Longfield Solar Farm

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Appendix 8B: Preliminary Ecological Appraisal

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Executive Summary

AECOM was instructed by Longfield Solar Energy Farm Ltd (the 'Applicant') to undertake a Preliminary Ecological Appraisal (PEA) of the proposed Longfield Solar Farm (the 'Scheme') comprising an area of 453ha, located approximately 7km north-west of Chelmsford, Essex (***Figure 1-1: Scheme Location*** of the ES **[EN010118/APP/6.3]**).

This PEA was commissioned in 2020 and updated in March and September 2021 to identify whether there are any known or potential ecological receptors (nature conservation designations, protected and notable habitats and species and scheduled invasive non-native species) that may constrain or influence the design and implementation of the Scheme.

In order to deliver the PEA, a desk study and an extended Phase 1 Habitat Survey were undertaken by appropriately experienced ecologists, to identify ecological features within the Scheme and the wider potential zone of influence. The potential zone of influence was defined with reference to the red line boundary (the 'Order limits') as shown in ***Figure 1-1: Scheme Location*** of the ES **[EN010118/APP/6.3]** and outline details of the Scheme as detailed in Section 1.2 of this report.

The Order limits is dominated by arable fields with a few improved grassland livestock fields to the north-west. There are mature trees and hedges, small wooded copses and ponds within the Order Limits. The River Ter, within adjacent woodland and grassland bisects the Order limits to the north, just west of the village of Terling. The Order limits is surrounded mainly by arable and mature broadleaved woodland (plantation, semi-natural and ancient). There are individual and clusters of residential properties located within and adjacent to the Site. The Site is located within areas administered by Braintree District Council and Chelmsford City Council.

Two international statutory sites, four national statutory sites and 31 non-statutory sites designated for their nature conservation value were identified within the desk study area (10km, 5km and 2km from the Order limits respectively). One Local Wildlife Site (LoWS) (Boreham Road Gravel Pits LoWS) is located within the Order limits, with one Site of Special Scientific Interest (SSSI) (River Ter) and seven Local Wildlife Sites located immediately adjacent to the Order limits.

The desk study also identified 210 records of protected or notable species of flora and fauna within the desk study (comprising a 2km zone of influence (ZoI) from the Order limits), with 35 veteran / notable trees and four records of scheduled invasive non-native invasive species.

The extended Phase 1 Habitat Survey identified the following notable habitats within study area (Order limits and up to 50m from the Order limits): Ancient and / or Species Rich Hedgerows and Green Lanes, Ancient Woodland, Rivers, Standing Open Waters / Ponds, Arable Field Margins, Lowland Mixed Deciduous Woodland and Wet Woodland.

Subject to further survey and assessment, potential constraints have been identified relating to:

a. Designated sites;

b. Notable habitats (i.e., habitats of principal importance);

c. Aquatic species including macroinvertebrates and invasive non-native species;
d. Badger (Meles meles);
e. Bat species (including roosting, foraging and commuting habitat);
f. Breeding and non-breeding (wintering) birds;
g. Flora, including arable flora and invasive non-native plant species;
h. Great crested newt (Triturus cristatus);
i. Otter (Lutra lutra);
j. Reptiles; and
k. Water vole (Arvicola amphibious).

Additional to the above, surveys may be required following consultation and further design details of the Scheme. This may include detailed bat roost presence / absence surveys, a hedgerow survey and a terrestrial invertebrate survey where habitat features cannot be avoided. A Biodiversity Net Gain assessment is likely to be required to meet national and local planning policy.

The outlined constraints will need to be reassessed when the exact design and layout of the Proposed Development have been determined, when further surveys have been undertaken or if there are any significant changes in the use or management of the land that would affect the habitats and species.

If a DCO application is made two years or more after the PEA reported here, it is advisable to review and update the survey data (i.e., after September 2023).

1. Introduction

1.1.1 AECOM was instructed by Longfield Solar Energy Farm Ltd to undertake a Preliminary Ecological Appraisal (PEA) of the proposed Longfield Solar Farm (the 'Scheme') comprising the 453ha Development Consent Order (DCO) Site (the 'Site', also referred to as the 'Order limits'), located approximately 7km north-west of Chelmsford, Essex (see ***Figure 1-1: Scheme Location*** of the ES **[EN010118/APP/6.3]**).

1.1.2 This PEA was commissioned in 2020 to identify whether there are known or potential ecological receptors (nature conservation designations, protected and notable habitats and species and scheduled invasive non-native species) that may constrain or influence the design and implementation of the Scheme. Following a revised Order limits, a minor update was undertaken in March 2021 and again in September 2021. The approach applied when undertaking this PEA accords with the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (Ref 1). The PEA addresses relevant wildlife legislation and planning policy as summarised in Section 2 of this report and is consistent with the requirements of British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development (Ref 2).

1.1.3 In order to deliver the PEA, a desk study and an extended Phase 1 Habitat Survey were undertaken by appropriately experienced ecologists, to identify ecological features within the Scheme and the wider potential ZoI. The potential ZoI was defined with reference to the Order limits as shown in ***Figure 1-1: Scheme Location*** of the ES **[EN010118/APP/6.3]** and the type of development, as detailed in Section 1.2. Additional details on the methods used are provided in Section 3.

1.1.4 The purpose of the PEA was to:

a. Identify and categorise habitats present within the Order limits and any areas immediately outside of the Order limits where there may be potential for direct or indirect effects (the ZoI);

b. Carry out an appraisal of the potential of the habitats recorded to support protected or notable species of fauna and flora; and

c. Provide advice on any potential ecological constraints and opportunities in the zone of influence that should be addressed to inform and support the DCO, including the identification (where relevant) of any requirements for follow-up habitat and species surveys and / or requirements for ecological mitigation.

1.1.5 The purpose of this report is to provide a preliminary high-level appraisal of the ecological risks and opportunities associated with the Scheme. The report identifies the scope of further work (where necessary) that would be required to support the DCO application (hereafter the 'Application') and to inform an Ecological Impact Assessment (EcIA). Preliminary high-level recommendations are made on potential options for the avoidance, mitigation or compensation of the potential impacts of the Scheme (where known) on the identified ecological receptors, and of potential enhancements to the biodiversity to achieve an overall gain.

1.1.6 This PEA report is presented as a technical appendix to accompany ***Chapter 8: Ecology*** of the Environmental Statement (ES) **[EN010118/APP/6.1]** for the DCO application. As such it provides preliminary baseline information of the Order limits and provides context to the Scheme's evolution and design processs followed to determine the scope and extent of ecological survey work required.

1.2 Order limits Description

1.2.1 The Order limits is 453ha and located approximately 7km north-west of Chelmsford, Essex (see ***Figure 1-1: Scheme Location*** of the ES **[EN010118/APP/6.3]**). The central grid reference for the Longfield Solar Farm Site is approximately TL 763 134.

1.2.2 The Order limits is dominated by arable fields with a few improved grassland livestock fields to the north-west. There are mature trees and hedges, small wooded copses and ponds within the Order limits. The River Ter, within adjacent woodland and grassland bisects the Order limits to the north, just west of the village of Terling, Essex. The Order limits is surrounded mainly by arable and mature broadleaved woodland (plantation, semi-natural and ancient). There are individual and clusters of residential properties located within and adjacent to the Order limits boundary. The Order limits is located within areas administered by Braintree District Council and Chelmsford City Council.

1.2.3 The Order limits is within the South Suffolk and North Essex Clayland National Character Area (Ref 3) (wholly within Essex). This area stretches from Bury St Edmunds in the north-west to Ipswich in the north-east, roughly following the line of the A14 trunk road through the Gipping Valley. It then embraces the Colchester hinterland before encompassing the urban areas of Braintree and Chelmsford in the south and stretching to Bishop's Stortford and Stevenage in the west.

1.2.4 It is an ancient landscape of wooded arable countryside with a distinct sense of enclosure. The overall character is of a gently undulating, chalky boulder clay plateau, the undulations being caused by the numerous small-scale river valleys that dissect the plateau. There is a complex network of old species-rich hedgerows, ancient woods and parklands, meadows with streams and rivers that flow eastwards. Traditional irregular field patterns are still discernible over much of the area, despite field enlargements in the second half of the 20th century. The widespread moderately fertile, chalky clay soils give the vegetation a more or less calcareous character. Gravel and sand deposits under the clay are important geological features, often exposed during mineral extraction, which contribute to our understanding of ice-age environmental change.

1.2.5 Soil types within the Order limits comprise mainly slightly acid or lime rich loamy and clayey soils, with or without impeded drainage.

1.3 Description of the Scheme

1.3.1 The Scheme is a proposed Solar Energy Farm that would connect to the national electricity transmission network and will use ground mounted solar photovoltaic (PV) panel arrays to generate electricity energy from the sun and combine these with a Battery Energy Storage System (BESS). The Scheme

will be connected to the national electricity transmission network at the existing Bulls Lodge Substation, by an underground cable. The Scheme will be located within the Order limits as shown in ***Figure 1-1: Scheme Location*** of the ES **[EN010118/APP/6.3]**.

1.3.2 The principal infrastructure will be located within the Order limits and will include:

a. Solar PV modules;

b. PV module mounting structures;

c. Inverters;

d. Transformers;

e. Switchgears (housed inside a building);

f. On-site cabling;

g. One or more BESS (expected to be formed of lithium ion batteries storing electrical energy);

h. An electrical compound comprising a substation and control building;

i. Fencing and security measures; and

j. Access tracks.

1.3.3 During the construction phase, one or more temporary construction compound(s) will be required as well as temporary roadways to facilitate access to all land within the Order limits.

1.3.4 Further information on the Scheme is provided in ***Chapter 2: The Scheme*** of the ES **[EN010118/APP/6.1]**.

2. Wildlife Legislation and Planning Policy

2.1 Wildilfe Legislation

2.1.1 The following wildlife legislation is potentially relevant to the Scheme:

a. Wildlife and Countryside Act (WCA) 1981 (as amended);
b. Countryside and Rights of Way (CRoW) Act 2000;
c. Natural Environment and Rural Communities (NERC) Act 2006;
d. The Conservation of Habitats & Species Regulations 2017 (as amended) (the Habitats Regulations);
e. Invasive Alien species (Permitting and Enforcement) Order 2019;
f. Natura (2000) including the Birds Directive (2009) and Habitats Directive (1992);
g. The Protection of Badgers Act 1992;
h. The Hedgerows Regulations 1997; and
i. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

2.1.2 The above legislation was considered when planning and undertaking this PEA using the methods described in Section 3, when identifying potential constraints to the Scheme and when making recommendations for further survey, design options and mitigation, as discussed in Section 5. Compliance with legislation may require the attainment of relevant protected species licences prior to the implementation of the Scheme.

2.1.3 Further information on the requirements of the above legislation is provided in **Annex A – Legislation and Planning**.

2.2 National Planning Policy

The National Planning Policy Framework

2.2.1 The National Planning Policy Framework (NPPF) was first published on 27 March 2012. This was replaced by the revised NPPF, published in February 2019 and updated in July 2021, which sets out the Government's planning policies for England and how these are expected to be applied.

2.2.2 Promoting a strong theme of sustainable development, the NPPF aims to strengthen local decision making and reinforce the importance of up-to-date plans. Core aims of the NPPF include:

2.2.3 The Presumption in favour of Sustainable Development;

a. Delivering Sustainable Development – Building a strong competitive economy;
b. Promoting sustainable transport;
c. Meeting the challenge of climate change, flooding and coastal change;
d. Conserving and enhancing the natural environment; and

e. Conserving and enhancing the historic environment.

2.2.4 The NPPF states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. It specifies the obligations that the Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this is to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable, compensation may be required.

2.2.5 Section 15, paragraphs 170-177 of the NPPF includes provision for measurable net gain and creating/ maintaining coherent ecological networks. Please note that these paragraphs are also material considerations when making planning decisions, whether plans or specific development projects and applications. Further information on the relevant parts of the NPPF is provided in **Annex A – Legislation and Planning**.

2.3 Other Guidance

The 25 Year Environment Plan

2.3.1 In early 2018, the Government published its 25 Year Environment Plan to provide guidance on its new approach to managing the environment. The plan promotes a natural capital approach that recognises the wider value of the environment and its contribution, such as food, clean water and air, wildlife, energy, wood, recreation and protection from hazards. The plan seeks to embed a net environmental gain principle for development to deliver environmental improvements locally and nationally.

UK Post-2010 Biodiversity Framework

2.3.2 The UK Biodiversity Action Plan (UKBAP) was launched in 1994 and established a framework and criteria for identifying species and habitat types of conservation concern. From this list, action plans for priority habitats and species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012). The UK list of priority species and habitats, however, remains an important reference source and has been used to help draw up statutory lists of priority habitats and species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UK BAP is still used as one of the criteria to assist in assigning national value to an ecological receptor.

2.3.3 The UK Post-2010 Biodiversity Framework sets a broad enabling structure for action across the UK between now and 2020, including a shared vision and priorities for UK-scale activities to help deliver the Aichi targets and the EU Biodiversity Strategy. A major commitment by Parties to the Convention of Biological Diversity is to produce a National Biodiversity Strategy and/or Action Plan.

2.3.4 The UK Post-Development Framework is relevant within England in the context of Section 40 of the Natural Environment and Rural Communities

(NERC Act) 2006, meaning that Priority Species and Habitats are material considerations in planning. These habitats and species are identified as those of conservation concern due to their rarity or a declining population trend. This list encompasses 56 habitats and 943 species.

The Environment Bill

2.3.5 The Environment Bill was published by the UK Government in October 2019 and reintroduced into parliament (January 2020), has yet (at the time of writing this chapter) to pass the House of Lords but is expected to be made into legislation in late 2021 / early 2022.

2.3.6 The draft Environment Bill sets out the Government's objectives to restore natural habitats and increase biodiversity and will include proposals to make Biodiversity Net Gain (BNG) a mandatory requirement within the town and country planning system in England. including for Nationally Significant Infrastructure Projects (NSIPs). Once enshrined in law it will require all developments to achieve a minimum 10% net gain in biodiversity units relative to the Order limits' baseline biodiversity value.

2.4 Local Planning Policy

Local and Regional Plans

2.4.1 **Table 1** provides a summary of the local planning policies relevant to the Scheme. For the precise wording of this policy please refer to the source document. This planning policy has been considered when assessing potential ecological constraints and opportunities identified by the desk study and field surveys; and, when assessing requirements for further survey, design options and ecological mitigation, as described in Section 5.

Table 1: Summary of Local Planning Policy

Document	Planning Policy	Purpose
Chelmsford Local Plan 2013-2026 (adopted May 2020) (Ref 4)	Policy DM16 – Ecology and Biodiversity	Conserve and enhance the network of habitats, species and sites (both statutory and non-statutory, including priority habitats and species) of international, national and local importance commensurate with their status and give appropriate weight to their importance; and avoid negative impacts on biodiversity and geodiversity, mitigate unavoidable impacts and as a last resort compensate for residual impacts; and deliver a net gain in biodiversity where possible, by creating, restoring and enhancing habitats, and enhancing them for the benefit of species.
	Policy DM17 – Trees, woodland and landscape features	Trees and woodland provide a vital benefit and help to improve the well-being of the public and the environment. Some of their many benefits include the provision of shelter and shade, stabilisation of soil, filtering air pollution, reducing noise, improving and softening the landscape, and creating and connecting wildlife habitats.

Document	Planning Policy	Purpose
	Policy DM19 – Renewable and low carbon energy	Planning permission will be granted for renewable or low carbon energy developments provided that they: a. Do not cause demonstrable harm to residential living environment; b. Avoid or minimise impacts on the historic environment; c. Can demonstrate no adverse effect on the natural environment including designated sites; d. Do not have an unacceptable visual impact which would be harmful to the character of the area; and e. Will not have a detrimental impact on highway safety.
Braintree District Council Local Development Plan[1] (Ref 5)	Policy CS8 - Natural Environment and Biodiversity	All development proposals will take account of the potential impacts of climate change and ensure the protection and enhancement of the natural environment, habitats and biodiversity and geo-diversity of the District. This will include where appropriate protection from: a. Air, noise, light and other types of pollution; b. Excessive use of water and other resources; and c. Development should protect the best and most versatile agricultural land. Development must have regard to the character of the landscape and its sensitivity to change and where development is permitted it will need to enhance the locally distinctive character of the landscape in accordance with the Landscape Character Assessment. Landscape Character Areas will be defined in the Site Allocations Development Plan Document and further guidance will be set out in a supplementary planning document. The natural environment of the District, and in particular designated sites of national importance and locally designated sites, which are identified on the Proposals Map, will be protected from adverse effects. Criteria based policies will be set out in the Development Management Document, against which proposals for any development within, or affecting such sites, will be considered. The restoration and enhancement of the natural environment will be encouraged through a variety of measures such as; a. Maximising opportunities for creation of new green infrastructure and networks in sites allocated for development; b. Creating green networks to link urban areas to the countryside;

[1] This includes The Braintree District Core Strategy (Sept 2011) and Supplementary Planning Documents (SPD)

Document	Planning Policy	Purpose
		c. Creating and enhancing the biodiversity value of wildlife corridors; d. Designating and protecting local nature reserves and local wildlife sites; e. Conservation and enhancement of SSSIs in accordance with the Wildlife and Countryside Act; and f. Development will promote wildlife enhancements which will Environment contribute to the habitat and species restoration targets set out in the Essex Biodiversity Action Plan.
Draft Braintree Local Plan, 2017[2] (currently under review)	Policy LPP 67 Natural Environment and Green Infrastructure; Policy LPP 68 Protected Species, Priority Species and Priority Habitat; Policy LPP 70 Protection, Enhancement, Management and Monitoring of Biodiversity; and Policy LPP 71 Landscape Character and Features	If adopted the following will apply: These policies require consideration of the impacts on biodiversity by assessing protected species and habitats that could be impacted by the Scheme. Consideration of sites of international, national and local importance is also necessary. Development proposals should be controlled through avoidance, on -site management and on-site mitigation. Proposals likely to have an adverse effect on a designated site will not be permitted unless the benefits of the development clearly outweigh the harm to the nature conservation value of the site. If such benefits exist, the developer will be required to demonstrate that impacts will be avoided, and impacts that cannot be avoided will be mitigated on-site. Policies state that species and habitats should be protected from pollution, where appropriate. In line with the Spatial Principles the polices note that the river valleys are an important local asset which not only offer natural flood protection but contribute significantly to the local landscape and character of the area and the water quality of the rivers is an important factor in maintaining diverse natural habitats. Delivering a net gain and enhancing the network of habitats is also outlined in these policies. Development resulting in a net gain in priority habitat will in principle be supported. The policies identify measures to enhance biodiversity and adequately mitigate unavoidable impact on existing biodiversity. Policies state that high quality green infrastructure should be used to protect, enhance and create wildlife corridors, to maintain ecological connectivity when greenfield land will be lost.

[2] https://www.braintree.gov.uk/info/200230/planning_policy/701/new_local_plan/2 [Date Accessed: April 2021].

2.5 Local Biodiversity Action Plan

Essex Biodiversity Action Plan

2.5.1 The Essex Biodiversity Action Plan (Ref 6) comprises ten Habitats and 29 Species Action Plans, as follows:

Habitat Action Plans

a. Ancient and/or species rich hedgerows and green lanes;
b. Ancient woodland;
c. Cereal (arable) field margins;
d. Coastal grazing marsh;
e. Seagrass beds;
f. Heathland;
g. Old orchards;
h. Reedbeds;
i. Saline lagoons; and
j. Urban areas.

Species Action Plans

a. Allis shad (Alosa alosa) and Twaite shad (Alosa fallax);
b. Black Poplar (Populus nigra subsp. betulifolia);
c. Bittern (Botaurus stellaris);
d. Bright wave moth (Idaea ochrata);
e. Brown hare (Lepus europaeus);
f. Common Pipistrelle (Pipistrellus pipistrellus);
g. Desmoulin's whorl snail (Vertigo moulinsiana);
h. Dormouse (Muscardinus avellanarius);
i. European otter (Lutra lutra);
j. Fisher's estuarine moth (Gortyna borelii);
k. Great crested newt (Triturus cristatus);
l. Grey partridge (Perdix perdix);
m. Harbour porpoise (Phocoena phocoena);
n. Heath fritillary (Melitaea athalia);
o. Hog's-fennel (Peucedanum palustre);
p. Hornet robber fly (Asilus crabroniformis);
q. Native black poplar (Populus nigra);
r. Oxlip (Primula elatior);
s. Pipistrelle bats (Pipistrellus species);
t. Scarlet Malachite Beetle (Malachius aeneus);

u. Shining Rams-horn snail (Segmentina nitida);
v. Shrill carder bee (Bombus sylvarum);
w. Skylark (Alauda arvensis);
x. Song thrush (Turdus philomelos);
y. Soprano Pipistrelle (Pipistrellus pygmaeus);
z. Stag beetle (Lucanus cervus);
aa. Stone curlew (Burhinus oedicnemus);
bb. Water vole (Arvicola amphibius); and
cc. While-clawed crayfish (Austropotamobius pallipes).

3. Methods

3.1 Desk Study

3.1.1 A desk study was carried out to identify nature conservation designations and protected and, or notable habitats and species potentially relevant to the Scheme.

3.1.2 A stratified approach was taken when defining the desk study area, based on the likely zone of influence of the Scheme on different ecological receptors; and, an understanding of the maximum distances typically considered by statutory consultees. Accordingly, the desk study identified any international nature conservation designations within 10 km of the Scheme; other statutory nature conservations designations within 5 km of the Scheme; and, local non-statutory nature conservation designations, and protected / notable habitats and species within 2 km of the Scheme.

3.1.3 The desk study was carried out using the data sources detailed in **Table 2**. Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the WCA; Schedules 2 and 4 of the Habitats Regulations; species and habitats of principal importance for nature conservation in England listed under Section 41 (S41) of the NERC Act; and other species that are Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists and Biodiversity Action Plans.

Table 2: Desk study data sources

Data Source	Accessed	Data Obtained
Multi-Agency Geographic Information for the Countryside (MAGIC) website	July 2020	International statutory designations within 10 km. Other statutory designations within 5 km. Ancient woodlands and notable habitats within 2 km. Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints.

Data Source	Accessed	Data Obtained
Ordnance Survey 1:2500 Pathfinder maps and aerial photography	July 2020	Information on habitats and habitat connections (based on aerial photography) relevant to interpretation of planning policy and assessment of potential protected and notable species constraints.
Essex Wildlife Trust Records Centre	July 2020	Sites designated for their nature conservation value, such as County Wildlife Sites (CWS), Local Nature Reserves (LNRs) and Local Wildlife Sites (LoWS) within 2 km of the Order limits. Protected and notable species within 2 km of the Order limits (records for the last 15 years only).
Essex Field Club	January 2021	Sites designated for their nature conservation value, such as County Wildlife Sites (CWS), Local Nature Reserves (LNRs) and Local Wildlife Sites (LoWS) within 2 km of the Order limits. Protected and notable species within 2 km of the Order limits (records for the last 15 years only). Provided separately as ***Appendix 8L: Essex Field Club Desk Study*** of the ES **[EN010118/APP/6.2]** (a condition of the data supply).

3.2 Field Survey

Phase 1 Habitat Survey

3.2.1 The Phase 1 Habitat survey was undertaken in May 2020 and March 2021 in accordance with the standard survey method (Ref 7). A small additional area along the revised cable route was surveyed in September 2021. Phase 1 Habitat survey is a standard method of environmental audit. It involved categorising different habitat types and habitat features within a survey area. The information gained from the survey was used to determine the likely ecological value of the Order limits, and to direct any more specific survey work which may need to be carried out prior to the submission of the planning application. The standard Phase 1 Habitat survey method was extended to record target notes on protected, notable and invasive species.

Appraisal of the Potential Suitability of Habitats for Protected and Notable Species

3.2.2 An appraisal was made of the potential suitability of the habitats present to support protected and notable species of plants or animals (as defined by legislation and planning policy in Section 2). Field signs, habitat features with potential to support protected species and any sightings or auditory evidence were recorded when encountered, but no detailed surveys were carried out for any particular species.

3.2.3 In addition, specific attention was given to identifying instances of invasive non-native plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and those “widespread species” listed in the Invasive Alien species (Permitting and Enforcement) Order 2019.

Locations of plants or stands of any such invasive non-native plant species, if found, were recorded.

3.2.4 Section 5 of this report identifies further requirements for species surveys based on the results of the desk study and habitat survey.

3.3 Desk Study and Field Survey Limitations

3.3.1 The aim of a desk study was to help characterise the baseline context of a Scheme and provide valuable background information that would not be captured by a single site survey alone. Information obtained during the course of a desk study was dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitat or species does not necessarily mean that the habitats or species do not occur in the study area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Scheme.

3.3.2 Where habitat boundaries coincide with physical boundaries recorded on OS maps, the resolution was determined by the scale of mapping. Elsewhere, habitat mapping was as estimated in the field and/or recorded by hand-held GPS. Where areas of habitat are given, they are approximate and should be verified by measurement on site where required for design or construction. While indicative locations of trees are recorded this does not replace requirements for detailed specialist arboriculture survey to British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction.

3.3.3 The optimum time for undertaking a Phase 1 Habitat survey is between May and September when flowering plants are most visible. The main survey was undertaken in May 2020 which is within this optimum time. Following a revision of the Order limits, a survey of additional areas, mainly along the proposed cable route corridor, was undertaken in late March and September 2021. As such, some plants that are characteristic of certain habitats may not have been visible such as later or earlier flowering grassland species. However, due to the nature of the habitats present within the survey area, the timing of the survey did not prevent habitats from being accurately categorised and assessed.

3.3.4 Two access roads are included in the Order limits, but no impacts to these are currently identified and therefore there are no survey requirements. If this changes in future, then a walkover survey is recommended.

3.3.5 There were no other limitations to the desk study or habitat survey.

4. Results

4.1 Nature Conservation Designations

Statutory Designations

4.1.1 The desk study identified six sites statutorily designated for their nature conservation value or ancient status within the study areas as set out in Section 3.1. These sites, designated for biodiversity reasons, are summarised in **Table 3** and are listed in ascending order of distance from the Order limits. Designation details are taken from citation documents and published online by the Joint Nature Conservation Committee (JNCC) (Ref 8) for the individual sites. The locations of statutory sites are shown on ***Figure 8-1*** of the ES **[EN010118/APP/6.3]**.

Table 3: Statutory designated sites

Site Name	Designation	Area (ha)	Description	Distance and direction from closest point of the Order limits
River Ter	SSSI	6.41	Designated for its geological importance, it is representative of a lowland stream with a distinctive flood regime. It is flashy, draining a low-lying catchment on glacial till, and has a very low base flow discharge but high flood peaks; daily, monthly and annual flow variability are also high. In addition, the site demonstrates characteristic features of a lowland stream including pool-riffle sequences, bank erosion, bedload transport and dimensional adjustments to flooding frequency.	The SSSI boundary is immediately adjacent to the Order limits. An undesignated section of the River Ter bisects the northern part of the Order limits.
Blake's Wood & Lingwood Common	SSSI	87.33	Broadleaved, mixed, Yew woodland and dwarf shrub heath. Species include hornbeam (*Carpinus betulus*) and sweet chestnut (*Castanea sativa*) mature coppice and occasional oak (*Quercus robur*), with mature hornbeam and sweet chestnut trees, with a transition to dense hornbeam coppice and birch. There are areas of dwarf shrub heath with a mosaic of woodland, acid grassland and old orchard.	3.73 km to the south of the Order limits.

Site Name	Designation	Area (ha)	Description	Distance and direction from closest point of the Order limits
Woodham Walter Common	SSSI	79.67	Broadleaved, mixed and yew woodland, characterised by young and mature sweet chestnut coppice and mature hornbeam coppice. Sycamore (*Acer pseudoplatanus*) becoming invasive. There is also younger sweet chestnut coppice.	4.35 km to the south-west of the Order limits
Cuckoo Wood	LNR	2.50	Habitats comprise amenity grassland, meadows, woods, lakes, ponds, ditches and hedgerows. It has some locally rare species, and is described by Natural England as a very good habitat for fungi, due to a large amount of dead wood	4.66 km to the south of the Order limits.
Essex Estuaries.	SAC	46,109.95	This is a large marine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Qualifying features comprise Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Estuaries Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*). Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonising mud and sand Sandbanks which are slightly covered by sea water all the time Spartina swards (*Spartinion maritimae*).	9.35 km to the south-east of the Order limits.
Blackwater Estuary (Mid-Essex Coast Phase 4)	SPA, RAMSAR	4,395.15	This marine site comprises an extensive complex of estuaries and intertidal sand and silt flats, including several islands, shingle and shell beaches and extensive areas of saltmarsh. Qualifying features comprise Black-tailed godwit (*Limosa limosa islandica*), Non-breeding; Dark-bellied brent goose (*Branta bernicla bernicla*), Non-breeding; Dunlin (*Calidris alpina alpina*), Non-breeding; Grey plover (*Pluvialis squatarola*), Non-breeding; Hen harrier	9.35 km to the south east of the Order limits.

Site Name	Designation	Area (ha)	Description	Distance and direction from closest point of the Order limits
			(*Circus cyaneus*), Non-breeding; Little tern (*Sternula albifrons*), Breeding; Pochard (*Aythya ferina*), Breeding Ringed plover (*Charadrius hiaticula*), Breeding; Waterbird assemblage, Non-breeding	

Non-statutory Designations

4.1.2 The desk study identified 31 sites non-statutorily designated for nature conservation within 2 km of the Order limits (as per the method in Section 3.1 of this report). These are shown on ***Figure 8-2*** of the ES **[EN010118/APP/6.3]**. These sites have been designated as Local Wildlife Sites (LoWS) for their biodiversity value at a local level and are known to have supporting value to a wide variety of protected and ecologically important species and/or habitats. These sites are detailed in **Table 4** and are listed in ascending order of distance from the Order limits.

Table 4: Non-statutory designated sites

Site Name	Area (ha)	Description	Distance and direction from closest point of the Order limits
Boreham Road Gravel Pits LoWS	23.45	This large site comprises a series of lakes of various sizes surrounded by woodland, with some areas of open, sometimes marshy, ground. The complex geomorphology is the result of former sand and gravel extraction. As a result, the wooded margins to the lakes occupy an undulating terrain which is reflected in varying canopy composition. This includes willows (*Salix sp.*), Ash, Oak and Silver Birch. An area of damp woodland extending to the south of the main area comprises Oak, Ash and Hornbeam, with Meadowsweet (*Filipendula ulmaria)* and Wild Angelica (*Angelica sylvestris*) as ground flora, both of which prefer wetter substrates.	Within and adjacent to the Order limits.
The Grove LoWS	5.83	Streamside woodland with some substantial earthwork features within its borders and is little changed in outline from that on 19th century Ordnance Survey maps.	Adjacent to the Order limits.

Site Name	Area (ha)	Description	Distance and direction from closest point of the Order limits
Sandy Wood LoWS	18.36	This large ancient wood has been somewhat disturbed by storm damage and replanting with both broadleaved and coniferous trees.	Adjacent to the Order limits.
Scarlett's Wood LoWS and Scarlett's Wood (part of) LoWS	5.58	The site mainly comprises plantation woodland with Sweet Chestnut, Wild Cherry (*Prunus avium*) and Sycamore, though there is evidence of an old coppice structure to be found particularly in the far south corner where Hornbeam and Small-leaved Lime (*Tilia cordata*) coppice and Pedunculate Oak standards are found.	Adjacent to the Order limits.
Ringer's Wood LoWS	6.01	Neglected Hornbeam and Small-leaved Lime coppice, Pedunculate Oak and Ash standards are the main canopy components of Ringer's Wood.	Adjacent to the Order limits.
Toppinghoehall Wood LoWS	33.09	This ancient wood now survives as two separate sections, the north section being contiguous with Porter's Wood straddling the Braintree-Chelmsford boundary. The southern section is an area of mixed woodland - mostly conifer plantation with interspersed Pedunculate Oak, Sweet Chestnut, Beech (*Fagus sylvatica*) and Silver Birch (*Betula pendula*). The ground flora is dominated by Bramble (*Rubus fruticosus agg*) with Bluebell (*Hyacinthoides non-scripta*).	Adjacent to the Order limits.
Lost Wood LoWS	18.59	This ancient wood is being commercially exploited for timber production, with extensive plantations of Beech, Scots Pine (*Pinus sylvestris*), Larch (*Larix sp.)* and Spruce (*Picea sp.*).	Adjacent to the Order limits.
Porter's Wood and Toppinghoehall Wood (part of) LoWS	12.71	Porters Wood is an ancient wood contiguous with Toppinghoehall Wood (see description above). Hornbeam coppice and Pedunculate standards characterise this woodland site. Ash is also found in the high canopy, whilst Field Maple is found as a sub-canopy tree. A small area of the woodland on the eastern edge of	Adjacent to the Order limits.

Site Name	Area (ha)	Description	Distance and direction from closest point of the Order limits
		the site has previously been cleared and replanted with native trees. The ground flora has patches where Bluebell is abundant. Other ancient woodland indicators recorded include Three-nerved Sandwort (*Moehringia trinervia*), Wood Millet (*Milium effusum*), Wood Speedwell (*Veronica montana*) and Climbing Corydalis (*Ceratocapnos claviculata*).	
Chopping's Wood LoWS	5.21	An ancient wood containing a mix of broadleaved species.	197m west of the Order limits.
Craigments Spring LoWS	1.71	This site comprises a small, possibly ancient woodland fragment and three peripheral ponds.	280m east of the Order limits.
Terling Hall Woods LoWS	2.76	These two woods, possibly both ancient, have canopies dominated by Pedunculate Oak, Ash and Hornbeam.	329m east of the Order limits.
Bulls Lodge Lagoons LoWS	10.65	This series of water management lagoons associated with the adjacent mineral workings epitomises the ecological value of brownfield land, with an intricate mosaic of habitats. Areas of flower-rich, albeit weedy, rough grassland provide good foraging habitat for a wide range of invertebrates and areas of bare ground, including some steep, sandy banks, provides nesting habitat and hunting areas also for invertebrates. Areas of reedbed and scrub are also present.	381m west of the Order limits.
St Mary the Virgin, Great Leighs LoWS	0.49	The churchyard exhibits a range of grass species including Bent-grasses (a species of *Agrostis),* Red Fescue (*Festuca rubra*) and Meadow grasses (a species of *Poa*).	438m west of the Order limits.
Lyonshall Wood LoWS	26.83	An ancient wood displaying a wide mix of tree species and stands.	504m west of the Order limits.
Wade's Spring LoWS	1.16	This small, possibly ancient wood fragment has a canopy of Ash and Pedunculate Oak over neglected Hazel (*Corylus avellana*) and Hornbeam coppice.	930m east of the Order limits.

Site Name	Area (ha)	Description	Distance and direction from closest point of the Order limits
Brickhouse Wood LoWS	4.19	Hornbeam coppice dominates this ancient wood, whilst Ash, Silver Birch and Field Maple are also found throughout.	1.05km north of the Order limits
Hookley Wood LoWS	1.89	This small ancient wood has a varied canopy and ground flora composition. Whilst Ash (*Fraxinus excelsior)* predominates, there is also much Small-leaved Lime, Pedunculate Oak (*Quercus robur*), Hazel, Field Maple (*Acer campestre*) and Hornbeam.	1.09km north of the Order limits
Terling Churchyard and Green LoWS	0.99	The light soil here supports a scarce floral assemblage.	1.18km east of the Order limits.
Mann/Parson's Wood LoWS (including Parson's and Queens Wood LoWS)	34.15	The wood is generally split up into compartments, each being separated by grassy rides. Mann/Parsons Wood contains mature Hornbeam and Small-leaved Lime coppice, with some Silver Birch and Sweet Chestnut. In contrast, Sludelands Wood has coppiced Hazel, forming a much lower canopy structure. A stream valley flows southwards towards the eastern edge of the site. Tall Alder (*Alnus glutinosa*) coppice is characteristic of this wetter area. Ramsons (*Allium ursinum*) is abundant in this part of the site. An area of Hornbeam coppice to the north of the small lake is the only area of the site where Bluebells are found in profusion. Amongst typical ancient woodland ground flora species are Wood, Yellow Archangel, Ramsons, Yellow Pimpernel (*Lysimachia nemorum*), Wood-sedge (*Carex sylvatica*), Wood Speedwell (*Veronica montana*) and Primrose (*Primula vulgaris*). Queen's Wood, the southernmost block, is an ancient wood with a canopy dominated by Hornbeam standards with Sweet Chestnut, Hornbeam and Small-leaved Lime coppice. Both Midland Hawthorn (*Crataegus laevigata*) and Spindle (*Euonymus europaeus*) are to be found in the shrub layer. The	1.21km north of the Order limits.

Site Name	Area (ha)	Description	Distance and direction from closest point of the Order limits
		ground flora is typified by Bracken (*Pteridium aquilinum*) and Dog's Mercury (*Mercurialis perennis*).	
Titbeech Wood LoWS	4.71	Titbeech wood has been replanted with a variety of broadleaved and coniferous species for commercial timber production	1.38km east of the Order limits.
Lowley's Farm Meadow LoWS	0.98	Formerly listed under the name "Osiers", this site is a small area of horse grazed grassland on the west bank of the River Ter.	1.42km east of the Order limits.
Fairsteadhall Wood LoWS	2.06	This wood is one of three remaining fragments of the formerly much larger ancient Galleycable Wood and contains a mix of broadleaved tree species.	1.42km north-west of the Order limits.

4.2 Habitats

4.2.1 The area surveyed encompassed all safely accessible parts of the Order limits, and adjacent habitats to a maximum distance of 50 m, where access permission had been granted in advance of the survey, or this land was visible from within the Order limits or from Public Rights of Way, or other publicly accessible areas.

4.2.2 Typical and notable plant species were recorded for different habitat types and reflect the conditions at the time of survey. This was not intended to be a detailed inventory of the plant species present in the survey area, as this is not required for the purposes of Phase 1 Habitat survey.

4.2.3 The Phase 1 Habitat survey was undertaken on the 6th, 7th, 12th and 13th of May 2020, 24th March and 13th September 2021 by suitably qualified AECOM ecologists who recorded and mapped all habitat types present within the survey area, along with any associated relevant ecological receptors observed. The Phase 1 Habitat map for the Order limits is provided in ***Figure 8-3*** of the ES **[EN010118/APP/6.3]**. Where relevant ecological receptors (i.e., signs or evidence of protected/notable species) were present, target notes were recorded and the positions of these, where recorded, are shown in ***Figure 8-3*** of the ES **[EN010118/APP/6.3]**. Target notes and associated reference photographs are provided in **Annex B – Target Notes and Photographs**. The extent/area of the habitat types present within the Order limits are shown below in **Table 5**.

Table 5: Broad habitat types within the Order limits

Habitat	Area (ha) / length (km)
Cultivated/disturbed land - arable	387.23 ha
Poor semi-improved grassland	31.61 ha
Improved grassland	15.16 ha
Unclassified – e.g. roads/tracks	4.70 ha
Hard surface	3.46 ha
Broadleaved woodland - semi-natural	2.50 ha
Cultivated/disturbed land - ephemeral/short perennial	1.90 ha
Other tall herb and fern - ruderal	1.54 ha
Broadleaved woodland - plantation	1.33 ha
Bare ground	1.29 ha
Scrub - dense/continuous	0.75 ha
Standing water	0.56 ha
Scrub - scattered	0.29 ha
Marsh/marshy grassland	0.27 ha
Running Water (River Ter)	0.20 ha
Mixed woodland - semi-natural	0.10 ha
Buildings	0.03 ha
Amenity grassland	0.02 ha
Dry ditch	9.83 km
Hedge with trees - native species-rich	6.42 km
Broadleaved parkland/scattered trees	5.79 km
Intact hedge - species-poor	3.73 km
Fence	3.49 km
Intact hedge - native species-rich	1.86 km
Hedge with trees - species-poor	1.82 km

Habitat	Area (ha) / length (km)
Running water	0.97 km
Defunct hedge - species-poor	0.34 km
Scrub – scattered	0.27 km

Cultivated/disturbed land – Arable

4.2.4 Arable fields (e.g. Photo 1, **Annex B – Target Notes and Photographs**) formed the majority of habitat on the Order limits these consisted of a number of different crops including oilseed rape (*Brassica napus*), wheat (*Triticum aestivum*), potato (*Solanum tuberosum*) and sugar beet (*Beta vulgaris* spp. *vulgaris*). Other plant species found growing within the edges of the crops included broad-leaved dock, ground ivy (*Glechoma hederacea*), perennial ryegrass, creeping thistle, field pansy (*Viola arvensis*), small nettle (*Urtica urens*), common field speedwell, black-grass (*Alopecurus myosuroides*) and pineapple weed (*Matricaria discoidea*). A few rare or scarce arable flora species were present including round-leaved fluellen (*Kickxia spuria*), fig-leaved goosefoot (*Chenopodium ficifolium*) and many-seeded goosefoot (*Lipandra polyspermum*).

Poor semi-improved grassland

4.2.5 This mainly comprised conservation margins and edge habitats alongside hedges and roads. Dominant species comprised false oat grass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), rough meadow grass (*Poa trivialis*), perennial rye-grass (*Lolium perenne*) and common couch (*Elymus repens*). Other species in these grasslands included hogweed (*Heracleum sphondylium*), broad-leaved dock (*Rumex obtusifolius*), creeping thistle (*Cirsium vulgare*), spear thistle, cow parsley (*Anthriscus sylvestris*), barren brome (*Aninsantha sterilis*), rosebay willowherb, bramble, red campion, dandelion (*Taraxacum officinale* aggregate), hard rush (*Juncus inflexus),* and hogweed.

Improved grassland

4.2.6 This grassland mainly occured in the cattle grazed fields to the north of the Order limits. The fields wre dominated by perennial rye-grass with occasional other species including Yorkshire fog, cocksfoot (*Dactylis glomerata*), common couch, creeping thistle (*Cirsium arvense*), cow parsley, dandelion and meadow buttercup (*Ranunculus acris*).

Broad-leaved semi-natural woodland

4.2.7 There were a few small areas of broadleaved semi-natural woodland within the Order limits (e.g. **Photo 2, Annex B – Target Notes and Photographs**), within approximately 13 larger woodlands within 50m of the Order limits, most of which are Local Wildlife Sites (see Section 4.1.2). These woodlands were often dominated by pedunculate oak, hornbeam, field maple, ash, with abundant elder *(Sambucus nigra*) and hawthorn (*Crataegus monogyna*) and classified as ancient woodland. The ground flora had patches where bluebell was abundant. Other ancient woodland indicators recorded include three-nerved sandwort (*Moehringia trinervia*), wood millet (*Milium effusum*), wood

speedwell (*Veronica montana*) and climbing corydalis (*Ceratocapnos claviculata*). Some areas of these woods were used for gamebird rearing (e.g. parts of Toppinghoehall Woods) and as such had a lack of, or an impoverished ground flora.

Broad-leaved plantation woodland

4.2.8 A few small areas of plantation woodland were present within the Order limits. Species included pedunculate oak (*Quercus robur*) and hornbeam (*Carpinus betulus*), with some wild cherry (*Prunus avium*), field maple (*Acer campestre)* and ash planted in rows. Ground flora species included; bluebell (*Hyacinthoides non-scripta*), red campion (*Silene dioica*), bramble (*Rubus fruticosus* aggregate), wood sage (*Teucrium scorodonia*), greater stitchwort (*Stellaria holostea*), broad-leaved dock (*Rumex obtusifolius*), wood dock (*Rumex sanguineus*), bracken (*Pteridium aquilinum*), and soft brome (*Bromus hordeaceus*).

Broadleaved scattered trees

4.2.9 At the edges of some of the arable fields and along watercourses there were scattered trees, trees within these included ash (*Fraxinus excelsior*), willow (*Salix* species), pedunculate oak, field maple and hornbeam. The understorey flora below these trees consisted of common chickweed (*Stellaria media*), spear thistle (*Cirsium arvense*), rosebay willowherb (*Chamerion angustifolium*), common nettle (*Urtica dioica*) and black medick (*Medicago lupulina*).

Scrub

4.2.10 There were numerous small patches of dense and scattered scrub especially surrounding ponds as well as along boundaries including adjacent to trainline to the south of the Order limits. These scrub habitats are dominated by woody species such as bramble, silver birch (*Betula pendula*), butterfly-bush (*Buddleja davidii),* hornbeam, hawthorn, elder and blackthorn. The ground flora includes; broad leaved dock, hogweed, spear thistle, dandelion, wild teasel (*Dipsacus fullonum*), common nettle, cow parsley, coltsfoot (*Tussilago farfara*), rosebay willowherb and garlic mustard (*Alliaria petiolata)*.

Standing water

4.2.11 There were 27 ponds located across the Order limits with most being heavily shaded from trees and scrub. No submerged macrophytes were observed in the ponds. A few ponds had emergent vegetation and marginal species including water cress (*Nasturtium officinale*), reedmace (*Typha latifolia*) and soft rush (*Juncus effusus*). There are a couple of wet ditches with reedmace, fine-leaved water dropwort (*Oenanthe aquatica*) and water-starwort (species of *Callitriche*).

Running water

4.2.12 The River Ter flowed east through a section of the northern part of the Order limits (see Target Note 2, **Annex B – Target Notes and Photographs**). It was a narrow (<1 m), shallow channel (up to 0.5 m deep) with a gravel/silt base. It was generally shaded throughout by an abundance of trees along the banks consisting mostly of white willow (*Salix alba*), other willow species (species of *Salix*), alder (*Alnus glutinosa*) with occasional hazel (*Corylus avellana*),

hawthorn, elm (a species of *Ulmus*) and field maple. Flora on the often-shaded banks included hop (*Humulus lupulus*), ramsons (*Allium ursinum*), common nettle and creeping thistle.

4.2.13 Marginal and emergent species along the River Ter included; hemp agrimony (*Eupatorium cannabinum*), pendulous sedge (*Carex pendula*), great willowherb (*Epilobium hirsutum*), gipsywort (*Lycopus europaeus*), water pepper (*Persicaria hydropiper*), lesser water-parsnip (*Berula erecta*), bulrush (*Typha latifolia*) and water mint (*Mentha aquatica*). Water starwort was occasionally noted submerged in the river. No other submerged or floating aquatic macrophytes were observed.

4.2.14 A narrow, shallow stream is present to the south-west of the Order limits (Target Note 9) leading to a wider deeper section of a main river called Boreham Brook (Target Note 11). It is heavily shaded and no aquatic plant species were visible within accessible areas.

Tall ruderal herbs

4.2.15 Areas of tall ruderal herbs were observed between cultivated arable fields on banks of ditches or between arable fields and other habitats such as woodland and hedge boundaries. These habitats were dominated with willowherb species (species of *Epilobium*), common nettle, cow parsley, white dead nettle, broad-leaved dock, common thistle, wild teasel and hogweed. Other species included soft brome, dandelion, common field speedwell (*Veronica persica*), meadow buttercup, red campion and ground ivy (*Glechoma hederacea*).

Marshy grassland

4.2.16 This comprises a small area of marshy grassland to the south-west of the Order limits with adjacent broad-leaved and wet woodland and scrub (Target Note 9). Species include soft rush (*Juncus effusus*), Yorkshire fog, water mint (*Mentha aquatica*), creeping buttercup (*Ranunculus repens*) and common nettle.

Bare ground

4.2.17 There were small areas of bare ground associated with farm hardstanding areas, paths and tracks.

Boundaries – Hedgerows

4.2.18 Hedgerows bordered many of the fields on the Order limits (e.g., Photo 3, **Annex B – Target Notes and Photographs**). These ranged from defunct to intact hedges, species poor or species rich and with or without standard trees. Some had associated features such as ponds, ditches and connection to woodland habitats. Many hedges had been less intensively managed and had been allowed to grow tall. There was also a range of species diversity with woody species recorded within the hedges including pedunculate oak, hawthorn, elder, dog rose, spindle (*Euonymus europaeus*), blackthorn (*Prunus spinosa*), field maple, English elm (*Ulmus procera*) and small leaved lime (*Tilia cordata*) as well as wild service tree (*Sorbus torminalis*) (e.g. Target Note 8 in **Annex B – Target Notes and Photographs**) within two hedgerows. The ground flora of these hedgerows consisted of cow parsley, hogweed,

common nettle, perennial rye-grass, dock, cleavers (*Galium aparine*), rosebay willowherb, barren brome (*Anisantha sterilis)* and garlic mustard.

4.3 Notable Habitats

4.3.1 **Table 6** provides a summary of notable habitats based on the results of the Phase 1 Habitat survey (up to 50m from the Order limits boundary) and with reference to guidance for the recognition of NERC Act Section 41 (Ref 9) and the relevant LBAP, as detailed in Section 2.3.2. Further surveys may be required to investigate the value of habitats further, as detailed in Section 5 of this report.

Table 6: Notable habitats within the Order limits

Habitat	NERC Act	LBAP	Supporting Comments
Ancient and/or Species-rich Hedgerows and Green Lanes	✓	✓	Ancient and/or species rich hedgerows are present across the Order limits. Impacts to hedgerows are unlikely to occur and the Scheme can be designed to avoid potential impacts. Further investigation would be required to determine their value and whether they are 'Important' under the Hedgerow Regulations 1997, if any impacts are likely.
Ancient Woodland	✓	✓	A number of woodlands adjacent to the Order limits are listed as ancient and are likely to fulfil the criteria of priority habitat. 35 veteran or ancient trees identified from the desk study are located within and up to 2 km of the Order limits, with many other potentially veteran and/or ancient trees occur within hedges and along lanes within or immediately adjacent to the Site. Impacts to ancient woodland and ancient/veteran trees is unlikely to occur likely as the Scheme can be designed to avoid these habitats with suitable buffers.
Rivers	✓	-	The River Ter and Boreham Brook is likely to fulfil the criteria of this priority habitat type. Consideration of impacts to these rivers is likely to be required.
Standing Open Waters / Ponds	✓	-	There are a number of waterbodies across the Scheme and further investigation will be required to determine their value where potential impacts are identified.
Arable Field Margins	✓	✓	A number of scarce arable plants were noted during the survey and arable field margins present may fulfil the criteria for this priority

Habitat	NERC Act	LBAP	Supporting Comments
			habitat type. Arable field margins are likely to be affected by the Scheme.
Lowland Mixed Deciduous Woodland	✓	-	Broad-leaved woodland is present across the Order limits and no woodland is likely to be affected by the Scheme. If this changes then further investigation will be required to determine its value.
Wet Woodland	✓	-	An area of wet woodland and marshy grassland part of Boreham Road Gravel Pits LoWS (see **Table 4**) is present along the proposed cable route corridor.

4.4 Protected and Notable Species

Protected and notable species relevant or potentially relevant to Scheme

4.4.1 **Table 7** provides a summary of potentially relevant species identified through a combination of desk study and field survey. The table summarises the conservation status of each species and provides comment on the likelihood of presence.

4.4.2 Where species are identified in **Table 7** as likely or possible, they are likely to represent legislative constraints or may be material to determination of the Application. Further surveys are likely to be required to determine presence or probable absence (see Section 5).

Table 7: Protected and notable species relevant or potentially relevant to the Scheme

Species/Species Groups	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Aquatic Invertebrates	x	x	✓	?	✓	The data search returned no records of aquatic invertebrates. There are aquatic habitats present with the Order limits (e.g. field ponds and the River Ter) with potential to support notable aquatic invertebrate species and assemblages.
Badger **Meles meles**	✓	✓	-	✓	✓	The data search returned three records of Badger within 2 km of the Order limits. Several active Badger setts and other field signs of Badger activity were recorded within the Order limits during the PEA field surveys.
Bats	✓	✓	-	?	✓	The data search returned 20 bat records within 2 km of the Order limits including Brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), serotine (*Eptesicus serotinus*), Leisler's bat (*Nyctalus leisleri*), other unidentified bats including *Myotis* species, pipistrelle species and long eared species. The Order limits contained trees, woodlands and buildings which have the potential to support roosting bats. The habitat within the Order limits also provided connectivity and foraging resources for bats.
Breeding birds	✓	✓	✓	✓	✓	Records of 23 bird species either possible or confirmed breeding within the Order limits were returned by the data search. Of these 23 species three species are listed on WCA Schedule 1, comprising; barn owl (*Tyto alba)*, fieldfare (*Turdus pilaris*) and red kite (*Milvus milvus*). Habitats such as trees, hedgerows and arable fields present within the Order limits are likely to support nesting birds during the breeding

Species/Species Groups	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
						season, including those of conservation concern and associated with such habitats.
Brown Hare *Lepus europaeus*	x	✓	-	✓	✓	The data search returned two records of Brown Hare, within 2 km of the Order limits. They were also observed during field surveys and are likely to regularly use the Order limits.
Flora	✓	✓	✓	?	✓	The data search returned records of four Red List plants outside the Order limits: hoary plantain (*Plantago media*), lesser calamint (*Clinopodium calamintha*), corn mint (*Mentha arvensis*) and common cudweed (*Filago vulgaris*). There were desk study and field records of the WCA Schedule 8 species bluebell within the Order limits in woodlands and hedges. There were records during the field surveys of rare/scarce arable flora species of relevance to the Scheme.
Great crested newt (and other amphibians)	✓	✓	✓	?	✓	No records of great crested newt were returned by the data search within 2 km of the Order limits. However, the desk study has returned records of common toad (*Bufo bufo*) within 50 m of the Order limits, and records of smooth newt (*Lissotriton vulgaris*) over 1.5 km away. There are 27 ponds identified on the Order limits and others surrounding the Order limits of potential relevance to the Scheme for great crested newt and other amphibians.
Hazel Dormouse	✓	✓	✓	?	✓	No records of hazel dormouse within 2km of the Order limits. Reported outside the Order limits along the A12 at an unspecified location (>1km from Order limits) by Essex County Council (*pers.comm*). Some potential within and adjacent to the Scheme in suitable hedges and woodland.

Species/Species Groups	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Invasive Non-native Species (INNS)	x	x	✓	✓	✓	The data search returned records of American Mink *(Neovison vison),* Chinese muntjac (*Muntiacus reevesi*) and Japanese Knotweed (*Reynoutria japonica*) which were within 2 km of the Order limits. The River Ter provides suitable habitat for American Mink and muntjac were seen on the Order limits during field surveys. Spanish bluebells (*Hyacinthoides hispanica*) were recorded during the field survey in one location along the Order limits at T1 (see ***Figure 8-3*** of the ES **[EN010118/APP/6.3]**).
Otter **Lutra lutra**	✓	✓	-	x	✓	The data search returned 18 records of Otter within 2 km of the Order limits mostly observed along the River Ter. During the field survey the River Ter and adjacent wooded habitats and Boreham Brook were noted as a suitable habitat for Otter.
Polecat **Mustela putorius**	✓	✓	-	x	✓	The data search returned four records of Polecat within 2 km of the Order limits. There is some potential for Polecat to occur on site within hedges, field banks, woodlands and around ponds.
Reptiles	✓	✓	-	?	✓	The data search returned three records of common lizard (*Zootoca vivipara*) and slow worm *(Anguis fragilis*) within 2 km of the Order limits, and none within the Order limits. Reptile habitat was limited across the Order limits, but small pockets of habitat suitable for reptiles do exist comprising uncropped field margins, river banks, hedgerows and woodland edge habitats. As such reptiles are of potential relevance in relation to the Scheme.

Species/Species Groups	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Terrestrial Invertebrates	✓	✓	✓	?	✓	The data search returned records of two species of terrestrial invertebrates which are Schedule 5 Wildlife and Countryside act species and are UKBAP list species; Stag Beetle (*Lucanus cervus*) and White-Letter Hairstreak butterfly (*Satyrium w-album*). These are unlikely to be of relevance to the Order limits unless woodland is likely to be directly impacted.
Water Vole Arvicola amphibius	✓	✓		?	?	No desk study records within 2km of the Order limits. Most of the ponds unsuitable for Water Vole due to a lack of vegetation, drying and heavy shading. The River Ter runs through the north of the Order limits and has the potential to support Water Vole, although the presence of American Mink (which predates Water Vole) limits the suitability for water vole. Boreham Brook was noted as a suitable habitat for Water Vole.
West European Hedgehog Erinaceus europaeus	x	✓	-	?	✓	The data search returned ten records of hedgehog within 2 km of the Order limits. The habitats on site provided suitable foraging (e.g. arable margins, woodland) and shelter for this species (hedges and woodlands) and consideration of this species will be required.
Wintering (non-breeding) birds	✓	✓	✓	✓	✓	No records of wintering wildfowl or waders were recorded within the desk study area. There is only limited suitable habitat on site for wintering species such as small ponds, habitats along the River Ter and woodlands. There are some large fishing lakes and reservoirs immediately to the west of the Order limits with some suitable habitat. Some of the possible or confirmed breeding species within the Order limits are also likely to use the Order limits in winter, including three species listed on WCA Schedule 1; barn owl, fieldfare and red kite.

Key to symbols: ✓ = yes, x = no, ? = possibly, see Supporting Comments for further rationale.

Species present on Site are those for which recent direct observation or field signs confirmed presence. Species which are possibly present are those for which there is potentially suitable habitat based on the results of the Phase 1 Habitat survey, or this combined with desk study records.

Legally protected species are those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended); and, Schedules 2 and 4 of The Conservation of Habitat & Species Regulations 2018.

Species of Principal Importance as those listed under Section 41 of the NERC Act. Planning Authorities have a legal duty under Section 40 of the same Act to consider such species when determining planning applications.

Other notable species include native species of conservation concern listed in the LBAP (except species that are also of Principal Importance), those that are Nationally Rare, Scarce or Red Data List, and non-native controlled weed species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

5. Identification of Ecological Constraints and Recommendations

5.1 Approach to the Identification of Ecological Constraints

5.1.1 Relevant ecological receptors that may represent constraints to the Scheme, or that provide opportunities to deliver ecological enhancement in accordance with planning policy, are identified in Section 4.

5.1.2 The NPPF and local planning policy (summarised in Section 2 of this report) specify requirements for the protection of features of importance for biodiversity. Planning policy is a material consideration when determining planning applications.

5.1.3 Compliance with planning policy requires that the proposed development considers and engages the following mitigation hierarchy where there is potential for impacts on relevant ecological receptors:

a. Avoid features where possible;

b. Minimise impact by design, method of working or other measures (mitigation) e.g. by enhancing existing features; and

c. Compensate for significant residual impacts, e.g. by providing suitable habitats elsewhere (whether in the control of the client or otherwise legally enforceable through planning condition or Section 106 agreement).

5.1.4 This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. The rationale for the proposed mitigation and/or compensation should be provided with the DCO application, including sufficient detail to show that these measures are feasible and would be provided.

5.1.5 In pursuance of the objective within the NPPF of providing net gains in biodiversity where possible, consideration should be given to the scope for enhancement as part of the proposed development. This should represent biodiversity gain over and above that achieved through mitigation and compensation. Enhancement could be achieved on and/or off the Order limits.

5.1.6 The likelihood of the relevant ecological receptors constraining the Scheme has been assessed with reference to the scale described in **Table 8**. The higher the importance of the ecological receptor for the conservation of biodiversity at national and local scales, the more likely it is to be a material consideration during determination of the DCO application.

5.1.7 There may be scope for ecological enhancement where existing habitat features could be improved or enhanced within the Scheme as designed, or with only minor amendment to the design of the Scheme. Ecological enhancement may not be possible where there is little scope to accommodate enhancement within the Scheme, e.g. due to a lack of utilisable space, or where land is required for essential mitigation. Consideration could be given to enhancing biodiversity in the vicinity of the Order limits.

Table 8: Scale of constraint

Likelihood	Definition
High	An actual or potential constraint that is subject to relevant legal protection and is likely to be a material consideration in determining the planning application (e.g. statutory nature conservation designations and European/nationally protected species). Further survey likely to be required (as detailed in this report) to support a planning application.
Medium	An actual or potential constraint that is covered by national or local planning policy and, depending on the level of the potential impact as a result of the proposed development, may be a material consideration in determining the planning application. Further survey may be required (as detailed in this report) to support a planning application.
Low	Unlikely to be a constraint to development or require further survey prior to submission of a planning application. Mitigation is likely to be covered under Construction Environmental Management Plan (CEMP) or precautionary working method statement (e.g. generic requirements for the management of nesting bird risks).

5.2 Constraints and Requirements for Further Survey: Designations

Statutory Designations

5.2.1 The desk study identified six sites statutorily designated for their nature conservation value within the study areas set out in Section 3.1 and shown in **Table 3**.

5.2.2 The River Ter SSSI runs up to the western boundary of the Order limits and then a non-designated section flows though the northern part of the Order limits (see ***Figure 8-1*** of the ES **[EN010118/APP/6.3]**). The River Ter may to be impacted through changes to run-off, drainage during construction and operation. A small area of landtake adjacent to the River may be required for the cable route corridor. An assessment will need to be undertaken to understand the impact the Scheme will have on this SSSI.

5.2.3 The River Ter SSSI links to the Essex Estuaries SAC and Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and RAMSAR sites located 8.6km to the south east of the Order limits. Whilst direct impacts are unlikely due to the distance from Order limits, consideration of indirect impacts from run-off and changes in drainage is likely to be required.

5.2.4 Other sites (Blake's Wood & Lingwood Common SSSI, Woodham Walter Common SSSI and Cuckoo Wood LNR) are at least 4 km from the Order limits and lack connecting pathways. As such direct or indirect impacts to the other statutory designated sites identified are unlikely.

Non-statutory Designations

5.2.5 The desk study identified 31 non-statutory nature conservations designations within the study area set out in Section 3.1 of this report and shown in **Table 4** (see ***Figure 8-2*** of the ES **[EN010118/APP/6.3]**). These are all Local Wildlife Sites (LoWS), with one Boreham Road Gravel Pits LoWS within the Order limits. Hookley Wood, Brickhouse Wood, Sandy Wood, Scarlett's Wood,

Ringer's Wood, Toppinghoehall Wood, Porter's Woods, and Lost Wood are located adjacent to the Order limits, with six more LoWS within 500m of the Order limits; Fairsteadhall Wood, Chopping's Wood, Craigments Spring, Wade's Spring, St Mary the Virgin and Great Leighs. There may be direct impacts Boreham Road Gravel Pits LoWS and indirect impacts to others adjacent to the Scheme that will need to be assessed when details of the Scheme are developed. To assist with designing the layout of the Scheme suitable buffer zones should be put in place from these sites (minimum 20m).

5.2.6 Direct or indirect impacts to the other non-statutory designated sites identified in **Table 4** are unlikely due to the lack connecting pathways.

5.3 Constraints and Requirements for Further Survey: Habitats

5.3.1 Habitats within the Order limits, potentially affected by the Scheme are likely to be limited to Arable Field Margins, Rivers, and Standing Open Waters / Ponds as identified in **Table 9**. Rivers is represented by the River Ter SSSI and meets the criteria as a priority habitat. Further investigation of these habitats is required to determine their quality and extent and whether they meet the relevant criteria to qualify as suitable priority habitats. As such, further surveys are recommended to be undertaken across the Order limits to help determine this.

5.3.2 Planning policy requires that "*new developments in Essex will be expected to enhance existing biodiversity and to create new habitats, together with providing resources for the management of those habitats into the future. Good design can provide many opportunities for biodiversity and these should be maximised. Furthermore, all developments should ensure that networks of habitats are maintained to prevent fragmentation and isolation*" (source Essex Planning Officers Association (Ref 10). Further guidance on integrating green infrastructure and biodiversity into the Scheme will be provided to meet requirements under the NPPF and Local Planning Policy. This should include undertaking a Biodiversity Net Gain assessment when details of the Scheme have been developed.

5.4 Constraints and Requirements for Further Survey: Species

Aquatic Invertebrates

5.4.1 There are some aquatic habitats present with the Scheme with the potential to support notable aquatic invertebrate species and assemblages. These include the River Ter and numerous field ponds.

5.4.2 There are potential for direct and indirect impacts to these habitats. Further investigation of these watercourses will be required to determine the presence of notable aquatic invertebrate species and assemblages. Based on the revised Scheme, (September 2021) if Boreham Brook is impacted by the cable route then an aquatic invertebrate survey is recommended along relevant sections.

Badger

5.4.3 The field survey recorded active badger setts within the Order limits and latrines, snuffle holes and mammal paths (indicative of Badger activity).

5.4.4 Owing to legislative provisions under the Protection of Badger Act 1992, further surveys (following standard guidelines (Ref 11)) are required to determine the full extent of Badger presence across the Order limits and in the wider ZoI (up to 30m from the Order limits). The findings of these surveys will determine the potential constraints and whether mitigation and/or relevant licences are required to avoid impacts to badgers or their setts.

Bats

5.4.5 The data search returned bat records within 2km of the Order limits including Brown Long-Eared bat, Common Pipistrelle, Serotine, pipistrelle species (*Pipistrellus sp*.) and a long-eared species (a species of *Plecotus*). The Order limits contains trees (see examples in Target Notes in **Annex B – Target Notes and Photographs**), woodlands and buildings which have the potential to support roosting bats. Habitats such as woodlands, field margins and hedges provide connectivity and foraging resources for wide variety of bat species. The Scheme could have an adverse effect on bat species both in terms of loss of roost sites (where this cannot be avoided) and connectivity, commuting and foraging habitat. Therefore, further surveys to determine the presence of potential roost features and surveys of bat activity, in line with current best practice guidelines (Ref 12) will be required. If key bat flight lines are identified, these should be retained or mitigated for (if lost). Buffer zones around roosts or potential roosts is also recommended (>15m from the roost feature).

Breeding Birds

5.4.6 Records of 23 bird species either possible or confirmed breeding within 2km of the Order limits were returned by the data search. Of these 23 species, three are listed on WCA Schedule 1, were returned by the data search within the Order limits; barn owl, fieldfare and red kite.

5.4.7 Habitats occurring within the Order limits are likely to support nesting birds during the breeding season, including those of conservation concern and associated with such habitats.

5.4.8 The Scheme has the potential to result in the direct loss of habitat used by protected and notable bird species. Further surveys of the general breeding bird assemblage, including targeted surveys for barn owl and other Schedule 1 species, are required across the Scheme to determine the requirement for appropriate avoidance measures, mitigation and habitat compensation. In general, any pre-construction groundworks/ site investigations and site clearance work should seek to avoid the breeding bird season (the breeding season is defined as March to August inclusive) or have measures in places to avoid disturbance of active nests/breeding sites during this breeding season.

Flora

5.4.9 Some habitats within the Order limits have the potential to support notable flora species, such as those associated arable field margins and wetlands. Further investigation of these habitats is required to determine the presence of notable plant species. As such, further Phase 2 botanical surveys should be undertaken across the Order limits to identify species and any areas of notable flora communities.

Great Crested Newt

5.4.10 The desk study identified 27 waterbodies within the Order limits and others within 500m of the Order limits (the maximum distance normally considered for great crested newt). No Great Crested Newt records were found within 2 km.

5.4.11 Further investigation of waterbodies is required within or close to the Order limits where potential impacts are likely as a result of the Scheme in relation to Great Crested Newt and other amphibians. In the first instance, a Habitat Suitability Index (HSI) assessment should be undertaken to categorise the suitability of the waterbodies for Great Crested Newt. Given, the general absence of known records of Great Crested Newt within 2km it is recommended that surveys are undertaken of the identified waterbodies potentially impacted by the Scheme to determine presence or absence. If presence is confirmed, then surveys will be undertaken to determine the size of the population present.

Hazel Dormouse

5.4.12 No Hazel Dormouse records were found in the desk study within 2km of the Order limits. The species has been reported outside the Order limits along the A12 at an unspecified location (>1km from Order limits) by Essex County Council (*pers.comm*).

5.4.13 Any potentially important habitats (i.e. woodland and mature hedges) are unlikely to be impacted by the Scheme and would be suitably buffered to avoid impacts to this Hazel Dormouse, therefore detailed surveys for this species are unlikely to be required.

Invasive Non-native Species

5.4.14 The data search returned records of American Mink, Chinese Muntjac and Japanese Knotweed which are within 2km from the Order limits. None were recorded within the Order limits although, the River Ter provides suitable habitat for American Mink and Chinese Muntjac have been seen on the Order limits during field survey. During the survey Spanish Bluebell was recorded on the Order limits boundary along a hedge and outside the likely extent of the Scheme and therefore unlikely to require further consideration. During construction and potentially operation, biosecurity measures will need to be put in place to prevent the spread of invasive plant species to and from the Order limits, particularly in relation to any imported aggregate for access tracks and from offsite plant bring in seed or propagules of invasive species.

Otter

5.4.15 The data search returned records of Otter within 2km of the Order limits along the River Ter. There were no signs of Otter associated with the ponds and ditches on the Order limits and they would appear mostly unsuitable for Otter due to a lack of vegetation and food (e.g. fish). The River Ter runs through the north of the Order limits and Boreham Brook to the south have the potential to support Otter.

5.4.16 If Otter is present, the Scheme may impact this species through direct and indirect impacts to their holts or resting sites and/or foraging habitat (e.g. potential habitat loss, changes in water level/quality). To assess the potential

impacts to Otter a presence/absence survey is required along the River Ter. This should be extended to a minimum of 200m from the Order limits along the River Ter and any tributaries. Based on the revised Scheme, (September 2021) if Boreham Brook is impacted by the cable route then an otter survey is also required at this location.

Reptiles

5.4.17 The data search returned three records of both common lizard and slow-worm within 2km of the Order limits. Some limited habitat potentially suitable to support reptiles was recorded on the Order limits, such as field margins, tall herb/grassland vegetation along hedges and alongside relevant sections of the River Ter. Therefore, further surveys, following standard guidelines (Ref 13), are recommended to determine the presence or absence of reptiles. Depending on the outcomes of these surveys, mitigation may be required to avoid injuring or harming reptiles during construction.

Water vole

5.4.18 The data search returned no records of Water Vole within 2km of the Order limits. Most of the ponds would appear unsuitable for Water Vole due to a lack of vegetation from heavy shading. The River Ter runs through the north of the Order limits and has the potential to support Water Vole, although the presence of American Mink (which predates Water Vole) limits the suitability for water vole.

5.4.19 If Water Vole is present, the Scheme may impact this species, through direct and indirect impacts to their burrows and/or foraging habitat (e.g. potential habitat loss, changes in water level/quality). To assess the potential impacts to Water Vole a presence/absence survey is required along the River Ter and any other suitable wetlands on Order limits. This should be extended to a minimum of 100 m from the Order limits along the River Ter and any tributaries. Based on the revised Scheme, (September 2021) if Boreham Brook is impacted by the cable route then a water vole survey is also required at this location.

Wintering (non-breeding) birds

5.4.20 Whilst there are no records of wintering wildfowl or waders were recorded within the desk study area there is some suitable habitat within the Order limits for wintering species such as small ponds, habitats along the River Ter and woodlands. The large fishing lakes and reservoirs immediately to the west of the Order limits contain some suitable habitat and birds from these areas may use the Order limits. Some of the possible or confirmed breeding species within the Order limits are also likely to use the Order limits in winter, including three species listed on WCA Schedule 1; barn owl, fieldfare and red kite. Surveys are required to determine the non- breeding (wintering) bird assemblage across the Order limits.

Terrestrial Invertebrates

5.4.21 The Order limits comprise habitats that may support protected and notable terrestrial invertebrates or invertebrate communities, identified as being present within the wider zone of Influence during the desk study. Based on the habitats and species recorded during the desk study, any potentially important habitats (i.e. woodland) are unlikely to be impacted by the Scheme

and would be suitably buffered to avoid impacts to invertebrates, therefore detailed surveys for terrestrial invertebrates are unlikely to be required.

Other NERC Act species

5.4.22 Records of Brown Hare, Hedgehog, Polecat and common toad were received during the data search and these species are likely to be present within the Order limits. Common toad was observed close to the River Ter, and Brown Hare was also regularly observed within arable areas during the field surveys. These species receive limited legal protection but are Species of Principal Importance on Section 41 of the NERC Act. As such, precautions are recommended to ensure they are not harmed during construction through a Construction Environmental Management Plan (CEMP) or precautionary working method statement.

5.4.23 Additional species/habitat surveys may be required following further surveys, consultation and development of the Scheme. This may include detailed bat roost presence/absence surveys, hedgerow survey and terrestrial invertebrate survey where habitat features cannot be avoided by the Scheme.

6. Conclusions

6.1.1 Overall, the PEA identified notable habitats and species constraints as detailed in Sections 5.3 and 5.4.

6.1.2 A summary appraisal of ecological constraints and the recommended further requirements can be found in **Table 9** below.

6.1.3 The outlined constraints will need to be reassessed when the exact design and layout of the Scheme have been determined, when further surveys have been undertaken or if there are any significant changes in the use or management of the land that would affect the habitats and species.

6.1.4 If a DCO application is made two years or more after the PEA reported here, it is advisable to review and update the survey data (i.e., after September 2023).

Table 9: Summary appraisal of features of ecological constraints and recommended further requirements

Receptor	Scale of constraint	Further Requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before planning	Pre-construction onwards
Aquatic Invertebrates	Medium to High	A scoping assessment of any aquatic habitats potentially directly or indirectly affected by the Scheme. This will include an assessment of the potential for aquatic habitats to support protected/notable invertebrate species. More detailed surveys of selected field ponds and the River Ter are likely to be required and will be determined following the scoping survey. If Boreham Brook is impacted by the cable route then aquatic invertebrate surveys may also be required in this location.	Initially one survey visit followed by targeted species surveys.	May to October	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	x
Badger	High	Survey to record all evidence of Badger activity across the Scheme to identify setts to avoid or that require mitigation. Watching brief and updates during construction period.	One survey visit.	Any time of year, preferably when vegetation low.	Protection of Badgers Act 1992	✓	✓	✓
Bats	High	Surveys to identify potential features on trees and buildings that may support bat roosts. (Depending on the findings of this survey and risk to these features, further surveys may be required to determine whether bats are present). Watching brief and update surveys maybe required during construction period.	One survey visit, to undertake preliminary roost feature assessment across the Scheme. Activity survey required once per	April to October	Habitat Regulations 2017 (as amended), WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓

Receptor	Scale of constraint	Further Requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before planning	Pre-construction onwards
		Transect surveys and deployment of static detectors to identify important areas within the Site used by commuting and foraging bats.	season (spring, summer, autumn).					
Breeding birds	High	Surveys required to determine the breeding bird assemblage across the Scheme, including species listed on WCA Sch. 1. Watching brief and update surveys maybe required during construction period.	Six survey visits for a territory mapping survey.	April to August.	Birds Directive, WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	✓
Great Crested Newt	High	Undertake Habitat Suitability Index (HSI) assessment of all waterbodies within 500 m (where accessible) for their suitability to support Great Crested Newt. Following these surveys to determine presence or absence of Great Crested Newt within suitable waterbodies (either by eDNA or four survey visits at night) potentially impacted by the Scheme. Depending on the outcomes of these surveys further surveys are required to determine the population size and evidence of breeding may be required).	One survey visit, for HSI assessment, followed by presence/ absence survey (eDNA or 4 survey visits) and then up to a total of 6 survey visits for population survey.	March to June	Habitat Regulations (2017), WCA 1981, NERC Act 2006, UKBAP, LBAP	✓	✓	x
Flora	Medium	A Phase 2 botanical survey and arable flora survey to identify the presence and extent of any potential notable habitats and protected/notable plant species. The surveys will focus on potential	Two survey visits	May to August	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	x

Receptor	Scale of constraint	Further Requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before planning	Pre-construction onwards
		priority habitat within the Site that will be affected by Scheme. Arable flora surveys will involve walking field boundaries and scoring target species to determine the value of the arable field margins.						
Invasive non-native flora species	Medium	Update survey for invasive non-native flora species based on the layout of the Scheme.	One survey visit	April to September (April to June for bluebell)	WCA 1981 Invasive Alien species Order 2019	x	x	✓
Otter	High	Survey of the River Ter to identify natal dens and resting sites and other signs of otter. If Boreham Brook is impacted by the cable route then an otter survey is required here.	Minimum two surveys up to 200 m upstream and downstream of the Scheme	Spring and winter	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	x
Reptiles	High	Surveys to identify the presence or absence of reptile species across suitable habitats within the Site.	One survey visit, to place the reptile refugia followed by seven survey visits to check for reptiles.	April to June and / or Sept to October.	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	x
Water Vole	High	Survey of the River Ter to identify burrows and signs of activity. If Boreham Brook is impacted by the cable route then a water vole survey is required here.	Two surveys up to 100 m of the Scheme	April to September	WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	x

Receptor	Scale of constraint	Further Requirements	Number of survey visits required	Survey period	Driver	When is action likely to be required?		
						To inform design	Before planning	Pre-construction onwards
Wintering (non-breeding) birds	High	Surveys required to determine the non- breeding (wintering) bird assemblage across the Site. Watching brief and update surveys maybe required during construction period.	Six survey visits.	October to March.	Birds Directive, WCA 1981, LBAP, UKBAP, NERC Act 2006	✓	✓	x
Other species: Hedgehog, Brown Hare, Polecat, common toad	Low	No further survey required, but mitigation and enhancement delivered as part of the Scheme should look to avoid disturbance to these species, retain habitats and ensure that connectivity is maintained throughout the Site and into the wider area. All species are likely to benefit from a reduction in intensively managed agricultural land and habitat enhancement.	N/A	N/A	NERC Act 2006	x	x	✓

7. References

Ref 1 CIEEM (2017). Guidelines for preliminary ecological appraisal.
Ref 2 BRITISH STANDARDS INSTITUTION (2013). BSI standards publication 42020:2013. Biodiversity – Code of practive for planning and development.
Ref 3 NATURAL ENGLAND (2014) NE515: NCA Profile: 86 South Suffolk and North Essex Clayland.
Ref 4 CHELMSFORD LOCAL PLAN (2020)
Ref 5 BRAINTREE DISTRICT COUNCIL LOCAL DEVELOPMENT PLAN
Ref 6 ESSEX FIELD CLUB. ESSEX BIODIVERSITY ACTION PLAN.
Ref 7 JOINT NATURE CONSERVATION COMMITTEE (2010). Handbook for Phase 1 Habitat Survey – A technique for environmental audit. JNCC, Peterborough.
Ref 8 JNCC.
Ref 9 MADDOCK, A. (2010) UK Biodiversity Action Plan Priority Habitat Descriptions. JNCC, Peterborough.
Ref 10 ESSEX PLANNING OFFICERS ASSOCIATION.
Ref 11 MAMMAL SOCIETY (2016).
Ref 12 COLLONS, J. (ED.) (2016). Bat surveys for professional ecologists good practice guidelines 3rd Edition. The Bat Conservation Trust, London.
Ref 13 GENT, T AND GIBSON, S., (2003). Herpetofauna Workers Manual. JNCC, Peterborough.

8. Annexes

8.1 Annex A – Legislation and Planning

The Conservation of Habitats & Species Regulations 2017 (as amended)

8.1.1 The Habitats Regulations consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. The Regulations came into force on 30th October 1994. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

8.1.2 The Regulations provide for the designation and protection of 'European Sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

8.1.3 Under the Regulations, competent authorities i.e., any Minister, Government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive.

8.1.4 The Regulations place a duty on the Secretary of State to propose a list of Sites which are important for either habitats or species (listed in Annexes I and II of the Habitats Directive respectively) to the European Commission. Once the Commission and EU Member States have agreed that the Sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs). The EU Member States must then designate these Sites as Special Areas of Conservation (SACs) within six years. The Regulations also require the compilation and maintenance of a register of European Sites, to include SACs and Special Protection Areas (SPAs) classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These Sites form a network termed Natura 2000.

8.1.5 The Regulations enable the country agencies to enter into management agreements on land within or adjacent to a European Site, in order to secure its conservation. If the agency is unable to conclude such an agreement, or if an agreement is breached, it may acquire the interest in the land compulsorily. The agency may also use its powers to make byelaws to protect European Sites. The Regulations also provide for the control of potentially damaging operations, whereby consent from the country agency may only be granted once it has been shown through Appropriate Assessment that the proposed operation will not adversely affect the integrity of the Site. When considering potentially damaging operations, the country agencies apply the precautionary principle' i.e. consent cannot be given unless it is ascertained that there will be no adverse effect on the integrity of the Site.

8.1.6 In instances where damage could occur, the appropriate Minister may, if necessary, make special nature conservation orders, prohibiting any person

from carrying out the operation. However, an operation may proceed where it is or forms part of a plan or project with no alternative solutions, which must be carried out for reasons of overriding public interest. In such instances the Secretary of State must secure compensation to ensure the overall integrity of the Natura 2000 system. The country agencies are required to review consents previously granted under the Wildlife and Countryside Act 1981 for land within a European Site, and may modify or withdraw those that are incompatible with the conservation objectives of the Site.

8.1.7 The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

8.1.8 The Regulations make special provisions for the protection of European marine Sites, requiring the country agencies to advise other authorities of the conservation objectives for a Site, and also of the operations which may affect its integrity. The Regulations also enable the establishment of management schemes and byelaws by the relevant authorities and country agencies respectively, for the management and protection of European marine Sites.

Wildlife and Countryside Act 1981 (as amended)

8.1.9 The Wildlife and Countryside Act 1981 is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:

a. The Convention on the Conservation of European Wildlife and Natural Habitats (‘the Bern Convention’); and The Council Directive 79/409/EEC on the Conservation of Wild birds (the ‘Bird Directive’)

Wild Birds

8.1.10 The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

a. kill, injure, or take any wild bird,

b. take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or

c. take or destroy an egg of any wild bird.

8.1.11 Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring,

or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Other Animals

8.1.12 The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Flora, Fungi and Lichens

8.1.13 The Act makes it an offence (subject to exceptions) to intentionally) pick, uproot or destroy:

a. any wild plant listed in Schedule 8, or

b. unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,

c. to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native Species

8.1.14 The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

Countryside and Rights of Way (CRoW) Act 2000

8.1.15 The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.

8.1.16 The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

8.1.17 Schedule 9 of the Act amends the SSSI provisions of the Wildlife and Countryside Act 1981, including increased powers for their protection and management of SSSIs. The provisions extend powers for entering into management agreements; place a duty on public bodies to further the conservation and enhancement of SSSIs; increase penalties on conviction where the provisions are breached; and include an offence whereby third parties can be convicted for damaging SSSIs.

8.1.18 Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', include an offence of reckless disturbance, confer greater powers to police and wildlife inspectors

for entering premises and obtaining wildlife tissue samples for DNA analysis, and enable heavier penalties on conviction of wildlife offences.

Natural Environment and Rural Communities (NERC) Act 2006

8.1.19 The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act required the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list was drawn up in consultation with Natural England, as required by the Act.

8.1.20 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.

8.1.21 Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the (now withdrawn) UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and subtidal sands and gravels.

8.1.22 There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the (now withdrawn) UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.

Invasive Alien Species (Permitting and Enforcement) Order 2019

8.1.23 The Invasive Alien Species (Enforcement and Permitting) Order 2019 came into effect on 1st December 2019. This allows for the enforcement of the EU Invasive Alien Species Regulation 1143/2014 on the prevention and management of invasive alien plant and animal species in England and Wales, including the relevant licenses, permits and rules for keeping invasive alien species.

8.1.24 If it is not a species of EU concern, then the Wildlife & Countryside Act (WAC; Section 14, Schedule 9) still applies.

8.1.25 The IAS Regulation lists species of concern which cannot be imported, kept, bred / grown, transported, sold, used, allowed to reproduce, or released into the environment. There are currently 49 species listed, which can be found in the Annex of Regulation (EU) No. 2016/1141 adopting a list of invasive alien species of Union concern pursuant to Regulation (EU) No 1143/2014. Unless species are being moved for the purpose of eradication, then a licence would be needed from Natural England to carry this action out. The Order also makes it an offence to: import, keep, breed, place on the market, exchange, allow to grow, cultivate or permit to reproduce and, finally, release into the environment a listed species.

8.1.26 This Order applies to England and Wales and the UK's offshore marine area. It also applies to controls on imports and exports from the UK. The civil penalties available via this Order are not relevant to Scotland and Northern Ireland.

Offences and penalties

8.1.27 Criminal offences are introduced for breaches of the main restrictions of The IAS Regulation, as well as offences relating to:

a. false statements;
b. altering, or not meeting, the conditions of permits and licences;
c. attempts to commit offences;
d. obstruction; and
e. offences for companies and partnerships.

8.1.28 It is also an offence to:

a. Allow the escape or release into the wild an animal that is not normally a resident or regular visitor to Great Britain, or an animal listed in Part 1 of Schedule 2, including species of crabs, ducks and squirrel.
b. Plant, or allow to grow in the wild, plants listed in Part 2 of Schedule 2.

8.1.29 Sell, or be involved in the sale of, any plant listed in Part 3 of Schedule 2, including Water Primrose and Floating Pennywort.

8.1.30 Each member state is also required to implement Management Measures to enable the Control, Containment and Eradication of those species identified as being widely spread in England and Wales – Japanese knotweed is not included (not designated as a Species of Concern within the EU IAS Regulation). Plant species included under Management Measures are:

a. Nuttall's waterweed (*Elodea nuttallii*)
b. Chilean rhubarb (*Gunnera tinctoria*)
c. Giant hogweed (Heracleum mantegazzianum)
d. Floating pennywort (Hydrocotyle ranunculoides)
e. Himalayan balsam (Impatiens glandulifera)
f. Curly waterweed (*Lagarosiphon major*)
g. American skunk cabbage (*Lysichiton americanus*)
h. Parrot's feather (Myriophyllum aquaticum)

8.1.31 Otherwise, 'Species of Concern' not included above but which are known to be present in the UK (e.g. Tree of heaven, Persian Hogweed), will be dealt with under 'Rapid eradication' permits.

8.1.32 The government considers that the prohibitions set out in the Order should be treated as seriously as those for the Wildlife and Countryside Act 1981: The maximum penalty upon summary conviction is 6 months imprisonment, a fine or both and the maximum penalty for conviction on indictment, is imprisonment for a term not exceeding two years, a fine or both.

Protection of Badgers Act 1992

8.1.33 Badgers and their setts (burrows) are protected under the Act. This makes it an offence to kill or take a badger, to cruelly ill-treat a badger, or to interfere with a badger sett, including disturbing a badger while it is occupying a sett.

8.1.34 Licences to permit otherwise prohibited actions can be granted under section 10 of the Act for various purposes. This includes licences to interfere with a badger sett for the purpose of development as defined by section 55(1) of the Town and Country Planning Act 1990.

8.1.35 Licences may be granted in order to close down setts, or parts of setts, prior to development or to permit activities close to a badger sett that might result in disturbance. A licence will be required if a sett is likely to be damaged or destroyed in the course of development or if the badger(s) occupying the sett will be disturbed.

8.1.36 Licences can be applied for at any time, but a licence for development will not normally be issued unless full planning permission has been granted. The closure of setts under licence is normally only permitted during July to November, inclusive.

The Hedgerow Regulations 1997

8.1.37 The intention of the Act is to protect important countryside hedges from destruction or damage. The Act does not apply where planning permission has been granted. There are various other exemptions under the Act, including:

8.1.38 To make a new opening in substitution for an existing one that gives access to land. For example, a gate. However, the old opening must be filled in within 8 months;

8.1.39 To obtain access to land where other means are not available or are only available at disproportionate cost;

8.1.40 For the proper management of the hedgerow. This means real management, such as coppicing. But if the hedgerow is deliberately 'over-managed' this might qualify as removal.

8.1.41 If the proposed works are not exempt or subject to a current planning permission, then the landowner must serve a Hedgerow Removal Notice in writing on their local planning authority. The authority then has 42 days (which period can be extended if the applicant agrees) to determine whether or not the hedge is considered 'important' under the regulations, and if so, whether or not to issue a Hedgerow Retention Notice. The local authority does not have to issue a Retention Notice, even if the hedgerow counts as important. If they do not issue a notice for an important hedge this is often on condition that certain things are done, e.g. reinstatement or replanting to a certain standard, or creation of an equivalent boundary elsewhere.

Water Framework Directive (WFD) 2017

8.1.42 The Water Framework Directive (WFD) (2000/60/EC) introduced a comprehensive river basin management planning system to help protect and improve the ecological health of our rivers, lakes, estuaries and coastal and groundwaters. This is underpinned by the use of environmental standards to

help assess risks to the ecological quality of the water environment and to identify the scale of improvements that would be needed to bring waters under pressure back into a good condition.

National Planning Policy Framework

8.1.43 The latest version of the NPPF was published in February 2019 and updated in July 2021, relevant sections are as follows:

8.1.44 Section 15 of the NPPF relates specifically to 'Conserving and Enhancing the Natural Environment'. Paragraph 170 states that '*Planning policies and decision should contribute to and enhance the natural and local environment by:*

a. protecting and enhancing valued landscapes, Sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b. recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c. maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d. minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e. preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f. remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'

8.1.45 Paragraph 171 states that 'Plans should: distinguish between the hierarchy of international, national and locally designated Sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'

8.1.46 Paragraph 174 states that 'To protect and enhance biodiversity and geodiversity, plans should:

a. Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated Sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

b. promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity. ‘

8.1.47 Paragraph 175 states that ‘When determining planning application, local planning authorities should apply the following principles:

a. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative Site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the Site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c. development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.’

8.1.48 Paragraph 176 states that ‘The following should be given the same protection as habitats Sites:

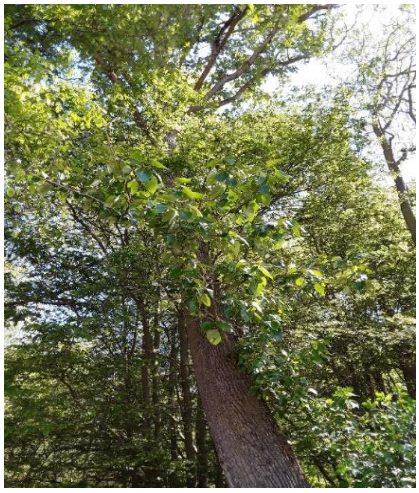
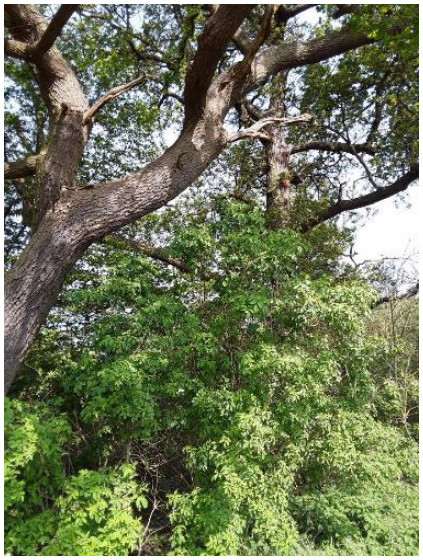
a. potential Special Protection Areas and possible Special Areas of Conservation;

b. listed or proposed Ramsar Sites; and

c. Sites identified, or required, as compensatory measures for adverse effects on habitats Sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar Sites’.

8.1.49 Paragraph 177 states that ‘The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.’

8.2 Annex B – Target Notes and Photographs

Target Notes	Description	Photo
1	Spanish Bluebells (*Hyacinthoides hispanica*) in boundary hedge adjacent to Order limits	n/a
2	Habitats along the River Ter comprise ng riverside vegetation on north side; alder, hazel, white willow, hop, and field maple Scrub and trees along northern edge of stream; ransoms, elm, hazel, hawthorn, ash, alder, common nettle, and creeping thistle. Suitable habitat for water vole, otter and aquatic invertebrates.	 
3	Three mature oaks with bat roost suitability	

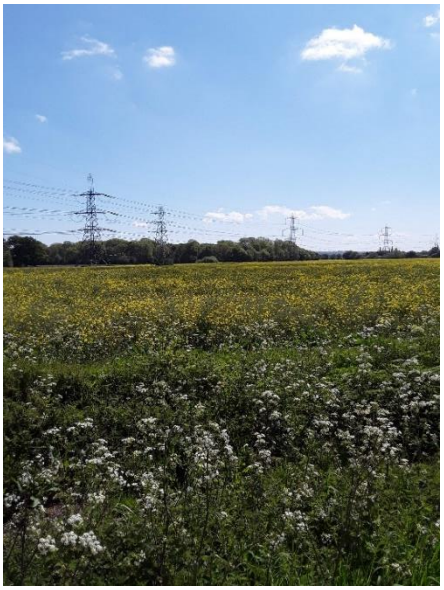
Target Notes	Description	Photo
4	Dead trees close to the River Ter with bat roost suitability	
5	Mature oak tree with bat roost suitability	
6	Dead tree bat roost suitability	

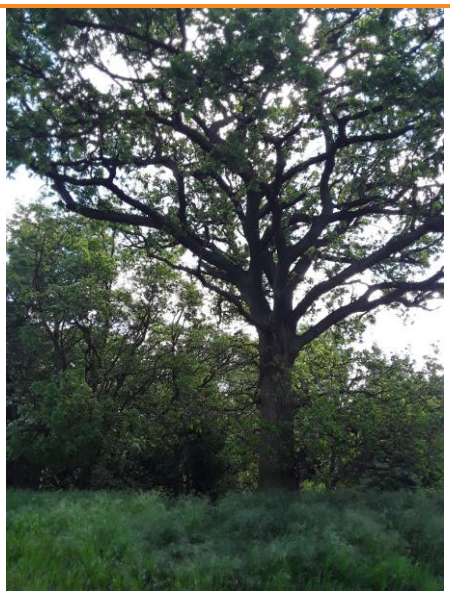
Target Notes	Description	Photo
7	Mature ash tree, double branch split and two northeast facing woodpecker holes with bat roost suitability.	
8	Location of wild service trees an uncommon tree species.	
9	Marshy grassland with soft rush, Yorkshire fog, water mint, creeping buttercup and common nettle. Adjacent shallow stream (Boreham Brook).	

Target Notes	Description	Photo
		
10	Example of a species rich hedge with trees. Species include blackthorn, common hawthorn, elder, elm, hazel, field maple and oak. Adjacent to a PRoW	
11	Boreham Brook along cable route, shallow water overgrown with nettle and great willowherb with scattered mature willow.	

Target Notes	Description	Photo
		

Other Photographs

Photo 1	Illustrative photograph of arable field with tall ruderal herb edge habitats.	

Target Notes	Description	Photo
Photo 2	Illustrative photograph of broad leaved woodland surrounding a shaded pond.	
Photo 3	Illustrative photograph of a typical arable margin and hedge boundary.