

Marling Cross

Preliminary Ecological Appraisal

Highways England

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Gravesham Borough Council

Quality information

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Executive Summary

An extended Phase 1 Habitat Survey of the Marling Cross Site was undertaken by an AECOM ecologist on the 27th February 2019. This Site is 0.25ha in area and is proposed for the construction of a temporary site compound to support the Lower Thames Crossing ground investigation works. The survey involved the identification, characterisation and mapping of the broad habitat types that were present on the Site, as well as their potential to support any legally protected or other notable species including scheduled invasive non-native species. Additionally a desk study was undertaken to collate data on notable flora, fauna and designated nature conservation areas in the vicinity of the Site.

The results of the extended Phase 1 Habitat Survey along with the desk study indicate that there are no significant constraints to the Proposed Development.

The Site is of low value to biodiversity due to the fact that it is a large section of tarmac hardstanding surrounded by improved grassland and patches of secondary woodland. The Proposed Development is not due to encroach on the surrounding grassland and woodland and so there are no constraints with regards to protected species or habitats.

It has been proposed that some sections of the surrounding vegetation may need to be cleared. As this vegetation has the potential to support nesting birds it is recommended that an ecologist conducts a nesting bird check immediately prior to the vegetation clearance taking place.

The Thames Estuary Ramsar and SPA is situated approximately 3.5 km north-east of the Site. This site of importance for nature conservation (SINC) is not a constraint to the Proposed Development as the temporary and small scale nature of the works means that no significant noise or light pollution produced by the site compound will reach, or have any negative effects on the Ramsar site. There are no other SINC's that could be adversely affected by the Proposed Development.

1. Introduction

1.1 Introduction

AECOM was instructed by Highways England to carry out a Preliminary Ecological Appraisal (PEA) of the Marling Cross Site, Hever Court Road, Gravesend (hereafter referred to as 'the Site'). The central grid reference for the Site is TQ 66100 70520 and the boundary of the Site is shown on Figure 1. The Site is 0.25ha in area and is proposed to be used as a temporary site compound for use in relation for the Lower Thames Crossing Ground Investigation works taking place in the landscape around the compound (hereafter referred to as the 'Proposed Development').

1.2 Purpose

This PEA was commissioned to identify whether there are known or potential ecological receptors (sites designated for their nature conservation value and, or protected and notable habitats and species including scheduled invasive non-native species) that may constrain or influence the design and implementation of the Proposed Development. The approach applied when undertaking this PEA accorded with *the Guidelines for Preliminary Ecological Appraisal* published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017). The PEA addressed relevant wildlife legislation and planning policy as summarized in Section 2 of this report, and was consistent with the requirements of *British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development*.

In order to deliver the PEA, a desk study and an Extended Phase 1 Habitat Survey were undertaken by an appropriately experienced ecologist to identify ecological features within the Site and the wider potential zone of influence (2 km) of the Proposed Development. The Site was considered as the area within the boundary shown on Figure 1. Additional details are provided in Section 3: Methods.

The purpose of the PEA was to:

- identify and categorise all habitats present within the Site and any areas immediately outside of the Site where there may be potential for direct or indirect effects (the “zone of influence”);
- carry out an appraisal of the potential of the habitats recorded to support protected or notable species of fauna and flora, including any invasive non-native species;
- provide advice on any potential ecological constraints and opportunities in the zone of influence, including the identification (where relevant) of any requirements for follow-up habitat and species surveys and/or requirements for ecological mitigation and, where appropriate, opportunities for enhancement; and
- provide a map showing the location of the identified ecological receptors of relevance.

The purpose of this report is to provide a high level appraisal of the ecological risks and opportunities associated with the Proposed Development. The report identifies the scope of further work (where necessary) that would be required. High level recommendations are made on potential options for the avoidance, mitigation or compensation of the potential impacts of the Proposed Development (where known) on the identified ecological receptors, and of potential enhancements to the biodiversity and ecosystem services.

1.3 Quality Assurance

All AECOM ecologists follow the Chartered Institute of Ecology and Environmental Management (CIEEM) code of professional conduct when undertaking ecological work and many are Full Members. They are appropriately qualified and will conduct their work using all reasonable skill and care. Many senior AECOM ecologists are also Chartered Environmentalists or Ecologists. All staff members are committed to maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OH SAS 18001:2007.

2. Wildlife legislation and planning policy

2.1 Wildlife Legislation

The following wildlife legislation is potentially relevant to the Proposed Development:

- Wildlife and Countryside Act (WCA) 1981 (as amended)
- Countryside and Rights of Way (CROW) Act 2000
- Natural Environment and Rural Communities (NERC) Act 2006
- The Conservation of Habitats & Species Regulations 2017 (as amended) (the Habitats Regulations)

The above legislation has been considered when planning and undertaking this PEA using the methods described in Section 3, when identifying potential constraints to the Proposed Development, 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 Proposed Development.

Further information on the requirements of the above legislation is provided as Appendix 2.

2.2 National Planning Policy

The National Planning Policy Framework (NPPF) was originally published on 27th March 2012 and detailed the Government's planning policies for England and how these are expected to be applied. The NPPF was then revised on the 24th July 2018 and again on the 19th February 2019.

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.

The NPPF is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution.

Further information on the relevant parts of the NPPF is provided as Appendix 2.

2.3 Local Planning Policy

Relevant local planning policies for Gravesham Borough Council are detailed in the Gravesham Local Plan Core Strategy (Sep, 2014). Table 1 provides a summary of relevant local planning policy. For the precise wording of the specific policy, please refer back 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
Gravesham Local Plan Core Strategy (Sep, 2014)	CS12: Green Infrastructure	All sites designated for their biodiversity value will be protected. There will be no net loss of biodiversity across the borough and any opportunities to enhance, restore, re-create or

maintain habitats will be sought.

Negative impacts to protected species will only be allowed where the importance of the development is determined to outweigh its biodiversity impact, and in this case compensatory provision will be required.

3. Methods

3.1 Desk Study

A desk study was carried out to identify any sites designated for their nature conservation value and any protected and notable habitats and species that are potentially relevant to the Proposed Development, including invasive non-native species. Ecological data were supplied by Kent Medway Biological Records Centre on the 20th February 2019.

A stratified approach was taken when defining the desk study area, based on the likely zone of influence of the Proposed Development 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 5km of the site boundary; other statutory nature conservation designations within 2 km of the Site boundary; local non-statutory nature conservation designations within 1 km of the site boundary; bat records from within 5 km of the site boundary; and bird records from within 2 km of the site boundary (this was the finest resolution of data that could be provided by Kent Medway Biological Records Centre).

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 5 of the Conservation of Species and Habitats Regulations (2017); species and habitats of principal importance for nature conservation in England listed under Section 41 (s41) of the NERC Act; other species that are Nationally Rare, Nationally Scarce, listed in national or local Red Data Lists and Biodiversity Action Plans; or invasive non-native species listed on the WCA Schedule 9 and/or the EU Invasive Alien Species Regulation 2014.

Table 2: Desk Study Data Sources

Data Source	Accessed	Data Obtained
Multi-Agency Geographic Information for the Countryside (MAGIC) website	February 2019	International statutory designations within 5km National designations within 2km Ancient woodlands and notable habitats within 1 km
Kent Medway Biological Records Centre (KMBRC)	February 2018	Non-statutory designations within 1 km Records of bats from within 5 km (records for the last 10 years only) Records of birds from within 2km (records for the last 10 years only)
Ordnance Survey 1:25,000 Pathfinder maps and aerial photography	February 2019	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

3.2 Field Survey

The field survey comprised a Phase 1 Habitat survey and an appraisal was made of the potential suitability of the habitats present to support protected and notable species.

3.3 Phase 1 Habitat Survey

The Phase 1 Habitat survey was undertaken in accordance with the standard survey methodology (Joint Nature Conservation Committee, 2010). Phase 1 Habitat survey is a standard method of environmental audit. It involves categorising different habitat types and habitat features within a survey area. The information gained from the survey can be used to determine the likely ecological value of a site, and to direct any more specific survey work which may need to be carried out prior to the commencement of works. The standard Phase 1 Habitat survey, method can be “extended” to record target notes on protected, notable and invasive species.

The survey was undertaken on 27th February 2019 by a suitably qualified AECOM ecologist who recorded and mapped all habitat types present within the survey area, along with any associated relevant ecological receptors

observed. The survey area encompassed all safely accessible parts of the Site and adjacent habitats to a maximum distance of 20m, where access permission had been granted in advance of the survey, or this land was visible from within the site boundary or from public rights of way, or other publicly accessible areas.

Where relevant ecological receptors were present, target notes (Appendix 3) were recorded and the position of these shown on the Phase 1 Habitat map (Figure 1). 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 a Phase 1 Habitat survey.

3.4 Appraisal of Potential Suitability of Habitats to Support Protected and Notable Species

An appraisal was made of the potential suitability of the habitats present to support protected and notable species of plants or animals (as defined in Section 2.1). 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.

A note was made of any visible instances of invasive non-native plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), including Japanese knotweed (*Fallopia japonica*). Locations of plants or stands of any such invasive non-native plant species found were recorded.

Section 5 of this report identifies further requirements for species survey based on the results of the habitat survey. These surveys should be completed prior to submission of a planning application, as the results are likely to be material for determination of the planning application.

3.5 Desk Study and Field Survey Limitations

The aim of a desk study was to help characterise the baseline context of a proposed development 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 is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitats 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 proposed development.

Where habitat boundaries coincide with physical boundaries recorded on OS maps, the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is 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 arboricultural survey to *British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction*.

The recording of plant species (both native and invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act) was constrained by the time of year that the survey was undertaken. Some of these species are not visible or cannot be reliably mapped outside the growing season (May to September), and some species are only apparent during certain other months. Populations of annual plant species may fluctuate markedly between years dependent on the growing conditions present in any given season.

It is not thought that any of these limitations affect the reliability of this preliminary ecological appraisal. This is due to the fact that the habitats present on the Site were commonly found and limited in size. They could therefore be reliably assessed and evaluated outside of their main growing season.

4. Results

4.1 Nature Conservation Designations

4.1.1 Statutory Designations

The search included statutorily designated sites such as Special Areas of Conservations (SACs), Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs), Ramsar sites, National Natures Reserves (NNRs) and Local Nature Reserves (LNRs).

There is one internationally recognised, statutorily designated Site of Importance for Nature Conservation within 5 km of the Site. This is the Thames Estuary Ramsar which is situated on the south banks of the River Thames, approximately 3.5 km north-east of the Site.

There is a single nationally designated site within 2 km of the Site. The Shorne and Ashenbank Woods SSSI is situated approximately 1.5 km east and south-east of the Site.

4.1.2 Non-statutory Designations

There are no non-statutorily designated sites within 1 km of the Site. This search included non-statutorily designated sites such as Local Wildlife Sites (LWS) sometimes referred to as Sites of Nature Conservation Importance (SNCI).

4.2 Habitats

4.2.1 Phase 1 Habitat Types

The habitats recorded, their extent and distribution are shown in Table 3 and Figure 1. The areas are approximate only.

Table 3: Habitats Present, in Descending Order Based on Spatial Area Occupied

Habitat	Brief description	Area (ha)	% of Site area
Hardstanding	The majority of the Site was covered by a tarmac hardstanding car park.	0.3	52.4
Amenity Grassland	Borders of amenity grassland were present around the hardstanding car park at the centre of the Site.	<0.1	23.4
Broadleaf Woodland	The western boundary of the Site was comprised of secondary broadleaf woodland.	<0.1	17.3
Tall Ruderal	A bank covered by tall ruderal vegetation was present in the south eastern corner of the Site.	<0.1	6.9

The habitats are described in greater detail below.

4.2.1.1 Hardstanding

The Site is comprised of a rectangular section of tarmac hardstanding, with a tarmac access track which connects to Hever Court Road. The new site compound will be confined entirely to this area of hardstanding.



Photo 1: Hardstanding that covers majority of Site.



Photo 2: Hardstanding that covers majority of Site.

4.2.1.2 Broadleaf Woodland

A copse of young broadleaf woodland plantation was present adjacent to the western boundary of the Site, and the north eastern corner of the Site. Species present include oak (*Quercus robur*), sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*).



Photo 3: Broadleaf woodland present adjacent to Site.



Photo 4: Broadleaf woodland present adjacent to Site.

4.2.1.3 Tall Ruderal

A strip of tall ruderal habitat was present adjacent to the southern boundary of the Site. Species present include teasel (*Dipsacus fullonum*), common hogweed (*Heracleum sphondylium*), hemlock (*Conium maculatum*), and mugwort (*Artemisia vulgaris*).



Photo 5: Tall ruderal habitat adjacent to the Site.

4.2.1.4 Amenity Grassland

Patches of amenity grassland were present adjacent to the northern boundary and south eastern corner of the Site.



Photo 6: Amenity grassland present to south of the Site.



Photo 7: Amenity grassland present to south of the Site.

4.3 Protected and Notable Species

Table 4 provides a summary of potentially relevant species identified through a combination of desk study and field survey. The table summarizes the conservation status of each species and provides comment on the likelihood of presence.

Where species are identified in Table 4 as likely or possible, they are likely to represent legal constraints. Further surveys will or may be required to determine presence or probable absence. Requirements for further survey are identified in Section 5 of this report.

Table 4: Protected and Notable Species Relevant or Potentially Relevant to the Proposed Development

Species	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present on Site?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Bats						It is possible that the woodland adjacent to the Site could support roosting bats.
Brown long-eared Bat (<i>Plecotus auritus</i>)	✓	✓	-	-	✓	24 records of this species from within 5km of Site.
Pipistrelle bat (<i>Pipistrellus pipistellus</i> or <i>Pipistrellus pygmaeus</i>)	✓	✓	-	-	✓	72 records of this species from within 5km of Site.
Natterer's Bat (<i>Myotis nattereri</i>)	✓	✓	-	-	✓	49 records of this species from within 5km of Site.
Whiskered/ Brandt's Bat, Alcaethoe Bat	✓	✓	-	-	✓	14 records of this species from within 5km of Site.

Noctule (<i>Nyctalus nyctalus</i>)	✓	✓	-	-	✓	1 records of this species from within 5km of Site.
Daubenton's Bat (<i>Myotis daubentonii</i>)	✓	✓	-	-	✓	60 records of this species from within 5km of Site.
Schedule 1 Birds						
Barn owl (<i>Tyto alba</i>)	✓	✓	-	-	✓	8 records of this species from Gravesend to the north of the Site. There are no features on or adjacent to the Site that could support this species.
Cetti's warbler (<i>Cettia cetti</i>)	✓	✓	-	-	✓	30 records of this species from Gravesend, to the north of the Site. The Site does not support the reedbed habitat that this species requires.
Peregrine (<i>Falco peregrinus</i>)	✓	✓	-	-	✓	2 records of this species from Ashenbank Wood, 1500m east of the Site. The Site does not support the tall structures that this species requires for breeding.
Common Nesting Birds						
Blackbird (<i>Turdus merula</i>)	✓	✓	-	-	✓	376 records of this species from within 2km radius of the Site, This species could utilise the broadleaf woodland surrounding the Site as a nesting location.
Dunnock (<i>Prunella modularis</i>)	✓	✓	-	-	✓	173 records of this species from within 2km radius of the Site, This species could utilise the broadleaf woodland surrounding the Site as a nesting location.
Skylark (<i>Alauda arvensis</i>)	✓	✓	-	-	✓	62 records of this species from within 2km radius of the Site, This species could utilise the broadleaf woodland surrounding the Site as a nesting location.
Terrestrial Mammals						
Fox (<i>Vulpes vulpes</i>)	-	✓	-	✓	-	A single entrance fox den was noted on the eastern boundary of the Site.
Badger (<i>Meles meles</i>)	✓	✓	-	-	✓	No records of this species from within 2km of this Site were provided by the desk study. The woodland habitat surrounding the Site is suitable for this species. No evidence of badger on or adjacent to Site was recorded during the field survey.
West European	-	✓	-	-	✓	A single record of this species from Hever Court Road,

hedgehog (*Erinaceus europaeus*)

adjacent to the Site, was provided by the data search.
The woodland habitat surrounding the Site is suitable for this species.

Amphibians

Great crested newt (<i>Triturus cristatus</i>)	✓	✓	-	-	✓	Two records of this species from within 2km of this Site were provided by the desk study. There are no waterbodies present within or adjacent to the Site.
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Reptiles

Slow worm (<i>Anguis fragilis</i>)	✓	✓	-	-	✓	One record of this species from within 2km of this Site were provided by the desk study. The amenity grassland present adjacent to the south of the Site has a low suitability for slow worms.
Common lizard (<i>Zootoca vivipara</i>)	✓	✓	-	-	✓	Three records of this species from within 2km of this Site were provided by the desk study. The amenity grassland present adjacent to the south of the Site has low suitability for common lizard.
Grass Snake (<i>Natrix natrix</i>)	✓	✓	-	-	✓	Three records of this species from within 2km of this Site were provided by the desk study. The amenity grassland present adjacent to the south of the Site has low suitability for grass snake.
Adder (<i>Vipera berus</i>)	✓	✓	-	-	✓	One record of this species from within 2km of this Site were provided by the desk study. The amenity grassland present adjacent to the south of the Site has low suitability for slow worms.

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 2017 (as amended).

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).

4.3.1.1 Bats

A large number and range of records of both common and rarer species of bat from within 5km of the Site were returned by the ecological data search.

The broadleaf woodland adjacent to the Site may provide roosting opportunities for bats. However, the immaturity of the woodland means that it is unlikely that many potential roosting features such as trunk holes, split limbs of lifted bark would be present. This woodland is not due to be affected by the Proposed Development.

4.3.1.2 Schedule 1 Birds

Three species (barn owl, Cetti's warbler, peregrine) of bird listed on Schedule 1 of the Wildlife and Countryside Act (1981) were returned during the data search. There are no features on or adjacent to Site that provide potential roosting or foraging opportunities for any of these species. Further details are provided below.

Thirty records of Cetti's warbler were returned during the data search. This species is also likely confined to the wetland habitats present to the north of the Site. The Site does not support the reedbed habitat that this species requires and its presence is therefore not a constraint to the Proposed Development.

Two records of peregrine were returned during the data search. This species tends to use tall, sheer, cliff like structures/ features for nesting. As none of these features are present on Site this species is not a constraint to the Proposed Development.

Eight records of barn owl were returned during the data search. There are currently no buildings or trees with features that are suitable for nesting barn owls on or adjacent to Site. Therefore, this species is not a constraint to the Proposed Development.

4.3.1.3 Common Nesting Birds

There is potential for a range of common nesting birds to utilise the broadleaf woodland habitat adjacent to the Site during the nesting season of March to September, inclusive.

4.3.1.4 Terrestrial Mammals (Excl. Bats)

An active, single entrance fox den was noted on the eastern boundary of the Site.

The data search provided two of records of European hedgehog very near to the Site. There is potential for this species to be present in the woodland surrounding the Site.

No records of badger from within 2 km of the Site were returned during the data search. The woodland habitats surrounding the Site provide suitable sett excavation habitat for this species.

4.3.1.5 Amphibians

Two records of great crested newt were returned during the data search.

There are no waterbodies on or adjacent to the Site that could provide suitable habitat for amphibians and so they are not a constraint to the Proposed Development.

4.3.1.6 Reptiles

A small number of records of all four common species of reptiles were returned by the ecological data search.

The hardstanding present on Site is unsuitable for reptiles however the grassland present to the south of the Site was determined to be of low suitability for reptiles. The new compound is not due to affect any grassland and is to be confined to the hardstanding. Therefore, the presence of reptiles is not a constraint to the Proposed Development.

5. Identification of Ecological Constraints and Recommendations

5.1 Approach to the Identification of Ecological Constraints

Relevant ecological receptors that may represent constraints to the Proposed Development, or that provide opportunities to deliver ecological enhancement in accordance with planning policy, are identified in Section 4 of this report and shown on Figure 1.

The NPPF and local planning policy (summarised in Section 3 of this report) specify requirements for the protection of features of importance for biodiversity. Planning policy is a material consideration when determining planning applications.

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 Site or otherwise legally enforceable through planning condition or Section 106 agreement).

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 planning applications, including sufficient detail to show that these measures are feasible and would be provided.

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 Development Site.

The likelihood of the relevant ecological receptors constraining the Proposed Development has been assessed with reference to the scale described in Table 5. 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 planning application for the Proposed Development.

Opportunities for ecological enhancement are not scaled in Table 5, but are identified in the accompanying appraisal (Section 6.5 of this report). There may be scope for ecological enhancement where existing habitat features could be improved or enhanced within the Proposed Development as designed, or with only minor amendment to the design. Ecological enhancement may not be possible where there is little scope to accommodate enhancement within the Proposed Development, 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 Development Site.

Table 5: Scale of Constraint to Development

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

5.2.1 Statutory Designated Sites

The search included statutorily designated sites such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs), Ramsar sites, National Natures Reserves (NNRs) and Local Nature Reserves (LNRs).

The Thames Estuary and Marshes Ramsar, which covers a large area of wetland along the south banks of the River Thames is situated approximately 3.5 km north of the Site at its nearest point. The Proposed Development is unlikely to cause any direct or indirect impacts upon the nearby Ramsar site due to the small scale nature of works, which are confined to a small area of hardstanding that is of no value to waterfowl or wading birds, and the fact that it is unlikely that any significant noise or light pollution will travel from the new site compound to the Ramsar site.

There is a single nationally designated site within 2 km of the Site. The Shorne and Ashenbank Woods SSSI is situated approximately 1.5 km east and south-east of the Site. Due to the small scale nature of the Proposed Development as well as the ecological barriers between them of roads and residential development no direct or indirect impacts will be received by the SSSI as a result of the works and that it is not a constraint to the Proposed Development.

5.2.1 Non-statutory Designations

There are no non-statutorily designated Sites of Importance for Nature Conservation within 1 km of the Site. This search included non-statutorily designated sites such as Local Wildlife Sites (LWS) sometimes referred to as Sites of Nature Conservation Importance (SNCI). The designations are listed in descending order, with those closest to the Site listed first.

5.3 Constraints and Requirements for Further Survey: Species

There is potential for terrestrial mammals to utilise the woodland and grassland present on the boundaries of the Site. An active fox den was detected on a bank on the eastern boundary of the Site (Figure 1) and multiple records of hedgehog from the local area were provided by the data search. In order to ensure that no harm comes to the foxes present near the Site it is recommended that no features of the new site compound are placed directly in front or adjacent to the entrance of the den to ensure animals can continue to enter and leave it freely.

The Site should also remain permeable to both foxes and hedgehogs. This can be achieved by leaving small holes at the base of and hoarding used to surround the compound. Any excavations or holes that animals could fall into should also remain covered overnight, or means of allowing creatures to leave these excavations should be installed.

If any of the vegetation surrounding the Site requires clearance, it is recommended that an ecologist conducts a nesting bird check immediately prior to the beginning of the works.

5.4 Opportunities for Ecological Enhancement

Approximately 25m² of deciduous tree saplings are due to be planted on the southern section of the eastern boundary of the Site. These trees should provide extra nesting habitat for the local bird population and depending on the chosen species may also act as a food source for local invertebrates.

6. Conclusions

The results of the extended Phase 1 Habitat Survey along with the desk study indicate that there are no significant constraints to the Proposed Development.

The Site itself is of low inherent biodiversity value as it is a large patch of featureless hardstanding.

The Thames Estuary Ramsar, which is designated because of the wetland habitats and assemblages of breeding waterfowl and wading birds that it supports is situated approximately 3.5 km north-east of the Site. The Proposed Development will not have any direct or indirect negative effects on this site due to the fact that the Site itself supports no suitable habitats for wetland birds and the small scale nature of the works means that any significant light or noise pollution produced by the Site will unlikely reach these statutorily designated sites.

7. References

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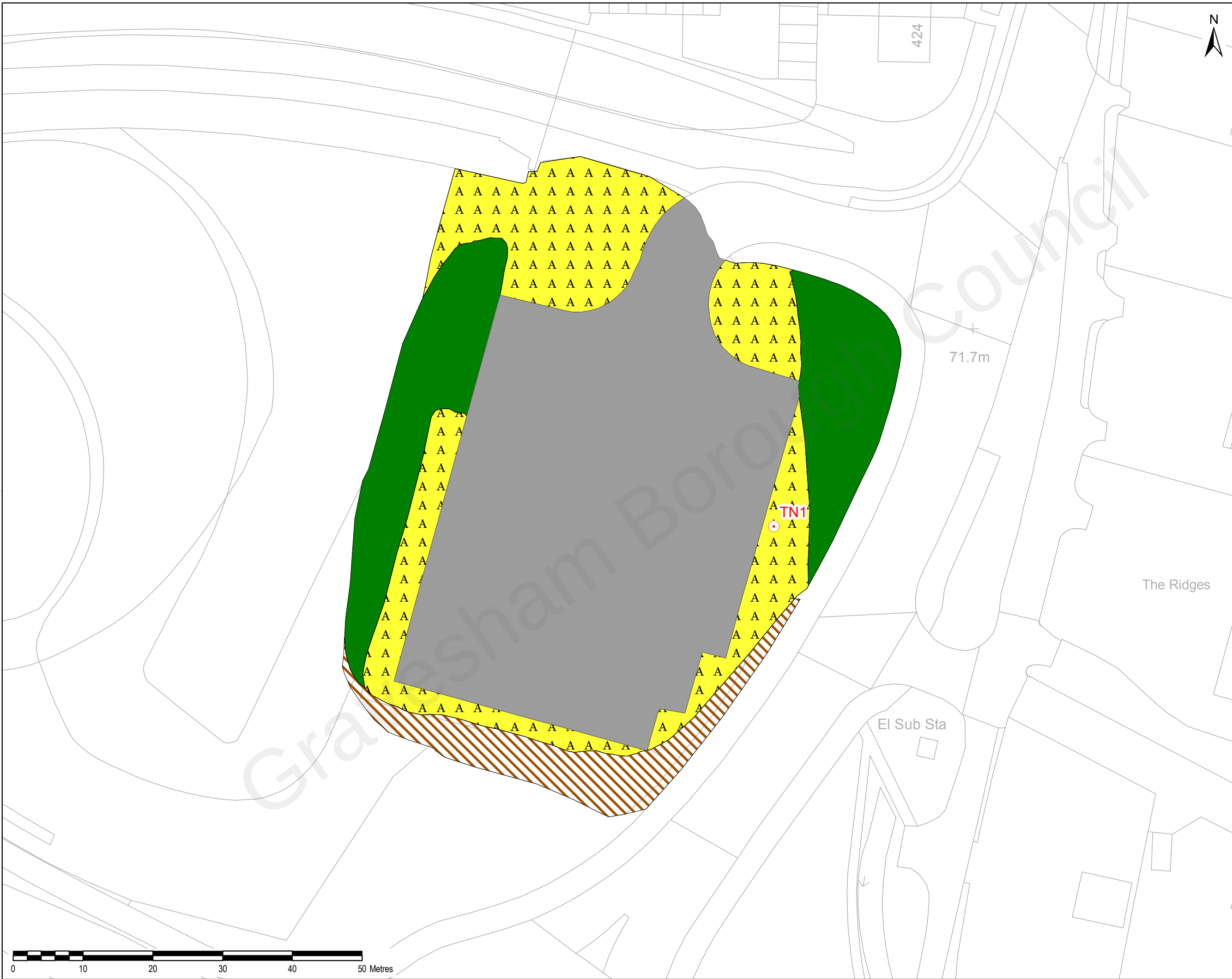
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Appendix A Site Layout

Figure 1: Phase 1 Map

Gravesham Borough Council

File Name: F:\projects\general\GIS\Projects\Lower Thames Crossing\02_Maps\AEC_ENV_ECO_HE_01_Figure01_Phase1Habitat_MarlingCross.mxd



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LEGEND

- Target Note
- Phase 1 Habitat**
 - Broadleaved Woodland - Semi-natural
 - Cultivated/ Disturbed Land - Amenity Grassland
 - Hard Standing
 - Other Tall Herb and Fern - Ruderal

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Purpose of Issue
FOR INFORMATION

Client
HIGHWAYS ENGLAND

Project Title
LOWER THAMES CROSSING GROUND INVESTIGATION

Drawing Title
PHASE 1 HABITAT MAP OF MARLING CROSS

Drawn VC	Checked JR	Approved MW	Date 11/04/2019
AECOM Internal Project No. 60549458		Scale @ A3 1:500	

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Appendix B Legislation and Planning Policy

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

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 2017 (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.

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.

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.

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.

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.

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.

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.

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)

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:

- 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

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

- kill, injure, or take any wild bird,
- 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
- take or destroy an egg of any wild bird.

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

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

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

- any wild plant listed in Schedule 8, or
- unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,
- 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

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

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.

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.

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.

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

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.

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.

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.

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.

Protection of Badgers Act 1992

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.

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.

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.

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

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:

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

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.

National Planning Policy Framework

The latest version of the NPPF came into being in July 2018, relevant sections are as follows: 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:*

- *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);*
- *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;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *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*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'*

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.'*

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

- *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*
- *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.'*

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

- *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;*
- *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;*
- *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*
- *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.'*

Paragraph 176 states that *'The following should be given the same protection as habitats sites:*

- *potential Special Protection Areas and possible Special Areas of Conservation;*
- *listed or proposed Ramsar sites; and*
- *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.*

Paragraph 176 states that *'The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.'*

Appendix C Target Notes

Table 11: Phase 1 Habitat Survey Target Notes

Target Note	Description
1	Single entrance active fox den noted on western boundary of Site.

