River Thames Scheme

Protecting our communities
Securing our economy
Enhancing our Thames

# Preliminary Environmental Information Report

# Volume 4
# Appendix 7.2

Preliminary Ecological Appraisal 2023

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# Executive Summary

Galliford Binnies Joint Venture (GBJV) Ltd was commissioned by the Environment Agency (EA) to undertake a Preliminary Ecological Appraisal (PEA) for the proposed River Thames Scheme, here forth referred to as 'RTS' or the 'project'. This PEA report sits within an overarching Environmental Impact Assessment (EIA) for the RTS which has recently been through a scoping stage. The PEA report includes data searches, United Kingdom Habitat Classification (UKHab) surveys and species assessments, to inform RTS of the ecological baseline and constraints associated with current designs.

This PEA considered all areas within the overall 'project boundary for EIA scoping' – including for example where the RTS would need to take land and/or have access for the creation of the flood channel and associated works, bed lowering downstream of Desborough Cut, capacity improvements at River Thames weirs and works in eleven potential Habitat Creation Areas (HCAs). For the purposes of the PEA, areas within the project boundary for EIA scoping which are not covered by the flood channel (the Runnymede and Spelthorne Channels) and HCAs are referred to as the 'remaining project boundary for EIA scoping'. The PEA also surveyed three areas outside the project boundary for EIA scoping. The full area surveyed for the PEA is known as the 'Overall Survey Area'.

A review of existing ecological and environmental baseline information available in the public domain was undertaken. Data was filtered to look at information in the last ten years only. However, given the limited survey information available for protected species in certain parts of the RTS, historical records were used to supplement the dataset to provide a more comprehensive baseline.

UKHab surveys were completed between mid-May to September 2022. The surveys found that the area within the project boundary for EIA scoping comprised a range of habitats, including; open mosaic (former landfill), a series of interconnected lakes (former gravel workings), wet woodland, lowland mixed deciduous woodland, neutral grassland, modified grassland, mixed scrub, running water (ditches, streams, rivers), hedgerows, lines of trees and individual trees. These habitats were noted to be suitable to support multiple protected and notable species including potentially bats, amphibians, birds, reptiles, otter, badgers, water vole, notable plants, and aquatic and terrestrial invertebrates plus invasive non-native species. There are several statutory designated nature conservation sites, primarily associated with the lakes, and a large number of non-statutory sites.

Preliminary mitigation and recommendations have been given and enhancement opportunities highlighted. The project aims to achieve high quality habitats and

Biodiversity Net Gain through improving current habitats and creating new habitat.

# 1. Introduction

## Background

Galliford Binnies JV Ltd (GBJV) was commissioned by the Environment Agency (EA) to produce a Preliminary Ecological Appraisal (PEA) report that includes data searches, United Kingdom Habitat Classification (UKHab) surveys and protected and/or notable species assessments. This PEA is to inform the River Thames Scheme, here forth referred to as 'RTS' or the 'project', of the ecological baseline and considerations associated with the current design.

The RTS will deliver flood relief through a new flood channel and associated capacity improvements, and significant blue-green infrastructure through active transport routes, areas of enhanced public connection, and new green open spaces. This PEA sits within an overarching Environmental Impact Assessment (EIA) for the RTS which has recently been through scoping stage.

This PEA considered records and survey data for all areas within the overall 'project boundary for EIA scoping' – including for example where the RTS would need to take land and/or have access for the creation of the flood channel and associated works, bed lowering downstream of Desborough Cut, capacity improvements at River Thames weirs and works in eleven potential Habitat Creation Areas (HCAs) as detailed below:

- Land South of Wraysbury Reservoir HCA
- Laleham Reach HCA
- Sheepwalk Lakes HCA
- Land South of Chertsey Road HCA
- Desborough Island HCA
- Land between Desborough Cut and Engine River HCA
- Former Laleham Golf Course HCA
- Drinkwater Pit HCA
- Grove Farm HCA
- Littleton North HCA
- Norlands Lane HCA

A key aspect of the project will involve the creation of a flood channel in two sections, the Runnymede Channel and Spelthorne Channel. The Runnymede Channel will be approximately 4.8 km in length, and the Spelthorne Channel will be approximately 3.2

km in length. The channel sections will pass through a number of existing lakes, linking together with the River Thames at both upstream and downstream ends of each channel section.

The locations of the proposed Runnymede and Spelthorne channel sections and the HCAs sit within the project boundary for EIA scoping. For the purposes of the PEA, areas within the project boundary for EIA scoping which are not within the footprint of the flood channel (the Runnymede and Spelthorne Channels) and HCAs are referred to as the 'remaining project boundary for EIA scoping' (see Chapter 7: River Thames Scheme Plan). The PEA also surveyed three areas outside the project boundary for EIA scoping:

- Sweeps Ditch
- The rest of the embankment around Wraysbury Reservoir
- An area to the east of Laleham Reach HCA.

The full area surveyed for the PEA is known as the 'Overall Survey Area'.

## Site Location and Context

RTS is located within a suburban environment, starting at central National Ordnance Grid Reference (NGR) TQ 04434 69421 and ending at TQ 09231 66483.

Areas within the Project Boundary for EIA Scoping and the three additional survey areas have been broken down into 'named' areas (see Chapter 7: RTS PEA Survey Areas Plan). Note that when the PEA discusses the results from Wraysbury Reservoir and Laleham Reach HCAs, this has included the findings from the adjacent additional surveys areas outside the project boundary. Sweep's Ditch is discussed as a separate named area.

## Project Description

The RTS will deliver flood relief, significant blue-green infrastructure and enhance public connections through multiple measures. In particular, the RTS will include large scale engineering works to construct a new flood channel between 20 and 50 m wide and approximately 8 km long. This includes existing lakes proposed to be retained, built in two sections between Egham Hythe and Desborough Island, as well as several capacity improvements consisting of bed lowering of the River Thames downstream of the Desborough Cut, and increasing the capacity of existing weirs at Sunbury, Molesey and Teddington. RTS also includes associated features such as flow and water level control structures, flood embankments, site compounds, materials reprocessing sites, new green open spaces and Habitat Creation Areas (HCAs).

Where possible effects on existing priority habitats are identified, RTS will identify and implement measures to mitigate for these.

The Runnymede Channel will start at Egham Hythe and end at Chertsey. The intake to the channel will be on the right bank of the River Thames. It will pass through agricultural fields before heading south across Green Lane and joining the existing course of the Mead Lake Ditch. Passing through five existing lakes, including the Thorpe Park Lakes and adjacent land lakes, it will pass under Chertsey Lane (A320) towards Abbey Meads and return to the River Thames through the existing Burway Ditch M3 flood culverts, just south of the M3 motorway and downstream of Chertsey Weir. The Spelthorne Channel flood channel will leave the left bank of the River Thames at Laleham, approximately 0.4 km upstream of the outlet of the Runnymede Channel, and north of the M3 motorway. The flood channel will follow an easterly route through three existing lakes and pass under two local roads before turning south underneath the M3 motorway. The flood channel route continues through areas of grassland and scrub at Sheepwalk Lakes and Manor Farm and will pass under a further three local roads and through a lake before re-joining the River Thames opposite D'Oyly Carte Island, upstream of Desborough Island, and downstream of Shepperton Weir.

The two flood channel sections, including existing lakes proposed to be retained, total approximately 8 km in length. The channel sections will be 20 m to 50 m wide, between 3.5 m to 4.5 m deep within areas of natural ground (between 4 m to 7 m deep in areas of landfill) and will convey in-bank flows of up to approximately 150 m3/s during flood events. The depth of the water in the channel will be between 2 m and 3.5 m under non-flood (normal) conditions and will raise up to 4.5 m when carrying 150 m3/s. Each flood channel section comprises new sections of engineered channel connecting existing lakes and gravel pits, passing through the following types of land use:

- Greenfield areas (including recreation grounds and pastures) or agricultural land;
- Existing lakes and gravel pits;
- Residential areas and private gardens;
- Landfill sites; and
- Existing river corridor.

Bed lowering, by dredging, of a stretch approximately 1 km in length downstream of Desborough Cut will be undertaken to improve channel capacity in this area. It is

anticipated that only the central third of the channel (approximately 20-30 m width) will be dredged.

There are three weirs where capacity improvement works are required as part of the RTS, all of which are located downstream of the flood relief channel. The capacity improvements at Teddington Weir will be achieved by constructing a new weir complex with five dipping radial gates through Teddington Lock Island. A channel approximately 20 m wide, 20 m long and 5 m deep will be cut through the island, approximately 10 m upstream of the existing boat rollers and 70 m downstream of the footbridge. The capacity improvements at Molesey Weir will be achieved by replacing the existing overfall weir, which will include a salmonid fish pass with two dipping radial weir gates and a multi species fish pass (with a combined width of approximately 13 m). The capacity improvements at Sunbury Weir will be achieved by constructing a new weir complex with three dipping radial weir gates through Sunbury Lock. A channel approximately 12 m wide, 75 m long and 5 m deep will be cut through the island, at a diagonal angle, leaving the existing lock cut upstream of the footbridge and entering the River Thames downstream.

## Scope of the Report

The brief provided to GBV for this PEA, is as follows:

- To provide ecological baseline information for the project boundary for EIA scoping with reference to whether protected designated sites, protected/notable species/habitats are present or likely to be present.
- To provide recommendations to enable compliance with relevant nature conservation legislation and planning policy; and,
- To identify the need for further surveys, avoidance, mitigation, compensation and/or enhancement measures for the RTS.

## Planning Policy and Legislation

The report has been compiled with reference to relevant nature conservation legislation, planning policy and the UK Biodiversity framework from which the protection of sites, habitats and species is derived in England. The context and how these have been applied is detailed in relevant chapters of this report with additional information in Appendix A. The following legislation and policy are highlighted:

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (commonly referred to as the Habitats Regulations);
- Natural Environment and Rural Communities Act (NERC) 2006;

- Wildlife and Countryside Act 1981 (as amended);
- Protection of Badgers Act 1992;
- Environment Act 2021;
- Wild Mammals (Protection) Act 1996; and
- Invasive Alien Species (Enforcement and Permitting) Order 2019.

Section 15 of The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2019) states that planning policies and decisions should contribute to and enhance the natural and local environment, including by minimising impacts on and providing net gains for biodiversity.

The local development plans and policies relevant to the RTS are listed within the EIA Scoping Report - Appendix M (GBV, 2022e).

# 2. Methodology

This report is produced with reference to current good practice guidelines by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017a, b) and Joint Nature Conservation Committee (JNCC, 2010) and guidelines contained in the British Standards – Code of Practice for Biodiversity and Development BS42020:2013.

## Desk Study

A desk study was undertaken in July 2022 by a suitably qualified ecologist with two years' experience and has undertaken several desk studies.

A review of existing ecological and environmental baseline information available in the public domain was undertaken and local records were requested from Greenspace Information for Greater London (GIGL), Thames Valley Ecological Records Centre (TVERC), Surrey Bat Group (SBG), Surrey Biological Information Centre (SBIC), and West Surrey Badger Group, to obtain information held by the relevant third parties. Additionally, an existing ecological report produced by eCountability 2020 was consulted as part of this report (eCountability, 2020).

As part of the desk study, the following survey reports were consulted (hence forth referred to as 'previous surveys'):

- Reptiles – GBV 2021a; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-00232
- Breeding Birds – APEM 2022; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10183
- Badgers – GBV 2023b; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10166
- Bats – GBV 2021b; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-00229
- Otter: GBV 2022a; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10033
  GBV 2022b; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10074
  GBV 2022d; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10181
  GBV 2023a; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10251
- Hazel dormice – GBV 2022c; ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-00227
- Further records of Invasive Non-Native Species are taken from Terrestrial and Aquatic INNS report (GBV 2023c); ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10130

A summary of all existing surveys is provided in Appendix F of the EIA Scoping Report (GBV, 2022e).

For the purpose of this exercise, data was collected using a variety of radii to ensure the ecological baseline was proportionally covered. This approach is in line with good practice guidelines published by CIEEM, 2017a, b and 2020. Radii included:

- Records of legally protected and notable species within 2 km of the project boundary for EIA scoping; and,
- Freely downloadable datasets (available from Multi-Agency Geographic Information for the Countryside (MAGIC)) were consulted for information regarding the presence of statutory designated habitats within 2 km of the project boundary for EIA scoping. This search was extended to 10 km for the network of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) (including possible/candidate) and Ramsar sites designated for bats and for sites with a hydrological connection. The search was further extended to 20 km to capture otter foraging grounds and to 30 km to capture sites where bats are the qualifying interest.

Freely downloadable datasets (available from MAGIC) were consulted for information regarding Habitats of Principal Importance (HPI), European Protected Species (EPS) mitigation licences and EPS class licences returns as well as Water Framework Directive (WFD) waterbodies within 1 km of the project boundary for EIA scoping and for woodland listed on the ancient woodland inventory.

In addition, open source 1:25,000 Ordnance Survey mapping was used to identify any mapped waterbodies and watercourses within 0.5 km of the project boundary for EIA scoping.

### Habitat Survey

A UKHab survey was undertaken between mid-May and September 2022. Weather conditions varied across the surveying period, but weather was generally warm, above 14 ºC, with a light breeze. Surveys were completed by several Binnies Ecologists, who are listed below. Lead ecologists noted below are experienced and have completed numerous UKHab surveys.

Ecologists who undertook the 2022 UKHab surveys on RTS are:

1. Jack Childs (lead) - Qualifying CIEEM
2. Alex Bell (lead) – Qualifying CIEEM
3. Casey Higgins-King (lead) - Qualifying CIEEM
4. Rowenna Baker (lead)
5. Kieran McElroy (assistant) - Qualifying CIEEM

6. Anna Palfrey (assistant)
7. Linda Kerrison (assistant)
8. Chantae Wells (assistant) – Qualifying CIEEM

Habitats were described and mapped following the standard UKHab survey methodology (UKHab, 2020). UKHab is the standard technique for classifying and mapping British habitats and allows biodiversity unit calculation for net gain assessment. Plant species were recorded, and habitat classified according to their vegetation type and community assemblage. Where appropriate, consideration was given to whether habitats qualify, or could qualify as a HPI, matched to descriptions as detailed in JNCC, 2010.

The scientific names for plant species follow those in the New Flora of the British Isles (Stace, 2019).

Habitats were marked on a tablet and were subsequently digitised using a Geographical Information System (GIS). A UKHab map for the project boundary EIA scoping was then prepared. Mapping protocols followed the UKHab User Manual, 2020.

Invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019, and other non-native species which were evident during the survey, were incidentally recorded. A full detailed invasive species survey of the Overall Survey Area is outside the remit of this commission.

### Protected and Notable Species Assessment

The potential for RTS to affect protected and/or notable species was assessed using a combination of desk study results and field observations during the survey. The assessment of suitability for species was based on professional experience and judgement. This was supplemented by good practice guidelines on habitat suitability for key fauna, including but not limited to; birds (Gilbert et al, 1998 and Bibby et al, 2000), great crested newt (Gilbert et al. (2012), Bibby et al. (2000), Bright et al. (2006), Gent and Gibson (2003), English Nature (2001), Dean et al. (2016), Roper (2010), SNH (2002), Collins (2016) and Mitchel-Jones (2004), Strachan et al (2011), Harris et al, (1989)).

A formal Preliminary Bat Roost Assessment (PRA) was not carried out as part of the UKHab Survey. However, Bat Roost Assessments have been previously completed

as part of the project and Ground Based Roost Assessment (GBRA) findings have been documented in the relevant bat reports:

- River Thames Scheme (RTS) Datchet to Teddington Weir Capacity Improvements and Flood Channel Bat Scoping Survey (BL Ecology, May 2017)
- River Thames Scheme (RTS) Datchet to Teddington Weir CI&FC Bat Activity Surveys (BL Ecology, November 2018)
- Abbey Meads Climb and Inspect Surveys (SLR, 2019)
- Bat Activity Surveys 2021 (BL Ecology, 2022)
- Scope of Bat Surveys 2022/2023 (Binnies 2022)

### River Condition Assessment

A River Condition Assessment (RCA) was led by Charlie Dwight, who is an accredited (Cartographer) RCA surveyor. The RCA was undertaken on linear watercourses as a verification exercise against RCA surveys completed on these in 2020 for the RTS, document reference IMSE500260-GBV-ZZ-3ZZ-RP-Z-00043 (GBV, 2020a). The field surveys were undertaken at the same time as the UKHab surveys. RCA surveys can be completed at any time of year but should be conducted at low flow and preferably during spring or early summer to capture information on both vegetation and physical properties of the river and its margins. If surveying is conducted between mid-summer and autumn, care is needed to accurately identify and quantify physical features that may be obscured by vegetation. Flow conditions should not be high, ensuring visibility of geomorphic features and consistent surveying of hydraulic conditions.

The RCA field surveys were carried out following the survey methodology defined by Gurnell et al (2021) and Biodiversity Metric 3.2 Technical Supplement (2022).

For the RCA, five MoRPh field surveys are conducted on contiguous lengths (modules) of a river known as a MoRPh 5. Each MoRPh module covers a river length that is determined by the MoRPh river width. The MoRPh river width is the width of the river from bank toe to bank toe, including in-channel features such as berms, benches, and many more geomorphic features. Table 2.1 below displays the varying MoRPh survey lengths based on MoRPh river width as defined by Gurnell et al (2021).

**Table 2.1 - Determining the length of MoRPh survey based on MoRPh river width**

| MoRPh River Width (m) | MoRPh module length (m) |
|---|---|
| **< 5** | 10 |
| **5 to < 10** | 20 |
| **10 to < 20** | 30 |
| **20 to < 30** | 40 |
| **≥ 30** | 50 |

The MoRPh river widths were determined based on channel observations at each upstream location where surveying started.

Completing five contiguous modules, a MoRPh 5, provides information for a sub-reach. Following the survey methodology, at least 20% of the total length of the river within the project boundary was subject to a series of MoRPh 5 surveys. Waterbody length was required, to determine the number of MoRPh 5 surveys needed to cover 20% of each individual project reach. MoRPh 5 pro survey locations were chosen on-site to be evenly spaced along the reach. Specific sites were not selected based on any proposed development, as proposed works were unknown at the time of the survey.

The RCA field survey captures information on sediments, vegetation, morphological and water-related features; and the extent and severity of physical modification within the channel, channel margins, banks and riparian zone (to 10 m from the bank top).

The MoRPh 5 survey results were entered into the Cartographer web application, automatically producing a preliminary condition score for each MoRPh 5 survey. The methodology for calculating the preliminary condition score can be reviewed within Gurnell et al (2021).

A desk-based assessment was completed following the site surveys to determine the MoRPh river type. Areal imagery and topographic elevation data were used to within a GIS to determine key parameters include braiding index; sinuosity index; level of river confinement; valley gradient and a branching index.

These parameters, alongside the observations on bed material identified within the MoRPh 5 surveys determined the river type.

The preliminary condition is scaled to fit a range that is achievable by the river type, known as a final condition score. The methodology for calculating the final condition score can be reviewed within Gurnell et al (2021).

### Limitations

Every effort has been made to provide a comprehensive and robust assessment of the habitats and key species within the Overall Survey Area. However, the following limitations remained during the assessment:

- Information obtained during a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a habitat or species does not necessarily mean that the habitats or species do not occur in the project boundary for EIA scoping.

- The protected species assessment provides a preliminary view of the likelihood of protected species occurring within the project boundary for EIA scoping and based on the suitability of individual habitat types. It should not be taken as providing a full and definitive survey of any protected species group.
- The habitats described in this report include brief species compositions of a select number of species, which were readily identifiable at the time of survey. However, these species lists are not exhaustive and may not include species which are prevalent throughout habitats or at times of the year.
- There is a large amount of existing survey data for the RTS. A review of existing survey reports was limited to those listed in Desk Study methodology. A full gap analysis of survey data is reported in WSP Binnies (2023).
- The area within the project boundary for EIA scoping has not been surveyed by the West Surrey Badger Group for several years, so the information provided by the group cannot be considered to be an up-to-date record. However, these badger records have been reported, as they still represent the most detailed badger dataset for the area for the desk study.
- GiGL records centre did not provide geographical information with the records and so these records were not included in the desk study.
- Access was not sought for several islands present within some of the lakes included in the project boundary for EIA scoping. Therefore, a detailed species composition of the habitats in these areas has not been compiled. However, in these areas, aerial imagery has been used to infer the habitats present on these islands, verified as far as is reasonably possible from the nearest shore via binoculars. The areas affected by this limitation are:
    - The three islands within the Lake South of Green Lane;
    - The island within St. Ann's Lake;
    - The two islands within Littleton East Lake;
    - The island within Sheepwalk Lakes; and
    - The island within Ferry Lane Lake (Ferris Meadow).
- Some sites across the project boundary for EIA scoping had dense vegetation, limiting clear access to certain habitats. As such, habitats were assessed as best as possible from elevated viewpoints or using binoculars. There was limited access in the following land parcels that prevented a full walkover; Littleton East Lake, Abbey River confluence with River Thames, Area east of Lake South of Green Lane, Sheepwalk Lakes HCA, Land between Desborough Cut and Engine River, Land South of Chertsey Road HCA, Littleton East Lake, Sheepwalk Lakes, Thorpe Park Lakes and adjacent land and Area west of Sheepwalk HCA.
- Limitations associated with the RCA included:

- Dense vegetation prevented a clear view of both watercourse embankments.
- Dense scrub vegetation prevented five contiguous surveys being conducted along Pool End Ditch and a gap of approximately 25 m occurred between MoRPh 5 survey modules numbers 4 and 5.
- River Thames was excluded from updated RCAs as its width was above the threshold for which RCA survey methodology is permitted to be used.
- There was no land access permitted to enable survey on two rivers: The Chap (formerly referred to Ferry Lane West) or Engine River (Land between Desborough Cut and Engine River HCA).

However, despite the above limitations, this PEA is still considered to deliver a good assessment of the Overall Survey Area. The limitations above are not deemed severe enough to significantly affect the outcomes described within this report.

# 3. Results

## Overview

This chapter details the findings from the UKHab and protected and/or notable species assessment for the Overall Survey Area and wider 2 km study area.

## Statutory Designated Sites

There are six statutory designated sites within the project boundary for EIA scoping and a further 13 statutory designated sites wholly or partially within the wider 2 km study area.

There is one statutory site within 30 km of the project boundary for EIA scoping where bats are qualifying feature: the Mole Gap to Reigate Escarpment SAC.

Appendix C – Table C.1, Table C.2 and Table C.3 shows all Statutory Designated Sites returned by the search.

## Non-Statutory Designated Sites

There are 18 non-statutory designated sites wholly or partially within the project boundary for EIA scoping and a further 78 non-statutory designated sites wholly or partially within the wider 2 km search area.

Appendix C – Table C.4 shows all Non-Statutory Designated Sites returned by the search.

## Other Habitats of Nature Conservation Importance

There are 36 Water Framework Directive (WFD) surface waterbodies (18 rivers and 18 lakes) within the Overall Survey Area and wider 2 km study area, including three WFD reaches of the River Thames. The Study Area for the water environment incorporates waterbodies that lie within the EIA scoping boundary, plus a 500 m buffer.

These waterbodies are all covered by the Thames River Basin Management Plan. 13 of these river waterbodies intersect or are in proximity to the channels, or are located close to the Sunbury, Molesey and Teddington weirs. Of these 13 river waterbodies, nine are currently at ‘Moderate’, three at ‘Poor’ status and one at ‘Bad’ status. Nine of the 18 lake WFD waterbodies lie within or in proximity of the channels, or abstract from

the River Thames. Of those nine, two are at ‘Good’ status, five at ‘Moderate’ status and two at ‘Poor’ overall status.

Waterbodies identified within the Study Area have been assessed as part of the WFD screening assessment, in an attempt to quantify potential impact to individual waterbodies. Following the second screening assessment, 22 waterbodies have been screened in (20 surface water / two ground water). See Chapter 7: WFD Waterbodies Plan which shows those waterbodies that have been screened in/out.

The Surface Water Bodies Plan (ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10041) which accompanies the EIA Scoping Report, shows those waterbodies that are discussed within the Survey Areas below.

There are eight HPIs previously recorded within the project boundary for EIA scoping; open mosaic on previously developed land, wet woodland, river, lowland mixed deciduous woodland, hedgerow, eutrophic standing water, pond and reedbed (eCountability, 2020).

### Habitats within the Overall Survey Area

A UKHab map for the Overall Survey Area is presented in Chapter 7: UKHab map, with UKHab features recorded in Appendix C and photographs in Appendix B.

The majority of the Overall Survey Area comprises scrub (mixed and bramble), broadleaved woodland (other, wet and lowland mixed deciduous), mixed woodland, grasslands (neutral and modified), lakes, rivers (including other rivers and streams), ponds, lowland meadows, sparsely vegetated land, open mosaic habitats on previously developed land, un-vegetated garden, arable fields, reedbeds, aquatic marginal vegetation and other swamps. Urban habitats include buildings, artificial unvegetated unsealed surfaces, developed land, sealed surface, vegetated garden and un-vegetated garden.

Linear habitats included native hedgerow (with lines of trees, species rich and associated with bank or ditch), ditches, line of trees, culverts, and ornamental non-native hedges.

### Protected and Notable Species

The potential for the RTS to support protected and/or notable species has been assessed using the results of the desktop study and observations made during the habitat survey.

A summary of desk study information is provided below. Desk study records have only been considered if they are recent (within the last ten years). The Overall Survey Area is considered potentially suitable to support the following species:

- Amphibians
- Badgers
- Bats
- Birds
- Fish and eels
- Invertebrates (terrestrial and aquatic)
- Invasive species (terrestrial and aquatic)
- Otter
- Notable plant species
- Reptiles
- Water voles

While the 2 km study area contains habitat suitable for dormice, given that no dormice were recorded in surveys carried out in 2022 (GBV, 2022c) and the lack of records from the 2021 desk study, dormice are considered absent from the Overall Survey Area and are not considered further in this report.

Suitable habitat for a range of Species of Principal Importance (SPI), notably hedgehogs, stoats, polecats and weasels, was recorded across the Survey Areas noted within this report. These are not broken down for each Survey Area below. Desk study records included hedgehog and harvest mouse. In addition, the remains of a hedgehog were identified within grassland at Area east of Lake South of Green Lane (Target Note 7) during surveys and a European hedgehog was recorded on camera trap footage in woodland/grassland adjacent to Littleton South Lake (GBV, 2022a). Recommendations for SPIs, are made within Section 4.

The Remaining Area within EIA Scoping Boundary has only been assessed through desk study information and does not include an in-field assessment.

Due to the risk of persecution, detailed locations of badger setts and otter resting places have not been included in this report.

The Overall Survey Area provides many habitats for breeding and overwintering birds. Consequently, the statements made on suitability within Survey Areas focus on key habitats/species and where impact from the Scheme are considered to be significant.

The Overall Survey Area does not provide suitable habitat for other protected species beyond those listed above, and therefore only those listed above are considered further in this PEA.

## Runnymede Channel

### Area east of Lake South of Green Lane

For the Area east of Lake South of Green Lane, the desk study only returned species records for INNS (summarised below). Surveys in 2022 only returned results for otters.

#### Habitat Overview

Communication with owners of neighbouring properties (Personal communication. 2022) indicated that the land is remediated, having previously been used for landfill 15 years prior. Further evidence is present on site, with industrial rubble visible in exposed soil and several non-native garden plants present within the grasslands. The site has succeeded, having previously been an open mosaic habitat. The Survey Area comprises species rich other neutral grassland (g3c – photo shown in plate 1, Appendix B) with small patches having 15 species/$m^2$. Other broadleaved woodland (w1g7) is present in the north-eastern section of the Survey Area whilst the Lake South of Green Lane (r1) forms sections of the eastern edge of the Survey Area. The Survey Area is more urbanised towards the north and north-east, comprising built-up areas and gardens (u1) and modified grassland (g4 - photo shown in plate 2, Appendix B).

#### Amphibians

The terrestrial habitat, including wet woodland, broadleaved woodland and other neutral grassland within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. Standing water was noted to provide suitable habitat for breeding, foraging, commuting and resting habitat for a range of amphibians including great crested newts, but with limited potential due to the connectivity with larger waterbodies. Scattered urban waste and accumulated deadwood could be used as hibernacula by hibernating amphibians.

#### Badgers

Habitats including modified grassland, other neutral grassland, and broadleaved woodland within the Survey Area were noted to provide suitable opportunities for foraging and commuting badger. Additionally, broadleaved woodland within the Survey Area was assessed as having suitability for sett creation.

### Bats

Modified grassland, other neutral grassland, broadleaved woodland, wet woodland and standing waterbodies were noted to provide suitable commuting and foraging for bats. Linear features such as lines of trees and hedgerows provide commuting habitat for bats. Buildings north of the site and mature trees in the woodlands and lines of trees scattered within the Survey Area provide suitable roosting features.

### Birds

During the survey, habitats such as deciduous woodland, standing waterbodies, line of trees, hedgerows, bramble scrub, other neutral grasslands and buildings within built up areas to the north, were noted to be suitable for a range of breeding birds. Wintering bird habitat including standing water was also recorded during the survey. There is also limited suitability for foraging winter birds on other neutral grassland within the Survey Area.

### Fish (including eels)

Standing water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, neutral grasslands and woodlands within the Survey Area were all considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland contained a notable amount of standing and lying deadwood, providing suitable habitat for wood boring invertebrates including stag beetles.

Standing open water within the Survey Area also provides suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported ten records of five species: buddleia, goats rue, Japanese knotweed, Japanese rose and montbretia.

During the survey, Japanese knotweed was noted in the neutral grassland (Target Notes 6 and 197).

It is considered likely that the standing waterbodies within the Survey Area will support further aquatic invasive non-native species, due to the connectivity with other waterbodies within the surrounding area.

### Otter

Standing water within the Survey Area was considered to provide suitable habitat for commuting, foraging and resting otter, with an otter spraint having been recorded just outside the Survey Area (Target Note 22).

Adjacent terrestrial habitat such as deciduous woodland and other neutral grassland within the Survey Area were considered to provide suitable habitat for commuting, foraging and resting otter. Several trees bordering the waterbodies in the Survey Area were identified as having suitability for holt creation.

### Notable plant species

During the survey, the other neutral grassland and broadleaved woodland within the Survey Area were considered to provide suitable habitat for a range of notable plant species. High species richness was recorded within the other neutral grassland, shown on the map as Target Note 153, with certain sections of the sward comprising 15 species/$m^2$.

### Reptiles

During the survey, woodlands, neutral grasslands and standing waterbodies located within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Scrap metal and accumulated deadwood/garden waste that was observed in several locations (Target Notes 7 and 176) was noted for providing suitable hibernacula for reptiles. Accumulated garden waste could be used by breeding reptiles.

### Water vole

During the survey standing waterbodies were considered to provide suitable habitat for commuting, burrowing and foraging water voles with water level being sufficient to sustain water vole populations, suitable burrowing potential but limited vegetation cover. Habitats adjacent to Lake South of Green Lane, which includes other neutral grassland and wet woodland, were considered to provide further suitable habitat for commuting and foraging water vole.

## Field East of Meadlake

The desk study only returned records for INNS, which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The Survey Area comprises of species rich lowland meadows (g3a - photo shown in plate 5, Appendix B) used as horse grazing pasture, with indicators such as yellow-rattle and meadow barley present. A line of tree (w1g6 - photo shown in plate 3, Appendix B) acts as a boundary towards the north of the Survey Area. Running water (r2), named Mead Lake Ditch, acts as a boundary to the west of the Survey Area.

### Amphibians

The terrestrial habitat, including lowland meadow and bramble scrub were noted to have suitability for foraging, commuting and resting amphibians. Mead Lake Ditch was noted to provide opportunities for amphibians, but with limited potential due to the connectively with waterbodies with confirmed fish stocks. No suitable hibernation habitat was recorded within the survey.

### Badgers

The Survey Area was noted to provides suitable habitat for foraging and commuting badger within the lowland meadow and along hedgerows. Hedgerows and bramble scrub were also suitable for sett creation.

### Bats

Lowland meadow and bramble scrub as well as linear features such as line of trees and hedgerows were noted to provide suitable foraging habitat for bats.

Mature trees and a large wooden panelled farm shed (photo shown in plate 4, Appendix B) within the Survey Area provide potential roosting features (Target Note 232).

### Birds

During the survey, habitats such as lowland meadow, bramble scrub, line of trees, hedgerow and running water were noted to provide suitable habitat for a range of breeding and wintering birds.

### Fish (including eels)

Running water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, lowland meadow, bramble scrub, and hedgerows within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates.

Running water was also observed to provide suitable opportunities for foraging, commuting and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported four records of four species; false Virginia creeper; zebra mussel; floating pennywort; buddleia.

No invasive non-native terrestrial and aquatic species were recorded during the survey.

### Otter

Mead Lake Ditch provides suitable habitat for commuting and foraging otter, with adjacent lowland meadow and bramble scrub providing further suitable habitat for commuting and resting.

No suitable habitat for holt creation was identified.

### Notable plant species

During the survey, the species rich lowland meadow within the Survey Area was considered to provide some suitability for notable plant species, with high species richness recorded within the sward (Target Note 149).

### Reptiles

During the survey, lowland meadow, bramble scrub, hedgerows and interfaces between these habitats, were considered to provide suitable habitat for commuting, foraging, basking, and resting reptiles. No suitable habitat was identified for breeding and hibernating reptiles.

### Water vole

Running water within the Survey Area was considered to potentially provide suitable habitat for commuting and foraging water vole. Suitable habitat for burrowing was not identified during this survey. The watercourse present on site lacks suitable characteristics required for burrowing. The channel has shallow graded banks, minimal water levels and heavily vegetated edges which shades much of the channel.

There is also a lack of suitable vegetation for water vole to build above ground nests within habitat bordering the watercourse.

## Thorpe Park Lakes and adjacent land

The desk study returned records for bats and INNS, which can be seen below. Surveys in 2022 returned results for badgers and breeding birds, the results can be seen below.

### Habitat Overview

The majority of the Survey Area comprises of Fleet Lake and Abbey Lake (r1). Two smaller bodies of water, Lake South of Norlands Lane 1 and Lake South of Norlands Lane 2 are located in the northern section of the Survey Area, with Lake South of Norlands Lane 1 connected to Mead Lake Ditch (r2).

Most of the terrestrial habitat comprises of different types of fragmented woodland habitat (w2c, w1h, w1h6, w1g7 & w1d – photos shown in plate 6 and 9, Appendix B) along with a mixture of modified grassland (m4 - photo shown in plate 8, Appendix B) and other neutral grassland (g3c). A species rich lowland meadow (g3a - photo shown in plate 7, Appendix B), with pyramidal orchid, bee orchid and common broomrape, is located in the northern section of the Survey Area.

### Amphibians

The terrestrial habitat, including neutral grassland, lowland meadows, deciduous woodland and standing waterbodies were noted to provide suitable habitat for foraging, commuting and resting habitat for a range of amphibians. Standing water was noted to provide suitable habitat for breeding, foraging, commuting and resting habitat for a range of amphibians, including great crested newts, but with limited potential due to the connectively with waterbodies with confirmed fish stocks. Wet woodlands, throughout the north eastern section of the Survey Area, were noted to potentially have seasonal pools of waters. However, at the time of survey, none of these temporary pools were present. Deadwood within the Survey Area that had been collected into log piles was noted as potential hibernacula (Target Note 201).

### Badgers

Previous badger surveys identified a partially active, single hole outlier sett.

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within the modified grasslands, other neutral grasslands, lowland meadows and woodlands. There is potential for sett creation in the deciduous woodlands and

linear features such as hedgerows and line trees along the edge of the Survey Area. However, no suitability was found in the wet woodland due to the raised water table.

### Bats

The desk study reported three records of soprano pipistrelle and one record of noctule within Thorpe Park, with all records being from 2017.

Modified grassland, other neutral grassland, lowland meadows, deciduous woodland and standing waterbodies were noted to provide suitable commuting and foraging for bats. Linear features such as lines of trees, hedgerows and running water provide commuting habitat for bats. Several storage buildings with a combination of wooden facias, clay tiles and wooden cladding were noted for their suitability to support roosting bats (Target Notes 56 and 58). An artificial cave with plastic lining (Target Note 178) was also noted to provide suitability for roosting bats.

Mature trees within the woodlands and lines of trees throughout the Survey Area provide potential roost sites, with several noted for having potential roosting features (Target Notes 55, 59, 60 and 68).

### Birds

Surveys in 2022 recorded juvenile red kites within the Survey Area. Breeding house sparrow populations were also recorded on this site.

During the survey, habitats such as deciduous woodland, scattered reedbeds, standing waterbodies, lines of trees, hedgerows, scattered scrub and buildings were noted to be suitable for a range of breeding birds. Standing water and reedbeds were noted to be suitable for wintering waterfowl.

### Fish (including eels)

Standing and running water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, deciduous woodland, neutral grasslands, modified grasslands and lowland meadows within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. Deadwood identified in the deciduous woodland provides potential habitat for stag beetles.

Standing open and running water within the Survey Area also provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 96 records of 20 species: amphipod, bamboo, bladder snail, buddleia, cherry laurel, common duckweed, demon shrimp, false-acacia, floating pennywort, giant reed, goat's rue, holm oak, Himalayan balsam, Japanese knotweed, Japanese rose, Jenkins' spire snail, North American flatworm, northern river crangonyctid, Nuttall's waterweed and zebra mussel.

Himalayan balsam was recorded during the survey, with signs that it is already being managed (Target Note 204).

Based on the species recorded in the desktop study, it is considered likely that the standing waterbodies within the Survey Area will support further aquatic invasive non-native species.

### Otter

Standing and running waterbodies within the Survey Area were considered to provide suitable habitat for commuting, foraging and resting otter. During the survey, adjacent deciduous woodland, modified grassland, neutral grassland, lowland meadows within the Survey Area were considered to provide further suitable habitat for commuting and resting otter along the riparian corridor.

Mature trees within woodlands and linear features were noted for potentially providing habitat for holt creation.

### Notable plant species

The lowland meadow was observed to contain a diverse vascular plant community, such as: bee orchids, pyramidal orchids and broomrape. Bee orchids, pyramidal orchids and green helleborine were also recorded in other grasslands within the Survey Area (Target notes 152, 155, 185, 186 and 187). A Juncus Holcus grassland (Target note 155) was also noted for its high species richness, including yellow rattle, and high moss coverage.

Other habitats that were considered to provide suitable habitat for a range of notable plant species included other neutral grassland and deciduous woodland.

### Reptiles

During the survey, modified grasslands, neutral grasslands, deciduous woodlands and interfaces between these habitats within the Survey Area were considered to provide

suitable habitat for commuting, foraging, basking and resting reptiles. Deadwood within the Survey Area that had been collected into log piles was noted as potential hibernacula (Target Note 201). Rabbit warrens were recorded throughout the Survey Area and could be used by breeding and hibernating reptiles.

### Water vole

During the survey, it was identified that running water and standing waterbodies were considered to provide suitable habitat for commuting, foraging and burrowing/breeding water vole with water levels recorded being sufficient to sustain water vole populations. Bank vegetation varied, ranging from recently mowed modified grassland to more suitable reedbeds and wet woodlands.

No evidence of water voles such as burrows/droppings/feeding signs was observed during the survey. Habitat adjacent to these waterbodies, including modified grassland, neutral grassland and deciduous woodland, were considered to provide suitable habitat for commuting and foraging water voles.

## Abbey River Confluence with River Thames

The desk study returned records for bats, invertebrates and INNS, which can be seen below. Surveys in 2022 returned results for badgers, which can be seen below.

### Habitat Overview

The northern section of the Survey Area comprises different types of woodland habitat (w1g, w1g7 & w1d - photo shown in plate 12, Appendix B). Abbey River (r) runs through the centre of the Survey Area, west to east, before connecting with the River Thames. Modified grassland (g4), other neutral grassland (g3c - photo shown in plate 10, Appendix B) and *Arrhenatherum* neutral grassland (g3c5) are located throughout the Survey Area. Buildings and built-up areas and gardens (u1 and u1b5) associated with the care home are located in the centre of the Survey Area. Sparsely vegetated land (s - photo shown in plate 11, Appendix B) to the north of the Survey Area was dominated by Himalayan balsam.

### Amphibians

The terrestrial habitat, namely wet woodland, broadleaved woodland and neutral grassland were noted to provide suitable habitat for foraging, commuting and resting habitat for a range of amphibians. A pond was recorded within the Survey Area. The pond is a semi-natural waterbody which was dry at the time of survey but with sufficient macrophytes remaining to indicate that it regularly fills with water. The pond when filled, has potential breeding suitability for great crested newts and other amphibians.

The woodland habitat recorded on site could potentially support hibernating amphibians, as deadwood was recorded within the woodlands.

Abbey River was noted to provide suitable habitat for breeding, foraging, commuting and resting habitat for a range of amphibians along the edges of the river. However, suitability was limited due to flow, the connectively with larger waterbodies and presence of fish. Abbey River was unsuitable for great crested newt.

### Badgers

Surveys in 2023 identified an active two-hole sett with large fresh spoil heaps and well-maintained entrances near a dry ditch with clear commuting routes going into the surrounding woodland.

The Survey Area was noted to provide suitable habitat for sett creation, foraging and commuting badger, namely in broadleaved woodland, sparsely vegetated land and neutral grassland habitat.

### Bats

The desk study reported one record of soprano pipistrelle from 2017 to the east of the site.

Grassland, woodland, sparsely vegetated land and linear features such as flowing waterbodies were noted to provide suitable commuting and foraging for bats. Additionally, woodland habitat was noted as providing suitable features for roosting with numerous trees containing woodpecker holes, uplifted bark and cracks.

Further suitable roosting features were provided by a stone-built bridge which crossed over the Abbey River (Target Note 233), which had cracks within brickwork, and residential buildings within the Survey Area.

### Birds

During the survey, habitats such as broadleaved woodland, wet woodland, neutral grassland, sparsely vegetated land, residential buildings and flowing waterbodies were noted to be suitable for a range of breeding birds. The flowing waterbody was also noted suitable for wintering birds. The other neutral grassland, in the south-eastern section of the Survey Area, showed botanical signs of being flooded infrequently and could be used by wintering birds in certain conditions.

### Fish (including eels)

The Abbey River and the River Thames were deemed suitable for numerous fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, neutral grassland, broadleaved woodland, wet woodland and sparsely vegetated land within the Survey Area were considered to provide suitable habitat for a range of terrestrial foraging and breeding invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. Due to the presence of elm species within the hedgerows recorded within the Survey Area, white-letter hairstreak could be present.

The Abbey and Thames River, alongside the pond provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 31 records of eight species: buddleia, cherry laurel, common duckweed, duck potato, floating pennywort, green alkanet, Himalayan balsam and ring-necked parakeet.

During the survey, Himalayan balsam was recorded within the Survey Area, both within the terrestrial and aquatic habitats (Target Notes 202 and 203).

### Otter

The Survey Area was noted to provide suitable habitat for commuting, foraging and resting otter along the river and adjacent woodland and grassland habitat. The riverbanks of the Abbey River were noted for suitability for holt creation with a possible laying up area (Target Note 27) identified.

### Notable plant species

During the survey, wet woodland, broadleaved woodland and neutral grassland within the Survey Area were considered to provide suitable habitat for notable plant species.

Orchids were present within the other neutral grassland, in the south-eastern section of the Survey Area (Target Note 154).

### Reptiles

During the survey, woodland habitat, other neutral grassland and sparsely vegetated land within the Survey Area was considered to provide suitable habitat for commuting,

foraging, basking and resting reptiles. Hibernation and breeding reptile potential was recorded within the Survey Area, with disused rabbit warrens recorded throughout the broadleaved woodland.

### Water vole

The Abbey River within the Survey Area was considered to provide suitability for commuting, foraging, breeding and burrowing water vole. Water levels recorded were enough to sustain water vole populations. However, vegetation coverage is minimal due to active management via mowing. Furthermore, the channel lacks suitable emergent/marginal vegetation reducing potential for the Survey Area to be utilised by water voles.

## Royal Hythe

The desk study returned records for invertebrates and INNS, which can be seen below. Surveys in 2022 returned results for badgers, which can be seen below.

### Habitat Overview

The habitat comprises mostly of land used for arable and horticulture (c1 - photo shown in plate 13, Appendix B) and other neutral grassland being used as cattle pasture (g3c). Wet and other broadleaved woodland was recorded (w1d and w1g) in small patches within the Survey Area. Modified grassland (g4 - photo shown in plate 14, Appendix B) can be found along the western edge of the Survey Area.

### Amphibians

Terrestrial habitat, including ditches, wet woodland, broadleaved woodland, and neutral grassland were noted to provide suitable habitat for resting and commuting amphibians. The woodland habitat could potentially support hibernating amphibians, as deadwood was recorded within the woodlands.

Ditches within the Survey Area were dry at the time of survey but are likely to be a semi-permeant aquatic feature which could provide habitat for breeding amphibians, including great crested newts.

### Badgers

Previous 2023 badger surveys identified an inactive subsidiary three-hole sett.

Broadleaved woodland, wet woodland, modified grassland, neutral grassland, and arable were noted to provide suitable habitat for foraging and commuting badger. Broadleaved woodland, grasslands, and linear habitats such as hedgerows and lines

of trees (photo shown in plate 13, 15 & 16, Appendix B) along field margins, were also recorded as suitable for sett creation.

### Bats

Woodland, neutral grassland, modified grassland, and mixed scrub as well as linear features such as lines of trees, hedgerow and ditches provide suitable commuting and foraging for bats. Woodland and lines of trees were also noted to provide features for roosting bats.

### Birds

During the survey, habitats such as broadleaved woodland, wet woodland, arable, modified grassland, neutral grassland, standing water, mixed scrub, hedgerows and lines of trees were noted to be suitable for a range of breeding birds. Due to the proximity of large waterbodies nearby, neutral grasslands and arable habitats were noted for their potential for wintering bird habitat.

### Fish (including eels)

No standing or flowing bodies of water were recorded within Survey Area. Therefore, the Survey Area holds no suitability for fish.

### Invertebrates (terrestrial and aquatic)

The desk study reported one record of common red soldier and one record of speckled wood within the Royal Hythe Survey Area.

During the survey, broadleaved woodland, wet woodland, neutral grasslands, mixed scrub, ditches, hedgerows and lines of trees within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

Ditches and wet woodland within the Survey Area were considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 58 records of six species: buddleia, cherry laurel, false Virginia creeper, goat's rue, holm oak and ring-necked parakeet.

No invasive and non-native species, terrestrial or aquatic, were noted during the survey.

### Otter

During the survey, no features and/or evidence of otter were found. However, other broadleaved woodland that formed part of the riparian corridor to Egham Hythe Pond, which lies just outside of the Survey Area, was considered to provide suitable habitat for commuting and resting otter. In addition, the woodland also included suitably mature trees for holt creation.

### Notable plant species

During the survey, neutral grassland, broadleaved and wet woodland within the Survey Area were considered to provide suitable habitat for a range of notable plant species.

### Reptiles

During the survey, wet and broadleaved woodland, neutral grassland, mixed scrub, ditches, hedgerow and interfaces between these habitats were considered to provide suitable habitat for commuting, foraging, basking, and resting reptiles. Rabbit warrens were recorded throughout the Survey Area and could be used by breeding and hibernating reptiles.

### Water vole

Ditches within the Survey Area were dry at the time of survey and the vegetation coverage was minimal due to human management. As such, the Survey Area is deemed unsuitable for commuting, foraging, breeding and burrowing water vole.

## Thorpe Hay Meadow SSSI and Egham Hythe Pond

The desk study returned records for invertebrates and INNS, which can be seen below. Surveys in 2022 returned results for badgers and breeding birds, which can be seen below.

### Habitat Overview

The majority of the Survey Area is comprised of wet and other broadleaved woodland (w1d and w1g - photos shown in plate 18, 19 & 20, Appendix B), Egham Hythe Pond (r), Mead lake (r1) and mixed scrub (h3h). The Survey Area includes Thorpe Hay Meadow SSSI, a lowland hay meadow (g3a5 - photo shown in plate 17, Appendix B).

### Amphibians

The terrestrial habitat including wet and broadleaved woodland, was noted to provide suitable habitat for foraging, commuting and resting amphibians. Standing waterbodies within the Survey Area, including three ponds (including Mead lake), were

suitable for breeding amphibians, including great crested newts. As Egham Hythe Pond is actively managed for recreation fishing, it has limited potential for amphibians. The woodland habitat recorded on site could potentially support hibernating amphibians, as deadwood was recorded within the woodlands.

### Badgers

Surveys in 2023 identified a disused three-holed outlier badger sett.

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within other neutral grassland, modified grassland, lowland hay meadow, hedgerows, and wet and broadleaved woodland. Earth banks within the woodland provide habitat for potential sett creation. Several mammal paths were recorded heading into dense, inaccessible scrub that could potentially be badger (Target Note 43).

### Bats

Modified grassland, other neutral grassland, lowland hay meadow, wet and broadleaved woodland, standing waterbodies as well as linear features such as lines of trees, hedgerows, ditches and running water were noted to provide suitable commuting and foraging habitat for bats. Mature trees throughout the Survey Area provide potential roosting features.

### Birds

Four species were recorded in 2022 Surveys, including Cetti's warbler, starling, house sparrow and bullfinch.

During the survey, habitats such as lowland hay meadow, wet and broadleaved woodland, mixed and dense scrub, modified grassland, lines of trees, hedgerows and standing waterbodies were noted to be suitable for a range of breeding birds. A snipe was flushed in waterlogged other neutral grassland (Target Note 45).

Wintering bird habitat included standing water. Lowland hay meadows could provide foraging habitat for wintering birds, as they regularly flood and are in close proximity to large waterbodies.

### Fish (including eels)

Standing water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported nine records of invertebrates within Thorpe Hay Meadow SSSI and Egham Hythe Pond, comprising azure damselfly, blue-tailed damselfly, common blue damselfly, emperor dragonfly, common blue butterfly, a beetle (species unknown), meadow brown butterfly, ringlet butterfly and red admiral butterfly. The most recent records were in 2020 for meadow brown, ringlet and red admiral butterflies.

During the survey, wet and broadleaved woodland, lowland hay meadow, mixed and dense scrub, modified grassland and other neutral grassland within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn was recorded within the Survey Area, brown hairstreak could be present.

Standing waterbodies, ponds, wet woodland and ditches were considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 12 records of five species: common duckweed, false acacia, floating pennywort, goats' rue and zebra mussel.

No terrestrial invasive non-native species were recorded during the survey.

Floating pennywort was observed growing along the ditches and running water courses (Target Note 190).

### Otter

During the survey, ditches and standing water within the Survey Area were considered to provide suitable habitat for commuting, foraging and resting otter. The other broadleaved woodland that surrounded the standing bodies of water provided commuting and resting habitat, alongside potential sites for holt creation within mature trees.

### Notable plant species

During the survey, modified grassland, neutral grassland, lowland hay meadow, wet and broadleaved woodland within the Survey Area were considered to provide suitable habitat for a range of notable plant species. Ancient woodland indicators such as enchanters' nightshade, wood avens, spindle, pendulous sedge, and red currant, were recorded in broadleaved woodland (Target note 150). High biodiversity was also

recorded within the lowland hay meadows (Target Note 151), which include Thorpe Hay Meadow.

### Reptiles

During the survey, modified grasslands, neutral grasslands, wet and broadleaved woodlands as well as interfaces between these habitats within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. The large number of rabbit warrens and fox dens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

During the survey it was identified that the standing watercourses and waterbodies were considered to provide suitable habitat for commuting and foraging water vole. Adjacent terrestrial habitat including modified grassland, neutral grassland, wet and broadleaved woodland was also considered to provide suitable habitat for commuting and foraging water vole.

Suitable habitat for burrowing and breeding was identified in the stream running through the centre of the site due to steep vegetated banks. Bank top vegetation is also suitable for above ground nests.

## Abbey 1 and 2 Lakes

The desk study returned records for invertebrates and INNS, which can be seen below. Surveys in 2022 returned results for badgers, which can be seen below.

### Habitat Overview

The Survey Area includes two standing waterbodies, Abbey 1 and Abbey 2 (r - photos shown in plates 21 & 23, Appendix B). The majority of the southern section of the Survey Area is comprised of wet and other broadleaved woodland (w1d and w1g, photos shown in plates 23, 24 & 25, Appendix B) whilst the north is comprised of managed modified grassland (mg4 - photo shown in plate 22, Appendix B). Abbey River (r2) runs between the two standing waterbodies.

### Amphibians

The terrestrial habitat, including modified grassland and deciduous woodland were noted to provide suitable habitat for foraging, commuting and resting amphibians.

During the survey, over a hundred common frog froglets were recorded commuting over hard-standing ground towards the south east of the Survey Area, east of a large standing body of water. Deadwood within the woodlands of the Survey Area could be utilised as hibernacula. Standing waterbodies and ditches were also noted to provide suitable habitat for resting and breeding amphibians, including great crested newts.

### Badgers

A sett was identified within this Survey Area during 2022 surveys. It appeared to be infrequently used and no further field signs were recorded.

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within the modified grasslands and woodlands. The suitability for sett creation within the Survey Area is limited due to the level of the water table, likely causing setts to flood during heavy rainfall. However, suitable sett creation habitat was identified in the other broadleaved woodland.

### Bats

Modified grassland, deciduous woodland, standing waterbodies as well as linear features such as lines of trees, hedgerows and running water were noted to provide suitable commuting and foraging for bats.

Mature trees within the woodlands and lines of trees throughout the Survey Area provide suitable roosts, with a large number of trees identified with potential roosting features.

### Birds

During the survey, habitats such as deciduous and mixed woodland, standing waterbodies, line of trees, hedgerows, scrub, and buildings within built up areas to the north, were noted to provide suitable opportunities for a range of breeding birds to forage, commute, and roost. Wintering bird habitat including standing water was also recorded, with adjacent modified grassland potentially being used for sub-optimal foraging.

### Fish (including eels)

Standing and running water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported one record of a true fly in 2015 and one record of southern green shield bug in 2019 within the area surrounding Abbey 1 and Abbey 2.

During the survey, deciduous woodland and modified grasslands within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn was recorded within the Survey Area, brown hairstreak could be present.

Standing waterbodies, Abbey River and ditches were considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported ninety-six records of eighteen species: amphipod *Amphipoda sp.*, bladder snail, bloody-red mysid, buddleia, demon shrimp, floating pennywort, Himalayan balsam, Japanese knotweed, Jenkin's spire snail, North American flatworm, North American limpet, northern river crangonyctid, Nuttall's waterweed, oak processionary, orange balsam, signal crayfish, Virginia creeper and zebra mussel.

No terrestrial invasive non-native species were recorded during the survey. During the survey, Himalayan balsam was observed growing along the running water courses.

### Otter

The standing and running waterbodies within the Survey Area were considered to provide suitable habitat for commuting, foraging and resting otter. Due to the close proximity of the standing waterbodies and the Abbey River, connectivity between the different habitats for otters is considered high. As a result, the entire coverage of deciduous woodland and modified grassland within the Survey Area were considered to provide further suitable habitat for commuting, foraging and resting otter. The woodlands were also noted to provide suitable habitat for holt creation.

### Notable plant species

During the survey, the broadleaved and wet woodland within the Survey Area were considered to provide suitable habitat for a range of notable plant species.

### Reptiles

During the survey, modified grasslands, deciduous woodlands as well as interfaces between these habitats within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking, and resting reptiles. Deadwood within the woodlands of the Survey Area could be utilised as hibernacula. Rabbit warrens within the other broadleaved woodland also provide further hibernation potential, as well as potential breeding habitat.

### Water vole

During the survey, it was identified that the modified grassland, deciduous woodland, running water and standing waterbodies were considered to provide suitable habitat for commuting and foraging water vole. Suitable habitat for burrowing and breeding was identified in the Abbey River in the east of the Survey Area due to suitable banks, with stable water levels and optimal vegetation coverage. Bank top vegetation was also suitable for above ground nests.

## Abbey Meads

The desk study returned records for bats and INNS, which can be seen below. Surveys in 2023 returned results for badgers, which can be seen below.

### Habitat Overview

The Habitat comprises mostly of actively modified grassland (g4 – photos shown in plate 27 & 28, Appendix B). Burway Ditch runs through the Survey Area from west to east. Other broadleaved woodland (w1g – photo shown in plate 29, Appendix B) to located to the south-east of the Survey Area.

### Amphibians

Grassland, lines of trees (photo shown in plate 26, Appendix B), ditches, scrub and woodland within the Survey Area were noted to provide suitable habitat for foraging and commuting amphibians. Burway Ditch runs through the Survey Area from west to east.

Burway Ditch and ditches were dry at the time of survey, though there is evidence that this area is seasonally wet and could provide suitable habitat for breeding amphibians, including great crested newts. Froglets were observed in high numbers on Ferry Lane during the survey, possibly migrating to other waterbodies. No hibernation potential was recorded during the survey.

### Badgers

Surveys in 2023 identified a single hole, partially active outlier sett.

The Survey Area was noted to provide suitable habitat for foraging and commuting badgers. A mammal commuting path was recorded in the modified grassland (Target Note 29). The scrub and woodland within the Survey Area provides suitable habitat for sett creation.

### Bats

The desk study reported one record of soprano pipistrelle to the south east of the site from 2017.

The woodland edges, bramble scrub and lines of trees within the Survey Area were noted to provide suitable commuting and foraging for bats. Mature trees within lines of trees and hedgerows throughout the Survey Area provide potential roosts features, with a large number of trees identified with potential roosting features.

### Birds

During the survey the bramble scrub, woodland, lines of trees, and grassland within the Survey Area were noted to provide suitable habitat for a range of breeding birds. Noted habitats would also be likely used by overwintering birds, however grassland was unsuitable for grazing waterfowl due to the tall/tussocky sward height. The Survey Area provides good habitat for foraging raptors, due to the tall grass providing suitable habitat for small mammals.

### Fish (including eels)

Running water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey the grassland, lines of trees, hedgerows and scrub within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates, especially grassland species such as crickets, grasshoppers, butterflies, and damselflies. As blackthorn was recorded within the Survey Area, brown hairstreak could be present. The other broadleaved woodland was predominantly comprised of young plantation and was not considered to provide suitable habitat for stag beetles.

Burway Ditch and additional ditches were considered to provide suitable habitat for foraging and breeding aquatic invertebrates when seasonally wet.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported three records of Himalayan balsam.

During the survey Himalayan balsam was noted growing in patches along Burway Ditch (Target Notes 192, 193 and 194), both in a terrestrial and aquatic setting.

### Otter

During the survey, the lines of trees and hedges along Burway Ditch and the ditch itself within the Survey Area were considered to provide suitable habitat for commuting and resting otters. Other broadleaved woodland present within the Survey Area could be utilised by otters, with the entire woodland falling with 110 m of Burway Ditch.

### Notable plant species

The desk study reported one record of a notable plant, round fruited rush, to the south east of the site from 2014.

The modified grassland was observed to be species rich in limited areas within the sward. However, at present the management via mowing is limiting diversity, with an average of 5 species/$m^2$. With a reduction in management, it was noted the grassland within the Survey Area has the potential to provide suitable habitat for lowland meadow species including bulbous buttercup and orchids.

### Reptiles

During the survey the grassland, understorey of the lines of trees and scrub edges were considered to provide suitable habitat for commuting, foraging, basking, and resting reptiles. Rabbit warrens scattered across the western and southern boundaries of the Survey Area provide potential hibernation and breeding sites for a variety of reptiles.

### Water vole

During the survey, Burway Ditch was not considered to provide suitable habitat for commuting, foraging and burrowing water vole, as does not have suitable banks for burrow creation and there is a lack of suitable vegetation along the margins. There is also a lack of suitable vegetation for water vole to build above ground nests within habitat bordering Burway Ditch.

## St Ann's Lake

The desk study returned records for bats, invertebrates and INNS, which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The habitat comprises mostly of actively modified grassland (g4 - photo shown in plate 30, Appendix B), urban sealed surfaces (u1b) and broadleaved woodland (w1g and

w1g7 – photo shown in plate 31, Appendix B). The majority of the terrestrial habitat is adjacent to St Ann's Lake (r1). Chertsey Bourne (r2) runs through the site.

### Amphibians

The broadleaved woodland and ruderal habitat within the modified grassland was noted to provide suitable habitat for foraging, commuting and resting amphibians. The running and standing waterbodies within the Survey Area provide suitable breeding habitat for amphibians, including great crested newts, but with limited potential, due to connectivity with waterbodies with confirmed fish stocks. The woodland contained a notable amount of standing and lying deadwood, providing suitable habitat for hibernating amphibians (Target Note 38).

### Badgers

The woodland was noted to provide suitable habitat for sett creation, especially along the southern edge due to the steep earth banks. The woodland and lines of trees provides suitable foraging and commuting habitat for badgers and is well connected to the wider landscape.

### Bats

The desk study returned one record of common pipistrelle from 2017 towards the south of the site.

The woodland edges, lines of trees, scrub, grassland and standing waterbody were noted to provide suitable foraging for bats. Linear features such Chertsey Bourne and the lines of trees provide commuting habitat for bats. Crevices, woodpecker holes, peeling bark, and tear outs were noted in multiple mature trees within the woodland (Target Notes 37, 39, 41 and 42) providing suitable habitat for roosting bats.

### Birds

During the survey the bramble scrub, woodland, scattered trees, lines of trees and standing water were noted to provide suitable habitat for a range of breeding birds. The standing waterbody within the Survey Area was suitable for wintering birds, with the surrounding woodland and grasslands offering limited potential.

### Fish (including eels)

Standing water and running water within the Survey Area were noted to be suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study returned one record of common blue and small copper butterflies. Both records were from the area of grassland to the south of the site from 2017.

During the survey the woodland, bramble scrub and modified grassland within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland contained a notable amount of standing and lying deadwood, providing suitable habitat for wood boring invertebrates including stag beetles (Target Note 38).

Standing and running water within the Survey Area were considered to provide suitable habitat for foraging and breeding aquatic invertebrates, including a range of aquatic and semi-aquatic invertebrates such as dragonflies, caddisflies and stoneflies.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 46 records of eight species: buddleia, cherry laurel, cotoneaster, false Virginia creeper, green alkanet, Himalayan balsam, oak processionary and zebra mussel within St Ann's Lake.

Both terrestrial and aquatic invasive non-native species were recorded during the walkover. Himalayan balsam was observed throughout the stream channel and woodland understorey to the south of the lake (Target Note 196). False Virginia creeper was also observed in the woodland understorey (Target Note 228).

Two oak trees containing oak processionary moth were also recorded (Target Note 35).

### Otter

During the survey the woodland adjacent to St Ann's Lake, marginal vegetation and waterbodies within the Survey Area were considered to provide suitable habitat for commuting, foraging, resting and holt creation. Cracked freshwater mussel shells were observed along the footpath and on the boardwalk to the north of the Survey Area (Target Note 36).

### Notable plant species

During the survey, the other broadleaved woodland within the Survey Area was considered to provide suitable habitat for notable plant species, including orchids; broad-leaved helleborine was observed throughout during the survey.

### Reptiles

During the survey, bramble scrub and adjacent grassland, in particular the edges of the modified grassland within the Survey Area and the marginal vegetation around the lake were considered to provide suitable habitat for commuting, foraging, basking, and resting reptiles. The neutral grassland to the southeast of the lakes provides suitable habitat for reptiles due to the presence of bare ground, tall ruderal vegetation, and scattered scrub. Deadwood noted on site (Target Note 38) was also noted as potential hibernacula. No breeding habitat was recorded.

### Water vole

During the survey, the woodland and marginal habitat within the Survey Area were considered to provide suitable habitat for commuting and foraging water vole. The banks of Chertsey Bourne provide suitable habitat for burrowing and breeding water voles due to the steeply sloped vegetated banks and well vegetated banks.

## Abbey River south of M3

The desk study and surveys in 2022 returned no species records for the taxonomic groups listed below.

### Habitat Overview

The habitat comprises mostly of actively managed modified grassland (g4 - photo shown in plate 32, Appendix B) and mixed scrub (h3h), with Abbey River (r) running along the south of the Survey Area. Other broadleaved woodland (w1g7 - photo shown in plate 33, Appendix B) is located in the eastern section of the Survey Area.

### Amphibians

Neutral grassland, hedgerows and marginal vegetation bordering the Abbey River was suitable for commuting, foraging and resting amphibians. No suitable habitat for breeding amphibians, including great newts, was recorded during the survey.

### Badgers

No features and/or evidence of badger were found. The Survey Area was noted to provide suitable habitat for foraging and commuting behaviour within the hedgerows and grasslands. Opportunities for sett creation was noted in the dense hedgerows along the northern boundary of the Survey Area.

### Bats

The modified grassland, watercourse and mixed scrub were noted to provide suitable opportunities for commuting and foraging habitat for bats. Linear features such as the

lines of trees, hedgerow with trees and running water also provide suitable opportunities for commuting bats. Buildings and lines of trees throughout the Survey Area provide suitable roosting features for bats.

### Birds

During the survey, habitats such as modified grassland, neutral grassland, buildings, lines of trees and hedgerows were noted to be suitable for a range of breeding birds. Wintering bird habitat including running water was also recorded during the survey, with adjacent modified grassland potentially being used for sub-optimal foraging.

### Fish (including eels)

The watercourse within the Survey Area was noted to be suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, modified grassland, hedgerows and lines of trees within the Survey Area were considered to provided suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn was recorded within the Survey Area, brown hairstreak could be present.

The Abbey River provides suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned 37 records of 10 species: cherry laurel, duck potato, false-acacia, floating pennywort, green alkanet, holm oak, Himalayan balsam, orange balsam, ring necked parakeet and snowberry.

No terrestrial invasive non-native species were recorded during the survey. Floating pennywort was observed growing in the Abbey River (Target Note 195).

### Otter

During the survey, Abbey River was considered to provide suitable habitat for commuting and foraging otters, with fish populations within the river providing a food source. The broadleaved woodland located on the western edge of the Survey Area provides potential for holt creation. However, the other habitats recorded on sites were too exposed to be utilised for holts.

### Notable plant species

During the survey, the woodland within the Survey Area was considered to provide suitable habitat for notable plant species.

### Reptiles

During the survey, mixed scrub and hedgerows within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking, and resting reptiles. The sward height of the modified grassland was considered too short to be suitable for reptiles. Rabbit warrens within the other broadleaved woodland and mixed scrub provide potential hibernation and breeding sites for a variety of reptiles.

### Water vole

During the survey, it was identified that modified grassland, and the watercourse within the Survey Area were considered to provide suitable habitat for commuting and foraging water vole. Suitable habitat for burrowing was identified in Abbey River due to suitably sloped vegetated banks.

## Spelthorne Channel

### Littleton East Lake

The desk study returned records for bats, invertebrates and INNS, which can be seen below. Surveys in 2022 returned no species results for taxonomic groups listed below.

### Habitat Overview

The habitat comprises mostly of Littleton East Lake (r1), surrounded by other broadleaved woodland (w1g7 - photo shown in plate 34, Appendix B) and a suburban/mosaic of developed surfaces (u1d - photo shown in plate 35, Appendix B).

### Amphibians

The woodland, modified grassland, lines of trees, hedgerows and Littleton East Lake within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. Littleton East Lake has habitat suitable for breeding amphibians along the edges, including great crested newts, but is limited due to likely presence of fish and waterfowl within the lake.

### Badgers

During the survey badger snuffle holes were observed around the other broadleaved woodland near the sailing club clubhouse, within the Survey Area. The woodland

around the waterbody within the Survey Area provides suitable habitat for sett creation, foraging and commuting.

### Bats

The desk study returned three records of soprano pipistrelle, all to the west side of the Survey Area in 2015.

The woodland edges, lines of trees and hedgerow within the Survey Area were noted to provide suitable commuting routes and foraging habitat for bats.

A large clubhouse, multiple small buildings and lines of trees within the Survey Area provide potential roosting feature for bats.

### Birds

During the survey the other broadleaved woodland, modified grassland, line of trees, hedgerow and the lake within the Survey Area were noted to be suitable for a range of breeding and wintering birds.

### Fish (including eels)

The team were informed by the site manager that European eel are present within the lake. During the survey, the lake within the Survey Area was noted to provide suitable habitat for fish.

### Invertebrates (terrestrial and aquatic)

The desk study reported four records of butterflies within Littleton East Lake, comprising holly blue and small white butterflies. The most recent record of these species is from 2020 located in small area of woodland near the sailing club clubhouse.

During the survey the other broadleaved woodland, modified grassland, line of trees and hedgerow within the Survey Area were considered to provide suitable habitat for a diverse range of foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

Littleton East is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 51 records of 11 species: cotoneaster, demon shrimp, Egyptian goose, false acacia, Japanese knotweed, Jenkins' spire snail, northern river crangonyctid, Nuttall's waterweed, orange balsam, zebra mussel and Chinese mitten crab.

During the survey, the site manager informed of a mink population within the Survey Area. Japanese knotweed and giant hogweed were also observed along the edges of the earth bank (Target Notes 221, 222 and 223).

Based on the species recorded in the desktop study, it is considered likely that the standing waterbody within the Survey Area will support further aquatic invasive non-native species.

### Otter

The lake within the Survey Area was considered to provide suitable habitat for foraging, commuting and resting otters. The other broadleaved woodland encircles Littleton East and provides holt creation potential within the immediate vicinity of the standing waterbody.

### Notable plant species

During the survey, the modified grassland and other broadleaved woodland within the Survey Area were considered to provide suitable habitat for notable plant species.

### Reptiles

Other broadleaved woodland, modified grassland, hedgerow, and surrounding vegetation were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. During the survey, several log piles located around the Survey Area were noted to provide suitable hibernacula for reptiles. Additionally, several rabbit warrens were recorded during the walkover which could provide breeding and hibernation habitat for reptiles.

### Water vole

The lake located within the Survey Area was noted to provide suitable burrowing habitat for water vole due to suitably vegetated banks. However, the presence of mink within the Survey Area, as informed by the site manager, would indicate that they are likely absent due to predation. Modified grassland and other broadleaved woodland habitat that encircled the lake was noted to provide suitable habitat for commuting and foraging water vole.

## Littleton North Lake and surrounding area

The desk study returned records for bats, invertebrates and INNS which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The western section of the Survey Area comprises mostly of Littleton North (r1), surrounded by other broadleaved woodland (w1g7 - photo shown in plate 36 & 37, Appendix B) and reedbeds (f2e - photo shown in plate 39, Appendix B). The eastern section of the Survey Area comprises open mosaic habitats on previously developed land (u1a - photo shown in plate 38, Appendix B) and developed land (u1b), which includes buildings and hardstanding sealed surfaces.

### Amphibians

The woodland, lines of trees and hedgerows, neutral grassland, open mosaic habitat and reedbeds within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. The reedbeds and sheltered edges of the lake were noted to provide suitable habitat for breeding amphibians, including great crested newt, but limited due to likely presence of fish and waterfowl within the lake. An abundance of deadwood was observed in the understorey of the woodland at Littleton South (Target Note 90), providing suitable habitat for hibernating amphibians.

### Badgers

During the survey badger latrines were observed throughout the woodland and within the open mosaic habitat to the east of the Survey Area. During the survey numerous mammals runs and latrines (Target Notes 87, 91, 96 and 97) were recorded within the open mosaic habitat and broadleaved woodland.

The spoil heaps, bramble scrub and woodland within the site provide suitable habitat for sett creation. Mammal holes were observed in a spoil heap within the open mosaic habitat to the east of the site, however fox droppings were also observed around the holes (Target Note 92).

### Bats

There are two records of soprano pipistrelle along Littleton North, both recorded in 2015.

The woodland edges, grassland, open mosaic habitat, lake and reedbeds were noted to provide suitable foraging habitat for bats. The woodland around the lake provides commuting habitat for bats. There are multiple buildings to the east of the Survey Area and to the southwest of the lake, mature trees within the woodland, and the culverts running under the M3, which provide suitable roosting habitat for bats.

### Birds

During the survey, the reedbeds, lake edges, scrub, woodland, and grassland and scrub within the open mosaic habitat were noted to provide suitable habitat for a range of breeding birds. During the survey, a pair of kestrels were observed hunting, calling and repeatedly landing in the same tree to the southwest of the lake (Target Note 99). The standing waterbody within the Survey Area was also suitable for wintering birds, whilst the open mosaic habitat provided further foraging habitat.

### Fish (including eels)

The standing waterbody within the Survey Area is suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported one record of each of the following species within Littleton North Lake and surrounding area: green-veined white butterfly, small white butterfly and ivy bee. The most recent records were in 2020 for green-veined white butterfly and small white butterfly to the south east of the site.

During the survey the reedbeds, grassland, open mosaic habitat and woodland within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. An abundance of deadwood was observed (Target Note 90), providing suitable habitat for wood boring invertebrates such as stag beetles. As blackthorn was recorded within the Survey Area, brown hairstreak could be present.

Littleton North and the reedbeds are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 85 records of 15 species: bladder snail, buddleia, cotoneaster, demon shrimp, giant hogweed, goat’s rue, holm oak, Japanese knotweed, Jenkins’ spire snail, mud shrimp, North American flatworm, North American limpet, northern river crangonyctid, Nuttall’s waterweed and zebra mussel.

During the survey Japanese knotweed was observed growing on the southwest edge of the lake (Target Note 209). There was evidence of previous management, with the observed plants being young, stunted examples of regrowth.

Droppings identified as mink were observed on the southern edge of Littleton North (Target Note 88).

Based on the species recorded in the desktop study, it is considered likely that terrestrial habitats and the standing waterbodies within the Survey Area will support further terrestrial and aquatic invasive non-native species.

### Otter

There is good connectivity between Littleton North Lake and Littleton South Lake through culverts, which pass under the M3. Broken freshwater mussel shells were observed around the lake (Target Note 109) and the broadleaved woodland on the edges of Littleton North provide potential for holt creation. Other broadleaved woodland and reedbeds surrounding Littleton North Lake provide additional suitable habitat for foraging, commuting and resting otters.

### Notable plant species

The open mosaic habitat within the Survey Area was considered to provide suitable habitat for a range of plants species, many of which may be rare, due to its suitability for pioneer species which are otherwise outcompeted.

### Reptiles

During the survey the open mosaic habitat, woodland edges and grassland within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking, breeding and resting reptiles, especially grass snakes. The large number of rabbit warrens and fox dens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

During the survey the woodland and reedbeds adjacent to Littleton North within the Survey Area was considered to provide suitable habitat for commuting, foraging and burrowing water vole. However, the presence of mink on site would likely make any populations of water voles unsustainable and so are considered likely absent.

## Fields North of Littleton North Lake

The desk study returned records for INNS which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The habitat comprises mostly of arable and horticulture (c1 - photo shown in plate 40, Appendix B) with associated polytunnels. Other habitats include fragmented wet woodland (w1d - photo shown in plate 42, Appendix B), hedgerows, ditches and swamp (f2 - photo shown in plate 41, Appendix B).

### Amphibians

The terrestrial habitat including neutral grassland, wet woodland, ditches and swamp within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. Ditches within the Survey Area provide suitable breeding habitat for amphibians, including great crested newts. It is considered possible that farm structures, such as greenhouses and polytunnels, could be used by hibernating amphibians.

### Badgers

No features and/or evidence of badger was found during the survey. However, the Survey Area was noted to provide suitable habitat for sett creation beneath hedgerows bordering the Survey Area and on banks which exist on the periphery of wet woodland to the south east. Foraging habitat is limited within the agricultural fields but possible within the edges of the Survey Area, with hedgerows potentially being used for commuting.

### Bats

The large area of neutral grassland to the west of the Survey Area was noted to provide suitable commuting and foraging for bats. Swamp, wet woodland, and the arable land that largely covers the Survey Area, also provides further foraging habitat. Linear features such as hedgerows and ditches provide commuting habitat for bats. Mature trees within hedgerows and those part of wet woodland habitat, were observed to provide suitable features for roosting bats.

### Birds

During the survey, habitats such as neutral grassland, arable, wet woodland, swamp and hedgerows were noted to be suitable for a range of breeding birds. Arable habitat could be suitable for wintering bird species, however given the land is covered by polytunnels for fruit production, it was not deemed suitable.

### Fish (including eels)

Ditches within the Survey Area are unsuitable. No other waterbodies were recorded.

### Invertebrates (terrestrial and aquatic)

During the survey, neutral grassland, wet woodland, arable, swamp, hedgerows and ditches within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates.

The wet woodland was not considered suitable for stag beetles due to the lack of deadwood recorded. As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

Wet woodland, swamp and ditches are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned eight records of six species: Japanese knotweed, goat's-rue, green alkanet, Japanese rose, giant hogweed and holm oak.

Non-native invasive species were recorded during the survey, in both aquatic and terrestrial habitats. Japanese knotweed and giant hogweed species were observed. Giant hogweed was present west of the small area of swamp (Target Notes 181 and 220), while Japanese knotweed was noted within hedgerows throughout the Survey Area. It was also noted that the Japanese knotweed plants showed signs they were being possibly chemically controlled.

### Otter

No waterbodies suitable for otters were recorded during the survey. Wet woodland and neutral grassland within the Survey Area were considered to provide suitable habitat for commuting and resting otter. Given the age of wet woodland and levels of human activity within arable land bordering the woodland, the woodland was considered to have limited suitability for otter holts. More suitable woodland to support otters is present to the south of the Survey Area.

### Notable plant species

During the survey, wet woodland, neutral grassland, swamp and hedgerows within the Survey Area were considered to provide suitable habitat for a range of notable plant species.

### Reptiles

During the survey, neutral grassland, wet woodland, swamp and hedgerows within the Survey Area and wider landscape were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. It is considered possible that farm structures, such as greenhouses and polytunnels, could be used by hibernating and breeding reptiles.

### Water vole

No suitable commuting, foraging and burrowing habitat for water vole was recorded within the Survey Area. Ditches present are trapezoidal, which at the time of survey were largely dry with some shallow pools, some with coverings of filamentous algae.

## Ferry Lane Lake (Ferris Meadow)

The desk study returned records for bats and INNS which can be seen below.
Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The habitat comprises mostly of Ferry Lane Lake (Ferris Meadow) (r1), with the surrounding habitat comprising of modified grassland (g4 - photo shown in plate 44, Appendix B). The northern section of the Survey Area comprises of suburban/ mosaic of developed/ natural surface (u1d) and vegetated gardens. Fragmented other broadleaved woodland (w1g7) and mixed scrub (h3h - photo shown in plate 43, Appendix B) was scattered throughout the Survey Area.

### Amphibians

The terrestrial habitat, broadleaved woodland, modified grassland, neutral grassland, and mixed scrub were noted within the Survey Area to be suitable for foraging, commuting, and resting amphibians. The standing waterbody within the Survey Area was observed to be suitable for breeding amphibians. However, given the presence of waterfowl and likely presence of fish within the waterbody, the Survey Area has limited potential for amphibians, including great crested newts. Log piles within broadleaved woodland were noted to provide suitable hibernacula for amphibian species (Target Note 179).

### Badgers

During the survey no features and/or evidence of badger was found. The Survey Area was noted to provide suitable habitat for sett creation within broadleaved woodland, which exists in a few areas across the Survey Area. The immediate area outside of

the Survey Area also provides suitable foraging and commuting habitat, within neutral grassland, modified grassland, broadleaved woodland and along fringes of hedgerows and mixed scrub.

### Bats

The desk study reported one record of an unidentified bat and five records of soprano pipistrelle. The most recent record for soprano pipistrelle was from 2017 and was recorded from the south of the site.

Neutral grassland, modified grassland, broadleaved woodland, standing waterbodies, mixed scrub as well as linear features such as hedgerows, lines of trees and running were noted to provide suitable commuting and foraging for bats. Mature trees within broadleaved woodland, lines of trees and buildings within developed land, could provide possible roosting features.

### Birds

During the survey, habitats such as modified grassland, broadleaved woodland, the standing waterbody, mixed scrub, hedgerows, and lines of trees were noted to be suitable for a range of foraging and breeding birds.

The following species' nests were found during the survey, great tit, Canada goose, coot and dunnock. Wintering bird habitat included the standing waterbody, with the other broadleaved woodland having limited potential for foraging and roosting wintering birds due to limited size of the habitat.

### Fish (including eels)

The standing waterbody and running water which borders the Survey Area to the north and east were noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, neutral grassland, modified grassland, broadleaved woodland, and mixed scrub within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially hold stag beetles, as log piles were recorded within the woodlands (Target Note 179).

Ferry Lane Lake is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 70 records of 19 species: bamboo, bladder snail, buddleia, Canada waterweed, cherry laurel, false acacia, floating pennywort, green alkanet, holm oak, Himalayan balsam, Jenkins' spire snail, North American flatworm, North American limpet, Northern river crangonyctid, Nuttall's waterweed, ring necked-parakeet, spatterdock, waterlily and zebra mussel.

During the survey, Himalayan balsam was observed, to the east of the Survey Area, scattered across modified grassland and lines of trees, that border the running water (Target Notes 225, 226 and 227).

Based on the species recorded in the desktop study, it is considered likely that the standing waterbodies within the Survey Area will support further aquatic invasive non-native species.

### Otter

Ferry Lane Lake and the River Thames, which runs along the majority of Survey Area boundary, were considered to provide suitable habitat for commuting, foraging and resting otter. As the modified grassland and broadleaved woodland are immediately adjacent to the lake and river, both were assessed as providing suitable habitat for commuting and resting otter, with the woodland also noted for its potential for holt creation.

### Notable plant species

The desk study reported one record of Loddon pondweed. Loddon pondweed is classed as Vulnerable within the Red List GB Post 2001 and is Nationally Rare on The Vascular Plant Red Data List for Great Britain.

During the survey, broadleaved woodland and neutral grassland within the Survey Area were considered to provide suitable habitat for notable plant species. The modified grassland which largely covers the Survey Area is intensely mown and therefore floristic diversity was inhibited with limited potential for notable plants.

### Reptiles

During the survey, broadleaved woodland, neutral grassland, modified grassland, hedgerows, lines of trees and mixed scrub within the Survey Area and the interfaces of these habitats were considered to provide suitable opportunities for commuting, foraging, basking and resting reptiles. Log piles within broadleaved woodland were noted to provide suitable hibernacula for reptile species (Target Note 179). No breeding habitat was identified during the survey.

### Water vole

Waterbodies recorded on site had suitable banks with the necessary vegetation required to sustain water voles. Standing water, running water, modified grassland, and deciduous woodland within the Survey Area was considered to provide suitable habitat for commuting, foraging and burrowing water vole.

## Manor Farm

The desk study returned records for bats, invertebrates and INNS which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The Survey Area comprises open mosaic habitats on previously developed land (u1a - photo shown in plate 46, Appendix B), bramble scrub (h3d), other broadleaved woodland types (w1g7 - photo shown in plate 47, Appendix B) and Arrhenatherum neutral grassland (g3c5 - photo shown in plate 45, Appendix B). A pond, named Manor Farm Lake, (r1b) is located within the centre of the Survey Area, surrounded by reedbeds (f2e) and wet woodland (w1d).

### Amphibians

The terrestrial habitat, including neutral grassland, open mosaic, deciduous woodlands, reedbeds, and ditches were noted to provide suitable habitat for foraging, commuting and resting amphibians. The pond and ditches were noted to be suitable for breeding amphibians, including great crested newts. Smooth newts were recorded during the Survey Area, underneath discard metal debris (Target Note 50), which could also be used as hibernacula.

### Badgers

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within the modified grasslands, other neutral grasslands, open mosaic, scrub and woodlands. Scrub and soil mounds within the open mosaic habitat provide optimal habitat for sett creation. Badger runs were recorded throughout the Survey Area and a latrine was found in the open mosaic habitat, next to discarded metal debris (Target Note 50).

### Bats

The desk study reported one record of an unidentified bat, one record of Leisler's and one record of soprano pipistrelle. The most recent records are from 2017 for a Leisler's bat and unidentified bat species to the west and north of the site respectively.

Open mosaic, neutral grassland, deciduous woodland and standing waterbodies as well as linear features such as lines of trees, hedgerows and ditches were noted to provide suitable commuting and foraging for bats. Mature trees within the woodlands and line of trees throughout the Survey Area provide potential roosting features.

### Birds

During the survey, habitats such as scrub, open mosaic, neutral grasslands, reedbeds, deciduous and mixed woodland, standing waterbodies, line of trees and hedgerows were noted to be suitable for a range of breeding birds. Wintering bird habitat including standing water was also recorded during the survey, with the surrounding reedbeds and neutral grassland noted for sub-optimal winter bird foraging.

### Fish (including eels)

Standing water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported two records of brown hairstreak from 2020 to the north of the site.

During the survey, deciduous woodland, neutral grasslands and open mosaic habitat within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

The pond and ditches are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 43 records of 16 species: altar-lily, buddleia, false acacia, goat's rue, green alkanet, holm oak, Himalayan balsam, Japanese knotweed, least duckweed, Michaelmas daisy, northern river crangonyctid, orange balsam, ring-necked parakeet, skunk cabbage and variegated yellow archangel.

During the survey, both aquatic and terrestrial invasive non-native species were recorded. Japanese knapweed was observed growing along the road in the broadleaved woodland to the west of the Survey Area (Target Note 48) and along the edges of the pond (Target Note 180). In addition, New Zealand pygmyweed was identified in the pond (Target Note 49).

### Otter

A culvert (Target Note 183) was identified in the northern boundary of the Survey Area and could offer wider access to commuting otters. The immediate habitat surrounding the culvert, other broadleaved woodland and open mosaic habitat, is considered to provide suitable habitat for commuting resting otter. The pond and ditches within the Survey Area provide further commuting, foraging and resting habitat for otters. Deciduous woodland adjacent to the pond was considered to provide suitable habitat for holt creation.

### Notable plant species

During the survey, open mosaic, neutral grassland, broadleaved and wet woodland within the Survey Area were considered to provide suitable habitat for a range of notable plant species, with pyramidal orchid being identified in the east of the Survey Area in the neutral grassland (Target Note 182).

### Reptiles

During the survey, scrub, neutral grasslands, standing waterbodies, deciduous and wet woodlands within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Deadwood and construction waste scattered throughout the open mosaic habitat within Survey Area was noted as suitable hibernacula. Rabbit warrens scattered throughout the Survey Area were also noted for hibernation and breeding potential for a range of reptiles.

### Water vole

No evidence of water voles such as burrows/droppings/feeding signs was observed during the survey. During the survey, it was identified that the neutral grassland, wet woodland, running water and standing waterbodies were considered to provide limited suitability for commuting, foraging, breeding and burrowing water vole, with only water levels and vegetation coverage around the pond creating suitable habitat for small populations.

## Sheepwalk Lakes

The desk study returned records for bats, birds, invertebrates and INNS which can be seen below. Surveys in 2022 returned results for bats and birds, which can be seen below.

### Habitat Overview

The Survey Area predominantly comprises of standing open water in the form of the Sheepwalk Lakes (r1). The edges of the lake are comprised of narrow strips of other broadleaved woodland (w1g7 - photo shown in plate 48, Appendix B). Pool End Ditch (r2) is located on the eastern section of the Survey Area.

### Amphibians

The terrestrial habitat, including deciduous woodland was noted to provide suitable habitat for foraging, commuting and resting amphibians. Standing and running waterbodies were also suitable for breeding amphibians. In addition, in wetter conditions, the other broadleaved woodland to the east of the Survey Area was suspected to have several temporary waterbodies, indicated by the range of emergent macrophytes centred in specific areas. These temporary pools (Target Note 229) could be used by various breeding amphibians, including great crested newts, if hold water in breeding season. Deadwood on site that had been collected into log piles was noted as potential hibernacula (Target Note 145).

### Badgers

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within the woodlands. Opportunities for sett creation on the bank of the broadleaved woodland is reduced as the water table is too high in the wet woodlands.

### Bats

Surveys 2021 identified five species: noctule, soprano pipistrelle, common pipistrelle, brown long-eared and myotis. These species were recorded commuting and foraging in a June and July survey; there was generally more bat activity in the north-east of the site. The desk study returned one record of common pipistrelle and one record of soprano pipistrelle from the record centres.

Deciduous woodland, standing and running water were noted to provide suitable commuting and foraging for bats. Mature trees in the woodlands within the Survey Area provide potential roosting features with several trees having bat boxes (Target Note 144 and 146).

### Birds

Surveys in 2022 recorded a kingfisher on site.

The desk study reported 32 records comprising 17 species of birds, including kingfisher, great crested grebe and great tit. The most recent records are from 2020 for black-headed gull, coot, cormorant, great crested grebe, kingfisher, mallard, mute swan, pochard and tufted duck.

During the survey, habitats such as deciduous woodland, standing waterbodies and bramble scrub were noted to be suitable for a range of breeding birds. Wintering bird habitat within the Survey Area included the standing waterbodies.

### Fish (including eels)

Standing water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported one record in 2014 of large white, peacock and small white butterflies within Sheepwalk Lakes.

During the survey, the deciduous woodland within the Survey Area was considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands.

Sheepwalk Lakes and Pool End Ditch is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 116 records of 19 species: bladder snail, Canadian waterweed, cherry laurel, Chinese mitten crab, cotoneaster, demon shrimp, holm oak, Himalayan balsam, Japanese knotweed, Jenkins' spire snail, least duckweed, New Zealand pygmyweed, North American flatweed, northern river crangonyctid, Nuttall's waterweed, orange balsam, pale galingale, quagga mussel and zebra mussel.

During the survey, Himalayan balsam was observed within the woodlands (Target Note 229).

Based on the species recorded in the desktop study, it is considered likely that the standing waterbodies within the Survey Area will support further aquatic invasive non-native species.

### Otter

During the survey, no features and/or evidence of otter were found. However, habitats including standing and flowing waterbodies and woodlands were considered to provide suitable habitat for commuting, foraging and resting otter. The woodlands adjacent to the standing waterbodies are considered suitable habitat for holt creation.

### Notable plant species

During the survey, the deciduous woodlands within the Survey Area were considered to provide suitable habitat for notable plant species.

### Reptiles

During the survey, deciduous woodlands and edges of the standing waterbodies within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking, breeding and resting reptiles. Deadwood on site that had been collected into log piles was noted as potential hibernacula (Target Note 145). No suitable breeding habitat was recorded during the survey.

### Water vole

During the survey, no evidence of water voles such as burrows/droppings/feeding signs was observed within the Survey Area. Running water and woodland within the Survey Area had suitability for commuting, foraging and burrowing water voles. Water levels were suitably high enough that, in combination with established vegetative edges around the standing waterbodies, to create suitable habitat for water voles.

## Funky Footprints

The desk study returned records for INNS which can be seen below. Surveys in 2022 returned results for badgers and bats, which can be seen below.

### Habitat Overview

The Survey Area comprises of Pool End Ditch (r2) surrounded by other broadleaved woodland (w1g7 - photo shown in plate 50, Appendix B), wet woodland (w1d) and mixed scrub (h3h). A large pond (r1b - photo shown in plate 51, Appendix B), named Black Ditch Pond, is located in the centre of the Survey Area. Arrhenatherum neutral grassland (g3c5 - photo shown in plate 49, Appendix B) and modified grassland (g4) is located to the east of the Survey Area.

### Amphibians

Black Ditch Pond provides suitable habitat for breeding amphibians, including great crested newts. This was because of high macrophyte coverage and good surrounding habitat which could be used for refugia. Pool End Ditch has limited suitability for foraging, commuting, breeding and resting amphibians along the edges of the stream but suitability is limited due to the likely presence of fish.

The wet and other broadleaved woodland, pond, mixed scrub and neutral grassland within the Survey Area, and the stream within the woodland were noted to provide suitable habitat for foraging, commuting and resting amphibians.

### Badgers

Surveys in 2023 identified a one-holed outlier sett. No evidence of use was observed within the vicinity during the survey and all indicators suggest the sett is no longer active.

During the walkover, two latrines (Target Note 44 and 115) were found in the Arrhenatherum neutral grassland to the west of the Survey Area, with multiple mammal runs leading off in different directions through the grassland, into the hedgerows, woodland and scrub around the woodland edges. A fox den was recorded in the woodland in the western corner of the playing field within the Survey Area (Target Note 40).

The Survey Area provides suitable habitat for foraging and commuting badgers, and the woodland provides suitable habitat for sett creation.

### Bats

Surveys 2022 identified five species: noctule, brown long-eared, myotis sp, soprano pipistrelle and common pipistrelle. These species were recorded commuting and foraging during the June and July surveys.

The woodland edges, grassland, scrub and pond provide suitable commuting and foraging habitat for bats. Woodland edges, lines of trees and hedgerows provide commuting habitat for bats. Whilst no roost features were noted during the survey, mature trees within the woodland were observed to provide suitable habitat for roosting bats.

### Birds

During the survey the mixed scrub, broadleaved woodland, lines of trees, hedgerows, and Arrhenatherum neutral grassland were noted to be provide suitable habitat for a range of breeding birds. These habitats are also likely to be used by overwintering species, including waterfowl, although given the tall sword height of the grassland, grazing suitability is reduced.

### Fish (including eels)

The standing and running waterbodies within the Survey Area were suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey the wet woodland, other broadleaved woodland, Arrhenatherum grassland and mixed scrub within the Survey Area were considered to be suitable for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands.

Pool End Ditch and Black Ditch Pond provide suitable habitat for foraging and breeding aquatic invertebrates such as caddisflies, stoneflies, dragonflies, butterflies and moths.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned 33 records of 20 species: American bulgeweed, buddleia, common millet, cotoneaster, demon shrimp, false acacia, goat's rue, green alkanet, Himalayan balsam, Japanese knotweed, Jenkin's spire snail, least duckweed, New Zealand pygmyweed, North American flatworm, northern river crangonyctid, Nuttall's waterweed, pale duckweed, parrot's feather, snowberry and variegated yellow archangel.

During the survey, New Zealand pygmyweed was observed around the edges of the pond (Target Note 212). Signs warning about Japanese knotweed being managed in the area were observed on entering the Survey Area, however no evidence of Japanese knotweed was found within the Survey Area.

Based on the species recorded in the desktop study, it is considered likely that the standing and running waterbodies within the Survey Area will support further aquatic invasive non-native species.

### Otter

Pool End Ditch and named Black Ditch Pond provide suitable habitat for commuting, foraging and resting otters. The Survey Area is also well connected to habitat suitable for otters within the wider environment including a large cluster of fishing lakes to the north. Deciduous woodland adjacent to the pond and running water were considered to provide suitable habitat for holt creation, in addition to further commuting and resting habitat.

### Notable plant species

During the survey no notable plant species were observed. The Arrhenatherum neutral grassland, wet woodland and other broadleaved woodland within the Survey Area were considered to provide suitable habitat for notable plant species including orchids.

### Reptiles

During the survey the grassland, scrub and woodland edges and pathways within the Survey Area and interfaces between these habitats were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Rabbit warrens and fox dens (Target Note 40) within the woodlands were considered to have potential for breeding and hibernating reptiles.

### Water vole

During the survey, the habitats within the Survey Area were not considered to provide suitable habitat for commuting, foraging and burrowing water vole. This was due to low water levels, shallow graded banks for burrowing and heavy shading across the channel. There is also a lack of suitable marginal and emergent vegetation.

## Area west of Sheepwalk HCA

The desk study returned records for INNS, which can be seen below. Surveys in 2022 returned results for badgers, bats and birds, this can be seen below.

### Habitat Overview

The centre of the Survey Area comprises developed land (u1b) that includes concrete roads, carpark, metal fence, a metal corrugated building, house/office building and soil stripped area with earth banks/spoil heaps. In addition, other broadleaved woodland (w1g7 - photo shown in plate 52, Appendix B) is located south-east of the carpark. The eastern section of the Survey Area comprises open mosaic habitats on previously developed land (u1a). The western section of the Survey Area comprises other neutral grassland (g3c - photo shown in plate 53, Appendix B) that is being used as horse

pasture and wet woodland (w1d - photo shown in plate 54, Appendix B) that surrounds the woodland.

River Croft Lake (r1b) is located in the north eastern corner of the Survey Area.

### Amphibians

The terrestrial habitat, including neutral grassland, open mosaic habitats on previously developed land, deciduous woodland and reedbeds, was noted to provide suitable habitat for foraging, commuting, resting, and breeding habitat for a range of amphibians. Two ponds, including River Croft Lake, were noted within the Survey Area to be suitable for breeding amphibians, with suitable low-lying vegetation for egg laying newts, including great crested newts.

### Badgers

This site was unable to be properly assessed due to dense scrub limiting access, however a mammal path was seen heading off into inaccessible scrub.

The Survey Area was noted to provide suitable habitat for foraging and commuting badgers within the neutral grassland, open mosaic habitats on previously developed land and broadleaved woodlands. The wet woodland is not suitable for sett creation due to be being below the water table. Other broadleaved woodland was noted for having potential for sett creation, with badger faeces and hairs found along the edges of the woodland (Target Note 123).

### Bats

Surveys in 2021 identified four species: noctule, soprano pipistrelle, nathusius and common pipistrelle. These species were recorded commuting and foraging in the June and July surveys.

Neutral grasslands, open mosaic habitats on previously developed land, deciduous woodland, sparsely vegetated land, reedbeds and standing bodies of water were noted to provide suitable commuting and foraging for bats. Mature trees within the woodlands and buildings throughout the Survey Area are considered to have potential to provide suitable roosting features. This includes a concrete building with plastic sheet/tarp roof (Target Note 129), two trees with cavities (Target Notes 122 and 131) and a building with wooden fascias, loose clay tiles on roof and ridge tiles with openings (Target Note 121).

### Birds

Surveys in 2022 recorded six species within this site: red kite, hobby, skylark, dunnock, greenfinch, linnet (including a breeding pair) and reed bunting.

During the survey, habitats such as deciduous woodland, open mosaic habitats on previously developed land, reedbeds and standing waterbodies were noted to be suitable for a range of breeding birds. Open habitats such as the neutral grassland, reedbeds and standing waterbodies offer potential suitability for wintering birds.

### Fish (including eels)

Standing water within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, deciduous woodland, open mosaic habitats on previously developed land and reedbeds within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. Due to the presence of elm species within the hedgerows recorded within the Survey Area, white-letter hairstreak could be present.

The two ponds and reedbeds were noted within the Survey Area to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned 16 records of six species: buddleia, Chinese mitten crab, goat's-rue, green alkanet, Japanese knotweed and snowberry.

During the survey, Japanese knapweed was recorded scattered through the wet woodland and on the edges of the developed land (Target Notes 215, 216, 217, 218 and 219). There is some evidence of management as some appears to have been sprayed to control the spread.

It is considered likely that the standing waterbodies within the Survey Area will support further aquatic invasive non-native species.

### Otter

The Survey Area lacks connectivity to suitable waterbodies and human activity reduces the likelihood of otter presence, however habitat present does have limited suitability for foraging and resting otter. Wet woodland also has limited potential to

support otter holts, albeit individuals would need to travel elsewhere to exploit other waterbodies/food sources.

### Notable plant species

During the survey, the other neutral grassland, wet woodland and open mosaic habitats on previously developed land within the Survey Area was considered to provide suitable habitat for a range of notable plant species.

### Reptiles

During the survey woodland, open mosaic habitats on previously developed land, neutral grassland, reedbeds and standing waterbodies within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Muck/horse manure found scattered in the sparsely vegetated land (Target Note 236) where horses are kept was considered suitable for breeding and hibernating reptiles.

### Water vole

During the survey, no suitable habitat was identified for commuting, foraging and burrowing water vole.

## Bed Lowering Downstream of Desborough Cut

The desk study returned records for bats, INNS, invertebrates and reptiles which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The Survey Area predominantly covers a section of the River Thames (r2). Developed land (u1b) comprises most of the surrounding area and includes Walton Bridge, which crosses over the river. Small patches of modified grassland (g4 - photos shown in plate 55 & 56, Appendix B) can be found adjacent to the river.

### Amphibians

The scattered marginal vegetation and scrub along the river and the modified grassland provide suitable habitat for commuting, resting and foraging amphibians. However, the lack of any ponds and presence of large populations of waterfowl (Target Note 25) limits the potential of amphibian populations within the Survey Area, with great crested newt populations not considered viable. No suitable hibernacula were recorded.

### Badgers

During the survey, no evidence of badgers was observed. The Survey Area was noted to provide suitable habitat for foraging and commuting badgers, especially in the grassland to the south of the Survey Area, which is well connected through woodland to suitable habitat for badgers in the wider environment. No suitable habitat was noted for sett creation.

### Bats

The desk study reported one record of noctule towards the east of the site from 2017.

The running waterbody and trees along the river edge provide commuting and foraging habitats for bats. The buildings and bridge within the Survey Area provide suitable habitat for potential roosting bats.

### Birds

During the survey the café eaves, river, marginal vegetation, and scattered scrub along the river were noted to provide suitable habitat for a range of breeding birds. This area has a constant presence of wildfowl including geese, swans and ducks, which are fed regularly by people walking along the river. The river and modified grassland were assessed as suitable for wintering birds.

### Fish (including eels)

The running waterbody (River Thames) within the Survey Area is suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study returned two records of harlequin ladybird, one record of dock bug and one record of banded demoiselle within this Survey Area surrounding Walton Bridge. The most recent record is from 2017 for a banded demoiselle, located to the east of the site.

During the survey the modified grassland, scattered tall herb vegetation, scrub, scattered trees and river edges within the Survey Area were considered to provide suitable habitat for a range of foraging and breeding terrestrial invertebrates.

The River Thames is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned 14 records of six species: Egyptian goose, Himalayan balsam, buddleia, cherry laurel, Japanese knotweed and Chinese mitten crab.

During the survey Himalayan balsam was observed scattered around the edge of the grassland extending into the woodland to the south of the Survey Area (Target Note 191) and a small stand of Japanese knotweed was observed along the river to the west of the Survey Area (Target Note 213).

It is considered likely that the section of the River Thames within the Survey Area will support further aquatic invasive non-native species, due to the number of records of non-native invasive species recorded along the river.

### Otter

The River Thames was considered to provide suitable habitat for commuting and foraging otter. The terrestrial habitat surrounding the river was heavily managed or urbanised and thus not suitable for otters. No habitat suitable for supporting otter holts was recorded.

### Notable plant

The habitats present within the Survey Area were not considered suitable for notable plant species due to the high impact on the habitats from wildfowl grazing, human presence and management.

### Reptiles

The Survey Area was considered not suitable for reptiles. This was due to the heavy grazing of wildfowl in the grassland adjacent to the River Thames and the heavy foot traffic on the PRoW.

### Water vole

The habitats within the Survey Area were not considered to provide suitable habitat for water voles due to the lack of continuous bank vegetation or suitable riverbanks for burrow creation.

### Land South of Wraysbury Reservoir HCA (including the rest of the embankment around Wraysbury Reservoir outside of the project boundary for EIA scoping)

The desk study returned records for INNS and invertebrates, which can be seen below. Surveys in 2022 returned results for bats and birds, which can be seen below.

### Habitat Overview

The Survey Area comprises predominantly of modified grassland (g4) that is heavily sheep grazed and comprised of crested dog's-tail, annual meadow grass and creeping bent. The grassland also contained scattered scrub and trees. Fragmented other broadleaved woodlands (w1g7 - photo shown in plate 57, Appendix B) of mature black poplar hybrids were scattered throughout the Survey Area. Buildings (u1b5 - photo shown in plate 58, Appendix B) were located in the southern section of the Survey Area.

### Amphibians

No waterbodies were recorded within the Survey Area. The modified grassland, which was maintained and managed at a low (less than 5 cm) sward height, was observed to be unsuitable habitat for foraging, commuting or resting amphibians.

### Badgers

Due to a high level of human disturbance and management, habitats found within the Survey Area were not suitable for foraging and commuting badgers. No evidence of sett creation was observed, and woodland was deemed to be routinely too disturbed by humans to allow for sett creation to occur.

### Bats

Surveys in 2021 bat transect surveys recorded noctule, Leisler's, soprano pipistrelle and common pipistrelle. All these species were recorded foraging and feeding throughout the Survey Area.

Habitats such as lines of trees, small areas of broadleaved woodland, modified grassland and powerlines (Target Note 104) across the Survey Area were noted to provide suitable commuting routes for bats. It is also worth noting the reservoir to the north, just outside of the Survey Area, provides good foraging habitat for bats. There are multiple buildings within the Survey Area, which provide suitable habitat for roosting bats (Target Notes 103, 105 and 107). Whilst no roosting features were noted during the survey, further features may exist within lines of trees, hedgerows with trees and broadleaved woodland.

### Birds

Surveys in 2022 recorded breeding pairs of house sparrow within the Survey Area.

During the survey, the lines of trees, small pockets of broadleaved woodland and buildings were noted to provide suitable habitat for a range of breeding and wintering birds. The reservoir north of the Survey Area (Target Note 108) has high potential for

wintering birds along with modified grassland which provides habitat for grazing waterfowl.

### Fish (including eels)

No waterbodies suitable for fish species were recorded within the Survey Area.

### Invertebrates (terrestrial and aquatic)

The desk study reported 25 records comprising 10 species of invertebrates within Land South of Wraysbury Reservoir HCA; digger wasp, comma butterfly, common blue butterfly, common blue damselfly, gatekeeper, large white butterfly, meadow brown butterfly, peacock, small heath butterfly and small white butterfly. The most recent record is for common blue damselfly from 2017.

During the survey, the modified grassland within the Survey Area was considered to provide suitable habitat for invertebrates such as dung beetles and flies, due to the number of sheep and droppings present. The hedgerows and trees along the southern boundary provide suitable habitat for a range of nectaring species including comma and red admiral butterflies. No suitable waterbodies were recorded for aquatic invertebrates. Collected deadwood (Target Notes 106 and 210) recorded within the Survey Area could potentially hold stag beetles.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 12 records of five species; false-acacia, goat's rue, Himalayan balsam, quagga mussel and buddleia.

During the survey, no invasive species were observed within the Survey Area. Himalayan balsam was observed just outside of the Survey Area from the boundary (Target Note 211).

### Otter

There are no waterbodies or habitats within the Survey Area that are suitable for holt creation or resting/foraging otter.

### Notable plant species

During the survey the habitats within the Survey Area were not considered to provide suitable habitat for notable plant species due to the high level of management and human disturbance across the Survey Area.

### Reptiles

During the survey the majority of the habitats within the Survey Area were considered to provide limited suitable habitat for commuting and foraging reptiles, due to the high level of management and disturbance across the Survey Area. Tall herbs and ruderal habitat on the edges of the modified grassland, alongside suitable areas for basking along the edges of the reservoir, provide potential for foraging, basking or resting reptiles. No breeding potential was identified within the Survey Area. Collected deadwood (Target Notes 106 and 210) recorded within the Survey Area could potentially be used as hibernacula.

### Water vole

No suitable waterbodies were present for water voles, with the recorded habitat considered not suitable for foraging and commuting water voles.

## Laleham Reach HCA (including area to the east outside of the project boundary for EIA scoping)

The desk study returned records for INNS, which can be seen below. Surveys in 2021 and 2022 returned results for bats and birds, which can be seen below.

### Habitat Overview

The habitat comprises mostly of other neutral grassland (g3c - photos shown in plates 59, 60 & 61, Appendix B), which is being used as horse pasture. A pond (r1b - photo shown in plate 62, Appendix B) surrounded by wet woodland (w1g7 - photo shown in plate 62, Appendix B) is located in the south west corner of the Survey Area.

### Amphibians

At the time of survey, the other neutral grassland to the north of the Survey Area and the hedgerows within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. There is a pond (0.07ha) within the wet woodland in the southwest corner of the Survey Area which has sparsely vegetated, gently sloping banks, and no evidence of macrophytes. The pond has clear water with an abundance of leaf litter and laying material, providing good habitat for resting, hibernating, breeding and foraging amphibians, including great crested newts.

### Badgers

The wet woodland in the southwest corner of the Survey Area was noted to provide suitable habitat for sett creation, in sections where the water level was not high. The grassland and woodland provide good foraging habitat, and the hedgerows and lines

of trees around the perimeter of the Survey Area provide suitable commuting habitat for badgers.

### Bats

Surveys in 2021 recorded five species; noctule, soprano pipistrelle, nathusius, common pipistrelle and serotine. These species were all recorded foraging and commuting within the Survey Area.

The lines of trees and hedgerows and other neutral grassland, especially to the north where the longer sward provides higher potential for invertebrates, provide suitable commuting and foraging habitat for bats. Whilst no roost features were noted during the survey, the line of mature trees to the west of the Survey Area provides suitable habitat for roosting bats.

### Birds

Surveys in 2022 recorded five species; house martin, starling, song thrush, dunnock and bullfinch.

During the survey, the other neutral grassland in the north of the Survey Area, hedgerows, mixed scrub and wet woodland were noted to be suitable for a range of breeding birds. The other neutral grassland to the north of the Survey Area provides suitable foraging habitat for both owls and raptors due to its suitability for small mammals. No wintering bird habitat was recorded during the survey.

### Fish (including eels)

The standing waterbody within the Survey Area was noted to be suitable for fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, the grassland and hedgerows within the Survey Area were considered to provide suitable habitat for a range of terrestrial invertebrates. The wet woodland was not considered suitable for stag beetles due to a lack of recorded deadwood.

The pond in the southwest corner of the Survey Area provides suitable habitat for aquatic and semi-aquatic invertebrates including mayflies, stoneflies, and diving beetles.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported two records of snowberry.

During the survey no invasive non-native species, terrestrial or aquatic, were observed.

### Otter

The other broadleaved woodland surrounding the pond located on the southern edge of the site has the potential to be used otters. However, the relative age of the trees and the exposed nature of the pond limits the suitability for resting, foraging and use for holt creation. Combined with the fragmented nature of the habitat, the Survey Area was assessed to be unlikely to support otter populations.

### Notable plant species

During the survey no notable plant species were observed. The other neutral grassland to the north of the Survey Area, which was dominated by black bent and couch grass with field bindweed and cow parsley, provides suitable habitat for meadow species including orchids. However, this is limited due to grazing pressure.

### Reptiles

During the survey, the other neutral grassland to the north of the Survey Area and the scrub and abutting grassland was considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. No hibernacula or habitat suitable for breeding was recorded.

### Water vole

During the survey, modified grassland and wet woodland habitats were considered unsuitable habitat for commuting, foraging or burrowing water voles due to a lack of forgeable vegetation for food and coverage, connectivity with waterbodies within the wider area and bank side material for burrowing.

## Sheepwalk HCA

The desk study returned records for INNS, which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

Previously a landfill site, the Survey Area comprises open mosaic habitats on previously developed land (u1a - photos shown in plates 63 & 64, Appendix B) and mixed scrub (h3d). Fragmented broadleaved woodland (w1 - photo shown in plate 65, Appendix B) can be found in the south-western section of the Survey Area.

### Amphibians

There is a single waterbody to the west of the Survey Area. The pond, Target Note 224, appeared artificial with signs indicating it had been excavated. However, it was noted to be suitable for breeding amphibians. Terrestrial habitat within the Survey Area, including open mosaic and deciduous woodlands, was noted to provide suitable habitat for foraging, commuting, resting habitat for a range of amphibians. Industrial waste located throughout the Survey Area (metallic building sheets, tyres, wooden panelling) was identified as potential hibernacula.

### Badgers

No features and/or evidence of badger were found. The Survey Area was noted to provide suitable habitat for foraging, commuting and sett creation for badgers within the open mosaic, scrub and deciduous woodlands.

### Bats

Open mosaic, line of trees along the boundary and deciduous woodland were noted to provide suitable commuting and foraging for bats. Mature trees within the woodlands and line of trees throughout the Survey Area were observed to be potentially suitable for roosting, however no features were noted at the time of survey.

### Birds

During the survey, habitats such as scrub, open mosaic, deciduous woodland, and line of trees were noted to be suitable for a range of breeding birds. An artificial pond in the north west of the Survey Area might offer suitable breeding habitat for breeding and wintering birds. The open mosaic habitats on previously developed land have limited potential to be used for foraging by wintering birds.

### Fish (including eels)

No standing water was recorded within the Survey Area that would be suitable for fish species. The pond recorded on site was deemed to recently excavated, lacking connectivity to other waterbodies and too small in size to hold potential for fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, deciduous woodland and open mosaic habitat within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates. Furthermore, collected deadwood was scattered throughout the open mosaic habitat recorded within the Survey Area, which is potential habitat for stag beetles.

The artificial pond is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 72 records of five species within Sheepwalk Lakes HCA; buddleia, goat's-rue, green alkanet, Japanese knotweed and ring-necked parakeet.

During the survey, Japanese knapweed was recorded growing in the open mosaic habitat of the Survey Area (Target Note 184).

No aquatic invasive non-native species were recorded during the survey, with the pond fully inspected during the survey.

### Otter

Due to a lack of connectivity with waterbodies in the surrounding area and the open nature of the mosaic habitat, no suitable resting and foraging habitat was recorded on site. The Survey Area has limited suitability for commuting otters given the lack of connectivity with wider waterbodies and woodland habitat.

### Notable plant species

During the survey, open mosaic habitat was considered to provide suitable habitat for a range of notable plant species. The habitat was botanically rich with a high species diversity.

### Reptiles

During the survey, scrub, open mosaic and deciduous woodland within the Survey Area and wider landscape were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Industrial waste located throughout the Survey Area (metallic building sheets, tyres, wooden panelling) was identified as potential hibernacula. The large number of rabbit warrens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

During the survey, no suitable habitat was identified for commuting, foraging and burrowing water voles due to the lack of suitable banks, food sources and connectivity with wider waterbodies.

## Land South of Chertsey Road HCA

The desk study returned records for bats, INNS and invertebrates, which can be seen below. Surveys in 2021 and 2022 returned results for bats and birds, which can be seen below.

### Habitat Overview

The land is predominantly comprised of other neutral grassland (g3c - photo shown in plate 68, Appendix B), which is being used for cattle pasture, modified grassland (g4), and willow plantation. The willow plantation has been split into wet woodland (w1d - photo shown in plate 69, Appendix B) due to the waterlogged conditions and other broadleaved woodland (w1g7 - photo shown in plate 66, Appendix B), where the undergrowth was dry. Edges of the Survey Area include built up area (u1) which includes vegetated garden and developed land (u1b). Two ponds (r1b - photo shown in plate 67, Appendix B) are located to the east of the Survey Area.

### Amphibians

The terrestrial habitat including broadleaved woodland, wet woodland, vegetated gardens, other neutral grassland, gardens, modified grassland, and linear habitats such as ditches, within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting habitat. Three ponds were identified within the Survey Area, named Ferry Lane West 1, Ferry Lane West 2 and Ferry Lane West 3. These, combined with the reedbeds and ditches, were noted to provide suitable opportunities for resting and breeding amphibians, including great crested newts. Accumulated debris/brash and deadwood (Target Notes 167, 168, 169, 170 and 177) was noted for its potential as hibernacula for amphibian species.

### Badgers

The broadleaved woodland, modified grassland, bramble scrub, other neutral grassland, and hedgerow habitat was noted to provide suitable habitat for sett creation, commuting and foraging badgers.

### Bats

Surveys in 2021 recorded eight species: noctule, soprano pipistrelle, common pipistrelle, Leisler's, serotine, brown long eared and myotis sp. All these species were recording foraging and commuting within the HCA. The desk study returned a single record for a soprano pipistrelle from 2015 recorded to the east of the site.

Wet woodland, broadleaved woodland, modified grassland, and other neutral grassland were noted to provide suitable commuting and foraging habitat for bats.

Linear features such as hedgerows, lines of trees and ditches also provide commuting habitat for bats. While no roost features were noted during the survey, mature trees within woodland habitat, lines of trees and trees within hedgerows could provide suitable roosting features for bats.

### Birds

Surveys in 2022 recorded four species within the Survey Area; kingfisher, house martin, song thrush and mistle thrush. Three breeding pairs of song thrush were seen on site.

During the survey, habitats such as broadleaved woodland, gardens, wet woodland, bramble scrub, neutral grassland, reedbed, standing water, lines of trees and hedgerows were noted to be suitable habitat for a range of breeding birds. Wintering bird habitat, including other neutral grassland, was also recorded during the survey.

### Fish (including eels)

Standing waterbodies across the Survey Area were deemed suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study returned two records of two species: dark-edged bee-fly and gatekeeper butterfly. The most recent record is for a dark-edged bee-fly which was recorded to the south east of the site in 2020.

During the survey, wet woodland, vegetated gardens, broadleaved woodland, neutral grassland, modified grassland, bramble scrub, reedbed, hedgerows and vegetated gardens within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates. The presence of cattle within the Survey Area provides a continuous supply of food for dung-feeding flies and beetles. Sward height was varied in places due to cattle grazing habits, which also benefits invertebrates. Furthermore, collected deadwood (Target Notes 167, 168, 169, 170 and 177) was scattered throughout the Survey Area, which is potential habitat for stag beetles.

The ponds, ditches and reedbeds are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported eight records of four species within Land South of Chertsey Road HCA; cherry laurel, New Zealand pygmyweed, zebra mussel and muntjac deer.

No terrestrial invasive and non-native species were recorded during the survey.

One aquatic invasive non-native species was recorded during the Survey. New Zealand pygmyweed was identified within the ditch going through the centre of the Survey Area (Target Note 54).

### Otter

During the survey, the ditches and reedbeds within the Survey Area were not considered to provide suitable habitat for foraging otter, given waterbodies are shallow and choked with algae with limited connection to surrounding waterbodies. The three ponds have potential for foraging, resting and commuting otter due to their proximity to Ferry Lane but are limited due to excessive management of the surrounding habitat within back gardens. The adjacent woodland surrounding the ponds has suitable habitat for holt creation.

### Notable plant species

During the survey, wet woodland, neutral grassland, hedgerows, and broadleaved woodland to the north of the Survey Area were considered to provide suitable habitat for a range of notable plant species. Broadleaved woodland to the east of the Survey Area was deemed unsuitable given the dense structure of the wood, limited light penetration and extremely poor ground flora.

### Reptiles

During the survey, wet woodland, broadleaved woodland, neutral grassland, modified grassland, bramble scrub, hedgerows, ditches and standing water within the Survey Area and interfaces between these habitats were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Accumulated debris/brash and deadwood (Target Notes 167, 168, 169, 170 and 177) provides further hibernation and breeding habitat.

### Water vole

No habitats within the Survey Area were considered to provide suitable habitat for commuting, foraging and burrowing water vole. Standing waterbodies are shallow with common duckweed and lack suitable banks and food stuffs.

## Desborough Island HCA

The desk study returned records for bats, INNS, invertebrates and notable plants, which can be seen below. Surveys in 2021, 2022 and 2023 returned results for bats, birds and reptiles, which can be seen below.

### Habitat Overview

The River Thames (r) runs along the north of the Survey Area and Desborough Cut runs along the south. The majority of the Survey Area comprises of other neutral grassland (g3c -photo shown in plate 72, Appendix B), which is regularly accessed by the public, and dense bramble scrub (h3d - photo shown in plate 70, Appendix B). Other broadleaved woodland (w1g7 - photo shown in plate 71, Appendix B) can be found on the edges of the rivers.

### Amphibians

The other broadleaved woodland, other neutral grassland, and bramble scrub habitat within the Survey Area was noted to provide suitable habitat for commuting and resting amphibians. Due to the likely presence of fish, confirmed presence of waterfowl and heavy flow, river habitat is largely unsuitable for amphibians, including great crested newts. No hibernacula were recorded during the survey.

### Badgers

The Survey Area was noted to provide suitable habitat for badger foraging and sett creation. The narrow strip of woodland to the south of the Survey Area, which is on a raised riverbank along the road, and the area of scrub in the southeast of the Survey Area provide suitable sett creation areas. These habitats also provide suitable commuting routes for badgers. The grassland within the Survey Area provides suitable foraging habitat for badgers.

### Bats

Surveys in 2021 recorded three species; noctule, soprano pipistrelle and common pipistrelle. These species were all recorded foraging and commuting throughout the Survey Area. A key observation at this site was a group of four noctules, which were initially observed together above a tree close to their anticipated emergence time. Given the early emergence time for this species, it is likely a roost is located within very close proximity. The desk study returned one record for a soprano pipistrelle located to the south of the site in 2017.

The woodland edges and linear features (hedgerows, line of trees and river) provide suitable commuting corridors and the grassland provides suitable foraging habitat. Several trees on the river's edge, within the woodland to the west of the Survey Area, have woodpecker holes which provide suitable roosting habitat for bats (Target Note 188).

### Birds

Surveys in 2022 recorded three species; red kite, song thrush and bullfinch. An adult barn owl was observed at Desborough Island during bat surveys (GBV, 2021b).

During the survey, habitats such as bramble scrub and other broadleaved woodland were noted to provide suitable breeding habitat for a range of birds. Woodpecker holes present in trees along the river to the west of the Survey Area provide additional habitat for tree dwelling birds. The other neutral grassland provides low suitability for ground-nesting birds due to the high level of disturbance from dog walkers. The grassland provides suitable foraging habitat for owls and raptors and the mature trees are suitable for perching and potential nesting. No wintering bird habitat was recorded.

### Fish (including eels)

Suitable habitat for fish was noted within the River Thames and Desborough Cut.

### Invertebrates (terrestrial and aquatic)

The desk study identified 23 records comprising nine invertebrate species; mayfly *Ephemeroptera*, caddis fly, common nettle-tap moth, brimstone butterfly, red-tailed bumblebee, cinnabar moth, shaded broad-bar moth, burnet companion moth and common carpet moth. The most recent record is for a red-tailed bumblebee, which was recorded to the south of the site from 2020.

During the survey, the other neutral grassland, scrub, and woodland within the Survey Area were considered to provide suitable habitat for a range of terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn was recorded within the Survey Area, brown hairstreak could be present.

The River Thames and Desborough Cut are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 111 records of 21 species; Asian clam, bladder snail, buddleia, cherry laurel, demon shrimp, floating pennywort, green alkanet, holm oak, Himalayan balsam, iris, Japanese knotweed, Jenkin’s spire snail, least duckweed, North American flatworm, northern river crangonyctid, Nuttall’s waterweed, oak processionary, orange balsam, Russian comfrey, snowberry and zebra mussel.

During the survey, Himalayan balsam was observed throughout the other neutral woodland to the north of the Survey Area (Target Note 189).

It is considered likely that the section of the River Thames and other running waterbodies within the Survey Area will support further aquatic invasive non-native species, due to the number of records of non-native invasive species recorded along the river.

### Otter

The River Thames and Desborough Cut were considered to provide suitable habitat for commuting and foraging otter. During the survey, the broadleaved woodlands adjacent to the rivers within the Survey Area were considered to provide limited suitability for commuting, resting and holt creation. However, it is unlikely that otters will rest or create holts within the woodland due to the high level of disturbance from dog walkers and people. Other broadleaved woodland along the southern Survey Area boundary provides the most suitable habitat for holt creation.

### Notable plant species

The desk study reported one record of butcher's-broom from 2014, which was recorded to the north west of the site. Butcher’s-broom is nationally scarce throughout the UK.

During the survey no notable plant species were observed. The grassland contains species such as meadow barley, red fescue, lady’s bedstraw and meadow cranesbill, however due to the high impact of dog walkers on the other neutral grassland it is moving towards becoming a modified grassland.

### Reptiles

Surveys in 2021 recorded direct observations for an adult male grass snake and a juvenile grass snake.

During the survey, the other neutral grassland, scattered scrub within the grassland and the other broadleaved woodland and scrub edges within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles such as grass snakes and slow worms. Rabbit warrens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

The banks of the rivers were not suitable for burrowing and lacked sufficient vegetation coverage that would be needed for water voles. Therefore, the Survey Area is not

considered to provide suitable habitat for commuting, foraging and burrowing water vole.

### Land between Desborough Cut and Engine River HCA

The desk study returned records for bats and invertebrates, which can be seen below. Surveys in 2021 returned results for bats, which can be seen below.

#### Habitat Overview

The habitat comprises mostly of actively modified grassland (g4 - photo shown in plate 74, Appendix B), which is being used as horse pasture. Wet woodland (w1d) can be found on the south eastern border of the Survey Area, along the Engine River (r2).

#### Amphibians

The modified grassland, neutral grassland, wet woodland and dense scrub within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. Engine River is largely unsuitable for amphibians, including great crested newts, due to the likely presence of fish, confirmed presence of waterfowl and fast flow. No hibernacula were recorded during the survey.

#### Badgers

Modified grassland, other neutral grassland, bramble scrub and hedgerows within the Survey Area were noted to provide suitable foraging and commuting habitat for badgers. Opportunities for sett creation were observed within hedgerows (photo shown in plate 73, Appendix B) bordering the modified grassland.

#### Bats

Surveys in 2021 recorded five species; noctule, myotis sp., soprano pipistrelle, common pipistrelle and brown long-eared. These species were recorded commuting and foraging. The desk study reported one record of common pipistrelle from 2015, which was recorded in flight to the north of the site.

Other neutral grassland, modified grassland, wet woodland and the river within the Survey Area were noted to provide suitable habitat for commuting and foraging bats. Linear features such as line of trees, and hedgerow with trees also provide commuting and foraging habitat for bats. Mature trees across the Survey Area were observed to provide suitable roosting features for bats.

### Birds

During the survey, modified grassland, neutral grassland, lines of trees, hedgerows, wet woodland, reedbed, dense scrub and farm buildings were noted to be suitable for a range of breeding birds and overwintering species. A hollowed tree was noted (Target Note 173) for its potential for nesting birds, with the entry point into the tree large enough to support barn owls.

The Engine River and the modified grassland in the immediate vicinity of the watercourse has limited potential for wintering waterfowl, due to the overgrazed nature of the grassland and high levels of human disturbance.

### Fish (including eels)

The Engine River within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, modified grassland and wet woodland within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

The Engine River is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported three records of floating pennywort within Land between Desborough Cut and Engine River HCA.

No terrestrial invasive or non-native species were recorded during the survey.

Floating pennywort was recorded within the Engine River during the site visit (Target Note 234).

### Otter

The Engine River was considered to provide suitable habitat for commuting and foraging otter. During the survey, wet woodland which acts as a riparian corridor for the Engine River was considered to provide suitable habitat for commuting, resting and foraging otters and holt creation.

### Notable plant species

During the survey, wet woodland and neutral grassland within the Survey Area was noted to provide suitable habitat for notable plant species.

### Reptiles

During the survey, other neutral grasslands, dense scrub, wet woodland, and hedgerows were considered to provide limited suitable habitat for commuting, foraging, basking and resting reptiles. Sward height is short in the modified grasslands, due to grazing pressure, and offers no refuge nor foraging opportunities for reptiles. There is greater suitability in the other neutral grassland and fringes of the riparian habitat within the Survey Area where there is reduced grazing pressure. No suitable habitat for breeding and hibernating reptiles was recorded during the survey.

### Water vole

During the survey, it was identified that the modified grassland, wet woodland and Engine River provided suitable habitat for commuting and foraging and burrowing water vole. However, burrowing habitat was limited, with the wet woodland overgrown and limited suitability of banks for burrowing.

## Former Laleham Golf Course HCA

The desk study returned records for invertebrates and reptiles, which can be seen below. Surveys in 2022 and 2023 returned results for badgers and birds, which can be seen below.

### Habitat Overview

The Survey Area predominantly comprises modified grassland (mg4 - photo shown in plate 75, Appendix B) that was previously managed as a golf course. Fragmented scattered other broadleaved grassland (w1g7 - photo shown in plate 76, Appendix B) is found throughout the Survey Area. Five ponds, which were dry at time of survey, and a standing body of water (r) are present. Burway Ditch (r2b) is present along the south western boundary of the Survey Area and Abbey River is located to the east. Wet woodland (w1d - photo shown in plate 77, Appendix B) can be found in the south western section of the Survey Area, along watercourses and the standing body of water.

### Amphibians

Ponds were dry at time of survey. However, the vegetation would suggest that these ponds are seasonally wet and could have limited potential for breeding amphibians. The standing body of water and ditches were also noted as suitable for breeding

amphibians, including great crested newts. The surrounding terrestrial habitat, including modified grassland and other broadleaved woodland were noted to provide suitable habitat for foraging, commuting and resting habitat for a range of amphibians. Deadwood that had been collected into log piles throughout the Survey Area was noted as suitable hibernacula for amphibians.

### Badgers

Surveys in 2023 identified a single large mammal commuting path crossing underneath a metallic fence.

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within the modified grassland and woodlands. Broadleaved woodland was noted as being suitable for sett creation.

### Bats

The desk study reported no bat species within the Former Laleham Golf Course HCA.

Modified grassland, other broadleaved woodland, mixed woodland and standing waterbodies were noted to provide suitable commuting and foraging for bats. Linear features such as lines of trees and running water were also observed to provide commuting habitat for bats. Whilst no features were noted on the survey, buildings to the north of the Survey Area and woodland scattered throughout the Survey Area were observed to provide suitable opportunities for roosting bats.

### Birds

Surveys in 2022 recorded three species; song thrush (breeding pairs), dunnock and greenfinch.

During the survey, habitats such as deciduous and mixed woodland, standing waterbodies, line of trees, scattered scrub, and buildings within built up areas to the north, were noted to be suitable for a range of breeding birds, with buzzards and green woodpeckers noted during the survey. Wintering bird habitat including standing water was also recorded during the survey, with adjacent modified and other neutral grassland providing potential foraging habitat.

### Fish (including eels)

The standing body of water, Abbey River and Burway Ditch were noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported one record of brown hairstreak from 2019.

During the survey, deciduous woodland and modified grassland within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. Deadwood on site had been stored into log piles within the other neutral broadleaved woodlands and was noted as potential habitat for stag beetles (Target Note 159). As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

The standing waterbody, Abbey River and Burway Ditch are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 45 records of 10 species; buddleia, false-acacia, floating pennywort, cherry laurel, Virginia creeper, Himalayan balsam, Japanese rose, holm oak, snowberry and goat's-rue.

Invasive non-native species were recorded in a terrestrial and aquatic setting. During the survey, Himalayan balsam and Japanese rose were observed growing along the ditches and running water courses (Target Note 205), spreading into adjacent grassland.

### Otter

The standing waterbody, Burway Ditch and Abbey River were considered to provide suitable habitat for commuting, foraging and resting otter with connectivity with other watercourses, in particular the River Thames. Wet woodland and other broadleaved woodland acts as a riparian corridor and are considered suitable for holt creation.

### Notable plant species

During the survey, wet woodland, modified grassland and other neutral grassland within the Survey Area were considered to provide suitable habitat for notable plant species.

### Reptiles

The desk study reported 11 records of grass snake. All records are from 2019, with five of the records being found to the east of the site.

During the survey, modified grasslands and deciduous woodlands within the Survey Area and interfaces between these habitats were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Deadwood that had been

collected into log piles throughout the Survey Area was noted as suitable hibernacula for reptiles (Target Note 159). Rabbit warrens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

During the survey, it was identified that the modified grassland, other neutral grassland, wet woodland, other broadleaved woodland and running waterbodies within the Survey Area provide suitable habitat for commuting, foraging and burrowing water voles. Banks along Burway Ditch were noted to have good suitability for burrowing water voles, with well vegetated banks and consistent water levels noted.

## Drinkwater Pit HCA

The desk study returned no records for the species listed below. Surveys in 2022 returned results for birds, which can be seen below.

### Habitat Overview

The habitat comprises mostly of other neutral grassland (g3c - photo shown in plate 79, Appendix B), which is being used infrequently as horse pasture, and bramble scrub (h3d - photo shown in plate 78, Appendix B). Two small areas of other broadleaved woodland (w1g7) and other mixed, mainly broadleaved, woodland (w1h5) are within the Survey Area.

### Amphibians

The other neutral grassland, bramble scrub and other broadleaved woodland within the Survey Area was noted to provide suitable habitat for foraging, commuting and resting amphibians. The grassland has patches of rushes within it, and there is a dry ditch along the southern boundary within the woodland suggesting the Survey Area is seasonally wet, which could have potential for breeding amphibians, including great crested newts. However, no waterbodies were observed that could have been used by breeding amphibians at the time of survey. The woodlands within the Survey Area were noted for containing deadwood that could potentially be used as hibernacula.

### Badgers

During the survey mammal runs were observed throughout the Survey Area, no other evidence of badger was observed. The Survey Area was noted to provide suitable habitat for commuting, foraging and sett creation in the other broadleaved woodland, beneath the line of trees to the north, which is on a steep earth bank and in the scrub. The other mixed, mainly broadleaved woodland to the south of the Survey Area (photo shown in plate 80, Appendix B) is dominated by hazel and has a bluebell understorey

and provides suitable habitat for badgers (rabbit burrows are present in this Survey Area).

### Bats

The lines of trees, along the railway line to the west and along the north boundary of the Survey Area adjoining the woodland, provide suitable commuting and foraging habitat for bats. The other neutral grassland provides good foraging habitat for bats, especially in wetter areas, to the southwest. The other broadleaved woodland and line of trees to the north of the Survey Area comprise of mature trees, which could have potential roosting features.

### Birds

Surveys in 2022 recorded two species; house sparrow and greenfinch.

During the survey the scrub, grassland and woodlands were noted to provide suitable breeding habitat for a range of birds. Green woodpeckers flying and calling and foraging goldfinches and hunting buzzards were observed. No wintering bird habitat was identified during the survey.

### Fish (including eels)

No waterbodies were noted within the Survey Area, as such the Survey Area is unsuitable for fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, the bramble scrub, other neutral grassland, other mixed, mainly broadleaved woodland and other broadleaved, woodland within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. These habitats provide a diversity of food sources for invertebrates. During the survey multiple predated stag beetles were located within neutral grassland, to the north west of the Survey Area.

As the ditches recorded were dry during the survey, no suitable habitat for aquatic invertebrates was recorded. However, the grassland has patches of rushes where it is seasonally wet, providing suitable habitat for semi-aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

During the survey, small-flowered balsam was observed at the gate leading into the Survey Area. Small-flowered balsam is on the list of species the London Invasive Species Initiative (LISI) is tackling.

There is no suitable habitat for aquatic non-native invasive species.

### Otter

During the survey, the woodland to the south of the Survey Area was considered to provide suitable habitat for commuting and resting otter. The Survey Area was assessed to be unsuitable for breeding otter, due to the absence of suitable features for breeding/holt creation alongside the distance of the Survey Area from permanent waterbodies.

### Notable plant species

During the survey, the grassland within the Survey Area was considered to provide suitable habitat for orchids. Areas of soft rush and sedges were also recorded, which indicates the grassland is seasonally wet and could further support notable plant species. One pyramidal orchid was observed in the southwest corner of the Survey Area.

### Reptiles

During the survey the other neutral grasslands, which contain patches of scattered scrub and tall herb, were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. The seasonally wet characteristic of the grassland in particular favours grass snakes. The woodlands within the Survey Area were noted for containing deadwood that could potentially be used as hibernacula and have limited potential for breeding reptiles. Rabbit warrens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

During the survey none of the habitats within the Survey Area were considered to provide suitable habitat for water voles.

## Grove Farm HCA

The desk study returned records for INNS, which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The habitat comprises mostly of actively modified grassland (g4 - photo shown in plate 81, Appendix B), which is being used as horse pasture. The River Ember (r) runs along the northern boundary of the Survey Area, and fragmented other broadleaved woodland (w1g7 - photo shown in plate 82, Appendix B) can be found in the south

western section of the Survey Area. A pond (r1b) was identified in the centre of the Survey Area. Whilst dry during the survey, the presence of certain plant species such as gypsywort and water mint indicate that it is seasonally wet.

### Amphibians

The terrestrial habitat, including deciduous woodland, ditches and pond were noted to provide suitable habitat for, foraging commuting and resting for a range of amphibians. It was noted that the pond and ditches would be suitable for amphibians if not dry, and could provide breeding habitat for amphibians, including great crested newts. Deadwood within the Survey Area that had been collected into log piles was noted to provide suitable hibernacula (Target Note 230).

### Badgers

The Survey Area was noted to provide suitable habitat for foraging and commuting badger within the deciduous woodland. Opportunities for sett creation were also identified in the banks of the broadleaved woodland. Suitable badger habitat was identified near the pond (Target Note 141).

### Bats

The modified grassland, other broadleaved woodland, standing waterbodies and the running waterbody to the north of the Survey Area were noted to provide suitable commuting and foraging for bats. Linear features such as lines of trees, hedgerows, ditches and running water provide commuting habitat for bats. Whilst no features were recorded during the survey, buildings and mature trees within the woodlands, line of trees and hedgerows with trees, provide opportunities for roosting bats.

### Birds

During the survey, habitats such as deciduous woodland, standing waterbodies, buildings, line of trees and bramble scrub were noted to be suitable for a range of breeding birds. Wintering bird habitat including standing water was also recorded during the survey though the modified grassland was assessed as not suitable for wintering birds.

### Fish (including eels)

The River Ember within the Survey Area was noted suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

During the survey, the deciduous woodland was considered to provide suitable habitat for foraging and breeding terrestrial invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the

woodlands (Target Note 230). As blackthorn was recorded within the Survey Area, brown hairstreak could be present.

The River Ember is considered to provide suitable habitat for foraging and breeding aquatic invertebrates. The ponds, when wet, could also potentially provide suitable habitat for foraging and breeding aquatic invertebrates

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported three records of two species, buddleia and Japanese knotweed, within Grove Farm HCA.

Invasive non-native species were recorded during the survey in both aquatic and terrestrial habitats. Himalayan balsam was observed growing in the ditches (Target Note 231) and Japanese knotweed was also identified on the edges of the pond, spreading into the adjacent other broadleaved woodland (Target Note 141).

### Otter

During the survey, no features and/or evidence of otter were found. However, habitats including standing and flowing waterbodies were considered to provide suitable habitat for commuting, foraging and resting otter. No suitable otter holt habitat was identified near the River Ember.

### Notable plant species

During the survey, the other broadleaved woodlands within the Survey Area were considered to provide suitable habitat for notable plant species. A potential small leaved lime was identified in the other neutral woodland (Target Note 148).

### Reptiles

During the survey, deciduous woodlands, standing and running waterbodies within the Survey Area and interfaces between these habitats were considered to provide suitable habitat for commuting, foraging, basking, breeding and resting reptiles. Deadwood within the Survey Area that had been collected into log piles was noted to provide suitable hibernacula (Target Note 230). Rabbit warrens and fox dens scattered across the Survey Area provide potential breeding habitat for reptiles.

### Water vole

Flowing water within the Survey Area had suitability for commuting and foraging water voles. The banks of the River Ember offered suitability for burrowing and breeding water voles due to bank gradient, vegetation cover and constant water levels.

## Littleton North HCA

The desk study and surveys in 2022 returned no species records for the taxonomic groups listed below.

### Habitat Overview

The Survey Area consists of open mosaic habitats on previously developed land (u1a - photo shown in plate 84, Appendix B), which comprises grassland, scrub, reedbeds and bare ground with spoil heaps present. The ground has been previously stripped and now primarily consists of a gravel base, with an earth bund around the northeast and east of the Survey Area.

### Amphibians

The Survey Area consists of open mosaic habitat which comprises grassland, scrub, and bare ground with spoil heaps present; suitable habitat for foraging, commuting and resting amphibians. There is also evidence that the north west of the field is seasonally wet, and there is a reedbed present, providing suitable habitat for breeding amphibians, with potential for great crested newt. No suitable hibernacula was recorded during the survey.

### Badgers

During the survey, no evidence of badgers was observed. The open mosaic habitat within the Survey Area was noted to provide suitable habitat for foraging and commuting badgers. The spoil heaps and earth banks within the Survey Area, which are sparsely covered with tall ruderal vegetation or scrub, provide opportunities for sett creation.

### Bats

The open mosaic habitat within the Survey Area was noted to provide suitable foraging habitat for bats. The line of trees along the road to the east of the Survey Area and the hedgerows to the north provide habitat for commuting bats. Mature trees within the lines of tree could have potential bat roosting features.

### Birds

During the survey, the open mosaic habitat including the scrub, grassland and reedbeds, tree line to the east and hedge line to the north of the Survey Area were noted to be suitable for a range of breeding birds and wintering birds.

### Fish (including eels)

Waterbodies were absent from the Survey Area, as such no suitable fish habitat was recorded.

### Invertebrates (terrestrial and aquatic)

During the survey, the open mosaic habitat within the Survey Area was considered to provide suitable habitat for a diverse range of foraging and breeding terrestrial invertebrates due to the grassland, scrub, bare ground, and reedbed habitat present.

The reedbeds are considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

During the survey Japanese knotweed (Target Note 206) and giant hogweed (Target Notes 207 and 208, photo shown in plate 83, Appendix B) were observed within the Survey Area.

No aquatic invasive non-native species were recorded during the survey, with suitable habitat limited to the reedbeds.

### Otter

During the survey, the open mosaic habitat was considered to provide suitable habitat for commuting and foraging otters. There is a large lake to the east and the west of the Survey Area, therefore it is likely that otters would pass through this area. No suitability for resting and holt creation was identified during the survey.

### Notable plant species

During the survey, no notable plant species were observed. The open mosaic habitat within the Survey Area was considered to provide suitable habitat for notable plant species due its ability to support a range of pioneer species which would usually be outcompeted.

### Reptiles

During the survey, open mosaic habitats on previously developed land was considered to provide suitable habitat for commuting, foraging, basking, breeding and resting reptiles. This was due to the multiple smaller habitats recorded in the Survey Area, including grassland, scrub, bare ground, spoil heaps and reedbed. The large number of rabbit warrens and fox dens recorded within the Survey Area were assessed as providing breeding and hibernation potential for various reptile species.

### Water vole

Due to the lack of waterbodies the Survey Area were not considered to provide suitable habitat for commuting, foraging and burrowing water vole,

## Norlands Lane HCA

The desk study returned records for bats and INNS, which can be seen below. Surveys in 2022 and 2023 returned results for badgers and birds, which can be seen below.

### Habitat Overview

The site primarily comprises managed modified grassland (g4 - photo shown in plate 86, Appendix B) on landfill with a short sward, averaging 5 species/$m^2$. Broadleaved woodland (w1 - photo shown in plate 87, Appendix B) and other broadleaved woodland (w1g7) can be found to the south of the Survey Area. A large pond (r1b) is located in the north western corner of the Survey Area. Lake South of Green Lane (r1) and Mead Lake Ditch (r2) run along the eastern border of the Survey Area.

The north eastern section of the site comprises perennial ryegrass dominated modified grassland, which is being utilised as horse pasture and built-up areas and gardens (u1) including wooden stables. Other neutral grassland (g3c) and other broadleaved woodland is present on the eastern section of the Survey Area, along the edges of the Lake South of Green Lane.

### Amphibians

The broadleaved and other broadleaved woodland, bramble scrub, reedbeds, modified grassland, lines of trees and hedgerows within the Survey Area were noted to provide suitable habitat for foraging, commuting and resting amphibians. The pond in the northwest corner of the Survey Area (Target Note 118) is a fishing pond and was therefore considered to be limited in suitability for breeding amphibians. A smaller dry pond was recorded during the survey (Target Note 235), that was suspected to be seasonally wet due to the presence of bulrush, and is considered to have limited potential for breeding amphibians. Furthermore, reedbeds and ditches towards the eastern section of the Survey Area were also recorded having potential for breeding amphibians, including great crested newts. Deadwood and plant cuttings that had been collected and piled (Target Notes 2, 116, 119 and 124) were noted for providing suitable hibernacula for amphibians.

### Badgers

Surveys in 2023 recorded a two-hole outlier sett. Clear commuting routes in the surrounding area were followed into areas of dense scrub that were inaccessible to surveyors.

During the survey badger droppings were observed around the edges of the broadleaved woodland to the south of the Survey Area (Target Note 125). The broadleaved woodland and bramble scrub to the south of the Survey Area provides suitable habitat for sett creation, foraging and commuting.

### Bats

The desk study reported one record of soprano pipistrelle from 2017.

The broadleaved woodland edges, ditches, lines of trees and hedgerows within the Survey Area were noted to provide suitable commuting routes for bats. The modified grassland, bramble scrub, woodland edges, reedbeds, standing waterbodies and ponds provide suitable foraging habitat for bats. Whilst no roost features were observed during the survey, multiple small buildings (Target Notes 117, 126 and 127) and mature trees within the Survey Area were noted as providing suitable roost opportunities for bats. Farm buildings to the north of the Survey Area (Target Note 3) were noted for their high suitability for potential roosting features.

### Birds

Surveys in 2022 recorded red kite, skylark (including breeding pairs), Cetti's warbler, house sparrow and dunnock.

During the survey the broadleaved woodland, bramble scrub, hedgerows, lines of trees, modified grassland, other neutral grassland, reedbeds and ponds within the Survey Area were noted to be suitable for a range of breeding birds. In addition, nesting boxes were observed on a farm building (Target Note 4). Lake South of Green Lane provides foraging and resting habitat for wintering birds, with the other neutral grassland assessed as functionally linked habitats that could offer further foraging opportunities.

### Fish (including eels)

During the survey, the pond in the west of the Survey Area, Mead Lake Ditch and Lake South of Green Lane were noted to provide suitable habitat for fish.

### Invertebrates (terrestrial and aquatic)

During the survey the modified grassland, other neutral grassland, bramble scrub, broadleaved woodland, and hedgerows within the Survey Area were considered to provide suitable habitat for a diverse range of foraging and breeding invertebrates. The woodland habitat recorded on site could potentially support stag beetles, as deadwood was recorded within the woodlands. As blackthorn and elm species were recorded within the Survey Area, white-letter hairstreak and brown hairstreak could be present.

Ditches, Lake South of Green Lane and Mead Lake Ditch within the Survey Area were considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported three records of Japanese knotweed, with all of these records coming from 2019.

During the survey, a nest of oak processionary moths was observed on a tree to the northeast of the pond. Japanese knotweed was recorded around the pond in the north western corner of the Survey Area and along the edges of the road (Target Note 214, photo shown in plate 85, Appendix B).

It is considered likely that the standing waterbodies within the Survey Area will support further aquatic invasive non-native species, due to high levels of connectivity with surrounding waterbodies.

### Otter

Lake South of Green Lane and Mead Lake Ditch were considered to provide suitable habitat for commuting, foraging and resting otter, and an otter spraint was recorded (Target Note 22) within the other broadleaved woodland. Reedbeds and other broadleaved woodland on the eastern edge of the Survey Area formed a riparian corridor and were noted for, in addition to providing further commuting and resting habitat, having suitable conditions for holt creation.

### Notable plant species

During the survey, the other neutral grassland, modified grassland and other broadleaved woodlands within the Survey Area were considered to provide suitable habitat for notable plant species.

### Reptiles

During the survey the modified grassland, other neutral grassland, bramble scrub, other broadleaved woodland edges, standing waterbodies, reedbeds and ponds were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Deadwood and plant cuttings that had been collected and piled (Target Notes 2, 116, 119 and 124) were noted for providing suitable hibernacula and potential breeding habitat for reptiles.

### Water vole

Lake South of Green Lane is connected to other large waterbodies via Mead Lake Ditch, and is considered to provide suitable habitat for commuting, foraging and burrowing water vole. Water levels recorded were sufficient to sustain water vole populations with varying levels of suitable vegetation cover. The pond (Target Note 118) used for recreational fishing was assessed as not suitable for water voles due to the lack of suitable banks and native vegetation coverage.

## Sunbury Lock/Weir

The desk study returned records for bats, invertebrates and INNS and surveys in 2022 returned results for birds; see below.

### Habitat Overview

The Survey Area comprises a weir and lock, with the majority of the Survey Area comprising the River Thames - Sunbury (r). The terrestrial habitat is mainly other broadleaved woodland (w1g7) (w1g7 - photo shown in plate 89, Appendix B), with an area of suburban/ mosaic of developed/ natural surface (u1d) (u1d - photo shown in plate 88, Appendix B), which consists of a concreted area, previously building foundations which have cracked and allowed tall herb species to colonise.

### Amphibians

The woodland, scrub, grassland within the suburban mosaic habitat and marginal vegetation along the river were noted to provide suitable habitat for foraging, commuting and resting amphibians. No waterbodies within the Survey Area were noted suitable for breeding amphibians and no hibernacula were recorded.

### Badgers

During the survey no evidence of badgers was found. The woodland and grassland within the Survey Area was noted to provide suitable habitat for sett creation and foraging, although the Survey Area is only accessible by a footbridge which is fenced, and it is therefore less likely that badgers would be present.

### Bats

The desk study returned one record of an unidentified bat and one record of soprano pipistrelle, both records are from 2017.

The woodland edges and river within the Survey Area were noted to provide suitable commuting and foraging for bats. Standing deadwood and mature trees with tear-outs are present within the woodland (Target Notes 113 and 114), providing suitable habitat for roosting bats. The footbridge across to the island also provides a suitable roost site for bats.

### Birds

Surveys in 2022 recorded six species; red kite, hobby, house martin, starling, house sparrow and bullfinch.

During the survey the other broadleaved woodland and mixed scrub within the Survey Area were noted to be suitable for a range of breeding birds. The River Thames which encompasses the edge of the Survey Area is suitable for wintering birds.

### Fish (including eels)

The River Thames within the Survey Area is suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study returned one record of freshwater nerite snail, one record of white-letter hairstreak butterfly and 17 records of 14 different species of caddisfly.

During the survey the other broadleaved woodland, mixed scrub, river edges and marginal vegetation within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates including butterflies, moths and stag beetles. As elm species were recorded within the Survey Area, white-letter hairstreak could be present.

The River Thames – Sunbury is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned 18 records of six species; buddleia, cherry laurel, Chinese mitten crab, holm oak, Himalayan balsam and orange balsam.

During the survey Himalayan balsam was observed growing along the southwest end of the island, along the edges of the other broadleaved woodland.

It is considered likely that the section of the River Thames within the Survey Area will support further aquatic invasive non-native species, due to the number of records of non-native invasive species recorded along the river.

### Otter

The River Thames within the Survey Area was considered to provide suitable habitat for commuting, foraging and resting otter. Due to the location of the Survey Area, all terrestrial habitats recorded were directly adjacent to the River Thames. As a result, the other broadleaved woodland was considered to provide additional commuting and resting habitat. The other broadleaved woodland was also noted for having suitable habitat for holt creation.

### Notable plant species

During the survey no notable plant species were observed. During the survey the other broadleaved woodland and cracked concreted areas were considered to provide suitable habitat for a range of notable plant species.

### Reptiles

Due to the lack of connectivity to other suitable habitat for reptiles as a result of the habitat residing on an island, the Survey Area is considered unsuitable for reptiles.

### Water vole

The woodland and marginal vegetation within the Survey Area were considered to provide suitable habitat for commuting, foraging and burrowing water vole. The river to the south of the island is considered suitable for water voles due to the vegetated steep banks.

## Hurst Park and Molesey Weir

The desk study returned records for bats and invertebrates which can be seen below. Surveys in 2021 and 2022 returned results for bats and birds, which can be seen below.

### Habitat Overview

The Survey Area comprises a weir and lock, with the majority of the Survey Area comprising the River Thames – Molesey (r). The terrestrial habitat is mainly suburban/ mosaic of developed/ natural surface (u1d) with other neutral grassland along the

edges (g3c – photo shown in plate 91, Appendix B) and Hurst Park comprising of modified grassland (g4 - photo shown in plate 90, Appendix B).

### Amphibians

The long grass to the south and pockets of woodland within Hurst Park provide suitable terrestrial habitat for commuting, foraging and resting amphibians. The ornamental shrub planting, and marginal vegetation around Molesey Weir provide suitable habitat for resting amphibians, although the weir is not well connected to other terrestrial habitat and is surrounded by fast flowing water, unsuitable for amphibians. No breeding or hibernation habitat was identified during the survey.

### Badgers

The Survey Area was not noted to provide suitable habitat for sett creation due to the size and openness of the woodlands present in Hurst Park and the high level of disturbance on the site by humans and dogs. There is some opportunity for foraging and commuting badgers in the grassland and woodland on the site.

### Bats

Surveys in 2021 recorded four species: noctule, soprano pipistrelle, common pipistrelle and nathusius. All species were recorded foraging and commuting.

The desk study records returned one record for a Daubenton's bat from 2017.

The grassland, woodland edges, lines of trees, and river within the Survey Area were noted to provide suitable commuting and foraging for bats. A large cavity in a willow tree to the north of Hurst Park (Target Note 73) facing the river, a mature tree along the edge of the island (Target Note 165) and the two buildings at Molesey Lock were noted to provide suitable habitat for roosting bats (Target Note 75 and 76).

### Birds

Surveys in 2022 recorded six species; swift, house martin, Cetti's warbler, starling, house sparrow and greenfinch. It was noted that this site was a confirmed nest site for starlings.

During the survey the grassland and woodlands within Hurst Park were noted to be suitable for a range of breeding birds. The weir provides suitable habitat for waterfowl and is suitable for wintering populations.

### Fish (including eels)

The River Thames within the Survey Area is suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study returned 778 records of 43 invertebrate species, including white letter hairstreak, clouded yellow butterfly, ivy bee and small heath butterfly. The most recent records were from 2020 for hairy-footed flower bee and a true-fly.

During the survey the grassland, woodlands and lines of trees within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates, especially butterflies such as comma, meadow brown and speckled wood and damselflies and dragonflies. Stag beetles are featured on the information board at Hurst Park and are known to be found in woodlands, parks and gardens in South East England.

The River Thames – Molesey is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned 94 records of 23 species; bamboo, black sambuca, buddleia, cherry laurel, Chinese mitten crab, cotoneaster, curly waterweed, Eastern grey squirrel, Egyptian goose, elecampane, false Virginia creeper, false-acacia, floating pennywort, green alkanet, holm oak, montbretia, Nuttall's waterweed, oak processionary, orange balsam, ring necked parakeet, snowberry, variegated periwinkle and Virginia creeper within Hurst Park and Moseley Weir.

During the survey Egyptian geese were observed at Molesey Weir, and ring-necked parakeets were heard and observed flying overhead.

It is considered likely that the section of the River Thames within the Survey Area will support further aquatic invasive non-native species, due to the number of records of non-native invasive species recorded along the river.

### Otter

The river within the Survey Area was considered to provide suitable habitat for commuting, foraging and resting otter. Due to the location of the Survey Area, all terrestrial habitats recorded were directly adjacent to the River Thames. As a result, the other neutral grassland and pockets of other broadleaved woodland were considered to provide additional commuting and resting habitat. No suitable habitat for holts was recorded.

### Notable plant species

During the survey, other broadleaved woodland to the north of the Survey Area was considered to provide suitable habitat for a range of notable plant species.

### Reptiles

During the survey the grassland, which has a varied sward height, and the woodland edges within the Survey Area were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles, especially grass snakes (which may also use the river to forage) and slow worms. No suitable habitat was recorded for hibernating and breeding reptiles.

### Water vole

During the survey none of the habitats within the Survey Area were considered to provide suitable habitat for commuting, foraging or burrowing water vole.

## Teddington Lock/Weir

The desk study returned records for invertebrates and INNS and surveys in 2022 returned results for birds, which can be seen below.

### Habitat Overview

The Survey Area comprises a weir and lock, with the majority of the Survey Area comprising the River Thames (r). The terrestrial habitat comprises other broadleaved woodland (w1g7), suburban/ mosaic of developed/ natural surface (u1d) and modified grassland (g4) which is used for human recreation.

### Amphibians

The woodland and marginal vegetation along the river were noted to provide suitable habitat for foraging, commuting and resting amphibians. No waterbodies within the Survey Area were noted suitable for breeding amphibians and no hibernacula were recorded.

### Badgers

During the survey no evidence of badgers was found. The woodland within the Survey Area was noted to provide suitable habitat for sett creation and foraging, though suitability is limited due to restricted access for badger, with a raised walkway and stairs offering the only access points. Such entry routes to the Survey Area are not likely to be used by badger.

### Bats

The woodland edges and river within the Survey Area were noted to provide suitable commuting and foraging for bats. Mature trees within the other broadleaved woodland provide potential suitable habitat for roosting bats. Buildings within the Survey Area also offer potential roosting habitat for bats.

### Birds

Surveys in 2022 recorded five species; swift, skylark, starling, mistle thrush and greenfinch.

During the survey the other broadleaved woodland and buildings within the Survey Area were noted to be suitable for a range of breeding birds. The section of the River within the Survey Area is suitable for wintering waterfowl. The other broadleaved woodland and modified grassland is also suitable for other wintering species.

### Fish (including eels)

The River Thames within the Survey Area is suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study returned one record of the crustacean *Hemimysis anomala*.

During the survey the other broadleaved woodland, river edges and marginal vegetation within the Survey Area were considered to provide suitable habitat for foraging and breeding invertebrates including butterflies, moths and stag beetles.

The River Thames is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

The desk study returned one record of goats rue within the Survey Area. No invasive or non-native species were recorded within the Survey Area.

### Otter

The River Thames within the Survey Area was considered to provide suitable habitat for commuting, foraging and resting otter. Due to the location of the Survey Area, all terrestrial habitats recorded were directly adjacent to the River Thames. As a result, the other broadleaved woodland was considered to provide additional commuting and

resting habitat. The other broadleaved woodland was also noted for having suitable habitat for holt creation.

### Notable plant species

During the survey no notable plant species were observed. The other broadleaved woodland was considered to provide suitable habitat for a range of notable plant species.

### Reptiles

Other broadleaved woodland within the Survey Area provides habitat for resting and foraging reptiles. However, due to the lack of connectivity to other suitable habitat for reptiles, as a result of the habitat residing on an island and regular human disturbance, the Survey Area is considered largely unsuitable for reptiles.

### Water vole

Due to the banks of this section of the River Thames being man-made, no suitable habitat was recorded for burrowing. Marginal vegetation was not considered suitable to sustain a water vole population.

## Remaining area within EIA Scoping Boundary

The desk study returned records for bats, invertebrates and INNS which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Amphibians

The desk study reported no amphibians in the Remaining EIA Scoping Boundary.

### Badgers

The desk study reported no badgers in the Remaining EIA Scoping Boundary.

### Bats

The desk study reported four records of two species: soprano pipistrelle and pipistrelle sp. One record was for an unidentified bat species. The most recent record is from 2017 for an unidentified bat species located 100m away from the Abbey Chase Care and Residential Home.

### Birds

The desk study reported no birds in the Remaining EIA Scoping Boundary.

### Fish (including eels)

The desk study reported no fish or eels in the Remaining EIA Scoping Boundary.

### Invertebrates (terrestrial and aquatic)

The desk study reported 16 records of 13 species; a true fly, azure, damselfly, banded demoiselle, brimstone, clouded yellow, common blue damselfly, common club-tail, freshwater nerite, holy blue, ivy bee, red admiral and river snail in the Remaining EIA Scoping Boundary. The most recent record is from 2020 for a clouded yellow butterfly located 5 m away from PRoWs along north of River Thames. Twenty-six individuals of four species, azure damselfly, banded demoiselle, common blue damselfly and common club-tail were recorded from the same site 1 km away from Abbey Chase Care and Residential Home.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 113 records of 26 species; bamboo, *Bidens frondose*, bladder snail, buddleia, cherry laurel, cotoneaster, demon shrimp, false Virginia creeper, false-acacia, floating pennywort, goat's-rue, green alkanet, holm oak, Himalayan balsam, Japanese knotweed, Japanese rose, Jenkin's spire snail, North American flatworm, Northern river crangonyctid, Nuttall's waterweed, oak processionary, orange balsam, passion flower, quagga mussel, snowberry and zebra mussel in the Remaining EIA Scoping Boundary. There were 95 records of INNS from 2022, however a significant number of these were located 90 m away from areas north and north east of Egham Hythe Pond. These species included goats-rue, cherry laurel, snowberry, bamboo and false-acacia.

### Otter

The desk study reported no otters in the Remaining EIA Scoping Boundary.

### Notable plant species

The desk study reported no notable plants in the Remaining EIA Scoping Boundary.

### Reptiles

The desk study reported no reptiles in the Remaining EIA Scoping Boundary.

### Water vole

The desk study reported no water vole in the Remaining EIA Scoping Boundary.

# Wider Study Area (EIA Scoping Boundary +2km)

## Sweep's Ditch

The desk study returned records for invertebrates, which can be seen below. Surveys in 2022 returned no species results for the taxonomic groups listed below.

### Habitat Overview

The habitat comprises predominantly of modified grassland (g4 - photo shown in plate 92, Appendix B), which is being used as horse pasture. The northern section of the survey comprises of a private garden that is intensively managed. Other habitats include suburban/ mosaic of developed/ natural surface (u1d), which encompasses the main stables and associated building and Sweep's Ditch (r2), which runs along the eastern boundary of the Survey Area.

### Amphibians

The terrestrial habitat, including modified grassland and other neutral grassland, was noted to provide suitable habitat for foraging, commuting and resting amphibians. Sweep's Ditch is a running waterbody with heavily grazed edges, and with no further waterbodies recorded within the Survey Area, it was assessed that suitable breeding habitat for amphibians was not present. Accumulated garden waste and building rubble was noted (Target Note 162) to provide potential hibernacula for amphibians.

### Badgers

No features and/or evidence of badger were found. However, the Survey Area was noted to provide suitable habitat for foraging and commuting badger, within modified grassland and neutral grassland. No suitable habitat for sett creation was identified.

### Bats

Modified grassland, other neutral grassland and Sweep's Ditch were noted to provide suitable commuting and foraging for bats. Linear features, such as lines of trees and Sweep's Ditch, provide commuting habitat for bats. Woodland and farm buildings to the north and south of the Survey Area provide potential roosting features. A dilapidated stable located to the south of the Survey Area was noted to provide potential roosting features.

### Birds

During the survey, habitats such as modified grassland, other neutral grassland, running waterbody, line of trees and farm buildings within built up areas to the north

and south, were noted to be suitable for a range of breeding birds. No wintering bird habitat was recorded during the survey.

### Fish (including eels)

Sweep's Ditch within the Survey Area was noted to be suitable for a range of fish species.

### Invertebrates (terrestrial and aquatic)

The desk study reported one record of ivy bee and one record of small white butterfly within this area. The most recent of these records was from 2019 for a small white.

During the survey, modified grassland and other neutral grassland within the Survey Area were considered to provide suitable habitat for foraging and breeding terrestrial invertebrates.

Sweep's Ditch is considered to provide suitable habitat for foraging and breeding aquatic invertebrates.

### Invasive species and non-native (terrestrial and aquatic)

During the survey, no terrestrial or aquatic invasive non-native species were observed.

### Otter

Sweep's Ditch could be utilised by otter commuting, foraging and resting. Other neutral grassland and modified grassland adjacent to Sweep's Ditch was considered to provide suitable habitat for commuting and resting otter but limited due to intensive grazing minimising any cover. No habitats suitable for holt creation were identified during the survey.

### Notable plant species

Other neutral grassland within the Survey Area was considered to provide suitable habitat for notable plant species.

### Reptiles

During the survey, modified grassland and neutral grassland within the Survey Area and wider landscape were considered to provide suitable habitat for commuting, foraging, basking and resting reptiles. Accumulated garden waste and building rubble was noted (Target Note 162) to provide potential hibernation and breeding habitat for reptiles.

### Water vole

During the survey, Sweep's Ditch was initially considered to provide suitable habitat for burrowing and breeding water vole. However, the surrounding habitat has limited vegetative cover on the banks and the macrophyte coverage within the ditch would suggest that the water levels fluctuate regularly. Overall, the Survey Area has limited potential for commuting and foraging water voles and no suitable habitat for burrowing and breeding.

### Within 2km of EIA Scoping Boundary (excluding Sweep's Ditch)

The desk study returned records for amphibians, badgers, bats, birds, fish, invertebrates, INNS, otter, reptiles and water vole.

#### Amphibians

The desk study reported 30 records of amphibians from four species, great crested newt, smooth newt, common frog and common toad, within 2km of EIA Scoping Boundary.

#### Badgers

The desk study reported six records of badgers within 2km of EIA Scoping Boundary.

#### Bats

The desk study reported 605 records of bats from 13 species, including brown long eared, common pipistrelle, Daubenton's, Leisler's, long eared sp., Myotis, Nathusius, noctule, *Nyctalus sp*., pipistrelle sp., serotine and soprano pipistrelle within 2km of EIA Scoping Boundary.

#### Birds

The desk study reported 8443 records across 157 different bird species including bittern, Cetti's warbler, sand martin, siskin and snipe within 2km of EIA Scoping Boundary.

#### Fish (including eels)

The desk study reported 32 records of five different fish and eel species, European eel, bullhead, barbel, unidentified fish and unidentified bony fish, within 2km of EIA Scoping Boundary.

#### Invertebrates (terrestrial and aquatic)

The desk study reported 6659 records of 381 different invertebrate species within 2km of EIA Scoping Boundary.

### Invasive species and non-native (terrestrial and aquatic)

The desk study reported 898 records of 72 different INNS including Easter grey squirrel, wall cotoneaster, floating pennywort, Nuttall's waterweed, buddleia, Canada goose and Chinese muntjac within 2km of EIA Scoping Boundary.

### Otter

The desk study reported five records of otters within 2km of EIA Scoping Boundary.

### Notable plant species

The desk study reported no notable plants within 2km of EIA Scoping Boundary.

### Reptiles

The desk study reported nine records of grass snake within 2km of EIA Scoping Boundary.

### Water vole

The desk study reported one record of a water vole within 2km of EIA Scoping Boundary.

**Historical confirmed records and suitable habitats recorded during survey, within the EIA scoping boundary and Wider Study Area, highlight that a range of protected species could be present within the Survey Areas. Proposed works as part of the project could affect certain species within different areas. As such, further surveys, mitigation and/or compensation measures are recommended; see chapter 4 below.**

## River Condition Assessment

A total of five water courses were subject to RCAs in 2022 (refer Table 3.3), to verify and update the surveys carried out in 2020 (refer Table 3.4. The condition assessment results were consistent with results recorded in 2020; document reference IMSE500260-GBV-ZZ-3ZZ-RP-Z-00043 (GBV, 2020a).

The River Thames was over 50 m in width and in accordance with RCA methodologies were excluded from the RCA. All field boundary drains/ditches were excluded from the RCAs and these waterbodies were subject to UKHab ditch habitat condition assessments.

**Table 3.3 - RCA Results 2022**

| Waterbody Name | Date of Survey | Length MoRPh | Number of MoRPhs | River Type | River Condition Score |
|---|---|---|---|---|---|
| The Bourne | 27/06/2022 | 10m | 1 | K | Moderate |
| Mead Lake Ditch N | 21/06/2022 | 10m | 2 | K | Fairly Good |
| Mead Lake Ditch S | 21/06/2022 | 10m | 2 | K | Moderate |
| Abbey River N | 20/06/2022 | 10m | 3 | K | Moderate |
| Abbey River M | 20/06/2022 | 10m | 3 | K | Moderate |
| Abbey River S | 20/06/2022 | 20m | 3 | K | Moderate |
| Pool End Ditch | 27/06/2022 | 10m | 1 | K | Moderate |
| Desborough Cut | 27/06/2022 | 50m | 1 | navigable | N/A |

The habitat condition scores presented within this table should be used to populate the condition score within the rivers tab of the biodiversity Metric.

**Table 3.4 – RCA Results 2020 (rivers not surveyed 2022)**

| Waterbody Name | Length MoRPh | Number of MoRPhs | River Type | River Condition Score |
|---|---|---|---|---|
| The Chap (Ferry Lane West) | 10m | 1 | K | Moderate |
| Engine River | 10m | 1 | K | Moderate |
| River Thames (Teddington Lock) | 50m | 1 | navigable | Fairly Poor |
| River Thames (Broom Road Rec.) | 50m | 1 | navigable | Fairly Poor |
| River Thames (Molesey Lock) | 50m | 1 | navigable | Fairly Poor |
| River Thames (Sunbury Lock) | 50m | 1 | navigable | Fairly Poor |
| River Thames (Desborough Island) | 50m | 1 | navigable | Moderate |
| River Thames (Thorpe Hay Meadow) | 50m | 1 | navigable | Fairly Poor |
| River Thames (US Chertsey Lock) | 50m | 1 | navigable | Moderate |

# 4. Recommendations

### Designated Sites and Protected and/or Notable Species

Table 4-1 highlights recommendations regarding habitats and protected and/or notable species. This is based on a high level review of likely impacts from the RTS which will need to be reviewed as the level of detail is refined. In particular, due to the long running nature of RTS a range of ecological surveys have already been completed and/or are ongoing. Further survey recommendations will be reviewed in the context of these existing surveys and the ongoing Ecological Impact Assessment (EcIA) to confirm whether these are required.

An overview of completed protected species surveys across different taxa is summarised within the recommendations below. However, a full detailed review of completed ecology surveys and the validity of different survey types are given in a Environmental Survey Data Gap Analysis Report ENVIMSE500260-GBV-ZZ-3ZZ-RP-EN-10016 (GBV, 2023a).

**Table 4.1 - Recommendations**

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| Statutory Designated Sites | Overall Survey Area | A Habitats Regulation Assessment (HRA) is recommended, to assess the likelihood of any adverse effects to the features of SPA, SAC and Ramsar sites and supporting habitat from works undertaken by the project. | No seasonal constraints |
| Non-Statutory Designated Sites | Overall Survey Area | It is recommended that the relevant Local Planning Authority/Local Wildlife Trust is consulted regarding any works within the listed non-statutory designated sites or any works that could alter the condition or ecology of the sites. | No seasonal constraints |
| Other habitats of nature Conservation Importance - hedgerows | Overall Survey Area | Separate permission for hedgerow removal under The Hedgerow Regulations (1997) is unlikely but should be confirmed with the consenting authorities. Similarly confirmation of whether the information contained within the UKHabs survey (which includes condition) is enough to assess the value of the hedgerows for the purposes of the EcIA. Further hedgerow surveys may be required to identify any hedges that could be affected by the project and would be classified as Important under the Hedgerows Regulations, which are likely to be removed or effected by the Proposed Works.<br><br>Hedgerows should be replaced with improved diversity. | Hedgerow surveys should be completed April – October. The peak survey season for hedgerow ground flora June – July |
| Watercourses | Overall Survey Area | Watercourses present within Survey Areas should have an up to date River Condition Assessment/score to inform BNG calculations and WFD related surveys. | No seasonal constraints |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | | Existing RTS River Condition Assessment (RCA) Surveys:<br><br>RCA surveys undertaken by GBV; autumn 2019 and summer 2022.<br>References<br>RTS River Condition Assessment Report (GBV, 2020b)<br>Cartographer (2019a, b, c, 2020)<br>Analysis of the Condition of Pre-existing watercourses within the project red line boundary and within Habitat Creation Areas (GB, 2021a) | |
| Amphibians | **Survey Areas where further surveys are required**<br><br>• Abbey River Confluence with River Thames<br>• Royal Hythe<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• Fields North of Littleton North Lake<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Sheepwalk HCA<br>• Laleham Reach HCA | Numerous areas surveyed across the EIA scoping boundary were noted to provide suitable habitat for a range of breeding, resting and commuting amphibians, including great crested newts (GCN). If any Proposed Works are likely to affect the waterbodies or the surrounding terrestrial habitat within 250m, it is recommended, for the Survey Areas listed, that a Habitat Suitability Index (HSI) is undertaken to assess the suitability of waterbodies to support GCN. If this assessment concludes that the pond has suitability to support GCN, an eDNA test should then be undertaken to determine if the pond does contain GCN. If the eDNA results confirms GCN presence, further GCN population surveys will be required (March to mid June). eDNA surveys and any GCN population surveys will further inform more detailed mitigation under licence.<br><br>If any waterbodies are to be drained to facilitate works, a Precautionary Method of Working Statement (PMW) must be adopted to ensure all animals can be captured and translocated to an agreed appropriate site. | HSI surveys all year round<br><br>GCN eDNA surveys all year round for presence. To prove absence of GCN from a waterbody sample must be taken between 15th April to the 30th June<br><br>Amphibian hibernation period October to April |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Land South of Chertsey Road HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA<br>• Norlands Lane HCA | Most areas within the EIA scoping boundary were noted to have some suitable terrestrial habitat for amphibians. In these areas, amphibians could be encountered during habitat removal or clearance. If vegetation clearance is required at ground level, it should ideally be completed during the summer months, outside of the hibernation period (October-April). Any potential hibernacula should be cleared in the previous active season if works are programmed in winter.<br><br>It is recommended that PMW should be adopted for the Proposed Works, including vegetation clearance. This PMW will be tailored to the construction methods and level of risk to amphibians in each area. The PMW will include details on how to proceed if amphibians are encountered.<br><br><u>Existing RTS Amphibian Surveys:</u><br><br>Great Crested Newt (GCN) surveys; June – August 2017 with repeat surveys undertaken in 2021 and April 2023.<br><br><u>References:</u><br><br>RTS CI&FC Project Great Crested Newt Survey Report (GBV, October 2017)<br><br>RTS Great Crested Newt Survey Report June 2021 (GBV, 2021c)<br><br>Great Crested Newt Survey Report 2023 (GBV, 2023e) | (temperature dependent) |
| Badgers | **Survey Areas where further surveys are recommended:** | Numerous areas surveyed across the EIA scoping boundary were noted to provide suitable habitat for sett creation. | No seasonal constraints. Pre-construction |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Royal Hythe<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• St Ann's Lake<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area<br>• Fields North of Littleton North Lake<br>• Ferry Lane Lake (Ferris Meadow),<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>Area west of Sheepwalk HCA<br>• Laleham Reach HCA<br>• Sheepwalk HCA<br>• Land South of Chertsey Road HCA | It is recommended for these Survey Areas listed that a badger survey is undertaken to identify possible sett locations. Surveys will inform next steps such as camera trapping or bait marking surveys and will include further mitigation, if required.<br><br>Most of the EIA scoping boundary also contains suitable foraging and commuting habitat for badgers. Since this species is mobile and can move into an area relatively quickly, it is recommended that a pre-construction check and PMW are undertaken within 50m of working areas. A pre-construction check should be carried out no earlier than 3 months before the Proposed Works are due to commence in any section.<br><br>Any excavation sites to be left open overnight must be covered or left with a means of egress for badgers to prevent entrapment.<br><br>No equipment should be left uncovered or be openly accessible within the project overnight. Badgers are highly inquisitive mammals and may engage with construction equipment, subsequently injuring themselves.<br><br>Works will result in a loss of foraging habitat where the development takes the place of suitable habitat. However, habitats of similar and higher quality than those within the development site are abundant in the wider area. Furthermore, as part of net gain, suitable opportunities will be included as part of mitigation to improve and/or create habitat suitable for badgers.<br><br><u>Existing RTS Badger Surveys:</u> | checks no earlier than 3 months before commencement. |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Desborough Island HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA<br>• Norlands Lane HCA | Badger surveys undertaken by JBA; May-September 2017 and October 2018<br>Badger surveys undertaken by GBV 2022.<br><br><u>References:</u><br>River Thames Scheme: Badger Report (JBA, 2018a)<br>Badger Survey Report 2022 River Thames Scheme (GB, 2022b). | |
| Bats | **Survey Areas where PRA is recommended:**<br>• Area east of Lake South of Green Lane,<br>• Field East of Meadlake<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Royal Hythe<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• St Ann's Lake<br>• Abbey River south of M3<br>• Littleton East Lake | Numerous areas surveyed across the EIA scoping boundary were noted to provide suitable trees and buildings with potential suitability to support roosting bats. Buildings/trees containing potential roosts within these Survey Areas could be directly impacted or subject to indirect disturbance.<br><br>It is therefore recommended for these Survey Areas listed that a preliminary Bat Roost Assessment (PRA) is undertaken. This survey will inform the requirement for further surveys and detailed mitigation.<br><br>Given, the range of suitable habitats bat activity and static surveys are recommended for Survey Areas where suitable foraging habitat and commuting corridors are present and may be lost or subject to construction related impact. These Survey Areas are listed as requiring static or activity surveys under 'Location'.<br><br>A formal classification of habitat condition following Bat Conservation Trust (BCT) guidelines (Collins, 2016) should be conducted as part of | PRA have no seasonal constraints but are recommended in an appropriate timeframe to allow for further bat emergence surveys (May to September), if required.<br><br>Bat activity and static surveys are recommende |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Littleton North Lake and surrounding area<br>• Fields North of Littleton North Lake<br>• Ferry Lane Lake (Ferris Meadow)<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Area surrounding Walton Bridge<br>• Land South of Wraysbury Reservoir HCA<br>• Laleham Reach HCA<br>• Sheepwalk HCA<br>• Land South of Chertsey Road HCA<br>• Desborough Island HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA | the pre-planning for activity surveys. For the purpose of detailing activity surveys in this chapter habitats are assumed to be of moderate suitability.<br><br>For moderate suitability habitats it is recommended that two surveyors undertake one transect survey per month (April – October) in appropriate weather conditions. At least one survey must be undertaken at dusk and pre-dawn within one 24 hour period (or in line with any updated BCT guidelines). The use of infra-red and thermal imaging cameras is also recommended during the transect surveys in at least two suitable locations, with data collected for a minimum of five consecutive nights, in appropriate weather conditions.<br><br>To reduce possible disturbance to foraging habitat, it is advised that any light sources used overnight within the project boundary for EIA scoping should be sensitively designed with low lux lighting levels and limited light spill avoiding watercourses and/or surrounding habitat to reduce effects to foraging bats.<br><br><u>Existing RTS Bat Surveys:</u><br><br>Bat surveys undertaken by BL Ecology / GBV; Scoping surveys undertaken April-May 2017 and dawn dusk surveys across project area August-September 2017 and August/September 2018 on trees missed in 2017. Buildings and a small number of additionally identified trees were also surveyed in 2019.<br><br>Daytime scoping assessments (including ground-based tree assessments and preliminary roost assessments of buildings and culverts) were undertaken in 2021 (BL Ecology). Subsequent tree climbing and dusk emergence/dawn re-entry surveys undertaken | d to take place between April and October, in suitable weather conditions. |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Norlands Lane HCA<br>• Sunbury Weir<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir<br><br>**Survey Areas where Static / activity surveys recommended:**<br><br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• St Ann's Lake<br>• Abbey River south of M3<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Laleham Reach HCA<br>• Sheepwalk HCA | May-September 2021. Transect surveys were undertaken monthly from May-August. All previously re-confirmed roosts and structures were also re-surveyed in 2021 (if not already covered by the above).<br><br>Further Bat PRAs were scoped to take place in 2022. Due to presence of other protected species and ongoing surveys, bat PRAs on a number of culverts and woodland areas are restricted until 2023.<br><br><u>References:</u><br><br>River Thames Scheme (RTS) Datchet to Teddington Weir Capacity Improvements and Flood Channel Bat Scoping Survey (BL Ecology, May 2017)<br><br>River Thames Scheme (RTS) Datchet to Teddington Weir CI&FC Bat Activity Surveys (BL Ecology, November 2018)<br><br>Abbey Meads Climb and Inspect Surveys (SLR, 2019)<br><br>RTS Bat Survey Report (HCAs) (GBV, 2021b)<br><br>Bat Activity Surveys 2021 (BL Ecology, 2022)<br><br>Scope of Bat Surveys 2022/2023 (GB, 2022a). | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Land South of Chertsey Road HCA<br>• Desborough Island HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA<br>• Norlands Lane HCA<br>• Sunbury Weir<br>• Hurst Park and Molesey Weir | | |
| Birds | **Survey Areas where further breeding bird surveys are recommended:**<br><br>• Area east of Lake South of Green Lane<br>• Field East of Meadlake<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Royal Hythe<br>• Abbey 1 and 2 lakes | The EIA Scoping Boundary provides suitable habitat for nesting, breeding and wintering bird species. Further surveys are recommended where the Proposed Works may cause an impact to breeding/wintering birds and/or their habitat to inform mitigation.<br><br>As a standard, it is now recommended that six bird survey visits are undertaken as part of a survey for breeding birds, between the month March and early July (Bird Survey & Assessment Steering Group (2022)). Six wintering bird surveys should also be undertaken between October and March.<br><br>At present the location and level of vegetation clearance for the proposed works is unknown. However, any vegetation clearance (in any area) should be undertaken outside of the breeding bird season | March – September (Breeding Birds)<br><br>October – March (Wintering Birds) |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Abbey Meads<br>• Abbey River south of M3<br>• Littleton North Lake and surrounding area<br>• Ferry Lane Lake (Ferris Meadow)<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Laleham Reach HCA<br>• Sheepwalk HCA<br>• Land South of Chertsey Road HCA<br>• Desborough Island HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA<br>• Norlands Lane HCA<br>• Sunbury Weir<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir | (March to September, inclusive). If clearance is required during this period, nesting bird checks should also be undertaken by an experienced ecologist 24-48 hours prior to clearance.<br><br><u>Existing RTS Breeding Bird Surveys:</u><br><br>Breeding bird surveys undertaken by APEM & AECOM; May-June 2017. Additional surveys of areas within the project boundary (as it was at the time) that were not covered in 2017 were surveyed in April-June 2019.<br><br>All habitats within the project boundary (as it was at the time) were covered and repeated by AECOM in 2021.<br><br>HCAs were surveyed April – July 2021.<br><br>The area within project boundary for EIA Scoping, plus a 100m buffer was surveyed by APEM, summer 2022 & summer 2023.<br><br><u>References</u><br><br>Breeding Birds Survey Report (APEM, 2017)<br><br>Report on Survey of Breeding Birds 2019 (APEM, 2019a)<br><br>Breeding Bird Survey Report (APEM, 2021a)<br><br>Breeding Bird Survey Report (APEM, 2022)<br><br>Breeding Bird Baseline Report (APEM, 2023a).<br><br><u>Existing RTS Wintering Bird Surveys:</u> | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | **Survey Areas where further wintering bird surveys are recommended:**<br><br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey 1 and 2 lakes<br>• St Ann's Lake<br>• Abbey River south of M3<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area<br>• Ferry Lane Lake (Ferris Meadow)<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area surrounding Walton Bridge<br>• Sheepwalk HCA<br>• Land South of Chertsey Road HCA<br>• Desborough Island HCA<br>• Former Laleham Golf Course HCA<br>• Grove Farm HCA | Wintering / non breeding bird surveys undertaken by Environment Agency, JBA & APEM; surveys by Environment Agency in 2016 for main lakes and SPA areas.<br><br>JBA surveys November 2017 to March 2018<br><br>APEM surveys 2018/2019 and 2020/21<br><br>APEM surveys 2021/22.<br><br><u>References</u><br><br>RTS Wintering Bird Report (JBA, 2018b)<br><br>Report on Survey of Wintering Waterbirds 2018-19 (APEM, 2019b)<br><br>Breeding Bird Survey Report. River Thames Scheme Capacity Improvements and Flood Channel Project (APEM, 2022)<br><br>APEM (2023 – to be received). | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Norlands Lane HCA<br>• Sunbury Weir<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir | | |
| Fish | All Survey Areas within the Overall Survey Area with noted suitable waterbody | Consult with Environment Agency fisheries to determine migratory period and populations of resident fish to set out survey programme and mitigation for the Proposed Works. A detailed method statement is recommended to ensure effects on fish population are prevented or mitigated for, where appropriate.<br><br><u>Existing RTS Fish Surveys:</u><br><br>Fish surveys undertaken by APEM & Nature Metrics;<br>Lakes: eDNA hydro-acoustics and seine netting in 2016 and eDNA, seine netting, electric fishing and hydroacoustic surveys on lakes 2019.<br><br>River Thames: Annual electrofishing surveys for adults and seine netting for juveniles 2004-2015; tributaries 1989-2015; site specific surveys at the weirs (Environment Agency).<br><br>Tributaries: Electric fishing surveys on tributaries spring 2019. Electric fishing on Datchet Common Brook winter 2019/20.<br><br><u>References</u><br><br>Winter Fish Survey – Datchet Common Brook (APEM, 2019c)<br><br>Spring Fish Surveys (APEM, 2019d) | Likely migration period October to May. |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | | Metabarcoding eDNA Results (Nature Metrics, 2020)<br><br>Fish Surveys at Manor Farm Lake, Teddington Weir, Sunbury Weir and Molesey Weir (Hull International Fisheries Institute, 2016)<br><br>Fish Desk Based Assessment (DBA) (GBV, 2023g). | |
| Invertebrates | **Survey Areas where further aquatic surveys are recommended**:<br><br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• St Ann's Lake<br>• Abbey River south of M3<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area<br>• Ferry Lane Lake (Ferris Meadow)<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Area surrounding Walton Bridge<br>• Desborough Island HCA | A range of foraging and breeding aquatic and terrestrial invertebrate species could use habitats identified within the project boundary for EIA scoping. Invertebrates will be potentially subject to a loss or change in habitat quality or pollution risks. At present the location and level of vegetation clearance for the proposed works is unknown.<br><br>It is therefore advised that invertebrate surveys are completed within Survey Areas that are noted to be suitable and could be impacted by the project, to further understand how species are using habitat present. The survey methods and targeted habitat for species specific surveys should be further defined after seeking further expert advice.<br><br>The Survey Areas noted to have suitable habitat, requiring further survey, are listed in the second column; 'Location'.<br><br><u>Existing RTS Terrestrial Invertebrate Surveys:</u><br><br>Terrestrial invertebrate surveys undertaken by JBA & Richard Jones; July to August 2017.Sub-sites were surveyed April-June 2019 to cover the whole survey season. Repeat surveys undertaken in 2021.<br><br><u>References:</u><br><br>Terrestrial Invertebrate Surveys, River Thames Flood Alleviation Scheme, south-east England (JBA, 2020) | April – mid September is generally the survey season for most invertebrates, however, certain taxonomic groups have limited survey timescales. A full analysis of invertebrates recorded in the desktop study and consultation within an entomologist familiar with the area is required for any species specific timings. |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Grove Farm HCA<br>• Norlands Lane HCA<br>• Sunbury Weir<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir<br><br>**Survey Areas where further terrestrial surveys are recommended**<br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Abbey 1 and 2 lakes<br>• Littleton North Lake and surrounding area<br>• Manor Farm<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Laleham Reach HCA | River Thames Scheme Residual Ecology Surveys 2021, Preliminary Terrestrial Invertebrate Assessment (Richard Jones, 2021)<br><br>Terrestrial Invertebrate Survey, River Thames Scheme – Habitat Creation Areas (Richard Wilson, 2022)<br><br><u>Existing RTS Aquatic Invertebrate Surveys:</u><br><br>Aquatic invertebrate surveys undertaken by JBA & Environment Agency; Surveys in October/ November 2017 and April/May 2018<br><br>Intertidal and subtidal surveys undertaken within proposed footprint of works at Teddington weir (February 2020).<br><br>Macroinvertebrate surveys carried out in 2022/23 by APEM. Report pending.<br><br><u>References:</u><br><br>Aquatic Invertebrate Surveys (JBA 2019a)<br><br>Biological Summary Report: White Clawed Crayfish baseline data collection for RTS (Environment Agency,2021)<br><br>Macrophyte and Macroinvertebrate Survey Report (APEM, 2023b).<br><br><u>Existing RTS Hairstreak Butterfly Surveys:</u><br><br>Hairstreak butterfly surveys undertaken by JBA; Specialist hairstreak butterfly egg survey in December 2018-January 2019. Follow up surveys undertaken April-June 2019. | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Sheepwalk HCA<br>• Land South of Chertsey Road HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA<br>• Norlands Lane HCA<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir<br>**Survey Areas for stag beetle:**<br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Royal Hythe<br>• Abbey 1 and 2 lakes<br>• St Ann's Lake<br>• Abbey River south of M3<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area | Repeat surveys undertaken in winter 2020-2021.<br>Egg surveys undertaken in Nov-Dec 2022.<br><br><u>References:</u><br><br>Hairstreak Egg Surveys (JBA, 2019b)<br>River Thames Scheme Hairstreak Butterfly Winter Egg Survey Report 2020-2021 (JBA, 2021a).<br><br><u>Existing RTS Stag Beetle Surveys:</u><br><br>Stag beetle surveys undertaken by JBA; Scoping survey of main project area in 2019.<br>HCA surveys in 2021.<br><br><u>References:</u><br><br>Stag Beetle and Invertebrate Survey Report (JBA, 2019c)<br>RTS Stag Beetle Scoping Report (JBA 2021b). | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Ferry Lane Lake (Ferris Meadow)<br>• Manor Farm<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Land South of Wraysbury Reservoir HCA<br>• Sheepwalk HCA<br>• Land South of Chertsey Road HCA<br>• Desborough Island HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Norlands Lane HCA<br>• Sunbury Weir<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir<br>**Survey areas for white hairstreak:** | | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Abbey River confluence with River Thames<br>• Royal Hythe<br>• Littleton East Lake<br>• Fields North of Littleton North Lake<br>• Manor Farm<br>• Area west of Sheepwalk HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Norlands Lane HCA<br>• Sunbury Weir'<br><br>Brown hairstreak:<br><br>• Royal Hythe<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• Abbey River south of M3<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area<br>• Fields North of Littleton North Lake<br>• Manor Farm | | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Desborough Island HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Grove Farm HCA<br>• Norlands Lane HCA | | |
| Invasive species | All Survey Areas within the Overall Survey Area | A full INNS survey should be completed, both for terrestrial and aquatic INNS, to inform the EcIA and mitigation.<br><br>An INNS management plan and biosecurity method statement should be completed, following INNS surveys, and prior to the start of works.<br><br>Contractors should be made aware of INNS species before works commence. A toolbox talk should be provided noting any relevant INNS likely to be encountered, reinforcing the requirement to stop immediately if any INNS are encountered. A pre-construction check of the works area should also be completed by a suitably experienced ecologist prior to any works commencing.<br><br><u>Existing RTS Terrestrial INNS Surveys:</u><br><br>Terrestrial INNS surveys undertaken by JBA & GBV; Surveys of main project areas (flood channels and weirs) in 2017/2018<br><br>Repeat surveys undertaken in autumn 2019 and summer 2020 for Japanese knotweed and other notable species. | Surveys for terrestrial plant INNS during the growing season; April -September |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | | Further surveys were conducted by GBV in 2021 and 2022.<br><br>Terrestrial and Aquatic INNS surveys carried out across the area within the project boundary for EIA scoping in 2022<br><br><u>References:</u><br><br>River Thames Scheme Invasive Non-Native Species (JBA, 2018c)<br><br>River Thames Scheme Japanese Knotweed Condition Survey (ATM, 2021)<br><br>RTS HCAs Terrestrial INNS Report 2021 (GB, 2021d)<br><br>Terrestrial and Aquatic Invasive Non-Native Species Survey 2022 (GBV, 2023d).<br><br><u>Existing RTS Aquatic INNS Surveys:</u><br><br>Aquatic INNS surveys undertaken by APEM & Environment Agency; 2020 surveys undertaken across waterbodies directly or indirectly connected to proposed flood channel.<br><br>eDNA surveys for demon shrimp, killer shrimp, quagga mussel and zebra mussel – 2019.<br><br><u>References:</u><br><br>River Thames Scheme Non-Native Species Surveys (APEM, 2021c)<br><br>Macroinvertebrate Survey Report (APEM, 2023 pending issue). | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| Otter | **Survey Areas where further surveys are recommended:**<br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Abbey Meads<br>• St Ann's Lake<br>• Abbey River south of M3<br>• Littleton East Lake<br>• Littleton North Lake and surrounding area<br>• Ferry Lane Lake (Ferris Meadow)<br>• Sheepwalk Lakes<br>• Funky Footprints<br>• Area surrounding Walton Bridge<br>• Desborough Island HCA<br>• Land between Desborough Cut and Engine River HCA<br>• Former Laleham Golf Course HCA<br>• Grove Farm HCA<br>• Norlands Lane HCA | Evidence of otters has been recorded within the Scheme Area, during the PEA and during previous surveys (GBV, 2022b)<br><br>Further otter surveys are recommended throughout a number of Survey Areas, as listed under 'Location'. Further otter surveys must aim to identify any otter features such as holts and lay-up areas that could be destroyed or disturbed by the Proposed Works, therefore requiring a licence application. Otter surveys must be conducted by a suitably qualified ecologist in fair weather/flow conditions. Surveys should be avoided where weather conditions have resulted in high bank full flows or flooding, to allow time for sprainting sites to be replenished.<br><br>These surveys will inform further mitigation measures.<br><br>Otters could be present across much of the EIA Scoping Boundary, therefore, a PMW is recommended for all Survey Areas, with the PMW detailing likely risks and proposed avoidance and mitigation measures such as no dusk/dawn working.<br><br>Any excavation sites left open overnight should be covered or left with a means of egress for otters to prevent entrapment. No equipment should be left uncovered or be openly accessible within the project overnight.<br><br><u>Existing RTS Otter Surveys:</u><br><br>Otter surveys undertaken by JBA & Binnies; June - August 2017 and October 2018. | All year |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Sunbury Weir<br>• Hurst Park and Molesey Weir<br>• Teddington Lock/Weir | Further otter surveys, including camera trap surveys, were undertaken in 2022 and 2023.<br><br><u>References:</u><br><br>River Thames Scheme Otter Surveys (JBA, 2018d)<br>Otter Survey Report 2022 River Thames Scheme (GBV, 2023f). | |
| Notable plant species | **Survey Areas where NVC is recommended:**<br><br>**Thorpe Park Lakes and adjacent land;** A lowland meadow (51.410255 , -0.51203907) containing over 100 bee and pyramidal orchids was recorded, with a diverse species composition including common broomrape. The site was later mown, making further identification difficult. In addition, a Juncus-Holcus grassland (51.40744 , -0.527669) was recorded for its high species richness, including yellow rattle, and high moss coverage.<br><br>**Area east of Lake South of Green Lane;** A neutral grassland (51.413508, -0.51543742) | National Vegetation Classification (NVC) surveys have been recommended for six Survey Areas within the EIA Scoping Boundary. These Survey Areas are listed under Location. This survey will inform the requirement for further surveys and detailed mitigation.<br><br>Further notable plant species could be present within numerous habitats that could be affected by the Proposed Works. Therefore, a pre-construction check of the works area should be completed prior to works commencing to ensure that no notable species present within ground flora will be affected by the Proposed Works.<br><br>In sites where notable species (including non-notable orchids) are identified and construction is confirmed, it is recommended that plants are translocated to an agreed receptor site. Since non-notable species such as orchids are often highly valued by the local community, it is advised that any impacts are minimised.<br><br>Translocation would be informed by identifying areas of notable species and orchid presence during the flowering season with translocations being undertaken during the winter.<br><br><u>Existing Botany/NVC Surveys:</u> | NVC: Grassland; June – July (optimum period) |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | growing on a former landfill site. High species richness with over 15 species per $m^2$ in some areas.<br><br>**Abbey River confluence with River Thames;** A neutral grassland (51.392672 , -0.48890501) that has been actively unmanaged with a number of non-flowering orchids observed.<br><br>**Fields East of Meadlake;** a horse grazed lowland meadow (51.418386 , -0.51979333) with high species richness including yellow rattle.<br><br>**Sheepwalk Lakes;** Open mosaic habitat (51.392599 , -0.46786845) that was previously a landfill. This habitat was botanically rich with a high species diversity.<br><br>**Area west of Sheepwalk HCA;** Open mosaic habitat (51.392565, -0.46388805) that was previously landfill. This habitat was botanically rich with a high species diversity. | Botany/NVC surveys undertaken by JBA; Main survey areas surveyed in July 17 and additional survey of Royal Hythe new green open space in July 2018. Surveys also undertaken by GBV in 2019.<br><br>References:<br><br>RTS: National Vegetation Classification Report (JBA, 2017)<br><br>NVC Survey for Laleham Golf Course (GBV, 2019b)<br><br>NVC Survey for Hythe End (GBV, 2019c). | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | | | |
| Reptiles | **Survey Areas where further surveys are recommended:**<br>• Area east of Lake South of Green Lane<br>• Thorpe Park Lakes and adjacent land<br>• Abbey River confluence with River Thames<br>• Royal Hythe<br>• Abbey 1 and 2 lakes<br>• Abbey Meads<br>• St Ann's Lake<br>• Littleton North Lake and surrounding area<br>• Ferry Lane Lake (Ferris Meadow)<br>• Manor Farm<br>• Funky Footprints<br>• Area west of Sheepwalk HCA<br>• Laleham Reach HCA<br>• Sheepwalk HCA<br>• Land South of Chertsey Road HCA | Due to recorded suitable reptile habitat on site for reptiles, a reptile presence or likely absence survey is required where significant amounts of suitable reptile habitat may be affected, and/or where translocation may be required. Further reptile surveys will determine if specific reptile mitigation is required.<br><br>Reptiles could be encountered during habitat removal or clearance across all Survey Areas within EIA Scoping Boundary. If vegetation removal is required at ground level, it should ideally be completed during the summer months, outside of the hibernation period (October-Feb) in line with a PWM. Any potential hibernacula should be cleared in the previous active season if works are programmed in winter.<br><br><u>Existing RTS Reptile Surveys:</u><br><br>Reptile surveys undertaken by AECOM & Binnies; May-July 2017. Additional surveys carried out in 2019 to cover areas previously missed (including the new green open spaces and Desborough Island/Laleham Golf Course). Repeat surveys of the area within the project boundary (including originally shortlisted HCAs) undertaken in 2021.<br><br><u>References:</u><br><br>RTS Reptile Survey Report (AECOM, November 2021b)<br><br>RTS Reptile Survey Report (GB, 2021c). | Active season March - September. |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | • Desborough Island HCA<br>• Former Laleham Golf Course HCA<br>• Drinkwater Pit HCA<br>• Grove Farm HCA<br>• Littleton North HCA<br>• Norlands Lane HCA<br>• Sweeps Ditch | | |
| Water voles | **Survey Areas with suitable foraging, commuting, resting and burrowing habitat:**<br><br>Area east of Lake South of Green Lane, Fields South East of Meadlake, Fields East of Meadlake, Thorpe Park Lakes and adjacent land, Abbey River confluence with River Thames, Area, Egham Hythe Pond, Abbey 1 and 2 lakes.<br><br>Spelthorne Channel; Littleton East Lake, Ferry Lane Lake (Ferris Meadow), Manor Farm, Littleton North Lake and surrounding areas, Sheepwalk Lakes. | Suitable habitat for water voles was identified in a number of Survey Areas. However, there were no field signs recorded for water vole and therefore, as agreed with the client, further water vole surveys are not recommended during 2023 season. Monitoring for presence / absence of water vole should resume during 2024 with the results used to inform further surveys or mitigation for all areas listed. Pre-construction checks are recommended for Survey Areas listed under Location.<br><br>As part of optioneering / design, the creation of waterbodies should improve habitat for water voles.<br><br><u>Existing RTS Water Vole Surveys:</u><br><br>Water vole surveys undertaken by Binnies; June-August 2017, May-September 2021 and 2022<br><br><u>References:</u><br><br>River Thames Scheme Water Vole Surveys 2021 (GB, 2021e) | |

| Feature | Location | Recommendation | Seasonality |
|---|---|---|---|
| | HCAs; Former Laleham Golf Course, Grove Farm.<br><br>Remaining scoping boundary; Sunbury Weir, PRoWs along North of River Thames, St Ann's Lake, Abbey River south of M3, Funky Footprints, Area west of Sheepwalk HCA.<br><br>Wider Study Area; Chertsey Meads, Ham Land Nature Reserve, Hurst Park and Molesey Weir, National Trust – Ankerwycke Yew, Penton Hook Tip. | | |
| Other Species of Principal Importance (SPI) | All Survey Areas within the Overall Survey Area. | Suitable habitat for hedgehogs, stoats, polecats and weasels was identified in a number of Survey Areas, across the EIA Scoping Boundary.<br><br>If areas of habitat suitable for SPIs are to be removed/disturbed as part of works, a preconstruction check of working areas is recommended, alongside a PMW.<br><br>Where suitable hibernation habitat for hedgehogs requires clearance, it should ideally be completed during the summer months, outside of the hibernation period (October – April) in line with a PWM. | Hibernation period; October – April |

### General Good Practice Measures

The RTS has the potential to result in some construction-related effects on biodiversity and therefore some good practice measures are recommended that are particularly relevant to the RTS. These should be reviewed after the completion of secondary surveys, consultation, and further progress on appropriate consents/permissions and include:

- To minimise disturbance to internationally designated site interest features maintain a buffer of at least 100m from designated sites, time sheet piling to avoid the peak breeding and wintering bird time periods as well as restrict the use of artificial lighting at night;
- Undertake habitat creation, enhancements and dispersal corridors in advance of the main works where possible, to mitigate effects, avoid deficit (losses) of priority habitats and deliver BNG, using the Defra Biodiversity Metric. Where habitat trading deficits occur, all high and moderate distinct habitats should be mitigated through replanting on site, or offsite firstly via working with landowners and then lastly, if needed, through an offsetting provider;
- An INNS management plan for both aquatic and terrestrial INNS should be produced, detailing mitigation measures for each site to avoid or minimise the spread of INNS and aquatic pathogens to designated sites and other terrestrial and aquatic habitats. Mitigation regarding pathogens in aquatic environments will likely be required and determined as a result of the surveys; this may result in the requirement for pathogen management plans to be produced alongside the INNS management plan;
- Piling methods with minimal vibration and noise (i.e. non-percussive methods) should be used wherever practical in order to avoid or minimise disturbance to aquatic and terrestrial species;
- Noise barriers/screens should be erected around construction areas located within close proximity to the SWLW SPA or where noise has the potential to affect lakes and habitats, where Schedule 1 birds are present;
- Use of artificial lighting should be restricted one hour prior to dusk until one hour prior to dawn in sensitive areas and will be directed away from habitats and foraging routes to control light spill;

- Install road underpasses and dry pipes to provide alternative means of dispersal for terrestrial mammals, including otters and badgers. Mitigation to be sited immediately adjacent to the existing dispersal corridors;
- Vegetation clearance should be timed to avoid the peak breeding seasons and carried out in accordance with sensitive clearance methods e.g. two stage clearance methods and destructive searches. Where species specific derogation licences are required, defined mitigation measures including vegetation clearance methodology will be detailed;
- Demolition of buildings at the northern end of the Runnymede Channel, existing bridges, culverts and/or the removal of trees should be timed to avoid peak breeding and hibernation seasons for roosting bats as appropriate. Where a roost is confirmed present and likely subject to effects, a European Protected Species Mitigation Licence and/or Bat Class Mitigation Licence (BMCL), derogation licence to be obtained and works to be carried out in accordance mitigation measures defined within the licence;
- Demolition should be timed to avoid bird nesting season (March to August) or pre-demolition bird surveys will be conducted to confirm absence of nesting birds;
- Include creation of linear habitats (hedgerows, ditches, road underpasses, dry pipes, woodland, wetland) to mitigate for loss of foraging resources, navigational features, transit corridors and places of shelter;
- Mitigation for effects on otters should be detailed within a European Protected Species Mitigation Licence. Compensation measures are likely to include provision of new artificial holts, planting of new woodland and dense scrub habitats to provide shelter free from human disturbance. Provision of new road underpasses and dry pipes where access through culverts is severed to prevent fragmentation;
- Mitigation for effects on bats should be detailed within a European Protected Species Mitigation Licence. Compensatory new roosts for soprano pipistrelle bats to be provided within a built structure to compensate for the loss of a soprano pipistrelle bat maternity colony. Loss of other low significant roosts within trees to be compensated through the provision of bat boxes on trees within existing woodland

habitats. Restrictions on timings for demolition and use of artificial lighting will form part of the mitigation;

- Mitigation for effects on badgers should be provided under a badger licence including closures of existing setts and creation of new compensatory setts across the project. Timings for sett closures will be applied to avoid the breeding season;
- Mitigation for effects on birds should include restrictions within 100m of a Schedule 1 species and/or a qualifying species associated with the SPA during the breeding and/or overwintering season. Lake edge shallowing for qualifying species (gadwall, shoveler) and waders, provision of artificial riverbank nest holes (kingfisher), enhancement to open mosaic habitats (little ringed plover). Creation of wetland and scrub habitats (Cetti's warbler). Provision of bird nest boxes for passerine species;
- Mitigation for effects on reptiles should include creation of compensatory habitats (compost heaps located close to water) for grass snakes and enhancements of existing terrestrial habitats;
- Mitigation for effects on brown hairstreak butterflies should include compensatory planting of blackthorn scrub (used for egg laying) and enhancements to existing habitats;
- Mitigation for rare/scarce terrestrial invertebrates should include avoidance and creation of sparsely vegetated mounds within existing open mosaic habitats. Long-term management of open mosaic habitats to retain features of interest; and
- Mitigation for rare/scarce aquatic invertebrates should include provision of habitat for a variety of habitats including a range of flow dynamics and slack water areas.

### Ecological Mitigation and Enhancements

Several ecological enhancements that are relevant to the works and habitats present have been recommended. In summary the following ecological enhancements are recommended as part of the RTS and build on recommendations from previous assessments for the RTS, for example in relation to compliance with the Water Framework Directive and Habitats Regulations:

- Naturalised shallow margins in certain sections of the flood channel and around the edges of some existing lakes and watercourses to improve bankside vegetation growth;
- Sinking of trees removed during construction, along the flood channel and in some other waterbodies to provide alternative habitats;
- Targeted tree planting adjacent to the flood channel and some existing waterbodies plus macrophyte planting and the creation of islands in waterbodies;
- Enhancing the condition of existing terrestrial and river habitats;
- Improving connectivity of the River Thames floodplain, between the River Thames and other waterbodies;
- Creating new habitats such as woodland and wetland;
- Creating hedgerows and enhancing existing through infilling of a diverse mix of species; and
- Species specific measures to enhance habitat conditions.

# 5. Conclusions

The RTS will deliver flood relief through a new flood channel and associated capacity improvements, and significant blue-green infrastructure through active transport routes, areas of enhanced public connection, and new green open spaces. The Environment Agency has commissioned a PEA, UKHab Classification surveys, RCAs species assessments, data search and INNS surveys to highlight any ecological constraints associated with the RTS.

The surveys were conducted between mid-May and September 2022. A range of habitats were reported within the Overall Survey Area and, where possible, effects on existing priority habitats are identified. The RTS will identify and implement measures to mitigate for these as part of the ecological impact assessment, as well as to provide further habitat enhancement and access for recreation.

It was noted that a range of protected and notable species are present or likely to be present within the Overall Survey Area. These species include; amphibians, badgers, bats, birds, invertebrates, invasive species, notable plant species, otter, reptiles and water vole.

Given the presence, or suitability of habitats to support a range of protected species, further surveys are recommended for amphibians, badgers, bats, birds, invertebrates, invasive species, otter, notable plant species, water vole and reptiles. Additionally, pre-construction checks and/or precautionary working methods are recommended for all protected and notable species recorded. Preliminary mitigation and recommendations have been given and enhancement opportunities highlighted. Overall, the project aims to achieve high quality habitats and Biodiversity Net Gain through improving existing habitats and creating new habitats.

# 6. References

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# 7. Figures

| Figure Number | Description of Figure |
|---|---|
| ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10125 | UK Habitat Areas |
| ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10122 | River Thames Scheme Plan |
| ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10165 | RTS PEA Survey Areas Plan |
| ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10123 | Statutory Designated and Non-Statutory Designated Sites Map |
| ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10124 | WFD Waterbodies |

# Appendices

## Appendix A: Legislation, Planning Policy & Conservation Status

*Note that the details provided in this appendix are for general guidance only and should not be relied upon as a definitive statement of the law. The legislation is applicable in Britain only (i.e. not the Isle of Man, the Republic of Ireland or the Channel Islands.). Only legislation applicable to this Project is provided here.*

### National and European Legislation Afforded to Habitats

#### Statutory Designations: International

**Special Protection Areas (SPAs)** were originally classified under the EC Birds Directive. SPAs are designated for their important habitat for rare (listed on Annex I of the Directive) and migratory birds within the United Kingdom.

**Special Areas of Conservation (SACs)** were originally classified under the EC Habitats Directive. SACs are designated for best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive within the United Kingdom.

Since the United Kingdom left the European Union, SPAs and SACs remain protected under The Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019). These are commonly referred to as the Habitats Regulations.

SPAs and SACs together form a national network of European Sites in the United Kingdom

Ramsar sites are designated under the Convention on Wetlands of International Importance 1971. Ramsar sites protect and recognise wetlands as ecosystems that are globally important for biodiversity conservation. Ramsar sites are also underpinned through prior notification as Sites of Special Scientific Interest (SSSIs) and as such, receive statutory protection under the Wildlife and Countryside Act 1981 (as

amended). It is Government Policy to treat Ramsar sites as if they were European Sites.

### Statutory Designations: National

Countryside agencies can designate **Sites of Special Scientific Interest (SSSIs)** under the National Sites and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). SSSIs are designated for their flora, fauna or geological or physiographical features. As well as underpinning other national designations (such as **National Nature Reserves (NNRs),** which are declared by the countryside agencies under the same legislation), the system also provides statutory protection for terrestrial and coastal sites which are important within a European context (Natura 2000 network) and globally (such as Wetlands of International Importance).

### Statutory Designations: Local

Local authorities in consultation with the relevant nature conservation agency can declare **Local Nature Reserves (LNRs)** under the National Sites and Access to the Countryside Act 1949. LNRs are designated for flora, fauna or geological interest and are managed locally to retain these features and provide research, education and recreational opportunities.

### Non-Statutory Designations

Non-statutory designated sites can be designated by the local authority for supporting local conservation interest. The titles of these sites are not standardised across the UK and can vary from county to county. A selection of titles used to denote non-statutory sites includes **Local Wildlife Sites (LWS), County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC)** or **Sites of Nature Conservation Importance (SNCI),** to name a few.

Combined with statutory designation, these sites are considered within Local Development Frameworks under the Town and Country Planning system and are a material consideration during the determination of planning applications. The protection afforded to these sites varies depending on the local authority involved.

### National and European Legislation Afforded to Species

The EC Habitats Directive requires Member States to take measures to maintain or restore wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those species of European importance. The Directive was transposed into English and Welsh law (up to the seaward limits of territorial seas) by The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations).

When the United Kingdom left the European Union, the Habitats Regulations were amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019. These amendment regulations transferred functions from the European Commission to English and Welsh government, but retained the levels of protection to the identified species of European importance.

The following notes are relevant for all species protected under the EC Habitats Directive:

In the Directive, the term ‘deliberate’ is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness. The Habitats Regulations do not define the act of ‘migration’ and, therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.

In order to obtain a European Protected Species Mitigation licence, the application must demonstrate that it meets all of the following three ‘tests’:

- the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment;
- there is no satisfactory alternative; and
- the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

The Wildlife and Countryside Act 1981 (as amended) is the principle mechanism for the legislative protection of wildlife in Great Britain. It does not extend to Northern Ireland, the Channel Islands or the Isle of Man. This legislation implements the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) in Great Britain.

The Wildlife and Countryside Act 1981 (as amended) has been subject to a number of amendments, the most important of which are through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991;

- Natural Environment & Rural Communities (NERC) Act 2006;
- Protection of Badgers Act 1992; and
- Wild Mammals (Protection) Act 1996.

### Bats

All species are fully protected under the under the Habitats Regulations as they are listed on Schedule 2 which prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats);
- Deliberate disturbance of bat species as:
    a. to impair their ability:
        i. to survive, breed, or reproduce, or to rear or nurture young; or
        ii. to hibernate or migrate.
    b. to affect significantly the local distribution or abundance of the species.
- Damage or destruction of a breeding site or resting place; or
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are afforded the following additional protection through the Wildlife Countryside Act 1981 (as amended) as they are included on Schedule 5:

- Intentional or reckless disturbance (at any level);
- Intentional or reckless obstruction of access to any place of shelter or protection; or
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

**Impacts of legislation on development works**

An EPSM Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

### Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). Among other things, this makes it an offence to:

- Intentionally kill, injure or take any wild bird;

- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- Intentionally take or destroy an egg of any wild bird; or
- Sell, offer or expose for sale, have in their possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl, bittern and kingfisher receive additional protection under Schedule 1 of the Wildlife and Countryside Act and are commonly referred to as “Schedule 1” birds. This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young; or
- Intentional or reckless disturbance of dependent young of such a bird.

**Impacts of legislation on development works**

Works should be planned to avoid the possibility of killing or injuring any wild bird or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Schedule 1 birds are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

As a last resort, the relevant countryside agency (e.g. Natural England) can grant a licence in certain circumstances or for certain problems. Licences are available for disturbing or harming birds for a limited number of reasons that include:

- Preserve public health and safety;
- Preserve air safety;
- Do work for science, education or research;
- Prevent damage to crops or animal feed;
- Conserve plants and animals (including other wild birds);
- Prevent damage to fisheries; and
- Take part in photography, falconry, keeping or breeding birds.

### Otters

Otters *Lutra lutra* are fully protected under the Habitats Regulations 2017 (as amended) as they are listed on Schedule 2 which prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species;
- Damage or destruction of a breeding site or resting place;
- To affect significantly the local distribution or abundance of the species; or
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Otters are afforded additional protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- Intentional or reckless disturbance while in their place of shelter (at any level);
- Intentional or reckless obstruction of access to any place of shelter or protection; or
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

**Impacts of legislation on development works**

An EPSM Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect otter breeding or resting places (often referred to as holts, couches or dens) or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

### Water vole

Water vole *Arvicola amphibius* are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to:

- Intentionally capture, kill or injure water voles;
- Intentionally or recklessly damage, destroy or block access to any structure or place used for shelter or protection;
- Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection; or
- Possess, sell, control or transport live or dead water voles or parts thereof.

**Impacts of legislation on development works**

In England, wherever development works are liable to affect habitats known to support water voles, the relevant countryside agency (e.g. Natural England) must be consulted. It must be shown that means by which the proposal can be re-designed to avoid contravening the legislation have been fully explored e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable, and measures to ensure minimal habitat loss. Conservation licences for the capture and translocation of water voles may be issued by the relevant countryside agency for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works.

### Hazel dormice

Hazel dormice *Muscardinus avellanarius* are fully protected under the Habitats Regulations as they are listed on Schedule 2 which makes it an offence to:

- Intentionally capture, kill or injure a dormouse;
- Damage or destroy a dormouse resting place or breeding site;
- Deliberately or recklessly disturb a hazel dormouse while it's in a structure or place of shelter or protection;
- Block access to structure or place of shelter or protection; or
- Possess, sell, control or transport live or dead hazel dormice, or parts of hazel dormice.

Hazel dormice are afforded additional legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection.

**Impacts of legislation on development works**

An EPSM Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect hazel dormice, their breeding site or resting places, or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to

enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

### Badger

Badger *Meles meles* are fully protected under the Protection of Badgers Act 1992 which makes it an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so);
- Cruelly ill-treat a badger;
- Bait or dig for a badger;
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it;
- Cause a dog to enter a badger sett;
- Disturb a badger when it is occupying a sett;
- Have or sell a badger, or offer a live badger for sale;
- Have or possess a dead badger or parts of a badger (if you obtained it illegally); or
- Mark or attach a marking device to a badger.

**Impacts of legislation on development works**

A Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect badger if it is not possible to avoid disturbing badgers or damaging or blocking access to a sett. The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

### Great crested newt

Great crested newt are fully protected under the Habitats Regulations 2017 (as amended) as they are listed on Schedule 2 which makes it an offence to:

- Intentionally capture, kill or injure a great crested newt;
- Deliberate disturbance of any species as:
    a. to impair their ability:
        i. to survive, breed, or reproduce, or to rear or nurture young; or
        ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate.
    b. to affect significantly the local distribution or abundance of the species;
- Deliberate taking or destroying of the eggs of great crested newts;
- Damage or destruction of a breeding site or resting place; or
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Great crested newts are afforded additional legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to:

- Intentional or reckless disturbance (at any level);
- Intentional or reckless obstruction of access to any place of shelter or protection; or
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

**Impacts of legislation on development works**

An EPSM Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect great crested newts, their breeding site or resting places, or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

### Reptiles

Sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* are fully protected under the Habitats Regulations as they are listed on Schedule 2 which makes it an offence to:

- Intentionally capture, kill or injure a Schedule 2 species;
- Deliberate disturbance of any species as:
    a. to impair their ability:
        i. to survive, breed, or reproduce, or to rear or nurture young; or
        ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate.
    b. to affect significantly the local distribution or abundance of the species;
- Deliberate taking or destroying of the eggs;
- Damage or destruction of a breeding site or resting place; or
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.
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Other native reptile species are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis.* The Wildlife and Countryside Act makes it an offence to:

- Intentionally kill or injure these species; or

- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

**Impacts of legislation on development works**

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow-worm, thus avoiding contravention of the Wildlife and Countryside Act 1981 (as amended).

### White-clawed crayfish

White-clawed crayfish *Austropotamobius pallipes* are afforded protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, it is an offence to:

- Intentionally or recklessly cause disturbance while in their place of shelter (at any level);
- Intentional or reckless obstruction of access to any place of shelter or protection;
- Intentionally take, capture, injure or kill a white-clawed crayfish; or
- Buy, sell, offer or expose for sale, possess or transport for purpose of sale.

**Impacts of legislation on development works**

An EPSM Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to impact on a watercourse or wetland known to support white-clawed crayfish. Conservation licences for the capture and translocation of crayfish can be issued if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of the works. The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

### Wild Mammals (Protection Act) 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

### Legislation Afforded to Plants

With certain exceptions, all wild plants are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).

In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of the Habitats Regulations. These are species of European importance.

### Invasive non-native species

Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), and Part 2 of Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019, list invasive non-native plant species for which it is a criminal offence in England and Wales to plant or cause to grow in the wild due to their impact on native wildlife. Species listed under the Wildlife and Countryside Act 1981 (as amended) include Japanese knotweed and various cotoneaster species including *Cotoneaster horizontalis*. Species listed under the Invasive Alien Species (Enforcement and Permitting) Order 2019 include Himalayan balsam, giant hogweed, floating pennywort

Part I of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), and Part 1 of Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019, list invasive non-native species of animal for which it is a criminal offence in England and Wales to release or allow to escape into the wild due to their impact on native wildlife.

Species that have previously been listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), but that which are now listed under Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019, have been removed from the WCA 1981 Schedule 9.

**Impacts of legislation on development works**

It is not an offence for plants listed in Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) or Part 2 of Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019, to be present on the development site; however, it is an offence to cause them to spread. Therefore, if any of the species are present on site and construction activities may result in further spread (e.g. earthworks, vehicle movements) then it will be necessary to design and implement appropriate mitigation prior to construction commencing.

### Injurious weeds

Under the Weeds Act 1959 any land owner or occupier may be required prevent the spread of certain 'injurious weeds' such as spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius* and common ragwort *Senecio jacobaea*. It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

### Planning Policy

Fifty-six habitats and 943 species of principal importance are included on the S41 list. These are all the habitats and species in England that were identified as requiring action in the UK Biodiversity Action Plan and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions (e.g. consideration of Planning Applications).

# Appendix B: Photographs

Plate 1. Area east of Lake South of Green Lane – Other neutral grassland (g3c) to east of Survey Area.

Plate 2. Area east of Lake South of Green Lane – modified grassland (g4) to the north of Survey Area.

Plate 3. Fields South East of Meadlake – line of tree (w1g6) along boundary of Survey Area.

Plate 4. Fields South East of Meadlake – Outhouses (u1b5) within Survey Area.

Plate 5. Fields East of Meadlake – Lowland Meadow (g3a) within Survey Area.

Plate 6. Thorpe Park Lakes and adjacent land – Broadleaved woodland (w1g) to the south of Survey Area.

Plate 7. Thorpe Park Lakes and adjacent land – Lowland meadow (g3a) to the northeast of Survey Area.

Plate 8. Thorpe Park Lakes and adjacent land - Modified grassland (g4) representative of the grassland which runs alongside the road, throughout the Survey Area.

Plate 9. Thorpe Park Lakes and adjacent land – Wet woodland (w1d) within northeast of Survey Area.

Plate 10. Abbey River Confluence with River Thames – Other neutral grassland (g3c) to south of Survey Area.

Plate 11. Abbey River Confluence with River Thames – Sparsely vegetated land (s) to the north of the Survey Area, dominated by Himalayan balsam.

Plate 12. Abbey River Confluence with River Thames – Wet woodland (w1d) to centre of Survey Area.

Plate 13. Royal Hythe – Hedgerow with trees (h2) and cropland (c) to the north of the Survey Area.

Plate 14. Royal Hythe - Modified grassland (g4) and scattered mature trees to the west of the Survey Area.

Plate 15. Royal Hythe – Native hedgerow with trees (h2a) to the north of the Survey Area, showing bare earth paths across the Survey Area.

Plate 16. Royal Hythe - Native hedgerow with trees (h2a) to the south of the Survey Area.

Plate 17. Thorpe Hay Meadow SSSI and Egham Hythe Pond – Lowland hay meadow (g3a5) within the Survey Area.

Plate 18. Thorpe Hay Meadow SSSI and Egham Hythe Pond – Other broadleaved woodland (w1g7) to the southwest of the Survey Area.

Plate 19. Thorpe Hay Meadow SSSI and Egham Hythe Pond – Other broadleaved woodland to the west of the Survey Area.

Plate 20. Thorpe Hay Meadow SSSI and Egham Hythe Pond – Wet woodland (w1d) to the southwest of the Survey Area.

Plate 21. Abbey 1 and 2 lakes – Abbey 1 and the line of trees (w1g6) running along the edge of the lake.

Plate 22. Abbey 1 and 2 lakes – Modified grassland (g4) to north of the Survey Area.

Plate 23. Abbey 1 and 2 lakes – Other broadleaved woodland (w1g7) around Abbey 2, to the south of the Survey Area.

Plate 24. Abbey 1 and 2 lakes – Other broadleaved woodland (w1g7) along the edges of the track to the south of the Survey Area.

Plate 25. Abbey 1 and 2 lakes –Wet woodland (w1d) to the east of the Survey Area.

Plate 26. Abbey Meads – Line of trees (w1g6) running along Burway Ditch

Plate 27. Abbey Meads –Modified grassland (g4) to the south of the Survey Area, which has been recently mown and is dominated by ruderal vegetation.

Plate 28. Abbey Meads – Modified grassland (g4) within Survey Area, with line of trees in the background to the east of Survey Area.

Plate 29. Abbey Meads –Other broadleaved woodland (w1g) to the south-east of the Survey Area, along Ferry Lane.

Plate 30. St Ann's Lake – modified grassland (g4) that comprises the majority of the Survey Area.

Plate 31. St Ann's Lake – other broadleaved woodland (w1g) along the western section of the Survey Area.

Plate 32. Abbey River south of M3 – Modified grass (g4) to the centre of the Survey Area.

Plate 33. Abbey River south of M3 – Other broadleaved woodland (w1g) to the west of the Survey Area.

Plate 34. Littleton East Lake – other broadleaved woodland (w1g7) along the edge of Littleton East Lake

Plate 35. Littleton East Lake –Suburban/ mosaic of developed/ natural surface (u1d) that is the sailing club.

Plate 36. Littleton North Lake and surrounding areas – Other broadleaved woodland (w1g7) and other neutral grassland (g3c) to the southwest of the Littleton North.

Plate 37. Littleton North Lake and surrounding areas – Other broadleaved woodland (w1g7) to the north of Littleton South.

Plate 38. Littleton North Lake and surrounding areas – Open mosaic habitat (u1a) within the Survey Area.

Plate 39. Littleton North Lake and surrounding areas - Littleton North Lake (r), and the reedbed (f2e) and woodland (340) to the southeast of the lake. -

Plate 40. Fields North of Littleton North – Arable and horticultural land (c1) which is covered with poly tunnels (230), with native species rich hedgerow (h2) in-between.

Plate 41. Fields North of Littleton North – Fen and marsh (f2) to the centre of the Survey Area, which has a high presence of common reed (f2e).

Plate 42. Fields North of Littleton North – wet woodland (w1d) in the south-eastern corner of the Survey Area.

Plate 43. Ferry Lane Lake (Ferris Meadow) – Mixed scrub (h3h) along the access track to the east of the Survey Area.

Plate 44. Ferry Lane Lake (Ferris Meadow) – Modified grassland (g4) which is representative of the majority of the grassland around the lake, showing the line of trees (w1g6) to the west of the Survey Area.

Plate 45. Manor Farm – Arrhenatherum neutral Grassland (g3c5) to the east of the Survey Area.

Plate 46. Manor Farm – Open mosaic (u1a) to the west of the Survey Area, which shows bare ground, scrub and grassland habitats.

Plate 47. Manor Farm – Other broadleaved woodland (w1g7) (plantation) around Manor Farm Lake.

Plate 48. Sheepwalk Lakes – Other broadleaved woodland (w1g7) to the northeast of the lake, with an understory of Himalayan balsam and sedges.

Plate 49. Funky Footprints – Arrhenatherum grassland (g3c5) to the west of the Survey Area.

Plate 50. Funky Footprints – Other broadleaved woodland (w1g7) types in the northwest of the Survey Area.

Plate 51. Funky Footprints – Pond (r1b) within Survey Area.

Plate 52. Area west of Sheepwalk HCA – Other broadleaved woodland (w1g7) to the southeast of the Survey Area.

Plate 53. Area west of Sheepwalk HCA – Other neutral grassland (g3c) to the West of the Survey Area.

Plate 54. Area west of Sheepwalk HCA – Pond (r1b) within the wet woodland (w1d) to the northwest of the Survey Area.

Plate 55. Bed Lowering Downstream of Desborough Cut– Modified grassland (g4) to the north of the Survey Area, which has been heavily grazed by geese.

Plate 56. Bed Lowering Downstream of Desborough Cut– Towpath along the Thames where modified grassland (g4) is present but worn away by human and animal impact.

Plate 57. Land South of Wraysbury Reservoir HCA– A pocket of other broadleaved woodland (w1g7) to the center of the Survey Area, representative of the other woodland on the site.

Plate 58. Land South of Wraysbury Reservoir HCA– Buildings (u1b5) within the Survey Area.

Plate 59. Laleham Reach HCA –Hedgerow (h2) and other neutral grassland (g3c) to the north of the Survey Area.

Plate 60. Laleham Reach HCA – Other neutral grassland (g3c) to the north of the Survey Area.

Plate 61. Laleham Reach HCA – Other neutral grassland (g3c) to the south of the Survey Area.

Plate 62. Laleham Reach HCA – Pond surrounded by other broadleaved woodland (w1g) in the southwest corner of the Survey Area.

Plate 63. Sheepwalk Lakes HCA – Open mosaic habitat (u1a) showing bare ground and early colonising vegetation.

Plate 64. Sheepwalk Lakes HCA – Open mosaic habitat (u1a) showing spoil heaps, bare ground and scrub.

Plate 65. Sheepwalk Lakes HCA – broadleaved woodland (w1) to south-west of the Survey Area.

Plate 66. Land South of Chertsey Road HCA – Hedgerow (h2) within the Survey Area and the other broadleaved woodland (w1g7) to the north of the Survey Area.

Plate 67. Land South of Chertsey Road HCA – One of the ponds (r1b) within the woodland (w1) to the east of the Survey Area.

Plate 68. Land South of Chertsey Road HCA – Other neutral grassland (g3c) across the east of the Survey Area.

Plate 69. Land South of Chertsey Road HCA – Reedbed (f2e) and wet woodland (w1d) to the southwest of the Survey Area.

Plate 70. Desborough Island HCA – Area of bramble scrub (h3d) in the southeast corner of the Survey Area.

Plate 71. Desborough Island HCA – Other broadleaved woodland (w1g7) to the northeast of the Survey Area with an understory of Himalayan balsam.

Plate 72. Desborough Island HCA – Other neutral grassland (g3c) across the Survey Area.

Plate 73. Land between Desborough Cut and Engine River HCA – Hedgerow (h2) to the northwest of the Survey Area, representative of the hedgerows within the Survey Area.

Plate 74. Land between Desborough Cut and Engine River HCA – Modified grassland (g4) to the south of the Survey Area.

Plate 75. Former Laleham Golf Course HCA – Modified grassland (g4) to the east of the Survey Area.

Plate 76. Former Laleham Golf Course HCA – Other broadleaved woodland (w1g7) to the north of the Survey Area.

Plate 77. Former Laleham Golf Course HCA – Wet woodland (w1d) and other neutral grassland (g3C) to the west of the Survey Area.

Plate 78. Drinkwater Pit HCA – Bramble scrub (h3d) bordering the other broadleaved woodland (w1g7) to the south of the Survey Area.

Plate 79. Drinkwater Pit HCA – Other neutral grassland (g3c) within the Survey Area.

Plate 80. Drinkwater Pit HCA – Woodland (w) just outside of the Survey Area to the south, which is an extension of the woodland on site. Area has an understory of bluebells and multiple mammal burrows present.

Plate 81. Grove Farm HCA – Bramble scrub (h3d) and modified grassland (g4) to the south of the Survey Area.

Plate 82. Grove Farm HCA –Other broadleaved woodland (w1g7) to the west of the Survey Area.

Plate 83. Littleton North HCA – Giant hogweed growing on the earth bank to the east of the Survey Area.

Plate 84. Littleton North HCA – Open mosaic habitat (u1a), taken looking south towards an earth mound where strands of Japanese knotweed are present.

Plate 85. Land Logical HCA – Japanese knotweed around the fishing pond to the northwest of the Survey Area.

Plate 86. Land Logical HCA – Modified grassland (g4) representative of the grassland across the Survey Area.

Plate 87. Land Logical HCA – broadleaved woodland (w1) to the south of the Survey Area.

Plate 88. Sunbury Lock/Weir – Mosaic of natural and sealed surfaces (u1b) across Survey Area.

Plate 89. Sunbury Lock/Weir – Other broadleaved woodland (w1g7) within Survey Area.

Plate 90. Hurst Park and Moseley Weir – Modified grassland (g4) within Hurst Park.

Plate 91. Hurst Park and Moseley Weir –. Other neutral grassland (g3c) along the edges of the River Thames.

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Plate 92. Sweeps Ditch – Modified grassland (g4) that comprises the majority of the Survey Area.

# Appendix C: Statutory and Non-Statutory Designated Sites

The Statutory Designated and Non-Statutory Designated Sites Map (see Chapter 7) shows those sites listed in Table C.1 and C.2.

**Table C.1 - Statutory international designated sites within the project boundary for EIA scoping and surrounding 2km**

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| South West London Waterbodies Ramsar, and SPA | 1 and 3 | Fully or partially within the project boundary for EIA scoping | A series of reservoirs and former gravel pits supporting a range of man-made and semi-natural open water habitats. These sites provide important feeding and roosting sites for wintering populations of shoveler and gadwall *Anas strepera*. |
| Richmond Park SAC | 2 | Fully or partially within 2 km of the project boundary for EIA scoping | Richmond Park has many ancient trees with decaying timber. It is at the heart of the south London centre of distribution for stag beetle and is a site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees. |
| Mole Gap to Reigate Escarpment SAC | N/A | Fully or partially within 30 km from the project boundary for EIA scoping | The Mole Gap to Reigate Escarpment is noted as providing suitable habitat for Bechstein's bats. It is also the only area of stable box scrub in the UK, on steep chalk slopes where the River Mole has cut into the North Downs Escarpment, creating the Mole Gap. The site therefore supports a stable formation and has good conservation of habitat structure and function. This large but fragmented site on the North Downs escarpment supports a wide range of calcareous grassland types on steep slopes. It exhibits a wide range of structural conditions ranging from short turf through to scrub margins, and is particularly important for rare vascular plants, including orchids. It is also significant in exhibiting transitions to scarce scrub, woodland, and dry heath types. Yew also occurs here in extensive stands, with, in places, an understorey of box at one of its few native locations. |

**Table C.2 – Statutory nationally designated sites within the project boundary for EIA scoping and surrounding 2km**

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Dumsey Meadow SSSI | 5 | Fully or partially within the project boundary for EIA scoping | Dumsey Meadow is an unimproved, cattle and pony-grazed riverside pasture situated on the floodplain of the River Thames close to Chertsey Bridge. The site consists mainly of crested dog's-tail - common knapweed grassland, a plant community now rare in Surrey. Marshy depressions and semi-natural vegetation along the riverbank contribute to the species diversity on the site. |
| Wraysbury Reservoir SSSI | 7 | Fully or partially within the project boundary for EIA scoping | Wraysbury Reservoir SSSI regularly supports nationally important numbers of wintering cormorant, great crested grebe, shoveler and gadwall. The SSSI is also part of the South London Waterbodies Ramsar and SPA site designation which is formed of four SSSI's within a 2 km radius. |
| Thorpe Hay Meadow SSSI | 4 | Fully or partially within the project boundary for EIA scoping | Believed to be the last remaining Thames valley hay meadow in Surrey, this site supports a range of lime-favouring plant species. Natural England and Surrey Wildlife Trust have advised that downy-fruited sedge is the primary species of interest for this site. |
| Thorpe Park Lakes and adjacent land No1 Gravel Pit SSSI | 6 | Fully or partially within the project boundary for EIA scoping | Thorpe Park Lakes and adjacent land No1 Gravel Pit is a former gravel pit now supporting open water, scrub, and woodland habitats. Designated for the nationally important numbers of gadwall it supports in winter. Note that this entire site is also part of the South West London Waterbodies Ramsar and SPA, a series of reservoirs and former gravel pits supporting a range of man-made and semi-natural open water habitats. These sites provide important feeding and roosting sites for wintering populations of gadwall and shoveler. |
| Bushy Park and Home Park SSSI | 9 | Fully or partially within 2 km of the project boundary for EIA scoping | The site is of special interest for its nationally important saproxylic invertebrate assemblage, population of veteran trees and acid grassland communities. National Vegetation Classification (NVC) types U1 and U4 are found within the grassland mosaic of the site. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Knight & Bessborough Reservoirs SSSI | 12 | Fully or partially within 2 km of the project boundary for EIA scoping | Knight and Bessborough Reservoirs consist of two connected, artificially embanked water storage reservoirs built in 1906 which support a variety of waterfowl, including nationally important numbers of shoveler. Wintering gadwall, cormorant and goldeneye also occur in notable numbers. Note that large parts of this site are also part of the South West London Waterbodies Ramsar and SPA. |
| Wraysbury & Hythe End Gravel Pits SSSI | 8 | Fully or partially within 2 km of the project boundary for EIA scoping | Comprises a mosaic of open water, islands, grassland, scrub, and woodland within an area of former gravel extraction. The site supports nationally important numbers of three species of wintering wildfowl together with an important assemblage of breeding birds associated with open waters and wetland habitats, including gadwall and shoveler. In addition, the site supports two nationally scarce invertebrates and several locally uncommon plants. The SSSI forms part of the South West London Waterbodies Ramsar and SPA site designation. |
| Richmond Park SSSI and NNR | 13 and 14 | Fully or partially within 2 km of the project boundary for EIA scoping | The site is a 17th century deer park designated for its diverse deadwood beetle fauna associated with the high number of ancient trees found throughout the park, with over 1000 beetle species recorded. The site is at the heart of the south London centre of distribution for stag beetle. The park also supports the most extensive area of dry acid grassland in Greater London. The site is also London's largest NNR. |
| Staines Moor SSSI | 10 | Fully or partially within 2 km of the project boundary for EIA scoping | The site consists of Staines Moor, a semi-natural stretch of the River Colne which flows through it, and three adjacent reservoirs. Staines Moor represents the largest area of alluvial meadows in Surrey and supports a rich flora while the reservoirs hold nationally important populations of wintering wildfowl. A pond at the site carries aquatic flora which is of national importance; this flora includes one plant which is extremely rare in Britain. |
| Wraysbury No. 1 Gravel Pit SSSI | 11 | Fully or partially within 2 km of the | Wraysbury No 1 Gravel Pit is of national importance for wintering gadwall. The site is also locally important |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | project boundary for EIA scoping | for other wintering bird species including great crested grebe, cormorant, pochard, tufted duck and coot. |

**Table C.3 - Statutory locally designated sites within the project boundary for EIA scoping and surrounding 2km**

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Ham Lands LNR | 15 | Fully or partially within the project boundary for EIA scoping | An attractive area of scrub and grassland beside the River Thames, well known for its remarkably diverse plant life. This area of restored/infilled gravel pits beside the River Thames contains a mosaic of habitats including herb-rich grassland, scrub, water meadows and woodland. There is an area of original flood meadow in the northwest. The site is of considerable value for informal recreation and is also used by local schools for educational projects by students and nature groups. |
| Arthur Jacob Nature Reserve LNR | 21 | Fully or partially within 2 km of the project boundary for EIA scoping | This site is an old silt lagoon area where a variety of habitats have been established including ponds with fringes of tall wetland habitat, grassland that has been seeded using a wildflower mixture, and woodland and scrub habitat. |
| Chertsey Meads LNR | 16 | Fully or partially within 2 km of the project boundary for EIA scoping | A remnant floodplain meadow habitat with rich floral lime-favouring assemblages. |
| Ham Common, Richmond, London LNR | 20 | Fully or partially within 2 km of the project | Ham Common supports many species and habitats, many of which have been identified in the BAP process. Additionally, the site is used extensively by the public for the informal enjoyment of nature. Most of the site has been succeeded by birch and oak |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | boundary for EIA scoping | woodland. There is a lot of deadwood habitat valuable for invertebrates, fungi, and cavity-nesting birds. A more extensive area of grassland survives at the western end of the common with a wide range of plants typical of dry acid grassland. |
| Riverside Walk, Virginia Water LNR | 18 | Fully or partially within 2 km of the project boundary for EIA scoping | A riverside walk through an area of woodland divided by the River Bourne. Among the 57 species of birds recorded are woodlark and nightjar. There are 250 types of plant. Much of the woodland is wet and supports alder and willow species, but there are also drier areas where oak and birch can be found. Species recorded include deer, foxes, and several types of bats. |
| Molesey Heath LNR | 17 | Fully or partially within 2 km of the project boundary for EIA scoping | Gravel pits, with some restoration work in progress, wet grassland, scrub and woodland. It is an important site for birds including breeding and migrant birds and wintering wildfowl. Position in ecological unit is important due to being located near three SNCIs and Knight and Bessborough Reservoir SSSI. |
| Ash Link LNR | 19 | Fully or partially within 2km of the project boundary for EIA scoping | Contains a variety of wildlife as well as mixed woodland, wildflower glades, ponds, and the River Ash. |

**Table C.4 - Non-statutory Sites (LWS and SNCI)**

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| River Thames (and towpath) – Spelthorne LWS | 80 | Fully or partially within the project boundary for EIA scoping | The River Thames and the tidal sections of creeks and rivers which flow into it comprise several valuable habitats not found elsewhere in London. The mud flats, shingle beach, intertidal vegetation, islands, and river channel itself support many species from freshwater, estuarine and marine communities which are rare in London. The site is of particular importance for wildfowl and wading birds. |
| Ham Lands LWS | 79 | Fully or partially within the project boundary for EIA scoping | An attractive area of scrub and grassland beside the River Thames, well known for its remarkably diverse plant life. This area of restored gravel pits beside the River Thames contains a mosaic of habitats including herb-rich grassland, scrub and woodland. There is an area of original flood meadow in the northwest. |
| River Thames and tidal tributaries LWS | 81 | Fully or partially within the project boundary for EIA scoping | The River Thames and the tidal sections of creeks and rivers which flow into it comprise of several valuable habitats not found elsewhere in London. The mud flats, shingle beach, intertidal vegetation, islands, and river channel itself support many species from freshwater, estuarine and marine communities which are rare in London. The site is of particular importance for wildfowl and wading birds. |
| Royal Park Gate Open Space LWS | 90 | Fully or partially within the project boundary for EIA scoping | A public Park next to the River Thames and adjacent to Ham Lands. The site consists of scrub, trees, and a significant area of semi-improved neutral grassland with a diverse grassland flora. |
| Wraysbury I Gravel Pits LWS | 85 | Fully or partially within 2 km of the project boundary for EIA scoping | The gravel pits are part of a complex of pits in the area that are important for birds. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Wraysbury II Gravel Pits LWS | 82 | Fully or partially within 2 km of the project boundary for EIA scoping | The area is adjacent to the SSSI including additional pits in the east and open land in the west. The boundary results from the removal of the SSSI from the Wildlife Site boundary. The gravel pits are part of a complex of pits in the area that are important for birds. |
| Datchet Common and Gravel Pits LWS | 110 | Fully or partially within 2 km of the project boundary for EIA scoping | This site consists of three flooded gravel pits with landscaped trees, improved grassland and a maize/sunflower crop surrounding the lakes. The site has previously been identified for its ornithological interest. According to the bird group, reed warblers have been recorded along the reedbed fringes. The large gravel pit is used for water skiing, where wildfowl roost and feed when there is no human activity. It is also thought that little grebe and great crested grebe breed here. The recent man-made spit, splits one gravel pit into two and has been seeded and planted. Species presented include ribwort plantain, scentless mayweed and dittander. |
| Queen Mother Reservoir LWS | 109 | Fully or partially within 2km of the project boundary for EIA scoping | A large waterbody with a track around the top of the reservoir and seeded grassland banks. The site provides refuge for storm driven species and overland passage migrants, waders, and winter wildfowl. A range of red and amber list birds of Conservation Concern have been recorded and include common scoter, bittern, turtle dove and black-tailed godwit. The dry grassland banks have previously been seeded and range from species poor to moderately rich and are thought to provide a feeding area for passage migrants. |
| Horton and Kingsmead Lakes LWS | 95 | Fully or partially within 2 km of the project boundary for EIA scoping | A group of old gravel pits and silt pits lying within a large complex of gravel pits and reservoirs at the east edge of Berkshire and west edge of London. Habitats present include patches of wetland and drier areas |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | of woodland and scrub. The complex of pits and reservoirs are important for over-wintering wildfowl and the lakes are mainly used for sailing and fishing. |
| Arthur Jacobs Nature Reserve Brook LWS | 104 | Fully or partially within 2 km of the project boundary for EIA scoping | This site is managed for nature conservation and is a Local Nature Reserve. It is an old silt lagoon area where a variety of habitats have been established including ponds, grassland, and woodland/scrub. The ponds have fringes of tall wetland habitat dominated by reedmace and common reed with yellow flag iris and purple loosestrife. The surrounding grassland was seeded using a wildflower seed mixture. |
| Colne Brook LWS | 83 | Fully or partially within 2 km of the project boundary for EIA scoping | The Colne Brook is a river that is a distributary of the River Colne which runs from Uxbridge Moor, forming the western border of Greater London, to the River Thames just below Bell Weir Lock in Hythe End, Wraysbury. |
| Hydes Field LWS | 106 | Fully or partially within 2 km of the project boundary for EIA scoping | Open greenspace playing fields with trees and shrubs. |
| Stain Hill & Sunnyside Reservoirs LWS | 101 | Fully or partially within 2 km of the project boundary for EIA scoping | These disused reservoirs support important populations of moulting and wintering waterfowl including nationally significant numbers of shoveler and gadwall in late winter. The dry concrete banks of Stain Hill Reservoirs support one of the UK's largest populations of the nationally scarce plant tower mustard. Other locally uncommon plants include field mouse-ear, vervain and wild clary. |
| Portlane Brook and Meadow LWS | 107 | Fully or partially within 2 km of the project boundary for EIA scoping | Portlane Brook runs in a deep, steep-sided concrete channel whose banks have been invaded by scrub which is now maturing. The meadow consists of rough grassland, with wildflowers such as |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | common knapweed, bird's-foot-trefoil and white clover. An old hawthorn hedge in the middle of the meadow in the southern half is now a line of trees rather than a hedge. |
| Kempton Waterworks LWS | 117 | Fully or partially within 2 km of the project boundary for EIA scoping | A large wetland area hosting many bird species. |
| Longford River in Richmond LWS | 100 | Fully or partially within 2 km of the project boundary for EIA scoping | The 2.7km section of the Longford River supports a diverse range of vegetation including hemlock water-dropwort, marsh woundwort and lesser pond-sedge. Beneath the surface of the clear water, fennel-leaved pondweed and hornwort can be found. The river holds good populations of fish including chub, roach, dace and gudgeon. Adjacent ditches support further wetland plants and rough grassland, and hedges provide additional habitats. |
| Beveree Wildlife Site LWS | 93 | Fully or partially within 2 km of the project boundary for EIA scoping | The site consists of secondary woodland and semi-improved neutral grassland. A bank of mixed woodland with a dense understorey runs along the edge of Hampton Football Club's ground and an overgrown hedge, now a narrow strip of woodland, runs south from the bank alongside the football pitch. A small meadow beside the hedge is dominated by meadow foxtail and meadow-grasses *Poa spp*., with a few common wildflowers. |
| Hampton Cemetery LWS | 105 | Fully or partially within 2 km of the project boundary for EIA scoping | Hampton Cemetery contains acid grassland in and around the graves with an abundance of species including cat's ear and oxeye daisy *Leucanthemum vulgare*. The graves contain an abundance of sedum sp. (stonecrops). There is an avenue of cherry trees along the main path along with scattered trees in the cemetery. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Hampton Water Treatment Works LWS | 91 | Fully or partially within 2 km of the project boundary for EIA scoping | The site consists of chalk grassland, ruderal, and semi-improved neutral grassland as well as a pond/lake. There are also larger water storage beds, old Victorian buildings, herb-rich grasslands, bare ground, and wasteland. The large areas of open water are used by large numbers of birds, particularly in winter. Most of the site is still in operational use so marginal vegetation, where it occurs, is generally sparse, although skullcap is particularly prolific on the edges of the filter beds. The grasslands are among the most herb-rich grasslands in the borough. A large population of the London rarity wild clary is present throughout the grassland as well as vervain, bee orchid and pyramidal orchid which are associated with chalk grasslands. Recently disturbed areas around the filter beds demonstrate a good example of the early stages of succession. |
| St James' Churchyard, Hampton Hill LWS | 116 | Fully or partially within 2 km of the project boundary for EIA scoping | A churchyard management scheme was set up in 2017 and created a wildlife meadow area which lies on the east side of the churchyard between the War Memorial and the large oak tree. Habitats include grassland with trees and shrubs. |
| Fulwell and Twickenham Golf Courses LWS | 112 | Fully or partially within 2 km of the project boundary for EIA scoping | These two adjacent golf courses contain some fine acid grassland, with small areas of woodland and scrub, several wet ditches, and a pond. |
| Strawberry Hill Golf Course LWS | 98 | Fully or partially within 2 km of the project boundary for EIA scoping | A small golf course with areas of woodland, scrub, and acid grassland, with a single patch of heather. There are some old oaks scattered around the course, with some areas of acid grassland within the rough. The site is an important area in this part of the Borough for birds and butterflies that favour a woodland edge habitat. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Hogsmill River in Central Kingston LWS | 103 | Fully or partially within 2 km of the project boundary for EIA scoping | The Hogsmill River supports many animals, fish, and insects. Most of the area around the river is grassland, which has a rich variety of wildlife including plants and birds. |
| Hampton Court House Grounds Hospital LWS | 88 | Fully or partially within 2 km of the project boundary for EIA scoping | Contains a variety of tree, shrub and grassland species and provides nesting sites for common birds. |
| The Copse at Hampton Wick and Normansfield Hospital LWS | 87 | Fully or partially within 2 km of the project boundary for EIA scoping | The Copse is a small educational nature reserve run by the Borough Council. Across Normansfield Road from The Copse is the former Normansfield Hospital. Much of the grounds are parkland with a dense sward of woodland. |
| Cassel Hospital LWS | 92 | Fully or partially within 2 km of the project boundary for EIA scoping | Hospital grounds with lawns of acid grassland, a fringe of woodland and an old walled garden. The acid grassland lawns contain a good diversity of wildflowers typical of dry acid soils. |
| Twickenham Junction Rough LWS | 115 | Fully or partially within 2 km of the project boundary for EIA scoping | Just west of Twickenham station, the railway lines divide and cross over one another, leaving an 'island' of undisturbed wildlife habitat. The site contains a typical mix of rough grassland, tall herbs, scrub, and young woodland. |
| Churchyard of St Mary with St Alban, Teddington LWS | 86 | Fully or partially within 2 km of the project boundary for EIA scoping | Mature trees include lime and yew, and the churchyard is managed in parts and left wilder elsewhere. |
| Teddington Cemetery LWS | 99 | Fully or partially within 2 km of the project boundary for EIA scoping | An attractive Victorian cemetery with plenty of mature trees and semi-improved neutral grassland. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Royal Park Gate Open Space LWS | 90 | Fully or partially within 2 km of the project boundary for EIA scoping | Public Park next to the River Thames and adjacent to Ham Lands. The site consists of scrub, trees, and a significant area of semi-improved neutral grassland with a diverse grassland flora. |
| Marble Hill Park and Orleans House Gardens LWS | 108 | Fully or partially within 2 km of the project boundary for EIA scoping | Landscaped grounds of two 18th century houses, with meadows, woodland, and some old trees. |
| Ham Common West LWS | 94 | Fully or partially within 2 km of the project boundary for EIA scoping | Ham Pond is the Common's focal point, and it dates back to when horses were watered on the Common. The pond attracts a variety of visitors and a variety of bird species to the park. |
| Petersham Lodge Wood and Ham House Meadows LWS | 102 | Fully or partially within 2 km of the project boundary for EIA scoping | A small wood and two grassy fields beside the River Thames, which flood on high spring tides, introducing an interesting wetland element to the plants at this site. |
| Petersham Meadows LWS | 113 | Fully or partially within 2 km of the project boundary for EIA scoping | A small wood and two grassy fields beside the River Thames, which flood on high spring tides, introducing an interesting wetland element to the plants at this site. |
| The Copse, Holly Hedge Field and Ham Avenues LWS | 96 | Fully or partially within 2 km of the project boundary for EIA scoping | A flowery meadow, a stand of ancient oaks and an historic avenue of lime trees combine to provide a habitat for a wealth of animals and plants in an area otherwise dominated by short-mown amenity grassland. |
| Coombe Wood Golf Course LWS | 114 | Fully or partially within 2 km of the project boundary for EIA scoping | Contains acid grassland habitat, a priority habitat for the borough. |
| Kingston Cemetery LWS | 111 | Fully or partially within 2 km of the project boundary for EIA scoping | The cemetery is on hilly land previously known as Bonner Hill Fields, with the Hogsmill River forming its southern boundary. Some of the |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | native trees, which include oak, birch, ash, holly, hawthorn, and yew, may pre-date the cemetery. |
| Richmond Park and associated areas LWS | 97 | Fully or partially within 2 km of the project boundary for EIA scoping | In addition to Richmond Park, this site includes Richmond Park golf course and Sudbrook Park golf course, as well as Ham, Petersham, East Sheen and Palewell Commons. This LWS is one of London's two NNRs, with a tremendous range of wildlife and habitats including grassland, woodlands, ponds, and veteran trees. The site is of great importance for insects, especially saproxylic beetles. |
| Bushy Park and Home Park LWS | 84 | Fully or partially within 2 km of the project boundary for EIA scoping | This area provides an extensive and varied open space on the edge of London. The parks contain several nationally scarce plants, as well as a variety of wetlands and some fine old trees. These two adjacent royal parks comprise a large area of old parkland habitats, including some of the best acid grassland in London and a variety of interesting wetlands. |
| Abbey Lake Complex SNCI | 22 | Fully or partially within the project boundary for EIA scoping | Open water and marginal vegetation. Selected as a complex for wintering wildfowl population and for marginal vegetation and position adjacent to St Ann's Lake SSSI. The area south of Abbey Lake is included for its interesting plant species including and for its position in the ecological unit adjacent to the SSSI. |
| Chertsey Bourne at Abbey Lake Complex SNCI | 23 | Fully or partially within the project boundary for EIA scoping | This includes the stretch of the Chertsey Bourne which runs through several lakes in the Abbey Lake Complex SNCI, as well as a section north of the SNCI. This stretch was classed as important because the lakes through which it flows are an important habitat for aquatic plants, invertebrates, and a wide range of breeding and migrant birds. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Laleham Burway Golf Course SNCI | 25 | Fully or partially within the project boundary for EIA scoping | A former golf course with small areas of semi-improved and unimproved grassland. Selected for areas of unimproved grassland including two county rarities: field chickweed and knotted hedge-parsley. |
| Charlton Quarry SNCI | 33 | Fully or partially within the project boundary for EIA scoping | A eutrophic lake with grass margins and numerous broadleaved tree species. This wetland habitat has good bird diversity for wildfowl, heron, little tern, little ringed plover and little egret. |
| Desborough Island SNCI | 32 | Fully or partially within the project boundary for EIA scoping | A large area of neutral, species-rich grassland. Bulbous meadow-grass (Nationally Scarce) and Alexanders (scarce in Surrey) were recorded in 1996. Selected for large area of diverse grassland, which is uncommon, particularly in Elmbridge. The site was also recommended for its dragonfly interest in 1996. Also important for position in ecological unit adjacent to River Thames SNCI and Ferris Meadows SNCI. |
| Ferris Meadows SNCI | 31 | Fully or partially within the project boundary for EIA scoping | Ferry Lane Lake (Ferris Meadow), a lake created after gravel workings. Several grassland habitats surround the lake. |
| Penton Hook Island SNCI | 30 | Fully or partially within the project boundary for EIA scoping | A large island in the River Thames. Selected for the diversity of wetland habitats supporting the nationally scarce round fruited rush and the Surrey scarce meadow crane's-bill *Geranium pratense*. |
| Littleton Lake SNCI | 27 | Fully or partially within the project boundary for EIA scoping | An important wetland habitat supporting wintering and summer breeding birds of county level importance. Over 100 bird species have been recorded at this site as well as over 2000 wildfowl in the winter months. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Chertsey Water Works Well Field SNCI | 26 | Fully or partially within the project boundary for EIA scoping | Semi-improved grassland, pond and emergent vegetation, neutral grassland. Selected on recommendation of Surrey Botanical Society. |
| River Thames – Runnymede SNCI | 34 | Fully or partially within the project boundary for EIA scoping | Selection of the entire length of the River Thames through Surrey is supported by Natural England and Environment Agency who have confirmed that the Thames falls within the top 10% of UK waterways on the grounds of numbers of macroinvertebrate species present. The fringing habitats provide a corridor for species migration and act as a buffer zone to protect the riverine environment. The Thames provides an important highway for migratory fish and birds. |
| River Thames - Elmbridge SNCI | 35 | Fully or partially within the project boundary for EIA scoping | Habitat at the water's edge and on the eyots supports nesting and resident mallard, diving ducks, mandarin ducks, pochard, grebe, moorhen, coot, swans, Egyptian geese, Canada geese, visiting heron, barnacle geese, cormorant, tern, black-headed gull, hobby, summer migrants and kingfisher. The vegetation that overhangs the river margins and the relative tranquillity of the Thames here is essential for these water birds to thrive. |
| Sheepwalk Lakes Lake SNCI | 29 | Fully or partially within the project boundary for EIA scoping | Selected as an important wetland, supporting bird assemblages of county importance for both wintering and summer breeding birds. Nearly 300 terrestrial and aquatic species have been recorded here. Additionally, over 100 bird species have been recorded at this site as well as over 2000 wildfowl in the winter months |
| Shepperton Quarry SNCI | 28 | Fully or partially within the project boundary for EIA scoping | Two large bodies bordering the River Thames have a good range of wetland habitats important for wintering wildfowl, including five species |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | found on the RSPB's Birds of Conservation Concern (1996): pochard, herring gull, lapwing, kingfisher and goldfinch. |
| Wraysbury Reservoir SNCI | 24 | Fully or partially within the project boundary for EIA scoping | Wraysbury Reservoir SNCI regularly supports nationally important numbers of wintering cormorant, great crested grebe, shoveler, and gadwall. |
| Trumps Mill SNCI | 52 | Fully or partially within 2 km of the project boundary for EIA scoping | Dry broadleaved and alder woodland. |
| Riverside Walk, The Bourne SNCI | 51 | Fully or partially within 2 km of the project boundary for EIA scoping | Diverse range of riverside habitats, wildlife and plant species along the river. |
| The Dell - Ancient Woodland SNCI | 75 | Fully or partially within 2 km of the project boundary for EIA scoping | This site is made up of three very small blocks of woodland, two are secondary broadleaved woodland typical of the area and the other called Broom Cottage Wood is a Victorian landscaped woodland which has retained some of its original features including ponds, footpaths, and ornamental planting. The woods provide a refuge for wildlife in the suburban surrounding landscape. |
| Runnymede SNCI (including Cooper's Hill and Cooper's Hill Slopes) | 72 | Fully or partially within 2 km of the project boundary for EIA scoping | Large area of unimproved grassland with small remnants of ancient semi-natural woodland. Selected for its position bordering a SSSI and forming part of a much larger important matrix. |
| Simplemarsh Farm SNCI | 76 | Fully or partially within 2 km of the project boundary for EIA scoping | Important area for bird assemblages. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Pannells Farm SNCI | 66 | Fully or partially within 2 km of the project boundary for EIA scoping | Wet grassland and pond habitats. |
| Fan Grove SNCI | 70 | Fully or partially within 2 km of the project boundary for EIA scoping | Ancient semi-natural woodland habitat. |
| Hardwick Court Farm Fields SNCI | 69 | Fully or partially within 2 km of the project boundary for EIA scoping | Semi-improved grassland habitat. |
| The Moat, Woodcock Farm SNCI | 46 | Fully or partially within 2 km of the project boundary for EIA scoping | Stream with two county rarities; shining pondweed and stream water-crowfoot. Selected for the presence of the above plus its position (flowing into Thorpe Park Lakes and adjacent land No 1 Gravel Pit SSSI). |
| Hilda May Lake SNCI | 48 | Fully or partially within 2 km of the project boundary for EIA scoping | A wetland nature reserve with three vegetated islands, valuable nesting habitat for wildfowl, and a good range of Odonata. |
| Birch Green by River Ash SNCI | 54 | Fully or partially within 2 km of the project boundary for EIA scoping | The site was selected in 1996 for the wet grassland with ant hills. This type of grassland is uncommon and declining in the county. Following a review in 2010, it was reselected for its diverse emergent flora including NVC communities S5 and S14. |
| Moor Lane Nature Reserve SNCI | 43 | Fully or partially within 2 km of the project boundary for EIA scoping | Wetland nature reserve with two mesotrophic lakes and a pond with associated ditch. Selected for its diverse wetland habitat. Species recorded on the site include the Red Data book species: small water-pepper and whorled water-milfoil, as well as the lesser water parsnip |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | and thread-leaved crowfoot. It is potentially important for wintering wildfowl. |
| Church Lammas SNCI | 49 | Fully or partially within 2 km of the project boundary for EIA scoping | Selected for species-rich grassland, containing at least 16 species typical of grassland of conservation interest in Surrey. The site also supports swamp and reedbed habitats (NVC S4 and S14) and serves as an Accessible Natural Greenspace within an urban area. |
| Greenham's Fishing Pond SNCI | 73 | Fully or partially within 2 km of the project boundary for EIA scoping | The site is selected for its wetland habitat which complements the wider mosaic of wetland habitats present in the surrounding M25 corridor area. |
| River Colne (from County Boundary to Staines Moor), Stanwell Moor SNCI | 50 | Fully or partially within 2 km of the project boundary for EIA scoping | Fast-flowing River with good aquatic and marginal vegetation and areas of bare ground, which are attractive to breeding birds. |
| East of Poyle Meadows SNCI | 68 | Fully or partially within 2 km of the project boundary for EIA scoping | Diversity of habitats including pond, swamp, grassland, and scrub. Selected for its diverse wetland habitat including NVC swamp communities S4, S7 and S12. Species indicative of Thames alluvial soils are supported including common clubrush. The nationally notable Roesel's bush cricket has also been recorded on the site. |
| West of Poyle Meadows SNCI | 63 | Fully or partially within 2 km of the project boundary for EIA scoping | A natural river channel with good marginal vegetation along the western bank. The site was selected in 1996 because the river supported a diverse macroinvertebrate fauna. This stretch of river was shown by the Environment Agency to be in the top 13% of UK watercourses due to its macroinvertebrate diversity. It was also selected as a natural river channel with good marginal vegetation including blue water-speedwell, scarce in Surrey, and arrowhead, |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | uncommon in Surrey. The eastern bank forms part of the Poyle Meadow SSSI and the SNCI is an important protective buffer to the SSSI. |
| River Wey - Runnymede SNCI | 62 | Fully or partially within 2 km of the project boundary for EIA scoping | These habitats provide a corridor for species migration, act as a buffer zone to protect the riverine environment and may also have important communities in their own right. Most of this stretch was classed as important mainly for the diverse marginal and aquatic flora, including unbranched bur-reed and fat duckweed, two uncommon species in Surrey. |
| River Wey – Elmbridge SNCI | 36 | Fully or partially within 2 km of the project boundary for EIA scoping | This section supports bullhead and is likely to support brook lamprey. Greater dodder, a nationally scarce species is found along the banks of this stretch of river. |
| Woburn Park Stream SNCI | 47 | Fully or partially within 2 km of the project boundary for EIA scoping | This section of the Bourne known as Woburn Park Stream has been selected based on river corridor survey data provided by the Environment Agency. This stretch was classed as important for its proximity to Chertsey Meads, its woodland setting, the presence of greater dodder and a diverse riffle glide sequence. |
| Chertsey Meads SNCI | 38 | Fully or partially within 2 km of the project boundary for EIA scoping | Calcareous and improved grassland and selected for species-rich unimproved grassland. De-notified SSSI. |
| Chertsey Bourne at Chertsey Meads SNCI | 39 | Fully or partially within 2 km of the project boundary for EIA scoping | This stretch was classed as important for its location adjacent to Chertsey Meads and for a diverse and abundant assemblage of aquatic plants. Other notable species include bullhead. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Queen Mary Reservoir SNCI | 58 | Fully or partially within 2 km of the project boundary for EIA scoping | Large body of open water with tightly grazed slopes, willow scrub and some planted trees. It supports two species: gadwall and shoveler which are on the Conservation Concern list for Surrey. The site is of international importance within the UK for lesser black-backed gull and of national importance in Great Britain for herring gull and great crested grebe. The site lies in an important position close to the South West London Waterbodies Ramsar and SPA sites and adjacent to the West of Queen Mary Reservoir SNCI. |
| West of Queen Mary Reservoir SNCI | 55 | Fully or partially within 2 km of the project boundary for EIA scoping | Complex of lakes, scrub and grassland with ruderal communities created by old gravel workings. Selected for its importance for visiting seabirds and wildfowl, including the little ringed plover. Three plants recorded on the site: hound's tongue, celery-leaved buttercup, and water dock are on the Surrey Rare Plant Register. The site is also adjacent to Queen Mary Reservoir. |
| Shortwood Common North SNCI | 67 | Fully or partially within 2 km of the project boundary for EIA scoping | Selected as a remnant of important alluvial grassland contiguous to Shortwood Common SSSI. The site supports the spiny rest harrow *Ononis spinosa* which is described as Rare in Surrey's Rare Plant Register. |
| The Heath SNCI | 71 | Fully or partially within 2 km of the project boundary for EIA scoping | Secondary, mixed woodland with some areas of heath. Green-flowered helleborine has also been recorded on the site, a Nationally Scarce species. Selected for relict heathland with further potential for heathland restoration. |
| River Ash SNCI: Splash Meadow to Gaston Bridge SNCI | 57 | Fully or partially within 2 km of the project boundary for EIA scoping | River with good aquatic and marginal flora. Included in the area shown by Environment Agency to fall in the top 10% of UK watercourses due to its macroinvertebrate diversity. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| River Ash: Gaston Bridge to Watersplash Farm SNCI | 45 | Fully or partially within 2 km of the project boundary for EIA scoping | The River Ash is a small, narrow river and is rich in plant and insects, particularly reeds, diverse sedges, pond skaters, amphibians, moths and butterflies. |
| Littleton Lake - Shepperton Green Reservoir SNCI | 61 | Fully or partially within 2 km of the project boundary for EIA scoping | Approximately 30-year-old gravel working with mature stands of willows (*Salix* sp.) and scrub around the lake with good marginal vegetation. The lake supports diverse marginal vegetation with flat-stalked pondweed. It supports wetland habitats including NVC communities S6 and S7. It has also been reported as a refuge for wintering wildfowl including the occasional shoveler and gadwall. |
| Ashford Plant SNCI | 77 | Fully or partially within 2 km of the project boundary for EIA scoping | Eutrophic lakes and surrounding vegetation of willows and other broadleaved<br>trees. Site selected as important for wildfowl and wintering birds, particularly shoveler. |
| River Ash: Shepperton Green SNCI | 65 | Fully or partially within 2 km of the project boundary for EIA scoping | Short section of gently flowing river with overgrown riverbank containing good marginal and aquatic vegetation. This stretch of river was selected in 1996 as it fell within the top 10% of UK watercourses due to its macro-invertebrate diversity. This section supports the BAP priority species European eel. In addition, the site supports three Nationally Scarce species; fringed waterlily, intermediate water-starwort, and yellow water-lily. |
| River Ash: Splash Meadow SNCI | 59 | Fully or partially within 2 km of the project boundary for EIA scoping | River with good aquatic and marginal flora and a recreation field with reclaimed gravel pit. Of the notable species recorded within the site there was a county rarity. Included in the area shown by Environment Agency to fall in the top 10% of UK watercourses due to its macroinvertebrate diversity. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| Queen Elizabeth II Reservoir SNCI | 64 | Fully or partially within 2 km of the project boundary for EIA scoping | The largest waterbody in Surrey, south of the Thames. Important site for wintering wildfowl – good numbers of goosander, shoveler, shelduck, cormorant and great crested grebe. Common tern breed on tern rafts. Also selected for importance for waders and passerines and for important position within ecological unit. |
| Field Common / Hersham Pits SNCI | 44 | Fully or partially within 2 km of the project boundary for EIA scoping | Previous gravel pit and common/open space area with a variety of habitats. |
| Redhouse Reservoir SNCI | 78 | Fully or partially within 2 km of the project boundary for EIA scoping | Habitats include woodland, scrub, tall ruderal, running water and dry ditch, and it forms part of the Kempton Park Reservoirs SSSI and South West London Waterbodies SPA/Ramsar with the woodland acting as a protective buffer zone. The site is important as it supports breeding bird/wintering waterbird assemblages. |
| Molesey Reservoir SNCI | 56 | Fully or partially within 2 km of the project boundary for EIA scoping | Historically rich bird records for this site which include lapwing, breeding little ringed plover and marsh warbler. Although the site is not currently particularly species rich, it meets the SNCI criteria under both 'Potential Value' and 'Position in Ecological Unit' (site is adjacent to Knight and Besborough Reservoir SSSI/SPA). |
| Kempton Lake & Half Moon Covert SNCI | 74 | Fully or partially within 2 km of the project boundary for EIA scoping | Grassland zone around the waterbodies and immediately surrounding the lakes is semi-improved neutral grassland and the Kempton Park racecourse grounds. Habitats include scattered scrub, grassland, tall ruderal, marginal vegetation, standing water (the lake), introduced shrub, bare ground, and woodland. The site supports a good range of marginal and emergent vegetation, especially for Half Moon Covert. |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | The site supports a variety of bird assemblages including breeding birds and wintering waterbirds. |
| Sunbury Park SNCI | 41 | Fully or partially within 2 km of the project boundary for EIA scoping | Selected for wood pasture and veteran trees. The site supports one or more nationally rare or declining species as listed in the latest Red Data Books and is an Accessible Natural Greenspace within an urban area. |
| Littleworth Common SNCI | 60 | Fully or partially within 2 km of the project boundary for EIA scoping | The site was formerly open heathland, most of which has developed into birch and oak woodland. Some remnants of acid heathland survive, and marshy areas and two large ponds have uncommon communities, including the nationally rare starfruit. Wet flushes have extensive bog mosses. Purple hairstreak butterfly larvae feed on the oak trees. |
| Island Barn Reservoir SNCI | 42 | Fully or partially within 2 km of the project boundary for EIA scoping | Selected for importance for wintering wildfowl and for its position within the wider ecological unit allowing an interchange of birds with other reservoirs in area including those in the South West London Waterbodies Ramsar and SPA. |
| Ditton Common Golf Course SNCI | 53 | Fully or partially within 2 km of the project boundary for EIA scoping | Ditton Common is characterised by areas of high-quality acid grassland enclosed by deciduous woodland. A large area of the common is leased to Thames Ditton and Esher Golf Club which maintains the common as both a golf course and area of grassland, providing a habitat for many endangered invertebrates, notably burrowing wasps and bees. Also on the site are two ponds. |
| Hurst Park (incl. Hurst Minor and Hurst Meadows) SNCI | 37 | Fully or partially within 2 km of the project boundary for EIA scoping | Selected for its species-rich grassland supporting great burnet (VC17 Rare) and hoary cinquefoil (GBRL – Lower Risk - Near Threatened). |

| Designated site name | Site ID number | Distance from project boundary for EIA scoping | Original reasons for notification and integral value |
|---|---|---|---|
| | | | Extended in 2016 to include area supporting autumn squill (nationally scarce). |
| Wey Navigation (including Addlestone Mill Pond) SNCI | 40 | Fully or partially within 2 km of the project boundary for EIA scoping | Primarily riparian habitat. |

# Appendix D: Latin Names for all Species

**Table D.1 - Latin names for plant species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Alexanders | *Smyrnium olusatrum* |
| Annual meadow grass | *Poa annua* |
| Arrowhead | *Sagittaria sagittifolia* |
| Autumn squill | *Scilla autumnalis* |
| Bee orchid | *Ophrys apifera* |
| Black bent | *Agrostis gigantea* |
| Blue water-speedwell | *Veronica anagallis-aquatica* |
| Bluebell | *Hyacinthoides non-scripta* |
| Box | *Buxus sempervirens* |
| Broad-leaved dock | *Rumex obtusifolius* |
| Bulbous buttercup | *Ranunculus bulbosus* |
| Bulbous meadow-grass | *Poa bulbosa* |
| Butcher's-broom | *Ruscus aculeatus* |
| Cat's ear | *Hypochaeris radicata* |
| Celery-leaved buttercup | *Ranunculus sceleratus* |
| Common bird's-foot-trefoil | *Lotus corniculatus* |
| Common broomrape | *Orobanche minor* |
| Common clubrush | *Schoenoplectus lacustris* |
| Common knapweed | *Centurea nigra* |
| Common ragwort | *Senecio jacobaea* |
| Common reed | *Phragmites australis* |
| Couch grass | *Elymus repens* |
| Cow parsley | *Anthriscus sylvestris* |
| Creeping bent | *Agrostis stolonifera* |
| Creeping thistle | *Cirsium arvense* |
| Crested dog's-tail | *Cynosurus cristatus* |
| Curled dock | *Rumex crispus* |
| Dittander | *Lepidium latifolium* |
| Downy-fruited sedge | *Carex filiformis* |
| Enchanters' nightshade | *Circaea lutetiana* |
| Fat duckweed | *Lemna gibba* |
| Fennel-leaved pondweed | *Potamogeton pectinatus* |
| Field bindweed | *Calystegia sepium* |
| Field chickweed | *Cerastium arvense* |

| Common Name | Latin Name |
|---|---|
| Field mouse-ear | *Cerastium arvense* |
| Flat-stalked pondweed | *Potamogeton friesii* |
| Fringed waterlily | *Nymphoides peltata* |
| Great burnet | *Sanguisorba officinalis* |
| Green helleborine | *Helleborus viridis* |
| Green-flowered helleborine | *Epipactis phyllanthes* |
| Gypsywort | *Lycopus europaeus* |
| Hemlock water-dropwort | *Oenanthe crocata* |
| Hoary cinquefoil | *Potentilla argente* |
| Hornwort | *Ceratophyllum demersum* |
| Hound's tongue | *Cynoglossum officinale* |
| Intermediate water-starwort | *Callitriche hamulate* |
| Knotted hedge-parsley | *Torilis nodosa* |
| Lesser pond-sedge | *Carex riparia* |
| Lesser water parsnip | *Berula erecta* |
| Loddon pondweed | *Potamogeton nodosus* |
| Marsh woundwort | *Stachys palustris* |
| Meadow barley | *Hordeum secalinum* |
| Meadow crane's-bill | *Geranium pratense* |
| Meadow foxtail | *Alopecurus pratensis* |
| Oxeye daisy | *Leucanthemum vulgare* |
| Pendulous sedge | *Carex pendula* |
| Perennial ryegrass | Lolium perenne |
| Plant tower mustard | *Arabis glabra* |
| Purple loosestrife | *Lythrum salicaria* |
| Pyramidal orchid | *Anacamptis pyramidali* |
| Rare starfruit | *Averrhoa carambola* |
| Red currant | *Ribes rubrum* |
| Red fescue | *Festuca rubra* |
| Reedmace | *Typha sp.* |
| Ribwort plantain | *Plantago lanceolata* |
| Round fruited rush | *Juncus compressus* |
| Scentless mayweed | *Tripleurospermum inodorum* |
| Shining pondweed | *Potamogeton lucens* |
| Silver cinquefoil | *Potentilla argentea* |
| Skullcap | *Scutellaria galericulata* |
| Small water-pepper | *Persicaria minor* |
| Spear thistle | *Cirsium vulgare* |

| Common Name | Latin Name |
|---|---|
| Spindle | *Circaea lutetiana* |
| Stream water-crowfoot | *Ranunculus penicillatus* |
| Thread-leaved crowfoot | *Ranunculus trichophyllus* |
| Unbranched bur-reed | *Sparganium ermersum* |
| Vervain | *Verbena officinalis* |
| Water dock | *Rumex hydrolapathum* |
| Water mint | *Mentha aquatica* |
| White clover | *Trifolium repens* |
| Whorled water-milfoil | *Myriophyllum verticillatum* |
| Wild clary | *Salvia verbenaca* |
| Wood avens | *Geum urbanum* |
| Yellow flag iris | *Iris pseudacorus* |
| Yellow water-lily | *Nuphar lutea* |
| Yellow-rattle | *Rhinanthus minor* |

**Table D.2 - Latin names for tree species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Alder | *Alnus glutinosa* |
| Ash | *Fraxinus sp.* |
| Birch | *Betula sp.* |
| Blackthorn | *Prunus spinosa* |
| Common hawthorn | *Crataegus monogyna* |
| Hazel | *Corylus avellana* |
| Holly | *Ilex aquifolium* |
| Lime | *Tilia cordata* |
| Oak | *Quercus sp.* |
| Willow | *Salix sp.* |
| Yew | *Taxus baccata* |

**Table D.3 - Latin names for bird species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Barn owl | *Tyto alba* |
| Barnacle geese | *Branta leucopsis* |
| Bittern | *Botaurus stellaris* |
| Black-tailed godwit | *Limosa limosa* |
| Bullfinch | *Pyrrhula pyrrhula* |
| Buzzard | *Buteo buteo* |

| Common Name | Latin Name |
|---|---|
| Canada geese | *Branta canadensis* |
| Cetti's warbler | *Cettia cetti* |
| Common scoter | *Melanitta nigra* |
| Common tern | *Sterna hirundo* |
| Coot | *Fulica atra* |
| Cormorant | *Phalacrocorax carbo* |
| Dartford warbler | *Sylvia undata* |
| Dunnock | *Prunella modularis* |
| Egyptian geese | *Alopochen aegyptiaca* |
| Gadwall | *Anas strepera* |
| Goldeneye | *Bucephala clangula* |
| Goldfinch | *Carduelis carduelis* |
| Goosander | *Mergus merganser* |
| Great crested grebe | *Podiceps cristatus* |
| Great tit | *Parus major* |
| Green woodpecker | *Picus viridis* |
| Greenfinch | *Chloris chloris* |
| Heron | *Ardea cinerea* |
| Herring gull | *Larus argentatus* |
| Hobby | *Falco subbuteo* |
| House martin | *Delichon urbicum* |
| House sparrow | *Passer domesticus* |
| Kestrels | *Falco tinnunculusi* |
| Kingfisher | *Alcedo atthis* |
| Lapwing | *Vanellus vanellus* |
| Lesser black-backed gull | *Larus fuscus* |
| Linnet | *Linaria cannabina* |
| Little egret | *Egretta garzetta* |
| Little grebe | *Tachybaptus ruficollis* |
| Little ringed plover | *Charadrius dubius* |
| Little tern | *Sterna albifrons* |
| Mallard | *Anas platyrhynchos* |
| Marsh warbler | *Acrocephalus palustris* |
| Mistle thrush | *Turdus viscivorus* |
| Nightjar | *Caprimulgus europaeus* |
| Pochard | *Aythya ferina* |
| Red kite | *Milvus milvus* |
| Reed bunting | *Emberiza schoeniclus* |

| Common Name | Latin Name |
|---|---|
| Sand martin | *Riparia riparia* |
| Shelduck | *Tadorna tadorna* |
| Shoveler | *Anas clypeata* |
| Siskin | *Carduelis spinus* |
| Skylark | *Alauda arvensis* |
| Snipe | *Gallinago gallinago* |
| Song thrush | *Turdus philomelos* |
| Starling | *Sturnus vulgaris* |
| Swift | *Apus apus* |
| Tufted duck | *Aythya fuligula* |
| Turtle dove | *Streptopelia turtur* |
| Woodlark | *Lullula arborea* |

**Table D.4 - Latin names for invertebrate species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| A beetle | *Agrypnus murinus* |
| Azure damselfly | *Coenagrion puella* |
| Banded demoiselle | *Calopteryx splendens* |
| Blue-tailed damselfly | *Ischnura elegans* |
| Brimstone | *Gonepteryx rhamni* |
| Brown hairstreak | *Thecla betulae* |
| Burnet companion | *Euclidia glyphica* |
| Caddis fly | *Trichoptera* |
| Cinnabar | *Tyria jacobaeae* |
| Clouded yellow | *Colias croceus* |
| Comma | *Polygonia c-album* |
| Common blue | *Celastrina argiolus* |
| Common blue damselfly | *Enallagma cyathigerum* |
| Common carpet | *Epirrhoe alternata* |
| Common club-tail | *Gomphus vulgatissimus* |
| Common nettle-tap | *Anthophila fabriciana* |
| Digger wasp | *Sphecidae* |
| Dock bug | *Coreus marginatus* |
| Emperor dragonfly | *Anax imperator* |
| Freshwater nerite | *Theodoxus fluviatilis* |
| Gatekeeper | *Pyronia tithonus* |
| Green-veined white | *Pieris napi* |
| Hairy-footed flower bee | *Anthophora plumipes* |

| Common Name | Latin Name |
|---|---|
| Harlequin ladybird | *Harmonia axyridis* |
| Holly blue | *Celastrina argiolus* |
| Hornet hoverfly | *Volucella zonaria* |
| Ivy bee | *Colletes hederae* |
| Large white | *Pieris brassicae* |
| Mayfly | *Ephemeroptera* |
| Meadow brown | *Maniola jurtina* |
| Peacock | *Aglais io* |
| Red admiral | *Vanessa atalanta* |
| Red-tailed bumblebee | *Bombus lapidarius* |
| Ringlet | *Aphantopus hyperantus* |
| Roesel's bush cricket | *Metrioptera roeselii* |
| Shaded broad-bar | *Scotopteryx chenopodiata* |
| Small copper | *Lycaena phlaeas* |
| Small heath | *Coenonympha pamphilus* |
| Small white | *Pieris rapae* |
| Speckled wood | *Pararge aegeria* |
| Stag beetle | *Lucanus cervus* |
| True fly | *Diptera sp.* |
| White-clawed crayfish | *Austropotamobius pallipes* |
| White-faced darter | *Leuccorhinia dubia* |
| White-letter hairstreak | *Satyrium w-album* |

**Table D.5 - Latin names for mammal species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Bank vole | *Myodes glareolus* |
| Brown rat | *Rattus norvegicus* |
| European badger | *Meles meles* |
| European hedgehog | *Erinaceus europaeus* |
| European mole | *Talpa europaea* |
| European otter | *Lutra lutra* |
| European rabbit | *Oryctolagus cuniculus* |
| Harvest mouse | *Micromys minutus* |
| Hazel dormice | *Muscardinus avellanarius* |
| Mink | *Neovison vison* |
| Polecat | *Mustela putorius* |
| Red fox | *Vulpes vulpes* |
| Roe deer | *Capreolus capreolus* |

| Common Name | Latin Name |
|---|---|
| Stoat | *Mustels erminea* |
| Water vole | *Arvicola amphibious* |
| Weasels | *Mustela nivalis* |
| Wood mouse | *Apodemus sylvaticus* |

**Table D.6 - Latin names for reptile species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Grass snake | *Natrix helvetica* |
| Sand lizard | *Lacerta agilis* |
| Smooth snake | *Coronella austriaca* |

**Table D.7 - Latin names for amphibian species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Common frog | *Rana temporaria* |
| Common toad | *Bufo bufo* |
| Great crested newt | *Triturus cristatus* |
| Palmate newt | *Lissotriton helveticus* |
| Smooth newt | *Lissotriton vulgaris* |

**Table D.8 - Latin names for bat species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Bechstein's bats | *Mytosis bechsteinii* |
| Brown long-eared | *Plecotus auritus* |
| Daubenton's | *Myotis daubentonii* |
| Leisler's | *Nyctalus leisleri* |
| Myotis | *Myotis sp* |
| Nathusius pipistrelle | *Pipistrellus nathusii* |
| Noctule | *Nyctalus noctula* |
| Serotine | *Eptesicus serotinus* |
| Soprano pipistrelle | *Pipistrellus pygmaeus* |

**Table D.9 - Latin names for fish species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Barbel | *Barbus barbus* |
| Brook lamprey | *Lampetra planeri* |
| Bullhead | *Cottus gobio* |

| Common Name | Latin Name |
|---|---|
| Chub | *Squalius cephalus* |
| Dace | *Leuciscus leuciscus* |
| European eel | *Anguilla anguilla* |
| Greater dodder | *Cuscuta europaea* |
| Gudgeon | *Gobio gobio* |
| Roach | *Rutilus rutilus* |

**Table D.10 - Latin names for INNS species discussed within the PEA**

| Common Name | Latin Name |
|---|---|
| Altar-lily | *Zantedeschia aethiopica* |
| American bulgeweed | *Lycopus americanus* |
| Asian clam | *Corbicula fluminea* |
| Bamboo | *Bambusa vulgaris* |
| Bidens frondose | *Bidens frondosa* |
| Bladder snail | *Physella acuta* |
| Bloody-red mysid | *Hemimysis anomala* |
| Buddleia | *Buddleja davidii* |
| Canada waterweed | *Elodea canadensis* |
| Cherry laurel | *Prunus laurocerasus* |
| Chinese mitten crab | *Eriocheir sinensis* |
| Common duckweed | *Lemna minor* |
| Common millet | *Panicum miliaceum* |
| Cotoneaster | *Cotoneaster sp.* |
| Curly waterweed | *Lagarosiphon major* |
| Demon shrimp | *Dikerogammarus haemobaphes* |
| Duck potato | *Sagittaria latifolia* |
| Eastern grey squirrel | *Sciurus carolinensis* |
| Elecampan | *Inula heleninum* |
| False virginia creeper | *Parthenocissus inserta* |
| False-acacia | *Robinia pseudoacacia* |
| Floating pennywort | *Hydrocotyle ranunculoides* |
| Giant hogweed | *Heracleum mantegazzianum* |
| Giant reed | *Arundo donax* |
| Goats rue | *Ruta capraria* |
| Green alkanet | *Pentaglottis sempervirens* |
| Himalayan balsam | *Impatiens glandulifera* |
| Holm oak | *Quercus ilex* |
| Japanese knotweed | *Fallopia japonica* |

| Common Name | Latin Name |
|---|---|
| Japanese rose | *Rosa rugosa* |
| Jenkins' spire snail | *Potamopyrgus antipodarum* |
| Least duckweed | *Lemna minuta* |
| Michaelmas daisy | *Aster amellus* |
| Montbretia | *Crocosmia crocosmiiflora* |
| Mud shrimp | *Upogebia pugettensis* |
| Muntjac deer | *Muntiacus reevesi* |
| New Zealand pygmyweed | *Crassula helmsii* |
| North American flatworm | *Bipalium sp.* |
| North American limpet | *Crepidula fornicata* |
| Northern river crangonyctid | *Crangonyx pseudogracilis* |
| Nuttall's waterweed | *Elodea nuttallii* |
| Oak processionary moth | *Thaumetopoea processionea* |
| Orange balsam | *Impatiens capensis* |
| Pale duckweed | *Lemna valdiviana* |
| Pale galingale | *Cyperus eragrostis* |
| Parrot's feather | *Myriophyllum aquaticum* |
| Passion flower | *Passiflora sp,* |
| Quagga mussel | *Dreissena bugensis* |
| Ring-necked parakeet | *Psittacula krameria* |
| Russian comfrey | *Symphytum x uplandicum* |
| Signal crayfish | *Pacifastacus leniusculus* |
| Skunk cabbage | *Symplocarpus foetidus* |
| Small-flowered balsam | *Impatiens parviflora* |
| Snowberry | *Symphoricarpos sp.* |
| Spatterdock | *Nuphar lutea* |
| Variegated periwinkle | *Vinca major* |
| Variegated yellow archangel | *Lamiastrum galeobdolon* |
| Waterlily | *Nymphaeaceae sp.* |
| Zebra mussel | *Dreissena polymorpha* |

# Appendix E: Target Notes

| Target Note Number | Description |
|---|---|
| 2 | Reptile and amphibian hibernacula |

| Target Note Number | Description |
|---|---|
| 3 | Buildings with high suitability for roosting bats |
| 4 | Breeding bird suitability – nest boxes on farm buildings |
| 6 | Japanese knotweed |
| 7 | Reptile hibernacula & suitable habitat for commuting, foraging and burrowing hedgehogs, stoats, polecats and weasels. The remains of a hedgehog were also identified |
| 22 | Otter suitability |
| 25 | Large population of waterfowl |
| 27 | Otter suitability |
| 29 | Mammal commuting path and badger suitability |
| 34 | Mammal commuting path and badger suitability |
| 35 | Two oak trees containing oak processionary moth |
| 36 | Otter suitability. Cracked freshwater mussel shells were observed along the footpath and on the boardwalk to north of the Survey Area |
| 37 | Trees with bat roost suitability |
| 38 | Amphibian & reptile hibernacula / stag beetle suitability |
| 39 | Trees with bat roost suitability |
| 40 | Fox den |
| 41 | Trees with bat roost suitability |
| 42 | Trees with bat roost suitability |
| 43 | Mammal paths |
| 44 | Badger latrines and mammal runs |
| 45 | Snipe flushed from waterlogged grassland |
| 48 | Japanese knapweed present along the road and pond edge |

| Target Note Number | Description |
|---|---|
| 49 | New Zealand pygmyweed |
| 50 | Smooth newts noted beneath metal debris and badger runs/latrines |
| 54 | New Zealand pygmyweed |
| 55 | Trees with bat roost suitability |
| 56 | Buildings with bat roost suitability |
| 58 | Buildings with bat roost suitability |
| 59 | Trees with bat roost suitability |
| 60 | Trees with bat roost suitability |
| 68 | Trees with bat roost suitability |
| 73 | Tree with bat roost suitability |
| 75 | Buildings with bat roost suitability |
| 76 | Buildings with bat roost suitability |
| 87 | Badger latrines and numerous mammals runs |
| 88 | Mink droppings |
| 90 | Reptile & amphibian hibernacula / stag beetle suitability |
| 91 | Badger latrines and numerous mammals runs |
| 92 | Badger suitability |
| 96 | Badger latrines and numerous mammals runs |
| 97 | Badger latrines and numerous mammals runs |
| 99 | High suitability for breeding birds |
| 103 | Buildings with bat roost suitability |
| 104 | Commuting habitat for bats |
| 105 | Buildings with bat roost suitability |

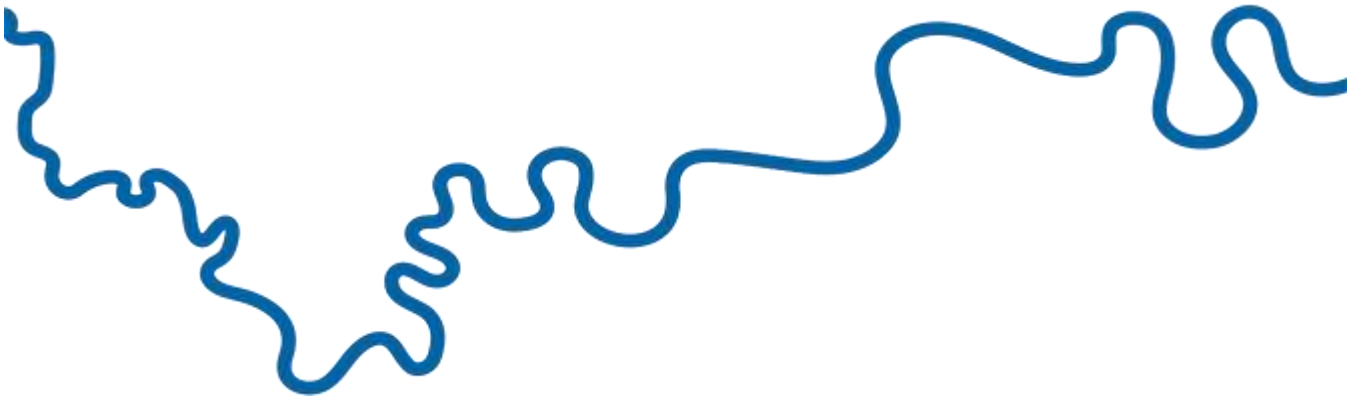
| Target Note Number | Description |
|---|---|
| 106 | Amphibian & reptile hibernacula / stag beetle suitability |
| 107 | Buildings with bat roost suitability |
| 108 | Wintering bird suitability within reservoir north of the Survey Area |
| 109 | Otter suitability |
| 113 | Trees with bat roost suitability |
| 114 | Trees with bat roost suitability |
| 115 | Badger latrine and run |
| 116 | Amphibian & reptile hibernacula |
| 117 | Bat roost suitability |
| 118 | Pond with limited suitability for breeding amphibians |
| 119 | Amphibian & reptile hibernacula |
| 121 | Building with bat roost suitability |
| 122 | Tree with bat roost suitability |
| 123 | Badger latrine and hair |
| 124 | Amphibian & reptile hibernacula |
| 125 | Badger latrine |
| 126 | Bat roost suitability |
| 127 | Bat roost suitability |
| 129 | Concrete building with bat roost suitability |
| 131 | Tree with bat roost suitability |
| 141 | Suitable badger habitat<br>Japanese knotweed on pond edge & within woodland |
| 144 | Trees with bat roost suitability |

| Target Note Number | Description |
|---|---|
| 145 | Reptile & amphibian hibernacula |
| 146 | Trees with bat roost suitability (bat boxes present) |
| 148 | Potential small leaved lime |
| 149 | Suitability for notable plant species and with high species richness recorded |
| 150 | Ancient woodland indicators within broadleaved woodland |
| 151 | Lowland hay meadow |
| 152 | Bee orchids, pyramidal orchids and green helleborine within grassland |
| 153 | Suitability for notable plant species and with high species richness recorded |
| 154 | Orchids within grassland |
| 155 | Holcus-Juncus grassland with high species richness. Bee orchids, pyramidal orchids and green helleborine within grassland |
| 159 | Amphibian & reptile hibernacula / stag beetle suitability. |
| 162 | Amphibian & reptile hibernacula |
| 165 | Tree with bat roost suitability |
| 167 | Reptile & amphibian suitability & hibernacula / stag beetle suitability |
| 168 | Reptile & amphibian suitability & hibernacula / stag beetle suitability |
| 169 | Reptile & amphibian suitability & hibernacula / stag beetle suitability |
| 170 | Reptile & amphibian suitability & hibernacula / stag beetle suitability |
| 173 | Tree suitable for nesting barn owl |
| 176 | Reptile hibernacula |
| 177 | Reptile & amphibian suitability & hibernacula / stag beetle suitability. |

| Target Note Number | Description |
|---|---|
| 178 | An artificial cave with bat roost suitability |
| 179 | Reptile & amphibian suitability & hibernacula / stag beetle suitability |
| 180 | Japanese knotweed present surrounding pond and along road edge |
| 181 | Japanese knotweed and giant hogweed |
| 182 | Suitable for a range of notable plant species, with pyramidal orchid being identified within the neutral grassland |
| 183 | Otter suitability |
| 184 | Japanese knapweed |
| 185 | Bee orchids, pyramidal orchids and green helleborine within grassland |
| 186 | Bee orchids, pyramidal orchids and green helleborine within grassland |
| 187 | Bee orchids, pyramidal orchids and green helleborine within grassland |
| 188 | Trees with bat roost suitability |
| 189 | Himalayan balsam |
| 190 | Floating pennywort |
| 191 | Himalayan balsam scattered across modified grassland and lines of trees, that border the running water |
| 192 | Himalayan balsam present along Burway Ditch |
| 193 | Himalayan balsam present along Burway Ditch |
| 194 | Himalayan balsam present along Burway Ditch |
| 195 | Floating pennywort |
| 196 | Himalayan balsam |
| 197 | Japanese knotweed |
| 201 | Amphibian hibernacula |

| Target Note Number | Description |
|---|---|
| 202 | Himalayan balsam |
| 203 | Himalayan balsam |
| 204 | Himalayan balsam |
| 205 | Himalayan balsam and Japanese rose present along the ditches and running water courses |
| 206 | Japanese knotweed |
| 207 | Giant hogweed |
| 208 | Giant hogweed |
| 209 | Japanese knotweed along lake |
| 210 | Amphibian & reptile hibernacula / stag beetle suitability |
| 211 | Himalayan balsam on Survey Area boundary |
| 212 | New Zealand pygmyweed within pond fringe |
| 213 | Stand of Japanese knotweed |
| 214 | Japanese knotweed present surrounding pond and along road edge |
| 215 | Japanese knotweed within wet woodland and on the edges of the developed land |
| 216 | Japanese knotweed within wet woodland and on the edges of the developed land |
| 217 | Japanese knotweed within wet woodland and on the edges of the developed land |
| 218 | Japanese knotweed within wet woodland and on the edges of the developed land |
| 219 | Japanese knotweed within wet woodland and on the edges of the developed land |
| 220 | Giant hogweed present within small area of swamp; Japanese knotweed noted within hedgerows throughout the Survey Area |
| 221 | Japanese knotweed and giant hogweed along the edges of the earth bank |

| Target Note Number | Description |
|---|---|
| 222 | Japanese knotweed and giant hogweed along the edges of the earth bank |
| 223 | Japanese knotweed and giant hogweed along the edges of the earth bank |
| 224 | Pond suitable for breeding amphibians |
| 225 | Himalayan balsam scattered across modified grassland and lines of trees, that border the running water |
| 226 | Himalayan balsam scattered across modified grassland and lines of trees, that border the running water |
| 227 | Himalayan balsam scattered across modified grassland and lines of trees, that border the running water |
| 228 | False Virginia creeper |
| 229 | Temporary pools suitable for breeding great crested newt. Himalayan balsam observed within the woodlands |
| 230 | Reptile & amphibian suitability & hibernacula / stag beetle suitability |
| 231 | Himalayan balsam along ditches |
| 232 | Roosting bat suitability |
| 233 | Bridge and buildings with bat roost suitability |
| 234 | Floating pennywort in the Engine River |
| 235 | Dry pond that appears to be seasonally wet with limited potential for breeding amphibians |
| 236 | Suitability for breeding and hibernating reptiles. |



The River Thames Scheme, delivered in a partnership led by the Environment Agency and Surrey County Council, will reduce flood risk for residents and businesses and improve the surrounding area.