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1. Introduction

1.1 Background

1.1.1 In 2020, AECOM undertook a Preliminary Ecological Appraisal (PEA) (**Appendix 8B: Preliminary Ecological Appraisal** of the Environmental Statement (ES) [EN010118/APP/6.2]) of the Longfield Solar Farm Site on behalf of Longfield Solar Farm Ltd (hereafter referred to as 'the Applicant'). This PEA identified the need for follow-up ecological surveys and assessments to determine a baseline and potential impacts of the proposed Longfield Solar Energy Farm (hereafter referred to as 'the Scheme') on protected and, or notable species. As part of this work, AECOM undertook riparian mammal surveys along the River Ter up to 200m from the Scheme boundary (hereafter referred to as the 'Order Limits') (see red line boundary on **Figure 1, Annex A**).

1.2 Order Limits Description

1.2.1 The Scheme is located in Essex within the administrative areas of Braintree District Council and Chelmsford City Council. The rationale for selecting the Order Limits is described in **Chapter 3: Alternatives and Design Evolution** of the ES [EN010118/APP/6.1]. The maximum extent of land that is expected to be included within the DCO application for the Order Limits, together with the maximum areas of the cable route corridors is shown on **Figure 1, Annex A**. It should be noted that this represents the current maximum extent of land being considered and will be further refined.

1.2.2 The Order limits is approximately centred on National Grid Reference (NGR) TL 74179 14620 and located approximately 1.1km to the West of the village of Terling (**Figure 1, Annex A**).

1.2.3 The Order Limits comprises a single parcel of land separated by several areas of woodland which are in total approximately 453 hectares (ha) in area.

1.2.4 The landscape features within the Order limits consist of agricultural fields mainly under arable production, with some small parcels of pasture, interspersed with individual trees, hedgerows, linear tree belts, small woodland blocks and farm access tracks. The hedgerows within the Order limits range between lengths of dense tall vegetation (shrub and tree species), the dominant hedgerow type in the landscape, and thin lines of vegetation with sporadic trees. The arable fields are of small to moderate size, some of which are of irregular shape.

1.2.5 The landscape features immediately surrounding the Order limits comprise a number of villages, including Fuller Street approximately 300 metres (m) to the north, Gamble's Green and Terling 500m and 1.1km to the east, Boreham 500m to the south-west, Hatfield Peverel 1.5km to the south-east and the city of Chelmsford 5.7 kilometres (km) to the south-west. Boreham Road runs north to south along the western edge of the Order limits, with the A12 carriageway abutting and bounding the southern edge of the Order limits.

1.2.6 The northern part of the Order limits and surrounding area consists of undulating and relatively elevated landform, as part of the River Ter valley. The landform rises steeply northwards from the river and Terling Spring, between

35 (m) Above Ordnance Datum (AOD) to 50m AOD along parts of Braintree Road. It culminates at a ridgeline at 70m AOD at Rank's Green, in the northern part of the study area. To the south of the River Ter, the landform also rises steeply, across Sandy Wood, to a ridgeline at 55m AOD.

- 1.2.7 To the west of the Order limits, the landscape consists of a varied pattern of landform, reflecting past sand and gravel extraction and engineered flat terrain across Boreham airfield, which is situated at 55m AOD approximately 800m to the west of the Order limits. From the airfield, the landform falls very gradually eastwards to the River Ter, which flows southwards between Terling and the northern part of Hatfield Peverel, at approximately 20m AOD.
- 1.2.8 The River Chelmer is present 2.5km to the south of the Order limits. There are several large-scale reservoirs and lakes adjacent to the river. From the river, the landform rises consistently northwards, to form a ridgeline around 40m AOD at Boreham, and southwards, across Little Baddow, to an elevated ridgeline at 100m AOD, approximately 3km from the Order limits boundary.
- 1.2.9 Most of the southern and central part of the Order limits is located across flat and low-lying landform at approximately 45m AOD, between Waltham Road / Boreham Road and Terling Road. The northern part of the Order limits is located within part of the River Ter valley, where there is rising land to the north and south of Terling Spring and adjacent to Braintree Road.

1.3 Description of the Scheme

- 1.3.1 Solar photovoltaic (PV) and energy storage technologies are rapidly evolving. As a result, the parameters of the DCO will maintain flexibility to allow the latest technology to be utilised at the time of construction.
- 1.3.2 The principal infrastructure will be as follows:
 - a. Solar PV modules;
 - b. PV module mounting structures;
 - c. Inverters;
 - d. Transformers;
 - e. High voltage (HV) switchgear and control equipment housed inside a building;
 - f. On-site cabling;
 - g. One or more Battery Energy Storage System (BESS) (expected to be formed of lithium ion batteries storing electrical energy);
 - h. An electrical compound comprising a substation and control building;
 - i. A spare parts storage building or enclosure;
 - j. Fencing and security measures;
 - k. Access tracks; and
 - l. Landscaping and biodiversity enhancement.
- 1.3.3 During the construction phase, one or more temporary construction compound(s) will be required as well as temporary roadways within the Order limits, to facilitate access to all land within the Order limits.

1.3.4 In areas around the arrays and on other land within the Order limits, opportunities for landscaping, biodiversity enhancements and habitat management will be explored.

1.4 Scope of this Report

1.4.1 The PEA Report (Ref 1) identified Otter (*Lutra lutra*) and Water Vole (*Arvicola amphibius*), both species of principal importance as listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, which could be potential constraints to the works or influence the design and implementation of the Scheme. This was based on the proposed cable access route potentially crossing the River Ter (later amended to not cross at this location) and infrastructure (e.g., solar panels) located close the River Ter. There was a later amendment of a cable access route potentially along Boreham Brook that was included in a preliminary survey in 2021.

1.4.2 This report includes the following information:

- a. Relevant legislation and policy;
- b. Methods for desk and field-based assessments undertaken in 2020;
- c. Limitations to the surveys undertaken and any assumptions made as a result of any incomplete data;
- d. Survey results;
- e. Discussion, including an assessment of biodiversity importance of the species; and
- f. Conclusions.

1.4.3 This report is a technical appendix to accompany the ES, reporting on and evaluating the baseline data collected as of November 2021.

2. Relevant Legislation and Policy

2.1 Relevant Legislative Context

Water Vole

2.1.1 The Water Vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (Ref 2) and is a priority conservation species.

2.1.2 You're breaking the law if you:

- a. Intentionally capture, kill or injure Water Voles;
- b. Damage, destroy or block access to their places of shelter or protection (deliberately or by not taking enough care);
- c. Disturb them in a place of shelter or protection (deliberately or by not taking enough care); and
- d. Possess, sell, control or transport live or dead Water Voles or parts of them (not Water Voles bred in captivity).

Otter

2.1.3 The Otter is fully protected as a European protected species (EPS) and is also protected under sections 9 and 11 of the Wildlife and Countryside Act 1981.

2.1.4 You're breaking the law if you:

- a. Intentionally capture, kill, disturb or injure Otters;
- b. Damage or destroy a breeding or resting place (deliberately or by not taking enough care);
- c. Obstruct access to their resting or sheltering places (deliberately or by not taking enough care); and
- d. Possess, sell, control or transport live or dead Otters, or parts of Otters

2.1.5 Otter is listed on Annexes II and IV of the Habitats Directive (Ref 3) and Appendix II of the Berne Convention and is protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations) (Ref 4, Ref 5).

2.1.6 Otter and its resting and breeding places are afforded strict protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Licences are issued by Natural England for the purpose of development where three derogation tests within the Habitats Regulations are met (Natural England, 2018). These are that:

- a. There are imperative reasons of over-riding public interest or public health and safety for the development;
- b. There is no satisfactory alternative; and
- c. The favourable conservation status of the Otter population would be maintained

2.1.7 Otter is also included in the following international legislation / conventions:

- a. Appendix I of CITES (Ref 6); and
- b. Globally threatened on the IUCN/WCMC Red Data List (Ref 7).

2.2 Natural England Licencing

- 2.2.1 A licence is required from Natural England to intentionally damage or destroy burrows or displace Water Voles from their burrows for lawful development. There is no provision for licencing development or other construction activities under the Wildlife and Countryside Act. Such works should therefore be undertaken under a conservation licence.
- 2.2.2 Any operations that may impact upon Otters or their places of rest or shelter will require a Natural England European Protected Species (EPS) licence.

2.3 National and Local Planning Policy

- 2.3.1 National and local planning policy relevant to nature conservation is provided in detail in the PEA report (**Appendix 8B: Preliminary Ecological Appraisal** of the ES [EN010118/APP/6.2], Ref 1).

2.4 Priority Species

- 2.4.1 The Natural Environment and Rural Communities (NERC) list of Species of Principal Importance (Ref 8) is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act (2006). Under Section 40, every public authority (e.g., a local authority or local planning authority) must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.
- 2.4.2 In addition, with regard to those species on the list of Species of Principal Importance listed under Section 41 (S41), the Secretary of State must:
 - a. *“take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or*
 - b. *promote the taking by others of such steps.”*
- 2.4.3 The UK Biodiversity Action Plan (UKBAP) (Ref 9) was launched in 1994 and established a framework and criteria for identifying species of conservation concern. From this list, action plans for priority species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 10). The UK Post 2010 Development Framework is relevant in the context of Section 40 of the Natural Environment and Rural Communities (NERC Act) 2006, meaning that Priority Species are material considerations in planning. These species are identified as those of conservation concern due to their rarity or a declining population trend. Otter and Water Vole are included as a priority species under Section 41 of the NERC Act 2006.
- 2.4.4 There are opportunities for enhancement in the Essex Design Guide (Ref 11) for new development which should include *“measures to encourage biodiversity by creating varied habitats and a rich diversity of trees and planting throughout the built environment. Preferred habitats for enhancement*

and creation will be those listed as of principal importance (i.e., priority species and habitats) highlighted within the UK and Essex Biodiversity Action Plans.”

2.5 Local Biodiversity Action Plan Species

- 2.5.1 The Essex Biodiversity Action Plan (BAP) (1-12) sets out species and habitat action plans within Essex and provides the local nature conservation strategy for identifying threats to species within this county and sets out the actions necessary to conserve them. The Essex BAP provides context to inform the identification of threatened and, or uncommon species and habitat within the district and, or county. The Essex BAP also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species and habitat identified, however in some cases this is provided through related legislation and local planning policy.
- 2.5.2 The Essex BAP lists 25 species and 10 habitat action plans (Ref 13). Otter and Water Vole are both listed. Identified factors causing loss or decline of Otter comprise water quality, low rainfall or inappropriate abstraction, loss of habitat, insufficient food, accidental death (e.g., road mortality), drowning in fish/eel traps. Factors causing loss or decline of Water Vole comprise habitat loss, population fragmentation, water level fluctuations, predation, pollution and poisoning. Aquatic habitats required for the survival of these species are also listed as Essex BAP habitats, e.g., rivers and streams.
- 2.5.3 Actions and targets are discussed where relevant to the Scheme in the discussion and conclusions sections (**Section 5 and 0**).

3. Methods

3.1 Desk Study

- 3.1.1 A desk study to obtain records of riparian mammals (including Otter, Water Vole and American Mink (*Neovison vison*) was undertaken in January 2021 through Essex Field Club and in August 2020 through Essex Wildlife Trust within a minimum 2 km radius of the Order Limits (see the PEA report, Ref 1 and **Appendix 8L: Essex Field Club Desk Study** of the ES [EN010118/APP/6.2]).
- 3.1.2 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of species presence in the local area.

3.2 Field Survey

Survey Area

- 3.2.1 The survey area comprised the whole section of the River Ter located within and up to 200m from Order Limits boundary and up to 50m within adjacent suitable terrestrial habitats (*i.e.*, woodland) based on standard guidance (Ref 14, 1-15, 1-16) (see **Figure 2, Annex A**). There were no ponds or ditches on the Order Limits identified as suitable for these species. Preliminary surveys contained no evidence of these species and ponds were generally heavily shaded with no macrophytes, mostly dry throughout the summer. In addition, no ponds or ditches are likely to be impacted by the Scheme and will have suitable buffer zones from infrastructure. Any other incidental records across the Order limits are provided where evidence of these species was recorded during other surveys throughout 2020. Based on a revised Order limits (September 2021) the cable route may potentially impact another watercourse Boreham Brook to the south of the Order limits. As such a preliminary survey of this watercourse was undertaken in early November 2021 (see **Figure 3, Annex A**). If impacts to the watercourse and adjacent banks cannot be avoided (*i.e.*, by avoiding the watercourse through directional drilling as proposed) then a further survey of this watercourse will be required for Otter and Water vole.

3.3 Water Vole Survey

- 3.3.1 Water Voles typically inhabit slow-moving streams, canals, ditches, dykes and rivers, feeding mostly on waterside vegetation. They are active in daylight hours and leave several indications of their presence and these signs can be used to identify the presence of Water Vole and, by quantifying the presence of certain signs, can be used to estimate the population size.
- 3.3.2 The Water Vole survey involved identification of evidence of Water Vole activity along the River Ter, up to 5m from the banks of the river and up to 200m from the Order limits. This comprised one visit in the spring (20th May 2020) and one in late summer/early autumn (9th September 2020) when Water Voles are more active. For Boreham Brook, this comprised a survey on 2nd November 2021. Field surveys were based on the standard methodologies as described by Strachan *et al.* (2011) (Ref 17) and Dean *et al.* (2016) (Ref 14). Field signs searched for included:

- a. Latrine sites – distinct piles of Water Vole droppings found near burrows, at the ranges of territorial boundaries and where the animals enter and leave the water;
 - b. Feeding stations – areas with distinct neat piles of chewed lengths of vegetation along pathways or haul out platforms along the water's edge;
 - c. Burrows – burrow entrances are typically wider than high with a diameter between 4 and 8 cm. Burrow entrances are generally located at the water's edge;
 - d. Lawns – short grazed areas at the entrances to burrows;
 - e. Prints – identifiable prints in soft margins of the watercourse; and
 - f. Runways – low tunnels that are pushed through the vegetation and often leading to burrows or feeding stations.
- 3.3.3 Any information gathered on Water Vole signs was used to calculate and estimate Water Vole population and, or activity within those specific waterbodies or watercourse. The presence or absence of American Mink and Brown Rat *Rattus norvegicus* was also recorded if the species or signs of their presence were noted.
- 3.3.4 It is not possible to make robust estimates of the number of Water Voles from latrine counts, but latrines do provide an indication of activity suitable for assessment of impacts and designing mitigation (Ref 14).

3.4 Otter Survey

- 3.4.1 The survey method aimed to determine the presence or likely absence of Otter along the River Ter and Boreham Brook, up to a distance of 200m outside the Order Limits boundary along the river and up to 50m within adjacent suitable terrestrial habitats (see **Figure 2 and 3, Annex A**). For the River Ter, this comprised a survey in Spring (20th May 2020), late summer/early autumn (9th September 2020) and an additional check during the winter (1st December 2020). For Boreham Brook, this comprised a survey on 2nd November 2021. The methodology used was based on the guidance in the New Rivers and Wildlife Handbook (Ref 15); the Environment Agency's Fifth Otter Survey of England 2009-2010 (Ref 16) and the Ecology of European Otter, (Ref 18).
- 3.4.2 Due to the low likelihood of making an actual observation of Otter during field surveys, the survey concentrated on locating field signs indicating Otter presence or use within the survey area (Ref 18). Such field signs include:
- a. Spraints – characteristic sweet-smelling, black tar-like (where fresh/relatively recent *i.e.* within a few weeks) or grey crumbly (when old) faecal deposits usually containing fish scales, bones and occasionally invertebrate exoskeleton and bird feathers;
 - b. Footprints – in good substrate typically asymmetrical and showing five toes arched around a large pad and, depending on substrate, webbing and claw marks. Poorer, generally coarser substrates do not often enable the identification of Otter footprints. Additional signs of Otter presence may occur, although without additional evidence is not usually conclusive proof of current Otter presence;


- c. Feeding remains* – feeding remains may include partially eaten fish, frogs, piles of mussel shells or crayfish remains;
- d. Slides/ haul-outs* – routes into and out of the water, which are usually associated with terrestrial routes such as short cuts around meanders or along traditionally used Otter paths/routes;
- e. Couches (above ground resting sites)*. Usually associated with cover such as dense scrub, rushes or reed, flood debris or fallen trees. Many resting sites are rarely used whilst others more so. Difficult to prove use without radio tracking; and
- f. Dens – below ground sites usually associated with sprainting. Sometimes used with greater frequency than resting sites and can be important for breeding (natal holts) where other signs are usually absent. Notoriously difficult to find or prove without radio tracking.




*these field signs normally only provide an indication of presence if other signs are apparent in proximity to the feature.

3.4.3 As an additional technique, use was also made of IR cameras (Bushnell Natureview Cam with PIR sensor) to help determine Otter presence along the River Ter. These were located in four locations: Locations 1, 2 and 4 from 20th May to 4th June 2020 and at Locations 1, 2 and 3 from 1st December to 22nd December 2020. It was not possible to use Location 4 during December due to high water levels.

3.4.4 Camera locations are shown in **Table 1** (see **Figure 2, Annex A**):

Table 1: Camera Locations

Location / Grid Reference	Description	Photo
1 574799, 215525	On tree, viewing east towards the water and banks	

Location / Grid Reference	Description	Photo
2 575054, 215612	On tree, viewing east towards the water.	
3 576039, 215312	On tree, viewing east towards a fallen tree and banks	
4 575646, 215239	On embankment under a small concrete bridge.	

3.5 Biodiversity Evaluation

- 3.5.1 An essential prerequisite step to allow ecological impact assessment of the Scheme was an evaluation of the relative biodiversity importance of the identified ecological features (encompassing nature conservation designations, ecosystems, habitat and species). This was necessary to set the terms of reference for the subsequent ecological impact assessment.
- 3.5.2 The method of evaluation that was utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) (Ref 19) (see **Annex C**). This gives guidance on scoping and carrying out environmental assessments and places appraisal in the context of relevant policies. Data received through consultation, desk study and field-based surveys were used to identify ecological features of biodiversity

importance or potential importance, and the main factors contributing to their importance described and related to available guidance.

- 3.5.3 Species can be of biodiversity importance for a variety of reasons, and their relative importance should always be determined on a case-by-case basis. Importance may relate, for example, to the uniqueness of the assemblage, or to the extent to which species are threatened throughout their range, or to their rate of decline.
- 3.5.4 The importance of the species addressed in this report has been defined with reference to the geographical level at which the feature being assessed is considered to matter. Relevant published national and local guidance and criteria can be used, where available, to inform the assessment of biodiversity importance and to assist consistency in evaluation. Current population and conservation status for Water Vole and Otter has been taken from “*A Review of the Population and Conservation Status of British Mammals*” (Ref 20).

3.6 Assumptions and Limitations

Desk Study

- 3.6.1 The information collected from the desk study background record search represents only those records submitted to records centres and is therefore not considered to be a definitive list of Water Vole and Otter records within 2km of the Scheme boundary. If records have not been provided, this does not confirm absence of Water vole or Otter from the Scheme Order limits.
- 3.6.2 The following are inherent limitations of a desk study which includes obtaining data from a Biological Records Centre (BRC):
- a. Recorder bias - biological records are not a representation of the distribution of species within the search area, only records of those species, so the dataset provided by a BRC may be biased towards the favoured locations/ 'patches' of taxonomic preference of local recorders (and the locations/ favoured 'patches' of those recorders) and the presence (or absence) of specialist recording groups (mammal group, invertebrates group, plant group) within that county or vice county;
 - b. Incomplete data - the current dataset held by a BRC is the most accurate and most up-to-date representation of species within each BRC boundary although records are largely random. Where atlases which have systematically surveyed monads, tetrads, or hectads for taxonomic groups within a given area are available these records therein are a more accurate picture of species assemblage and distribution;
 - c. Data availability lag - resources at BRCs can be limited, which can lead to a lag between the time that records are submitted by recorders and the time that they are verified and entered into the database for that county. Additionally, special interest recording groups (which often hold their own datasets) may only submit their records annually (if at all) which causes further lag in dataset accuracy; and
 - d. Changes in data due to the verification process - where new information or specialist knowledge sheds light on the validity of recent or historical submitted records, the verification process may add or

remove data which may alter the results of a data search over time with same parameters.

Field Survey

- 3.6.3 The winter survey for Otter was undertaken in December 2020, during which time water levels were high and obscured the banks in many places. Whilst it was difficult to inspect the water course at this time and potential Otter field signs may not have been visible, the previous two surveys in spring and late summer (based on the recommendations of two surveys, see **Section 3.4**) and use of alternative techniques comprising camera surveys provided evidence of Otter presence.
- 3.6.4 Boreham Brook was assessed for potential Water Vole and Otter presence on 2nd November. Although late in the season for water vole it was dry and mild 15C with mild overnight temperatures previously that would be unlikely to limit finding Water Vole signs. A thorough search for burrows was also possible due to low water levels. There are no limitations for Otters. A short section of the Brook was inaccessible, but this comprised similar habitats as the sections upstream and downstream of this location. There are no plans to impact this watercourse as it is proposed the channel and banks would be avoided through directional drilling. Access for cabling would use existing access routes. If impacts to the watercourse and banks is possible in future, then a further survey of this watercourse will be required for Otter and Water vole in Spring 2022.
- 3.6.5 These limitations did not significantly limit this report and assessment. Ecological data in relation to these species are valid for 18 months based on best practice guidance (CIEEM, 2019) (Ref 21).

4. Results

4.1 Desk Study

4.1.1 The data search results returned 31 records of Otter within the last ten years. There were no Water Vole records. Full results are in PEA report and **Appendix 8J: Essex Field Club Desk Study** of the ES [EN010118/APP/6.2]. None of these records searches were from within the Order Limits itself, with numerous records of Otter along the River Ter around Lyons Hall Bridge and Lyons Hall 0.5 to 1km upstream and west of the Order limits; River Ter Fleck's Green located 0.5 to 1km downstream and east of the Order limits and one record in a flooded gravel pit/fishing lake 100m to the south-west of the Order limits. There were records further away of road casualties on the A12 and A130 near Chelmsford and along the River Chelmer. Records indicate the presence of Otter within the area and due to their wide-ranging nature and large home ranges of over 20km (Ref 18), they are therefore likely to use suitable habitats within the Order limits.

4.2 Survey Results

4.2.1 The full results and photos are shown in **Annex C** and summarised in **Table 2**. Locations referred to in the text are shown on **Figure 2, Annex A**.

4.3 Habitat descriptions

River Ter

4.3.1 The River Ter is located in a shallow sided valley and drains a low-lying catchment on glacial till. It has a very low base flow discharge with high flood peaks; with daily, monthly and annual flow variability high depending on preceding rainfall/run-off. The site demonstrates characteristic features of a lowland stream including pool-riffle sequences, bank erosion, bedload transport and changes to the channel profile in response to flooding frequency.

4.3.2 The survey section that passes through the Order limits, is approximately 2.7km in length with a water depth of up to 1m deep and 0.5 to 2m wide with vegetated earth banks. There is a floodplain of up to approximately 50m wide in places, mainly to the south of the river. The river flows from west to east and then joins the River Chelmer approximately 8km downstream to the south.

4.3.3 There is broad-leaved woodland, scrub and grass/tall herb along the banks (see Photos in **Annex C**) with adjacent cattle grazing, cricket bat willow (*Salix alba* subspecies *caerulea*) plantation and arable land. There are a couple of side ditches that are fed by springs to the north at the Moors and at a pumping station. It has a stoney and silty substrate.

4.3.4 Plant species that provide food for water vole along the river include Reed Canary-grass, Pendulous Sedge (*Carex pendula*), and a sparse cover of Water-starwort species (*Callitriche* species), Brooklime (*Veronica beccabunga*) and Fool's Water-cress (*Helosciadium nodiflorum*). Fish species observed, of relevance to Otter, included Brown Trout (*Salmo trutta*), Minnow (*Phoxinus phoxinus*) and Bullhead (*Cottus gobio*).

4.3.5 Impacts to the river were identified that comprised potential water quality issues based on its current classification as Moderate overall in the

Environment Agency's 2019 classification cycle (Ref 22). The reasons for not achieving good was due to elevated phosphate from livestock farming and wastewater discharge from a sewage treatment works (see Annex C – Survey Results).

Boreham Brook

- 4.3.6 Boreham Brook is a shallow, narrow stream 0.5 to 1m wide and <0.5m deep, that flows south through the cable route section of the Order limits, heading south through shaded scrub and trees to a larger section to the south-west of the order limits, where it becomes a 'main river'. At the upstream extent it is shaded, narrow <0.5m wide and shallow up to 0.2m deep. At the downstream extent it is shaded, 1 to 2m wide and <0.1 to 0.3m deep. The survey section that passes through the Order limits is approximately 2.5km in length on **Figure 23, Annex A**. Boreham Brook is designated as 'Boreham Tributary' and is at Good Ecological Status in the Environment Agency's 2019 classification cycle (Ref 22).
- 4.3.7 Bankside trees and scrub are abundant, including a short section through a hornbeam (*Carpinus betulus*) woodland. It has a silty substrate with a few areas of gravel and generally shallow sided earth banks.
- 4.3.8 There are only limited plant species along the channel that provide food for Water Vole, present occasionally in a few open areas along the river including Yellow-flag (*Iris pseudacorus*), Pendulous sedge, and a very sparse cover of Fool's water-cress (*Helosciadium nodiflorum*) provided limited food resources for Water Vole. There were no submerged aquatic species. Of relevance to Otter, no fish species were observed.

4.4 Field and Camera Survey Results

- 4.4.1 No signs of Water Vole were found during the surveys, or from any other observations during other field surveys of the wider Order limits (such as great crested newt and aquatic ecology surveys). An Otter was recorded during one night on camera on 3rd December 2020, along the River Ter, presumably hunting. No signs of couches or natal and rearing dens were found. No signs of Otter were found along Boreham Brook.
- 4.4.2 Other relevant mammal species recorded along the River Ter included one sighting of an American Mink (on camera) and a hole in a bank created by a Brown Rat.
- 4.4.3 Other species recorded on the cameras along the River Ter included Grey Heron (*Ardea cinerea*), Little Egret (*Egretta garzetta*), Mallard (*Anas platyrhynchos*), Mandarin Duck (*Aix galericulata*), Roe Deer (*Capreolus capreolus*) and Reeve's Muntjac (*Muntiacus reevesi*).

Table 2: Summary of Results

Survey no.	Date	Results Summary
1 (River Ter)	20 th May 2020	No Water Vole or Otter field signs. Cameras deployed 20 th May to 4 th June 2020 found one occurrence of American Mink on 26 th May at Camera Location 4 (see Figure 2, Annex A).

Survey no.	Date	Results Summary
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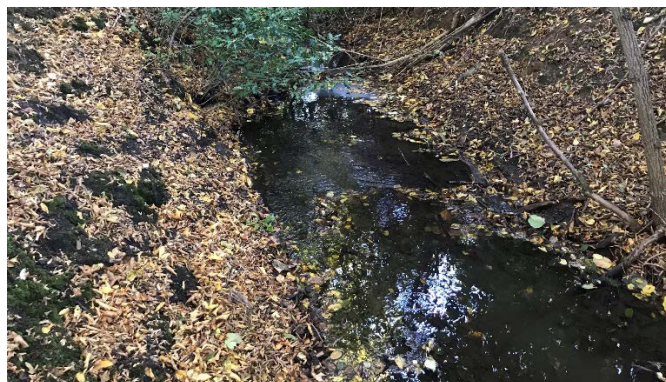


2 (River Ter)	9 th September 2020	No Water Vole or Otter field signs. Brown Rat hole (see Figure 2, Annex A).
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3 (River Ter, Otters only)	1 st December 2020	No Otter field signs. Cameras deployed 1 st to 22 nd December recorded an Otter during one night at Camera Locations 2 and 3 on 3 rd December 2020.
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4 (Boreham Brook only)	2 nd November 2021	No Otter or Water Vole signs. Habitat generally unsuitable for Water Vole. Possible transitory use by Otter, but no field signs.
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5. Discussion and Evaluation

5.1 Nature Conservation Evaluation

- 5.1.1 Water Vole was not found during the surveys and no records were found for Water Vole within 2 km of the Order limits. Whilst some suitable habitat existed, it was sub-optimal due to the presence of predators such as American Mink, limited food plants and the 'flashy' nature of the flow with a low baseflow and high flood peaks that can change on a daily basis, with eroding banks and periodic flooding resulting in an unstable environment for Water Vole burrows.
- 5.1.2 Otter was found to use the River Ter, the indication being very occasionally, with one confirmed sighting on one night and a number of recent desk study records nearby. Otter has an estimate British population of 11,000 (Ref 20) are increasing in population size and range. There are of IUCN Least Concern Status in England. The Order limits is assessed as of Local Importance for Otter as a species of conservation value in a local context (within approximately 5km of the Order limits).

5.2 Potential Impacts

- 5.2.1 The primary purpose of this report is to provide an assessment of the presence or likely absence of Water Vole and Otter and their biodiversity importance within the Scheme to inform the ES ecology chapter (see **Section 1.1**). An assessment of potential impacts (considering embedded mitigation), any additional mitigation and residual effects will be undertaken in an Environmental Statement (ES) when the final Scheme design is provided and will form part of the DCO submission. UK legislation and planning policy must be considered in the Environmental Impact Assessment (EIA) for the Scheme and any unavoidable adverse impacts must be mitigated. Where avoidance is not possible then appropriate mitigation and habitat compensation would be provided. For a Scheme of this scale it is expected by the statutory consultees that the Scheme will deliver significant gains for biodiversity.
- 5.2.2 The impact assessment process will involve:
- Identifying and characterising impacts and their effects;
 - Incorporating measures to avoid and mitigate negative impacts;
 - Assessing the significance of any residual effects after mitigation;
 - Identifying appropriate compensation measures to offset; and
 - Identifying opportunities for ecological enhancement.
- 5.2.3 The assessment of impacts will consider the baseline conditions reported in this technical appendix (pending any updates) to allow:
- A description of how the baseline conditions will change as a result of the project and associated activities; and
 - The identification of cumulative impacts arising from the proposal and other relevant developments.
- 5.2.4 Construction impacts are likely to be similar to other large-scale developments with habitat changes and losses, noise, dust and lighting disturbance during construction and decommissioning works (Ref 19). Operational impacts and

resulting effects will be based on the changes to habitats over time and the likely response of individual species. This will also require monitoring to improve confidence in the assessment of residual adverse or beneficial effects, to feedback into the landscape management plan and to provide a dataset for future large scale solar schemes.

5.2.5 The potential impacts are summarised as follows:

- a. Disturbance to species and their habitats from noise, dust and lighting;
- b. Temporary or permanent loss of riparian habitats to the Scheme infrastructure; and
- c. Potential beneficial impacts from arable to grassland/grazing land through a possible reduction in pesticide and fertilizer use on crops within the local area resulting in improved water quality entering the River Ter.

6. Conclusions

- 6.1.1 The objective of this report is to determine, if present, the distribution of Water Vole and Otter within the Order limits, assign a biodiversity importance to these two species and identify outline potential impacts of the Scheme. Water Vole was found to be absent from the Order limits and probably the surrounding area including the up and downstream sections of the River Ter. Otter was present along the river Ter and in the surrounding area.
- 6.1.2 Based on the absence of Otter dens or couches adjacent to the River Ter and the Scheme layout that avoids any Scheme infrastructure close to the river, along with a suitable buffer zone, it is anticipated that impacts to Otter are likely to be avoided.

7. References

- Ref 1 AECOM, 202. Longfield Solar Farm Preliminary Ecological Appraisal October 2021
- Ref 2 Anon, 1981. Wildlife & Countryside Act 1981. HMSO.
- Ref 3 EC, 1992. The Council Directive 92/43/EEC. Habitats Directive. European Commission
- Ref 4 Anon, 2017. The Conservation of Habitats and Species Regulations 2017. HMSO.
- Ref 5 Anon, 2001. Appendices of the Convention and Amendments to the Appendices. Bern Convention. Council of Europe.
- Ref 6 Anon, 2020. Appendices I, II and III. CITES
- Ref 7 IUCN, 2020. The IUCN Red List of Threatened Species.
- Ref 8 Natural Environment and Rural Communities Act (2006).
- Ref 9 JNCC, 1994. UK Biodiversity Action Plan
- Ref 10 JNCC, 2012. 'UK Post-2010 Biodiversity Framework'.
- Ref 11 Essex Design Guide
- Ref 12 Essex Biodiversity Action Plan
- Ref 13 Essex BAP list
- Ref 14 Dean, M., Strachan, R., Gow, D. and Andrews, R. 2016. The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.
- Ref 15 Holmes, N., Ward, D. and Jose, P. 2001 The New Rivers and Wildlife Handbook. RSPB.
- Ref 16 Environment Agency, (2010). Fifth Otter Survey of England 2009-2010. Technical Report. Environment Agency.
- Ref 17 Strachan, R, Moorhouse, Y & Gelling, M. 2011. The Water Vole Conservation Handbook (Third Edition).
- Ref 18 Chanin, P., 2003. Ecology of European Otter, Conserving Natura 2000 Rivers. Ecology. Series No.10 English Nature.
- Ref 19 Chartered Institute of Ecology and Environmental Management (CIEEM) (2018), Guidelines for Ecological Impact Assessment in the United Kingdom: Terrestrial, Freshwater, Coastal and Marine.
- Ref 20 Mathews, F., Kubasiewicz, L. M., Gurnell, J., Harrower, C. A., McDonald, R. A. and Shore, R. F. 2018. Natural England Joint Publication JP025: A Review of the Population and Conservation Status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.
- Ref 21 CIEEM: Advice Note on the lifespan of ecological surveys and reports (Accessed January 2021)
- Ref 22 Gov Environment Data – Catchment planning-water body (accessed February 2021)
- Ref 23 BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene.
- Ref 24 Natural England TIN101 2011. Solar parks: maximising environmental benefits
- Ref 25 Essex Biodiversity Project 2007. Integrating Biodiversity into development.

8. Annexes

8.1 Annex A - Figures

Figure 1: Site Location Flora Survey Locations

(Note: Figure is based on a previous iteration of the site boundary (Order limits) which was valid at the time of writing)

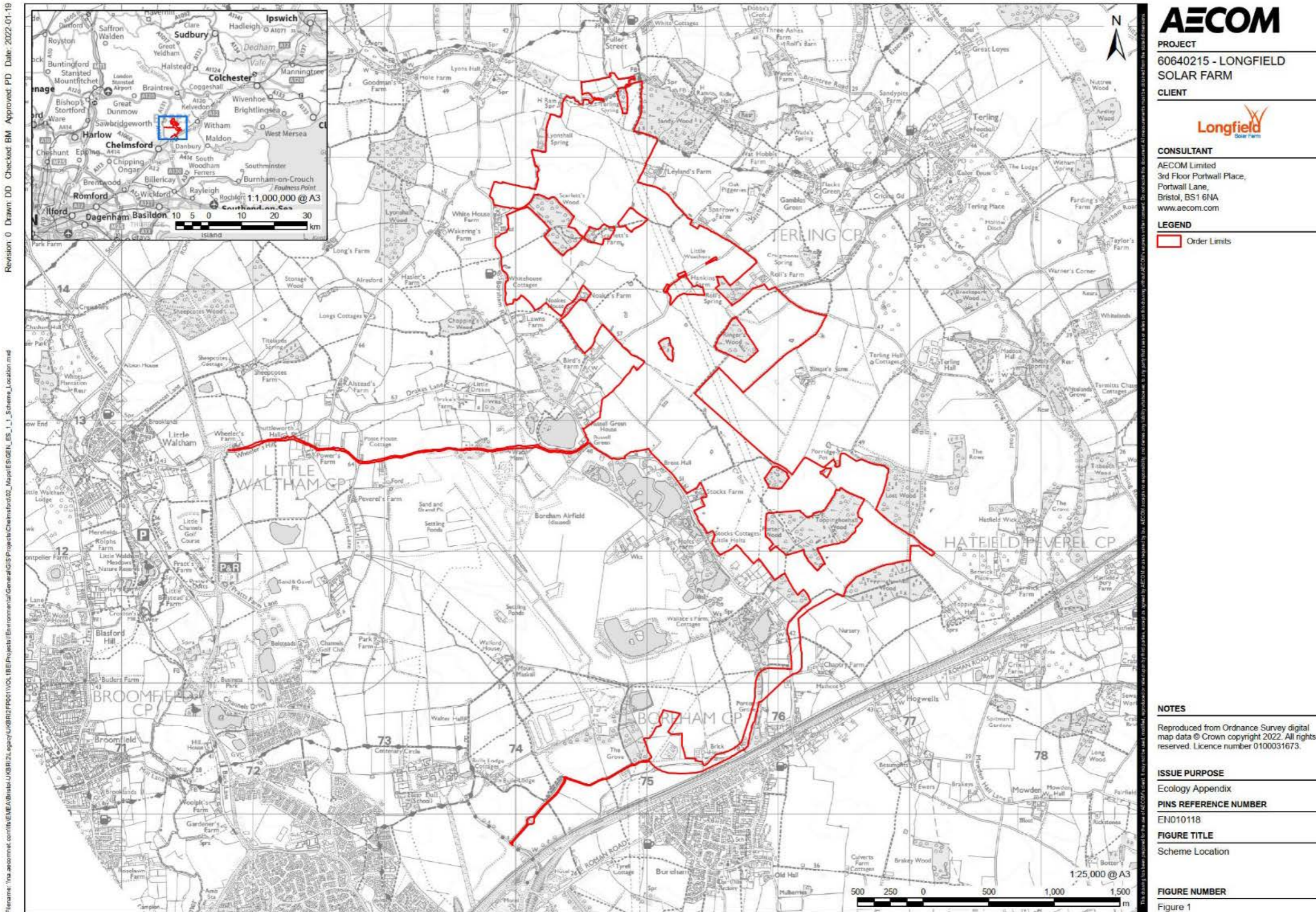


Figure 2: River Ter Survey Location and Results Flora Survey Locations

(Note: Figure is based on a previous iteration of the site boundary (Order limits) which was valid at the time of writing)

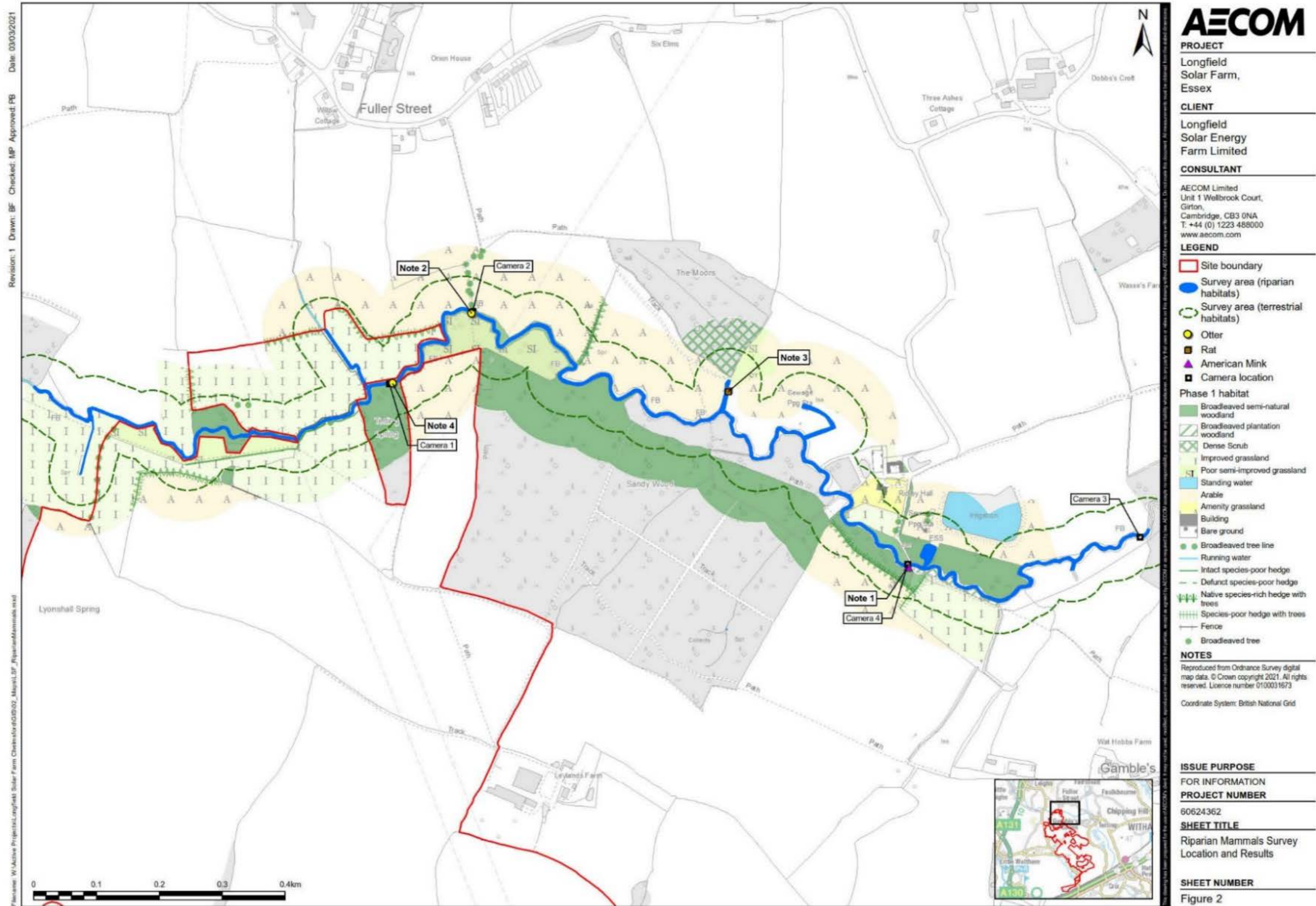
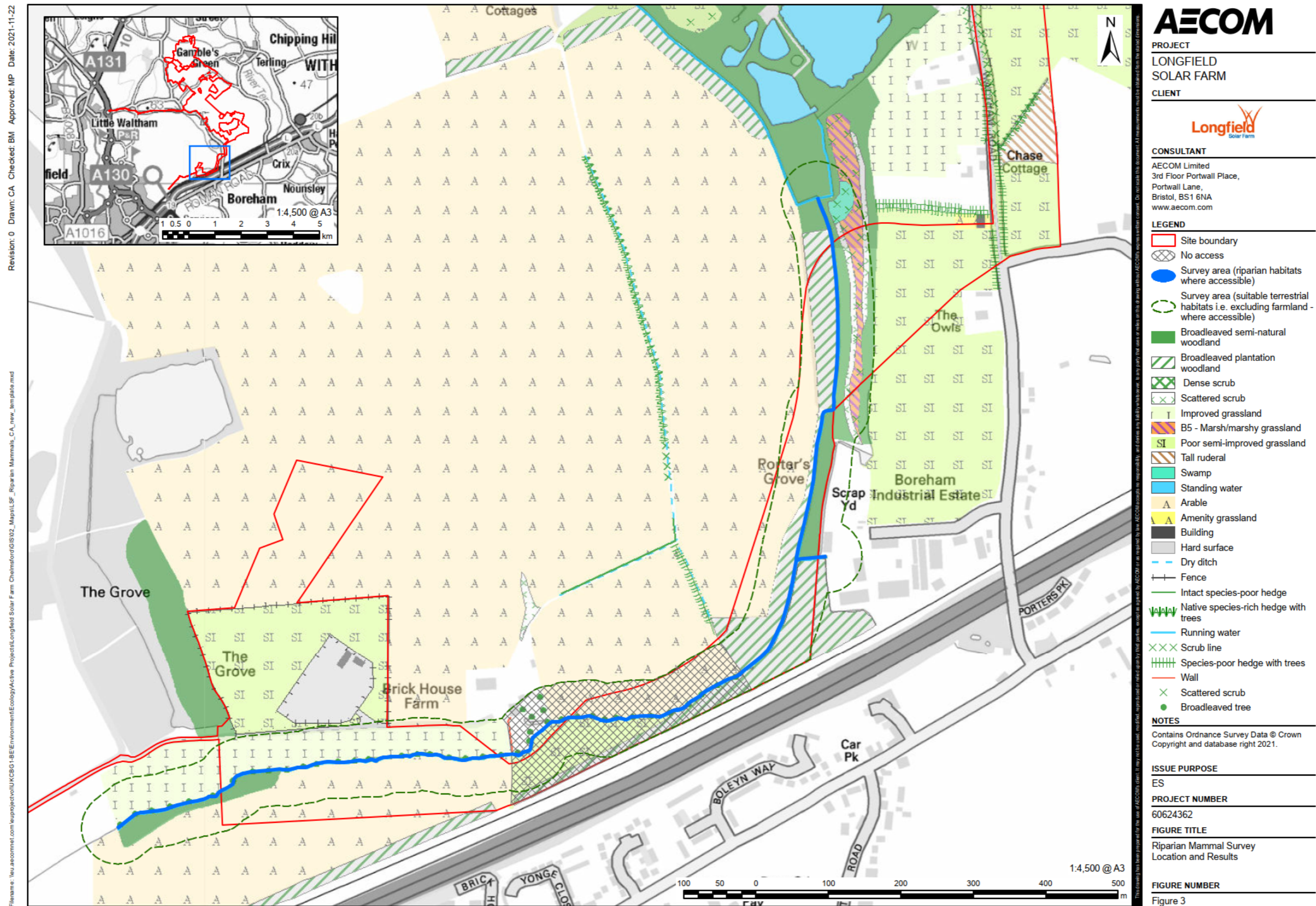


Figure 3: Boreham Brook Survey Location and Results Flora Survey Locations

(Note: Figure is based on a previous iteration of the site boundary (Order limits) which was valid at the time of writing)



8.2 Annex B – Importance of Ecological Features Criteria

Table 3: Importance of ecological features based on CIEEM guidance (Ref 19)

Importance of ecological features	Typical descriptors and examples of criteria
International or European	<p>An internationally designated site or candidate site including Special Protection Area (SPA), potential SPAs (pSPAs); Special Area of Conservation (SAC), candidate or possible SACs (cSACs or pSACs¹) and Ramsar sites (wetlands of international importance). Biogenetic Reserves, World Heritage Sites and Biosphere Reserves. Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such. Resident or regularly occurring populations of species which may be considered at an international or European level² where:</p> <ul style="list-style-type: none"> • the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; • the population forms a critical part³ of a wider population at this scale; or • the species is at a critical phase⁴ of its life cycle at this scale.
UK or National	<p>Sites designated at UK or national level e.g. Site of Special Scientific Interest (SSSI), Marine Protection Area (MPA) including Marine Conservation Zones (MCZ) and National Nature Reserve (NNR). Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such. Areas of key or priority habitats identified in the UK Post-2010 Biodiversity Framework i.e. UK Biodiversity Action Plan (BAP), including those published in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006) and those considered to be of principal importance for the conservation of biodiversity. Areas of ancient woodland Resident or regularly occurring populations of species which may be considered at a UK or a national level⁵ where:</p> <ul style="list-style-type: none"> • the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; • the population forms a critical part of a wider population at this scale; or • the species is at a critical phase of its life cycle at this scale.
Regional	<p>Habitats or populations of species of value at a regional level (i.e. East Anglia). Areas of key or priority habitat identified as being of Regional value in the appropriate National Character Area (NCA). Key or priority habitat or species listed within the Highways England (HE) / Highways Agency (HA) BAP. Resident or regularly occurring populations of species which may be considered at a regional level⁶ where:</p> <ul style="list-style-type: none"> • the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; • the population forms a critical part of a wider population at this scale; or • the species is at a critical phase of its life cycle at this scale.

Importance of ecological features

Typical descriptors and examples of criteria

<p>County or Unitary Authority or District</p>	<p>Habitats or populations of species of value at a County (<i>i.e.</i> Essex) level or District (<i>e.g.</i> Braintree).</p> <p>Designated sites, such as County Wildlife Site (CWS), Local Wildlife Site (LWS) or Sites of Importance for Nature Conservation (SINC) and Local Nature Reserve (LNR) designated in the county or unitary authority area <i>i.e.</i> District context.</p> <p>Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.</p> <p>Areas of key or priority habitats identified in the Local Biodiversity Action Plan (LBAP).</p> <p>Resident or regularly occurring populations of species which may be considered at a County (or District) level⁷ where:</p> <ul style="list-style-type: none"> • the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; • the population forms a critical part of a wider population at this scale; or, • the species is at a critical phase of its life cycle at this scale.
<p>Local</p>	<p>Habitats or species populations of value in a local (<i>i.e.</i> within ~ 5km of the Order Limits) context.</p> <p>Designated sites include LNRs designated in the local context.</p> <p>Trees that are protected by Tree Preservation Orders (TPOs).</p> <p>Areas of habitat or populations and, or communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.</p>
<p>Site</p>	<p>Habitat that is of value in the context of the site only.</p> <p>Populations of common and widespread species.</p> <p>A degraded/ impoverished example of a common or widespread habitat in the local area.</p>


1. pSACs are sites which have been formally advised by to UK Government but have not yet been submitted to the European Commission. These sites should be valued at an international (European) level on the basis that they meet the relevant selection criteria for a SAC but are not yet designated as such.
2. Such species include those listed within the Directive 2009/147/EC on the Conservation of wild birds (*i.e.* EC Birds Directive) (codified version of Council Directive 79/409/EEC as amended) or animal/ plant species listed within Council Directive 92/43/EEC on the Conservation of natural habitats and of wild flora and fauna (*i.e.* Habitats Directive).
3. Such populations include sub-populations that are essential to maintenance of metapopulation dynamics *e.g.* critical emigration/ immigration links between otherwise discrete populations.
4. Seasonal activity or behaviour upon which survival or reproduction depends.
5. Species which may be considered at the UK or national level means; birds, other animals and plants which receive legal protection in the basis of their conservation interest (those listed within the Wildlife and Countryside Act 1981 (as amended) Schedule 1, 5 and 8); species listed for their principal importance for biodiversity (in accordance with the Natural Environment and Communities Act 2006 Section 41 England); priority species listed within the UK Post 2010 Biodiversity Framework (*i.e.* UKBAP); or species listed within the Red Data Book.
6. Such species include those listed in the appropriate Natural Character Area and key/ priority species listed on the 2002 HABAP
7. Such species include those at county level (*i.e.* Essex) including unitary authority area *i.e.* District level (*i.e.* Braintree); as listed on the LBAPs; and listed as a county designated site.

*As well as assigning importance there is also a need to identify all legally protected species that could be affected by the Scheme in order that measures can be taken to ensure that adherence to the relevant legislation is observed. This may include the adoption of mitigation and appropriate licensing which is acceptable to Natural England.

8.3 Annex C – Survey Results

Table 4: River Ter Habitat Survey and Results Form

Site Name	River Ter, Longfield Solar Farm		Surveyor(s)	MP/KD	Date	20/5/2020
Weather conditions	Dry overcast 25 C		OS NGR/ GPS Ref.	Section Start: See Figure 2		
				Section End: See Figure 2		
				Approx. Section Length: 2.7km		
Water level (circle)	Moderate	Estimated flow	Moderate			
Water Body Type	River					
Bank Profile (Tick most appropriate)	Flat <10°		Shallow <45°	X		
	Steep <45°		Vertical/undercut			
Estimated depth (m)	0.1 to 0.5m		Estimated width (m)	1m		
Predominate shore/bank substrate¹	Earth (A), Gravel (O) and Earth cliffs (O)					
Adjacent land use	Improved grassland grazing, floodplain with plantation and broad-leaved and ancient woodland					
State vegetation cover for each of the following vegetation types using DAFORN²	Bankside Trees	F	Reeds/sedges	O		
	Bushes	O	Tall grasses	O		
	Herbs	A	Short grass	O		
	Submergent weed	R				
Habitat Description	<p>Meandering river, woodland and grass/tall herb banks (see Photos). A couple of springs to the north at the Moors and old pumping station.</p> <p>Stoney and silty substrate with fish observed including brown trout, minnow, bullhead.</p>					
Vegetation structure & availability of food sources, with species	<p>Tall herbs, grassland and marginal vegetation including false oat grass (O), water figwort (R), gypsywort (R), reed canary-grass (O), hemp agrimony (F), Pendulous sedge (O).</p> <p>Aquatic submerged or emergent species - water starwort species (R), brooklime (R) and fool's water-cress (R)</p>					
Level of shading (%)	30 to 50 %					
Connectivity with other areas of suitable habitat	Connects to the River Chelmer downstream and a few tributaries					
Disturbance	Input from Sewage Treatment Works and general agricultural run-off.					
Notes	¹ Boulders, stone, gravel, sand, silt, earth, rock cliffs, earth cliffs, canalized, poached, or reinforced (man-made)					

		²DAFORN - D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare; N = None		
Site sub-name/ref. (e.g. ditch or pond no.)	GPS/OS Grid	Nature of field sign (e.g. latrine, burrow, run, footprint, etc)	Notes	Tick if photo taken
		No signs of Water Vole or Otter		
Other species signs recorded.				
American Mink on Camera trap on 26 th May at Location 4 (see Figure 2).				
				

Site Name	River Ter, Longfield Solar Farm		Surveyor(s)	MP/KD	Date	9/9/2020
Weather conditions	Dry sunny 24 C		OS NGR/ GPS Ref.	Section Start: See Figure 2		
				Section End: See Figure 2		
				Approx. Section Length: 2.7km		
Water level (circle)	Low	Estimated flow	Low			
Water Body Type	River					
Bank Profile (Tick most appropriate)	Flat <10°			Shallow <45°		X
	Steep <45°			Vertical/undercut		
Estimated depth (m)	0.1 to 0.4m		Estimated width (m)		1m	
Predominate shore/bank substrate¹	Earth (A), Gravel (O) and Earth cliffs (O)					
Adjacent land use	Improved grassland grazing, floodplain with plantation and broad-leaved and ancient woodland					
State vegetation cover for each of the following vegetation types using DAFORN²	Bankside Trees	F		Reeds/sedges	O	
	Bushes	F		Tall grasses	F	
	Herbs	A		Short grass	O	
	Submergent weed	R				
Habitat Description	<p>Meandering river, woodland and grass/tall herb banks (see Photos). A couple of springs to the north at the Moors and old pumping station.</p> <p>Stoney and silty substrate with fish such as brown trout, minnow, bullhead.</p>					
Vegetation structure & availability of food sources, with species	As during May survey					
Level of shading (%)	30-50 %					
Connectivity with other areas of suitable habitat	Connects to the River Chelmer and a few tributaries					
Disturbance	Herbicide use on bridge impacted bankside vegetation. Input from Sewage Treatment Works and general agricultural run-off.					
Notes	¹ Boulders, stone, gravel, sand, silt, earth, rock cliffs, earth cliffs, canalized, poached, or reinforced (man-made)					
	² DAFORN - D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare; N = None					

Site sub-name/ref. (e.g. ditch or pond no.)	GPS/OS Grid	Nature of field sign (e.g. latrine, burrow, run, footprint, etc)	Notes	Tick if photo taken
		No signs of Water Vole or Otter		
Camera Locations 2 and 3		Sighting	Otter present on one night 3 rd December 2020. See Photos 1 to 3. No other field signs	X
Other species signs recorded, e.g. Brown Rat, Bank Vole, American Mink, etc...				
9/9/2020 - Brown Rat hole evident in tributary south of the Moors (see Figure 2).				

Site Name	River Ter, Longfield Solar Farm		Surveyor(s)	MP/KD	Date	1/12/2020
Weather conditions	Dry clear 9 C		OS NGR/ GPS Ref.	Section Start: See Figure 2 Section End: See Figure 2 Approx. Section Length: 2.7km		
Water level (circle)	Very High		Estimated flow	High		
Water Body Type	River					
Bank Profile (Tick most appropriate)		Flat <10°		Shallow <45°	X	
		Steep <45°		Vertical/undercut		
Estimated depth (m)		0.5 to 1m		Estimated width (m)		1 to 2m
Predominate shore/bank substrate ¹		Earth (A), Gravel (O) and Earth cliffs (O)				
Adjacent land use		Improved grassland grazing, floodplain with plantation and broad-leaved and ancient woodland				
State vegetation cover for each of the following vegetation types using DAFORN ²	Bankside Trees	F		Reeds/sedges	O	
	Bushes	F		Tall grasses	F	
	Herbs	A		Short grass	O	
	Submergent weed	R				
Habitat Description		Meandering river, woodland and grass/tall herb banks (see Photos). A couple of springs to the north at the Moors and old pumping station.				

Vegetation structure & availability of food sources, with species		As during May survey		
Level of shading (%)		30-50 %		
Connectivity with other areas of suitable habitat		Connects to the River Chelmer and a few tributaries		
Disturbance		Input from Sewage Treatment Works and general agricultural run-off.		
Notes		¹ Boulders, stone, gravel, sand, silt, earth, rock cliffs, earth cliffs, canalized, poached, or reinforced (man-made)		
		² DAFORN - D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare; N = None		
Site sub-name/ref. (e.g. ditch or pond no.)	GPS/OS Grid	Nature of field sign (e.g. latrine, burrow, run, footprint, etc)	Notes	Tick if photo taken
		No signs of Otter		
Camera Locations 2 and 3		Sighting	Otter present on one night 3 rd December 2020. See Photos 1 to 3. No other field signs	X
Other species signs recorded				
None				

Table 5: Camera Photos River Ter



1 – Otter at Camera Location 3 - 00:42 3rd December 2020



2 – Otter at Camera Location 3 - 00:42 3rd December 2020



3 – Otter at Camera Location 2 02:13 3rd December 2020



4- American Mink at Camera Location 4 - 12:22pm 26th May 2020



5 – Grey Heron Location 2, 2nd June



6 – Little egret Location 2, 24th May



7 – Mandarin Ducks Location 2, 31st May



8 – Mallards Location 2, 27th May



9 – Roe Deer Location 2, 25th May



10 – Muntjac Deer Location 2, 23rd May



11 – River Ter example photo of channel



12 – Bankside vegetation



13 – River Ter scrub and trees



14 – Bankside vegetation and adjacent land-use

Table 6: Boreham Brook Habitat Survey and Results Form

Site Name	Boreham Brook, Longfield Solar Farm (Cable Route Area)		Surveyor(s)	MP/KD	Date	2/11/2021
Weather conditions	Dry sunny 15 C		OS NGR/ GPS Ref.	Section Start: See Figure 3		
				Section End: See Figure 3		
				Approx. Section Length: 2.5km		
Water level	Low	Estimated flow	Slow			
Water Body Type	Stream					
Bank Profile (Tick most appropriate)	Flat <10°	<input type="checkbox"/>	Shallow <45°	<input checked="" type="checkbox"/>		
	Steep <45°	<input type="checkbox"/>	Vertical/undercut	<input type="checkbox"/>		
Estimated depth (m)	0.1 to 0.5m		Estimated width (m)	0.5 to 1m		
Predominate shore/bank substrate¹	Earth (D), Gravel (O) and Earth cliffs (O)					
Adjacent land use	Arable, plantation woodland and small section of ancient woodland					
State vegetation cover for each of the following vegetation types using DAFORN²	Bankside Trees	A		Reeds/sedges	O	
	Bushes	O		Tall grasses	O	
	Herbs	F		Short grass	N	
	Submergent weed	N				
Habitat Description	Boreham Brook is a shallow, narrow stream 0.5 to 1m wide and <0.5m deep, that flows south through the cable route section of the Order Limits, heading south through shaded scrub and trees to a larger section to the south-west of the order limits, where it becomes a 'main river'. At the upstream extent it shaded, narrow <0.5m wide and shallow up to 0.2m deep. At the downstream extent it is shaded, 1 to 2m wide and <0.1 to 0.3m deep.					

	<p>Bankside trees and scrub are abundant, including a short section through a hornbeam (<i>Carpinus betulus</i>) woodland. It has a silty substrate with a few areas of gravel and generally shallow sided earth banks.</p> <p>There are only limited plant species along the channel that provide food for Water Vole, present occasionally in a few open areas along the river including Yellow-flag (<i>Iris pseudacorus</i>), Pendulous sedge, and a very sparse cover of Fool's water-cress (<i>Helosciadium nodiflorum</i>) provided limited food resources for Water Vole. There were no submerged aquatic species. Of relevance to Otter, no fish species were observed.</p>			
Vegetation structure & availability of food sources, with species	<p>Tall herbs and grasses with limited marginal/emergent vegetation including false oat grass (O), water figwort (R), gypsywort (R), reed canary-grass (O), hemp agrimony (F), Pendulous sedge (O). Aquatic submerged or emergent species almost absent with only fool's water-cress (R) recorded.</p>			
Level of shading (%)	80 to 100%			
Connectivity with other areas of suitable habitat	Connects to the Boreham Tributary which then feeds into the River Chelmer further downstream			
Disturbance	Input from general agricultural run-off and localised discharge from adjacent industry.			
Notes	¹ Boulders, stone, gravel, sand, silt, earth, rock cliffs, earth cliffs, canalized, poached, or reinforced (man-made)			
	² DAFORN - D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare; N = None			
Site sub-name/ref. (e.g. ditch or pond no.)	GPS/OS Grid	Nature of field sign (e.g. latrine, burrow, run, footprint, etc)	Notes	Tick if photo taken
		No signs of Water Vole or Otter		
<p>No other species signs recorded.</p> <p>Representative section at downstream extent.</p>				



Representative section at upstream extent.



