ECOLOGICAL IMPACT ASSESSMENT

FAIRGREEN BESS, RAYLEIGH, ESSEX

carried out by

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

commissioned by

PEGASUS GROUP / RES GROUP

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ECOLOGICAL IMPACT ASSESSMENT

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CONTENTS

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EXECUTIVE SUMMARY

Clarkson and Woods Ltd. was commissioned by Pegasus Group (on behalf of RES Group) to conduct an Ecological Impact Assessment of Fairgreen, Essex, SS12 9SN to inform a planning application for a Battery Energy Storage Scheme (BESS).

The development proposals for the Site comprise the construction, management and operation of a BESS, together with associated infrastructure, groundworks, access, landscaping and ancillary works. This will comprise three compounds: two battery storage compounds and an additional substation compound.

An extended habitat survey (UK Habitat Classification) was undertaken on 18 February 2025 and updated on 14 May 2025, with all habitats within the original redline categorised according to the UK Habitat Classification criteria. The main BESS Site comprises three arable fields separated by hedgerows and wet ditches, bounded by woodland. The Site is fully encompassed by a major A-road network and has established access tracks along the northern margin of the Site that connect with this road network. Since these surveys, a further two new access routes have subsequently been proposed, and the redline boundary modified, with habitats in these areas not subject to baseline habitat surveys.

Peripheral habitats within fields and adjacent to established and proposed access routes included cropland, woodland, bramble and mixed scrub, plus modified and other neutral grassland.

Two Special Protection Areas (SPAs) of importance for wintering birds are situated within 5km of Site (Benfleet and Southend Marshes SPA; Crouch and Roach Estuaries SPA). Scoping wintering bird surveys informed assessment of the Site as not being ecologically important for waterbirds associated with these SPAs. An additional ten nationally or locally important designated sites are present within 2km of the Site, but none are considered to be at risk of impact from the proposed development.

The Site was considered suitable to support a variety of wildlife, including badgers, bats, hazel dormice, amphibians (including great crested newts), reptiles and nesting birds. An invasive, non-native species under Schedule 9 of the Wildlife and Countryside Act, 1981, goat's rue *Ruta graveolens*, was recorded on Site but within the wider field margin (Field 6).

Proposals will result in the loss of up to approx. 40m of wet ditch to new culverts, to enable the creation of new access routes; along with approx. 60m hedgerow removal, although micro-siting may avoid/ reduce the extent of hedgerow loss.

Proposed habitats include the creation of approx. 8.01 hectares of species-diverse, modified grassland in good condition; 0.19ha other neutral grassland; 0.15ha mixed scrub; and approximately 230m of native, species-rich.

A Construction Environmental Management Plan (CEMP: Ecology) will be prepared to detail how retained habitats, and the species associated with these habitats, will be protected during construction. Furthermore, it will include recommendations to ensure full assessment of the small area of additional habitats incorporated within latest redline boundary, which was amended to facilitate the creation of additional access routes for Site. This will include Risk Avoidance Method Statements for badger, roosting bats, otter, dormouse, amphibians, reptiles, breeding birds, hedgehog and brown hare. Measures necessary to prevent further spread of invasive goat's rue *Ruta graveolens* will also be included. A separate Landscape Ecological Management Plan (LEMP) will also be prepared, laying out method statements to deal with management and monitoring of new and retained habitats post-construction and during the operational lifetime of the proposed development.

A combination of bird boxes, bat boxes and shelter features for amphibians and reptiles have also been recommended, contributing to the net positive impact upon biodiversity within the local area. The provision of locally appropriate ecological enhancements also ensures that the scheme is consistent with the requirements of the NPPF.

A detailed assessment on Biodiversity Net Gain is provided in a separate report (Biodiversity Impact Assessment (Clarkson & Woods, May 2025)). This concludes that over 10% net gain can be achieved for all habitat types. Provided the avoidance and mitigation measures outlined in the report are adhered to, the development would be considered in line with relevant local and national planning policy, and the implementation of the recommended ecological enhancements would provide a substantial, positive, permanent contribution to biodiversity within the Site.

1 INTRODUCTION

1.1.1 Clarkson and Woods Ltd. was commissioned by RES Group to carry out an Ecological Impact Assessment of land at the proposed location of Fairgreen Battery and Energy Storage System (BESS), sited off the Southend Arterial Road, near Rayleigh in Essex, SS12 9SN, hereafter referred to as 'the Site'.

1.1.2 This Impact Assessment discusses the likely effects of the Proposed Development on the ecology of the Site using information collected during an Extended UK Habitat (UKHab) Classification Survey carried out by Clarkson and Woods Ltd on 18th February 2025. An additional UKHab survey was carried out on 14th May 2025, following an amendment to the redline boundary to incorporate additional land. A subsequent amendment to the redline boundary resulted in more peripheral habitats being incorporated into the scheme to facilitate access routes into/from Site; however, these were not subject to field survey - Figure 3a refers. Only some of these additional areas will be taken forward as part of the scheme, subject to highway requirements. Therefore, habitats within these areas have been presumed based on available imagery and habitat conditions assigned on a precautionary basis, i.e. elevated in the absence of more detailed information being available.

1.1.3 The report has been subject to a two-stage quality assurance review by appropriately experienced senior consultants who are members of CIEEM.

1.1.4 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre to augment their records for the area. This is in line with the CIEEM code of professional conduct[1].

1.1.5 **If no action or development of the Site takes place within twelve months of the date of this report, then the findings of the assessment and supporting surveys should be reviewed. An update of the surveys and/or assessment may be required.**

1.2 Report Aims

1.2.1 The aims of this report are:

- To establish, as far as possible, the baseline ecological conditions existing on Site at the time of survey and to identify any likely future changes in the baseline conditions up to the point of commencement.
- To determine likely significant effects resulting from the proposals upon the ecological features identified within the assessment.
- To assess whether the proposals are likely to be in accordance with relevant nature conservation legislation and planning policies, including Biodiversity Net Gain.
- To identify where further surveys to establish baseline conditions, inform assessment or develop mitigation or compensatory measures are required.
- To identify how mitigation or compensation measures will be secured, maintained and monitored.
- To identify ecological enhancements and how they will be implemented, maintained and monitored.

1.3 Site Description Summary

1.3.1 Fairgreen proposed BESS lies between Basildon and Rayleigh, situated in south Essex, with the nearest postcode at SS12 9SN. The Site is fully surrounded by a major road network, comprising three A-roads. Two established access routes connect the Site to the road bounding the north of Site. The surrounding landscape is a combination of arable farmland and small field systems (likely grazed paddocks) connected by a mosaic of hedgerows and woodlands, with frequent small villages and larger conurbations beyond.

[1] Code of Professional Conduct. CIEEM, January 2019.

1.3.2 The main development footprint of the Site comprises three arable fields with narrow margins, separated by wet ditches and hedgerows. Small pockets of other neutral grassland and modified grassland are also present across Site, in addition to various scrub types and tall forbs. Broadleaved woodland parcels bound the western aspect of the Site, with the wider field to the east encompassed by Priority Habitat Inventory lowland, mixed deciduous woodland (outside of the redline).

1.3.3 Current access and field tracks are a combination of bare ground and artificial, unsealed developed surface, bounded by either adjacent arable, grassland, woodland and scrub habitats, hedgerow or line of trees. Proposed new access routes present within the redline comprises arable and grassland habitats but includes some unsurveyed areas (Figure 3b refers) where habitats have been assessed from desk-study and assumptions made with regards to habitat type. These areas are considered to comprise a combination of grassland (modified grassland and other neutral grassland); broadleaved, other woodland; mixed scrub, few individual rural trees, a line of non-native trees and species-rich hedgerow.

1.3.3.1 The development Site is approx. 18 hectares (ha) in area (including access routes). The approximate centre of the Site is situated at Ordnance Survey Grid Reference TQ 77664 90612, and the location of the Site is shown in Figure 1. An aerial photo of the Site and surrounding area is provided in Figure 2.

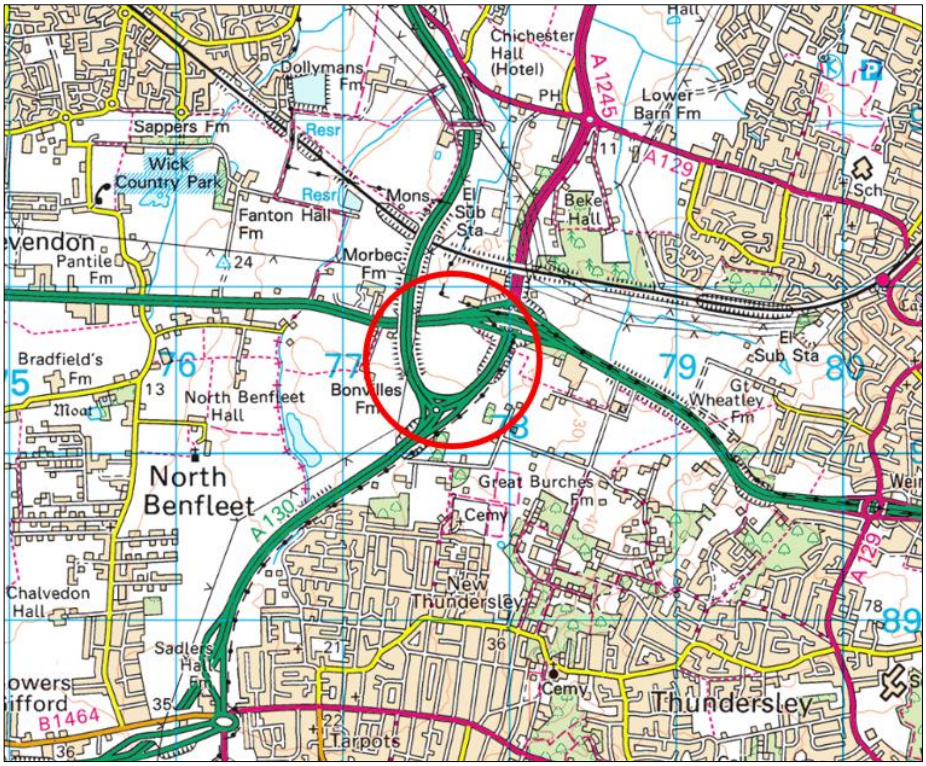

Figure 1: Ordnance Survey Map Showing Location of Site (©2025 Bing Maps)

Figure 2: Aerial Photograph of Site Boundary (©2025 Google)

1.4 Development Proposals

1.4.1 The proposed works comprise the installation of a BESS compound, substation, and associated infrastructure. The proposed works would result in the loss of approximately 12.78ha of cropland to accommodate the built footprint of the development. Four small sections of hedgerow and wet ditch removal will take place to facilitate the installation of new access tracks over ditch culverts (approx. 40m in total), plus two sections of hedgerow removal (approx. 20m in total) where the new access route is proposed to the east and west of Site. However, some of these may not be taken forward, which is understood to be informed by the local highways authorities.

1.4.2 Existing access tracks will be improved to allow the transportation of abnormal loads into the Site during construction and ensure emergency access for health and safety purposes during the operational phase. In addition to this, two new access routes will also be created to connect the Site to the surrounding road network.

1.4.3 The proposed Site Layout Plan is provided in Figure B1, Appendix B.

1.4.4 **Any changes to the proposed design and layout and landscaping made subsequent to publication of this report should be issued to Clarkson and Woods Ltd. for review. Ecological impacts and mitigation opportunities may be affected by any such changes.**

1.5 Quality Assurance

1.5.1 All ecologists employed by Clarkson and Woods are members or pending members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct[2] when undertaking ecological work.

1.5.2 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS)[3].

1.5.3 The wintering bird scoping surveys were undertaken by Terry Stopher, who has over 30 years' experience in undertaking ornithological surveys.

[2] CIEEM (2013). *Code of Professional Conduct*. www.cieem.net/professional-conduct.
[3] CIEEM (2013). *Competencies for Species Survey (CSS)*. www.cieem.net/competencies-for-species-survey-css-

1.5.4 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*[4]. It has been prepared by an experienced ecologist who is an Associate member of CIEEM. The report has also been subject to a two-stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

1.6 Assessment Scope

1.6.1 The impact assessment considers impacts arising during the construction and operational phases of the proposed development, in order to encompass its entire lifespan as far as can reasonably be anticipated.

1.6.2 The Zone of Influence of the development will vary according to the impact type and/or Site feature being assessed.

2 BASELINE CONDITIONS

2.1 Introduction

2.1.1 This section sets out the results of the Desk Study and ecological field surveys along with an evaluation of their relative importance to inform the Impact Assessment. The methodologies associated with the baseline assessment are summarised with each ecological feature's subheading below.

2.1.2 The specific surveys carried out were chosen based on the likelihood, in our considered opinion, of each protected species or Species of Conservation Concern being present on or within the vicinity of the Site. This is informed by the Site's geographic location and the habitat types present on and around the Site. In addition to the UKHab surveys, two scoping wintering bird surveys were undertaken.

2.1.3 Details of the legislative protection afforded to those protected species which have been identified as occurring or potentially occurring on the Site are given in Appendix A. Species of Conservation Concern are defined as those appearing in any of the following; Priority Habitats and Species under Section 41 of the Natural Environment and Rural Communities Act (2006); red or amber-listed birds within the British Trust for Ornithology's Birds of Conservation Concern (2021); and any specific local conservation priority species such as those listed in Red Data Books.

2.2 Evaluation Methodology

2.2.1 Each recorded ecological feature, whether it is a species, a habitat or a site designated for nature conservation, is described in turn in this section to provide the pre-development baseline conditions on Site. Subsequently, an evaluation of each feature's 'ecological importance' is made. The evaluation of ecological importance is informed by the criteria provided within the CIEEM Guidelines for Ecological Impact Assessment (2024)[5].

2.2.2 With due consideration to the criteria, each feature is classified on a geographical scale of ascending importance as follows; Negligible, Site, Local, District, County, National and International. The chosen geographic level of importance is considered that which best represents the scale at which the loss of the Site's area or population of the feature would have the greatest impact. Where sufficient survey information not available to determine the importance of a species or habitat present on the Site, the importance of the receptor is marked as 'uncertain' and based upon the professional judgement of the author together with available relevant desk study information.

2.2.3 Once importance has been determined for each feature, those of Local importance or above will be considered Important Ecological Features (IEFs). Non-IEFs will typically not be considered further within the impact assessment. However, where a feature does not qualify as an IEF but is afforded specific legal protection or coverage under a particular legislation or planning policy it will also be assessed to ensure the scheme's legal and policy compliance.

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[4] The British Standards Institution (2013). *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.
[5] *CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 updated September 2024.* Chartered Institute of Ecology and Environmental Management. www.cieem.net

2.3 Desk Study

Methodology

2.3.1 Statutory designated sites for nature conservation were identified using the Natural England/Defra web-based MAGIC map database (http://magic.defra.gov.uk). International-level sites such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within 5km from the Site were searched for. National-level sites such as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) within 2km of the Site were searched for.

2.3.2 The Essex Recorders Partnership (ERP), the ecological records centre for Essex, was consulted for records of protected species and species of conservation concern within 2km of the Site. The ERP was also asked to provide details of locally designated and non-statutory sites for nature conservation within 2km of the Site.

2.3.3 Clarkson and Woods' own database of ecological records derived from past survey work was also consulted for further locally-relevant data.

2.3.4 The Natural England/Defra web-based MAGIC map database was also consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2km of the Site.

2.3.5 The Basildon District Local Plan Saved Policies (September 2007) was consulted for details of planning policies relevant to designated sites, protected species and habitats, and general ecological and environmental protection.

2.3.6 The Essex Biodiversity Action Plan (BAP) was consulted for information on conservation priority species and habitats which may require further consideration and weight within Ecological Impact Assessments.

2.3.7 Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and maps.google.co.uk) to allow a better understanding of the context of the Site and its connections to potentially important habitats, known species records and protected sites. These maps were also consulted to determine the presumed habitat types within the unsurveyed additional areas of land.

2.3.8 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

Limitations

2.3.9 No specific limitations to the desk study were encountered. The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

2.3.10 It should be noted that the data obtained from within the search area will not constitute a complete record of habitats and species present within the search area. It is therefore possible that protected species may occur within the vicinity of the proposed development site that have not been identified within the desk study.

Desk Study Findings

Designated Sites

Statutory Designated Sites

2.3.11 Four statutory designated sites for nature conservation were identified within the desk study and are summarised in Table 1 below.

Local and Non-statutory Designated Sites

2.3.12 Eight local or non-statutory designated sites for nature conservation were identified within the desk study and are summarised in Table 2 below.

Table 1: Summary of Statutory Designated Sites for Nature Conservation

Site Name	Distance and Direction from Site	Reason for Designation	Importance
Thundersley Great Common SSSI	1.75km south-east	Designated for plant communities associated with acid grassland and heath habitats	National
Benfleet and Southend Marshes SPA and Ramsar	4.09km south-east	Designated for internationally important populations of dark-bellied brent geese Branta *bernicula bernicula*, plus common ringed plover *Charadrius hiaticula*, grey plover *Pluvialis squatarola*, red knot *Calidris canutus and* dunlin *Calidris alpina*	International
Crouch and Roach Estuaries SPA , Ramsar and SSSI	4.10km north	Designated for internationally important populations of wintering waterbirds, including dark-bellied brent geese. Also nationally scarce plant species and rare invertebrate species associated with wetland habitats, such as lowland ditch systems and saltmarshes	International / National
Essex Estuaries SAC	4.10km north	Designated for estuarine habitats	International

Table 2: Summary of Local and Non-statutory Designated Sites for Nature Conservation

Site Name	Distance and Direction from Site	Reason for Designation	Importance
Fane Road Meadows LWS	0.41km south	Lowland meadows representing an NVC MG5 *Cynosurus cristatus – Centaurea nigra* grassland	Local
North Benfleet Hall Wood LWS	0.62km south	Comprises Priority Habitat lowland mixed deciduous woodland	Local
Rushbottom Lane Flood Pound LWS	1.09km south-west	Species-rich grassland of significant conservation value. Marshy and dry grassland communities combine with scrub to form a mosaic site	Local
Thundersley Brickfields LWS	1.29km south-east	Comprises Priority Habitats including open mosaic habitats on previously developed land, and lowland mixed deciduous woodland	Local
The Wick Country Park LWS	1.53km north-west	A mosaic of habitats with amenity and education value as green infrastructure for the nearby population centres.	Local
Kingley Wood LWS	1.58km south-east	Ancient woodland with lowland mixed deciduous woodland	Local
Home Farm Meadow LWS	1.65km north-west	Unimproved grassland, NVC MG5 community which corresponds with Lowland Meadow Priority Habitat description	Local
Thundersley Great Common Wood LWS	2.00km south-east	Lowland mixed deciduous woodland which matches the NVC W10 type, a Priority Habitat	Local

Local BAP

2.3.13 The following habitats and species that are relevant to the Site were identified from the Essex BAP.

Species

- Common pipistrelle *Pipistrellus pipistrellus*
- Otter *Lutra lutra* and water vole *Arvicola amphibius*
- Hazel dormouse *Muscardinus avellanarius*
- Great crested newt *Triturus cristatus*
- Skylark *Alauda arvensis;* grey partridge *Perdix perdix;* song thrush *Turdus philomelos* and stone curlew *Burhinus oedicnemus*
- Brown hare *Lepus europaeus*
- Shrill carder bee *Bombus sylvarum;* hornet robber fly *Asilus crabroniformis;* stag beetle *Lucanus cervus;* scarlet malachite beetle *Malachius aeneus*
- Oxlip *Primula elatior*

Habitats

- Ancient and/or Species Rich Hedgerows and Green Lanes
- Ancient Woodland
- Cereal Field Margins

Planning Policy

2.3.14 The following policies are detailed within the Basildon District Local Plan Saved Policies (September 2007) and are considered relevant to the Site:

Policy BAS C1

The Council will not permit development which may have an adverse material effect on a Site of Special Scientific Interest (SSSI). When considering planning applications affecting Sites of Importance for Nature Conservation (SINC) or other important wildlife habitats, the Council will have full regard to the nature conservation value of the site The criteria which the Council will take into account in dealing with planning applications affecting SSSIs, SINCs and other important habitats will be:-

i. effects on significant nature conservation or scientific features of the site;

ii. the importance of the site and of any nature conservation or scientific features affected; and

iii. any benefits of the proposed development.

Policy BAS C5

Existing woodlands should be retained, especially where they are Ancient Woodlands. Appendix One identifies the Ancient Woodlands located within the District. These are identified on the Proposals Map

2.4 Habitat Survey

Habitat Survey Methodology

2.4.1 Habitat surveys were carried out based on standard field methodology set out in the UK Habitat Classification (UKHab) system[6]. Field surveys were carried out by Molly Brown QualCIEEM and Adèle Remazeilles ACIEEM on 18 February 2025 and 14 May 2025, respectively. Molly Brown, a qualifying member of CIEEM, has 3 years' experience undertaking ecological surveys and has a BSc and MSc in relevant subjects. She holds a class

[6] UKHab Ltd (2023). *UK Habitat Classification Version 2.0* At: https://ukhab.org./ [Accessed on 08 January 2025]

licence for the survey of great crested newts in England (Natural England Level 1 Reg. No. 2025-13065-CL08-GCN). Adèle Remazeilles, an Associate member of CIEEM, has 7 years' experience undertaking ecological surveys, holds an MSc in Environmental Sciences and class licences for the survey of bats (Natural England Level 1, Reg. No. 2022-10200-CL17-BAT) and great crested newts in England (Natural England Level 2, Reg. No. 2023-11058-CL09-GCN). Both surveyors have been assessed under the Clarkson and Woods QA processes as competent to complete the survey.

2.4.2 In order to inform a Biodiversity Net Gain (BNG) baseline for the Site, habitat condition assessments were also undertaken of each habitat during the field survey using the criteria set out within Defra's Statutory Biodiversity Metric[7][8]. With regards to the unsurveyed areas, habitat type and condition was determined based on desk study and aerial imagery interpretation, professional judgement and by applying a precautionary approach, which is likely to have potentially inflated the condition of some habitats where full information was not available.

2.4.3 The results of the UKHab survey are included in map form on Figure 3b using UKHab symbology. Habitats are mapped using the habitat categories that align with UK Habitat Classification. Target Notes (Table 4) are used to describe habitats that do not readily conform to recognised types and evidence of, or potential for, protected species and species of conservation concern. Photographs of the Site are provided within the relevant sections below.

2.4.4 Botanical names follow Stace (1997)[9] for higher plants and Edwards (1999)[10] for bryophytes.

Limitations, including Habitat Assessment Limitations

2.4.5 As described above, adjustments to the final redline boundary also resulted in small areas of habitat not being fully surveyed during field surveys (Figure 3a refers), including habitats adjacent to major roads that are not safe to survey without additional safety measures. This EcIA has nevertheless been prepared with these additional habitat parcels included on a precautionary basis, whereby categorised habitats were allocated a likely elevated habitat condition. While this cannot be guaranteed to be correct without ground-truth surveys, it is considered to be a proportionate approach due to the limited extent of land and given that not all proposed access locations are due to be taken forward as part of the scheme. Furthermore, the provision of pre-construction surveys will be made to ensure that these areas are surveyed prior to construction, including pre-development works, where planning permission if granted.

2.4.6 Although the initial survey was conducted in February, which is outside the optimal time for UKHab survey (April to October inclusive), it was possible to adequately classify and assess the nature conservation value of the habitats present. An update survey was also carried out in May 2025 when additional land was incorporated, during the optimal survey period, which is likely to have picked up groups of species such as flowering herbs and spring ephemerals which may have been under-recorded or missed in February.

[7] Defra (2024). *The Statutory Biodiversity Metric: User Guide*. London
[8] Defra (2024). *The Statutory Biodiversity Metric: Technical Appendix 1 – Condition Assessment Sheets and Methodology*. London
[9] Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press
[10] Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff

Grassland - Modified Grassland

Desk Study Information

2.4.7 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.8 Some wider field margins adjacent to the farm track and field corners were recorded as modified grassland in 'poor' habitat condition, specifically alongside the western boundary of Field 1 (approx. 4m wide); and northern boundary of Field 3 beneath electricity pylons, including dominant false oat grass *Arrhenatherum elatius,* cleavers *Galium aparine*, common nettle *Urtica dioica*, creeping thistle *Cirsium arvense*, teasel *Dipsacus fullonum* and cow parsley *Anthriscus sylvestris.*

2.4.9 Field 6 had been cut for silage shortly ahead of the May 2025 survey with coarse grasses dominating the sward and recorded as modified grassland in 'poor' condition. Field margins, where present, were more diverse, including common daisy *Bellis perennis*, ribwort plantain *Plantago lanceolate* and Yorkshire fog *Holcus lanatus*, which could be indicative of the field managed as grassland over a number of years.

2.4.10 Although unsurveyed, Field 4 was presumed to comprise modified grassland based on aerial imagery interpretation. It appeared to be a horse paddock or at least frequently grazed to a short sward, limiting opportunity for the field to become botanically rich where flowers are not allowed to grow and set seed. A narrow width of grassland also formed the verge bounding the northern access route and was categorised as modified grassland, due to frequent ruderals noted during desk study, but in good condition on a precautionary basis.

Photograph 1: Modified grassland habitat (Field 1, May 2025)

Photograph 2: Modified grassland habitat, Field 3 (May 2025)

Evaluation

2.4.11 The modified grassland habitat within the Site was considered to be of **Site level ecological importance,** due to small and disconnected areas only being recorded.

Grassland – Other Neutral Grassland

Desk Study Information

2.4.12 Semi-neutral grassland is recognised as important habitat within the Essex BAP, but is not a local priority habitat. Within the UK, neutral grassland (including lowland meadows) are listed as Habitats of Principal Importance (HPIs) under Section 41 of the NERC Act 2006.

Field Survey Results

2.4.13 An area of other neutral grassland in 'moderate' condition was recorded within the western field margin of Field 1, extending from an area of modified grassland immediately to the south. The area comprised vegetation approx. 30cm in height, with variable sward structure across the area and occasional scrub, such as hawthorn *Crataegus monogyna*, due to poor access/lack of management. A sample of recorded species included false oat grass, greater plantain *Plantago major,* oxeye daisy *Leucanthemum vulgare*.

2.4.14 Other neutral grassland was also recorded in field margins adjacent to the farm track, with species including barren brome *Anisantha sterilis*, cock's-foot *Dactylis glomerata*, rough meadow grass *Poa trivialis*, plus common fleabane *Pulicaria dysenterica*, cleavers, ribwort plantain *Plantago lanceolata*, common poppy *Papaver rhoeas*, common vetch *Vicia sativa*, bristly oxtongue *Picris echioides*, creeping cinquefoil *Potentilla reptans*, teasel and spear thistle *Cirsium vulgare*. Goat's rue *Ruta graveolens*, a Schedule 9 species, was also recorded at this location (Target Note 5 refers).

2.4.15 The new access routes proposed to the east and west of Site were not surveyed, but with aerial imagery showing these areas to formerly be arable land and within road scheme development areas that have taken place over the preceding 20 years. The road verges extend a considerable length of the roadside and appear to be frequently cut, increasing the likelihood of the establishment of a diverse grassland community where these areas were formerly seeded with a species-rich seed mix. Consequently, these areas have been categorised as other neutral grassland in 'moderate' condition on a precautionary basis. It is noted that a lack of appropriate management often means this habitat type represents poor condition other neutral grassland or modified grassland habitat of lower biodiversity value.

Evaluation

2.4.16 The other neutral grassland within the main footprint was considered to be of **Site level ecological importance**. Although more species diverse than modified grassland, it was not considered to be comprise grassland communities characteristic of priority habitat grasslands. Furthermore, the relatively small area (approx. 0.15ha) lacked habitat connectivity to similar habitat within the wider landscape.

2.4.17 The other neutral grassland presumed to be situated at the location of new access routes (south and west) is also considered to be of **Site level ecological importance**, as the shorter duration of this habitat type (<20 years when created as part of the road scheme) is considered likely to restrict its value. Furthermore, regular maintenance to maintain visibility splays has the potential to limit the diversity of established species.

Photograph 3: Other neutral grassland habitat (Field 1 western margin, May 2025)

Cropland – Cereal Cropland

Desk Study Information

2.4.18 Cereal field margins are identified as priority habitat within the Essex BAP, and arable field margins are listed as Habitats of Principal Importance (HPIs) under Section 41 of the NERC Act 2006.

Field Survey Results

2.4.19 The majority of the Site comprised winter-sown cereals present within each field, labelled as Field 1– Field 3 on Figure 3a and 3b, but also falls within Field 5 at the location of the proposed new access route. At the time of the update survey (May), the cereal crops were approximately 40cm in height.

2.4.20 Cropland habitats are of limited ecological value, owing to the low diversity of plant species, regular cultivation and conventional management with herbicides, pesticides and fertilisers. However, large open fields, namely Field 1, Field 2 and Field 5, will nonetheless provide suitable habitat for ground-nesting bird species, such as skylark, as well as brown hare.

2.4.21 The fields were bounded by narrow grassy margins, approximately 1.5m in width. Given the limited extent of the margins and that they did not appear to be managed specifically for wildlife, these areas did not meet the UKHab definition for 'Arable Field Margins' and are therefore not considered to be priority habitat. Species composition within the narrow margins included: cock's-foot, false oat grass, perennial ryegrass, creeping buttercup *Ranunculus repens* and broad-leaved dock *Rumex obtusifolius*.

Photograph 4: Cereal crop within F3 (May 2025)

Evaluation

2.4.22 The cropland habitat within the Site was considered to be of **Site level ecological importance**. Although the field margins were unmanaged and provide a buffer for wildlife, the narrow width and lack of diversity within the field margins means these are also considered to be of Site level ecological importance. The arable habitats are considered to provide opportunities for a limited range of species, specifically breeding birds, commuting mammals and invertebrates.

Woodland – Lowland Mixed Deciduous Woodland and Other Broadleaved Woodland

Desk Study Information

2.4.23 Ancient woodland is identified as priority habitat within the Essex BAP, with lowland, mixed deciduous woodland listed as a Habitat of Principal Importance (HPIs) under Section 41 of the NERC Act 2006.

2.4.24 The northern aspect of Woodland 2 (W2, Figure 3 refers) is recognised under the Priority Habitats Inventory as deciduous woodland. Small extents of former woodland at this location have been extended as part of road developments across the years. Woodland 1 (W1) was created around 2010 and is also associated with new road developments.

Field Survey Results

2.4.25 The largest area of woodland (W1) is situated west of Field 3 and extends from woodland parcels bounding the A130/major road at this location. It has been categorised as 'other broadleaved woodland' in 'moderate' condition. Species composition included ash *Fraxinus excelsior* and English oak *Quercus robur*, with shrub species including hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, spindle *Euonymus europaeus*, dogwood *Cornus sanguinea*, crab apple *Malus domestica*, field maple *Acer campestre*, wild cherry *Prunus spp.* and gorse *Ulex europaeus*. At least three age classes were recorded, with structurally diverse habitats within the woodland. The associated ground flora included cleavers, bramble *Rubus fruticosus*, common fleabane, cut-leaved cranesbill *Geranium dissectum* and smooth tare *Vicia tetrasperma*. A small section of unsurveyed woodland extends west of this, forming a small island with access tracks present on all sides.

2.4.26 Although outside of the redline boundary, Priority Habitat Inventory (PHI) woodland bounded the northeastern corner of Field 2 (W2). This was not subject to a thorough survey due to access limitations; however, several mature trees, including frequent English oak, English elm, blackthorn, field maple and hawthorn, were noted along the woodland edge. This area of woodland is categorised as 'lowland, mixed deciduous woodland' and continues east, beyond major roads (A1245) and was categorised to be in 'moderate' condition.

2.4.27 The proposed new access route at this location transects the southern edge of this area of woodland; however, this is not categorised as PHI woodland according to Defra MAGIC online maps.

2.4.28 Woodlands present on Site connect with hedgerows and ditches, but with habitat connectivity partially restricted beyond Site due to the presence of surrounding major trunk roads/interchange. Woodlands are nonetheless typically considered to provide habitat of high ecological value.

Evaluation

2.4.29 Despite the presence of public highways, the woodland parcels are likely to support a range of associated wildlife, and adds diversity and connective links within the local landscape. Therefore, both the lowland, mixed deciduous woodland and other broadleaved woodland are considered to be of **Local level ecological importance.**

Heathland and Shrub – Blackthorn, Bramble Scrub and Mixed Scrub

Desk Study Information

2.4.30 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.31 Several areas of scrub with varying species composition were recorded within and adjacent to the Site. This included blackthorn scrub in 'moderate' condition bounding the southern edge of Field 6; plus both mixed scrub (including blackthorn, gorse, hawthorn and *Rosa* sp.) in 'poor' and 'moderate' condition at field peripheries and bramble scrub confined to areas adjacent to access tracks (with condition assessments not applicable for this habitat type).

2.4.32 Mixed scrub habitat appears to extend from the area of unsurveyed, other neutral grassland bounding the western edge of Site, and was categorised as being in 'moderate' condition.

Evaluation

2.4.33 Scrub habitat provides important habitat corridors, foraging and nesting opportunities for a range of species, including invertebrates; small mammals and nesting birds, where stands are sufficiently dense. It can also provide cover for larger mammals, such as badger *Meles meles*. Scrub habitats recorded on Site are considered to be of **Local level ecological importance**.

Urban – Bare Ground

Desk Study Information

2.4.34 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.35 Some field gateways and farm tracks comprised ground which was bare of vegetation, likely exacerbated by dry weather ahead of the survey, and recorded as bare ground. A more substantial areas of bare ground was situated within the northeast corner of Field 3, where a large manure heap and repeated vehicle movements were evident (Photograph 4 refers). Vegetation was absent from within this area. Bare ground areas were in 'moderate' and 'poor' condition respectively.

Evaluation

2.4.36 The bare ground habitat described above was considered to be **negligible ecological importance** due to the repeated vehicle movements and soil compaction.

Photograph 4: Bare ground/manure heap within Field 3 (May 2025)

Urban - Artificial, Unvegetated, Unsealed Surface

Desk Study Information

2.4.37 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.38 Farm/vehicle tracks present on and leading into Site were categorised as this habitat type and comprised compacted substrate, including hardcore, with varying amounts of limited vegetation.

Evaluation

2.4.39 The artificial, unvegetated, unsealed surfaces were considered to be of **Site level ecological importance**, as these habitats may be of limited value to local invertebrates present on Site and their predators.

Urban – Developed Land; Sealed Surface

Desk Study Information

2.4.40 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.41 The junctions of access tracks comprised asphalt surfaces in places, such as where they connected to adjacent public highways. The adjacent public highways themselves also comprise this habitat type.

Evaluation

The artificial, unvegetated, unsealed surfaces were considered to be of **negligible level ecological importance** as these habitats do not provide resources for wildlife and may act as barriers to some species.

Wet ditches

Desk Study Information

2.4.42 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.43 Ditches formed boundaries between Fields 1 – 3; Ditch 1 and Ditch 2 separated Field 1 and Field 2. Ditch 2 continues further west (between Field 1 and Field 3) into the adjacent woodland (Woodland 1). All ditches were assessed to be in 'poor' condition.

2.4.44 Ditch 3 extends in a north/south direction along the eastern boundary of Field 3, with a culvert at the gateway present between Field 2 and Field 3.

2.4.45 A short section of ditch (Ditch 4) was also recorded west of the access track situated to the west of Site, which is understood to continue beneath the track into the woodland situated to the east of the track. However, the full extent of the ditch could not be confirmed at the time of survey due to impenetrable scrub preventing access.

2.4.46 The ditches were approximately 0.5 – 1m wide and 1 – 1.5m deep and found to be holding water in February, but with restricted flow in May. Some evidence of pollution was recorded within Ditch 1 where the water was turbid with a white appearance. Marginal vegetation growth was limited, but with common reed *Phragmites australis* frequently recorded adjacent to Ditch 1. Ditches were predominantly heavily encroached by adjacent hedgerows, scrub and woodland, which compromised access.

2.4.47 It is possible that additional watercourses are also present at the new, additional western access route, in which case they are considered likely to be highway drainage routes and likely culverted due to their alignment with asphalt tracks and connectivity to a drainage pond further west of Site (Rushbottom Lame Drainage Ponds).

Evaluation

The ditches on Site were considered to be of **Site level ecological importance, with potential to increase to Local where hydrological connectivity to important off-site watercourses is present.** Ditches form important wildlife corridors across and beyond Site, although their ecological value is compromised by adjacent land use, major road infrastructure and presumed lack of connectivity with similar habitats off-site.

Photograph 5: Ditch 1

Photograph 6: Ditch 2

Individual Rural Trees

Desk Study Information

2.4.48 No relevant information pertaining to this habitat type was returned during the desk study.

Field Survey Results

2.4.49 A single standard, semi-mature rural tree (*Quercus* spp.) was recorded within Field 1, adjacent to the track leading into Field 2, and assessed to be in 'good' condition'.

2.4.50 Although not ground-truthed, two standard oak trees are confirmed to be present on the boundary of Field 4 (modified grassland paddock) and categorised as being in 'good' condition on precautionary basis.

Evaluation

2.4.51 Standard trees providing stepping stones for wildlife across Site and the local landscape, and other similar mature trees are likely to be present within the adjacent woodland, but were not recorded separately. Such trees provide suitable habitat for a range of species, but with only a limited number of trees recorded on Site, **all** individual trees are considered to be of **Site level ecological importance**.

Photograph 7: Standard, individual rural tree

Hedgerows

Desk Study Information

2.4.52 Ancient and/or species-rich hedgerows are identified as priority habitat within the Essex BAP, and hedgerows as listed as HPIs under S41 of the NERC Act 2006. Hedgerows are also afforded some protection under the Hedgerows Regulations (1997).

Field Survey Results

2.4.53 A range of native hedgerow were recorded on Site, forming field boundaries within Site and discrete sections adjacent to access tracks (e.g. Hedgerow 1). All surveyed hedgerows are summarised within Table 3, below.

Table 3: Summary of Hedgerow Field Survey Results

Ref.	Hedgerow Type (UKHab)	BNG Condition	Standard Trees Present?	Approximate Dimensions (HxW) (m)	Additional Info.
Western Parcel					
L1	Line of trees	Moderate	n/a	3m x 2.5m	Screening for adjacent industrial yard
H1	Species-rich native hedgerow	Good	No	>3m x 2.5m	Species-rich hedgerow adjacent to access track, includes non-native species, including white poplar *Populus alba* and *cypress spp.*
H2	Native hedgerow	Poor	No	>2.5m x 1.5m	Blackthorn, hawthorn, ash and willow hedgerow situated between farm track and public highway
H3	Native hedgerow	Moderate	No	3.5m x 3m	Field hedgerow comprised with native species between F2 and F3

Ref.	Hedgerow Type (UKHab)	BNG Condition	Standard Trees Present?	Approximate Dimensions (HxW) (m)	Additional Info.
H4	Native hedgerow with trees	Moderate	Yes	2.5m x 2.5m	Species-rich hedgerow associated with wet ditch running west/east between F1 and F3
H5	Species-rich native hedgerow	Good	No	2-6m x 3m	Tall, unmanaged running adjacent to Ditch 2 between F1 and F2
H6	Native hedgerow with trees	Moderate	No	3.5m x 2.5m	Field hedgerow with frequent semi-mature oaks, adjacent to Ditch 1 (between F1 and F2)

2.4.54 Two additional, unsurveyed hedgerows are present at the western and eastern proposed access route locations and have been categorised as native, species-rich hedgerows on the basis of these being planted as part of the former road scheme. The hedgerows appear to be at least 4m in height and on a precautionary basis have been categorised as being in 'good' condition.

2.4.55 A line of ornamental trees also bounded the north-eastern of Field 4 comprising Leylandii sp. or similar, based on desk study map interpretation and categorised to be in 'poor' condition.

Evaluation

2.4.56 A diverse range of hedgerow types were recorded on Site, with good connectivity with ditch habitat and woodland corridors. This, in addition to their important as a Habitat of Principal Importance, both nationally and locally, results in the hedgerows and trees being assessed to be of **Local level ecological importance.**

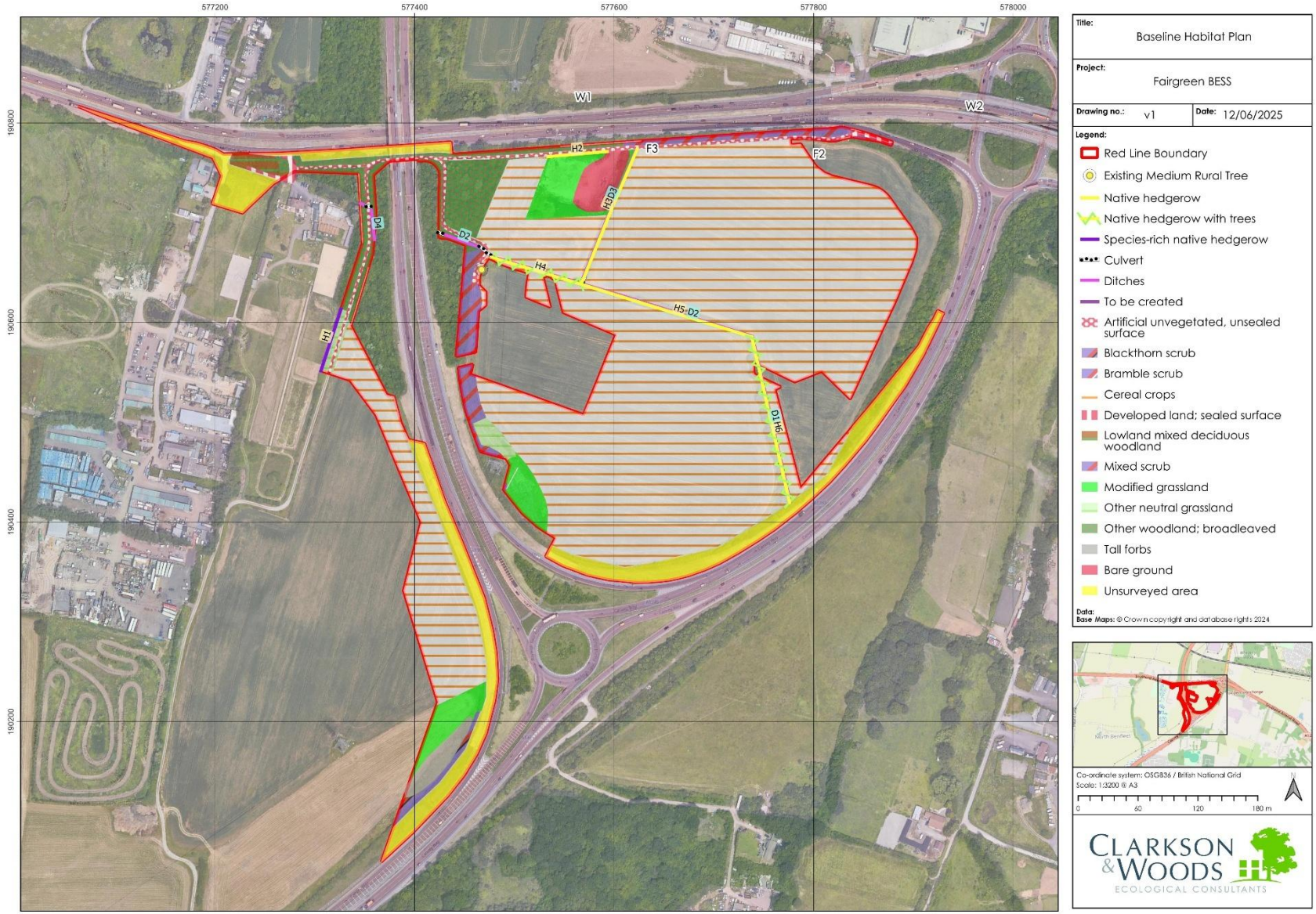

Figure 3a: Baseline UK Habitat Classification Map, Fairgreen BESS, with unsurveyed areas annotated in yellow

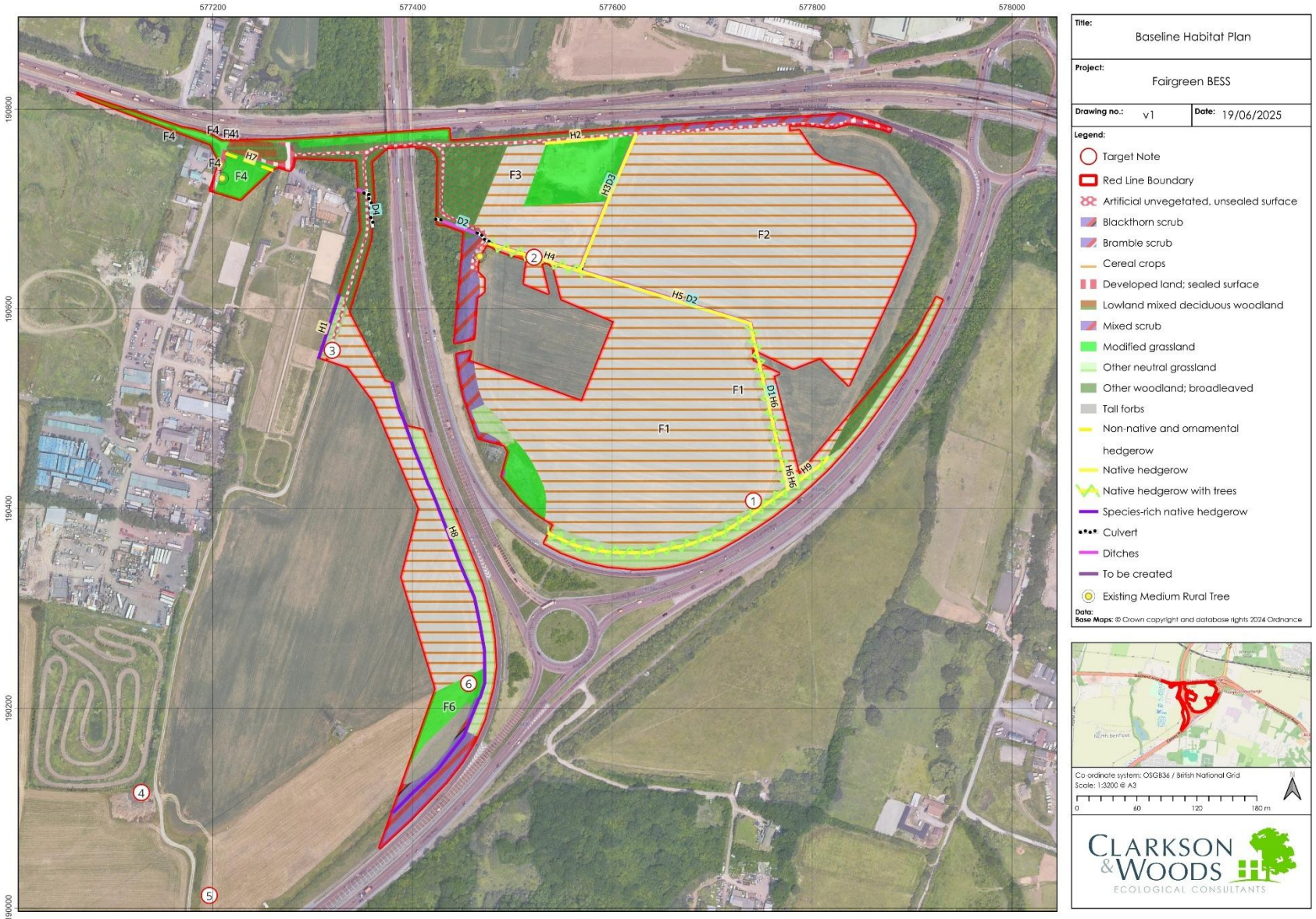

Figure 3b: Baseline UK Habitat Classification Map, Fairgreen BESS, with unsurveyed areas categorised into assumed habitat type

Table 4: Target Notes (TN)

TN No.	Description
1	Area of scrub and rank grasses
2	Fallen barn owl *Tyto alba* nest box
3	Mobile bee hives
6	Area of hemlock within field margin, plus the presence of goat rue (Schedule 9 species, WCA 1981) within the wider field along the western boundary

2.5 Protected Species Survey and Species of Conservation Concern

Badger

Methodology

2.5.1 A search was made for badger setts, and any sett entrances found were checked for signs of use by badgers or other mammals. Where found, setts were classified into the following categories: Main, Subsidiary, Annexe or Outlying[11]. Any sett entrances were counted and mapped to record tunnel direction and their relative level of usage.

2.5.2 Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, if found.

Limitations

2.5.3 Areas with dense ground cover (hedges, scrub, woodland etc) were examined closely. Where impenetrable vegetation prevented entry (such as ditches, some areas within the woodland), it cannot be guaranteed that all the entrances have been located, especially if a small sett is currently inactive or used seasonally and concealed in an area of thick scrub. Furthermore, badgers may dig new holes and create new setts in a very short space of time.

2.5.4 The additional areas of land added into the redline boundary have not yet been surveyed for badger. It is possible that unrecorded setts are present in suitable surveyed habitat, such as hedgerow bases and woodland.

Desk Study Information

2.5.5 Records from the Essex Recorders Partnership (ERP)confirmed six records of badger within 2km of the Site, since 2015. The closest of these was recorded within the Site in 2017, although noting that the resolution of location data for this record is low (1km precision).

Field Survey Results

2.5.6 An outlier badger sett was recorded off-site, within Woodland 2 situated to the north-east of Site. This sett is not expected to be directly impacted by the proposed development.

2.5.7 As mentioned above, it should be noted that some areas of woodland were impenetrable, which has the potential to obscure setts and/or evidence of badgers.

Evaluation

2.5.8 The Site is considered to be of **Site level ecological importance for badgers**, due to the suitable foraging and sheltering habitat recorded on Site and at least one badger sett present within nearby woodland, which also provides suitable sett building habitat.

[11] Lewns, P., Clarkson, T. & Lewns, D. (2019). *Badger Survey and Mitigation Guidelines (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. (*as yet unpublished*)

Bats

Methodology

2.5.9 The assessment of the suitability of the Site for foraging and roosting bats was based on current guidance set out by the Bat Conservation Trust[12].

2.5.10 *Habitat:* the habitats within the Site were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on Site to those within the local landscape was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases a site's foraging resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

2.5.11 *Trees:* an inspection of trees on Site was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including hazard beams), loose bark and dense plates of ivy were inspected and recorded. Any signs of staining (from urine or fur rubbing) and scratch marks below potential access points were noted, and a search was made for droppings underneath these features.

2.5.12 No buildings were recorded within the redline boundary.

Limitations

2.5.13 Not all features in trees or buildings suitable for use by bats are visible from the ground and there can be no external evidence of use of features by bats; consequently, it is only possible to make a best effort when carrying out such a survey.

2.5.14 Bats are very small creatures, capable of accessing extremely tight spaces and it is possible that bat evidence may have been missed during the baseline walkover surveys, if they are normally present opportunistically or in small numbers for a short period of time each year.

2.5.15 The extra individual trees present within the extended redline boundary (Field 4) were not subject to ground-based tree assessment.

Desk Study Information

2.5.16 Common pipistrelle *Pipistrellus pipistrellus* is recognised as a priority species within the Essex BAP.

2.5.17 A single record of common pipistrelle was returned by the ERP and recorded approximately 1.10km south of the Site (2016). No further bat records were returned, which includes granted EPS licences relating to bats that were identified within 2km of the Site using the MAGIC Map Application.

Field Survey Results

Habitat:

2.5.18 The Site supports a network of suitable foraging and commuting habitats given the mosaic of farmland, hedgerows and wet ditches, grassland and woodland bounding the Site. The value of foraging habitats within fields is likely suboptimal where fields are large and managed intensively though, as this has the potential to affect invertebrate abundance.

2.5.19 Overall, the habitats and features within the Site are considered to provide moderate suitability habitat for both commuting and foraging bats, enhanced by the reasonable connectivity with the surrounding landscape. Although the Site is situated adjacent to major road junction/interchange, surrounding habitats (e.g. woodland, mixed scrub) retain connectivity for bats through the local landscape.

[12] Collins, J. (ed) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.

Trees:

2.5.20 Four trees recorded on Site were identified as having 'low' roosting potential for bats due to the presence of rot cavities, tear-outs and lifted bark. These were each associated with hedgerows (Hedgerow 4 and Hedgerow 5) with potential for more suitable roosting trees being present within the adjacent woodland. Two mature trees present in the grassland paddock to the north-west were presumed to be at least 'moderate' roosting potential on a precautionary basis.

Buildings:

2.5.21 No buildings were recorded within the redline boundary.

Evaluation

Foraging and Commuting Bats

2.5.22 The Site is considered to be of **Site level ecological importance** for foraging and commuting bat populations, due to good connectivity across Site between hedgerows in variable condition, dry and wet ditches, and woodland. However, the presence of the surrounding major road network is considered to compromise optimal habitat connectivity into the wider landscape.

Roosting Bats

2.5.23 Some of the trees were noted as having one or more low potential bat roosting features. No further works are due to affect the trees, however, as trees with high suitability for roosting bats have the ability to support bat maternity roost, forming key breeding sites, the trees present on Site are considered to be of **Site level ecological importance for roosting bats.**

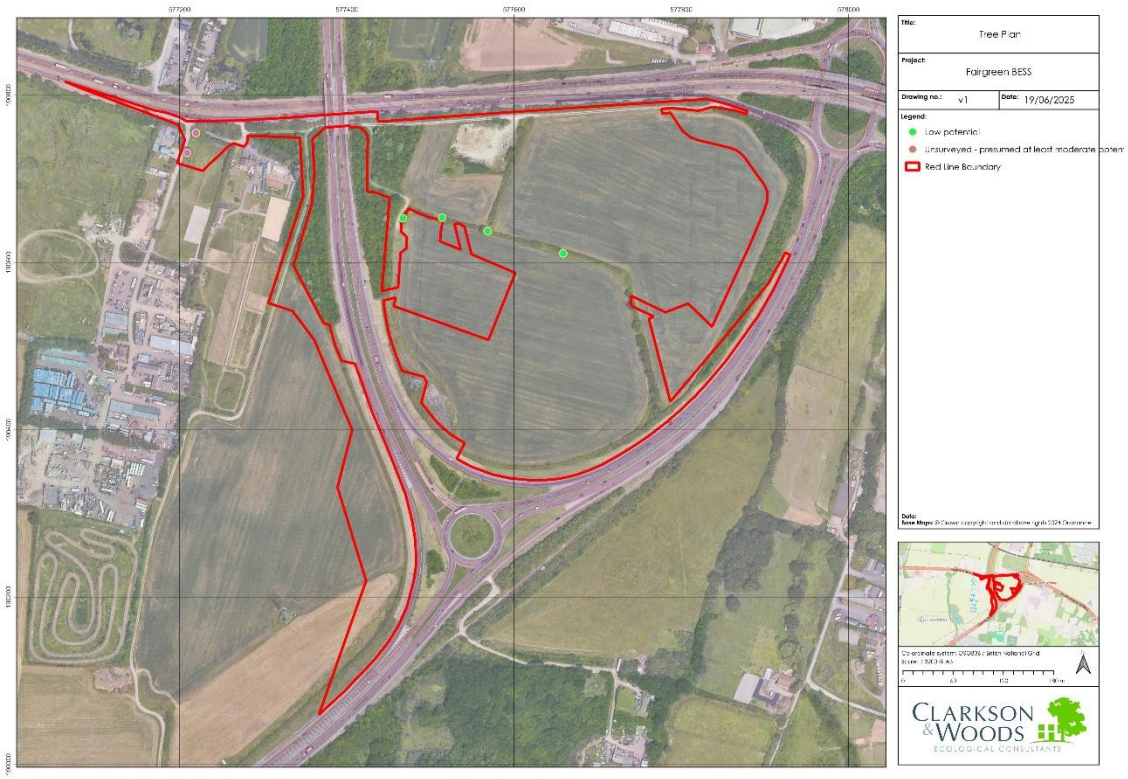

Figure 4: Standard Trees with Bat Roosting Suitability, Fairgreen BESS, Essex

Otter and Water Vole

Methodology

2.5.24 Habitats were assessed for their suitability to support otters and water voles. This included a high-level search made along the banks of watercourses at regular intervals, or where considered suitable for sheltering otter, and waterbodies and their adjacent habitats to assess the general habitat suitability for otter *Lutra lutra* signs. A check for signs, including spraints, tracks, castling, and rolling, were also made. For water vole, sampling of the watercourses and banks at regular intervals where the bank structure was considered more likely to potentially support water voles was undertaken, checking for water vole *Arvicola amphibius* signs, including latrines, burrow entrances, feeding stations, 'runways' and footprints. No detailed water vole surveys were undertaken however, due to an overall lack of suitable habitat present.

Limitations

2.5.25 Otters have no defined breeding season and the breeding holt is kept deliberately obscure by the female so locating one can be difficult and time consuming.

2.5.26 Frequent impenetrable scrub encompassing watercourses prevented access in places, which may have obscured evidence of otter or water vole.

2.5.27 If present, watercourses within the extra areas of land added into the redline boundary were not assessed for otter, water vole suitability or presence.

Desk Study Information

2.5.28 No records of otter or water vole were returned during the desk study.

Field Survey Results

2.5.29 Wet ditches present on Site were considered to provide suitable habitat for otter, likely as dispersal routes rather than foraging areas, due to their limited size and some also found to be drying up (D1 and D2) during May; therefore with limited prey availability.

2.5.30 The ditches were considered to be of negligible suitability for water voles due to the presence of heavy shading, overall low water flows and a general lack of emergent and bankside vegetation.

2.5.31 It was not possible to determine where some ditches connected into the wider watercourse network, however the Site is unlikely to be completely disconnected for the wider landscape hydrologically. For both otter and water vole, extended periods of culverted watercourse will reduce the potential for commuting and dispersal to and from Site, restricted the potential for the Site to support significant populations.

Evaluation

Otter

2.5.32 Due to the lack of suitable habitat and field signs of otter, this species is considered likely absent from the Site, or else only commuting through the landscape. Therefore, the Site is considered to be of **Site level ecological importance** to otter, if present.

Water Vole

2.5.33 No evidence of water vole was noted during baseline walkover surveys, with the habitat overall considered to be of suboptimal to support this species. As mentioned above, this includes low water levels, including drying up during summer months, and restricted marginal vegetation and compromised habitat connectivity as factors considered likely to restrict the potential for water voles to inhabit Site. The Site is considered to be of **negligible ecological importance** to water vole.

Hazel Dormouse

Methodology

2.5.34 Any hedgerows, scrub and woodlands were assessed during the walkover for their suitability to support dormice. Particular consideration was paid to the abundance of food sources within them, density for nesting and overnight shelter and the strength of connectivity to other suitable habitats leading off site. In addition, any direct sightings, nests or feeding signs during the site visit were also recorded.

Limitations

2.5.35 No specific limitations were experienced when assessing habitats for dormouse, with the unsurveyed hedgerows considered when assessing the Site habitat suitability for dormouse.

Desk Study Information

2.5.36 Hazel dormouse is identified as a priority species within the Essex BAP, with the nearest confirmed protected species licence return was approximately 10km northwest of Site and confirmed records at Belfairs Local Nature Reserve, approx. 4.5km from Site.

Field Survey Results

2.5.37 Hedgerows within the Site and connecting adjacent woodland provide suitable habitat for dormice. Beyond the Site, habitat connectivity is compromised by the presence of major A-roads/interchange, which will compromise connectivity for small mammals beyond the Site.

Evaluation

2.5.38 Dormice are considered likely to be absent due to the presence of major roads effectively isolating the Site onto an island. However, given local records and the knowledge that dormice can travel across roads, their presence cannot be fully ruled out, and the Site is therefore considered to be of **Local ecological importance** to hazel dormice, if present.

Amphibians, including Great Crested Newts

Methods

2.5.39 All waterbodies within 250m of the Site were identified using Ordnance Survey maps and aerial imagery. Waterbodies within the Site ownership and on publicly accessible land were assessed during the field survey for their suitability to support amphibian species where access was possible.

2.5.40 Where suitable water bodies were identified on accessible land, a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al[13]. HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts. Factors which increase these scores include the presence of other ponds nearby, water quality, pond size, absence of fish/waterfowl, vegetation cover and shading.

2.5.41 Terrestrial habitats were also assessed for their suitability for foraging and sheltering great crested newts. This species requires habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

Limitations

2.5.42 Impenetrable scrub prevented complete access into woodland/mixed scrub which obscured some watercourse during assessment.

2.5.43 One large pond, approx. 160m west of the southern access road was not accessible due to falling within different ownership.

Desk Study Information

2.5.44 Great created newt is a species of principal importance within the Essex BAP. Three waterbodies were identified within 250m of Site, with two of these confirmed to be wet ditches when ground-truthed. The remaining, large pond was approximately 460m from the nearest proposed BESS compound, but disconnected from Site by major (six lane) A-roads. The access roads potentially due for upgrades were closer however, approx. 165m. It was not possible to access the pond due to being under different land ownership.

2.5.45 Two records of great crested newt (GCN) were returned by the ERP, located approx. 1.73km north-west of the Site (2018 and 2019).

[13] Oldham. R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

2.5.46 A search using the MAGIC Map Application identified 16x class licence returns (between 2015 – 2017) confirming GCN presence within 2km of the Site, the closest of which were located approx. 1.60km north-east of the Site. Four positive records of GCN presence were also recorded during the 2017-2019 GCN Pond Surveys within 2km of the Site. The closet of these was approx. 1.5km from Site, beyond the A1245/ major A-roads.

2.5.47 A single record of smooth newt *Lissotriton vulgaris* was returned at the same location in 2020.

2.5.48 One record of marsh frog *Rana ridibuna* (a Schedule 9 species (Wildlife and Countryside Act, 1981) as amended) was returned by the ERP during the data search, located approximately 1.77km north-west of the Site in 2017. Two records of common frog *Rana temporaria* were also returned since 2015, the most recent of which was recorded approximately 1.08km south of the Site in 2020.

2.5.49 The Site lies within Green Impact Risk Zone for GCN, managed by Natural England.

2.5.50 No Froglife 'toad crossings' are present close to Site.

Field Survey Results

2.5.51 Two of the three ponds (Figure B2, Appendix B refers) were visited to confirm their presence and condition. As mentioned above, the large, off-site pond could not be accessed. The remaining two ponds were heavily overgrown by scrub and in fact found to be an extension of the wet ditches recorded on Site. Both lacked marginal vegetation, likely due to the heavy shading, and contained turbid waters.

Evaluation

2.5.52 Suitable breeding habitat in the form of ponds was present outside of the redline boundary (approximately 160m to the nearest redline boundary), however only wet ditches were present on Site. These ditches are not considered to provide suitable breeding habitat for great crested newts, and limited breeding habitat potential for other, widespread amphibians.

2.5.53 Suitable terrestrial habitat exists, including a network of terrestrial hedgerow, wet ditch banks, associated field margins and woodland, which are all suitable for great crested newts and other amphibians, such as common toad, during their terrestrial phase.

2.5.54 The surrounding A-roads are considered to represent a significant barrier to amphibian movement, and on-Site ditches did not appear to have good connectivity into the wider landscape of watercourses. However, it is possible that amphibians, including GCN, move onto Site from offsite breeding ponds.

2.5.55 Since the presence of amphibians, including GCN, cannot be ruled out entirely, the Site is considered to be of **Site level ecological importance** for amphibians.

Reptiles

Methods

2.5.56 Habitats and features on Site were assessed for their potential for use by reptile species. Suitable habitats include rough, tussocky grassland, scrub and open woodland, hedgerow bases and waterbodies (grass snake *Natrix helvetica*); as well as refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles, and the ground was scanned whilst walking to look for basking species.

Limitations

2.5.57 No limitations were experienced with regards to habitat assessment for reptiles.

Desk Study Information

2.5.58 A single record of adder *Vipera berus* was returned from a location approx. 2km east of Site (2022). Two records of common lizard, *Zootoca vivipara*, the most recent of which was recorded in 2021, were also recorded approx. 1.7km north-east.

Field Survey Results

2.5.59 Habitats present on Site and considered suitable for reptiles (specifically grass snake and slow-worm *Anguis fragilis*, plus potentially common lizard) comprised of small areas of rough grassland, hedgerow and field

margins, woodland edge, grassland fields and wet ditches. The large manure heap and area of grass cuttings (Target Note 4) may also be used as egg-laying habitat for these species.

Evaluation

2.5.60 Arable cropland and tracks which form the dominant habitat type within the Site are unsuitable for reptiles. However, marginal habitats are suitable for foraging and shelter, and features are present which may support reptiles throughout the year, for breeding and hibernation. Local records indicate the potential presence of several species, however there is poor connectivity to suitable habitat beyond Site therefore the Site is considered to be of **Site level ecological importance** to reptiles, if present.

Birds

Methodology

2.5.61 A desk-based assessment was completed, which collates information from various sources, including bird records from the Essex BAP and Clarkson and Woods' own in-house database pertaining to the surrounding 2km; details of designated sites in proximity to the Site from MAGIC.gov.uk; and other resources such as aerial maps.

2.5.62 The Site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the Site, the context of the Site in the wider landscape and the results of the desk study.

2.5.63 Birds present on Site were recorded on an ad hoc basis during field surveys, with findings detailed below.

Breeding Birds

2.5.64 Given the small size of the Site; the limited habitat diversity (with the open fields being dominated by arable crops); and the proposals retaining the majority of boundary habitats, detailed breeding bird surveys were not considered necessary to inform the impact assessment.

Wintering Birds

2.5.65 Given the Site's proximity to internationally designated sites important for assemblages of overwintering birds (Benfleet and Southend Marshes SPA, Crouch and Roach Estuaries SPA), detailed wintering bird surveys were carried out. Two 'scoping' wintering bird surveys were carried out (31/01/2025 and 18/02/2025) since the Site was characterised as being sub-optimal for supporting significant flocks of waterfowl, waders and winter migrants. The purpose of these scoping surveys was to record all bird species seen, their abundance and distribution within the Site, and to assess the likelihood of there being an important wintering bird assemblage present. The surveys were also undertaken to identify the use of the Site by bird species cited as a reason for designation for the SPAs, including dark-bellied brent geese, common ringed plover, grey plover, red knot *and* dunlin, and thus provide an indication of whether the Site could support Functionally-Linked Land for the two SPAs. The assemblage of species and abundance of the bird species recorded during the scoping surveys was not considered to warrant a comprehensive suite of surveys.

2.5.66 During the wintering bird surveys, the surveyor followed the methodology recommended by the Bird Survey Guidelines committee[14] where the observer systematically walked through the Site, ensuring that all areas of the Site were visited to within 50m. The location and behaviour of all birds and flocks of birds seen were noted on large-scale survey maps, which were later collated onto master maps for interpretation, as well as any birds noted offsite where access was permitted. Surveys were carried out by an experienced bird surveyor, assessed under the Clarkson and Woods Quality Assurance process as competent to complete the survey. Weather conditions were favourable at the time (overcast with easing light rain and slight breeze, sunny and cold; between 2 - 10°C).

[14] https://birdsurveyguidelines.org/methods/survey-method

Limitations

2.5.67 No limitations were experienced during field surveys, however, it should be noted that any bird survey offers only 'snapshots' in time of the Site. A lack of signs of any particular species does not confirm its absence, merely that there was no indication of its presence during the survey.

Desk Study Information

2.5.68 The Site is within 5km of two SPAs, both designated for their unique habitats and overwintering bird populations. These are Benfleet and Southend Marshes SPA and Ramsar, situated approx. 4km south-east of Site; and Crouch and Roach Estuaries SPA, situated approx. 4km north of Site (Section 2 above refers).

2.5.69 Grey partridge *Perdix perdix*, skylark *Alauda arvensis*, song thrush *Turdus philomelos* and stone curlew *Burhinus oedicnemus* are each recognised as priority species within the Essex BAP.

2.5.70 A range of bird species were returned within the data search, broadly categorised into a range of waders/wildfowl, farmland birds and more common species typically associated with rural or suburban settings. All species are detailed within **Table 5**, below.

Table 6: Bird species records returned by ERP within 2km of Site

Common Name	Scientific Name	Common Name	Scientific Name
Avocet	*Recurvirostra avosetta*	**House sparrow**	***Passer domesticus***
Blackbird	*Turdus merula*	Jackdaw	*Corvus monedula*
Black-headed gull	*Chroicocephalus ridibundus*	Jay	*Garrulus glandarius*
Black-tailed godwit	*Limosa limosa*	Kestrel	*Falco tinnunculus*
Blue tit	*Cyanistes caeruleus*	Mistle thrush	*Turdus viscivorus*
Brent goose	*Branta bernicla bernicla*	Moorhen	*Gallinula chloropus*
Bullfinch	*Pyrrhula pyrrhula*	Mute swan	*Cygnus olor*
Buzzard	*Buteo buteo*	Nightingale	*Luscinia megarhynchos*
Canada goose	*Branta canadensis*	Pheasant	*Phasianus colchicus*
Carrion crow	*Corvus corone*	Pied wagtail	*Motacilla alba*
Cetti's warbler	*Cettia cetti*	Red kite	*Milvus milvus*
Collared dove	*Streptopelia decaocto*	Redwing	*Turdus iliacus*
Common gull	*Larus canus*	**Reed bunting**	*Emberiza schoeniclus*
Common tern	*Sterna hirundo*	Robin	*Erithacus rubecula*
Coot	*Fulica atra*	Rock pipit	*Anthus petrosus*
Cormorant	*Phalacrocorax carbo*	Rook	*Corvus frugilegus*
Curlew	***Numenius arquata***	Shelduck	*Tadorna tadorna*
Dunlin	*Calidris alpina*	**Skylark**	***Alauda arvensis***
Dunnock	***Prunella modularis***	**Song thrush**	***Turdus philomelos***
Fieldfare	*Turdus pilaris*	Sparrowhawk	*Accipiter nisus*
Goldfinch	*Carduelis carduelis*	**Starling**	***Sturnus vulgaris***
Great black-backed gull	*Larus marinus*	Stock dove	*Columba oenas*
Great crested grebe	*Podiceps cristatus*	Swallow	*Hirundo rustica*
Great spotted woodpecker	*Dendrocopos major*	Swift	*Apus apus*
Green sandpiper	*Tringa ochropus*	Teal	*Anas crecca*
Green woodpecker	*Picus viridis*	Woodcock	*Scolopax rusticola*
Greenfinch	*Chloris chloris*	Woodpigeon	*Columba palumbus*
Grey heron	*Ardea cinerea*	Wren	*Troglodytes troglodytes*

Common Name	Scientific Name	Common Name	Scientific Name
Greylag goose	*Anser anser*	**Yellow wagtail**	***Motacilla flava***
Herring gull	***Larus argentatus***	**Yellowhammer**	***Emberiza citrinella***
House martin	*Delichon urbicum*		

Table 7: Key for Styling in Table 6, above

Style	Context
Bold text	Listed under Section 41 of the NERC Act 2006 (Species of Principal Importance - SPIs)/BAP
Underlined text	Listed under Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended)
Red fill	'Red listed' species according to BTO/RSPB Birds of Conservation Concern 2021
Orange fill	'Amber listed' species according to BTO/RSPB Birds of Conservation Concern 2021

Field Survey Results

Breeding Birds

2.5.71 The fields and boundary habitats (hedgerows, trees, scrub, field margins, woodland and wet ditches) all provide suitable breeding bird habitat, with open fields providing some suitability for ground-nesting birds. Grey partridge and song thrush may be present, although no suitable habitat exists form stone curlew.

2.5.72 Ad hoc bird observations during the habitat walkover survey in May 2025 included 21 bird species; of these there were five red listed Birds of Conservation Concern (greenfinch *Chloris chloris*, house sparrow *Passer domesticus,* skylark *Alauda arvensis,* starling *Sturnus vulgaris,* swift *Apus apus)* and four amber-listed BoCC (dunnock *Prunella modualris,* woodpigeon *Columba palumbus*, whitethroat *Sylvia communis* and wren *Troglodytes troglodytes*). All remaining species were more common species/green-listed, including (carrion crow *Corvus corone*, common buzzard *Buteo buteo*, blackcap *Sylvia atricapilla*, Cetti's warbler *Cettia cetti*, chiffchaff *Phylloscopus collybita*, lesser whitethroat *Sylvia curruca*, great spotted woodpecker *Dendrocopos major*, great tit *Parus major*, magpie *Pica pica*, swallow *Hirundo rustica*, pheasant *Phasianus colchicus* and robin *Erithacus rubecula*).

2.5.73 Dunnock, house sparrow, skylark, starling and swift are all recognised Species of Principal Importance (Schedule 41, NERC Act) and Cetti's Warbler is afforded additional protection from disturbance during the breeding season under Schedule 1 of the Wildlife and Countryside Act (as amended 1981).

2.5.74 Both skylark and robin were recorded singing indicating that the Site likely supports breeding territories for these species at other times of year.

2.5.75 From the birds listed above, species associated with breeding in open fields included skylark, with one singing male recorded within each arable field (three total).

Wintering Birds

2.5.76 A limited number of species (12x in total) were recorded during the scoping wintering bird surveys, with the majority associated with boundary features. This included one red-listed species (skylark), three amber-listed species (dunnock, kestrel *Falco tinnunculus* and woodpigeon) and eight green-listed species (blackbird *Turdus merula,* blue tit *Cyanistes caeruleus,* carrion crow, chaffinch *Fringilla coelebs,* Egyptian goose *Alopochen aegyptiaca,* great tit, little egret *Egretta garzetta,* magpie and robin).

2.5.77 Overall, the restricted number of species were predominantly associated with boundary features (due to be retained at Site), with the exception of skylark where one individual was recorded on each visit. The assemblage of species recorded during a wintering scoping survey was considered representative of the typical bird species that use the Site during winter, with the Site habitats and location considered to be unlikely to support substantial winter bird populations. None of the bird species cited as a reason for designation of either the Benfleet and Southend Marshes SPA or the Croach and Roach Estuaries SPA, including dark-bellied brent geese, common ringed plover, grey plover, red knot and dunlin, were recorded during the surveys. The results of the scoping surveys were reviewed, and it was considered that further wintering bird surveys were not considered necessary or proportionate to inform the impact assessment.

Evaluation

2.5.78 Detailed breeding bird surveys were not conducted, but the habitats are suitable for use by a range of species during the breeding season, including ground nesting skylark. Ad-hoc observations included typical species of arable habitats. However, the small size of the Site and dominance of arable habitats means a notable assemblage is unlikely to be present. Therefore, the Site is considered to be of **Site level importance only for breeding birds.**

2.5.79 Although Site habitats may be used by transient wintering bird populations, they are considered to be sub-optimal for supporting significant flocks of waterfowl, waders and winter migrants, therefore the Site is considered to be of **Site level importance only for wintering birds.**

Invertebrates

Methods

2.5.80 Any notable invertebrates identified during the survey were recorded. The habitat was also assessed for its suitability for notable invertebrates, including the presence of specific species known to be foodplants or larval plants or habitats which may be favoured by invertebrates (such as bare ground, deadwood or grass tussocks). The habitat structure was also considered, such as mosaics, brownfield or unmanaged areas.

Limitations

2.5.81 There were no specific limitations identified for surveying for invertebrates.

Desk Study Information

2.5.82 A number of invertebrates were included within Essex BAP, specifically including hornet robber fly *Asilus crabroniformis*, shrill carder bee *Bombus sylvarum*, stag beetle *Lucanus cervus* and scarlet malachite beetle *Malachius aeneus*.

2.5.83 A number of invertebrates were returned within the Essex BRP data search, including the following dominated by moth records.

Table 8: Invertebrate Species Records Returned by the ERP Within 2km of the Site

Common Name	Scientific Name	Year of Latest Record
Blood vein	*Timandra comae*	2023
Cinnabar	*Tyria jacobaeae*	2023
Common darter	*Sympetrum striolatum*	2015
Hornet moth	*Sesia apiformis*	2023
Jersey tiger	*Euplagia quadripunctaria*	2023
Orange-tailed clearwing	*Synanthedon andrenaeformis*	2023
Red-belted clearwing	*Synanthedon myopaeformis*	2023
Red-tipped clearwing	*Synanthedon formicaeformis*	2023

Common Name	Scientific Name	Year of Latest Record
Shaded broad-bar	*Scotopteryx chenopodiata*	2015
Six-belted clearwing	*Bembecia ichneumoniformis*	2023
Wall	*Lasiommata megera*	2023
n/a	*Argyresthia albistria*	2023
n/a	*Coleophora conspicuella*	2023
n/a	*Sitochroa palealis*	2015

Field Survey Results

2.5.84 Some mobile beehives were recorded adjacent to the southern access track (Target note 3).

2.5.85 No notable invertebrates were recorded during field surveys with conventionally managed, monoculture arable fields providing restricted opportunities for invertebrates, but bounding habitats (e.g. field margins, hedgerows, wet ditches and woodland) providing more enhanced areas.

Evaluation

2.5.86 The restricted extent of more diverse habitats means the Site is of **Site level ecological importance to invertebrates.**

Other Protected Species and Species of Conservation Concern

Methods

2.5.87 Field signs indicating the presence of other species of conservation concern, such as brown hare, harvest mouse *Micromys minutus* and hedgehog *Erinaceus europaeus* (Species of Principal Importance under the NERC Act 2006) were noted where found. Habitats were also assessed for their potential to support such species.

Limitations

2.5.88 The additional areas of land were not subject to an assessment of habitats for other protected species.

Desk Study Information

2.5.89 Brown hare *Lepus europaeus* is identified as a priority species within the Essex BAP.

Field Survey Results

2.5.90 Brown hare may be present within the arable fields or margins where longer and more suitable vegetation is present.

2.5.91 Suitable habitat for foraging hedgehogs is present on Site, especially given the adjacent woodland and continual hedgerows, with field margins providing good foraging habitat throughout the Site.

2.5.92 Harvest mice may be present within field margins, where taller vegetation is present and combined with other vegetation types, such as reeds and ditch/hedgerow margins.

Evaluation

2.5.93 The Site is considered to be of **Site level ecological importance** for brown hare and hedgehog, if present.

Invasive Non-native Species

Methods

2.5.94 Invasive species, such as Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera* were searched for, with no limitations experienced.

Limitations

2.5.95 The additional areas of land were not subject to survey for the presence of invasive and invasive, non-native species and as such may have been missed.

Desk Study Information

2.5.96 The desk study returned a number of plant species recognised as Invasive Non-Native Species listed under Schedule 9 of the Wildlife and Countryside Act (1981 as amended), including alexanders *Smyrnium olusatrum,* butterfly bush *Buddleja davidii*, floating pennywort *Hydrocotyle ranunculoides*, goat's rue *Ruta graveolens*, Indian balsam *Impatiens balsamina*, Japanese rose *Rosa rugosa*, lesser bulrush *Typha latifolia*, New zealand pigmyweed *Crassula helmsii,* Parrot's feather *Myriophyllum aquaticum* and three-cornered garlic *Allium sativum*.

Field Survey Results

2.5.97 Goat's rue, a Schedule 9 listed non-native invasive species, was recorded within a field margin adjacent to the southern farm track (Target note 5).

Evaluation

2.5.98 Goat's rue will need to be considered in the impact assessment due to its status under Schedule 9 of the Wildlife & Countryside Act.

2.6 Summary of Ecological Importance

2.6.1 Table 9 below gives all the identified ecological features on Site and their individual assessment of importance. Those coloured green are considered to be Important Ecological Features and will form the basis of the Assessment of Effects in Section 3. Those coloured yellow will be included on the basis of their specific legal protection or applicable planning policies.

Table 9: Summary of Ecological Importance

Feature	Importance
Designated Sites	
Benfleet and Southend Marshes SPA and Ramsar	International
Crouch and Roach Estuaries SPA, Ramsar and SSSI	International
Essex Estuaries SAC	International
Thundersley Great Common SSSI	National
Fane Road Meadows LWS	Local
North Benfleet Hall Wood LWS	Local
Rushbottom Lane Flood Pound LWS	Local
Thundersley Brickfields LWS	Local
The Wick Country Park LWS	Local
Kingley Wood LWS	Local
Home Farm Meadow LWS	Local
Thundersley Great Common Wood LWS	Local
Habitats	

Feature	Importance
Modified Grassland	Site
Other Neutral Grassland	Site
Cereal Cropland	Site
Lowland Mixed Deciduous Woodland and Other Broadleaved Woodland	Local
Blackthorn Scrub	Local
Bramble Scrub	Local
Mixed Scrub	Local
Bare Ground	Site
Artificial, Unvegetated Unsealed Surface	Site
Developed Land; Sealed Surface	Site
Wet Ditches	Site - Local
Individual Rural Trees	Site
Hedgerows	Local
Species	
Badger	Site
Bats – Foraging and Commuting Bats	Site
Bats –Roosting Bats	Site
Otter	Site, if present
Water Vole	Negligible
Hazel Dormouse	Local, if present
Amphibians, including great crested newts	Site, if present
Reptiles	Site, if present
Breeding Birds	Site
Wintering Birds	Site
Invertebrates	Site
Other Notable Species/ Species of Conservation Concern	Site, if present
Invasive and Non-native Species	N/A

3 ASSESSMENT OF EFFECTS

3.1 Methodology

3.1.1 Continuing from the valuation of Important Ecological Features (IEFs), this section lists each IEF in turn together with a characterisation of any potential impacts upon them likely to arise from the proposals. This takes into consideration any measures inherent to the designed scheme which seek to avoid such impacts altogether. Next, any agreed mitigation measures chosen to reduce likely impacts are then set out, along with the mechanism(s) through which these would be secured.

3.1.2 Residual effects, being those effects which would likely still arise despite any avoidance measures or agreed mitigation efforts, are subsequently discussed. Residual effects are determined to be either significant or not significant and any significant residual effects are given a geographical scale at which they might be felt. This assessment methodology is in accordance with that set out in the CIEEM Guidelines for Ecological Impact Assessment, 2024.

3.1.3 Where residual effects are identified compensatory measures may be proposed to make up for the loss or permanent damage to an IEF, as far as possible. If applicable, recommendations are provided for any further work that might be required to determine baseline conditions, to help identify impacts or determine the necessary mitigation. This document should be updated to reflect the new findings and their implications as they arise. Monitoring or management schemes which may be necessary to ensure the long-term achievement of all intended mitigation and compensation are outlined.

3.1.4 Where potential for cumulative impacts upon IEFs in association with other proposed or ongoing local development are identified these are described as appropriate for the affected IEF. The Zone of Influence for each IEF, together with their level of ecological importance will be of relevance when considering the scope of a cumulative impact assessment.

3.1.5 Ecological enhancement measures that will be incorporated into the development are given in line with the National Planning Policy Framework.

3.2 Summary of Development Proposals and Sources Potential of Impacts

3.2.1 The development includes the construction and operation of Fairgreen Battery Energy Storage Site (BESS) comprising two, adjoining battery storage enclosures with capacity for 100MW storage and surrounded by palisade or weldmesh fencing. In addition, there will be a separate BESS substation and associated infrastructure. The combined footprint is approx. 4ha, including 6m buffers encompassing each compound to allow for earthworks, and all three areas connected with access tracks. Access tracks leading onto Site will be upgraded from artificial, unsealed developed surface to withstand increased vehicle traffic (full details on proposed materials not available at the time of writing) with the addition of five locations at which access tracks will cross boundary habitats (i.e. four wet ditch and hedgerow locations, plus one hedgerow location).

3.2.2 The proposals will include permanent removal of cropland from the footprint of the development and new access tracks, and remaining arable habitats within the red line boundary will be lost to land-use change, where new grassland habitats will be created (approx. 12.78ha of cropland will be lost overall).

3.2.3 The new access tracks will also cross wet ditches (Ditch 2 and Ditch 3) in four places, anticipated to impact a total approx. 40m of ditch where culverts are installed at these locations. Furthermore, approx. 40m hedgerow removal will be required at the same locations, to accommodate the new access routes, although micro-siting may avoid or reduce the need for hedgerow removal. Where taken forward, the new western and eastern access routes would also result in the loss of an additional 20m hedgerow, based on a 5m track and potential degradation of adjacent hedgerow habitat.

3.2.4 Habitat creation includes new modified grassland in 'good' condition (approx. 8.01ha); 0.19ha other neutral grassland; 0.15ha mixed scrub; and approx. 230 metres of native, species-rich hedgerow to the west of the substation compound.

Embedded Avoidance Measures

3.2.5 Protective ecological buffers have been designed into the proposals to avoid potential impacts on existing habitats present on Site, as well as associated species. Proposed minimum ecological buffers are as follows:

- Woodland – minimum 15m
- Individual Rural Trees – minimum 10m
- Ditches and Streams – 15m, increased to 30m where possible
- Hedgerows, including recorded trees with low bat roosting potential and scrub – minimum 10m

3.2.6 Furthermore, impacts upon hedgerows and ditches have been minimised through utilising existing access tracks, where possible.

3.2.7 In addition to the above, appropriate measures will be taken to ensure the protection of ecologically important features. Specifically, a Construction Environmental Management Plan (CEMP: Ecology) will be prepared to detail how the habitats and species within and surrounding the Site should be protected during the construction phase. This will also include details of appropriate fencing to restrict access into key ecological areas; information on any timing restrictions; and measures to prevent damage to sensitive ecological habitats and protected species. For example, the implementation of pollution prevention measures Risk Avoidance Method Statements for specific protected species, as well as ongoing monitoring and management as required.

3.2.8 The required CEMP: Ecology will also be expanded to include full requirements of the unsurveyed habitats which will include the provision of appropriate baseline and protected species surveys (if required) to ensure that these areas are surveyed well in advance of construction or pre-development works.

3.2.9 A Landscape and Ecological Management Plan (LEMP) will be prepared for the operational Site that will cover how retained habitats and newly planted areas should be managed, so as to maximise their biodiversity value and achieve the objectives of ecological mitigation and compensation. The LEMP should also set out any measures necessary to ensure protected species are appropriately accommodated within the operational Site.

New Habitat Creation/ Enhancement

3.2.10 At the time of writing, landscaping proposals include seeding approximately 8.01ha of modified grassland, within Fields 1 – 3, surrounding the proposed BESS compounds and associated new access tracks. A specific grazing grassland mix, such as Emorsgate EM2 – Standard General Purpose Meadow Mixture (or similar) will be used to enable the establishment of a species-rich modified grassland in good condition, which will ideally be managed through low stocking/density cattle grazing. An additional area of other neutral grassland will be created along the southern margin of Field 1, compensating for the loss of presumed other neutral grassland within road verges. This will be seeded with diverse seed mix, appropriate for local soil types, such as EM4 Meadow Mixture for Clay Soils.

3.2.11 The inclusion of mixed scrub planting is proposed within the east of Field 2, which will comprise a native, species-diverse mix of woody species, to compensate for the loss of mixed scrub on road verges as well as providing screening to the east of the proposed compounds.

3.2.12 In addition to the above, approx. 230m of new, native and species-rich hedgerow will be created within Field 2, west of the substation compound. Where appropriate, standard trees will be included within the hedgerow mix to enhance hedgerow structural diversity.

3.2.13 Specifications of the above will be included within the Construction and Environmental Management Plan (CEMP: Ecology) and Landscape Ecological Management Plan (LEMP) to be prepared for the Site. This will include grassland management and grazing recommendations.

3.3 Biodiversity Impact Assessment

3.3.1 The development proposals have been subject to a Biodiversity Impact (Net Gain) Assessment using the Statutory Defra Metric. The value of existing habitats on-Site has been calculated using the UKHabitat baseline data (Figure 3) and habitat descriptions included within this report; the value of proposed habitats has been calculated using the proposed site layout (Infrastructure Layout, 25/04/2025, RES – Appendix B). Full details of the assessment are included within a separate Biodiversity Impact Assessment Report (Clarkson & Woods, May 2025) detailing the biodiversity net gain that would be achieved across each habitat type (habitat, hedgerow and watercourse).

3.4 Designated Sites

Statutory Designated Sites

3.4.1 Thundersley Great Common SSSI, situated at least 1.75km from Site, is designated for its grassland and heath habitats. The Essex Estuaries SAC, situated over 4km from Site, is designated for its estuarine habitats. Benfleet and Southend Marshes SPA and Crouch and Roach Estuaries SPA and SSSI support internationally significant populations of waterbirds, including dark-bellied brent geese, and waders such as common ringed plover, grey plover and dunlin.

Potential Impacts

3.4.2 There is no risk of impacts on either Thundersley Great Common SSSI or the Essex Estuaries SAC given the distance from–and lack of habitat connectivity with–the Site.

3.4.3 Benfleet and Southend Marshes SPA and Crouch and Roach Estuaries SPA could be adversely affected if the Site were to support populations of qualifying species, which would be displaced by the proposals. However, the habitats on Site are considered to be suboptimal for overwintering waterbirds, with the scoping wintering bird surveys predominantly recording bird species associated with boundary features. The only waterbirds recorded being Egyptian geese on a single occasion, but only two individuals that were commuting overhead, rather than utilising the Site itself. No species associated with the SPAs were recorded. As such, the impacts upon either internationally important site are considered to be negligible.

Mitigation, Compensation, Enhancement and Monitoring

3.4.4 Mitigation measures are not applicable.

Residual Effects

3.4.5 **Neutral** -no residual effects anticipated.

Non-statutory Designated Sites

3.4.6 There are eight Local Wildlife Sites within 2km of the Site (Table 2 above refers), comprising a combination of species-rich grassland (unimproved, lowland meadow), lowland mixed deciduous woodland and valuable green infrastructure habitats. All Local Wildlife Sites are beyond 400m from Site and the major public roads surrounding the Site.

Potential Impacts

3.4.7 No direct impacts on these designated sites are anticipated. There is some low potential for indirect impacts from pollution (in the form of dust, sediments or contaminants) onto the designated sites, but the risk of impacts is considered almost negligible given the distance from Site and the intervening road infrastructure.

Mitigation, Compensation, Enhancement and Monitoring

3.4.8 A Construction Environmental Management Plan focussed on ecology (CEMP: Ecology) will be prepared for the construction phase of the scheme, detailing measures protecting all habitats within and surrounding the Site, including the LWSs within 2km. The CEMP: Ecology will include details of appropriate fencing to restrict access into key ecological areas, information on any timing/seasonal restrictions (for example, traffic movements during drought, dusty or particularly wet conditions), and measures including application of COSHH regulations, to prevent the creation of potential pollution sources and discharge of such pollution into waterbodies, watercourses or sensitive neighbouring habitats. This will include measures to minimise dust deposition, including ensuring that loads leaving Site are securely covered.

Residual Effects

3.4.9 Providing that good practice measures and ecological protection areas (See 'Embedded Avoidance and Design Measures' above) are adopted to prevent damage to neighbouring sites, it is not expected that the proposed development will have negative residual effects on any of the non-statutory LWS sites or associated habitats and species. As such, a **neutral** residual effect is anticipated.

3.5 Habitats

Modified Grassland

3.5.1 Modified grassland habitats recorded on Site are low distinctiveness and value; however this habitat has been included here given the proposed creation of a large extent of the Site as modified grassland habitat.

Potential Impacts

3.5.2 No loss of areas of baseline modified grassland will occur.

3.5.3 Positive increase in ecological value of low distinctiveness grassland habitats on Site, where created and managed as a species-diverse grassland.

Mitigation, Compensation, Enhancement and Monitoring

3.5.4 Existing modified grassland habitats will be retained within the scheme and protected with fencing to prevent damage by personnel and plant.

3.5.5 Moreover, the extent of this habitat type will be expanded, with new modified grassland in 'good' condition established within all undeveloped land within Fields 1 – 3.

3.5.6 Retained and created field margins on Site will be managed to maintain or increase species-richness and vegetation structural diversity through rotational management. Full details of habitat creation and enhancement will be detailed within the CEMP: Ecology and LEMP to be prepared.

Residual Effects

3.5.7 With the creation of a large extent of new grassland habitats and favourable management, a **residual long-term small-scale beneficial effect at a Site level** is expected.

Other neutral grassland

3.5.8 A small area of other neutral grassland is recorded on Site, within Field 1, plus presumed other neutral grassland present on road verges.

Potential Impacts

3.5.9 Other neutral grassland will be lost at the location of proposed new access route, potentially also where tracks are upgraded. The extent of habitat lost will be determined by which access routes are taken forward, which is understood to be agreed with the local highways authority.

3.5.10 Positive increase in ecological value of moderate distinctiveness grassland habitats within Field 1 southern margin, where created and managed as a species-diverse grassland.

Mitigation, Compensation, Enhancement and Monitoring

3.5.11 Existing other neutral grassland will be retained within the scheme and protected with fencing to prevent damage by personnel and plant.

3.5.12 Moreover, the extent of this habitat type will be slightly expanded with new other neutral grassland set to achieve 'moderate' condition where created within Field 1.

3.5.13 Retained and created field margins on Site will be managed to maintain or increase species-richness and vegetation structural diversity through rotational management. Full details of habitat creation and enhancement will be detailed within the CEMP: Ecology and LEMP to be prepared.

Residual Effects

3.5.14 With the creation of replacement other neutral grassland habitats and favourable management, a **residual long-term small-scale beneficial effect at a Site level** is expected.

Woodland – Lowland Mixed Deciduous Woodland and Other Broadleaved Woodland

3.5.15 Two areas of woodland were recorded; Woodland 1 an area of other broadleaved woodland and partially within the redline boundary, and Woodland 2 an area of lowland, mixed deciduous woodland bounding the northeastern boundary of Site. The northern section of Woodland 2 is recognised as deciduous woodland within the Priority Habitats Inventory, but not the southern extent which lies adjacent to the amended redline boundary.

Potential Impacts

3.5.16 No woodland is anticipated to be directly impacted by the proposed development, with developed compounds over 80m from woodland edge. However, upgrading of existing access tracks and creation of a new access track leading into Field 3 will occur within 5m of the woodland edge (Woodland 1) and immediately adjacent to the new access route proposed to exit the southeastern boundary. Within Field 3, it is understood that no trees would be removed.

3.5.17 Construction activities have the potential to result in dust deposition and some additional atmospheric pollution.

3.5.18 There is also some potential for adverse impacts to result from unintentional damage to woodland habitats by machinery, although considered to be low risk given the distance between woodland areas and the proposed development. Without appropriate mitigation measures, roots of woodland trees could also be impacted detrimentally through compaction and vibration.

3.5.19 The introduction of artificial lighting has potential to compromise the ecological value of woodland through the generation of light spill.

Mitigation, Compensation, Enhancement and Monitoring

3.5.20 All woodland will be retained within the design and protected with a minimum ecological buffer of 15m. Where mature, standard trees are present along the woodland edge, the minimum buffer zones should be at least 15 times larger than the diameter of the tree at breast height, or, where the tree canopy exceeds 15 times the diameter of the tree, at least 5m beyond the edge of the tree canopy.

3.5.21 At Woodland 1 and 2, good practice measures will be taken to ensure that appropriate fencing is installed to create a barrier protecting the woodland edge. This will include the implementation of measures in accordance with BS5837:2012 – 'Trees in Relation to Design, Demolition and Construction' to ensure protection of the root systems of woodland trees.

3.5.22 The siting of the new access road will be informed by arboricultural surveys confirming the extent of adjacent tree root protection zones, and an Ecological Clerk of Works (ECoW) will ensure appropriate Root Protection Areas (RPAs) are implemented.

3.5.23 The CEMP: Ecology will include details of appropriate fencing to protect woodland habitats. It will also include information on pollution prevention measures, including any timing/seasonal restrictions (for example, traffic movements during drought, dusty or particularly wet conditions), and measures including application of COSHH regulations. Measures will also be included to prescribe measures to minimise dust deposition, including ensuring that loads leaving Site are securely covered.

3.5.24 All security fencing will be maintained throughout the construction phase. The ongoing protection and management of woodlands will be set out within the LEMP to be prepared for the Site.

3.5.25 Details of the operational proposed lighting at the Site will be confirmed to ensure no detrimental impacts on adjacent habitats. To mitigate impacts resulting from light spill, alternatives to permanent introduced lighting should be explored, such as the use of infrared cameras or motion sensors to minimise the lighting illumination time. It is considered prudent for these measures to be implemented and retained on-site long-term to avoid disturbance of woodland habitats and species.

Residual Effects

3.5.26 Providing that the above measures are implemented, the ecological importance of woodland areas can be maintained throughout construction and operation and a residual **neutral** effect is anticipated.

Scrub

3.5.27 Areas of blackthorn, bramble and mixed scrub are present at field boundaries and margins of the Site.

Potential Impacts

3.5.28 Mixed scrub will be lost where new access routes affect scrub present on road verges. Construction activities also have the potential to result in dust deposition and some additional atmospheric pollution.

3.5.29 There is also some potential for adverse impacts to result from unintentional damage to scrub habitats by machinery.

Mitigation, Compensation, Enhancement and Monitoring

3.5.30 All scrub will be retained within the design and, wherever possible, protected with a minimum ecological buffer of 10m.

3.5.31 Good practice measures will be taken to ensure that appropriate fencing is installed to create a barrier protecting the scrub edge. This will include the implementation of measures in accordance with BS5837:2012 – 'Trees in Relation to Design, Demolition and Construction' to ensure protection of the root systems of trees.

3.5.32 The CEMP: Ecology will include details of appropriate fencing to protect scrub habitats. It will also include information on pollution prevention measures, including any timing/seasonal restrictions (for example, traffic movements during drought, dusty or particularly wet conditions), and measures including application of COSHH regulations. Measures will also be included to prescribe measures to minimise dust deposition, including ensuring that loads leaving Site are securely covered.

3.5.33 All security fencing will be maintained throughout the construction phase. The ongoing protection and management of scrub habitats will be set out within the LEMP to be prepared for the Site.

3.5.34 Approx. 0.15ha of mixed scrub will be created within Field 2 to mitigate for the loss of mixed scrub associated with habitat loss on road verges.

Residual Effects

3.5.35 Providing that the above measures are implemented, the ecological importance of scrub areas can be maintained throughout construction and operation and a residual **neutral** effect is anticipated.

Wet Ditches

3.5.36 Wet ditches form field boundaries on Site, intersecting each of the fields allocated for development. The watercourses were small, largely heavily overgrown with hedgerow and scrub with variable water levels recorded throughout the year. Connectivity with other watercourses beyond Site was not established but presumed to extend off-site.

Potential impacts

3.5.37 Four access routes are proposed across the wet ditches in the main development area (affecting all ditches) to create new access tracks. This will involve culverting a stretch of watercourse, with a permanent footprint of approx. 4-6m per crossing and estimated total working area of approx. 10m per crossing. In addition to losses of ditch habitat to the culverts themselves, ditch habitat within the working area may be degraded. On a precautionary basis, a total loss of 40m of wet ditch is factored into the BNG assessment.

3.5.38 The construction activities also have the potential to increase pollution risk, run-off and physical damage, as well as disturbance to the banks of the wet ditches.

3.5.39 Connecting watercourses may also be adversely impacted during the construction phase of the development, predominantly through increased run-off and sedimentation, as well as potential physical damage to the banks of the features by construction machinery.

3.5.40 There is a risk of pollution impacts during operation in the event of a battery fire from the BESS facility, which could degrade the condition of the ditches on site and connected aquatic habitats. However, measures to minimise the likelihood and severity of battery fire have been incorporated into the development, such as systems to close off attenuated surface water at the BESS compounds Area and isolate it from the wider environment.

Mitigation, Compensation, Enhancement and Monitoring

3.5.41 With the exception of the proposed access routes, all watercourses present within Site will be protected from damage and accidental pollution / runoff during construction by maintaining an undeveloped, naturally vegetated buffer along the course of the feature. The buffer will be at least 15m in width, increasing to 30m wherever possible. These buffers will be illustrated and communicated to all site workers and demarcated by perimeter security fencing, temporary fencing or stock proof fencing (and signage) and installed at the commencement of construction. Full details will be provided within the CEMP: Ecology to be prepared for the Site.

3.5.42 In addition, the methodology for the works to facilitate the installation of culverting and access track across all ditches will be confirmed within the CEMP: Ecology to ensure avoidance of pollution affecting watercourses within and off-site.

3.5.43 Works compounds will not be sited within at least 50m of any watercourse present on Site, and contingency measures for unforeseen incidents such as spillages will be set in place prior to the commencement of construction works. This will be prescribed as part of the CEMP: Ecology.

3.5.44 Details of operational pollution prevention measures will be provided with a battery safety management plan. The Site design and adherence to this plan will ensure containment of contaminated materials would be possible in the unlikely event of a pollution incident.

3.5.45 The undeveloped, naturally vegetated buffers adjacent to watercourses will be managed as modified grassland, maintained with a tussocky sward, to increase habitat structural diversity across Site. This will be detailed in the LEMP. Encroachment of scrub will be managed, detailed in the LEMP, to prevent overshading.

3.5.46 Targeted scrub clearance adjacent to ditches could be implemented to enhance the Site ditch network, with an aim of increasing light ingress into the watercourses.

Residual Effects

3.5.47 Although loss of a small extent of ditch habitat will occur during construction, this is minimal in the context of the overall ditch network on Site. During operation, cessation of arable activities may lead to an improvement in ditch condition. Correct pollution prevention measures will avoid impacts during construction and operation. Overall, a residual **neutra**l effect is anticipated.

Hedgerows and Trees

3.5.48 A network of hedgerows was present adjacent to ditches, some field boundaries and adjacent to access tracks. Hedgerows are a Habitat of Principal Importance and are afforded some protection under the Hedgerows Regulations (1997). Species-rich hedgerows are also recognised as important habitat within the Essex BAP.

Potential Impacts

3.5.49 The development will result in the loss of four small lengths of hedgerow (up to approx. 60m) associated with the creation of four access routes across ditches, although it may be possible to micro-site each access point to avoid or minimise hedgerow removal, plus the additional hedgerow removal where access routes are created at the western and eastern edge of Site. All other hedgerows are to remain intact, with existing field access points to be utilised wherever possible.

3.5.50 Aside from the above, no other loss of hedgerows or trees is expected to occur within any parcels across the Site. However, without appropriate mitigation, hedgerows, their associated ditches (where applicable) and mature standard trees within them, have the potential to be adversely impacted during the construction phase of the development. This includes damage or degradation during construction, plus the potential for hedgerows to be damaged through an increase in run-off and sedimentation during construction.

Mitigation, Compensation, Enhancement and Monitoring

3.5.51 Perimeter security fencing or demarcation of ecological protection zones will be established at the commencement of construction, and maintained throughout the construction phase. This should be a minimum of 10m, or RPA of standard trees within hedgerows where greater.

3.5.52 All security fencing will be maintained throughout the construction phase. Buffer protection zones will be put in place around retained in-hedgerow trees and, if individual tree RPA are different from the above

specifications, the widest buffer width will be adhered to. No construction activities or materials will be stored within these areas, with full details to be included within the CEMP: Ecology to be prepared for the Site.

3.5.53 At the location of the proposed all new access routes to be created through existing hedgerows, an ECoW should attend Site to ensure that hedgerow loss is minimised as much as possible through micro-siting the location of these new routes.

3.5.54 A new length of approx. 230m of native, species-rich hedgerow will be created west of the northern, substation compound. Full specifications will be included within the CEMP: Ecology and LEMP to be prepared for the Site.

3.5.55 Rotational maintenance of all retained hedgerows to a height of at least 3m is considered particularly important for the provision of resources and encouraging use by native British wildlife, with full details regarding the creation and ongoing management of hedgerows also to be included within the LEMP to be prepared for the Site.

Residual Effects

3.5.56 The removal of hedgerow is not anticipated to result in significant negative effects due to the cumulative small length of hedgerow to be removed and short widths of gaps not contributing significantly to the fragmentation of the hedgerow network. The loss of overall hedgerow is also considered to be compensated by the planting of new, native and species-rich hedgerow planting.

3.5.57 With the creation of a greater extent of hedgerow, and favourable long-term management, a residual **beneficial effect at a Site level** is expected for hedgerows.

3.6 Protected Species and Species of Conservation Concern

Badger

3.6.1 No evidence of badger was recorded within Site, but an outlying sett was noted in Woodland 2 (outside the redline boundary), bounding the northeastern boundary of Site.

Potential Impacts

3.6.2 The badger sett is situated at the boundary of Site and due to be retained, with no construction proposed within at least 80m of the northeastern Site boundary. It is noted that this sett lies within the boundary of the scheduled A127/A130 Fairglen Interchange project and may be impacted by works associated with this project.

3.6.3 There is risk of disturbance and impacts to badgers where inappropriate protection buffers are implemented or works take place within close range of the badger sett.

Mitigation, Compensation, Enhancement and Monitoring

3.6.4 Badger setts are protected from damage and destruction under the Badgers Act 1992 (as amended), as detailed in Appendix A. The badger sett will require protection during construction, and once the Site becomes operational, to prevent disturbance to residing badgers.

3.6.5 A further badger survey will be conducted within at least two months prior to the commencement of works on Site, in order to confirm the continued presence of the sett and to search for any new badger setts excavated since baseline surveys. This includes the additional, unsurveyed areas included to allow the creation of new access routes.

3.6.6 Such surveys would also characterise the levels of activity and type of setts present.

3.6.7 Where confirmed, badger setts will be protected through the establishment of a no-work buffer of a minimum of 10m from outlier sett entrances to operational areas; a 20m buffer for subsidiary setts; and 30m buffer for main setts. These buffers would be demarcated using Heras-fencing and appropriate signage (e.g. 'Badger Sett and Protection Zone – Do Not Enter or Work in this Area to Avoid Committing an Environmental Offence').

3.6.8 The implementation of a minimum 10m buffer zone could be used to ensure that badgers remain protected and operational works can take place without risk of impact to badgers; however the distance would need to be confirmed based on the results of any update badger survey.

3.6.9 The CEMP: Ecology to be prepared for the Site will outline measures to be taken to reduce the probability of incidental mortality of badgers during the construction phase. Measures will also be included within the LEMP, to be prepared for the Site, with regards to maintenance of the field margin/buffer adjacent to the confirmed badger sett.

3.6.10 Post construction, all parcels of the Site will remain suitable for commuting and foraging badgers, particularly where species rich grassland is seeded. Badgers will be prevented from accessing the Site compounds; however, they would still be able to continue to move between them to access sufficient foraging resources present across Site.

Residual Effects

3.6.11 Assuming that the measures set out within the CEMP: Ecology and LEMP are adhered to, it is not expected that there will be any negative residual impacts on badgers using the Site, with potentially increased foraging value where the Site supports increased abundance of invertebrates over time. A residual **neutral** effect on badgers is predicted.

Bats

3.6.12 At least six trees present on Site provide low roosting potential for bats, but there is likely to be more along woodland edge or within woodland habitats. The Site provides good foraging and commuting habitat connectivity between the four trees situated on Ditch 1 and Ditch 2, with several mature standard hedgerow trees supporting potential roosting features. Habitat connectivity extends beyond Site into the surrounding landscape, although the significant major road network may compromise this in places.

Potential Impacts

Roosting Bats

3.6.13 Hedgerow trees may be damaged during construction with potential to affect roosting bats, should they be present. This would constitute an offence under the Conservation of Habitats and Species Regulations 2017 (as amended).

Foraging and Commuting Bats

3.6.14 The proposal will result in the loss of an area of arable farmland, which will have limited impact upon foraging resources due to the conventional management of cropland habitats present on Site.

3.6.15 Approx. 40m of wet ditch and 60m native hedgerow will also be lost, split across six locations where new access routes will be created.

3.6.16 The proposed development will result in the creation of modified grassland and other neutral grassland, managed to increase habitat diversity across Site. Mixed scrub and a new length of hedgerow (approx. 230m) will also be created on Site.

Lighting and Noise Impacts Affecting Bats

3.6.17 Minimal requirements for artificial lighting are expected to be required during the operation of the development, with only emergency, motion-activated lighting at key locations and for emergency purposes proposed. However, where construction takes place during winter, artificial lighting may be required within the construction zone due to the shorter day lengths. If this is the case, light may spill onto hedgerows, woodland etc. in discrete areas. However, as bats are in hibernation during the winter months, they are unlikely to be affected by this activity, but possible marginal impacts where works extend into early spring or late autumn.

3.6.18 There is the potential for the proposals to generate noise pollution from the operation of fans and other plant within the battery storage facility. Modelling software was used to determine predicated sound levels resulting from the proposed development, with these predicted to be between 72 dB (BESS compound) and 93dB (substation transformers) at the immediate footprint of the respective units. The modelled noise levels are predicated to rapidly decline with increasing distance. Depending on the frequency of the noise generated, this has the potential to disturb foraging/commuting and roosting bats in this vicinity, especially along the ditch corridor forming the northern boundary for Field 1, where predicted noise levels between the proposed substations and BESS stations will be elevated to at least 45dB. The current sound environment is dominated by high volumes of traffic on the surrounding major roads, however, with background and ambient sound levels reported at a location northeast of Site, beyond the major road network, reaching peak ambient sound level of 63 dB.

Mitigation, Compensation, Enhancement and Monitoring

Roosting Bats

3.6.19 At present, no removal or remedial works are proposed on the trees identified as suitable for roosting bats, therefore no roosts will be lost. Proposed access routes are situated beyond 10m from each tree location; however, if the development plans change and any of the trees identified as having low bat roost suitability require felling or other modification, further surveys will be required. This includes the two individual trees present within Field 4, the unsurveyed paddock. In the first instance, tree climbing inspections by trained and licensed ecologists would take place, which would determine whether further emergence surveys/mitigation would be required to ensure compliance with environmental legislation.

3.6.20 The CEMP: Ecology will include preventative measures to protect the boundary habitats, including trees suitable for roosting bats, hedgerows, watercourses and woodland on the Site during construction, as well as adjacent, off-site habitats connecting with suitable foraging and commuting habitats in the wider landscape. This will ensure that these features remain protected and retained for use by bats roosting nearby both during construction and operation.

3.6.21 The installation of at least four bat boxes on suitable mature trees on the field boundaries or Woodland 1 could be used to enhance roosting opportunities for bats. Where suitable trees are used, careful consideration is needed to ensure that there is sufficient connectivity to foraging and commuting habitats between Sites and surrounding habitats.

Foraging and Commuting Bats

3.6.22 Due to the conventional management of the Site as arable farmland, as well as all linear habitats and off-site woodland parcels being retained and protected, further surveys for foraging/commuting bats are not considered necessary in this instance. The restricted length of hedgerow and wet ditches permanently impacted by a number of short, new access routes is not considered to be substantial enough in length to compromise commuting routes across the hedgerow/ditch network. Furthermore, the loss of arable habitat is considered to be fully offset by the proposed creation of species-diverse, modified grassland to increase the overall floristic diversity of Site (and associated invertebrates).

3.6.23 The increase in habitat diversity at a Site level is likely to support a greater abundance and diversity of invertebrates post-development, thereby increasing the foraging value of Site for foraging bats. Full specification of the proposed grassland creation and management will be detailed within the CEMP: Ecology and LEMP to be prepared for the Site.

Lighting Impacts Affecting Bats

3.6.24 At present, the proposals do not seek to introduce new sources of artificial night-time lighting but anticipated sources are PIR controlled security lighting, including emergency lighting. Consideration must be given to use the minimum number of light sources required and to ensure, where possible, that a warm white spectrum (<2700 Kelvin) luminaire is used, as this will reduce impacts of artificial lighting upon wildlife. Light sources will be installed to focus on the compounds only, avoiding illumination of boundary habitats. This will ensure that the development will not interfere with roosting, commuting and foraging bats. If permanent sources of lighting at night are proposed the impacts from the scheme will need to be reviewed further and appropriate lighting controls put in place.

Noise Impacts

3.6.25 Noise generated from the operation of fans and other plant within the battery storage facility will typically be concentrated in the day, when temperatures are likely higher and more energy is coming into the facility from energy generation. Impacts on bats are therefore likely to be limited, however could continue into evening/emergence periods where extended periods of cooling are required. Little is currently known about the potential noise impacts associated with BESS development on bat species, so there is the risk that noise may displace foraging and commuting bats from some areas of the proposed development that are not already impacted by other noise disturbance (such as the major roads encompassing Site). As described above, the major road junctions already elevate ambient environmental noise levels at the location, however, the frequency of introduced development may have other, unknown impacts upon bats.

Residual Effects

3.6.26 With adherence to the advice above, no significant adverse effects are anticipated on roosting, foraging and commuting bats. With the creation of more diverse habitats and installation of new roosting features, but unknown impacts of artificial noise impacts on bats, a **neutral effect at a Site level** is expected.

Otter

3.6.27 Otter is listed as a BAP species within Essex. No evidence of otter was recorded on Site, with habitat considered to be suboptimal for this species. However, otter may pass through the Site.

Potential Impacts

3.6.28 Construction works will impact wet ditch habitat directly through the construction of four new access routes, which has potential (albeit low given the habitat suitability for these species) to disturb an otter or affect their resting places (burrows/holts/couches etc).

3.6.29 Furthermore, without appropriate mitigation, the release of sediments of pollutants into the ditches during construction has potential to affect habitats on Site and those connected downstream.

Mitigation, Compensation, Enhancement and Monitoring

3.6.30 Mitigation measures set out within 'Wet Ditches' above (Sections 3.5.4128 to 3.5.479 refer) would also extend to ensure impacts upon otters and their habitats are mitigated.

3.6.31 Undeveloped buffers adjacent to wet ditches will minimise the risk of disturbance impacts on watercourses and associated species.

3.6.32 At new crossing points, an ECoW will inspect the area to confirm the absence of otters before works commence. The ECoW will advise in the unlikely event that any further mitigation or licensing is required.

Residual Effects

3.6.33 Where the proposed avoidance and pollution prevention measures to be set out within the CEMP: Ecology are implemented, a residual **neutral** effect on otters is expected to occur.

Hazel Dormouse

3.6.34 Hazel dormouse is identified as a priority species within Essex, with the nearest confirmed location approximately 4.5km from Site. Dormice are considered likely absent from Site, due to the presence of major roads effectively isolating the Site, but cannot be fully ruled out.

Potential Impacts

3.6.35 Hedgerows will be retained overall and protected, but with the exception of approx. no more than 60m that will be removed across five new access locations affecting boundary habitats. There is low potential that this habitat clearance may impact sheltering or breeding dormice.

3.6.36 Suitable habitat for dormice in the form of surrounding woodland is not anticipated to be impacted. In the absence of mitigation, however, there is the potential for impacts upon dormice to arise during the construction phase, through the inadvertent damaging of woodland edge habitats.

Mitigation, Compensation, Enhancement and Monitoring

3.6.37 Tree and hedgerow protection measures (as per Section 3.5) will be implemented to ensure that these features are protected during the construction phase, thereby avoiding potential impacts upon dormice in retained habitats. Full details will be included with the CEMP: Ecology to be prepared for the Site.

3.6.38 Given the restricted amount of suitable habitat that requires clearance, and potential for micrositing of new access routes to reduce the length of hedgerow impacted, risk of impacts affecting dormice is considered to be low. Therefore, the implementation of a non-licensable Reasonable Avoidance Method Statement during clearance is recommended and, as such, the proposed work is unlikely to require a licence from Natural England.

- The Risk Avoidance Method statement will be detailed fully within the CEMP: Ecology and provides a proportionate, non-licensed approach and will set out precautionary measures to adopt during site clearance and construction and will include measures such pre-construction inspection by an Ecological Clerk of Works (ECOW); timing of works; targeted destructive searching of suitable habitats; prohibition on storage of construction materials; and regular monitoring by the ECOW. This will include measures to avoid conflicts with nesting bird avoidance measures. In the highly unlikely event that any nests are found within the footprint, works would cease until Natural England have been consulted and a European Protected Species (EPS) mitigation licence obtained for clearance work to be completed.

3.6.39 Clearance of these very small areas of habitat will not result in fragmentation of potential dormouse habitat and sympathetic management of retained hedgerows can be used to improve the Site for foraging and nesting dormice. Full details will be included within the LEMP.

3.6.40 Surveys for the presence or likely absence of dormice would be required in the event that substantial alterations to the boundary habitats are anticipated during construction. Such actions might include the removal of contiguous sections of hedgerow (>20m), removal of woodland or felling of trees, in which case a suitability qualified ecologist should be approached.

3.6.41 Proposals include the addition of new hedgerow and tree planting, which, once established, would increase the availability and value of suitable habitats for dormice within the Site.

Residual Effects

3.6.42 Providing that the CEMP: Ecology and LEMP are adhered to, and the non-licensed Risk Avoidance Method Statement approach taken to avoid impacts on hazel dormice, it is not anticipated that there will be any negative residual effects on dormice, should they be present within Site. A residual **neutral** effect is anticipated.

Amphibians, including great crested newts

3.6.43 One pond lies within 500m of Site, approx. 120m from the location of proposed track upgrades, however it was not possible to survey the pond due to lack of access permission. Great crested newts are known to occur locally with the nearest confirmed presence approx. 1.5km from Site. The site lies within a 'green' impact risk zone under District Level Licensing.

Potential Impacts

3.6.44 GCN may be found up to 250m from ponds (and up to 500m from ponds in exceptional circumstances[15]); however, studies by Jehle[16] and Cresswell & Whitworth[17] have demonstrated that the habitat within 50m of the pond is the most important to GCN and supports the majority of a GCN population within its terrestrial phase. This is reflected within the core, intermediate and distant habitat zones for GCN as defined by Natural England.

3.6.45 Although GCN may occasionally disperse across cropped arable fields to reach breeding ponds, they are unlikely to forage, shelter or hibernate within these habitats due to lack of cover from dense vegetation and lowered abundance of invertebrates (foraging). No ponds were present within the main development site (Fields 1 – 3). Although wet ditches were present, potential ponds were confirmed to, in fact, be wet ditches that were heavily overgrown, lacked marginal vegetation and presumed to have variable flow at times of increased rainfall. This restricts the potential for great crested newt to be present on Site. On this basis, the only suitable waterbody is considered to be a large pond to the west of the proposed access route upgrades.

3.6.46 Potential impacts are considered to be low, as the access routes are already present, largely lacking vegetation indicating frequent vehicle use, and situated beyond grazed paddocks (unsurveyed, presumed to be modified grassland) and residential and agricultural/commercial development. Nevertheless, the presence of GCN can be assumed within the pond on a precautionary basis.

3.6.47 Whilst potential for impacts upon GCN between 50 and 250m of ponds is considered unlikely on site due to the overall nature of habitats present, the risk of impacts cannot be entirely eliminated, particularly where newts are dispersing from ponds. The risk is considered small, but it is not considered 'negligible'.

Mitigation, Compensation, Enhancement and Monitoring

3.6.48 As highlighted above, the presence of newts within 250m of the pond, whilst considered unlikely within the habitats occupied or affected by the development, cannot be ruled out. As such, works within 250m of the off-site pond will operate under a Risk Avoidance Method Statement (RAMS). The RAMS will set out appropriate precautionary measures to adopt during site clearance and construction and will include measures such pre-construction inspection by an Ecological Clerk of Works (ECOW); timing of works; targeted destructive searching of suitable habitats; prohibition on storage of construction materials; and regular monitoring by the ECOW.

3.6.49 The Risk Avoidance Method statement will be detailed within the CEMP: Ecology and provides a proportionate, non-licensed approach. In the highly unlikely event that a GCN is encountered during the removal of suitable habitat within these areas, the attending ecologist will advise of the necessary course of action. A licence from Natural England may be required in order to permit works to continue.

[15] Great Crested Newt Mitigation Guidelines. 2001. Natural England
[16] Jehle R (2000) The terrestrial summer habitat of radio- tracked great crested newts (Triturus cristatus) and marbled newts (T. marmoratus). Herpetological Journal 10: 137-142
[17] Cresswell W and Whitworth R (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus. English Nature Research Report 576. English Nature, Peterborough

3.6.50 Given the distance and poor connectivity between the main compounds and pond, the above precautionary approach will not apply to Fields 1 – 3 comprising arable cropland. However, in the unlikely event that a GCN is found within these areas, it will still be necessary to stop works, liaise with an ecologist and likely need to apply for a mitigation licence from Natural England in order to permit lawful habitat clearance and for works to continue.

3.6.51 It is recommended that a hibernaculum is created within suitable retained or newly planted habitat (such as grassland margins) to increase hibernation potential for all amphibians. Suggested locations should be informed by an ecologist with provisional locations detailed within the CEMP: Ecology and LEMP to be prepared for the Site.

Residual Effects

3.6.52 Providing that the CEMP: Ecology and LEMP are adhered to, and the described non-licensed Risk Avoidance Method Statement approach to avoiding impacts upon GCN is followed, it is not anticipated that there will be any negative residual effects on amphibians, should they be present within Site. A residual **neutral** effect is anticipated.

Reptiles

3.6.53 Reptile habitat is constrained to field margins and adjacent habitats, potentially also unsurveyed road verges categorised as other neutral grassland. No evidence of reptiles was recorded during the field survey, however suitable breeding sites (compost heap/grass cuttings and manure heap) were present.

Potential Impacts

3.6.54 Suitable habitat at the field margins and road verges will only be impacted at the proposed location of the new access routes crossing wet ditches. Reptile populations are therefore considered unlikely to be harmed or be affected by the overall restricted area of habitat loss, if present at the Site, and no further surveys to determine their presence or likely absence are recommended.

3.6.55 In the absence of mitigation, the construction work has the potential to disturb, injure or kill reptiles during removal of modified grassland within the construction zone if it is allowed to become more suitable through lack of management.

Mitigation, Compensation, Enhancement and Monitoring

3.6.56 Suitable reptile habitat such as field margins will be protected with appropriate fencing. However, where the loss of reptile habitat is inevitable (i.e. hedgerow, field margins and grassland within unsurveyed road verges) this should be undertaken using a precautionary approach, which will be specified within the CEMP: Ecology. This will include a pre-removal check of suitable habitat by a suitably experienced ecologist in order to locate and remove any reptiles which may be present. Ideally, works affecting these areas will take place between April and Sept/October to allow reptiles to move away on their own accord. Depending on the timing of habitat removal works, it may be necessary to remove the short sections of hedgerow under an Ecological Clerk of Works (ECoW). This will be outlined further within the CEMP: Ecology to be prepared for the Site.

3.6.57 Enhancements to the Site include grassland creation and the proposed management of some field margins as tussocky grassland. These measures will increase the extent of suitable reptile habitat.

Residual Effects

3.6.58 By following a precautionary approach to Site clearance, no adverse effects on reptiles are anticipated. With new habitat creation, a **residual beneficial effect at a Site level** is predicted.

Breeding Birds

3.6.59 Grey partridge, skylark, song thrush and stone curlew are each recognised as priority species within the Essex BAP. A range of species predominantly associated with boundary habitats were noted on an ad hoc basis, with the addition of low-density singing skylark and Schedule 1 Cetti's warbler.

Potential Impacts

3.6.60 The change of land-use affecting approx. 12 hectares of arable land could displace ground nesting birds, such as skylark. However, when considering the average territory densities of skylarks on arable farmland (reported as being 0.28 territories per hectare), the development is likely to affect only 3 - 4 skylark breeding territories, which will not have a significant impact on local populations of this species, particularly when considering arable farmland is relatively ubiquitous within the local environment.

3.6.61 There is a risk of accidental killing or injury of ground-nesting birds if construction occurs during the breeding season (typically April-August for ground-nesting species). To minimise the likelihood of these species nesting, the arable habitats within the Site will be maintained unsuitable for nesting after the last harvest pre-development. This will entail cutting vegetation and rolling the ground to maintain a short vegetation height of <25cm. Should construction occur within the breeding season and should suitable nesting habitat remain, the absence of ground-nesting birds will first be confirmed by the ECoW before any enabling works proceed.

3.6.62 It is possible that, without effective protection and mitigation measures, the retained hedgerows, trees, woodland and associated boundary features would be damaged during the construction phase of the development due to direct damage, run-off and dust from construction traffic. Additionally, the clearance of up to approx. 60m of hedgerow and wet ditch, to create vehicle access routes, may risk disturbance, injury or death to any birds which are using the feature for nesting, depending on the time of year for removal.

3.6.63 Cetti's warbler as a Schedule 1 species (Wildlife and Countryside Act, as amended 1981) is afforded additional legal protection, which, in addition to standard protection afforded to all wild birds, also makes it an offence to disturb this species while they're nesting, building a nest, in or near a nest that contains their young; or to disturb their dependent young.

Mitigation, Compensation, Enhancement and Monitoring

3.6.64 Protective buffers to retained habitats, to be demarcated prior to the construction phase commencing, will also minimise disruption to birds nesting on Site. All biodiversity protection buffer fencing will need to be erected prior to any ground works.

3.6.65 Removal of suitable breeding habitat (hedgerow or wet ditches) should be carried out outside of the bird nesting season (March – mid-September inclusive) with consideration of hazel dormice ('Hazel Dormouse' above refers. Where this is not possible, it should be preceded by an inspection for nesting birds by a suitably experienced ecologist, no more than 48 hours before proposed works. In order to work around other protected species (e.g. great crested newts), it is recommended that hedgerow (above ground) vegetation clearance is ideally undertaken in either September or October, although could occur over winter, providing that the hedgerow base is removed April – October (during the reptile and amphibian active season).

3.6.66 Where works have the potential to impact Cetti's warbler through disturbance (as identified by the ECoW), works will cease within affected areas, with appropriate mitigation measures to be informed by an ecologist at the time. This may include an extended no development buffer during their breeding season, for example.

3.6.67 Landscaping plans include extensive grassland seeding with a variety of different seed mixes, including a meadow mix which will be species-diverse. This will enhance foraging opportunities due to an anticipated increase in invertebrates and flowering plants. Management is also intended to create structurally diverse habitats, some of which may remain suitable for nesting skylark. Additionally, approx. 169m of hedgerow will expand suitable nesting habitat, and overwintering foraging resources. All new landscape planting will be native, locally appropriate, managed sensitively and detailed fully within the LEMP.

3.6.68 Although new habitat will enhance the Site for nesting birds, to increase the availability of crevice nesting species, at least 4x bird boxes for crevice-nesting species should be installed on suitably mature, retained trees. These boxes will be installed within suitable boundary habitats or at other suitable locations where permission is permitted within the same land ownership. A suitably experienced ecologist can advise on suitable locations for such boxes and their specification, with consideration of ensure box longevity and manage predation risk. Full details will be detailed within the CEMP: Ecology and LEMP to be prepared for the Site.

Residual Effects

3.6.69 Potential displacement of ground-nesting skylark would result in **adverse effects at the Site level only**.

3.6.70 For the majority of species, adverse impacts can be avoided, and new grasslands creation, habitat planting and installation of nest boxes will lead to a **residual beneficial effect at the Site level**.

Other Notable Species/ Species of Conservation Concern

3.6.71 Although suitable hedgehog foraging habitat was recorded on Site, no records of hedgehog were returned within the data search. Other SoCC may include harvest mice where grassland habitats are allowed to grow tall and remain unmanaged.

Potential Impacts

3.6.72 The removal of arable habitat is unlikely to result in any adverse impact on hedgehogs, but may lead to a reduction of foraging opportunities for brown hare, if not fully mitigated.

3.6.73 Where breeding or young hares are sheltering within habitat set for removal (hedgerows and field margins) or hedgehogs are hibernating, there is risk of mortality. This is, however, considered to be low given the restricted areas of these habitats.

Mitigation, Compensation, Enhancement and Monitoring

3.6.74 The measures set out to ensure the protection of dormice, amphibians and reptiles includes for an ECoW to be present during the removal of hedgerow. This will allow for habitats to be appropriately searched before habitat clearance. The recommended timing of this hedgerow removal is between September and October, which avoids the hedgehog hibernation period as well as the main breeding bird season.

3.6.75 Specifics methodologies will be confirmed within the CEMP: Ecology; with the LEMP also outlining the proposed landscaping and new planting within the Site, enhancing it for wildlife, including both hedgehog and brown hare. New grassland creation would be expected to enhance foraging opportunities.

Residual Effects

3.6.76 With creation of new grassland, there may be a **residual beneficial effect at the Site level** on hare and hedgehogs, if present.

Invasive and Non-native Species

3.6.77 Goat's rue, a Schedule 9 listed non-native invasive species, was recorded within a western field margin at Field 6.

Potential Impacts

3.6.78 Construction activities could spread goat's rue if this plant or its seeds are moved by vehicles and personnel. This would constitute an offence under Schedule 9 of the Wildlife & Countryside Act.

Mitigation, Compensation, Enhancement and Monitoring

3.6.79 Pre-construction surveys will take place to confirm the presence and location of goat's ruse, with boundary habitats protected by buffer zones. These will be extended to encompass the field margin where goat's rue was recorded. This buffer will prevent access to personnel or plant, thereby preventing the accidental spread of this species.

3.6.80 A toolbox talk will be delivered, to be detailed in the CEMP, which will ensure site personnel can identify goat's rue and avoid its spread.

3.6.81 Control of this species could be explored as an enhancement measure, to be detailed in the LEMP.

Residual Effects

3.6.82 A residual **neutral** effect is predicted. A **beneficial effect at the site level** would be felt if active management of goat's rue to control the species is pursued.

3.7 Summary of Assessment of Effects

3.7.1 The assessment of effects is summarised in Table 10 overleaf, which also outlines the proposed method to secure any relevant mitigation associated with reducing impacts.

Table 10: Summary of Assessment of Effects

Feature	Importance	Mitigation/Compensation Proposed	Residual Effects	Proposed Mechanism to Secure	Monitoring Required?
Designated Sites					
All statutory designated sites	International/ National	• N/A	Neutral	N/A	N/A
All LWS	Local	• Pollution prevention measures and other measures to prevent generation of pollution sources, such dust deposition or waste generation in adjacent fields or within proximity to watercourses • Application of COSHH regulations, e.g. compound siting	Neutral	CEMP: Ecology	Yes – regular monitoring of pollution prevention measures throughout construction phase
Habitats					
Modified grassland	Site	• Retention and protection with fencing during construction • Approx. 8.01ha new grassland creation	Beneficial effect at Site level	LEMP	Yes – monitoring of establishment and condition during operation
Other Neutral Grassland	Site	• Retention and protection with fencing during construction • Approx. 0.19 ha new other neutral grassland	Beneficial effect at Site level	LEMP	Yes – monitoring of establishment and condition during operation
Woodland	Local	• Implementation of no development buffer (access tracks excepted), minimum 15m width and protective fencing, increased to minimum tree Root Protection Zones where the distance is greater • Works compounds to be located minimum 50m from any woodland • Pollution prevention measures and other necessary to avoid the generation of pollution sources, such dust deposition or waste generation	Neutral	CEMP: Ecology	Yes – regular monitoring throughout construction phase and during operation

Feature	Importance	Mitigation/Compensation Proposed	Residual Effects	Proposed Mechanism to Secure	Monitoring Required?
Scrub	Local	• Implementation of no development buffer (access tracks excepted), minimum 10m width and protective fencing, plus pollution prevention measures and other measures to prevent generation of pollution sources, such dust deposition or waste generation	Neutral	CEMP: Ecology	Yes – regular monitoring throughout construction phase and during operation
Wet ditches	Local	• Implementation of undeveloped buffers (access tracks excepted) no less than 15m width, with protective fencing • Attendance of an ECoW within areas of work where wet ditch habitats, including margins, are affected (during creation of culverts across ditches) • Works compounds being located at least 50m from any waterbodies. Application of COSHH regulations, e.g. compound siting • Implementation of pollution prevention measures to be implemented and fully detailed within the CEMP: Ecology to be prepared for the Site. • Design measures and preparation of appropriate Battery Safety Management Plan (or similar) to prevent impacts on waterbodies in the event of battery fire. • Management of scrub to prevent overshading.	Neutral	CEMP: Ecology Battery Safety Management Plan LEMP	Yes – regular monitoring throughout construction phase and during operation
Hedgerows and trees	Local	• Protective fencing and permanent buffer zones of at least 10m or RPZ, where this area is greater • Attendance of ECoW where hedgerows impacts may impact protected species – e.g. 'breeding birds, reptiles refer' during hedgerow removal associated with new access routes • Creation of approx. 230m new hedgerow planting	Beneficial effect at a Site level	CEMP: Ecology LEMP	Yes – regular monitoring throughout construction phase and during operation
Species					

Feature	Importance	Mitigation/Compensation Proposed	Residual Effects	Proposed Mechanism to Secure	Monitoring Required?
Badgers	Site	• Pre-construction badger check within at least two months of works commencing, including additional habitats within the extended redline boundary to facilitate access route creation. • Permanent buffer zones around setts • New grassland creation	Neutral	CEMP: Ecology LEMP	Yes – monitoring throughout construction phase
Bats	Site	• Standard buffer zones around boundary habitats • New hedgerow creation increases commuting and foraging potential • Installation of 4x bat boxes on suitable roosting features • Any unplanned tree removal / limbing to be first discussed with a suitably qualified ecologist. Further surveys of trees, if necessary, including two unsurveyed trees within Field 4. • Preparation of a Sensitive Lighting Strategy, if necessary	Neutral	CEMP: Ecology LEMP	No
Otter	Site, if present	• Buffer zones of at least 15m, ideally 30m, around all watercourses. • Pollution prevention measures to avoid impacts on watercourses • Pre-construction surveys ahead of the creation of culverts to check for evidence of otter	Neutral	CEMP: Ecology	No
Hazel Dormouse	Local, if present	• Implementation of a non-licenced Risk Avoidance Method Statement (RAMS) ahead/during hedgerow removal • Creation of hedgerow will provide suitable dormouse habitat, although poor habitat connectivity for this species.	Neutral	CEMP: Ecology LEMP	No
Amphibians, including great crested newts	Site, if present	• Implementation of a non-licenced Risk Avoidance Method Statement (RAMS) for GCN for areas between 50m and 250m of off-site pond	Neutral	CEMP: Ecology LEMP	No

Feature	Importance	Mitigation/Compensation Proposed	Residual Effects	Proposed Mechanism to Secure	Monitoring Required?
		• Creation of modified grassland habitat and hibernaculum would increase foraging and sheltering potential for amphibians, where present			
Reptiles	Site, if present	• Sensitive habitat clearance (mixed scrub, other neutral grassland, arable field margins, debris, rubble etc) under ecological watching brief by ECoW • Creation of modified grassland habitat would increase foraging and sheltering potential for reptiles, enhancing the Site for reptiles	Beneficial effect at a Site level	CEMP: Ecology LEMP	No
Breeding Birds	Site	• Sensitive timing of suitable nesting habitat or else clearance under ecological watching brief by ECoW • Proposed modified grassland and hedgerow has potential to increase invertebrate abundance, enhancing the Site for common breeding birds • Installation of 4x bird boxes	Adverse effect at a Site level for skylark Beneficial effect at a Site level for all other species	CEMP: Ecology LEMP	Yes – monitoring of active nests during construction
Other Notable Species/ Species of Conservation Concern	Site, if present	• Sensitive clearance methodology for other protected species will also allow for Other SoCC • Modified grassland and hedgerow creation has potential to increase foraging/ sheltering resources	Beneficial effect at a Site level	CEMP: Ecology LEMP	No
Invasive and Non-Native Species	n/A	• Toolbox talk • Buffer zones • Invasive species control strategy	Neutral/ beneficial effect at the site level if control measures pursued	CEMP: Ecology LEMP	Yes – monitoring during construction and during operation

4 CONCLUSIONS

4.1.1 In the absence of avoidance and/or mitigation measures, the proposed development has the potential to cause adverse impacts upon a number of ecological features ranging from **Site to Local** importance. However, avoidance, mitigation and compensation measures have been proposed to ensure that these adverse impacts are reduced as far as possible.

4.1.2 These measures include:

- A CEMP: Ecology will be prepared to detail pre-construction/site set-up and construction-phase mitigation (including survey of additional habitats within the extended redline boundadry), compensation, enhancement, management and monitoring measures. It is anticipated that the CEMP: Ecology would be secured via a planning condition, therefore is will be essential that the provisions and requirements of the CEMP: Ecology are incorporated into the contracting and tendering process for the eventual construction phase, to ensure they fully enacted;
- A LEMP will be produced which will detail operation phase mitigation, compensation, enhancement, management and monitoring measures, including the creation and long-term management of habitats and wildlife features;
- Biodiversity protection zones to protect retained habitats during construction;
- Pre-construction surveys across Site, as required, for badgers, roosting bats, otter and breeding birds and to include all additional habitats within the extended redline boundary;
- Sensitive working methods/implementation of Risk Avoidance Method Statement during Site clearance of sensitive habitats (e.g. grassland, field margins, ditches, hedgerow, scrub) and construction to avoid impacts to protected and notable species;.
- New, species-rich native hedgerow creation (approx. 230m), alongside modified grassland creation (approx. 8.01ha) and other neutral grassland (approx. 0.19ha) around compounds within Field 1 – 3 , providing new habitats for a range of species.

4.1.3 Habitat creation and enhancement measures are described within this report, but a separate Biodiversity Net Gain Assessment report, prepared using the DEFRA Statutory Biodiversity Metric. This confirms delivery of 10% Biodiversity Net Gain for all habitat types. However, the values may change when access routes are confirmed for the Site (and some ditches potentially not affected).

4.1.4 Additional proposed ecological enhancement measures will include provision of a range of bat and bird boxes on suitable mature trees within surrounding hedgerows or woodland within the redline boundary, as well as creation of a hibernaculum.

4.1.5 Assuming the successful implementation of the measures described above, the development can be considered in line with local planning policies, including the protection and enhancement of local biodiversity and wildlife corridors; and necessary assessments to demonstrate a minimum 10% Biodiversity Net Gain, increasing to >15% for area-based grassland habitats within the strategic opportunity area identified by Essex Local Nature Recovery Strategy (LNRS).

APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

BADGER

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) against damage or destruction of a sett, or disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger". The definition of current use is subject to considerable debate. Natural England have produced guidance on the definition of current use. (*Badgers and Development – A guide to best practice and development . Natural England 2011*). Given the ambiguity surrounding the definition in all circumstances we would recommend an assessment of current use is always undertaken by a qualified ecologist. Natural Resources Wales (NRW) have a slightly different definition of current use. Please see the NRW website for further information. Penalties for offences against badgers or their setts include fines of up to £5,000 and/or up to six months in prison.

Disturbance of badgers could be caused by any digging activity or scrub clearance within 30 metres of an occupied sett and therefore every case needs to be assessed individually. Felling of trees close to a badger sett may also cause disturbance in some situations. Some activities such as pile driving may cause disturbance at even greater distances, and should be discussed with Natural England or NRW.

Licences are issued by Natural England (or NRW in Wales) to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Full planning permission must be obtained before a licence application will be considered. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November, to avoid the breeding season when dependant young may be underground. This restriction may be relaxed in some cases where a sett is seasonal and badgers can be shown to be absent from a sett at that time of year.

This report contains information of a confidential nature relating to the location of badger setts. Public access to this data should be restricted to those who have a legitimate need to assess the information and to know the exact situation of the setts rather than simply that badgers are present.

BATS

All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the Wildlife and Countryside Act 1981 (as amended). Under UK law a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time. Penalties for offences against bats or their roosts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of or alteration to roost sites, or which could result in killing of or injury to bats, need to take place under licence. Works which could disturb bats may also be licensable, though this needs to be assessed on a case by case basis, as bats' sensitivity to disturbance varies depending on normal background levels, and the definition of disturbance offences under the Habitats Regulations is complex. In practice this means that works involving modification or loss of roosts (typically in buildings, trees or underground sites) or significant disturbance to bats in roosts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of bats in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

DORMOUSE

Dormice and their nests are protected in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a dormouse, or to deliberately disturb a dormouse such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of dormice in their nests, and damage to or obstruction of nests are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against dormice or their nests include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of nest sites, or which could result in killing of or injury to dormice, need to take place under licence. Works which could disturb dormice may also be licensable, though this is rarely the case unless loss of dormouse habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of habitat (typically woodland, hedgerows, and scrub) supporting dormice are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of dormice in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

AMPHIBIANS

Great Britain supports seven native amphibian species. The four most widespread species; smooth and palmate newts, common frog, and common toad, receive partial protection under the Wildlife and Countryside Act 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy. The great crested newt, pool frog and natterjack toad are also fully protected in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Penalties for offences against amphibian species include fines of up to £5,000 and/or up to six months in prison.

Four amphibian species (great crested newt, pool frog, common toad, natterjack toad) are listed as priority species under the UK Biodiversity Action Plan, and are therefore considered to be Species of Principal Importance in England and Wales (excluding the pool frog, which does not occur in Wales) under the Natural Environment and Rural Communities (NERC) Act 2006. All public bodies including local and regional authorities have a duty under this legislation to have regard for the conservation of biodiversity.

GREAT CRESTED NEWT

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

REPTILES

All six native reptile species receive protection under the Wildlife and Countryside Act 1981 (as amended). The four more common species (common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix natrix*) receive partial protection which makes it an offence to intentionally kill or injure a reptile. The two other reptile species (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*), both of which are rare with very restricted UK ranges receive full protection under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Penalties for offences against reptile species include fines of up to £5,000 and/or up to six months in prison.

Works such as site clearance or topsoil stripping which could result in killing or injury of reptiles could be considered result in an offence unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on common reptile species despite these mitigation measures being in place would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence. Works which could affect smooth snakes or sand lizards, or their habitats, would need to take place under licence from Natural England or Natural Resources Wales. However sites supporting smooth snakes or sand lizards are very rarely affected by development proposals.

In practice, mitigation for impacts of development on common reptiles generally comprise one or more of the following techniques: displacement, in which reptiles are encouraged to move to suitable retained habitat by changing the management of areas affected by development; exclusion, where reptile-resistant fencing is provided between a development site and suitable retained habitat allowing reptiles to be trapped from the development footprint and released elsewhere on the site; and translocation, where animals are trapped from a development site and released on another suitable site nearby. Reptile mitigation proposals, particularly those involving translocation of animals, should be agreed in advance with the local planning authority.

BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

OTTER

Otters and their holts are protected in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure an otter, or to deliberately disturb an otter such that its ability to breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of otters in their holts, and damage to or obstruction of holts are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against otters or their holts include fines of up to £5,000 and/or up to six months in prison.

Any development works which are likely to involve the loss of holts, or which could result in killing of or injury to otters (which are only likely to occur extremely rarely), need to take place under licence. Works which could disturb otters may also be licensable, though this is also rarely the case as the majority of developments on watercourses and coastal areas where otters are present can be carried out in a way which avoids significant disturbance.

Where it is necessary, licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of otters in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

PLANNING POLICY IN RELATION TO BIODIVERSITY - ENGLAND

The National Planning Policy Framework (NPPF), was published in March 2012 with the latest revision in July 2024. Additional guidance can be found online at http://planningguidance.planningportal.gov.uk/blog/guidance/. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 187), including:

- (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;
- (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. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 189):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 193) by applying principles including:

- (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[6] and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate..

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[7]; 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.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 195 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat 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.

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

The Environment Act (2021) was passed into law in November 2021. This Act is comprised of 8 Parts and sets out targets for conservation and environmental betterment along with a system for their implementation, including the creation of a new Office for Environmental Protection (OEP). Of particular pertinence to Ecology is Part 6 – Nature and biodiversity, which includes a mandatory requirement for developments to deliver a minimum 10% biodiversity net gain (as quantified through an approved metric such as the Defra 3.0 metric). Such gains must be secured for a minimum of 30 years post-completion of development.

For most schemes, Net Gain shall be secured through an amendment to the Town and Country Planning Act, which is likely to be passed into law in 2023. Nationally Significant Infrastructure Projects (NSIPs) will also be subject to this requirement, but this will be secured through the Planning Act 2008, which means that for NSIPs the mandatory net gain requirement will not be in place until 2025. Certain small schemes are exempt from the requirement for delivering net gain.

It is important to note that in the meantime, Local Planning Authorities across the country have already adopted their own, differing policies regarding net gain. Several stipulate no net loss as a minimum, whilst others have 10% or even 20% requirements.

ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity can include restoring or enhancing a population or habitat"".

In England, the National Planning Policy Framework (NPPF), issued in July 2021, states that the planning system should contribute to "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*. It also states that "*opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

UK BIODIVERSITY ACTION PLANS

The UK Biodiversity Action Plan (UK BAP) 2011 is a policy first published in 1994 to protect biodiversity and stems from the 1992 Rio Biodiversity Earth Summit. The policy is continuously revised to combine new and existing conservation initiatives to conserve and enhance species and habitats, promote public awareness and contribute to international conservation efforts. Each plan details the status, threats and unique conservation strategies for the species or habitat concerned, to encourage spread and promote population numbers.

Species or habitats identified as priorities under the UK Biodiversity Action Plan receive some status in the planning process through their identification as Species/Habitats of Principal Importance in England and Wales, under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

Current planning guidance in England, the National Planning Policy Framework, does not specifically refer to Species or Habitats of Principal Importance, though it includes guidance for conservation of biodiversity in general. Supplementary guidance is available online at http://planningguidance.planningportal.gov.uk/blog/guidance/ and this guidance indicates that it is '*useful to consider*' the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list.

PROTECTED PLANTS

All wild plants receive some protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence for any unauthorised person to intentionally uproot any wild plant. Additionally, certain rare species of plants listed on Schedule 8 of the Act are given greater protection. For these species, it an offence to intentionally pick, uproot or destroy them, or to possess or sell them (live or dead), or anything derived them. Penalties for offences under this legislation include fines of up to £5,000 and/or up to six months in prison.

Schedule 8 of the Act is reviewed every 5 years, but currently it includes 185 species or sub-species of vascular plants, bryophytes (mosses, liverworts and hornworts), lichens and stoneworts (see www.jncc.gov.uk for current list), all protected due to their rarity and/or restricted distributions.

Works which could result in uprooting or destruction of plants listed on Schedule 8 of the Act could result in an offence being committed, unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on Schedule 8 plants despite these mitigation measures being in place, and impacts on other plant species during development works, would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence.

In practice, the mitigation measures required on the very rare occasions when Schedule 8 plants are affected by development proposals will be determined by the ecological requirements of the species concerned, and any mitigation strategy should be agreed in advance with Natural England or Natural Resources Wales.

THE HEDGEROWS REGULATIONS

In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove hedgerows to submit a Hedgerow Removal Notice to the Local Planning Authority (LPA), which will then determine whether the hedgerow affected is classified as 'Important' under the Regulations. If it is, the LPA will either approve the proposed hedgerow removal, or issue a retention notice. It is an offence to remove or destroy a hedgerow which is subject to a retention notice, or to remove one without a removal notice.

Routine management of hedgerows, removal of hedgerows for development which has been granted planning consent, and certain other situations are allowed under the Regulations, which also specifically exclude hedgerows within or bordering domestic gardens. Determination of whether a hedgerow should be classified as 'Important' is based on a number of criteria including assessment of its likely historic value (e.g. old parish boundary or part of an ancient monument), ecological value (e.g. presence of protected species, and/or diversity of tree/shrub species in the hedgerow), and landscape value (e.g. associated with a public footpath, or being associated with hedgebanks, ditches, hedgerow trees etc).

Ancient and species-rich hedgerows are listed as a priority habitat in the UK Biodiversity Action Plan (2011)

JAPANESE KNOTWEED

Japanese knotweed *Fallopia japonica* is a non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This Act states that it is an offence to plant or otherwise cause this species to grow in the wild. Penalties for offences under this legislation include fines of up to £25,000 and/or up to six months in prison.

In addition to this legislation, all parts of the plant and soil contaminated with plant fragments, is classified as contaminated waste under the Environmental Protection Act 1990, and will require a special waste licence and/or waste transfer note under the Environmental Protection (Duty of Care) Regulations 1991 (as amended).

The Environment Agency has produced a 'Code of Practice for the Management, Destruction and Disposal of Japanese Knotweed' (2001), which provides guidance for developers.

HIMALAYAN BALSAM

Himalayan balsam *Impatiens glandulifera* is a non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This Act states that it is an offence to plant or otherwise cause this species to grow in the wild. Penalties for offences under this legislation include fines of up to £25,000 and/or up to six months in prison.

Advice on management and control of Himalayan balsam is provided in the Environment Agency's leaflet 'Managing Invasive Non-native Plants' (2010).

APPENDIX B: ADDITIONAL FIGURES

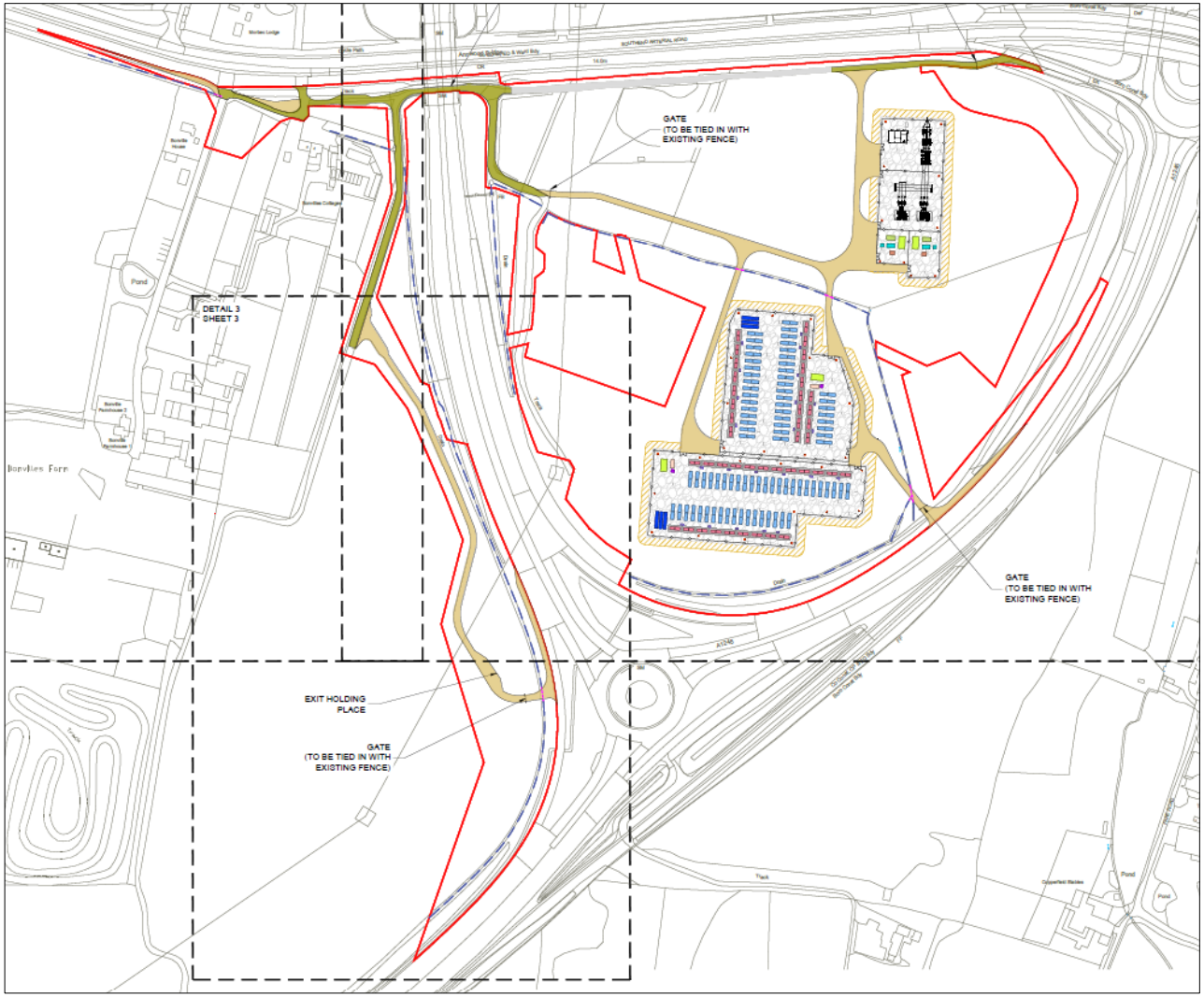

Figure B1: Proposed Infrastructure Layout (copied from RES, 05560-RES_LAY-DR-PT-001, 11/06/2025)

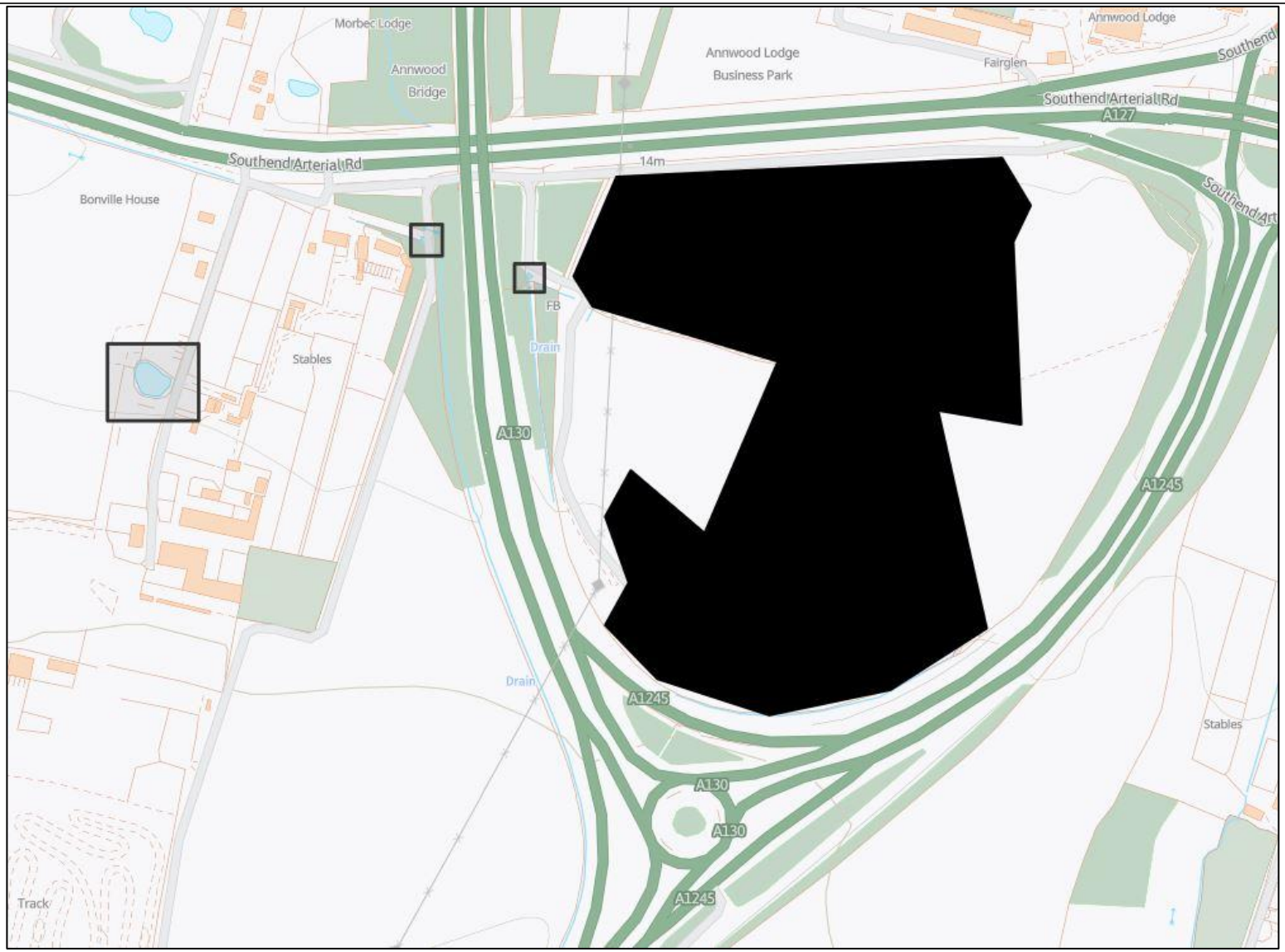

Figure B2: Waterbodies identified to be ground-truthed during baseline survey (May 2025)

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