Chapter F
Ecology

East Claydon Greener Grid Park Environmental Statement

Chapter F Biodiversity and Ecology

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Applied Ecology
St John's Innovation Centre
Cowley Road
Cambridge
CB4 0WS
www.appliedecology.co.uk

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F1.0 Introduction

F1.1 This Chapter of the Environmental Statement ('ES') has been prepared by Applied Ecology Ltd on behalf of Statkraft UK Ltd ('the Applicant'). It assesses the Proposed Development described in Chapter C in relation to Biodiversity and Ecology.

F1.2 The baseline situation is considered before the likely environmental effects of the Proposed Development are identified during its construction and operational phases. Mitigation measures to reduce any negative environmental effects are identified as appropriate, before the residual environmental effects are assessed.

F1.3 This Chapter is supported by the following technical appendices provided at Volume 2 to this ES:-

- Appendix F1: Applied Ecology Ltd (October 2024) Ecology Report
- Appendix F2: Applied Ecology Ltd (March 2025) Biodiversity Net Gain Assessment

About the Author

F1.4 This chapter has been prepared by a professional ecologist from Applied Ecology Ltd who is a full member of the CIEEM and has over 20 years professional experience preparing ES chapters.

F2.0 Policy Context

Legislative framework

F2.1 The following legislation has informed the assessment of effects within this Chapter:

- The Wildlife and Countryside Act 1981 (as amended)[1];
- The Conservation of Habitats and Species Regulations 2017 (as amended)[2];
- The Countryside and Rights of Way Act 2000[3];
- The Natural Environment and Rural Communities (NERC) Act 2006[4]; and
- Protection of Badgers Act 1992[5].

National Policy

National Planning Policy Framework

F2.2 The National Planning Policy Framework (NPPF) was first published in March 2012 (and replaced previous planning policy guidance (PPS 9) on biodiversity). The latest revision was published in December 2024, with paragraphs 193–195 stating the following in relation to habitats and biodiversity:

"193. When determining planning applications, local planning authorities should apply the following principles:

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

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

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

d development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

194. The following should be given the same protection as habitats sites:

e potential Special Protection Areas and possible Special Areas of Conservation;

f listed or proposed Ramsar sites; and

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

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

Local Policy

Vale of Aylesbury Local Plan (VALP) 2013-2033

F2.3 The adopted Vale of Aylesbury Local Plan (VALP) 2013-2033 produced by Buckinghamshire Council describes two policies that relate to biodiversity: *NE1 Biodiversity and Geodiversity*; and *NE2 River and stream corridors.*

F2.4 ***NE1 Biodiversity and Geodiversity*** seeks to ensure the protection of internationally or nationally Protected Sites (SACs and SSSIs) and species, and requires a net gain in biodiversity on minor and major developments to be delivered via the protection, management, enhancement of existing biodiversity resources and by creating new biodiversity resources. NE1 also includes similar wording to NPPF paragraph 193(a) and states that "*If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or as a last resort, compensated for, then development will not be permitted.*"

F2.5 ***NE2 River and stream corridors*** seeks to ensure that development proposals do not result in an adverse impact on the functions and setting of any watercourse and its associated riparian corridor – a 10m wide ecological buffer from the bank top of the watercourse and the development. Development proposal should also actively pursue opportunities for de-culverting watercourses.

Buckinghamshire Council Biodiversity Net Gain – Supplementary Planning Document (July 2022)

F2.6 The Buckinghamshire Council *Biodiversity Net Gain – Supplementary Planning Document* (Last update 19 July 2022) aims to ensure that development within the county provides an increase in biodiversity post development compared to what existed prior to the new development. Which is otherwise known as biodiversity net gain. This SPD highlights the importance of development planning being informed by a Preliminary Ecological Appraisal (PEA) in accordance with CIEEM guidelines and the need for further ecology survey as recommended by the PEA to inform an Ecological Impact Assessment of the development.

Other Relevant Guidance

F2.7 The following guidance has informed the assessment of effects within this Chapter:

- **Guidelines for Ecological Impact Assessment in the UK and Ireland**, as published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)[6].

F3.0 Assessment Methodology & Significance Criteria

Assessment Methodology

F3.1 In order to ensure consistency between Chapters of the ES, the Assessment Methodology of this Chapter follows a standard method which is consistently employed across the ES. However, where possible, the assessment within this Chapter also follows the principals set out by the *Guidelines for Ecological Impact Assessment in the UK and Ireland*, published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)[7].

F3.2 The ES has been informed by: a desk based biological records search of the land that comprises the planning application boundary (referred to hereafter as the Site) and a surrounding 1 km buffer around the Site completed by Buckinghamshire and Milton Keynes Environmental Records Centre on behalf of Applied Ecology; and field survey work completed over the 2024 field season to record and map the presence and condition of the habitats present within the Site. Site specific faunal surveys and professional judgement have also been used to assess use of the Proposed Development Area by: invertebrates of high individual nature conservation importance; herpetofauna; brown hare; badger; breeding birds; roosting, foraging and commuting bats.

F3.3 The following methodology for assessment has been used:

- An Ecological Impact Assessment (EcIA) has been carried out in accordance with Guidelines for Ecological Impact Assessment in the UK and Ireland;
- The assessment has involved the identification and characterisation of impacts (with embedded (i.e. primary) mitigation considered) on Important Ecological Features (IEFs), incorporating any additional secondary measures to mitigate for these impacts (including adherence to the mitigation hierarchy: avoid, mitigate and compensate), an assessment of the significance of any residual effects remaining after secondary mitigation and identification of opportunities for ecological enhancements; and
- The assessment only describes the characteristics of impacts that are relevant to the ecological effect and to determine the significance.

Significance Criteria

F3.4 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the construction and operational stage. The following sections define the approach adopted within the assessment for the determination of sensitivity (or value/importance), magnitude of change (or impact), the level of effect and significance.

Determining Sensitivity of Receptor

F3.5 The sensitivity of affected receptors has been considered on a scale of **high**, **medium**, **low** or **negligible**.

F3.6 In biodiversity terms the sensitivity of a receptor relates to its value or importance. The sensitivity of affected receptors has been considered on a scale of high, medium, low or negligible, which aligns with a standard geographic framework, as set out in **F3.1**.

Table F3.1: Approach to valuing and determining sensitivity of important ecological features

Level of value	Examples	Sensitivity
International	An internationally designated site or candidate site (Special Protection Area (SPA), potential Special Protection Area (pSAC), SAC, candidate Special Area of Conservation (cSAC), potential Special Area of Conservation (pSAC), Ramsar site, Biogenetic Reserve) 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 that is essential to maintain the viability of that ecological resource. Any regularly occurring population of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive.	Very High
National	A nationally designated site (SSSI), National Nature Reserve (NNR), Marine Nature Reserve 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 regularly occurring population of a nationally important species i.e. a priority species listed in the UK Biodiversity Action Plan (BAP) and/or Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act, or a UK Red Data Book species.	High
Regional	Non-statutory designated wildlife sites (e.g. Local Wildlife Sites (LWSs), Sites of Nature Conservation Interest (SNCIs) and Site of Importance for Nature Conservation (SINCs)), and areas of semi-natural ancient woodland greater than 0.25 ha. Viable areas of key habitats identified in local/county BAPs or smaller areas of such habitats that are essential to maintain the viability of that ecological resource. Any regularly occurring, locally significant population of a species listed as being nationally scarce (occurring in 16-100 10km squares in the UK) or in a relevant local/county BAP on account of its rarity or localisation.	Medium
Local	Other sites which the designating authority has determined meet the published ecological selection criteria for designation at the local level. Sites/features that are scarce within the local area or which appreciably enrich the local area's habitat resource.	Low
Neighbourhood	Commonplace and widespread semi-natural habitats e.g. scrub, poor semi-improved grassland, coniferous plantation woodland and intensive arable farmland.	Low
Less than neighbourhood / Negligible	Habitats of little or no ecological value e.g. amenity grassland or hard standing.	Negligible

F3.7 **Table F3.1** shows how the sensitivity of ecological receptors can be ascertained using a combination of statutory measures (legally protected sites and species) and non-statutory but widely accepted measures, such as the presence of notable habitats and species, for instance those listed in local BAPs.

Determining Magnitude

F3.8 The magnitude of change has been considered as the change experienced from the current baseline conditions at the sensitive receptor and has been considered on a scale of **large**, **medium**, **small** or **negligible** as described in **Table F3.2**.

Table F3.2: Criteria for describing magnitude of impacts and change on important ecological features

Impact type	Description
Large	Large impacts may include those that result in large-scale, permanent changes in a receptor, and likely to change its ecological integrity. These impacts are likely to result in overall changes in the conservation status of a species population or habitat type at the location(s) or geographical scale under consideration.
Medium	Medium impacts may include moderate-scale permanent changes in an IEF, or larger-scale temporary changes, but the integrity of the receptor is not affected. This may mean that there are temporary changes in the conservation status of a species-population or habitat type at the location(s) or geographical scale under consideration, but these are unlikely to be irreversible or long-term.
Small	Low impacts may include those that are small in magnitude, have medium-scale temporary changes, and where integrity is not affected. These impacts are unlikely to result in overall changes in the conservation status of a species population or habitat type at the location(s) under consideration, but it does not exclude the possibility that mitigation or compensation will be required.
Negligible	There is no perceptible change in the ecological receptor.

Determining the level of effect

F3.9 The level of effect has been informed by the magnitude of change due to the Proposed Scheme and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table F3.3** has been a tool which has assisted with this process.

F3.10 Whilst **Table F3.3** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement. For each effect, it has been concluded whether the effect is '*beneficial*' or '*adverse*'.

Table F3.3: Matrix to support determination of the level of effect

		Sensitivity			
		High	**Medium**	**Low**	**Negligible**
Magnitude of change	**Large**	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible

	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Minor to Negligible	Negligible	Negligible	Neutral
	No change	Neutral	Neutral	Neutral	Neutral

F3.11 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect**: where the Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect**: where the Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect**: where the Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change; and
- **Negligible**: where the Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.
- **Neutral**: where the Proposed Scheme will result in no change to the receptor.

F3.12 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

F3.13 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and/or relevant guidance/legislation where applicable. A moderate or higher level of effect would be considered Significant.

Consultation

F3.14 The local planning authority biodiversity officer and Natural England has been consulted. The biodiversity officer has agreed that the scope of ecology baseline survey work presented in the Applied Ecology October 2024 Ecology Report is sufficient to assess the impact of the scheme on important ecological features.

Assumptions and Limitations

F3.15 There are no significant assumptions and limitations that need to be considered as part of the ecological impact assessment. All survey work was completed by professional ecologists in line with best practice survey guidelines as considered necessary and reasonable; and all likely construction and operational related effects of the development are understood.

F4.0 Baseline Conditions

Current Conditions

Protected Wildlife Sites

F4.1 The Site is not covered by any statutory or non-statutory wildlife site designation and does not comprise ancient woodland.

F4.2 Sheephouse Wood Site of Special Scientific Interest (SSSI) occurs 4.5 km to the south-west; Finemere Wood SSSI occurs 4.6 km to the south-west; and Pilch Fields SSSI is located 4.8 km to the north. All three SSSIs have outer development impact risk zones (IRZs) that overlap the Proposed Development area. However, the Site has no direct habitat linkage to any of these SSSIs and is separated from them by a landscape of mainly intensively farmed agricultural land, with some associated anthropogenic infrastructure including a rail line to the north and various rural roads. When operational the Proposed Development will not result in air pollution that could adversely impact these SSSIs.

F4.3 Black hair-streak – a nationally rare woodland butterfly is known to breed in Sheephouse Wood and Finmere Woods SSSI's. However, it is a relatively sedentary species with limited dispersal range, and the butterflies that breed in the two woodland SSSIs are highly unlikely to be dependent upon the Site for their survival.

F4.4 In summary, given that the Site is isolated and unconnected to these three SSSIs, direct or indirect adverse impacts as a result of the construction and operation of the Proposed Development are not predicted to effect any local SSSI. Therefore further assessment is scoped out of this EIA.

Habitats

F4.5 The Proposed Development is located mainly on agricultural land that comprises two adjoining fields, in use at the time of survey for intensive arable cereal production and sheep grazing. The improved grassland sheep pasture field was short turf and species poor.

F4.6 The two fields were separated by a former rail-line embankment that supported a narrow belt of broadleaved trees, scrub and defunct hedgerow which has been mapped, for the purposes of the assessment, as a belt of broadleaved plantation woodland and a hedgerow. The trees along the embankment were all even-aged and semi-mature specimens.

F4.7 A species poor 300 m long hedgerow, that has had its bottom half grazed out by sheep, adjoined the central former rail-line embankment within the Site. This hedgerow was devoid of trees and dominated by hawthorn and elm with a few individual wild plum, dog rose and crab apple shrubs along its length.

Fauna

Invertebrates

F4.8 The Site was dominated agricultural habitats of negligible value to invertebrate species that possess high individual levels of nature conservation importance. Development related habitat loss beyond the loss of arable and improved grassland sheep pasture would be

small-scale and would impact habitats considered to be of limited significance for important invertebrate species (a small number of semi-mature trees and a species poor hedge). Invertebrates are therefore scoped out of further assessment,

Great crested newt

F4.9 The entire development construction area within the Site falls almost entirely within a "Green" great crested newt development risk zone, and the Site is devoid of any standing water habitat suitable for breeding great crested newts. Great crested newts are known to occur in ponds beyond the Site, but the Proposed Development area is located too far from any of these ponds for development construction and operation to constitute an obvious risk to the species, and great crested newt are scoped out of further assessment.

Reptiles

F4.10 The Site was devoid of any habitat that could be considered suitable for reptile species being comprised of short sward sheep grazed pasture and intensively managed arable land. Consequently, reptiles are considered likely to be absent from the Site and are scoped out of further assessment.

Breeding birds

F4.11 The Site supported a breeding bird assemblage of Neighbourhood importance dominated by common and generalist species of hedgerows with a small number of farmland specialist species of conservation concern. Red list species of conservation concern were skylark and yellowhammer. Six singing skylarks held territories over arable land within the Site. Of these birds only two had territories that were completely within the Site, with the remaining four singing birds holding territories that included adjoining (off-Site) arable land. Two pairs of yellowhammer were present within the Site in hedgerows located beyond the Proposed Development area. Barn owl was recorded hunting over an uncultivated arable field margin within the Site on one occasion in autumn 2024, but the Site supports no buildings or trees suitable for barn owl nesting/roosting.

F4.12 The displacement of ground nesting skylark from Proposed Development Area is a potential development effect that is considered further by this assessment.

Brown hare

F4.13 Brown hare has been recorded within the Site, but is a mobile and wide ranging species with no legislative protection and is unlikely to be significantly adversely impacted by the Proposed Development and is scoped out of further assessment.

Badger

F4.14 Badger are present within the Site and have an active four hole sett in the east side of the central former rail line embankment. The sett is located 320 m from the compound construction area and is not at any obvious risk from disturbance or damage as a result of the development related construction. However, the existing track along the rail embankment top in which the sett is dug will be upgraded for operational access, and potential disturbance impacts on badger are therefore scoped into this assessment.

Bats

F4.15 None of the trees that proposed to be removed as part of the Proposed Development possessed any potential bat roost features, and are trees with negligible bat roost suitability. The Site is also devoid of built structures that could support bat roosts.

F4.16 The Site supports an assemblage of bats of Regional importance which includes seven bat species which use the hedgerow and plantation woodland habitats within the Site for foraging. In decreasing order of recorded call file abundance the seven bat species recorded in the spring, summer and autumn were: common pipistrelle; soprano pipistrelle; noctule; Daubenton's; barbastelle; natterers; & brown long-eared. The two pipistrelle species made up the majority of all recorded bat calls during each seasonal survey period.

F4.17 Two potentially important bat forage/commuting habitats identified within the Site were found to be of negligible/minor importance for commuting bats, with no recorded bat commuting activity along the hedgerow, and very small numbers of soprano pipistrelle bats (2-3 bats) and a single common pipistrelle recorded commuting alongside/within the central former rail line corridor over the three survey seasons.

F4.18 Given the Regional value of the bat assemblage recorded within the Site, the potential impact of bat forage and commuting habitat loss as a result of the Proposed Development is considered further by this assessment.

Summary

F4.19 A summary of the faunal species considered by this assessment is provided in **Table F4.1** below.

Table F4.1 Summary of Baseline and Scope of Assessment

Fauna	Site value	Further assessment
Invertebrates	Negligible	Scoped out
Great crested newt	Less than Neighbourhood	Scoped out
Reptiles	Negligible	Scoped out
Breeding birds	Neighbourhood	**Scoped in**
Brown hare	Neighbourhood	Scoped out
Badger	Neighbourhood	**Scoped in**
Bats roosting	Negligible	Scoped out
Bat activity (foraging)	Regional	**Scoped in**
Bat activity (commuting)	Neighbourhood	**Scoped in**

Assumed Baseline

F4.20 The assumed baseline position for ecology is that the replacement substation will be under construction at the same time as the Proposed Development. The replacement substation will be located within an arable field of negligible ecological and protected species interest, and its construction at the same time as the Proposed Development will have no significant additional ecological impact over and above what is assessed for the Proposed Development.

Future Baseline

F4.21 The baseline ecological conditions within the Site are unlikely to change significantly from the current situation assuming the Site continues to be managed as an agricultural landscape made up of sheep grazed pasture and arable production.

F5.0 Potential Effects

F5.1 The following potential adverse effects on important ecological features are considered by this assessment:

- Construction related habitat loss / disturbance resulting in displacement of ground nesting birds from the Site;
- Construction related habitat loss / disturbance resulting in disturbance / damage of badger setts;
- Construction related loss of linear hedgerow and plantation woodland habitat resulting in a loss of wildlife corridor function.

Embedded Mitigation

During Construction

F5.2 The embedded tertiary mitigation will be delivered via a Construction Environmental Management Plan (CEMP) in accordance with the Framework CEMP included at Chapter C of this ES, will include, amongst other things:

- Assessment of potential impacts on badger setts with appropriate avoidance / protection measures and licencing requirements, where necessary;
- Check for black hairstreak butterfly eggs on blackthorn hedgerow shrubs prior to hedge removal and their relocation to donor blackthorn shrubs in the wider Site.
- Ensure that habitat removal and top-soil stripping will take place outside the bird nesting period (i.e. in the months of September to February) or following a check by an ornithologist at other times to ensure the clearance areas are free of nesting birds and their dependent young to meet legislative requirements;
- Use of effective tree root protection zones, buffers and watching briefs in relation to sensitive habitats and trees around the perimeter of the Site as described by the Tree Protection Plan;
- Licenced exclusion of badgers from setts considered vulnerable to construction disturbance / damage in advance of construction operations commencing, and checking of any licenced badger sett closures by the ECoW;
- Cover over / use of appropriately sized ramps in all excavations and trenches every night to prevent badgers and other animal species becoming trapped;
- Best practice in relation to construction pollution management;
- Ensure that any temporary construction lighting installed follows Bat Conservation Trust Guidance Note 08/18 (Bats and artificial lighting) to ensure that use of artificial lighting is minimised and avoids light spill onto existing trees, hedgerows and newly planted screening habitats around the development.

During Operation

F5.3 The embedded primary mitigation relates to the design of the Proposed Development and in particular:

- Siting the Proposed Development to minimise the loss of existing tree groups, tree belts, hedgerows and individual trees;
- Planting new native trees and shrubs characteristic to the local landscape to provide development screening and to strengthen existing mature boundary vegetation and provide benefit for a range of wildlife including invertebrates, nesting birds, foraging and commuting bats alongside delivering a measurable biodiversity net gain;
- Providing a species rich wildflower meadow as part of the landscape screening that will provide benefit for a range of wildlife including invertebrates, nesting birds, foraging badger and bats alongside delivering a measurable biodiversity net gain.

During Decommissioning

F5.4 Preparation and implementation of a Decommissioning Ecological Management Plan, or similar, to secure the protection of the retained habitats through the decommissioning works. This will cover the same scope and mitigation measures as the Framework CEMP set out in Chapter C, and is to be informed by an ecological baseline survey of habitats and fauna within the Site and implemented in agreement with BC.

Major Hazards and Accidents

F5.5 Major hazards and accidents during construction could include fuel and oil spillage which may result in localised harm to agricultural land, but is unlikely to result in significant ecological / biodiversity harm as such effects are likely to be highly localised and located on land of low ecological and biodiversity value.

F5.6 Major hazards and accidents during operation could include a battery fire which would be contained within the development and unlikely to result in significant ecological / biodiversity harm as such effects are likely to be localised and located on land of low ecological and biodiversity value. Furthermore, embedded mitigation is designed in to reduce the risk of such an occurrence.

Phasing

F5.7 Phasing is not relevant as the development would be constructed in one phase of construction.

During Construction

Ground Nesting Birds

F5.8 Development construction is likely to result in the permanent displacement of three pairs of skylark from the Site as arable land is replaced with hard infrastructure and adjoining arable is reduced in area. Construction of and use of the temporary construction access track may also result in the temporary displacement of a further one pair of skylark from arable land adjoining the track.

F5.9 The sensitivity of the skylark assemblage effected by the Proposed Development (four nesting pairs) is considered to be Low. The magnitude of change is considered to be Medium. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be Minor Adverse. The effect is considered to be Not Significant.

Badger Setts

F5.10 An active four-hole badger sett is dug into the bank of the central former rail-line embankment that provides an unsurfaced farm access track within the Site. The track will be upgraded as part of construction operations to allow occasional operational Site access by maintenance vehicles and HGVs. This may result in temporary disturbance / damage to the setts underground tunnels which could lead to killing and/or injury of badgers.

F5.11 The sensitivity of badgers is considered to be Low. The magnitude of change is considered to be Small. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be Minor Adverse. The effect is considered to be Not Significant.

Foraging Bats

F5.12 The Site is used by an assemblage of bats for foraging purposes that is of Regional importance. Construction will result in the permanent loss of a small area of broad leaved plantation woodland and a species poor hedgerow that will result in an associated loss of vegetation that can generate winged insects on which bats could feed.

F5.13 The sensitivity of the bat assemblage is considered to be Medium. The magnitude of change is considered to be Small. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be Minor. The effect is considered to be Not Significant.

Commuting Bats

F5.14 The single hedgerow that would be removed to enable the Proposed Development was found to be of no obvious importance to commuting bats. The central plantation woodland growing along the former rail line embankment was found to be used by low numbers of individual commuting common and soprano pipistrelle bats and will have two sections (totalling 30 m in length) permanently removed from its northern end as part of construction which would result in a minor break in the woodland corridor function.

F5.15 The sensitivity of the commuting bat assemblage is considered to be Low. The magnitude of change is considered to be Small. Therefore, there is likely to be a direct, permanent, long-term adverse effect which is considered to be Negligible to Minor. The effect is considered to be Not Significant.

During Operation

F5.16 Significant adverse impacts on important ecological receptors are not predicted to occur during development operation because the operational effects of the Proposed Development are relatively benign and unlikely to result in significant disturbance to on-Site flora and fauna.

F5.17 The embedded primary mitigation (habitat creation) should result in the operational development delivering a significant Biodiversity Net Gain (BNG) uplift of approximately 60% for terrestrial habitats and a +10% BNG uplift for linear habitats (hedgerow) which is considered to be a Minor Beneficial Effect on local habitats. The effect is considered to be Not Significant.

During Decommissioning

F5.18 The decommissioning of the Proposed Development and the return of the Site to the pre-development state has the potential to result in adverse effects on protected species that might have developed a dependency upon the Site and its new habitats created as part of development construction. It is assumed that the decommissioning process will involve the retention of all new trees and habitats within the Site such that significant adverse impacts on protected species as a result of decommissioning are not likely to occur. With the retention and protection of created habitats and the remainder of the Site returned to arable and improved grassland pasture, it is considered this would result in **Minor to Moderate Beneficial Significant Effects**.

F6.0 Mitigation and Monitoring

During Construction

F6.1 Eight skylark nesting plots will be provided in retained arable land within the Site as a long-term compensation measure to ensure that there will be no loss of skylark numbers from the Site. This mitigation measure should be completed in advance of construction and secured by a planning condition.

F6.2 The embedded ecological mitigation measures would be detailed in the development CEMP and would be implemented by the Ecological Clerk of Works (ECoW) during development construction. No ecological mitigation measures, beyond these are required for the rest of receptors considered at this phase.

During Operation

F6.3 Monitoring and management of the newly planted habitats detailed in the embedded mitigation will be required during the operational phase to ensure that they achieve their biodiversity net gain (BNG) habitat condition within the statutory 30 year period, and should be achieved via a Landscape and Ecological Management Plan (LEMP) or similar, secured by planning condition.

During Decommissioning

F6.4 No further measures beyond the embedded measures assumed to be secured through a DEMP.

F7.0 Residual Effects

During Construction

F7.1 Following implementation of mitigation measures in relation to farmland birds, effects on this receptor are expected to reduce to Neutral and Not Significant. No significant adverse residual ecological effects are predicted to occur during construction.

During Operation

F7.2 With the proposed monitoring and management measures in place, the operational effects should remain Minor Beneficial and Not Significant for habitats created, with associated benefits for nectar foraging insects, foraging and commuting bats and foraging and nesting birds – however effects on these species is not anticipated to change through monitoring and management.

During Decommissioning

F7.3 The residual effects of decommissioning phase of the Proposed Development and returning the Site back to its pre-development state, with the retention and protection of created habitats and the remainder of the Site returned to arable and improved grassland pasture, would remain **Minor to Moderate Beneficial Significant Effects**.

F8.0 Summary & Conclusions

F8.1 The Proposed Development will result in the displacement of ground nesting farmland birds (skylark) from the Site as a result of the replacement of arable land with hard infrastructure and the associated reduction in the size and attractiveness of remaining adjoining arable land to skylark. However, this adverse impact will be compensated by the provision of skylark nest plots in retained arable land within the wider Site such that there should be no loss of skylark numbers from the Site.

F8.2 Replacement of arable and improved grassland areas around the western, southern and eastern sides of the Proposed Development with new screening habitats made up of wildflower rich meadow with areas of native tree and shrub planting will generate a significant uplift in biodiversity net gain for terrestrial and linear (hedgerow) habitats within the Site which should provide attractive habitat to a range of farmland specialist bird species including, grey partridge, linnet and yellowhammer, and a range of other faunal species including nectar foraging insects, and foraging and commuting bats.

Table F8.1 Summary of Effects

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
During Construction				
Farmland birds	Permanent displacement of three and temporary displacement of one nesting pairs of skylark from Site	Minor Adverse and Not Significant	Provision of eight skylark nest plots in arable land within the wider Site.	Neutral Not Significant
Badger setts	Disturbance / damage to a four hole sett	Minor adverse and Not Significant	None	Minor Adverse Not Significant
Foraging bats	Loss of plantation woodland and hedgerow	Minor adverse and Not Significant	None	Minor Adverse and Not Significant
Commuting bats	Loss of plantation woodland and hedgerow	Minor adverse and Not Significant	None	Minor Adverse and Not Significant
During Operation				
Habitats	Creation of new habitats	Minor Beneficial and Not Significant	The required habitat conditions will be delivered via a Landscape Ecological Management Plan (LEMP) or similar,	Minor Beneficial and Not Significant

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
			informed by the ecological survey data. This should include breeding bird monitoring of operational Site.	
During Decommissioning				
Habitats	Disturbance to retained new trees and other habitats	**Minor to Moderate beneficial and Significant**	-	**Minor to Moderate beneficial and Significant**
Protected species	Loss / disturbance of protected species (to be confirmed)	Neutral	-	-

F9.0 Abbreviations & Definitions

Abbreviations

- CEMP – Construction Environmental Management Plan
- CIEEM - Chartered Institute of Ecology and Environmental Management
- LEMP - Landscape Ecological Management Plan
- EcoW - Ecological Clerk of Works
- BNG – Biodiversity Net Gain
- IEF - Important Ecological Features

F10.0 References

1. Wildlife and Countryside Act 1981 https://www.legislation.gov.uk/ukpga/1981/69

2. The Conservation of Habitats and Species Regulations 2017 http://www.legislation.gov.uk/uksi/2017/1012/contents/made

3. Countryside and Rights of Way Act 2000 https://www.legislation.gov.uk/ukpga/2000/37/contents

4. Natural Environment and Rural Communities Act 2006 https://www.legislation.gov.uk/ukpga/2006/16/contents

5. Protection of Badgers Act 1992 https://www.legislation.gov.uk/ukpga/1992/51/contents

6. CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.