

# Lower Thames Crossing

## 6.3 Environmental Statement Appendices

### Appendix 8.10 - Water Vole

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# Lower Thames Crossing

## Appendix 8.10 Water Vole

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# 1 Appendix 8.10 Water Vole

## 1.1 Introduction

1.1.1 This document presents the results of the water vole *Arvicola amphibius* desk study and field surveys carried out between 2017 and 2022 to inform the Environmental Impact Assessment of the A122 Lower Thames Crossing (the Project). It forms an appendix to Chapter 8: Terrestrial Biodiversity of the Environmental Statement (Application Document 6.1).

## 1.2 Legislation and conservation status

1.2.1 In Britain, water voles are afforded full protection through Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of section 9. This makes it an offence, inter alia, to:

- a. intentionally or recklessly kill, injure, or take (handle) a water vole
- b. intentionally or recklessly damage, destroy or obstruct access to any structure or place that a water vole uses for shelter or protection
- c. intentionally or recklessly disturb a water vole while it is occupying a structure or place that it uses for shelter or protection

1.2.2 Water vole is listed as Endangered in England on the International Union for Conservation of Nature red list (Mathews *et al.*, 2018) and is a species of principal importance under section 41 of the Natural Environment and Rural Communities Act 2006. Water vole is also included as a priority species on the Kent (Kent Biodiversity Partnership, 2009) and Essex (Essex Biodiversity Project, 2011) Local Biodiversity Action Plans.

## 1.3 Background ecology

1.3.1 The water vole is the largest of the British voles, living in a series of burrows within the banks of watercourses, preferably within banks with wide strips of vegetation to provide cover from predators and an abundant food supply. Water voles prefer steep, tall banks for breeding, so that their nest chambers are situated above high water. Breeding typically lasts from March to October and females produce two to five litters annually.

1.3.2 Water voles are herbivorous, primarily feeding on the lush aerial stems and leaves of waterside plants, especially the fringing reeds, sedges and tall herbs. Above ground, the water vole's activity is largely confined to runs in dense vegetation, within two meters of the water's edge (Macdonald and Strachan, 1999). Water vole are elusive, and a direct sighting is not always possible. The presence or absence of water vole is commonly determined by the species' characteristic field signs, including faeces, burrows, latrines and feeding stations.

1.3.3 Water vole habitat is generally considered to be watercourses with abundant riparian vegetation. Water vole also prefer easily penetrable earthen banks (e.g. sandy soil) and slow-flowing, relatively deep watercourses (Strachan *et al.*, 2011).

- 1.3.4 Water voles were once widespread and common along British waterways but have undergone a dramatic decline in the UK due to a number of factors, including habitat loss, population fragmentation and predation from American mink (Strachan *et al.*, 2011).
- 1.3.5 The British water vole population is estimated to be 132,000 individuals as of 2018 (Mathews *et al.*, 2018). This is a decline of 50% since 1998. The Mammal Society estimate that this downward trend will continue, and in some areas (particularly Devon and Cornwall) water voles have become locally extinct.
- 1.3.6 In Kent, the water vole population is declining, but the county is a stronghold for the species, with good populations found on Romney Marsh, the Isle of Sheppey, the Stour Valley and the drains and ditches of the North Kent Marshes (Kent Biodiversity Partnership, 2009).
- 1.3.7 In Essex, water voles are present along all the major river systems, although numbers have declined at some sites and some sites are now no longer occupied (Essex Biodiversity Project, 2011).
- 1.3.8 Within the Order Limits, the suitable habitat for water vole is mainly restricted to the marshes and ditches next to the River Thames in both the north of Kent and the south of Essex, the Mardyke and the associated ditches in Essex, and ditches at the very north of the Project around the M25.

## 1.4 Methodology

### Desk study

- 1.4.1 A desk study was carried out in 2020 and subsequently updated in 2022, which considered all water vole records from 2012 to present within 2km of the Order Limits. Records were requested from Kent & Medway Biological Records Centre (2022), Essex Wildlife Trust Biological Records Centre (2020), Essex Field Club (2022) and Greenspace Information for Greater London (2022).
- 1.4.2 Ordnance Survey mapping and high-resolution aerial imagery were reviewed in detail as part of the desk study to identify potential water vole habitats within the survey boundary, which is defined as within, and up to 500m from, the Order Limits. This identified areas for further detailed water vole surveys. Additional water vole habitats were identified during the extended Phase 1 habitat and protected species walkover surveys, which were carried out between 2017 and 2019 within the Order Limits.
- 1.4.3 The locations of designated sites of international and national importance for biodiversity were obtained within 2km, and non-designated sites of local importance were obtained within 500m, of the Order Limits. Citations for these sites, which provide information on the reasons for their designation, were reviewed to see whether water vole were cited as interest features.

### Field study

- 1.4.4 Water vole surveys were carried out following the guidance published in the Water Vole Mitigation Handbook (Dean *et al.*, 2016). This guidance sets out the survey boundary for the surveys, with '*new highways schemes requiring permanent culverting*' needing a survey boundary of '*up to 200-500m of the footprint of the works, and a desk study of up to 2-5km from the study site*'.

Water vole surveys were therefore planned within suitable water bodies within, and up to 500m from, the Order Limits.

- 1.4.5 Suitable water bodies that could support water vole were identified and the relative suitability of habitat for water voles assessed using the following factors:
- a. Current
  - b. Channel width
  - c. Water depth
  - d. Frequency and height of water level changes
  - e. Bank profile
  - f. Bank height
  - g. Riparian habitat type
  - h. In-channel vegetation and percentage cover
  - i. Terrestrial land use
  - j. Management/disturbance
  - k. Bankside Phase 1 habitat and species
  - l. Signs of key predators
  - m. Bank substrate
- 1.4.6 For the full results of the water vole habitat suitability assessment, see Annex B.
- 1.4.7 The Water Vole Mitigation Handbook (Dean *et al.*, 2016) recommends two survey visits be carried out during the breeding season to gain an accurate estimate of the water vole population. This is due to the changes in the habitat suitability for water voles, which can change the apparent distribution and population size. Generally, one visit should take place in spring between April and June, with a second visit taking place in late summer/autumn between August and September, with surveys being at least two months apart. In the south-east of England, the survey season tends to be longer than the national average, so surveys can also take place in March and October.
- 1.4.8 This recommended methodology was followed for the Project: two surveys were carried out on all potentially suitable water bodies, with one visit in spring and another in late summer/autumn.
- 1.4.9 A variety of methods were used to survey for water vole:
- a. The preferred technique was to survey the in-channel vegetation and the bank from within the channel. This work was carried out by two suitably experienced ecologists: one wearing waders walking through the channel

searching for water vole signs and the second surveying from higher up the bank, wherever it was safe to do so.

- b. Boat surveys were carried out in water bodies that were too deep to be waded through safely. These surveys involved a pair of experienced ecologists using an inflatable kayak to survey the bank and any emergent vegetation for signs of water vole. These surveyors were accompanied by two additional surveyors who searched for any water vole features higher up the bank or located away from the water's edge.
- c. For some water bodies, neither of these survey methodologies were appropriate (e.g. deep water and heavily overgrown water bodies). In this situation, surveys were carried out from the bank only, with any limitations to the surveys being noted.

1.4.10 The location and number of the following field signs, where present, were recorded using a mobile Geographical Information System:

- a. Single droppings (one or two droppings)
- b. Latrines (collection of droppings)
- c. Feeding remains
- d. Burrows
- e. Water vole sightings

1.4.11 No burrows were examined in detail with an endoscope to confirm the presence of water vole, as this could have disturbed water voles and would therefore be a licensable act.

1.4.12 The Water Vole Mitigation Handbook (Dean *et al.*, 2016) states that the only reliable field sign that can be used on its own to suggest presence of water vole (other than a direct sighting) is the presence of latrines. Despite this, a combination of other field signs close by can be highly suggestive of water vole presence.

1.4.13 Potential water vole footprints were not recorded as recognised field signs, due to the similarity to rat footprints, and were therefore considered unreliable.

1.4.14 A total of 219 water bodies were assessed for water vole within the survey boundary with a total distance of 92km surveyed. Of these, 63 water bodies were located in the survey area to the south of the River Thames, covering a distance of 18.1km within the survey boundary. The remaining 156 water bodies were in the survey area to the north of the River Thames, covering a distance of 74km within the survey boundary (Annex A).

1.4.15 An additional 23 water bodies, covering a total length of 9.9km within the survey boundary, were identified as potentially suitable. However, these water bodies were not surveyed, because access to survey these areas was not granted. All 23 of these water bodies were located to the north of the River Thames (see Annex A).

- 1.4.16 No access was granted to survey the water bodies within the old Tilbury Power Station site, since this was an active construction site at the time of the Project's baseline surveys. As such, data that was gathered as part of the Tilbury2 Environmental Statement (WYG, 2018) in 2015, 2016 and 2017 has been used to assess the water vole population within this area.
- 1.4.17 Areas that were subject to water vole surveys, including those areas near Tilbury Power Station where third party data has been used to inform this assessment, are shown on Figure 8.27: Otter and Water Vole Survey Results (Application Document 6.2).

### Data analysis

- 1.4.18 Relative water vole population size estimates were calculated using the below methodology from Dean *et al.* (2016).
- 1.4.19 Robust estimates of water vole populations are not feasible from field signs alone; however, the number of latrines per 100m of bankside habitat can be used to give an indication of the relative population size, as shown in Table 1.1.

**Table 1.1 Relative population density estimates**

Relative population density	Approximate number of latrines per 100m of bankside habitat	
	First half of survey season (mid-April to end of June)	Second half of survey season (July to September)
High	10 or more	20 or more
Medium	3–9	6–19
Low	≤ 2 (or none but with other confirmatory field signs)	≤ 5 (or none but with other confirmatory field signs)

- 1.4.20 For the field study section below, and for the subsequent assessment, the highest population estimate from both the surveys was used.

## 1.5 Results

### Desk study

- 1.5.1 The desk study revealed no statutory designated sites that are designated for water vole within the survey boundary. Three non-statutory sites were designated in part for their water vole populations: Puddle Dock Angling Centre Site of Importance for Nature Conservation (SINC), Fields South of Cranham Marsh SINC and Ingrebourne Valley SINC. All of these sites were immediately next to the Order Limits near the M25.
- 1.5.2 Kent & Medway Biological Records Centre (2022) reported 13 records of water vole within 2km of the Order Limits to the south of the River Thames.
- 1.5.3 Twelve records of water vole were provided by the Essex Wildlife Trust Biological Records Centre (2020) within 2km of the Order Limits to the north of the River Thames.
- 1.5.4 Essex Field Club (2022) returned three records of water vole within 2km of the Order Limits to the north of the River Thames. All records were located outside of the Order Limits, the nearest record located 2.7m from the Order Limits.



- 1.5.5 Greenspace Information for Greater London (2022) returned 74 records of water vole within 2km of the Order Limits to the north of the River Thames. No detailed geographical locations for the records were provided, but the nearest was located within the Order Limits.
- 1.5.6 Water vole surveys carried out to inform the Tilbury2 Environmental Statement (WYG, 2018) identified a healthy water vole population (refer to Figure 8.27 (Application Document 6.2)). A total of 29 water bodies were found to have water vole present: 10 had a peak population estimate of 'high', six had 'medium' and 13 had 'low'.

### Field study

- 1.5.7 To the south of the River Thames, a total of seven water bodies were found to have high populations of water vole, over a total length of 2.4km. An additional 13 water bodies were found to have medium water vole populations, over a total length of 4.3km. A total of 26 water bodies encompassing 8.6km had a low population of water vole. The remaining 17 water bodies were found to either have no water vole field signs or were dry during every survey carried out and therefore considered to be of negligible suitability for water voles (see Figure 8.27 (Application Document 6.2)). All water bodies with water vole populations were located either within, or next to, the South Thames Estuary and Marshes Site of Special Scientific Interest.
- 1.5.8 To the north of the River Thames, a total of six water bodies encompassing a length of 2.5km had a high water vole population. An additional 21 water bodies had a medium population, across a total length of 12.1km, and 31 water bodies had a low population across a total length of 17km. Fifteen water bodies had burrows recorded, but no confirmed water vole signs. For this assessment, these water bodies have been assessed as having no water voles present, as without any other confirmed water vole signs, the burrows were most likely to be rat burrows. The remaining 83 water bodies were found to have no water vole field signs or were dry during every survey carried out and therefore considered to be of negligible water vole suitability (see Figure 8.27 (Application Document 6.2)).
- 1.5.9 Three main areas were recorded to the north of the River Thames that were the focus of water vole surveys: the water bodies next to the Thames Estuary, the water bodies associated with the Mardyke, and the water bodies within the northern part of the Project next to the M25. Of these areas, all the water bodies with high or medium populations of water voles were located near the Thames Estuary. The area near the Mardyke had a number of water bodies with low populations but most had no water vole signs at all. The area near the M25 had no confirmed water vole field signs.
- 1.5.10 For full details of the water bodies surveyed and the population estimates for each water body, see Annex A.

## 1.6 Limitations and assumptions

### Unsurveyed and reduced survey effort water bodies

- 1.6.1 Surveys were either not undertaken, or only partially undertaken, at 31 water bodies identified within the survey boundary:
- a. Twenty four water bodies were not surveyed at all due to access restrictions.
  - b. One of these water bodies (W030) was assessed for its suitability to support water voles (see Annex B), but it was deemed too dangerous to survey, so no water vole field signs were found. The habitat was highly suitable and connected to other water bodies with medium water vole populations. It is assumed, on a precautionary basis, in this assessment that this water body would sustain a high water vole population.
  - c. Six water bodies only had one survey carried out due to access restrictions. This was either due to access being granted too late in the survey season to carry out two visits, or because access was revoked during the survey season meaning the second survey could not be completed.
  - d. One water body (W064) only had one survey carried out as the first survey assessed the population as high, and as the assessment was based on a precautionary approach, a second survey was deemed unnecessary.
- 1.6.2 Professional judgement has been used where necessary to address any gaps in survey data that have occurred as a result of the limitations outlined above, such that the conclusions of the assessment of likely effects of the Project on water voles are sufficiently robust.

### Amendments to the Order Limits

- 1.6.3 The Order Limits were extended in 2022 to include utilities diversions taking place as required to accommodate the Project and associated changes to the existing road network. This extension took place outside of the survey season. As such, none of the extra areas within 500m of these extensions have been subject to detailed water vole surveys. Desk study data for these areas has been included within this report. All affected watercourses would be surveyed for signs of water vole before any construction is carried out.
- 1.6.4 Additionally the Order Limits were extended to accommodate areas of compensation planting to offset the effects of nitrogen deposition on designated and non-designated sites due to operation of the Project. These compensation habitat areas have not been surveyed for water vole as no impacts are predicted on water vole as these sites will only be subject to woodland or grassland planting, with all watercourses being retained with no disturbance anticipated in these areas.
- 1.6.5 One water body (W221) was surveyed, but due to the Order Limits amendment this water body is now over 1.5km from the Order Limits and is therefore not discussed further.

## Weather

- 1.6.6 Surveys were timed to avoid heavy rain, as this can wash away water vole field signs (particularly latrines). However, due to the number of water bodies that were surveyed, some surveys did take place within seven days of heavy rain. All water bodies were surveyed twice (with the exception of the unsurveyed and reduced survey effort water bodies listed above), and the peak population count has been used for this assessment. Therefore, heavy rain is not considered to be a significant limitation to this assessment.
- 1.6.7 The extremely dry weather of the spring and summer 2018 led to a number of water bodies drying out completely. It is probable that during more typical summers these water bodies would have contained water. It is anticipated that, with the climate expected to get warmer, these dry weather conditions will become more typical. Therefore, the results from these surveys are likely to be more representative of the future baseline conditions.

## Schedule 1 breeding bird constraints

- 1.6.8 During the spring surveys, a number of breeding bird species that are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were identified, including a pair of breeding marsh harriers. In order to avoid disturbance to these breeding birds, the water bodies within 200m of the nest sites were not surveyed during the spring, with surveys instead carried out in consecutive autumn seasons. This is not considered to be a significant limitation, since two surveys during the appropriate season were still carried out.

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# Annexes

## Annex A Water vole survey results

A.1.1 Table A.1 and Table A.2 below show the results of the water vole surveys within the survey boundary. The peak population count in the tables below shows the highest population count from the surveys carried out: 'high' means a high population, 'medium' means a medium population, 'low' means a low population, 'dry' means dry at the time of all surveys, 'not surveyed' means not surveyed (see limitations in Section 6) and 'n/f' means no water vole field signs were found.

**Table A.1 Summary of water vole results for water bodies south of the River Thames**

Water body number	Peak population count	Length of water body (metres)
W037	Low	269
W038	Medium	363
W039	Low	377
W040	Medium	725
W041	n/f	69
W042	n/f	42
W043	Low	144
W044	Medium	100
W045	n/f	54
W046	Low	135
W047	Medium	90
W048	Medium	349
W049	High	86
W050	Low	27
W051	Low	89
W052	Low	52
W053	Medium	360
W054	Medium	254
W055	Medium	703
W056	Low	394
W057	Medium	168
W058	Low	239
W059	High	908
W060	High	316
W061	Low	1,015

<b>Water body number</b>	<b>Peak population count</b>	<b>Length of water body (metres)</b>
W062	Low	155
W063	Low	306
W064	High	283
W065	Medium	484
W066	n/f	216
W067	n/f	55
W068	Low	270
W069	n/f	43
W070	n/f	254
W071	n/f	46
W072	High	114
W073	Low	695
W074	Low	344
W075	Medium	261
W076	High	268
W077	High	416
W078	Medium	305
W079	Low	423
W080	Low	613
W081	n/f	40
W082	Low	388
W083	Low	304
W084	Low	130
W085	n/f	41
W086	Low	525
W087	n/a	387
W088	n/a	25
W089	n/a	280
W203	n/a	619
W204	n/a	185
W205	n/a	357
W207	Low	251
W214	Low	192
W216	Medium	110
W218	n/f	127

Water body number	Peak population count	Length of water body (metres)
W237	Low	102
W238	Low	447
W239	Low	714

**Table A.2 Summary of water vole results for water bodies north of the River Thames**

Water body number	Peak population count	Length of water body (meters)
W001	n/f	83
W002	n/f	79
W003	n/f	443
W004	Dry	364
W005	n/f	236
W006	n/f	398
W007	n/f	462
W008	Low	328
W009	Low	1,635
W010	n/f	713
W011	Low	544
W012	n/f	1,051
W013	Low	425
W014	Low	1,146
W015	n/f	491
W016	n/f	678
W017	Medium	477
W018	n/f	488
W019	High	572
W020	Medium	596
W021	Medium	614
W022	Medium	609
W023	Low	98
W024	Medium	662
W025	Low	720
W026	Medium	858
W027	Medium	670
W028	Low	163
W029	Medium	90



Water body number	Peak population count	Length of water body (meters)
W030	Not surveyed (assumed medium)	627
W031	High	193
W032	Medium	1,069
W033	Low	764
W034	Medium	1,064
W035	Medium	264
W036	High	233
W090	Not surveyed	214
W091	n/f	326
W092	Dry	626
W093	n/f	535
W094	n/f	366
W095	n/f	440
W096	n/f	695
W097	Low	708
W098	n/f	359
W099	Dry	374
W100	Low	1,039
W101	n/f	480
W102	n/f	730
W103	n/f	461
W104	n/f	298
W105	Not surveyed	333
W106	Not surveyed	536
W107	n/f	874
W108	n/f	556
W109	n/f	1,947
W110	n/f	609
W111	n/f	334
W112	Medium	821
W113	Dry	197
W114	High	906
W115	Medium	753
W116	Medium	445

<b>Water body number</b>	<b>Peak population count</b>	<b>Length of water body (meters)</b>
W117	Low	344
W118	Medium	446
W119	n/f	442
W120	Medium	827
W121	Low	836
W122	n/f	761
W123	Low	876
W124	Medium	368
W125	Medium	154
W126	Low	350
W127	Medium	917
W128	Not surveyed	174
W129	Not surveyed	216
W130	Not surveyed	234
W131	n/f	312
W132	Low	52
W133	n/f	150
W134	n/f	1,241
W135	n/f	329
W136	n/f	2,093
W137	n/f	1,272
W138	n/f	222
W139	n/f	282
W140	n/f	920
W141	Medium	221
W142	Low	364
W143	Low	325
W144	n/f	419
W145	High	234
W146	Medium	260
W147	Low	427
W148	Dry	1,607
W149	Dry	82
W150	Dry	171
W151	Low	328

Water body number	Peak population count	Length of water body (meters)
W152	n/f	360
W153	Low	1,032
W154	Dry	340
W155	Low	304
W156	n/f	252
W157	n/f	580
W158	n/f	197
W159	n/f	606
W160	Dry	55
W161	Low	54
W162	n/f	292
W163	n/f	165
W164	n/f	588
W165	n/f	1,397
W166	n/f	139
W167	n/f	613
W168	Dry	100
W169	Not surveyed	770
W170	Dry	305
W171	n/f	378
W172	n/f	343
W173	n/f	81
W174	n/f	145
W175	n/f	40
W176	n/f	360
W177	n/f	291
W178	n/f	219
W179	n/f	221
W180	n/f	182
W181	n/f	43
W182	n/f	344
W183	Not surveyed	160
W184	Not surveyed	150
W185	Not surveyed	309
W186	n/f	416

<b>Water body number</b>	<b>Peak population count</b>	<b>Length of water body (meters)</b>
W187	n/f	222
W188	n/f	196
W189	n/f	69
W190	n/f	110
W191	Dry	76
W192	n/f	120
W193	Dry	169
W194	n/f	151
W195	n/f	157
W196	Low	654
W197	n/f	1,051
W198	Dry	210
W199	n/f	350
W200	Dry	943
W201	n/f	299
W202	n/f	286
W206	High	357
W208	n/f	907
W209	n/f	132
W210	n/f	115
W211	Low	214
W212	n/f	262
W213	Not surveyed	1,110
W215	Dry	197
W217	Not surveyed	413
W219	Low	130
W220	Low	49
W222	Not surveyed	542
W223	Not surveyed	418
W224	Low	374
W225	n/f	334
W226	Low	560
W227	n/f	646
W228	n/f	457
W229	Dry	286

<b>Water body number</b>	<b>Peak population count</b>	<b>Length of water body (meters)</b>
W230	Not surveyed	542
W231	Not surveyed	256
W232	Not surveyed	426
W233	Not surveyed	169
W234	Not surveyed	533
W235	Not surveyed	993
W236	Not surveyed	778
W240	Low	770
W241	n/f	262
W242	Not surveyed	365
W243	Not surveyed	300

## Annex B Water vole habitat suitability survey results

B.1.1 Table B.1 and Table B.2 provide a full description of the habitat suitability surveys of water bodies for water voles to the south and north of the River Thames, respectively.

**Table B.1 Summary of water vole habitat suitability surveys for water bodies south of the River Thames**

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W037	Static	4	1.5	Often	Shallow < 45°	1	Ditch	10%	Sea club-rush <i>Bolboschoenus maritimus</i> , common reed <i>Phragmites australis</i>	Pasture	Major - lots of poaching (bank erosion caused by livestock)	Common reed, grass, sedge <i>Carex</i> sp.	Yes	Yes	None	Earth
W038	Static	2	0.5	Unknown	Shallow < 45°	0.7	Ditch	20%	Sea club-rush	Grazing marsh	Minimal - some poaching	Sea club-rush, grass	Yes	Yes	None	Earth
W039	Static	15	0.5	None	Shallow < 45°	0.4	Pond	20%	Sedge sp., duckweed <i>Lemna</i> sp.	Grazing marsh	Moderate - poaching	Sea club-rush, common reed	Yes	Yes	None	Earth
W040	Static	2	0.6	Unknown	Steep > 45°	0.5	Ditch	95%	Sedge sp., common reed, sea club-rush	Grazing marsh	Minimal - some poaching	Sea club-rush, common reed	Yes	Yes	None	Earth
W041	Static	5	0.2	None	Steep > 45°	0.5	Pond	50%	Sedge sp.	Grazing marsh	None	Grass, sea club-rush	No	Yes	None	Earth
W042	Static	5	0.2	None	Steep > 45°	0.5	Pond	100%	Duckweed	Grazing marsh	None	Grass, sea club-rush	No	Yes	None	Earth
W043	Static	8	0.3	Unknown	Shallow < 45°	0.3	Pond	50%	Sea club-rush	Grazing marsh	Minimal - some poaching	Grass, sea club-rush	Yes	Yes	None	Earth
W044	Static	10	0.3	Unknown	Shallow < 45°	0.3	Pond	60%	Sea club-rush	Grazing marsh	Minimal - some poaching	Grass, sea club-rush	Yes	Yes	None	Earth
W045	Static	4	0.2	None	Shallow < 45°	0.4	Pond	60%	Sea club-rush	Grazing marsh	Minimal - some poaching	Grass, sea club-rush	No	Yes	None	Earth
W046	Static	25	0.5	Frequently affected by precipitation events	Flat < 10°	0.2	Pond	5%	Water milfoil <i>Myriophyllum L.</i> sp., ivy-leaved duckweed <i>Lemna trisulca</i>	Grazing marsh	Moderate - poaching	Common club-rush <i>Schoenoplectus lacustris</i> , common reed	Yes	Yes	None	Earth
W047	Static	3	1	Unknown	Shallow < 45°	0.8	Ditch	5%	Water milfoil sp.	Pasture	Major - lots of poaching	Sedge sp.	Yes	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W048	Static	50	1.5	Frequent fluctuations caused by minor precipitation events	Flat < 10°	0	Gravel pit	5%	Common reed	Reedbed	None	Common reed	Yes	Yes	Mink scat and water vole remains	Earth
W049	Static	15	1	Frequently affected by minor precipitation events	Flat < 10°	0.2	Pond	5%	Common reed	Reedbed	None	Common reed	Yes	Yes	None	Earth
W050	Static	1.5	0.3	Unknown	Flat < 10°	0	Ditch	10%	Common reed	Reedbed	None	Common reed	No	Yes	None	Earth
W051	Static	1	0.5	Unknown	Steep > 45°	3.5	Ditch	80%	Common reed	Reedbed	None	Common reed	No	Yes	None	Earth
W052	Static	0.5	0.05	None	Steep > 45°	1.7	Ditch	99%	Common reed	Reedbed	None	Common reed	No	Yes	None	Earth
W053	Static	4	1.2	Unknown	Shallow < 45°	0.7	Ditch	70%	Bulrush <i>Scirpoides holoschoenus</i> , pondweed <i>Potamogeton</i> sp.	Grazing marsh	None	Grass, sedge sp.	Yes	Yes	None	Earth
W054	Static	4	1.8	Unknown	Shallow < 45°	1	Ditch	10%	Common reed	Track	None	Common reed, grass	Yes	Yes	None	Earth
W055	Slow	4	1	Unknown	Steep > 45°	1.5	Ditch	70%	Bulrush, common reed	Firing range	Minimal - rifle range, recreation	Dock <i>Rumex</i> sp., thistle <i>Cirsium</i> sp., nettle <i>Urtica dioica</i> , reed	Yes	Yes	None	Earth
W056	Static	5	1	Unknown	Steep > 45°	1.5	Ditch	15%	Common reed	Railway, track	Moderate - occasional dredging	Common reed, nettle, bramble <i>Rubus</i> sp., blackthorn <i>Prunus spinosa</i> , hawthorn <i>Crataegus monogyna</i>	Yes	Yes	None	Earth
W057	Static	4	0.8	Often, 50cm, tidal	Steep > 45°	1	Ditch	20%	Common reed	Footpath	Minimal - rifle range, recreation	Common reed, grasses, hawthorn, rose <i>Rosa</i> sp.	Yes	Yes	None	Earth
W058	Static	1	0.3	None	Steep > 45°	3	Ditch	100%	Common reed	Track	None	Common reed, nettle	No	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W059	Static	5	1	0.5m seasonally	Steep > 45°	1.5	Canal	10%	Common reed	Railway, track	Moderate - occasional dredging, vegetation clearance	Common reed	Yes	Yes	None	Earth
W060	Static	10	2	Unknown	Shallow < 45°	1.5	Canal	10%	Common reed	Railway, track	Moderate - reed cutting, some canal restoration	Common reed, elder <i>Sambucus nigra</i> , hawthorn	Yes	Yes	None	Earth, stone
W061	Static	2	0.8	Unknown	Shallow < 45°	1.5	Ditch	100%	Lesser duckweed <i>Lemna minor</i> , common reed, bulrush	Pasture, arable	None	Fleabane <i>Erigeron</i> sp., thistles, sedges, rushes, hawthorn, bramble	No	Yes	None	Earth
W062	Static	2	0.4	None	Steep > 45°	3	Ditch	20%	Common reed	Arable	None	Common reed	No	Yes	None	Earth
W063	Sluggish	2	1	Unknown	Steep > 45°	2	Ditch	80%	Common reed, bulrush	Arable	Minimal - some vegetation trimming	Common reed, bulrush, bramble, rose, hawthorn, sea club-rush	No	Yes	None	Earth
W064	Static	5	1	Unknown	Steep > 45°	2	Ditch	20%	Common reed, bulrush	Arable	None	Common reed	Yes	Yes	None	Earth
W065	Static	4	1.4	Unknown	Steep > 45°	1.5	Ditch	90%	Pondweed, common reed	Pasture	Major - lots of poaching	Grass, thistle, nettle, hawthorn, bramble, rose	Yes	Yes	None	Earth
W066	Static	1	0.2	Some dry areas	Steep > 45°	1.3	Ditch	90%	Sedge	Pasture	Major - lots of poaching	Grass	No	Yes	None	Earth
W067	Static	4	0.3	None	Flat < 10°	0.2	Pond	50%	Sedge	Pasture	Moderate - poaching, some sedge cutting	Grass	No	Yes	None	Earth
W068	Static	3	0.5	None	Steep > 45°	1.2	Ditch	100%	Sedge, New Zealand stonecrop <i>Crassula helmsii</i> , algae	Pasture	Moderate - some poaching	Grass	No	Yes	None	Earth
W069	Static	1.5	0.2	None	Flat < 10°	0.3	Pond	50%	Sedge	Pasture	Moderate - poaching	Grass, some common reed	No	Yes	None	Earth



Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W070	Static	2	0.3	None	Shallow < 45°	1	Ditch	100%	Sedges, pigmyweeds <i>Crassula</i> sp.	Pasture	Moderate - some poaching	Cocksfoot grass <i>Dactylis glomerata</i> , dock, rush, thistle, creeping bent <i>Agrostis stolonifera</i>	No	Yes	None	Earth
W071	Static	1	0.2	None	Flat < 10°	0.5	Pond	50%	Sedge, common reed	Pasture	Moderate - poaching	Common reed, rye grass <i>Lolium</i> sp.	No	Yes	None	Earth
W072	Static	2	0.4	None	Steep > 45°	2	Ditch	50%	Common reed	Pasture	Moderate - some poaching	Common reed, sedge, grass	Yes	Yes	None	Earth
W073	Static	3	1	None	Shallow < 45°	1.5	Ditch	70%	Sedges, common reed, water milfoil, common duckweed, ivy leaved duckweed, pigmyweed sp.	Pasture	Moderate - poaching	Common reed, cocksfoot, rushes, thistles, hawthorn, rose	Yes	Yes	Heron, fox	Earth
W074	Static	2.5	1	Seasonal	Steep > 45°	1	Ditch	15%	Sea club-rush	Pasture	Moderate - poaching	Sea club-rush	Yes	Yes	None	Earth
W075	Static	2	1	No change	Steep > 45°	1	Ditch	70%	Water milfoil, common duckweed, ivy-leaved duckweed	Pasture	Minimal - some poaching	Sedge sp., rush sp., fool's watercress <i>Apium nodiflorum</i> , thistle sp.	No	Yes	None	Earth
W076	Static	3	1.2	Unknown	Steep > 45°	1	Ditch	90%	Duckweed	Pasture	Moderate - some poaching, some reed cutting	Sedge sp., grass, common reed	Yes	Yes	None	Earth
W077	Static	2	1	Unknown	Steep > 45°	0.7	Ditch	50%	Common reed, sedge	Hay meadow	Minimal - some reed cutting, some poaching	Sedge sp., grass, common reed	Yes	Yes	None	Earth
W078	Static	2.5	1.2	None	Steep > 45°	1	Ditch	100%	Water milfoil, common duckweed, ivy leaved duckweed	Pasture	Moderate - poaching	Cocksfoot, dock, rush sp., sedge sp.	No	Yes	None	Earth
W079	Static	1.5	1	Unknown	Steep > 45°	1	Ditch	90%	Water milfoil, ivy leaved crowfoot	Pasture	Major - dredging,	Annual sea-blite <i>Suaeda maritima</i> ,	Yes	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
											cattle poaching	common reed, soft rush <i>Juncus effusus</i> , thistle, dock, dog's-tail <i>Cynosurus cristatus</i>				
W080	Static	2	1	Unknown	Steep > 45°	1.5	Ditch	10%	Watermilfoil, Ivy-leaved duckweed	Pasture	Major - collapsed banks from poaching	Reflexed saltmarsh-grass <i>Puccinellia maritima</i> , sea club-rush, lesser water parsnip <i>Berula erecta</i> , fool's watercress	Yes	Yes	Mink scat	Earth
W081	Static	2	0.05	None	Shallow < 45°	1	Pond	5%	Duckweed	Pasture	None	Floating sweet-grass <i>Glyceria fluitans</i> , celery-leaved water crows-foot <i>Ranunculus sceleratus</i> , sedges, rushes	No	No	None	Earth
W082	Static	2.5	0.75	Seasonal	Steep > 45°	0.5	Ditch	100%	Azolla sp. abundant, marginal sea club-rush	Pasture	Moderate - poaching	Sea club-rush	Yes	Yes	None	Earth
W083	Static	2	0.2	None	Shallow < 45°	1	Ditch	90%	Water milfoil, common duckweed, ivy-leaved duckweed, fool's watercress	Pasture	None	Water plantain <i>Alisma</i> sp., creeping bent, water forget-me-not <i>Myosotis scorpioides</i> , sedges and rushes	No	Yes	None	Earth
W084	Static	1	0.1	None	Shallow < 45°	1	Ditch	100%	Floating sweet-grass	Pasture	None	Ragwort <i>Jacobaea vulgaris</i> , soft rush <i>Juncus effusus</i> , dock, thistle, creeping buttercup <i>Ranunculus</i>	No	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
												<i>repens</i> , creeping bent				
W085	Static	4	0.5	None	Shallow < 45°	0.2	Pond	100%	Water milfoil, common duckweed, ivy-leaved duckweed	Pasture	None	Sedges, rushes, water plantain	No	Yes	None	Earth
W086	Static	1	0.1	Unknown	Shallow < 45°	2	Ditch	50%	Duckweed	Pasture	Moderate - poaching	Bramble, nettle, willowherb <i>Epilobium</i> sp., dock	No	No	None	Earth
W087	Static	20	0.45	Unknown	Shallow < 45°	1	Lake	50%	Bulrush, flag iris <i>Iris pseudacorus</i> , reed sp., water lily <i>Nymphaeaceae</i> sp.	Pasture	Minimal - some recreation	Bulrush, bramble, ruderal herbs	Yes	No	None	Stones, gravel
W088	Static	10	0.2	None	Shallow < 45°	1.5	Pond	40%	Algae	Hay meadow	None	Grass, dock, hawthorn	No	Yes	None	Earth
W089	Static	0.5	0.5	Infrequent	Steep > 45°	1.5	Ditch	90%	Burr reed <i>Sparganium</i> sp., bulrushes, iris sp.	Pasture	Minimal - some recreation, some litter	Willow <i>Salix</i> sp., bramble	No	No	None	Earth
W203	Static	85	5	None	Shallow < 45°	1	Lake	5%	Common reed	Fishing lake, gardens, woodland	Moderate - fishing	Oak <i>Quercus</i> sp., sweet chestnut <i>Castanea sativa</i> , alder <i>Alnus</i> sp.	Yes	Yes	None	Earth
W204	Static	25	2.5	Unknown	Steep > 45°	0.5	Lake	25%	Common reed	Public recreation	Moderate - fishing	Common reed, oak, sweet chestnut	Yes	Yes	None	Earth, gravel
W205	Static	25	2.5	Unknown	Vertical/Undercut	0.5	Lake	20%	Common reed	Public recreation	Moderate - fishing	Common reed	Yes	Yes	None	Earth
W207	Static	3	1.3	None	Shallow < 45°	1	Ditch	100%	Hornwort <i>Ceratophyllum demersum</i> , lesser duckweed, ivy-leaved duckweed, water milfoil	Pasture	Moderate - poaching	Sedges, rushes, dock, common reed, cock's foot, creeping bent, red fescue <i>Festuca rubra</i> , <i>Crassula</i> sp.	Yes	Yes	None	Earth
W214	Static	2.5	0.2	Regular changes.	Steep > 45°	3.5	Ditch	50%	Common reed, sea club-rush	Compound, rough grassland	Minimal - some poaching	Common reed, sea club-rush, sea couch	Yes	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
				Tidally influenced								<i>Agropyron pungens</i> , false oat grass <i>Arrhenatherum elatius</i> , cocksfoot				
W216	Slow	5	1.5	Unknown	Steep > 45°	1	Ditch	5%	Common reed	Firing range, footpath	None	Grass, common reed	Yes	Yes	None	Earth
W218	Static	2	0	Unknown	Steep > 45°	2.5	Ditch	100%	Common reed	Track, canal	Minimal - infrequently dredged	Common reed	Yes	Yes	None	Earth
W237	Sluggish	1	0.4	Often tidal	Steep > 45°	3	Ditch	20%	Common reed	Industrial	Moderate - rifle range, some vegetation clearance	Bramble, hawthorn, elm <i>Ulmus procera</i> , nettle	Yes	Yes	None	Earth
W238	Static	2	0.2	Seasonal	Steep > 45°	0.5	Ditch	75%	Sea club-rush, bulrush	Grazing marsh	Moderate - some dredging, poaching	Sea club-rush, water plantain, marsh foxtail <i>Alopecurus geniculatus</i> , common spike rush <i>Eleocharis palustris</i>	Yes	Yes	None	Earth, clay
W239	Static	2.5	0.5	Seasonal	Steep > 45°	2	Ditch	50%	Common reed, bulrush, sea club-rush, water starwort <i>Callitriche</i> sp.	Arable, building plot, grazing marsh	Moderate - some vegetation clearance, little poaching	Bristly oxtongue <i>Helminthotheca echioides</i> , hawthorn, sea club-rush	Yes	Yes	None	Earth

Table B.2 Summary of water vole habitat suitability surveys for water bodies north of the River Thames

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W001	Static	3	1.5	Unknown	Shallow < 45°	1.5	Ditch	100%	Duckweed, nettle	Arable	None	Nettle, bramble, willowherb, bindweed <i>Convolvulus</i> sp., hops <i>Humulus lupulus</i> , elder, willow	No	No	None	Earth
W002	Sluggish	3	0.3	None	Shallow < 45°	2	Ditch	0%	Nettle	Arable	None	Hawthorn, elder, nettle, hops, bramble, oak	No	No	None	Earth
W003	Static	1	0.1	Frequent	Shallow < 45°	1	Ditch	20%	Rosebay willowherb <i>Chamaenerion angustifolium</i> , bramble	Arable	Moderate - some reprofiling	Rosebay willowherb, grass, nettle, hawthorn	No	Yes	None	Earth
W004	Static	6	0.1	Occasionally in heavy rain	Steep > 45°	2.5	Ditch	100%	Common reed	Arable, landfill	Minimal - possibly infrequently dredged	Yorkshire fog <i>Holcus lanatus</i> , nettle, creeping thistle <i>Cirsium arvense</i> , bramble	No	Yes	None	Clay loam
W005	Static	1.5	0.3	Low frequency and not significant	Steep > 45°	1.25	Ditch	5%	Common reed, bulrush	Landfill, rough grassland	None	False oat grass, Yorkshire fog, creeping thistle, bramble, hawthorn, blackthorn	No	Yes	None	Clay loam
W006	Sluggish	1.5	0.2	Infrequent and not significant	Steep > 45°	1	Ditch	40%	Bulrush, fool's watercress, common reed, water forget-me-not	Arable, woodland, landfill	None	False oat, bramble, hawthorn	No	No	None	Clay loam
W007	Static	1.5	0	Infrequent	Steep > 45°	1.5	Ditch	100%	Rosebay willowherb, nettle, bulrush	Arable	None	Grass, nettle, willowherb, hawthorn	No	Yes	None	Earth
W008	Static	1.5	0	Infrequent	Flat < 10°	0.4	Ditch	100%	Willowherb, grass, nettle	Arable	None	Grass, nettles	No	Yes	None	Earth
W009	Sluggish	3	1	Unknown	Shallow < 45°	2	Stream	100%	Sedge, common reed, fool's watercress, bur reed, nettle	Arable	Minimal - some recreation	Nettles, hawthorn	Yes	Yes	None	Earth
W010	Static	3	0.2	Unknown	Shallow < 45°	1	Ditch	100%	Fool's watercress, bur reed, nettle	Arable	None	Hawthorn, nettle	No	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W011	Static	3	0.1	Unknown	Steep > 45°	1.5	Ditch	100%	Common reed	Arable	None	Common hogweed, nettle, thistle sp., common reed	No	Yes	None	Earth
W012	Static	3	0.1	Infrequent	Steep > 45°	2	Ditch	80%	Common reed, water parsnip, water plantain	Arable	None	Common reed, grass	No	Yes	None	Earth
W013	Sluggish	2	0.1	Infrequent	Shallow < 45°	1	Ditch	80%	Reed canary grass, nettle	Arable	None	Grasses, elder, hawthorn, cow parsley	No	Yes	Rat	Earth
W014	Static	4	0	Infrequent	Steep > 45°	2	Ditch	100%	Reed canary grass <i>Phalaris arundinacea</i> , willowherb	Arable	None	Willow, nettles, burdock <i>Arctium</i> sp.	No	Yes	None	Earth
W015	Static	1.5	0.4	None	Steep > 45°	1.5	Ditch	90%	Fool's watercress	Arable	None	Nettle	No	No	None	Earth
W016	Static	20	3	Abstraction	Steep > 45°	3	Reservoir	0%	Water starwort, water moss, <i>Fontinalis</i> sp.	Arable, woodland	Moderate - water abstraction, fishing	Bramble, common reed	Yes	No	Dead mink	Earth
W017	Static	1.5	0.4	Unknown	Steep > 45°	2.5	Ditch	90%	Common reed	Arable	Moderate - dredging	Common reed	Yes	Yes	None	Earth
W018	Static	2	0	Unknown	Shallow < 45°	1	Ditch	60%	Common reed	Arable	None	Nettles, bramble, oak, hawthorn	No	No	Adder	Earth
W019	Static	1	0.3	Water level affected by run of from agricultural land	Steep > 45°	1.5	Ditch	60%	Common reed	Arable	Moderate - some reprofiling	Common reed, grass	Yes	Yes	None	Earth
W020	Static	1.7	0.8	None	Steep > 45°	1.5	Ditch	40%	Common reed, ivy leaved and celery leaved water crow-foot, fool's watercress	Arable	None	Common reed, hawthorn, bramble, nettle, thistles	Yes	Yes	Brown Rat	Earth
W021	Static	2	0.25	Often	Steep > 45°	1.5	Ditch	100%	Common reed	Soil stripping	None	Thistle, grass, hawthorn	Yes	Yes	None	Earth
W022	Sluggish	6	2	Tidal	Steep > 45°	3	Ditch	10%	Small cord grass <i>Spartina maritima</i> , common reed	Waste land	Moderate - recently dredged	Nettle, elm	Yes	Yes	None	Earth
W023	Static	1.5	0.4	Unknown	Steep > 45°	1	Ditch	75%	Common reed	Arable	None	Rose, bramble	No	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W024	Static	1.5	0.2	Unknown	Steep > 45°	2	Ditch	95%	Common reed	Arable	None	Common reed, hawthorn	Yes	Yes	None	Earth
W025	Static	2.5	0.1	Unknown	Shallow < 45°	1.5	Ditch	100%	Bramble	Arable	None	Blackthorn, hawthorn, rose	No	No	None	Earth
W026	Sluggish	3	2	Unknown	Steep > 45°	2	Ditch	50%	Common reed	Waste land	None	Common reed, bramble	Yes	Yes	None	Earth
W027	Static	2	0.1	Often	Steep > 45°	4	Ditch	100%	Common reed	Soil stripping	None	Grass, elder	No	Yes	None	Earth
W028	Static	2	0.7	Seasonal	Steep > 45°	1.5	Ditch	60%	Common reed	Pasture	Moderate - some reprofiling, heavy machinery	Common reed, false oat grass	Yes	Yes	None	Earth
W029	Static	4	1.3	None	Steep > 45°	3	Ditch	10%	Common reed	Compound, track	None	Common reed, hawthorn, elder	Yes	Yes	None	Earth/rock
W030	Static	1.5	0.2	Unknown	Steep > 45°	2.5	Ditch	100%	Common reed	Waste land	None	Common reed, hawthorn, elder, nettles	Yes	Yes	None	Earth
W031	Static	2	1	Unknown	Shallow < 45°	1.5	Ditch	80%	Common reed	Arable	None	Common reed, grass	Yes	Yes	None	Earth
W032	Static	2	1	Unknown	Steep > 45°	1.5	Ditch	60%	Reed, grass, common water crowfoot <i>Ranunculus aquatilis</i>	Arable	Moderate - recently dredged	Grass, nettle, bramble, hawthorn	Yes	Yes	None	Earth
W033	Static	3	0.3	Often	Shallow < 45°	1.2	Ditch	100%	Common reed	Arable	None	Common reed, thistle, nettle	Yes	Yes	None	Earth
W034	Static	2	0.2	Unknown	Steep > 45°	2	Ditch	100%	Common reed	Arable	None	Sow thistle <i>Cirsium palustre</i> , rape <i>Brassica napus</i> , nettles, ragwort	No	Yes	None	Earth
W035	Static	4	1.5	None	Steep > 45°	3	Ditch	20%	Common reed, sedge sp.	Waste land	None	Bramble, teasel <i>Dipsacus</i> sp., nettle, hawthorn	Yes	Yes	None	Stone, earth
W036	Sluggish	7	1.5	Tidal	Steep > 45°	0.3	Ditch	10%	Sea club-rush	Waste land	None	Sea couch, bramble	Yes	Yes	None	Earth
W090	No access															
W091	Sluggish	0.3	0.1	None	Steep > 45°	0.6	Ditch	100%	Fool's parsley <i>Aethusa cynapium</i> , water plantain, New	Golf course	Major - mown and reprofiled	Grass sp., cow parsley <i>Anthriscus sylvestris</i> , nettle, garlic mustard	No	No	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
									Zealand pigmyweed			<i>Alliaria petiolata</i> , hawthorn hedge				
W092	Slow	0.8	0.2	Unknown	Shallow < 45°	0.5	Ditch	100%	Grass	Golf course, community woodland	Moderate - some mowing	Hawthorn, blackthorn, elder	No	No	None	Earth
W093	Slow	0.5	0.01	None	Shallow < 45°	1	Stream	10%	None	Woodland, scrub	Minimal - some recreation	Hawthorn, blackthorn, elder	No	Yes	None	Earth
W094	Sluggish	2	0.3	Regularly may dry out	Steep > 45°	0.5	Ditch	0%	Hawthorn	Fishing lake	None	Hawthorn, blackthorn	Yes	No	None	Earth
W095	Static	230	4	Unknown	Flat < 10°	0.5	Lake	90%	Bulrush	Fishing lake	Moderate - boats, lots of fishing	Hawthorn, elder, bramble	Yes	No	None	Gravel
W096	Static	0	3	Unknown	Shallow < 45°	4	Lake	0%	None	Fishing lake	Moderate - fishing	Grass, oak, ash <i>Fraxinus</i> sp.	Yes	Yes	None	Gravel and clay
W097	Static	100	5	Unknown	Shallow < 45°	4	Reservoir	5%	Water crowfoot	Arable	Minimal - reservoir maintenance	Grass	Yes	Yes	None	Earth
W098	Static	2.5	0	None	Steep > 45°	2.5	Ditch	50%	Common reed	Arable	None	Common reed	No	Yes	None	Earth
W099	Static	3	0	Unknown	Steep > 45°	2	Ditch	100%	Nettle, cow parsley	Arable	None	Nettle, bramble, oak, cow parsley	No	No	None	Earth
W100	Static	30	0.75	None	Flat < 10°	0.5	Lake	20%	Bulrush, common reed	Arable	None	Bulrush, common reed, willowherb,	Yes	Yes	Mink scats	Earth
W101	Static	2	0.05	Unknown	Steep > 45°	2	Ditch	100%	Nettle, hawthorn, elder	Arable	None	Nettle, elder, hops, hazel <i>Corylus</i> sp., willowherb	No	Yes	None	Earth
W102	Static	2.5	0.2	Unknown	Steep > 45°	1.5	Ditch	90%	Bramble, grass	Pasture	None	Bramble, grasses, nettle, hemlock <i>Tsuga canadensis</i>	No	Yes	None	Earth
W103	Static	2.5	0.3	None	Steep > 45°	1	Ditch	5%	Common reed	Grazing marsh	Major - dredged, flailed, polluted, lots of litter, road	Common reed, grass	Yes	Yes	None	Earth
W104	Static	4	3	Unknown	Vertical/ Under-cut	5	Canal	0%	None	Track	Major - heavily maintained	N/a	Yes	No	None	Concrete
W105	No access															
W106	No access															



Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W107	Static	4	0.5	Unknown	Steep > 45°	1	Ditch	60%	Water crow-foot	Grazing marsh	Moderate - poaching, litter, adjacent to road	Grass	Yes	Yes	Mink footprints	Earth
W108	Static	3	0.4	None	Shallow < 45°	0.5	Ditch	0%	None	Grazing marsh	Moderate - poaching, litter	Grass	Yes	Yes	None	Earth, gravel
W109	Static	35	1	Unknown	Steep > 45°	1	Lake	0%	None	Grazing marsh, public recreation	Moderate - poaching, litter, recreation	Grass	Yes	No	None	Wood
W110	Sluggish	1.5	0.3	Unknown	Steep > 45°	0.5	Ditch	10%	Water crow-foot	Grazing marsh	Moderate - poaching, litter	Grass, hawthorn	Yes	No	None	Wood
W111	Static	1.5	0.3	None	Steep > 45°	1	Ditch	95%	Grass, common reed	Pasture	Major - pollution runoff	Grass, common reed, bramble, hawthorn, rose	No	No	None	Earth, stone
W112	Sluggish	4	1.2	Unknown	Shallow < 45°	1	Ditch	90%	Duckweed, common reed	Arable, pasture, road	Moderate - adjacent to road, some litter	Common reed, grass	Yes	Yes	None	Earth
W113	Static	1	0	Unknown	Steep > 45°	1.5	Ditch	80%	Nettle, grasses, common reed	Road, pasture	Moderate - lots of rubbish, adjacent to road	Common reed, grasses, nettles, bindweed, hawthorn	No	No	None	Earth
W114	Static	3	0.7	Unknown	Steep > 45°	2.5	Ditch	75%	Common reed, <i>Chara</i> sp., fennel pondweed <i>Stuckenia pectinata</i> , common reed	Road, arable	Moderate - some dredging, vegetation management	Common reed	Yes	Yes	None	Earth
W115	Static	2.5	0.3	None	Steep > 45°	2	Ditch	90%	Common reed, bulrush	Arable	Minimal - some dredging	Common reed, grass, nettle, thistle	No	Yes	None	Earth
W116	Static	2	0	Unknown	Steep > 45°	3	Ditch	80%	Common reed	Arable	None	Common reed, dock, bindweed	No	Yes	None	Earth
W117	Static	2	0	None	Steep > 45°	2	Ditch	50%	Common reed	Pasture	Moderate - some dredging, poaching	Common reed, grass	No	Yes	None	Earth
W118	Static	1.5	0.3	None	Steep > 45°	2.5	Ditch	80%	Common reed	Arable, track	None	Reed, nettle, hawthorn	Yes	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W119	Static	1.5	0.15	Rain dependent, unknown.	Steep > 45°	2	Ditch	5%	Woody nightshade <i>Solanum dulcamara</i>	Rough grassland, arable	None	Nettle, white poplar <i>Populus alba</i> , hawthorn	Yes	Yes	None	Earth
W120	Static	3	1	Unknown	Steep > 45°	2	Ditch	50%	Common reed	Pasture	None	Bramble, hogweed, grass, common reed	Yes	Yes	None	Earth
W121	Static	1	0.3	Unknown	Steep > 45°	1.5	Ditch	90%	Common reed	Arable	None	Grasses	No	Yes	None	Earth
W122	Slow	1	0.5	Unknown	Steep > 45°	2	Ditch	3%	Common reed	Arable	Moderate - recently dredged	Grasses	No	Yes	None	Clay
W123	Static	2	0.5	Infrequent, with some dry areas	Shallow < 45°	1.5	Ditch	10%	Common reed	Arable, public recreation	None	Hawthorn, bramble	No	Yes	None	Earth
W124	Slow	4	1	Unknown	Steep > 45°	0.5	Ditch	40%	None	Public recreation	Major - heavily managed, lots of recreation	Grass, sedge sp.	Yes	Yes	None	Earth
W125	Slow	4	1	Unknown	Steep > 45°	0.5	Ditch	5%	None	Public recreation	Heavily managed, lots of human activity	Grass	Yes	Yes	None	Earth
W126	Sluggish	50	1	Unknown	Steep > 45°	0.5	Reservoir	5%	None	Public recreation	Major - heavily managed, lots of recreation	Grass	Yes	Yes	None	Earth
W127	Sluggish	50	2	Unknown	Steep > 45°	0.5	Reservoir	5%	None	Public recreation	Major - heavily managed, lots of recreation	Grass	Yes	Yes	None	Earth, wood, concrete
W128	No access															
W129	No access															
W130	No access															

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W131	Static	2	0.3	Unknown	Steep > 45°	4	Ditch	100%	Nettle, bindweed	Arable	None	Hawthorn, nettle, bindweed, cow parsley, elder	No	No	None	Earth
W132	Static	1.5	0	Unknown	Steep > 45°	1.5	Ditch	100%	Nettle, grass	Arable	Minimal - some vegetation trimming	Nettle, grass, bramble	No	No	None	Earth
W133	Static	2	0	Unknown	Steep > 45°	3	Ditch	5%	Grass	Arable	None	Hawthorn, blackthorn, grass	Yes	Yes	None	Earth
W134	Static	15	1	None	Vertical/ Under-cut	0.5	Lake	5%	Rushes, sedges	Fishing lake	Moderate - lots of fishing	Grass, oak, hawthorn	Yes	Yes	None	Earth
W135	Static	15	1	None	Vertical/ Under-cut	0.5	Lake	5%	Rushes, sedges	Fishing lake	Moderate - fishing lake	Hawthorn, hazel, grass	Yes	Yes	None	Earth
W136	Slow	1	0.4	Unknown	Steep > 45°	2	Stream	5%	None	Arable, woodland, compound	None	Nettles, ivy <i>Hedera</i> sp., bramble, oak, ash, elder, hawthorn	No	Yes	None	Earth, some shingle, concrete section
W137	Slow	0.75	0.15	Unknown	Steep > 45°	2	Stream	0%	Sedge sp.	Arable, woodland	Minimal - some recreation	Nettle, cow parsley, garlic mustard, ivy, oak, ash, bramble, hawthorn	Yes	Yes	None	Earth, shingle base
W138	Sluggish	0.5	0.2	Some areas holding less than 1cm of water	Vertical/ Undercut	3	Stream	0%	None	Woodland, arable, motorway	Moderate - large amounts of litter	Bramble, tree saplings, beech <i>Fagus</i> sp., hawthorn, oak	No	Yes	None	Earth, shingle base
W139	Sluggish	0.3	0.01	Some sections dry	Steep > 45°	1.5	Ditch	0%	Grass, hawthorn	Arable	Minimal - some mowing	Bramble, nettle, willow sp., rose, hawthorn, ash, oak, cow parsley	No	No	None	Earth
W140	Slow	0.2	0.01	None	Steep > 45°	1.75	Ditch	0%	Grass, willowherb	Arable	Minimal - some mowing	Nettle, cow parsley, bramble, great hairy willowherb <i>Epilobium hirsutum</i> , red campion <i>Silene dioica</i> , ash	No	No	None	Earth
W141	Static	4	1.5	None	Steep > 45°	3	Ditch	10%	Common reed	Power station	None	Common reed, bramble	Yes	Yes	None	Earth
W142	Static	1.5	0	None	Steep > 45°	1.5	Ditch	95%	Common reed	Pasture	Moderate - road, lots of litter	Common reed	No	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W143	Static	20	1.5	Unknown	Shallow < 45°	1	Lake	20%	Bulrush, common reed	Scrub, quarry	None	Bramble, creeping thistle, aspen <i>Populus tremuloides</i> , dogwood <i>Cornus</i> sp., grey willow <i>Salix cinerea</i>	Yes	Yes	None	Earth
W144	Static	2	0	None	Steep > 45°	2	Ditch	50%	Common reed, grass, thistle	Arable	Minimal - some litter	Thistle, common reed, grass, hawthorn, blackthorn	No	Yes	Fox	Earth
W145	Static	4	1.5	Unknown	Steep > 45°	2	Ditch	20%	Common reed, Sedge	Track	Moderate - heavy vehicles	Common reed, grass, sedge sp.	Yes	Yes	Fox footprints	Earth
W146	Static	1	0	Unknown	Steep > 45°	1.5	Ditch	95%	Common reed	Arable	None	Grass sp., nettle	No	Yes	None	Earth
W147	Static	1	0.5	Unknown	Steep > 45°	2	Ditch	100%	Common reed	Arable	None	Grass sp., thistle sp., hawthorn	No	Yes	None	Earth
W148	Static	2	0	None	Steep > 45°	1.5	Ditch	100%	Common reed, bramble	Arable	Minimal - railway	Hawthorn, bramble, nettle	No	Yes	None	Earth, stone
W149	Sluggish	0.5	0	Unknown	Steep > 45°	1.5	Ditch	70%	Nettle, ash	Arable	None	Nettles, ash, hawthorn, spear thistle <i>Cirsium vulgare</i> , dock	No	No	None	Earth
W150	Static	2.5	0	Unknown	Shallow < 45°	2	Ditch	0%	Nettle, common reed	Arable	Minimal - some vegetation trimming	Nettles, common reed, hawthorn, bramble	No	No	None	Earth
W151	Static	3	0.1	Unknown	Steep > 45°	2	Ditch	0%	None	Arable	Moderate - recently dredged	Common reed, nettles	No	No	None	Earth
W152	Sluggish	0.5	0.1	Water levels likely to fluctuate with seasonal rainfall	Steep > 45°	1.6	Ditch	90%	Grass	Arable	None	Nettles, grasses, umbellifers, bramble	No	Yes	Fox cub seen	Earth
W153	Sluggish	0.5	0.05	50% dry	Steep > 45°	1.2	Ditch	80%	Common reed, nettles, umbellifers, grasses	Arable	None	Grasses, nettles, occasional bramble, willow	No	Yes	None	Earth
W154	Static	2	0	Unknown	Steep > 45°	1.5	Ditch	100%	Grass	Arable	None	Grass, dock	No	No	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W155	Static	2	0	Unknown	Steep > 45°	1.5	Ditch	100%	Grass, nettle, bulrush	Arable	None	Reedmace <i>Typha</i> sp., willowherb, grass sp.	No	No	None	Earth
W156	Static	1	0	Unknown	Steep > 45°	1.5	Ditch	100%	Nettle, grass	Arable	None	Nettles, field maple <i>Acer campestre</i> , willow	No	No	Fox	Earth
W157	Slow	1	0.1	Unknown	Steep > 45°	1.5	Ditch	99%	Fool's watercress, willowherb	Arable	Minimal - occasional trimming	Common nettle, willowherb, bramble, cow parsley	No	Yes	None	Earth
W158	Static	1.5	0.05	Unknown	Steep > 45°	1	Ditch	100%	Bulrush, grass	Arable	None	Oak, hawthorn, common reed, blackthorn, bramble	No	No	None	Earth
W159	Static	2	0	Unknown	Steep > 45°	1.5	Ditch	100%	Bulrush, willowherb, grass	Arable	None	Hawthorn, common reed, reedmace, bramble, willowherb, oak, blackthorn	No	No	None	Earth
W160	Static	2	0	Unknown	Steep > 45°	2	Ditch	10%	Nettle	Arable	None	Nettle, hawthorn	No	No	None	Earth
W161	Static	1.5	0.05	Unknown	Steep > 45°	1.5	Ditch	100%	Grass, common reed	Arable	None	Grass sp., nettle, common reed	No	Yes	None	Earth
W162	Static	1.6	0	Unknown	Steep > 45°	1.6	Ditch	40%	Grass, nettle	Arable	Moderate - vegetation clearance	Grass, nettle, elm	No	No	None	Earth
W163	Static	1.6	0	Unknown	Steep > 45°	1.6	Ditch	40%	Grass, nettle	Arable	Moderate - vegetation clearance	Grass, nettle, elm, hawthorn	No	No	None	Earth
W164	Static	2	0.3	Unknown	Steep > 45°	1.5	Ditch	90%	Great willowherb	Arable	None	Nettles, cow parsley, coarse grasses, cleavers <i>Galium aparine</i>	No	Yes	None	Earth
W165	Fast	2.5	0.1	Unknown	Steep > 45°	1	Stream	60%	None	Landfill, arable	Moderate - landfill site	Hawthorn, nettles, willowherb, bramble, elder	No	Yes	None	Earth
W166	Static	25	2	Unknown	Shallow < 45°	0.5	Pond	100%	Duckweed	Woodland, public recreation	Minimal - some recreation	Willow, hawthorn, nettle, bramble, willowherb	Yes	Yes	None	Earth
W167	Static	50	3	Unknown	Steep > 45°	2	Lake	100%	Common reed, duckweed, water lily	Arable	Minimal - some recreation	Willow, hawthorn, common reed, bramble, oak	Yes	Yes	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W168	Static	2	0	Unknown	Steep > 45°	2	Ditch	100%	Willowherb, bramble, nettle	Arable	Minimal - some pipe maintenance	Nettle, bramble, willowherb, thistle sp.	No	No	None	Concrete along M25, earth
W169	No access															
W170	Static	1	0	Unknown	Steep > 45°	1.5	Ditch	10%	Common reed	Arable	Moderate - some mowing	Hawthorn, elder, grass, nettle, willowherb	No	No	None	Earth
W171	Static	20	3	None likely, fishing lake	Vertical/ Under-cut	0.75	Pond	1%	Redshank <i>Persicaria maculosa</i>	Fishing lake, arable	Moderate - fishing lake	Bramble, willow, oak, grass	Yes	Yes	Mink anecdotal report	Earth with fishing platforms
W172	Static	30	1	None	Steep > 45°	0.75	Lake	3%	Water lily, pondweed	Gardens, pasture	Moderate - recreation	Willow, poplar, oak	Yes	Yes	None	Earth
W173	Static	20	2	Unlikely	Vertical/ Under-cut	0.5	Pond	25%	Water lily, gypsywort <i>Lycopus europaeus</i>	Gardens, arable	Moderate - adjacent to road, recreation	Bramble, common nettle	Yes	Yes	None	Earth
W174	Static	0.5	0.15	Likely to be frequently dry	Shallow < 45°	1	Ditch	5%	Nettle	Gardens, road	Moderate - vegetation clearance	Conifers <i>Pinophyta</i> sp., bramble, hawthorn, ivy	No	No	None	Earth
W175	Static	1	0.1	Unknown	Steep > 45°	2	Ditch	30%	Nettle	Arable, gardens	Major - mown and reprofiled	Nettle	Yes	Yes	Mink scat	Earth
W176	Static	2	0	Unknown	Shallow < 45°	1	Ditch	20%	Nettle	Arable	Moderate - some reprofiling	Oak, bramble, nettle, grass	No	No	None	Earth
W177	Static	30	0.25	Unknown	Vertical/ Under-cut	0.4	Pond	0%	None	Golf course	Major - regularly mowed	Grass, wooden supports	Yes	No	None	Earth, wooden sleepers
W178	Static	30	0.3	Unknown	Vertical/ Under-cut	0.4	Pond	15%	Common reed	Golf course	Major - regularly mowed	Grass, wooden supports	Yes	No	None	Earth, wooden sleepers
W179	Static	25	0.25	Unknown	Vertical/ Under-cut	0.4	Pond	10%	Common reed	Golf course	Major - regularly mowed	Grass, wooden supports	Yes	No	None	Earth
W180	Static	20	0.3	Unknown	Vertical/ Under-cut	0.4	Pond	0%	None	Golf course	Major - regularly mowed	Grass, wooden supports	Yes	No	None	Earth
W181	Static	8	0.25	Unknown	Flat < 10°	0.5	Pond	60%	Pondweed	Golf course	Major - regularly mowed	Grass, wooden supports	No	No	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W182	Static	30	0.25	Unknown	Vertical/Under-cut	0.4	Pond	15%	Curled pondweed <i>Potamogeton crispus</i> , bulrush	Golf course	Major - regularly mowed	Grass, willow	Yes	No	None	Earth, wooden sleepers, stone
W183	No access															
W184	No access															
W185	No access															
W186	Static	20	1	None	Vertical/Under-cut	0.5	Lake	5%	Rushes, sedges	Fishing lake	Moderate - fishing lake	Common reed, willow, grass, sedges	Yes	Yes	None	Earth
W187	Static	25	0.02	None	Shallow < 45°	0.5	Pond	95%	Common reed, bulrush	Pasture, rough grassland	Moderate - poaching	Grass sp., thistle sp., rush	Yes	Yes	None	Earth
W188	Sluggish	6	1.5	None	Shallow < 45°	1.5	Pond	1%	Flag iris	Gardens	Moderate - regularly managed	Grass, acer, horse chestnut	Yes	Yes	None	Earth
W189	Static	3	1	None	Shallow < 45°	1.5	Pond	1%	Flag iris	Gardens	Moderate - regularly managed	Grass, acer, horse chestnut <i>Aesculus hippocastanum</i>	Yes	Yes	None	Earth
W190	Static	3	0.5	Unknown	Shallow < 45°	1.5	Pond	1%	Flag iris	Gardens	Moderate - regularly managed	Grass, acer, horse chestnut	Yes	Yes	None	Earth
W191	Static	20	0.4	None	Shallow < 45°	1.5	Pond	100%	Common reed, sedge	Arable	Moderate - adjacent to motorway	Cow parsley, hogweed, thistle, goats rue, willowherb, speedwell <i>Veronica</i> sp.	No	No	None	Earth
W192	Static	20	2	Unknown	Shallow < 45°	0.75	Pond	0%	None	Woodland, compound	Moderate - heavy vehicle disturbance	Grass sp.	No	No	None	Earth, but plastic lined
W193	Static	25	0	None	Steep > 45°	2	Pond	100%	Bulrush, common reed, willow	Arable	Moderate - adjacent to motorway	Horsetail, teasel, dock, grasses	No	No	None	Earth
W194	Static	40	0.25	Unknown	Vertical/Under-cut	0.4	Pond	0%	None	Golf course	Major - regularly mowed	Grass	Yes	No	None	Earth

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W195	Sluggish	1	0.15	Water level appears to have been approx. 20cm higher recently	Steep > 45°	1.2	Ditch	20%	Water plantain, fool's watercress, common reed	Golf course	Major - regularly mowed	Grass	No	Yes	None	Earth
W196	Static	2	0	Unknown	Steep > 45°	1.5	Ditch	100%	Common reed, bramble, nettle	Arable	None	Hawthorn, elm, willowherb, nettle, bramble	No	No	None	Earth
W197	Sluggish	1.2	0.3	Increased with rainfall	Steep > 45°	2	Ditch	50%	Fool's watercress, floating sweet grass <i>Glyceria fluitans</i> , common reed, great willow herb <i>Epilobium hirsutum</i> , field pennycress <i>Thlaspi arvense</i>	Arable	Moderate - vegetation clearance	Common nettle, great willow herb, hawthorn, elm, blackthorn	Yes	Yes	None	Earth, clay loam
W198	Static	2	0	Unknown	Steep > 45°	1.6	Ditch	100%	Grass, common reed	Arable	Minimal - farm track, recreation	Grass, burdock	No	No	None	Earth
W199	Sluggish	2	0.1	Only likely in periods of prolonged heavy rain	Shallow < 45°	1.5	Stream	1%	Watercress, bulrush	Arable, landfill	None	Bramble, nettle, ivy, hawthorn	No	Yes	None	Clay loam
W200	Static	1	0	No significant change in level. May increase in periods of heavy rain	Steep > 45°	0.75	Ditch	60%	Bramble, bulrush, hawthorn	Arable, landfill	None	Bramble, hawthorn	No	No	None	Clay loam
W201	Sluggish	0.5	0.05	Unknown	Steep > 45°	2	Ditch	100%	Nettle, grass	Arable	None	Bramble, willowherb, hawthorn, oak	No	Yes	None	Earth
W202	Sluggish	1	0.1	Infrequent	Steep > 45°	2	Ditch	20%	Nettle, bramble, common reed	Arable	None	Hawthorn, nettle, bramble	No	Yes	None	Earth
W206	Static	2	0.5	Likely to fluctuate regularly	Steep > 45°	3	Ditch	70%	Common reed	Rough grassland	Moderate - some reprofiling	Common nettle, false oat grass	Yes	Yes	None	Earth



Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W208	Slow	0.8	0.2	Water level appears to have been around 30cm higher recently	Shallow < 45°	1	Stream	10%	Bulrush, pondweed, water starwort	Golf course, community woodland	Major - regularly mowed	Nettles, brambles. abundant grass sp. cow parsley, mostly hawthorn, blackthorn, elder	Yes	Yes	None	Earth
W209	Slow	1.5	0.75	Unknown	Shallow < 45°	1	Pond	10%	Duckweed, water lily	Woodland, rough grassland	Minimal - some recreation	Willow sp., hawthorn, alder	Yes	Yes	None	Earth
W210	Static	20	0	Low frequency and not significant in height	Shallow < 45°	1.75	Pond	100%	Common reed, bulrush	Arable, landfill	None	Bramble, field maple, oak, hawthorn	No	Yes	None	Clay loam
W211	Sluggish	1	0.4	Unknown	Steep > 45°	1	Ditch	90%	Grass	Public recreation	Major - heavily managed, lots of recreation	Grass, thistle sp.	No	Yes	None	Earth
W212	Static	0.7	0.05	Unknown	Steep > 45°	1	Ditch	60%	Bulrush, grass	Fishing lake	Moderate - fishing lake	Grass, bramble, hawthorn	No	Yes	None	Earth
W213	No access															
W215	Static	2	0.1	None	Steep > 45°	1.5	Ditch	20%	Grass	Arable	Moderate - vegetation clearance	Grass, nettle, bramble, oak	No	No	None	Earth
W217	No access															
W219	Static	5	0		Shallow < 45°	1	Ditch	100%	Common reed	Public recreation	None	Bramble, hawthorn	No	Yes	None	Earth
W220	Static	12	0.1		Steep > 45°	2	Pond	90%	Bulrush, sedge sp.	Farmyard	None	Bramble	No	No	None	Earth
W222	No access															
W223	No access															
W224	Static	50	2	None	Shallow < 45°	2	Pond	0%	None	Golf course	Moderate - recreation	Common reed	Yes	Yes	None	Clay
W225	Static	1.5	0.2	None	Steep > 45°	1.5	Ditch	95%	Nettle, thistles	Arable	None	Thistle sp., grass, nettle	No	No	None	Clay

Water body number	Current	Width (m)	Depth (m)	Level changes	Bank profile	Bank height (m)	Riparian habitat	Percentage of in channel vegetation	In channel vegetation	Land use	Management and disturbance	Bankside vegetation	Suitable for otters	Suitable for water voles	Signs and species of key predator	Bank substrate
W226	Fast	3	0.5	None	Steep > 45°	4	Stream	80%	Sedge sp.	Arable	None	Cow parsley, hogweed <i>Heracleum</i> sp., nettle	Yes	Yes	None	Clay
W227	Static	30	0.5	Rare	Shallow < 45°	0.5	Lake	5%	<i>Typha</i> sp., common reed	Moat	None	Greater willowherb, bramble, bittersweet <i>Celastrus orbiculatus</i> , nettle, creeping thistle	Yes	Yes	Cats	Earth
W228	Static	1	0.2	None	Steep > 45°	3	Ditch	100%	Nettle, greater willowherb, grass sp.	Arable, pasture, track	None	Creeping cinquefoil <i>Potentilla reptans</i> , brome sp., ribwort plantain <i>Plantago lanceolata</i> , nettle, bristly ox tongue, greater willowherb	No	Yes	None	Stone, earth
W229	Static	2	0	None	Steep > 45°	2	Ditch	0%	None	Woodland, pasture	None	Oak, beech, ash	No	No	None	Earth
W230	No access															
W231	No access															
W232	No access															
W233	No access															
W234	No access															
W235	No access															
W236	No access															
W240	Static	5	2	Unknown	Shallow < 45°	1.5	Dyke	60%	Common reed, bulrush, duckweed	Arable	Minimal - some recreation	Reed, teasel, nettle, hawthorn	Yes	Yes	None	Earth
W241	Static	7	1	With rainfall	Steep > 45°	5	Lake	15%	Bulrush, willows, gipsywort	Arable	None	Bramble, willow, ash, nettle, gipsywort	Yes	Yes	None	Earth, sand, gravel
W242	Not surveyed															
W243	Not surveyed															

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