendix 3.
- 5.1.1.3 The habitat connectivity to other watercourses within the wider landscape is notable. Records of water vole were returned within these watercourses, which appeared to be of similar character, by review of satellite imagery. Accordingly, water voles within the Kirkby Brook could not be ruled out. The brook, as it passed the site between culverts, was ~518m in length.

5.2 Habitat Assessment

- 5.2.1.1 The habitat was deemed poor but suitable. Banks were 1-2m and steep, and water levels were low (~2-3cm) for much of the brook's length, only sinking to ~20-30cm at points at which water was drained into the brook from the site via plastic piping. The site's peaty soils evidently drained an overabundance of organic material, likely exacerbated by farmland runoff, and water was evidently polluted; in areas, eutrophication was apparent, with hazy waters and a thick cover of algae.
- 5.2.1.2 Banks were heavily vegetated by invasive Himalayan balsam and scrubby species such as nettles (*Urtica dioica*), willowherbs (*Epilobium spp.*), and hedge bindweed (*Calystegia sepium*). Suitable foraging plants such as flag iris (*Iris pseudacorus*), bulrush (*Typha latifolia*), and wild mustard (*Sinapis arvensis*) were present in small abundance.

5.3 Field Survey

- 5.3.1.1 No evidence of water voles was recorded within any of the surveyed areas during either of the water vole surveys.
- 5.3.1.2 An abundance of small burrows lined the brook banks, which seemed more suitable for rats. Confirming this, a rat was observed entering its burrow on the August survey. No other mammal signs of any description were observed during either survey.

6 Evaluation and Enhancement

6.1 Summary

- 6.1.1.1 Five records of water vole were returned from the data search, in watercourses similar to that lining the site, with habitat connectivity between them. The survey comprised a section of Kirkby Brook which bordered a largely agricultural landscape. The area of survey was deemed as ‘suitable but poor’ value to support water voles owing to the low levels of polluted water – with eutrophication evident (See Photograph 4) at points at which drainage from the site was piped into the brook. There was an absence of suitable bankside, marginal, or emergent vegetation to provide refuge and foraging opportunities—instead inundated with Himalayan balsam (*Impatiens glandulifera*), nettles (*Urtica dioica*), willowherbs (*Epilobium spp.*), and hedge bindweed (*Calystegia sepium*). Suitable foraging plants such as bulrush (*Typha latifolia*), and wild mustard (*Sinapis arvensis*) were present in small abundance, but no evidence of feeding stations was found. This dense vegetation almost entirely secluded the banking.
- 6.1.1.2 No evidence of water vole was recorded during either survey in 2024.
- 6.1.1.3 Overall, water features within the landscape are generally subject to significant agricultural disturbance, and polluted waters; suboptimal conditions to support a viable population of water voles. **No evidence of water voles was recorded; therefore, water voles are considered absent from the site and no further survey effort or mitigation is recommended in relation to this species.**

6.2 Enhancements

6.2.1.1 Although water voles are considered to be absent from the Survey Area, habitat enhancement of the site is recommended to increase its suitability to support water vole in the future. Enhancement measures could include the following:

- Creation of a 2 m - 5 m vegetated buffer along the banks of the brook to provide suitable refuge and foraging habitat, as well as burrowing potential. In addition, a buffer will aid in reducing potential pollution of the stream, as well as noise and light disturbance from adjacent land uses.
- Establishing suitable bankside and marginal vegetation – including the removal of Himalayan balsam and Japanese knotweed - using a range of native herbaceous species to provide both cover and food all year round. Ideally, c. 20% of the wet channel should have cover from marginal vegetation.
- Consider the use of seeding, translocation of turves, plug planting and/or pre-planted coir fibre rolls to create marginal and bankside vegetation.
- Thinning of bankside trees along the unnamed stream along the eastern site boundary to open the canopy layer and allow ground flora species to regenerate and create refuge and potential food for water voles.
- Sustainable Urban Drainage basins, in proximity to the site should be designed, where possible, with habitat created to support for water vole.

7 References

The British Standards Institution (2013) 42020:2013 Biodiversity: Code of Practice for Planning and Development.

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

Dean, M. (2021) Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys. Pelagic Publishing, Exeter

Natural Environment and Rural Communities Act 2006 [online] Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>

Strachan, R., Moorhouse, T. & Gelling, M. (2011) Water Vole Conservation Handbook [third edition] The Wildlife Conservation Research Unit, Oxford

Urban Green, 2023. Preliminary Ecological Appraisal of Sandy Brow RFP. REF: UG_2142_ECO_PEA_02

Wildlife and Countryside Act 1981 (as amended) [online] Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents>

Appendix 1 – Relevant Legislation

Full legal protection is afforded to water voles under Section 9 of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This protection makes it an offence to:

- Intentionally kill, injure or take a water vole;
- Possess or control any live or dead animal;
- Intentionally or recklessly
 - (a) damage or destroy any structure or place that a water vole uses for shelter or protection;
 - (b) disturb a water vole whilst it is occupying a structure or place which it uses for shelter or protection; or
 - (c) obstruct access to any structure or place which a water vole uses for shelter or protection.

Water voles are listed as a Species of Principal Importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 41 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

Appendix 2 – Habitat Assessment

Feature Reference	Dry areas for burrows and nests			Herbaceous Vegetation	Water	Habitat Category
	Bank Profile	Bank Substrate	Variation in Water Level			
Kirkby Brook adjacent site.	Banks are steep (1-2m in height) but heavily concealed by dense scrub comprising Himalayan balsam, nettles, willowherbs, hedge bindweed, flag iris, bulrush, wild mustard, and grass species.	Bare, muddy earth where exposed.	Water level several ranged between ~2-3cm and 30cm. Several points at which water drained into the brook from the direction of site via pipe (comprised of small diameter plastic piping)	Owing to the dense scrub dominating the banks of this stream, no marginal or emergence vegetation was evident.	Water present during both survey visits with little variation in water level between surveys. Possible, though unlikely that this stretch may dry out also in times of prolonged heat.	Suitable but Poor