



Land North of Camer Road Meopham

Chapter 10: Ecology

Greenspace Ecological Solutions
on behalf of The McManus Family

February 2026

Iceni Projects Ltd.

Da Vinci House, 44 Saffron Hill, London, ECN1 8FH

T: 020 3640 8508 **F:** 020 3435 4228 **W:** iceniprojects.com

10. ECOLOGY

Introduction

- 10.1 This chapter of the ES has been prepared by Greenspace Ecological Solutions (GES) Ltd. and presents an assessment of the likely significant effects of the Proposed Development with respect to Ecology. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. Taking into account the mitigation measures, the nature and significance of the likely residual effects are reported.
- 10.2 This chapter is supported by the following technical appendices:

- **Technical Appendix 10.1: Ecological Appraisal**

Legislation and Policy Context

Legislation Context

- 10.3 The following legislation is relevant to the Proposed Development:
- The Conservation of Habitats and Species Regulations 2017 (as amended)¹;
 - The Environment Act 2021²;
 - The Wildlife and Countryside Act 1981 (as amended)³;
 - The Countryside Rights of Way Act 2000⁴;
 - The Natural Environment and Rural Communities (NERC) Act 2006⁵;
 - Hedgerows Regulations Act 1997⁶;
 - The Protection of Badgers Act 1992⁷; and
 - The Wild Mammal (Protection) Act 1996⁸.

National Planning Policy

- 10.4 The following national planning policy is relevant to the Proposed Development:
- National Planning Policy Framework (2024)⁹; and
 - Government Circular 06/05¹⁰.

Local Planning Policy

- 10.5 The following local planning policies are relevant to the Proposed Development
- Gravesham Borough Council Local Plan Core Strategy (Adopted September 2014)¹¹; and
 - Kent Biodiversity Strategy¹².

Guidance

10.6 The following guidance is relevant to the Proposed Development:

- Chartered Institute of Ecology and Environmental Management CIEEM's industry standard guidelines¹³;
- The UK Habitat Classification (Version 2.0)¹⁴;
- Surveying Badgers¹⁵;
- DEFRA Statutory Biodiversity Metric User Guide¹⁶;
- Best practice principles for BNG¹⁷;
- Bat Conservation Trust's Bat Good Practice Survey Guidelines¹⁸;
- Common Bird Census (CBC) methodology¹⁹;
- Hazel Dormouse Conservation Handbook – Third edition²⁰;
- Hazel Dormouse Mitigation Handbook²¹;
- Froglife Advice Sheet 10²²; and
- Herpetofauna Groups of Britain and Ireland²³.

Assessment Methodology and Significance Criteria

10.7 This section presents the methodology used to assess the potential effects of the Proposed Development in relation to Ecology.

Consultation

10.8 A scoping exercise was undertaken as part of the EIA process. A scoping report, which included potential Ecological receptors, was submitted to Gravesham Borough Council (GBC) on 16th September 2025. Subsequent to this, consultation responses were received from GBC, Kent County Council Ecological Advice Service KCCEAS and Natural England.

10.9 **Table 10.1** presents a summary of comment raised in discussions with relevant consultees.

Table 10.1 Summary of Comments

Consultee	Date received	Comment	Response
Natural England	30 September 2025	The development site is within or may impact on the following European/internationally designated nature conservation site(s): • Thames Estuary and Marshes Ramsar • Thames Estuary and Marshes Special Protection Area Nationally designated sites: The development site is within or may impact on the following Site of Special Scientific Interest: • Mucking Flats and Marshes Site of Special Scientific Interest • South Thames Estuary and Marshes Site of Special Scientific Interest	The Ramsar, SPA and SSSIs identified by Natural England has been included within the designated sites assessment of potential impacts.
Gravesham Borough Council	17 October 2025	Agreed with the scope of the ES	The ES has been produced in line with the scoping report.
Kent County Council Ecological Advice Service	19 September 2025	Agreed with the scope of the ES	The ES has been produced in line with the scoping report.

Study Area and Scope

Study Area and Zone of Influence (Zoi)

- 10.10 The assessment of impacts has been informed by a suite of ecological surveys which were carried out at the Site between April and November 2025.
- 10.11 For the purposes of the assessment, the study area for the Proposed Development extends to the Site itself and a series of buffers within which effects have been assessed. The study area varies for ecological features depending on best practice guidance, species and their specific sensitivities, the likely sources of effect and the nature of the development. The study area for specific ecological receptors are detailed in **Table 10.2** below.

Table 10.2 Ecological Valuation Criteria

Receptor	Study Area
International Statutory Designated Sites. Ramsar and Proposed Ramsar Sites; UK National Site Network Sites ((Special Protection Areas (SPAs) and SACs); including Potential SPAs (pSPAs) and Possible SACs (pSACs)).	The Site + 10km
National Statutory Designated Sites. (Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs))..	The Site + 2km
Ancient Woodland	The Site + 30m
Habitats of Principal Importance	The Site + 10m
Other Habitats. Woodland, scrub, hedgerows, trees.	The Site
Badgers	The Site + 50m
Bats	The Site
Birds	The Site
Dormice	The Site
Reptiles	The Site

Scope

Effects Assessed in Full

- 10.12 A detailed account of the scope of potential effects and ecological receptors assessed in this chapter is set out below. In summary the chapter includes an assessment of potential effects on the following ecological features:

Construction

- Ancient woodland and Habitats of Principal Importance
- On-site Habitats (bramble scrub, woodland, hedgerows and rural trees)
- Badgers
- Bats
- Birds
- Dormice
- Reptiles

Operation

- Designated sites
- Woodland

- Scrub
- Hedgerows
- Trees
- Badger
- Bats
- Birds
- Dormice
- Reptiles

10.13 Potential effects on species and habitats associated with the Proposed Development were assessed for the construction and operational phase, predicted effects include:

- Direct habitat loss/damage
- Habitat fragmentation
- Mortality (species)
- Physical disturbance (including recreational pressure)
- Noise and lighting disturbance
- Contamination

Effects Scoped Out

- 10.14 Habitat loss and fragmentation (in relation to woodland) was scoped out of the ES, given this habitat will be retained and protected during construction.
- 10.15 Impacts on the following receptors will not be considered in the ES. This is because potential effects on these receptors are not likely to be significant within the context of the ES. Or because the receptor is not present within the Site. Further detailed justification for scoping out of these receptors is provided within the Scoping Report (**Appendix 1.3**).

Construction

- Designated sites
- Modified grassland
- Cereal crops
- Great crested newts (GCN)
- Water vole
- Otter

- white clawed crayfish
- Beaver
- Invertebrates
- Hedgehog

Operation

- Modified grassland
- Cereal crops
- Great crested newts (GCN)
- Water vole
- Otter
- White clawed crayfish
- Beaver
- Invertebrates
- Hedgehog

Assessment Methodology

Impact Areas

- 10.16 The impact assessment process considers potential ecological receptors within the Ecological Zone of Influence (Zol). The Zol is an area defined by the assessment in which there may be receptors subject to impact as a result of the Proposed Development. The Zols used for the assessment are described above in section 'Study Area and Zone of Influence (Zol)'. Such receptors include designated sites, notable habitats and protected species, and these could be affected directly, e.g. works affecting a receptor within the Site such as removal of a tree occupied by bats, or indirectly, e.g. a designated site downriver of a development being affected by sediment deposition, etc.

Ecological Valuation

- 10.17 The assessment has been undertaken following guidelines set out by CIEEM²⁴. The guidelines recommend that site sensitivity is best described as 'Ecological Value'. The Ecological Value of any given Site relates to its habitat assemblages and species populations and their importance to wider ecological processes. The Ecological Value of the study area is determined for each of its component habitats and species. The guidelines recommend that Ecological Value should be determined within a defined geographical context. The levels of geographical value adopted in this assessment are described in **Table 10.3**.

Table 10.3 Ecological Valuation Criteria

Ecological Value	Qualifying Criteria	Relevant Context
International	A study area is considered of international value when it supports: • An Internationally designated site or candidate site (SPA, potential (p)SPA, SAC, cSAC, pSAC, Ramsar, Proposed Ramsar site) or an area which Natural England (NE) has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified. • A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat which is essential to maintain the viability of that ecological resource on an international level. • >1% of the European Resource of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive	Europe
National	A study area is considered of National Ecological Value when it supports: • A nationally designated site (SSSI, NNR, or a discrete area which NE has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified. • A viable area of a Habitat of Principal Importance for Conservation, or smaller areas of such habitat which are essential to maintain the viability of that ecological resource at a national level. • A viable area of Ancient Semi-Natural or Ancient Replanted Woodland as defined by Natural England. • >1% of the National Resource of a regularly occurring population of a Nationally important species, i.e. a Species of Principal Importance for Conservation and/or species listed on Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act 1981. A regularly occurring and viable population of a UK Red Data Book species	UK
County	A study area is considered of County ecological value when it supports: • County sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. Local Nature Reserves, County Wildlife Sites. • Viable areas of legally protected habitat/habitat identified in a County Biodiversity Action Plan (BAP) or published Local Nature Recovery Strategy (LNRS), or smaller areas of such habitats that are essential to maintaining the viability of the resource at a County scale. • Any regularly occurring population of an Internationally/Nationally important species or a species in a relevant County BAP which is important for the maintenance of the regional meta-population. • Networks of species-rich hedgerows.	Kent

Ecological Value	Qualifying Criteria	Relevant Context
District	A study area is considered of District Ecological Value when it supports: • District sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. Sites of Nature Conservation Importance, Local Wildlife Sites. • Viable areas of legally protected habitat/habitat identified in a Local BAP or smaller areas of such habitats which are essential to maintaining the viability of the resource at a district level. • Any regularly occurring population of an Internationally/nationally important species or a species in a Local BAP which is important for the maintenance of the viability of the feature at a district level. • Networks of habitat which contribute to ecological connectivity at a district level.	Gravesham District
Local	A study area is considered of Local Ecological Value when it supports: • Commonplace and widespread semi-natural habitats, e.g. scrub, poor semi-improved grassland, coniferous plantation woodland, intensive arable farmland etc. which, despite their ubiquity, contribute to the ecological function of the local area (habitat networks etc.). • Very small, but viable, populations of internationally/nationally important species or a species in a relevant UK/Council BAP which is important for the maintenance of the viability of the population at a local level. • Networks of habitat which contribute to ecological connectivity at a local level.	Within a 2km radius of the Site
Site	A study area is considered of Site Ecological Value when it supports: • Species populations/habitats of limited ecological value e.g. improved grassland, but which contribute to the overall function of the Site's ecological function.	Site

Significance Criteria

- 10.18 All potential effects were assessed against standard parameters as set out within the CIEEM guidance. Via this approach, a scientific and repeatable method was applied whereby all aspects of a potential effect are considered. Unless otherwise stated, effects identified in the assessment are considered to be adverse.
- 10.19 Effects were considered with reference to the following parameters:
- Extent
 - Duration
 - Reversibility

- Frequency

10.20 A degree of confidence is assigned to assess the likelihood of an effect occurring. The following level (as defined within the CIEEM guidance) is referred to:

- certain/near certain: probability estimated at >95%;
- probable: probability estimated at 50 – 95%;
- unlikely: probability estimated at 5 – 49%; and
- extremely unlikely: probability estimated at <5%.

10.21 Based on these parameters, an effect is then considered to be either significant or not significant and likely to be either beneficial or adverse. An effect is considered to be significant if it has the potential to affect the integrity of a habitat or the conservation status of a species. Technical definitions of integrity and conservation status follow the CIEEM guidance.

10.22 In response to the above, and to ensure significant effects on ecological features are still placed within an appropriate context, a geographical approach is adopted to determine the ecological value of a feature. Significance is then considered at the same geographical level. For example, when a significant effect is predicted on a feature of Local Ecological Value, it may be considered significant 'at a local level'. However, where only a small part of an ecological feature is affected, the geographical level at which the significant effect will occur may be lower, for example an ecological feature of Local Ecological Value may be subject to an effect that is significant 'at a Site level'.

10.23 The scale attributed to each effect has been determined based on the sensitivity of the receptor and magnitude of impact arising as a result of the Proposed Development. Professional judgement and experience have been drawn upon to assess the scale and significance.

Assessing Significance

10.24 The EIA process requires that the significance of an effect is described as either 'major', 'moderate', 'minor' or 'negligible/none'. However, best practice guidance in relation to EcIA does not support this approach, due to the complexities of ecological processes.

10.25 To allow the potential effects identified to be considered alongside those addressed in other topic chapters, a 'translation' from EcIA significance to EIA significance is undertaken, as set out in **Table 10.4** below. The translation relates the geographically based significance of ecological effects (identified through the EcIA process) to the standard terminology for significance presented in other chapters (following the EIA process), allowing direct comparison.

10.26 Effects of Major and Moderate significance are considered 'significant' in the context of the 2017 EIA Regulations.

Table 10.4 Ecological Effect ‘Significance’ translation to EIA terminology

EIA Significance Terminology	Corresponding EcIA Effect Significance Terminology
Major	International / European
	UK / National
Moderate	County
	District
Minor	Local
	Study Area
Negligible / None	Not Significant

Limitations and Assumptions

- 10.27 Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna; for example climatic variation, season and species behaviour. Evidence of protected species is not always recorded during a survey. This does not mean that a species is absent. Therefore, the surveys also record and assess the ability of habitats to support species. All ecological surveys provide a snapshot of activity. Within these limitations, it is considered that the baseline data collected has allowed a robust and thorough assessment of potential effects.
- 10.28 Any survey-specific limitations are provided in **Appendix 10.1**.

Baseline Conditions

Establishing Baseline Conditions

- 10.29 The ES has been informed by a desk study and a series of technical field studies that detail relevant field survey methods. The results of these are provided in **Appendix 10.1: Ecological Appraisal**. Each of the surveys was completed by competent ecologists following current good practice methods.
- 10.30 All surveys were completed within appropriate seasonal windows. Detailed survey methods are provided in **Appendix 10.1: Ecological Appraisal** and summarised for each feature:
- Habitats – UK Habs Survey
 - Invasive non-native plants – UK Habs Survey (scoped out of the ES)
 - Badgers – Systematic search of suitable habitats and camera trap monitoring survey
 - Bats – Activity surveys (Nighttime Bat Walkover (NBW) and Automated)
 - Birds – Breeding bird transects
 - Dormouse – Nest tube surveys
 - Amphibians – Habitat Suitability Index (HSI) Assessment of waterbodies within 250m (scoped out of the ES)

- Reptiles – Refuge surveys coupled with assessment of habitat quality

Baseline Conditions

- 10.31 This section will include a description of the environment as it currently stands. The baseline position will be taken as the current conditions on the Site, taking account of the planning designations and assuming that all existing land uses in the surrounding area beyond the Site remain.

Desk Study

- 10.32 The findings of the desk study are presented in **Appendix 10.1**. The following statutory designated sites and non-statutory designated sites are present within the Zol of the Site:

- **Thames Estuary and Marshes Ramsar** lies c.6.2km northeast of the Site. The Ramsar comprises a complex of brackish, floodplain grazing marsh ditches, saline lagoons and intertidal saltmarsh and mudflat. The habitats support internationally important numbers of wintering waterfowl, and the saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.
- **Thames Estuary and Marshes SPA** lies c.7.4km northeast of the Site. The SPA supports Annex I birds and regularly occurring migratory birds not listed on Annex I including dunlin *Calidris alpina alpina*, red knot *Calidris canutus*, common ringed plover *Charadrius hiaticula*, hen harrier *Circus cyaneus*, black-tailed godwit *Limosa limosa islandica*, grey plover *Pluvialis squatarola*, pied avocet *Recurvirostra avosetta* and common redshank *Tringa tetanus*.
- **North Downs Woodlands SAC** lies c.2.6km southeast of the Site. The SAC comprises dry grassland, steppes, broad-leaved deciduous woodland and coniferous woodland. The Annex I habitats that are a primary reason for selection of this site are *Asperulo-Fagetum* beech forests and Yew *Taxus baccata* woodland.
- **Peters Pit SAC** lies c.7.5km southeast of the Site. The SAC comprises bogs, marshes, water fringed vegetation, fens, dry grassland, steppes and broad-leaved deciduous woodland. Annex II species that are a primary reason for selection of this site are great crested newt *Triturus cristatus*.
- **North Kent Woods and Downs NNR** lies c.1.2km southeast of the Site and consists of a landscape of ancient woodlands, wildflower meadows, chalk grasslands, vineyards, and farmland.
- **Shorne and Ashenbank Woods SSSI** lies c.2.0km northeast of the Site. Shorne and Ashenbank Woods form a complex of ancient and plantation woodland, and include a variety of stand-types associated with Tertiary gravels, clays and sands. The site supports an important and diverse invertebrate fauna, especially its Coleoptera (beetles), Hemiptera (true bugs), and Odonata (dragonflies).
- **South Thames Estuary and Marshes SSSI** lies c.6.2km northeast of the Site. The SSSI consists of an extensive mosaic of grazing marsh, saltmarsh, mudflats and shingle characteristic

of the estuarine habitats of the north Kent marshes. Waterfowl occur in nationally and internationally important numbers and the breeding bird community is of particular interest. The habitats also support a number of nationally rare and scarce invertebrate species and an assemblage of nationally scarce plants.

- **Mucking Flats and Marshes SSSI** lies c.9.3km northeast of the Site. Mucking Flats and Marshes comprise an extensive stretch of Thames mudflats and saltmarsh, together with sea wall grassland. Wintering wildfowl and waders reach both nationally and internationally important numbers on the mudflats, roosting and feeding on adjacent saltmarsh and disused silt lagoons.
- **GR09 Nurstead and Cozendon Woods, Nash Street LWS** lies c.0.6km northwest of the Site.
- **GR04 Henley Wood and Pasture LWS** lies c.0.7km southeast of the Site.
- **GR04 A227 Wrotham Road RNR** lies c.0.8km northwest of the Site.
- **GR05 B260 Longfield Road (East) RNR** lies c.0.9km southwest of the Site.
- **GR15 Grassland and Scrub, Istead Rise LWS** lies c.1.5km northwest of the Site.
- **GR06 Strawberry Hill Pasture and Woodland, Meopham LWS** lies c.1.5km southwest of the Site.
- **GR03 Pasture South of Istead Rise LWS** lies c.1.6km northwest of the Site.
- **GR10 Happy Valley, Meopham LWS** lies c.1.7km southwest of the Site.
- **GR08 B260 Longfield Road (West) RNR** lies c.1.7km west of the Site.

10.33 Existing species records for the area were provided by the Kent and Medway Biodiversity Records Centre (KMBRC). Several species recorded are listed as priority species, including birds, various mammal species including bats, and notable plant and invertebrate species. Further detail is provided in **Appendix 10.1: Ecological Appraisal**.

Field Surveys

UK Habs Survey

10.34 The following habitats as provided in **Table 10.5**, below were recorded within the Site during the UK Habs survey. These habitat locations are shown on **Appendix 10.1; Figure 1: UKHabs Habitat Plan**. Further details regarding the survey are provided in **Appendix 10.1**.

Table 10.5 Habitats within the Site

Broad Habitat	Habitat Type	Approximate area within Application Site (ha)
Grassland	Modified grassland	2.57
	Tall forbs	0.13

Broad Habitat	Habitat Type	Approximate area within Application Site (ha)
Heathland and shrub	Bramble scrub	0.22
	Mixed scrub	0.02
Cropland	Cereal crops	38.93
	Arable field margins	0.06
Woodland and forest	Lowland mixed deciduous woodland	1.28
Urban	Developed land; sealed surface	0.99
	Artificial unvegetated, unsealed surface	0.03
	Vegetated garden	0.01
	Bare ground	0.06
Individual trees	Rural trees	0.11
Total Site Area		44.32

Table 10.6 Linear Features within the Site

Reference	Habitat Type	Length (km)
H1	Native hedgerow 2m high, 1.5m wide	0.07
H2	Native hedgerow 2m high, 1.5m wide	0.08
H3	Species-rich native hedgerow with trees 2.5m high, 2m wide	0.35
H4	Species-rich native hedgerow with trees 1.5m high, 1.5m wide	0.28
H5	Species – rich native hedgerow with trees 2.5m high, 2m wide	0.17
H6	Species-rich native hedgerow 1.5m high, 1.5m wide	0.50
H7	Species-rich native hedgerow 1.5m high, 1.5m wide	0.26
H8	Non-native and ornamental hedgerow 1.0m high, 0.5m wide	0.005
TL1	Line of trees	0.01
Total		1.72

Protected and Notable Species

Badger

- 10.35 The habitats within the Site were identified as being suitable to support badger commuting, foraging and sett building. Twenty-six mammal holes were identified in three locations across the Site on 28th November 2025. Following this, camera trap surveys indicated that the woodland within the south-

east of the Site supports an active main sett and the woodland within the north-west of the Site supports an active outlier sett. A summary of the results from the badger surveys is presented within the Badger Survey Results Plan **Appendix 10.1; Figure 2a: Badger Survey Results** and full survey details are provided in **Appendix 10.1: Ecological Appraisal**.

Bats

- 10.36 The Site was identified as providing habitats suitable to support roosting bats (within trees) and foraging or commuting bats (particularly associated with woodland, tree lines, scrub, hedgerows and edge habitats). The trees with potential roosting features are shown on **Appendix 10.1: Ecological Appraisal; Figure 1: UKHabs Habitat Plan**.
- 10.37 The summary of the results from the NBW surveys and static monitoring surveys are provided in **Appendix 10.1: Ecological Appraisal; Figures 8-10** with full results provided in **Appendix 10.1: Ecological Appraisal**. In summary, a total of seven bat species were recorded within the Application Site including:
- Common pipistrelle *Pipistrellus pipistrellus*
 - Soprano pipistrelle *Pipistrellus pygmaeus*
 - Brown long-eared bat *Plecotus auritus*
 - Noctule *Nyctalus noctula*
 - Serotine *Cnephaeus serotinus*
 - Myotis sp.

Breeding Birds

- 10.38 Scrub, cropland, woodland, arable field margins, hedgerows and trees; and to a lesser extent, grassland provide suitable nesting and foraging habitat for birds.
- 10.39 Breeding Bird Surveys (BBS) carried out by GES in 2025 recorded a total of 36 species within the Site. Of these, 15 species are considered “notable” and appear on the BoCC Amber or Red lists. Seven species were confirmed breeding (of which three are considered notable species); and one probable breeding (not notable); 20 were considered possible breeding (of which 10 are considered notable).
- 10.40 The transect routes and results are provided in **Appendix 10.1: Ecological Appraisal; Figures 11a-d**. Full results including breeding status are provided in **Appendix 10.1: Ecological Appraisal**.

Dormice

- 10.41 The results of the dormouse surveys are summarised in **Appendix 10.1: Ecological Appraisal; Figure 5**, with full results provided in **Appendix 10.1: Ecological Appraisal**. During the second survey, in September, a dormouse nest was identified in Tube 20 on the northern boundary of the

Site. During the final survey in October, a single juvenile male dormouse was recorded within Tube 21 on the northern boundary of the Site. In addition, one full and one partial nest were recorded.

Reptiles

- 10.42 Modified grassland, bramble scrub, arable field margins, hedgerow bases and to a lesser extent the Lowland mixed deciduous woodland present within the Site provide suitable habitat for common species of reptiles. The results of the reptile surveys are shown on **Appendix 10.1: Ecological Appraisal; Figures 7a & 7b** with full results provided in **Appendix 10.1: Ecological Appraisal**. The results of the reptile surveys indicate a **low** population of common lizard, associated with the woodland edge and tall forbs in the north-west of the Site.

Ecological Value of the Study Area

- 10.43 The ecological value of the study area in terms of designated sites, its constituent habitats and species is considered below. The valuation has been undertaken using the criteria outlined in **Table 10.3**.

Statutory Designated Sites

- 10.44 The ecological value of Statutory Designated Sites within the study area is presented within **Table 10.7** below.

Table 10.7 Ecological value of Statutory Designated Sites within the Study Area

Statutory Designated Site	Ecological Value	Justification
Thames Estuary and marshes Ramsar	International	CIEEM guidelines state that an internationally designated site or candidate site (SPA, potential (p)SPA, SAC, cSAC, pSAC, Ramsar, Proposed Ramsar site) or an area which Natural England (NE) has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified, should be valued at the International level.
Thames Estuary and Marshes SPA	International	
North Downs Woodlands SAC	International	
Peters Pit SAC	International	
North Kent Woods and Downs NNR	National	CIEEM guidelines state that an nationally designated site (SSSI, NNR, or a discrete area which NE has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified, should be valued at the National level.
Shorne and Ashenbank Woods SSSI	National	
Mucking Flats and Marshes SSSI	National	
South Thames Estuary and Marshes SSSI	National	

10.45 The study area is considered to be of International value for Internationally Designated Sites, and of National Value for Nationally Designated Sites.

Non-Statutory Designated Sites

- 10.46 The ecological value of Non-Statutory Designated Sites within the study area is presented within **Table 10.8** below.

Table 10.8 Ecological value of Non-Statutory Designated Sites within the Study Area

Statutory Designated Site	Ecological Value	Justification
GR09 Nurstead and Cozendon Woods, Nash Street LWS	District	CIEEM guidelines state that district sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. Sites of Nature Conservation Importance, Local Wildlife Sites are of District Value.
GR04 Henley Wood and Pasture LWS		
GR04 A227 Wrotham Road RNR		
GR05 B260 Longfield Road (East) RNR		
GR15 Grassland and Scrub, Istead Rise LWS		
GR06 Strawberry Hill Pasture and Woodland, Meopham LWS		
GR03 Pasture South of Istead Rise LWS		
GR10 Happy Valley, Meopham LWS		
GR08 B260 Longfield Road (West) RNR		

- 10.47 The study area is considered to be of District Value for non-statutory designated Sites.

Habitats

Bramble scrub

- 10.48 This habitat is common and widespread in the wider landscape, and the study area does not provide an important function in maintaining the viability of this habitat at a geographic scale beyond the Site level. **The Study Area is of Site Value for bramble scrub.**

Lowland mixed deciduous woodland

- 10.49 Woodland within the study area extends to 1.28ha. Of this, 0.7964ha is listed as a Habitat of Principal Importance (HPI)²⁵. The PEA confirmed that all woodland within the Site qualifies as HPI. Broadleaved woodland within Kent covers an approximate area of 44,490ha. Therefore, woodland within the Site represents 0.003% of the total County resource in Kent. Similarly, the District of Gravesham has a high proportion of woodland cover (approximately 1897ha); of which, the woodland within the study area represents 0.06% of the total District resource. Given this, the woodland within the Site is unlikely to be critical to maintaining the viability of the resource at either the County, or District Level. **Given the above, the study area is of Local Value for lowland mixed deciduous woodland.**

Hedgerows and Lines of Trees

- 10.50 1.72km of linear habitats are present within the Site. Of this, 1.5km are species-rich. Mature trees are also present within the hedgerows within the study area. Hedgerows are a common and widespread habitat, and as such, are unlikely to contribute to the viability of the resource at the

National, County, or District scale. However, hedgerows provide connectivity across the study area, and contribute to the ecological function of the resource within the Local area. **The study area is of Local Value for hedgerows.**

Individual trees

- 10.51 Individual trees within the Site are a range of sizes and ages classes and are largely associate with hedgerows. This is discussed above. Individual scattered trees are largely semi-mature and are a common and widespread habitat at the County, District and Local level. It is not considered that the individual trees within the study area are crucial to maintaining this habitat at any more than the Site level. **The trees within the study area are of Site Value.**

Species

Badger

- 10.52 The study area provides suitable sett-building, commuting and foraging habitat for this species. A total of twenty-six holes of a size and shape considered suitable for badgers were recorded within three areas within the Site. Camera trap monitoring surveys determined that the woodland within the south-east of the Site supports an active main sett and the woodland within the north-west of the Site supports an active outlier sett.
- 10.53 The results of the camera trap monitoring showed that the study area supports a breeding sett (main sett). Given this, the study area is crucial for maintaining the population at the Site Level. **The Study Area is of Site Value for badgers.**

Bats

- 10.54 No bat roosts were confirmed within the Site during the surveys, however several trees (T12 and trees T14-T16, to be removed to facilitate the proposals, contain features suitable to support roosting bats. Habitats within the Site supported a relatively diverse bat assemblage, with six species recorded. The woodland parcels and boundary habitats represent optimal bat foraging habitat which is connected to larger areas of optimal habitat outside the Site and is likely to be of increased importance for less common species within the Site.
- 10.55 Optimal bat habitats within the Site comprise a small proportion of the availability of such habitats within the District and wider Kent County, but include key movement corridors which are likely to be important in maintaining the bat population at the Local level. In light of the above, **the Site is considered to be of value at the Local Level for bats.**

Birds

- 10.56 A total of 36 species were recorded within the study area. In line with established methods of evaluating a site's importance for birds (Fuller, 1980), a Site with 36 species can be considered to be of **Local value**. However, this evaluation is based on the total number of species recorded during the survey. When only proven or probable breeding species are considered, the total assemblage of birds recorded in the study area (6) represents **Site level importance**.

- 10.57 To determine an accurate valuation of the study area for breeding birds, it is necessary to consider the presence of specialist and notable species, the scarcity and population size of individual species, and the overall diversity of the assemblage present. The valuation of the study area needs to consider to what extent the study area is important in maintaining populations of bird species at a given Geographic scale. For example, numerous common and widespread species were recorded for which the study area represents value at the study area level only, whereas for scarce or specialist species such as skylark, the 4 birds recorded in the study area is likely to be important in maintaining the viability of the population at a **Local Level**.
- 10.58 In summary, the study area is considered to be of **Site value** for its overall assemblage of breeding birds and of **Local value** for maintaining the populations of individual species. Therefore, in line with a precautionary approach, **the study area is considered to be of Local Value for breeding birds.**

Dormice

- 10.59 One juvenile dormouse, two complete and one partial dormouse nest were recorded during the dormouse nest-tube surveys, indicating a breeding population within the study area. Dormouse are known to be widespread within Kent, and optimal dormouse habitat is widespread at both the County and District scales. The surrounding landscape contains optimal habitat to the north and east of the study area. Woodland habitat within the study area is isolated within the wider context of the local Area, and dormice presence is restricted to the boundary habitats only. However, the study area is likely to be important in maintaining the population of dormouse at the local scale. **The study area is of Local Value for dormice.**

Reptiles

- 10.60 The Site supports a low common lizard population. Optimal reptile habitat is relatively frequent and extensive within the County and District Level. The Site is also connected to suitable habitat at the Local level. Given the restricted amount of suitable habitat within the study area, it is unlikely that the low population of common lizards are crucial to maintaining the population of this species at greater than the Site Level. **The study area is of Site Value for reptiles.**

Future Baseline

- 10.61 In the absence of the Proposed Development, the land uses within the Site will be retained and management of the habitats within the Site will continue on a similar basis as the existing situation.

Assessment of Effects (Construction and Operational)

Environmental Design and Management

Design Considerations

- 10.62 Ecological input has been provided from the outset of the project to ensure effect avoidance and mitigation is in-built to the scheme and opportunities for biodiversity are maximised. Key considerations included:

- Sensitive siting of the Proposed Development to retain important habitats such as woodland.
- Maintaining habitat connectivity around the periphery of the Application Site by retaining boundary habitats wherever possible.
- Improvement of the connectivity between the two existing and fragmented parcels of woodland.
- Seeking opportunities to provide ecological enhancement features as part of the built environment.
- Seeking opportunities for new habitat creation including woodland, grassland, scrub, hedgerow, and native tree planting.
- Beneficial long term management of retained and enhanced habitats.

Best Construction Practice

10.63 Best construction practice will be followed, as detailed within a Construction and Environment Management Plan (CEMP), to avoid or minimise potential effects. Measures to reduce contamination and disturbance will include:

- Secure storage and safe disposal of any materials and substances to prevent accidental contamination.
- Retained trees should be protected in accordance with the British Standard (BS) '5837:2012 Trees in Relation to Design, Demolition and Construction'.
- Take measures to minimise and prevent erosion and run-off, including minimising adjacent land disturbance.
- Control dust through fine water sprays used to dampen down the Site.
- Screen the edge of the Construction Zone by placing a fine mesh screening close to any dust sources.
- Cover skips and trucks loaded with construction materials and continually damp down with low levels of water.
- Cover piles of building materials like cement, sand and other fine materials and powders, regularly inspect for spillages, and locate them where they will not be washed into drainage areas.
- Use non-toxic paints, solvents and other hazardous materials wherever possible.
- Segregate, tightly cover, and monitor toxic substances to prevent spills and possible site contamination.
- Cover up and protect all drains within and adjacent to the construction footprint.
- Collect, control, and avoid wastewater generated from construction activities, screen, discharge the clean water, and dispose of remaining sludge according to environmental regulations.

- No burning of materials.
- Reduce noise pollution through careful handling of materials; modern, quiet power tools, equipment and generators; and low impact technologies.

Effects During Construction

Habitats

Habitat Loss

- 10.64 Construction of the Proposed Development is certain to result in a permanent loss of 0.12ha of bramble scrub within the Site. Given that this habitat type is valued at Site level, and due to the small extent directly affected, in the absence of mitigation, the loss of bramble scrub **Significant at the Site Level**.
- 10.65 Construction of the Proposed Development is certain to result in a permanent loss of 0.27km of hedgerows within the Site. The loss represents a relatively small proportion of the total amount of hedgerows within the Site (15.69%). Given that this habitat type is valued at Local level, and due to the small extent to be directly affected, in the absence of mitigation, the loss of hedgerows represents a **Significant Effect at no greater than the Site Level**.
- 10.66 Construction of the Proposed Development is certain to result in a permanent loss of five semi-mature trees within the Site to facilitate the access. All other trees will be retained. Given that this habitat type is valued at the Site level, and due to the small extent to be directly affected, in the absence of mitigation, the loss of five small semi-mature trees is considered to be **not Significant**.

Fragmentation

- 10.67 The habitat loss, as noted above, is unlikely to result in fragmentation of retained scrub, hedgerows and trees. However, should construction effects result in fragmentation, such effects would likely be localised and small in extent. Therefore, in the absence of mitigation, should fragmentation occur, it is predicted to be **Significant at the Site level**.

Physical Disturbance

- 10.68 During works near retained habitats, it is unlikely that vehicle incursion or storage of materials will occur within a sensitive habitat. However, if it does it may result in disturbance to vegetation, and root compaction of trees, scrub, hedgerows and woodland. Such effects would likely be localised and small in extent and therefore in the absence of mitigation construction effects associated with physical disturbance on habitats are predicted to be **Significant at the Site level**.

Contamination

- 10.69 It is probable that works will result in contamination of retained habitats. Many habitats near the construction area will be of relatively high sensitivity to such effects, such as trees, scrub, woodland and hedgerows. The effect of contamination could potentially be relatively long-term depending on the severity of the incident. However, the extent of such effects would likely be relatively localised.

With best practice construction methods, the effect of contamination of habitats during construction is predicted to be **Significant at the Site Level**.

Badger

Habitat Loss

- 10.70 The loss of modified grassland, hedgerows, bramble scrub, crops and arable field margins during the construction of the Proposed Development will have an adverse effect on the quality and quantity of the foraging and commuting habitat for badgers within the Site.
- 10.71 The Proposed Development will result in the loss of approximately 2.57ha of modified grassland, 0.27km hedgerows, 0.12ha of bramble scrub, 38.93ha of cropland and 0.06ha of arable field margins which provide suitable foraging habitats for badgers. This loss is certain and permanent. However, boundary habitats will be retained, and over the short-term, abundant, optimal foraging habitat is present and accessible at the Local Level. As a result, the loss of habitat is predicted to be **Significant at the Site Level for badgers**.

Fragmentation

- 10.72 The habitat loss, as noted above, is **unlikely** to result in fragmentation of retained habitats, given the retention of the majority of boundary habitats. However, should habitat fragmentation occur, in the absence of mitigation, fragmentation represents a **Significant Effect at no greater than the Site Level**.

Mortality

- 10.73 Although the badger setts within the Study Area will be retained, there is the possibility that additional setts may be excavated within 30m of the development area. This would result in the setts requiring closure to facilitate the Proposed Development. The possible permanent loss of a breeding sett within the Site will result in a reduction of badger breeding habitat and possible mortality of low numbers of individuals or their young. Given the population within the Site is predicted to be critical to maintaining the viability of the population at the Site Level, predicted effects are considered to be **Significant at the Site Level** prior to mitigation.

Physical Disturbance

- 10.74 The noise and lighting associated with the construction may also disturb commuting and foraging badgers resulting in an adverse effect for these species. These effects are considered to be **Significant at the Site Level**.

Bats

Habitat Loss

- 10.75 The loss of modified grassland, hedgerows, bramble scrub and arable field margins during the construction of the Proposed Development will have an adverse effect on the quality and quantity of the foraging and commuting habitat for bats within the Site. The noise and lighting associated with

the construction may also disturb commuting and foraging bats resulting in an adverse effect for these species.

- 10.76 The Proposed Development will result in the loss of approximately 2.57ha of modified grassland, 0.27km hedgerows, 0.12ha of bramble scrub, 38.93ha of cropland and 0.06ha of arable field margins which provide suitable foraging habitats for bats. This loss is certain and permanent. However, surveys indicated that low numbers of bats use these habitats with the majority of bat passes associated with boundary hedgerows and retained areas of woodland. Therefore, the loss of grassland, hedgerows, bramble scrub and arable field margins are not likely to be important in maintaining the populations of these species at the Local level. As a result, in the absence of mitigation, the loss of habitat is predicted to be **Significant at the Site Level for bats**.

Fragmentation

- 10.77 The habitat loss, as noted above, is unlikely to result in fragmentation of retained habitats. However, should habitat fragmentation occur, given the low numbers of bats that were recorded within the study area, in the absence of mitigation, fragmentation represents a **Significant Effect at no greater than the Site Level**.

Mortality

The certain and permanent loss of trees with the potential to support roosting bats will result in a reduction in roosting habitat and possible mortality of low numbers of individuals in the absence of mitigation. Given the low numbers of bats recorded during within the study area, in the absence of mitigation, mortality represents a **Significant Effect at no greater than the Site Level**.

Physical Disturbance (vibration, noise and lighting)

- 10.78 Temporary construction lighting has the potential to effect bat behaviour. Artificial lighting can alter bat behaviour and lit areas are avoided by several bat species. It can also attract insects and subsequently alter bat foraging behaviour by favouring certain species at the likely expense of others. Bats foraging around lit areas may also be more vulnerable to predation.
- 10.79 Construction lighting would be temporary and changes in bat behaviour would be expected to recover in the short-term on removal of this effect. The Site is currently subject to relatively low levels of artificial light spill from street lighting. Therefore, lighting effects associated with construction are likely to affect retained foraging habitats for bats. This is likely to affect the suitability of habitats in the short-term, potentially rendering them less suitable for bats.
- 10.80 Construction will possibly result in noise and vibration disturbance to retained bat roosts in trees near works, in particular within woodland trees in the centre of the Site. Such disturbance would be short-term during the construction period and relatively localised. Therefore, this effect is unlikely to modify bat behaviour to such an extent that it compromises the ability of the Site to maintain the viability of the bat population at the **Local level**.

- 10.81 Disturbance effects during construction, associated with noise, lighting and vibration are therefore predicted to have a **Significant Effect on bats at the Site Level** prior to mitigation.

Birds

Habitat Loss / Mortality

- 10.82 Habitat removal during construction is certain to result in the permanent loss of bird nesting habitat. 38.93ha of cropland will be lost during the construction of the Proposed Development. Without mitigation, this loss of habitat will result in near-certain mortality of low numbers of ground nesting birds including Skylark. The effects would be medium-long term due to the permanent loss of nesting habitat for these species. These effects are likely to affect viability of the populations at the **Local Level**.
- 10.83 The certain and permanent loss of 0.27km of hedgerow and 0.12ha of scrub will result in a reduction of breeding habitat and near-certain mortality of low numbers of common and widespread bird species and/or their eggs and/young. However, the extent of suitable nesting habitat, which will be lost to the Proposed Development represents a small proportion of that available in the Site. In addition, other habitats of value for birds including woodland will not be directly affected. These effects would be short-term during demolition/site clearance and the species affected would be expected to recover in the short to medium term. Therefore, the loss of scrub and hedgerow would not affect the contribution of the Site to bird populations at the Local level. The predicted effect is therefore significant adverse at the Site level prior to mitigation.
- 10.84 Given the above, and in line with the precautionary principle, effects in relation to habitat loss and mortality are **Significant at the Local Level overall for birds**.

Fragmentation

- 10.85 The habitat loss, as noted above, with relation to scrub and hedgerows, is unlikely to result in fragmentation of retained habitats. Cropland will be removed in its entirety, therefore no fragmentation will occur. However, should habitat fragmentation occur due to loss of small amounts of hedgerow, given that the bird population using these habitats is valued at Site level, in the absence of mitigation, fragmentation represents a **Significant Effect at no greater than the Site Level**.

Physical Disturbance

- 10.86 Disturbance to nesting birds within the Site and within the wider area, including noise from adjacent construction works, may possibly result in the abandonment of nests and/or a reduction in nesting productivity or survival. This is especially true of ground-nesting species which are less tolerant of disturbance. There is also the possibility of disturbance of birds which are present in the local area. Therefore, the effect of disturbance could affect the distribution, diversity or integrity of the breeding bird population at the Local level. The predicted effect is therefore **significant adverse at the Local level** prior to mitigation.

Dormice

Habitat Loss / Fragmentation / Mortality

- 10.87 The certain and permanent loss of 0.27km of hedgerow and 0.12ha of scrub will result in a reduction of dormouse nesting habitat and probable mortality of low numbers of individuals and their young. However, the extent of suitable habitat which will be lost to the Proposed Development represents a small proportion of that available in the Site. The permanent loss of hedgerows will also result in certain reduction in the connectivity of suitable dormouse habitat, resulting in near-certain isolation of individuals which could affect the viability of the population at the Site level. Predicted effects are **Significant at the Site level** prior to mitigation.

Physical Disturbance

- 10.88 Disturbance to dormouse in retained habitats, including noise from adjacent construction works, may possibly result in a reduction in nesting productivity or survival. However, current background noise from the train track to the north, Camer Road to the east and Norwood Lane to the south is likely to be such that dormice using peripheral habitats are already somewhat habituated to noise effects. Nevertheless, the effect of noise disturbance could affect the distribution or integrity of the dormouse population at the Site level. The predicted effect is therefore a **Significant at the Site level** prior to mitigation.

Reptiles

Habitat Loss and Mortality

- 10.89 The proposed development will result in the loss of approximately 2.57ha of modified grassland, 0.27km hedgerows, 0.12ha of bramble scrub, and 0.06ha of arable field margins which provide suitable foraging habitats for reptiles. Permanent loss of grassland in the west of the Site, where low numbers of common lizard were recorded is certain and in the absence of mitigation would result in the probable mortality of low numbers of reptiles. This grassland is subject to an annual mowing regime and is therefore likely to be of relatively low importance for reptiles within the Site. As a result, the population at the Site level would expect to recover from the effects in the short term. The effect of construction on reptiles as a result of direct habitat loss and mortality is predicted to be **significant adverse at the Site level** prior to mitigation.

Fragmentation

- 10.90 The habitat loss, as noted above, is unlikely to result in fragmentation of retained habitats. However, should habitat fragmentation occur, given that the reptile population is valued at Site level, in the absence of mitigation, fragmentation represents a **significant effect at no greater than the Site level**.

Physical Disturbance

- 10.91 Construction will possibly result in noise and vibration disturbance to retained reptile habitats on the peripheries of the Site. Such disturbance would be short-term during the construction period and relatively localised. Therefore, this effect is unlikely to modify reptile behaviour to such an extent that

it compromises the ability of the Site to maintain the viability of the population. Disturbance effects during construction, associated with noise, lighting and vibration are therefore predicted to be **not significant**.

Effects Once the Proposed Development is Operational

10.92 Potential effects for the operational phase of the Proposed Development have been identified as:

- Contamination – including dust, run-off and pollution of sensitive habitats
- Mortality – harm to animals from people or, for example, road traffic accidents.
- Noise and Lighting effects – with implications for crepuscular and nocturnal species, including bats, dormice and birds.
- Recreational pressure – disturbance to habitats and species as a result of human pressures.

Designated Sites

Contamination

10.93 The closest designated site, GR09 Nurstead and Cozendon Woods, Nash Street LWS, lies c0.6km away from the Site. All other designated sites are over 0.6km from the Site. Due to the distance from the Site, and lack of ecological connectivity, contamination of any designated sites from dust, runoff and one-off pollution events (such as fuel spills) are considered unlikely. This is therefore considered to be **Not Significant**.

Recreational Pressure

10.94 The Site lies beyond the 6km buffer for residential development around the Thames Estuary and marshes Ramsar and the Thames Estuary and Marshes SPA (and the South Thames Estuary and Marshes SSSI which underpins the SPA), inside which, recreational impacts are considered to be potentially significant.

10.95 Despite the distance, there is the possibility of occasional recreational use of these designated sites from low numbers of residents. Given the low probability and the potential impacts being occasional, any impacts would be Significant at no greater than Site level. Therefore, recreational impacts are **Significant at the Site Level for the Thames Estuary and marshes Ramsar, the Thames Estuary and Marshes SPA and the South Thames Estuary and Marshes SSSI**.

10.96 The Site lies less than 3km from the North Downs Woodlands SAC, and less than 2km from the North Kent Woods and Downs NNR, and Shorne and Ashenbank Woods SSSI which also forms part of the NNR. Given the distance between the Site and the SAC/NNR, recreational impacts are **possible**. Both the SAC and NNR have existing public access which is managed via a network of paths and trails. Therefore, any recreational impacts would be relatively contained. Nevertheless, the potential for recreational impacts is considered to be **Significant at the Local Level for the North Downs Woods SAC, Shorne and Ashenbank Woods SSSI and North Kent Woods and Downs NNR** and in the absence of mitigation.

- 10.97 Recreational impacts on non-statutory designated sites are unlikely given either the lack of public access to these sites, or due to the distance at which they site from the Site. Should recreational pressures occur, it is considered that these would be occasional, very low numbers of pedestrians in the absence of mitigation. Recreational impacts on non-statutory designated sites are considered **Not Significant**.

Habitats

Contamination

- 10.98 Contamination of retained habitats from new residents (e.g. littering, pesticides, fly tipping etc.) is considered **possible**. Sensitive habitats including retained woodland and hedgerows would be most susceptible. However, any effects are likely to be relatively **localised** in extent. Therefore, the predicted effect would be **significant adverse at the Site Level** in relation to habitats.

Recreational Pressure / Disturbance

- 10.99 Provision of designated pathways and roads will prevent incursion effects on retained habitats during operation. However, recreational pressures and disturbance from lighting are considered **possible**. Sensitive habitats, including retained woodland, would be most susceptible. However, any effects are likely to be relatively **localised** in extent. Therefore, the predicted effect would be **significant adverse at the Site Level** in relation to habitats.

Badger

Disturbance

- 10.100 Badgers are sensitive to disturbance as a result of artificial lighting. Areas that are particularly sensitive include retained woodland. Lighting could therefore render areas of the Site unsuitable for use by such species. This effect will be certain and permanent at localised locations, including where areas of woodland are close to the Proposed Development. Taking into account the localised nature of lighting effects, prior to mitigation, the effect of disturbance on badger is considered to be significant adverse at the Site level during the operational phase of the development.

Mortality

- 10.101 Increased road traffic during the operational phase of the development will **possibly** increase mortality of badger within the Site. Operational effects on badger as a result of mortality are therefore considered **Significant at the Site level** prior to mitigation.

Bats

Disturbance

- 10.102 Bats are particularly sensitive to disturbance as a result of artificial lighting. Areas that are particularly sensitive include retained woodland within the centre of the Site and hedgerows around the periphery which would be likely to provide foraging and commuting routes. Certain species of bat (including species of the *Myotis* genus) are particularly sensitive to lighting and will actively avoid lit areas. Lighting could therefore render areas of the Site unsuitable for use by such species. This effect will

be certain and permanent at localised locations, including where areas of woodland or hedgerows are immediately adjacent to the Proposed Development, or where access points pass through suitable habitat (for example, through hedgerows at the site access point).

- 10.103 Many of these areas are currently subject to some localised lighting in proximity to built development to the west of the Site. However, roads which run along the southern, western and eastern boundaries of the Site are not currently subject to streetlighting. Some areas of the Site, including the northeast area, will remain unaffected by lighting.
- 10.104 New street lighting is therefore likely to alter the behaviour of bats, and reduce use of localised areas permanently, but will not necessarily result in a significant reduction of the local foraging/commuting resource or alter the status of local bat populations.
- 10.105 Taking into account the localised nature of lighting effects in terms of the proportion of bat habitat affected by lighting, prior to mitigation, the effect of disturbance on bats is considered to be **Significant at the Site level** during the operational phase of the Proposed Development.

Mortality

- 10.106 Increased road traffic and increased risk of predation by pets during the operational phase of the development will probably increase mortality of bats within the Site. Operational effects on bats as a result of mortality are therefore considered **significant adverse at the Site level** prior to mitigation.

Birds

Disturbance

- 10.107 Increased recreational use of the Site is certain to increase levels of disturbance for ground-nesting birds. Disturbance is predicted to occur frequently, including during breeding season, and will possibly reduce breeding success of species sensitive to disturbance, such as ground nesting species. Given the frequency and extent of predicted disturbance, a **Significant effect** on breeding birds is predicted at the **Site level** during operation as a result of disturbance, prior to mitigation.

Mortality

- 10.108 Increased road traffic and increased risk of predation by pets during the operational phase of the development will probably increase mortality of birds within the Site. Operational effects on breeding birds because of mortality are therefore considered **significant adverse at the Site level** prior to mitigation.

Dormice

Disturbance

- 10.109 Dormice are sensitive to disturbance because of artificial lighting. Areas that are particularly sensitive include retained woodland and hedgerows around the periphery of the Proposed Development. Lighting could therefore render areas of the Site unsuitable for use by such species. This effect will be certain and permanent at localised locations, including where areas of woodland or hedgerows

are immediately adjacent to the Proposed Development, or where access points pass through suitable habitat (for example, through hedgerow habitat at the proposed access road).

- 10.110 Some of these areas are currently subject to some localised lighting in proximity to built development to the west of the Site. However roads along the southern, eastern and western boundaries of the Site are not currently subject to street lighting. Some areas of the Site, including the northeast area, will remain unaffected by lighting.
- 10.111 Considering the localised nature of lighting effects in terms of the proportion of dormouse habitat affected by lighting, prior to mitigation the effect of disturbance on dormice is considered to be **significant adverse at the Site level** during the operational phase of the development.

Mortality

- 10.112 Increased road traffic and increased risk of predation by pets during the operational phase of the development will probably increase mortality of dormice. Operational effects on dormice because of mortality are therefore considered **significant adverse at the Site level** prior to mitigation.

Reptiles

Disturbance

- 10.113 Increased recreational use of the Site is certain to increase levels of disturbance for reptiles. Disturbance is predicted to occur frequently. Given the frequency and extent of predicted disturbance, a **significant adverse effect** on reptiles is predicted at the **Site level** during operation as a result of disturbance, prior to mitigation.

Mortality

- 10.114 Increased road traffic and increased risk of predation by pets during the operational phase of the development will possibly increase mortality of reptiles, whilst creation of new roads with steep kerbs and open drains may trap reptiles. Operational effects on reptiles as a result of mortality are therefore considered **significant adverse at the Site level** prior to mitigation.

Mitigation Measures

Mitigation During / Prior to Construction

Habitats

Landscape and Ecology Management Plan

- 10.115 A Landscape and Ecology Management Plan (LEMP) will be produced to ensure that the existing and proposed habitats are maintained to maximise their value for biodiversity in the long-term, whilst managing potential conflicts with other objectives for landscape and visual and safety requirements. The long-term management of the Application Site will be secured and managed by GBC.
- 10.116 The LEMP will seek to maintain beneficial management of areas of grassland, woodland, trees, hedgerows, and scrub.

- 10.117 A sensitive lighting strategy will be developed and implemented to ensure the integrity of the retained and created habitats is maintained and to ensure they continue to be suitable to support protected and notable species sensitive to light (such as badger, bats, birds, dormice, and hedgehog).

Grassland Enhancement / Creation

- 10.118 Enhancement of retained grassland and creation of species-rich other neutral grassland within the Site will be achieved through an appropriate planting and management regime.
- 10.119 To encourage the growth of a diverse mix of species within the sward, a suitable wildflower meadow mixture grass seed will be sown and/or over-sown, as appropriate, within informal grassland areas within the Site.
- 10.120 Other neutral grassland will be sown and/or over-sown with a seed mix such as Special General Purpose Meadow Seed Mix, Emorsgate EM3, or similar. Seed sowing will normally be conducted during the autumn and/or spring periods but can be undertaken at other times of year if done in suitable weather conditions, i.e. sufficient warmth and moisture, are present.
- 10.121 During the first year following sowing, most of the sown species will be perennial and slow to establish, so there will be a flush of annual weeds after sowing. The weeds can be left until mid to late summer to provide shelter for invertebrate species, then cut, removed and composted. The sward will be kept short by mowing through to the end of March of the following year. Residual perennial weeds such as dock can be dug out. To avoid nutrient build-up, cuttings are to be removed and the use of fertilisers and pesticides is to be avoided. Leaving cuttings in-situ prevents light penetration for germination and causes a nutrient build up, both of which would encourage undesired coarse grass/herb species to dominate, resulting in a marked reduction in the density of flowering species.
- 10.122 Once established, to allow flowering species to set seed and help to limit the dominance of rank grasses, the areas of other neutral grassland will be cut twice per annum, once in August and again in late autumn. Since the sward is intended as other neutral grassland to achieve good condition, only a third of the grassland should be cut during each mow to allow for a varied sward structure. It will be managed with a relaxed mowing schedule during the summer. This will be implemented to allow wildflower species to appear in a low growing form, providing a nectar source for pollinators and allowing plants to set seed.
- 10.123 To be cut no lower than 10cm, due to the potential presence of reptiles, and all cuttings are to be removed. Where practical, the cuttings should be left for two days to allow any invertebrates on the cut sections of plants to return to the grassland. The use of fertilisers and pesticides should be avoided.

Woodland Enhancement / Creation

- 10.124 Parcels of woodland will be created within the Site to improve the overall biodiversity and provide habitat enhancements for species such as badger, bats, birds and dormice. Approximately 1.9428ha

of native Lowland mixed deciduous woodland will be created across the Site. Species to be planted include pedunculate oak *Quercus robur*, hazel *Corylus avellana*, silver birch *Betula pendula*, common hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, downy birch *Betula pubescens*, sessile oak *Quercus petraea*, hornbeam *Carpinus betulus*, beech *Fagus sylvatica*, sweet cherry *Prunus avium*, elder *Sambucus nigra*, rowan *Sorbus aucuparia* and lime *Tilia x europaea* (or similar).

- 10.125 Any tree planting within the Site will be undertaken between November and March of any given year.
- 10.126 A square hole one third bigger than the root balls, to a depth of the root ball or a minimum of 300 mm (i.e. a spit depth), will be dug out. Research has shown that wide rather than deep planting holes result in better tree establishment (Whitcomb, 1987) and that root penetration outside the tree pit is quicker through a square hole rather than round (Kirkham, 1990). The soil removed from the tree pit will be broken up and returned to the tree pit with additional soil so that the final planting position is slightly raised. An appropriate fertiliser (recommended by the supplier) will be mixed with the returned soil. Inspection of the root ball will be conducted before planting. If the health, rooting or general quality are not acceptable, a specimen will be returned to the supplier and a replacement requested. The tree will be placed upright in the centre of the tree pit with the roots spread out around the pit to encourage outward growth. Excess or damaged roots can be pruned after consultation with the supplier.
- 10.127 Planting depth is critical - planting too deep can be the cause of a high percentage of mortality. The root collar will be level with the surrounding ground or mound top. The backfill will be firmed evenly around the roots of the tree. Tree staking will only be used where necessary (where the root size of a newly planted tree does not provide adequate anchorage or support). The stake will extend to one third of the overall tree height. Stakes must be positioned at the time of planting to minimise any damage to roots. A mesh cage (minimum 4.0 m girth) will be provided around each newly planted tree to act as protection from pests.
- 10.128 To aid establishment, the bases of newly planted trees would be maintained to ensure that they remain weed-free for the first three to four years. To avoid the use of pesticides, trees would be maintained either by mulching or through the use of biodegradable mulch mats which would be laid and pegged as necessary around each plant.
- 10.129 Dead or diseased stock would be removed and replaced with stock of the same species. To ensure survival, stock would be watered if required.
- 10.130 Dense bushy growth of trees would be promoted by conducting a cut when they reach a height of approximately 1m (where applicable). After this time the new tree stock would be cut once per year between November and February until fully grown.

Tree Creation / Protection

- 10.131 To ensure that the suitability of the Site for wildlife is maximised, including creating nesting opportunities for birds, standard tree planting of 318 trees will take place within the Site which will

include native species of benefit to wildlife including field maple *Acer campestre*, silver birch *Betula pendula*, downy birch *Betula pubescens*, hornbeam *Carpinus betulus*, beech *Fagus sylvatica*, bird cherry *Prunus padus*, pedunculate oak *Quercus robur*, rowan *Sorbus aucuparia*, and small-leaved lime *Tilia cordata* (or similar).

- 10.132 Any tree planting within the Site will be undertaken between November and March of any given year. Planting methods are described within the woodland section above.
- 10.133 To aid establishment, the bases of newly planted trees would be maintained to ensure that they remain weed-free for the first three – four years. To avoid the use of pesticides, trees would be maintained either by mulching or through the use of biodegradable mulch mats which would be laid and pegged as necessary around each plant.
- 10.134 Dead or diseased stock would be removed and replaced with stock of the same species. To ensure survival, stock would be watered if required.

Hedgerow Creation / Enhancement

- 10.135 Approximately 0.60km of new native hedgerows will be planted within the Site. This will replace the hedgerows which will be lost as a result of the proposed development and will provide 0.1974km of enhancement for a range of species, including dormice, bats, badger and nesting birds. The hedgerows will provide greater connectivity between existing peripheral habitats within the Site, and the wider landscape. Hedgerow planting and enhancement will provide foraging and sheltering habitat for a diverse variety of wildlife, as well as creating new landscape features and visual screening. Species will include native species of benefit to wildlife including common hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, wild service tree *Sorbus torminalis*, field maple *Acer campestre*, and European spindle *Euonymus europaea* or similar.
- 10.136 When planting new hedgerows, species will be planted as bare root stock, at between 60 and 90cm in height. Plants will be of local origin and will be set in double staggered rows at 300mm centres. Plants will be set in species groups of 5 – 7 plants. When enhancing hedgerows, species will be planted as bare root stock at heights and densities dictated by the existing hedgerow attributes. Hedge planting and enhancement will be undertaken between November and March. To maintain a full, gap-free hedge, dead or diseased stock will be removed and replaced with stock of the same species. To ensure survival, stock will be watered during extreme heat or extended dry spells, if required.
- 10.137 Dense bushy growth of the hedgerows will be promoted by cutting annually once a height of approximately 1.5m is reached, outside of the nesting bird season (generally considered to be February – August inclusive). Following the first cut the hedgerow will continue to be annually cut until it reaches a height of between two and three metres. Once the desired height is reached, and to promote fruiting/flowering shrubs, hedgerows should be managed on a three-year cycle, as follows:

- In year one, a single side the hedgerow will undergo cutting;
- In year two, the opposite side of the hedgerow will undergo cutting; and
- In year three, the hedgerow top will undergo cutting.

10.138 This level of management will promote greater diversity of botanical species whilst maintaining suitability for wildlife.

10.139 The bases of both new and enhanced hedgerows are to be seeded with a shade-tolerant mixture such as Emorsgate EH1 which comprises a diverse range of native wildflowers and grasses. The seed mixture will include species such as common agrimony *Agrimonia eupatoria*, betony *Stachys officinalis*, tufted vetch *Vicia cracca*, and upright hedge-parsley *Torilis japonica*.

10.140 To aid establishment, the bases of the hedgerows will be cut bi-annually for the first three – four years to suppress the development of pernicious species, such as creeping thistle and common nettle.

Scrub Creation / Enhancement

10.141 Areas of mixed scrub will be created within the Site. This will provide suitable habitat for invertebrates and nesting birds, as well as shelter for small mammals (including dormice), amphibian and reptile species. The species mix will include a range of native scrub tree and herb species such as hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, blackthorn *Prunus spinosa*, beech *Fagus sylvatica*, elder *Sambucus nigra*, downy birch *Betula pubescens*, pedunculate oak *Quercus robur*, common dogwood *Cornus sanguinea* and spindle *Euonymus europaea* (or similar).

10.142 Any necessary cutting/pruning/removal would be conducted outside of the active period for reptiles and dormice (March-October) and nesting bird season (mid-February-August inclusive), i.e. undertaken in winter, to maintain the early successional status. Any root removal should be avoided and dead stock left in situ, but if any roots of mature scrub need to be pulled up this will not be undertaken during dormouse hibernation season and advice will be sought from the appointed ecologist on the best course of action if any scrub requires complete removal.

10.143 Any tree suckers >10cm in diameter at breast height (DBH) will be removed using hand tools only. Selective maintenance would be required to maintain healthy bushes and prevent over-crowding or shading from adjacent species.

Protected and Notable Species

10.144 Detailed mitigation strategies as set out below for protected and notable species within the Site will be set out within an Ecological Mitigation Strategy (EMS), or similar. This should be secured by a suitably worded planning condition.

Badger

10.145 Badgers, and their setts, are protected under the Protection of Badgers Act 1992, an active main sett and an active outlier sett are present within the study area. Closure of a sett should be a last resort,

it is considered that the most sensitive approach would be achieved by ensuring no proposed developable area is constructed within a 30m buffer zone of the badger setts. The scheme has been designed with consideration to protecting the on-site badger setts and, as shown within **Appendix 10.1; Figure 2b Badger Survey Results**, the developable area lies beyond 30m from the active badger setts. The following mitigation strategy should be implemented in full to protect badgers and their setts during construction:

- Prior to the start of works, the commissioned groundwork contractors will be subject to a Toolbox Talk which will be given by a suitably experienced ecologist. The talk will serve to inform the contractors of the current legislative cover given to badgers and their setts, whilst detailing both the mitigation strategy and sensitive working strategy below. The Toolbox Talk will also cover the welfare and legal implications should such methods not be adhered to.
- To avoid risk of tunnel collapse and minimise disturbance, an appropriate cordon (Heras fencing or similar) should be installed around the 30m buffer zone and no entry into this area or works in this area should be allowed.
- To mitigate the potential for badgers to enter the works area for the purpose of foraging and commuting, prior to the start of work all contractors will be briefed by the ECoW regarding the presence of badgers.
- To prevent badgers becoming trapped in excavations, any trenches or deep pits that are to be left open overnight will be provided with a means of escape. This is to be achieved through the construction of a graded bank or the installation of a rough sawn timber board such as a scaffold board or similar, which will allow the badgers to exit of their own accord. Any trenches or pits left overnight will be inspected each morning to ensure no badgers have become trapped.
- Should a trapped badger be encountered, and the means of escape prove futile, then the appointed ecologist will be contacted immediately to discuss an appropriate manner in which to proceed.
- Should the development require the installation of culverts and/or large diameter piping, the ends of such components are to be closed to badgers overnight.
- If mounds of topsoil or soft building materials are required within the Site, they will be subject to daily inspection for the presence of badgers or ring-fenced with a badger-proof fencing material. Alternatively, material may be stored off the ground.
- Should badger occupation occur, mounds will be afforded the same level of protection as an established sett and a sett closure licence will need to be obtained from Natural England to remove the spoil.
- To avoid any upset/spillage by badgers, the storage of any chemicals required during the development will be sited away from the buffer fencing and preferably within a steel container. This action will be implemented/enforced by a member of the on-site contractual team.

- Should proposals change and the developable area encroach on the 30m buffer zone, a sett closure licence will need to be obtained from Natural England in order for the works to proceed lawfully. Should a sett closure licence be required, sett closure works will need to be conducted during the least sensitive period for badgers between 1st July to 30th November in any given year, in order to avoid the breeding season.

Bats

10.146 To ensure the Site's integrity for bats is maintained, the Proposed Development will avoid the use of lighting wherever possible. Where lighting is required, a sensitive lighting scheme will be produced, following the requirements set out by the Bat Conservation Trust in their 2023 document 'Bats and Artificial Lighting at Night', including:

- Dark buffer zones used to separate habitats or features from lighting by forming a dark perimeter around them.
- Lighting within the Site will be reduced as far as practicable.
- Part night-lighting of the Site will be considered.
- Luminaires will be positioned and directed away from ecological receptors.
- Column heights will be reduced as far as practicably possible to reduce light spill along with the consideration of low-level bollard lighting.
- White light will be avoided, and warm colours preferably used. Preferable colours are 3000°k to 2700°k (where feasible) with peak wavelengths greater than 550nm.
- 0% upward light output and no tilting of the light head.
- Use vegetation, fencing and walls as a light buffers.
- Motion sensors for security lighting.
- For street lighting, the consideration of part night lighting and dimming (the latter viable with LED's only).
- As a last resort, the incorporation of shields, baffles and cowls fitted to the luminaires.

10.147 Management of retained and created habitats as detailed within a LEMP will provide enhancements in foraging and commuting habitats for bats within the Site. The installation of bat boxes on suitable trees and integrated into the proposed dwellings within and around the Site will also provide roosting opportunities for bats post-development.

10.148 Four of the trees (T12, T14, T15 and T16) to be removed to facilitate the proposed development were assessed as FAR (Further Assessment Required) due to the presence of ivy potentially obscuring suitable features. To avoid the low risk of killing/ injury to bats, the trees should be removed in adherence with the following mitigation strategy:

- Prior to felling, the arboricultural contractors will be subject to a site briefing (Toolbox Talk) given by a suitably licensed bat ecologist, covering the sensitive methodology to be followed, the suitability for roosting bats and the protection afforded to them.
- Prior to felling, the trees should be climbed and the ivy removed using hand tools only under the supervision of a bat licenced ecologist. Should the removal of the ivy reveal any potential roosting features (PRFs) for bats, they would need to be subject to further inspection and/or surveys prior to felling. Should no features be found, the trees can be felled.
- Felling of T12, T14, T15 and T16 should avoid the winter hibernation period for bats (November – March) and the core maternity period (May-August).
- All four trees should be felled in sections. Each section should be carefully lowered to ground level and left in situ for a minimum of 24 hours to allow any bats to leave of their own accord.

10.149 In the unlikely event that a bat or evidence of roosting bats is identified during the works, all works must stop until Natural England and/or the appointed ecologist have been contacted on the appropriate way to proceed.

Birds

10.150 Areas of cropland, hedgerows, scrub and arable field margins will be lost during the Proposed Development. Without mitigation, this loss of habitat is likely to have an adverse effect on breeding birds. These birds would be displaced to compete for breeding habitat and foraging habitat against feeding populations within the adjacent land. Mitigation for this habitat loss would be achieved by the creation and enhancement of habitats suitable for breeding birds within the Site inclusive of grassland, woodland, trees, hedgerows and scrub. The phasing of the works will also ensure that a proportion of suitable habitat is always available during the works.

10.151 To ensure the welfare of breeding birds is maintained, no vegetation clearance or works likely to disturb breeding birds will take place during the breeding season of March – August inclusive. If this is not possible, and removal of suitable bird nesting habitat is required within the active nesting season, prior to the commencement of works, nesting bird checks will be carried out by a suitably qualified ecologist to ensure no active bird nests are present. Should evidence of breeding birds be recorded, works within 5m of the nest, or works that have potential to destroy the nest, will stop until the eggs have hatched, and the chicks fledged, or the nest is confirmed by a suitably experienced ecologist not to be in use.

10.152 The retention and protection of existing habitat will maintain suitable nesting opportunities for the species recorded within the Site. A range of bird box designs within retained habitat and integrated into the new buildings will provide suitable opportunities for breeding birds. Specific bird boxes will be detailed within an EMS, secured by Planning Condition.

Skylark

10.153 A detailed skylark mitigation strategy will be produced and should be secured by way of a suitably worded planning condition. There is a requirement to provide compensatory habitat for up to four skylark territories. These were noted as 'possibly breeding' during the surveys. In line with a precautionary principle, it is assumed for the purposes of mitigation that the skylarks recorded are breeding within the Site, and that four territories should be compensated for 6.74ha of open greenspace in the north-east of the Proposed Scheme is earmarked as the proposed compensation area. This area will be created as species rich grassland with a range of tussocky, close mown and longer grassland areas. This will provide a range of foraging and nesting opportunities for skylarks. The current land use within these areas is arable, however no skylark territories were recorded in this area. The following requirements are needed to ensure that the compensation area of the site remains suitable for nesting skylark:

- All land identified within the compensation area must be managed for the purposes of skylark mitigation (see Green Infrastructure Plan, Icen Projects Limited, Drawing no. DL07).
- The requirement for skylark mitigation will need to be congruent with requirements for Biodiversity Net gain within the Site.
- To ensure skylark breeding success, access by humans or animals must be prevented through installation of fencing within the compensation area between 1st April and 1st June, when skylarks produce the primary brood. Gated access can be provided outside of these times, however, clear mown footpaths should be provided to deter public access to longer areas of grassland.
- A mixture of short sward grasses, longer grasses and areas of tussocky grassland provide the best opportunities for breeding and foraging birds including Skylark, and this will be maintained throughout the compensation area (in line with BNG requirements).
- The grassland will be managed as a hay meadow, with an annual cut at the end of the summer (August-September). This will allow nesting skylarks to produce subsequent broods.
- Mown paths should be maintained to encourage pedestrians away from suitable nesting habitat. These should not be mown between 1st April and 1st June in any given year to avoid the key skylark nesting season for the primary brood.
- Hedgerows will be managed around the boundaries of the compensation area to ensure that the skyline remains mostly unbroken. Hedges will be cut between January and March to ensure that winter foraging opportunities for other species are not lost and impacts to breeding birds utilising the hedges are avoided.
- A commitment to provision of the mitigation area and management for a minimum of 30 years, in line with BNG requirements.

Dormice

- 10.154 A Natural England mitigation licence will be required in respect of dormice given the loss of suitable habitat, and to prevent killing and injury to dormice during construction. A visual inspection by a licensed dormouse ecologist will be carried out immediately prior to the commencement of vegetation removal. Hedgerows will be cut to ground-level between November-March, when dormice will be inactive and hibernating at ground level. Following this, stump removal will be conducted during the dormouse active season of (April-September) under supervision of a suitably licenced ecologist. Dormice found during the inspections will be translocated to an established area of suitable retained habitat. To enhance the retained habitat for dormice, a minimum of 10 dormouse boxes will be installed on retained trees within the boundary hedgerows and within the woodland to provide additional nesting opportunities for this species.
- 10.155 Creation of hedgerows, woodland and scrub and enhancement of existing hedgerows and woodland as outlined above will provide additional foraging and sheltering opportunities, as well as greater connectivity with the wider landscape.

Reptiles

- 10.156 Areas of modified grassland, bramble scrub and hedgerows will be lost during the Proposed Development. Without mitigation, this loss of habitat is likely to have an adverse effect on reptiles. Mitigation for this habitat loss would be achieved through the creation and enhancement of habitats suitable for reptiles inclusive of grassland, hedgerows and scrub. The phasing of the works will also ensure that a proportion of suitable habitat is always available during the works.
- 10.157 The implementation of the following precautionary method of works including sensitive timing and habitat manipulation strategy is considered proportionate and appropriate and will ensure the welfare of any reptiles within the Site is safeguarded.
- 10.158 Habitat manipulation involves a phased and directional cutting regime of vegetation suitable to support reptiles to encourage them to relocate into adjacent retained and surrounding habitat of their own volition. This includes the following:
- Where practical, all vegetation and suitable habitat for herpetofauna should be retained.
 - The works area should be clearly marked out, beyond which no construction activities or materials storage should take place.
 - Having clearly marked out the proposed construction area, suitable vegetation within the construction zone will be subject to clearance to ensure it is unsuitable for herpetofauna.
 - To ensure herpetofauna that may be present are able to move quickly out of harm's way, any cutting of the vegetation will be undertaken during the active season of April to early October in any given year.

- The vegetation cut will commence in the north of the site and progress in an southerly direction, using hand tools only (strimmer and brush cutters acceptable).
- To allow wildlife to remain un-harmed during this process the initial cut will be to a height of 10cm from ground level.
- Following a period of 1-2 hours, the second phase of habitat manipulation will be undertaken in the same direction as the first phase, but with vegetation cut to approximately 5cm in height.
- Upon completion of the habitat manipulation, the habitats deemed sensitive to the presence of herpetofauna will need to be subject to a destructive/fingertip search to ensure any animals that have remained within the development area are safely relocated.
- The destructive search will need to be conducted in accordance with the Herpetofauna Groups of Britain and Ireland's (HGBI) advisory notes (1998) guidance and under the supervision of the suitably experienced ecologist.
- Any herpetofauna discovered will be captured and re-located into the adjacent suitable habitat.
- Should at any point during the phased clearance process, reptile hibernacula inclusive of log/brush/spoil piles be identified, these should be cleared under the supervision of a suitably qualified ECoW to ensure the welfare of reptiles is maintained.
- The site compounds and/or materials storage should, where practical, be located on hardstanding. However, should this not be achievable, the above habitat manipulation methods should be undertaken to clear grassland areas for the compounds and/or storage and they should be as small as realistically possible.

10.159 It is suggested that so long as the above mitigation strategy is implemented in full, then the welfare of reptiles will be maintained, and the development will be conducted in accordance with current legislation and planning policies which serve to protect reptiles.

10.160 Management of retained and created habitats as detailed within a LEMP and HMMP will provide enhancements for reptiles within the Site. The installation of hibernaculum in the form of log and brush piles around the Site will also provide enhancements for reptiles post-development.

Construction Impacts

10.161 Through the implementation of best practice mitigation measures, most construction effects will be reduced to **not significant** or **beneficial**. This includes implementation of best construction practice including ECoW supervision/attendance and the protection of retained habitats (as detailed within a CEMP); the phased enhancement and creation of habitats; and provision of specific replacement habitat and features for shelter, including under NE licences. Although significant habitat enhancement and creation is proposed, these measures will not reach maturity until the operational phase, and therefore positive residual effects are not predicted until the operational phase.

Mitigation Once the Proposed Development is Operational

Designated Sites

- 10.162 The creation and enhancement of habitats on site, in particular the area of designated green space within the northeast of the Site, will reduce recreational and disturbance effects on the designated sites within the Zol during the operational phase. Furthermore, the inclusion of a designated dog park and the inclusion of footpaths, travel routes, and sports pitches will further reduce the likelihood of new residents travelling further afield to designated sites within the Zol. The Proposed Scheme will provide over 16ha of open greenspace (including sports pitches), which will reduce the likelihood of new residents traveling to the designated sites for recreation such as sports and/or dog walking.

Habitats

- 10.163 Education will be provided for residents and visitors in the form of signage to encourage responsible behaviour, including removal of dog waste. Designated and well-maintained footpaths and walking routes will reduce disturbance to created and retained habitats, such as the more sensitive parcels of woodland, and some areas (such as woodland supporting badger setts) will be fenced off to prevent human access and disturbance. Interpretive signage will provide information on the management of the greenspace for biodiversity, and the plants and animals for which the management is being undertaken.

Protected Species (Badger, Bats, Birds, Dormice and Reptiles)

- 10.164 Designated areas of green space will be managed to provide the highest level of suitability for protected species within the Site. These areas will be located away from the built environment where disturbance impacts will be reduced and localised (to areas with designated footpaths). The amenity areas such as road verges and community gardens, within the built development in the Site, will be subject to more intensive management measures to make them less suitable for wildlife. This will encourage protected species within the Site to remain within designated greenspaces and thus be subject to less disturbance and causes of mortality (such as road traffic collisions).
- 10.165 Some habitats, such as more sensitive areas of woodland, will be fenced off and designated as wildlife only areas. This will ensure that sensitive species such as bats, dormice and badgers, which may reside in these habitats, are less likely to be subject to disturbance and mortality impacts such as predation from dogs.
- 10.166 Interpretive signage to encourage responsible behaviour will also help to inform residents and visitors of the protected species likely to be present within the Site, as well as habitats that are being managed for their benefit.

Residual Effects and Monitoring

- 10.167 The residual effects arising from the Proposed Development are summarised in **Table 10.9** below.

Table 10.9 Summary of Residual Effects

Effect	Nature of Effect and Geographic Scale (CIEEM)	Classification of Effect (EIA)	Mitigation and Monitoring	Residual Effect (EIA)
Construction				
Habitats – Habitat Loss – Bramble scrub	Study area	Minor Adverse	Creation and enhancement of scrub habitat, implementation of appropriate management to ensure maximum benefit for a range of floral and faunal species	Minor Beneficial (Not Significant)
Habitats – Habitat Loss – Hedgerows	Local	Minor Adverse	Creation and enhancement of hedgerows, implementation of appropriate management to ensure maximum benefit for a range of floral and faunal species	Minor Beneficial (Not Significant)
Habitats – Habitat Loss – Trees	Study area	Minor Adverse	Planting of new trees and implementation of appropriate management to ensure maximum benefit for a range of floral and faunal species	Minor Beneficial (Not Significant)
Habitats – Fragmentation	Study area	Minor Adverse	Creation and enhancement of habitats to provide greater connectivity to the wider landscape	Minor Beneficial (Not Significant)
Habitats – Physical Disturbance	Study area	Minor Adverse	Best practice pollution guidelines adhered to throughout works, provision of attenuation features to prevent runoff and pollution	Not Significant
Habitats – Contamination	Study area	Minor Adverse	Best practice construction methods, provision of diverse, wildlife-friendly planting to benefit of a range of wildlife. Attenuation features provide long-term contamination prevention	Not Significant
Badger – Habitat Loss	Study area	Minor Adverse	Enhancement and creation of woodland, grassland and scrub habitats will provide a native planting scheme on-Site combined with the phased working and restoration of the Site throughout the construction period.	Minor Beneficial (Not Significant)

Effect	Nature of Effect and Geographic Scale (CIEEM)	Classification of Effect (EIA)	Mitigation and Monitoring	Residual Effect (EIA)
Badger – Fragmentation	Study area	Minor adverse	Enhancement and creation of woodland, grassland and scrub habitats will provide increased connectivity between the Site and wider landscape.	Minor beneficial (Not Significant)
Badger – Mortality	Study area	Minor adverse	Demarcation of a 30m buffer zone in which no construction or access will occur. Protection of on site setts from development activities. Sett closure licence if required and best practice construction measures.	Not significant
Badger – Physical Disturbance	Study area	Minor adverse	Demarcation of a 30m buffer zone around setts to be protected from any disturbance impacts inclusive of light, noise, vehicular access etc. Sensitive lighting scheme, including directional lighting and no lighting of retained and created habitats and setts.	Not significant
Bats – Habitat Loss	Study area	Minor adverse	The inclusion of a range of bat box designs within any retained habitat (trees) and integrated into the new buildings would increase the Site's potential post development for roosting bats. Enhancement and creation of woodland, grassland and hedgerow habitats will provide a native planting scheme on-Site combined with the phased working and restoration of the Site throughout the construction period.	Minor beneficial (Not Significant)
Bats – Fragmentation	Study area	Minor adverse	Enhancement and creation of woodland, grassland and hedgerow habitats will provide increased connectivity between the Site and wider landscape.	Minor beneficial (Not Significant)
Bats – Mortality	Study area	Minor adverse	Mitigation measures to be followed for the felling of four trees assessed as FAR.	Not significant

Effect	Nature of Effect and Geographic Scale (CIEEM)	Classification of Effect (EIA)	Mitigation and Monitoring	Residual Effect (EIA)
Bats – Physical Disturbance	Study area	Minor Adverse	Sensitive lighting scheme, including directional lighting and no lighting of retained and created habitats	Not Significant
Birds – Habitat Loss / Mortality	Local	Minor Adverse	Creation of new hedgerow, woodland, scrub and grassland areas. Skylark mitigation area to be created. Timings of works to avoid sensitive periods for breeding birds.	Minor Beneficial (Not Significant)
Birds – Fragmentation	Study area	Minor Adverse	Enhancement and creation of woodland, grassland and scrub habitats will provide increased connectivity between the Site and wider landscape.	Minor Beneficial (Not Significant)
Birds – Physical Disturbance	Local	Minor Adverse	Timing of works to avoid sensitive periods for breeding birds.	Not Significant
Dormice – Habitat Loss / Fragmentation / Mortality	Study area	Minor Adverse	Creation of new hedgerow and woodland areas with a focus on dormouse food species such as bramble, hazel and honeysuckle will increase suitable habitats within the Site and increase connectivity. Timing of works to avoid sensitive periods for dormouse. Works under supervision and under NE mitigation licence.	Minor Beneficial (Not Significant)
Dormice – Physical Disturbance	Study area	Minor Adverse	Timing of works to avoid sensitive periods for dormouse. Works under supervision and under NE mitigation licence	Not Significant
Reptiles – Habitat Loss and Mortality	Study area	Minor Adverse	Creation and enhancement of grassland and scrub habitats with appropriate management measures. Supervision of works under an ECoW and during appropriate timings.	Minor Beneficial (Not Significant)
Reptiles – Fragmentation	Study area	Minor Adverse	Creation and enhancement of grassland and scrub habitats to improve connectivity with the Site and surrounding landscape.	Minor Beneficial (Not Significant)

Effect	Nature of Effect and Geographic Scale (CIEEM)	Classification of Effect (EIA)	Mitigation and Monitoring	Residual Effect (EIA)
Reptiles – Physical Disturbance	Not significant	Negligible	Timing of works to avoid sensitive periods for reptiles. Supervision of works under an ECoW.	Not Significant
Operational Effects				
Designated Sites – Contamination	None / Not significant	Negligible	N/A	Not Significant
Thames Estuary and marshes Ramsar, the Thames Estuary and Marshes SPA and the South Thames Estuary and Marshes SSSI. – Recreational Pressures	Study area	Minor Adverse	Inclusion of significant areas of green space, designated dog parks, footpaths and travel routes.	Not Significant
North Downs Woods SAC, Shorne and Ashenbank Woods SSSI and North Kent Woods and Downs NNR – Recreational Pressures	Local	Minor Adverse	Inclusion of significant areas of green space, designated dog parks, footpaths and travel routes.	Not significant
Non-statutory designated sites – Recreational Pressures	None / Not significant	Negligible	Inclusion of significant areas of green space, designated dog parks, footpaths and travel routes	Not Significant
Habitats – Contamination	Study area	Minor Adverse	Signage, designated footpaths and travel routes, provision of bins, restricted access to sensitive habitats	Not Significant
Habitats – Recreational Pressures / Disturbance	Study area	Minor Adverse	Signage, designated footpaths and travel routes, restricted access to sensitive habitats	Not Significant

Effect	Nature of Effect and Geographic Scale (CIEEM)	Classification of Effect (EIA)	Mitigation and Monitoring	Residual Effect (EIA)
Protected Species – Disturbance and Mortality	Study area	Minor adverse	Designated areas of green space, enhanced to encourage use by wildlife; intensive management of habitats within built up areas to discourage use; restricted access for people to sensitive habitats (such as woodland); designated footpaths through habitats; signage	Not significant

Notes: * incorporating environmental design and management, ** incorporating mitigation and monitoring measures

Likely Significant Environmental Effects

Residual Construction Impacts

- 10.168 Through the implementation of best practice mitigation measures, most construction effects will be reduced to **not significant** or **beneficial**. This includes implementation of best construction practice including ECoW supervision/attendance and the protection of retained habitats (as detailed within a CEMP); the phased enhancement and creation of habitats; and provision of specific replacement habitat and features for shelter, including under NE licences. Although significant habitat enhancement and creation is proposed, these measures will not reach maturity until the operational phase, and therefore positive residual effects are not predicted until the operational phase.
- 10.169 The creation of new grassland, woodland, hedgerow and scrub habitats during the construction phase is predicted to have a **significant positive impact** at the Site level for bats, dormice and reptiles by providing new areas of optimal habitat for breeding and foraging, which will benefit the Site populations for these species.
- 10.170 Disturbance is predicted to result in **significant adverse effects** on ground-nesting birds at **Site level** because these effects cannot be fully mitigated or avoided despite the implementation of best practice measures.

Residual Operational Effects

- 10.171 Through the implementation of well-established approaches to mitigation, which will be implemented in accordance with best practice guidance, it will be possible to reduce the effects to **not significant** or **beneficial** for all ecological features, except for ground nesting birds.
- 10.172 **Operational effects** are predicted to be **minor adverse** for designated sites because these effects cannot be fully mitigated or avoided despite the extent of habitat creation and management which will be provided.
- 10.173 **Significant beneficial operational effects** are predicted at the **Site level** for habitats, badger, bats, , dormice, and reptiles, because of habitat management in perpetuity, and continued provision of bat roost features, bird nesting features, dormouse nest boxes and reptile sheltering features.

Summary and Conclusions

- 10.174 Due to the isolated nature of the Site, bordered by the Camer Road to the east, Norwood Lane to the south and the railway line to the north, it is considered unlikely that the schemes outlined above would contribute significantly to the effects of the Proposed Development on ecological receptors. Following the implementation of mitigation and enhancement measures within this Chapter, the effect of the proposals is considered to be limited to the physical area of the development.

References

- ¹ The Conservation of Habitats and Species Regulations 2017 (as amended) Available at: <http://www.legislation.gov.uk/ukxi/2017/1012/made>
- ² The Environment Act 2021 Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>
- ³ The Wildlife and Countryside Act 1981 (as amended) Available at: <http://jncc.defra.gov.uk/page-1377>
- ⁴ The Countryside Rights of Way Act 2000 Available at: <https://www.legislation.gov.uk/ukpga/2000/37/section/16>
- ⁵ The Natural Environment and Rural Communities (NERC) Act 2006 Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>
- ⁶ Hedgerows Regulations Act 1997 <https://www.legislation.gov.uk/ukxi/1997/1160/contents>
- ⁷ The Protection of Badgers Act 1992 Available at: <http://www.legislation.gov.uk/ukpga/1992/51>
- ⁸ The Wild Mammal (Protection) Act 1996 <https://www.legislation.gov.uk/ukpga/1996/3/contents>
- ⁹ Department for Levelling Up, Housing and Communities. (2024). 'National Planning Policy Framework'. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- ¹⁰ Government Circular 06/05 Office of the Deputy Prime Minister (ODPM) Circular 06/2005. Biodiversity and Geological conservation – Statutory Obligations and their Impact within the Planning System. ODPM, London.
- ¹¹ Gravesham Borough Council Local Plan Core Strategy (Adopted September 2014) Available at: <https://www.gravesham.gov.uk/local-plan-policy/local-plan>
- ¹² Kent Biodiversity Strategy Available at: <https://kentnature.org.uk/strategy/kent-biodiversity-strategy/>
- ¹³ Chartered Institute of Ecology and Environmental Management CIEEM's industry standard guidelines CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- ¹⁴ The UK Habitat Classification Version 2.0 Available at: UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>)
- ¹⁵ Surveying Badgers Harris, S., Cresswell, P., Jefferies, D. Surveying Badgers
- ¹⁶ DEFRA Statutory Biodiversity Metric Available at: Defra (2024) The Statutory Biodiversity Metric User Guide. Updated July 2025. Available at <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>.
- ¹⁷ Best practice principles for BNG Baker, J., Hoskin, R., Butterworth, T. (2018) Biodiversity Net Gain. Good Practice Principles for Development: A Practical Guide..
- ¹⁸ Bat Conservation Trust's Bat Good Practice Survey Guidelines Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (2023) 4th edn. Bat Conservation Trust, London.

-
- ¹⁹ Common Bird Census (CBC) methodology Gilbert G, Gibbons D & Evans J. (2011). Bird Monitoring Methods. Pelagic Publishing
- ²⁰ Hazel Dormouse Conservation Handbook – Third edition - Bullion, S., Wolton, R. & White, I. (2025) Hazel Dormouse Conservation Handbook – Third edition. The Mammal Society
- ²¹ Hazel Dormouse Mitigation Handbook Wells, D., Chanin, P. & Gubert, L. (2025) Hazel Dormouse Mitigation Handbook. The Mammal Society.
- ²² Froglife Advice Sheet 10 Froglife (1999). Froglife Advice Sheet 10, Reptile Surveys, An Introduction to Planning, Conducting and Interpreting Surveys for Snakes and Lizard Conservation. Froglife, Peterborough.
- ²³ Herpetofauna Groups of Britain and Ireland - Herpetofauna Groups of Britain and Ireland (1998). Evaluating local mitigation/translocation programmes: Maintaining best practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups. Froglife, Halesworth.
- ²⁴ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.
- ²⁵ Multi-Agency Geographic Information for the Countryside (MAGIC) Accessed at: <https://magic.defra.gov.uk/MagicMap.html>