

9 BIODIVERSITY

9.1 INTRODUCTION

Company

Middlemarch Environmental Ltd.

Author

Tom Docker, Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) (Associate Director: EIA) has been a professional ecologist for 14 years, having qualified with an MSc in Ecology and Management of the Natural Environment from the University of Bristol. Tom currently manages the EIA team at Middlemarch Environmental Ltd and has authored and/or supervised over 20 ecology ES chapters in the past five years.

Chapter Purpose

This chapter of the ES assesses the likely significant effects of the proposed development on the environment in terms of Biodiversity. The chapter and its supporting appendices describe the planning policy context, the assessment methodology; the baseline conditions at the application site and surroundings; the likely significant effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; the likely residual effects after these measures have been employed; and the cumulative effects. In summary, the objectives of the chapter are to:

- Consider the likely significant effects of construction phase impacts (such as habitat loss and disturbance) on designated sites of international, national and local importance, Habitats of Principal Importance and protected and notable species pre- and post-mitigation; and,
- Consider the likely significant effects of operational impacts (such as recreation and lighting) on designated sites of international, national and local importance, Habitats of Principal Importance and protected and notable species pre- and post-mitigation.

Figures

- Figure 9.1: Drawing C127947-ES-01 – Summary of Nature Conservation Sites;
- Figure 9.2: Drawing C127947-ES-02 – Summary of Habitats;
- Figure 9.3: Drawing C127947-ES-03 – Summary of Species;
- Figure 9.4: Drawing C127947-ES-04 – Summary of Badger Activity (CONFIDENTIAL).

Appendices

- Appendix 9.1: Preliminary Ecological Appraisal (Report RT-MME-127947-01);
- Appendix 9.2: Preliminary Bat Roost Assessment (Report RT-MME-127947-03);

- Appendix 9.3: Nocturnal Emergence and Dawn Re-Entry Bat Surveys (Report RT-MME-127947-03);
- Appendix 9.4: Bat Activity Surveys (Report RT-MME-127947-04);
- Appendix 9.5: Badger Survey (Report RT-MME-127947-05);
- Appendix 9.6: Breeding Bird Survey (Report RT-MME-127947-06);
- Appendix 9.7: Botanical Survey (Report RT-MME-127947-07);
- Appendix 9.8: Terrestrial Invertebrate Survey (Report RT-MME-127947-08);
- Appendix 9.9: Reptile Survey (Report RT-MME-127947-09);
- Appendix 9.10: Dormouse Survey (Report RT-MME-127947-10);
- Appendix 9.11: Winter Bird Survey (Report RT-MME-127947-11); and,
- Appendix 9.12: Framework Ecological Mitigation Strategy (Report RT-MME-127947-12).

9.2 METHODOLOGY

Guidance

Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (2018) [1], herein referred to as the 'CIEEM Guidelines'.

Legislation and Policy

- Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations 2017) [2];
- The Wildlife and Countryside Act 1981 (as amended) [3];
- The Countryside and Rights of Way Act 2000 [4];
- The Natural Environment and Rural Communities Act 2006 [5];
- The Hedgerow Regulations 1997 [6];
- UK Post-2010 Biodiversity Framework [7];
- National Planning Policy Framework [8];
- Sevenoaks District Council Core Strategy Adopted February 2011 – Policy SP 11: Biodiversity [9];
- Sevenoaks District Council Local Plan: Proposed Submission Version [10].

Consultees

Consultee responses of relevance to Biodiversity were received from Kent County Council's Ecological Advice Service and Natural England.

Scoping

The scoping response from Kent County Council's Ecological Advice Service comprised the following points:

- That they were satisfied with the range of ecological surveys undertaken at the site.
- Reference to the mitigation hierarchy (avoidance, mitigation, compensation and enhancement) was made and it was noted that areas of ecological interest should be retained and connectivity throughout the site maintained.
- It was stated that in accordance with the NPPF, development resulting in the loss or deterioration of ancient woodland should be refused, and a suitable compensation strategy be compiled. The potential need for updated NVC surveys of the woodland was highlighted. Reference was made to Natural England's standing advice and the need to provide a 15m buffer zone around ancient woodland.

The development has been designed to ensure that all woodland (including ancient woodland) and other valuable habitats (e.g. unimproved calcareous grassland) are retained, and a 15m buffer around ancient woodland will be implemented. A Botanical Survey was completed at the site in 2018 and included an updated assessment of the woodland. Measures to ensure that retained habitats are protected during construction works will be implemented through the use of a Construction Ecological Management Plan (CEcMP) and retained and created habitats will be subject to long-term management and monitoring in accordance with a Landscape and Ecological Management Plan (LEMP), to ensure that their biodiversity value is maintained and/or enhanced.

The scoping response from Natural England outlined general requirements for ecological aspects of ES, comprising an assessment of potential for proposals to affect designated sites, regionally and locally important sites, protected species and notable habitats and species. The assessment has been carried out in accordance with the CIEEM Guidelines and considers potential impacts on all relevant ecological features.

Consideration of Climate Change

With respect to Biodiversity, changes in climate and more extreme weather conditions have the potential to cause:

- Changes in the distribution of habitats, which has the potential to be beneficial (i.e. expansion of valuable habitat type) or adverse (i.e. loss or degradation of valuable habitat type);
- Changes in distribution of protected and notable species, which has the potential to be beneficial (i.e. expansion of species range) or adverse (i.e. reduction in species range, loss or fragmentation of species populations);
- Increases in the spread of invasive non-native species; and,
- Increase in species susceptibility to diseases.

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The retention and enhancement of the most valuable habitats within the application site will provide ecological resilience to the effects of climate change. This is addressed in the main assessment of this Chapter and its technical appendices through the consideration of the potential impacts and resultant effects on the biodiversity of the application site including both species and habitats.

Wider consideration of climate change and the potential for effects with regard to the proposed development is provided at Appendix 2.4 Vol III of this ES.

Consideration of Human Health

Access to green space can be beneficial to wellbeing. The Landscape Institute's position statement 'Public Health and Landscape; creating healthy places' (2013) [11] states that "healthy places make people feel comfortable and at ease, increasing social interaction and reducing antisocial behaviour, isolation and stress" and that "healthy places are restorative, uplifting, and healing for both physical and mental health conditions". This Biodiversity Chapter does not assess the potential impacts on human health in this regard, however, the consideration of human health has been addressed in Appendix 2.5 of Volume III of this ES.

Consideration of Risk of Major Accidents and/or Disasters

Major accidents and/or disasters have been identified and are not applicable to biodiversity. Further information regarding the consideration of the risks of major accidents and/or disasters may be found at Appendix 2.6, Vol III of this ES.

Alternatives

As discussed in Chapter 4 Alternatives & Design Evolution of this ES, the main alternative consideration is the 2015 extant outline planning permission (2015 OPP) that would constitute a future baseline condition in the event that the proposed development was not brought forward.

Assessment of Baseline Conditions

The 'Zone of Influence' for this assessment has been defined in accordance with the CIEEM guidelines, which state that the Zone of Influence with respect to ecology does not simply relate to the red line boundary of an application site. Activities and impacts that occur outside of the application site during the construction and operational phases of a development can still have a negative or positive effect on ecological features. The Zone of Influence in this assessment will therefore consider direct and indirect effects on ecological features both within and adjacent to the application site, and potentially associated with other areas that could be affected e.g. through transportation or excavation.

The assessment takes into account all ecological features within the Zone of Influence that are material considerations in the planning process. This includes the following:

- Statutory and non-statutory nature conservation sites;

- Statutory protected species;
- Habitats and Species of Principal Importance in England (as identified in Section 41 of the NERC Act) [5];
- Priority habitats and species identified in the local Biodiversity Action Plan [12]; and,
- Features of importance by virtue of their location, role or function within the ecological landscape.

A suite of baseline surveys was completed by Waterman Group between 2006 and 2013, the results of which are provided in an Ecological Appraisal report (Ref: EED12715-102.R.2.3.7.LM) and a Protected Species and Habitats Survey report (Ref: EED12715-102.R.3.3.6.LM). These surveys informed the ecology chapter of the EIA associated with the 2015 extant outline planning permission (2015 OPP).

Middlemarch Environmental Ltd completed the following survey work and assessments for the application site in 2018:

- Preliminary Ecological Appraisal (comprising a desk study and Phase 1 Habitat Survey);
- Preliminary Bat Roost Assessment;
- Bat Activity Surveys;
- Badger Survey;
- Breeding Bird Survey;
- Botanical Survey;
- Terrestrial Invertebrate Survey;
- Reptile Survey; and,
- Dormouse Survey.

Methodologies for each of these surveys and assessments are provided in the relevant reports (Appendices 10.1 to 10.10).

Future Baseline

The following mitigation and enhancement measures were previously committed to and are detailed in the ecology chapter of the EIA associated with the 2015 extant outline planning permission (2015 OPP):

- Provide a purpose-built bat house in the south-western part of the Site adjacent to the woodland and the QinetiQ area. The bat house would be constructed early 2016 in Phase 1;
- Provide an artificial badger set in 2016 within the 'wildlife area' in advance of the construction of the new QinetiQ security fence in Phase 2;
- Provide dormice, bird and bat boxes to be installed in the woodland and new builds. In addition to the provision of terrestrial invertebrate boxes and reptile refugia (in Phase 1 onwards to Phase 7);

- Provide 'wildlife area' created in 2016 (in Phase 1) to the south-west of the Site in the wider Survey Area. The 'wildlife area' would comprise a species-rich wildflower grassland area;
- create and enhance habitats of ecological value to provide a net biodiversity gain (Phase 4 to Phase 7);
- Retain protect and enhance all woodland including Ancient Woodland;
- Provide a minimum of a 15m buffer between the development plots and all Ancient Woodland;
- Maintain and enhance woodland connectivity with the wider landscape;
- Include native woodland infill and scrub planting, of regional provenance;
- Retain scattered trees, wherever possible;
- Include new tree planting, where possible, including fruiting varieties;
- Retain, protect and enhance all areas of calcareous grassland;
- Include ponds and sustainable drainage features to provide aquatic habitat;
- Create green infrastructure corridors to increase connectivity;
- Provide clearly defined pathways away from habitats of greatest value;
- Enhancement of existing pathways into areas of greatest ecological value;
- Creation of wild areas within the green infrastructure for domestic pets; and,
- Provide an appropriate lighting mitigation strategy using low level / directional lighting along woodland edges and habitats of ecological value to retain and create dark corridors.

These measures are referred to, where appropriate, in Table 9.7 'Mitigation and Enhancement Measures'. Table 9.8 'Assessment Post-Mitigation' includes a comparison of the predicted residual impacts of the proposed development with the future baseline associated with the 2015 extant outline planning permission (2015 OPP).

Assessment of Importance

The assessment has been undertaken in accordance with the CIEEM Guidelines. The CIEEM Guidelines represent the current best practice for assessing the ecological impact of development projects.

The CIEEM guidelines state that ecological features should be considered within a 'defined geographical context' (i.e. spatial scale), using the following frame of reference:

- International and European (e.g. Special Areas of Conservation, Special Protection Areas and Ramsar sites);
- National (e.g. Sites of Special Scientific Interest (SSSI) and National Nature Reserves);

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- Regional (e.g. large-scale Wildlife Sites that fall short of SSSI selection criteria, regionally rare or valuable habitat, or important species population in the context of the region);
- County (e.g. County Wildlife Sites or Local Nature Reserves, county rare or valuable habitat, or important species population in the context of the county); or,
- Local (this could include habitats or species populations important in the context of the District or other locally defined areas, such as at the scale of the Site).

Assigning importance to ecological features is based on professional judgement informed by available guidance and information, and, expert advice.

Assessment of Significance

The CIEEM guidelines define a significant effect in the context of an ecological impact assessment as ‘an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general’. A significant effect is therefore an effect that is ‘sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project’.

Significant effects are determined by assessing any deviation in the baseline conditions of a feature of ecological importance that may occur as a result of individual and cumulative impacts (effect interactions as a result of the proposed development in isolation and in-combination effects arising as a result of the proposed development in combination with other projects) during the construction and operational phases. These effects are expressed in terms of the geographical scale, as outlined above, however the geographical scale at which an effect is significant can vary from the geographical importance of the ecological feature being assessed. This assessment uses the above methodology to describe all significant effects on features of ecological importance within the zone of influence.

Conformity with the ES

The impact assessment has been carried out in accordance with the CIEEM Guidelines and therefore all conclusions about significant impacts in this Chapter are consistent with the above methodology. However, the geographical scale for determining significance in accordance with the CIEEM Guidelines differs from the approach for determining significance in the remainder of this ES.

The CIEEM guidelines state the following regarding alternative approaches for determining the significance of effects on ecological features, including ‘methods for scoring and ranking impacts on the basis of subjective criteria’:

‘Results are often presented in the form of a matrix in which ecological value/importance and magnitude of impact are combined into a significance score. A matrix approach is commonly used in EIA by disciplines other than ecology to assign significant residual effects to categories (e.g.

major, moderate, minor). In many cases, its use is required to provide consistency across all the topics of an Environmental Statement. If using this approach, it is very important to make a clear distinction between evidence-based and value-based judgements so that decision makers and other stakeholders are aware of the level of subjective evaluation that has been used. Spurious quantification should be avoided in which numerical scores or significance rankings/ categories are used without a clear definition of the criteria and thresholds that underpin them. These Guidelines avoid and discourage use of the matrix approach and categorisation’

However, the CIEEM Guidelines make reference to an alternative approach outlined by Box et al (2017) [13] which is not based on a matrix of importance (or value) and ‘magnitude’ but can be used for categorising significant residual effects if specifically required within an ES. Where residual ecological effects are identified within this Biodiversity chapter, the significance of these effects at the geographical scale (in accordance with the CIEEM Guidelines) is converted into effects deemed to be significant at the minor, moderate and major level, which is consistent with the remainder of this ES. This approach is outlined in Table 9.1 and has been used to outline what may be considered a minor, moderate or major effect.

Table 9.1

Significance Matrix

CIEEM GUIDELINES GEOGRAPHICAL SCALE FOR RESIDUAL EFFECT SIGNIFICANCE	SIGNIFICANT RESIDUAL EFFECT CATEGORY FOR ES CONFORMITY
International, national or regional	Major
Regional, metropolitan, county, vice-county or other local authority-wide area	Moderate
Local (District or Site)	Minor

Relevant Associated Development

There is no relevant associated development to the proposed development.

Assumptions/Limitations

In undertaking the Biodiversity assessment of the application site and wider surrounding area, there are a number of limitations and constraints affecting the outputs from this work. These include:

- The ecological surveys do not produce a comprehensive list of flora and fauna for the site as any ecological surveys will be limited by factors which affect their presence. These factors include weather, time of year, migration patterns and behaviour. However, it is considered that the results of the surveys, together with the information from the data gathering exercise, will enable an assessment of the nature conservation interest of the application site to be made in sufficient detail for the likely significant effects of the proposed development on features of nature conservation importance to be adequately undertaken.

- All surveys were completed at the appropriate times of year and in accordance with best practice wherever possible. Any deviations from best practice, together with any implications this may have for the survey conclusions, are discussed in the survey reports.
- The location of badger setts is confidential and as such, the specific location of setts is shown on Figure 9.4 only, which will be provided to the Council and Natural England as required.

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9.3 BASELINE CONDITIONS

KEY RECEPTORS	DESCRIPTION	IMPORTANCE	FURTHER INFORMATION
Westerham Mines Site of Special Scientific Interest (SSSI)	Located 6.55 km to the south-west of the site. Comprises abandoned ragstone mines, used by five species of hibernating bat.	National	Sections 4.2, 6.2, Appendix 9.1
Chevening Estate Local Wildlife Site (LWS)	Located 10 m south-west of the site. Reference to aerial imagery indicates that this LWS comprises woodland.	County	Sections 4.2, 6.2, Appendix 9.1
Woodlands West of Shoreham LWS	Encompasses several parcels of ancient semi-natural and replanted woodland, located 10 m east of the site at its nearest point.	County	Sections 4.2, 6.2, Appendix 9.1
Polhill Bank Kent Wildlife Trust Reserve	Located 150 m north-east of the site. Comprises almost 4 ha of chalk grassland on a south-east-facing slope.	County	Sections 4.2, 6.2, Appendix 9.1
Ancient Woodland / Broadleaved semi-natural woodland	<p>81 parcels of ancient woodland have been identified within a 2km radius of the site, 17 of which form part of the site. Ancient woodlands are areas that have been continuously wooded for at least 400 years. They are an important and biodiverse habitat.</p> <p>The majority of broadleaved semi-natural woodland within the site is classed as ancient woodland. A variety of species form the canopy, including ash, beech, English oak and yew. Ground flora species indicative of ancient woodlands comprised bluebell, dog's mercury, primrose, wood anemone, wood spurge and yellow archangel.</p>	County	Sections 4.2, 5.3, 6.2, 6.3, 7.1, Appendix 9.1
Broadleaved plantation woodland	This habitat is present along the western site boundary and extends around much of the semi-improved grassland in the western part of the site. Species present include ash, beech and oak. Although not a Habitat of Principal Importance, broadleaved plantation woodland contributes to the structural and ecological diversity of the site, provides connectivity and has the potential to support a range of protected and notable species.	Local (District)	Sections 5.3, 6.3, 7.2, Appendix 9.1
Coniferous plantation woodland	Two narrow strips of coniferous plantation woodland, dominated by Scots pine, are present to the north and south-west of the central block of buildings. Although not a Habitat of Principal Importance, coniferous plantation woodland contributes to the structural and ecological diversity of the site and has the potential to support protected species such as nesting birds.	Local (Site)	Sections 5.3, 6.3, 7.2, Appendix 9.1
Hedgerows	Sections of species-poor defunct, species-poor intact and species-rich hedgerows are present across the site, primarily comprising hawthorn and blackthorn.	Local (District)	Sections 5.3, 6.3, 7.2, Appendix 9.1
Mixed plantation woodland	Three parcels of mixed plantation woodland were present on site; one area was located along Crow Drive in the north-eastern part of the site, one area was located to the north of Armstrong Close and west of Fort Road, and another area was located in the south-western corner of the site. The canopy was dominated by hemlock with ash, English oak, rowan, silver birch and sweet chestnut also present. Although not a Habitat of Principal Importance, mixed plantation woodland contributed to the structural and ecological diversity of the site and has the potential to support protected species such as roosting bats and nesting birds.	Local (District)	Sections 5.3, 6.3, 7.2, Appendix 9.1
Scattered trees	A number of early-mature and mature scattered trees were present throughout the site, species included ash, beech, cherry, crab apple, English oak, hawthorn, hemlock, Leyland cypress, rowan, silver birch, sweet chestnut, whitebeam and yew. Early-mature and mature trees have intrinsic value and cannot be readily replaced if lost.	Up to Local (District)	Sections 5.3, 6.3, 7.2, Appendix 9.1
Unimproved calcareous grassland	Unimproved calcareous grassland dominated the southern part of the site. This habitat was divided into two areas by a fence line. The sward was dominated by grass species such as fescue with other species including bird's-foot trefoil, buttercup, daisy, field scabious, ragwort, self-heal, speedwell, wild marjoram, wild strawberry and wild thyme present. In some areas pyramidal orchid was also present. The calcareous grassland on site is classed as a Habitat of Principal Importance under the 'Lowland Calcareous Grassland' habitat.	Local (District)	Sections 5.3, 6.3, 7.2, Appendix 9.1
Bats	<p>Surveys completed by Waterman Group between 2007 and 2013 confirmed the presence of roosting bats in ten buildings: A13, A14, A25, F6, H38, HR1, HR2, M10, N10 and R29. Roosts used by low numbers of common pipistrelle were recorded in Buildings A13, A14, A25, M10, N10 and R29. Buildings HR1 and HR2 were each found to support a single hibernating brown long-eared bat. A small number of droppings resembling those of a Myotis species were recorded in Building F6, indicating use of this building as a summer roost. Since these surveys were completed, Buildings A25 and M10 have been demolished, and R29 has been subject to repair works.</p> <p>The 2018 surveys completed by Middlemarch Environmental Ltd identified bat roosts in six buildings: A3, F11, N2, Q4, Q7 and R64. Building R64 was found to support a brown long-eared bat maternity roost. The other buildings supported day roosts for common pipistrelle. No bats emerged from or re-entered buildings A13, A14, F6, H38, HR1, HR2 or N10 during the 2018 surveys. However, bats are known to regularly move between roosts and as such these buildings remain a roost whether occupied or not.</p> <p>Nine species of bat (common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Daubenton's bat, whiskered bat, Natterer's bat, brown long-eared bat and serotine) were recorded utilising the application site for foraging and commuting purposes during the 2018 suite of surveys. Common pipistrelle was the most frequently recorded species, whilst low levels of activity by other species were recorded. Activity was concentrated around the site peripheries, particularly around areas of woodland.</p>	Local (District)	Appendices 9.2, 9.3 and 9.4
Badger	Three badger setts in current use are present within the application site, comprising one main sett (Sett 1) and two subsidiary setts (Setts 5 and 6). Specific sett locations are shown on Figure	Local (Site)	Appendix 9.5

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9.4. A further eight setts were recorded within the application site and wider survey area. The application site and wider survey area provide a range of high-quality foraging and sett-building habitat for badgers, with extensive areas of largely undisturbed woodland and grassland present.

Brown hare	Sixteen historical records of brown hare were provided within the desk study. Suitable habitat for brown hare, in the form of open grassland and arable land is present on site and in the surrounding area.	Local (Site)	Appendix 9.1
Dormouse	The 2018 survey work confirmed the presence of dormice at the site. A single dormouse was recorded in October 2018, in a nest tube located within an area of bramble scrub adjoining broadleaved semi-natural woodland in the south of the site opposite the southern security fence.	Local (District)	Appendix 9.10
Hedgehog	Five records of hedgehog were identified in the desk study. The hedgerows, scrub, woodland and grassland on site offer suitable refuge, foraging and commuting opportunities for hedgehog.	Local (Site)	Appendix 9.1
Breeding birds	<p>During the 2018 Breeding Bird Survey, a total of 55 bird species were recorded, of which 44 were confirmed to have bred or probably/possibly did so, comprising:</p> <ul style="list-style-type: none"> • Linnet, skylark, song thrush, spotted flycatcher, yellowhammer and marsh tit, all Species of Principal Importance in England and Birds of Conservation Concern 4 (BoCC4) Red List species; • Bullfinch and dunnock, both Species of Principal Importance in England and BoCC4 Amber List species; • Mistle thrush and nightingale, both BoCC4 Red List Species; and, • Kestrel, stock dove and tawny owl, all BoCC4 Amber List Species. 	Up to Local (District)	Appendix 9.6
<p>Overall, the site is considered to be of local/district value in terms of its breeding bird interest, supporting a number of species of conservation concern, in addition to a range of more common generalist bird species.</p>			
Reptiles	<p>During the 2018 Reptile Survey, the following reptile populations were recorded within the southern part of the survey area:</p> <ul style="list-style-type: none"> • A good population of slow-worm and a good population of common lizard, supported within an area of semi-improved calcareous grassland (Transect C) located within the southern part of the application site; • An exceptional population of slow-worm and a low population of common lizard, supported within an area of semi-improved neutral grassland (Transect E) located outside of the application site boundary but within the ownership boundary; and, • A low population of slow-worm, supported within an area of grazed semi-improved calcareous grassland (Transect F) located outside of the application site boundary but within the ownership boundary. 	Local (District)	Appendix 9.9

9.4 POTENTIAL SIGNIFICANT IMPACTS

PHASE	DESCRIPTION	ADVERSE/BENEFICIAL
Construction	Localised increase in air pollutants and dust as result of construction activities (increased movement of vehicles, site clearance and building demolition works), leading to temporary, minor changes to habitat assemblage within Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites and unimproved calcareous grassland and subsequent decline in favourable conservation status.	Adverse
Construction	Potential loss of small areas of broadleaved semi-natural woodland to accommodate attenuation ponds.	Adverse
Construction	Removal of scattered trees within site.	Adverse
Construction	Physical damage or disturbance of retained woodland, hedgerows and trees, through compaction of soils and damage to the root stock, leading to localised degradation and loss of these habitats.	Adverse
Construction	Loss, damage or disturbance of a bat roost. Killing/injury of individual roosting bats.	Adverse
Construction	Loss, damage or disturbance of bat foraging and commuting habitat.	Adverse
Construction	Loss, damage or disturbance of a badger sett. Killing/injury of individual badgers.	Adverse
Construction	Loss or fragmentation of badger foraging and commuting habitat.	Adverse
Construction	Killing/injury of individual dormice.	Adverse
Construction	Loss or fragmentation of dormouse foraging and commuting habitat.	Adverse
Construction	Killing/injury or disturbance of hedgehogs during vegetation clearance.	Adverse

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PHASE	DESCRIPTION	ADVERSE/BENEFICIAL
Construction	Temporary reduction in foraging success of terrestrial mammals due to killing/injury as a result of falling into open excavations or colliding with vehicles.	Adverse
Construction	Loss, damage or disturbance of a birds nest. Killing/injury of nesting birds.	Adverse
Construction	Loss, damage or disturbance of bird nesting and foraging habitat.	Adverse
Construction	Killing/injury of individual reptiles.	Adverse
Construction	Loss or fragmentation of reptile foraging/basking/refuge habitat.	Adverse
Operation	Increased illumination leading to severance of commuting routes or reduction of suitable foraging habitats for bats using Westerham Mines SSSI.	Adverse
Operation	Recreational disturbance and damage to Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site, resulting in degradation and a decline in favourable conservation status.	Adverse
Operation	Increased illumination leading to disturbance/fragmentation of Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site, resulting in degradation and a decline in favourable conservation status.	Adverse
Operation	Loss of biodiversity value of woodland, hedgerows, trees and unimproved calcareous grassland due to a lack of, or inappropriate, management.	Adverse
Operation	Increased illumination leading to disturbance/fragmentation of bat roosting, foraging and/or commuting habitat	Adverse
Operation	Increase in road-related mortality of terrestrial mammals (badgers and hedgehogs) due to increase in vehicle movements within application site, leading to decline in favourable conservation status.	Adverse
Operation	Increased predation of reptiles, dormice and birds by domestic pets, leading to decline in favourable conservation status.	Adverse
Operation	Killing/injury of nesting birds during habitat management	Adverse

9.5 DESIGN INTERVENTIONS

DESIGN INTERVENTION	DESCRIPTION	REASON FOR INTERVENTION	FURTHER INFORMATION
Development layout	Development within existing built footprint, respecting the 15m offset buffer from areas of ancient woodland.	Ensures that the majority of higher value habitats (ancient woodland / broadleaved semi-natural woodland and unimproved calcareous grassland, in particular) are retained.	Chapter 3: Application Site and Proposed Development
Habitat creation and landscaping	New areas of enhanced grassland, woodland buffer planting and SuDS ponds have been incorporated into the design of the proposed development. Creation and enhancement of habitats of ecological value to provide a biodiversity net gain.	Creates valuable ecological habitats which are well connected to the retained habitats. Improves ecological and structural diversity and connectivity. Provides suitable habitat for a range of protected and notable species.	Land Use and Green Infrastructure Plan (JTP Drawing 005561_PPO Rev P1)

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9.6 ASSESSMENT PRE-MITIGATION (INCLUDING DESIGN INTERVENTION)

PHASE	RECEPTOR(S) AFFECTED	IMPACT	SCALE OF EFFECT PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
Construction	Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites and unimproved calcareous grassland	Temporary, minor changes to habitat assemblage due to construction phase pollution and dust from vehicles accessing site, site clearance and demolition works.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Section 6.2, Appendix 9.1
Construction	Broadleaved semi-natural woodland	Potential loss of small areas of habitat to accommodate attenuation ponds. Enhancement of retained woodland and creation of new habitats to improve ecological and structural diversity and connectivity incorporated into design of proposed development.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Appendix 9.12.
Construction	Scattered trees	Loss of some habitat within site. Replacement tree planting incorporated into design of proposed development.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Appendix 9.12.
Construction	Retained woodland, hedgerows and trees	Physical damage or disturbance through compaction of soils and damage to the root stock, leading to localised degradation and loss of these habitats.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Section 6.3, Appendix 9.1
Construction	Bats	Loss, damage or disturbance of a bat roost during building demolition works. Killing/injury of individual bats.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendices 9.2 and 9.3
Construction	Bats	Loss, damage or disturbance of foraging and commuting habitat during site clearance and due to construction lighting.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendices 9.2, 9.3 and 9.4
Construction	Badgers	Loss, damage or disturbance of a sett during site clearance. Killing/injury of individual badgers.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.5
Construction	Badgers	Loss or fragmentation of foraging and commuting habitat during site clearance.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.5
Construction	Dormice	Killing/injury of individual dormice during vegetation clearance.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.10
Construction	Dormice	Loss or fragmentation of foraging and commuting habitat during site clearance.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.10
Construction	Hedgehog	Killing/injury or disturbance during vegetation clearance.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1
Construction	Terrestrial mammals	Temporary reduction in foraging success due to killing/injury as a result of falling into open excavations or colliding with vehicles	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1
Construction	Nesting birds	Loss, damage or disturbance of a nest during site clearance. Killing/injury of nesting birds.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.6
Construction	Birds	Loss, damage or disturbance of suitable nesting and foraging habitat during site clearance.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.6
Construction	Reptiles	Killing/injury of individual reptiles during site clearance.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.9
Construction	Reptiles	Loss or fragmentation of foraging/basking/refuge habitat during site clearance.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendix 9.9

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Operation	Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site	Recreational disturbance and damage resulting in degradation and a decline in favourable conservation status.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Section 6.2, Appendix 9.1
Operation	Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site	Although illumination at height will be limited, the proposed development could still result in minor increases in illumination, leading to disturbance/fragmentation resulting in degradation and a decline in favourable conservation status.	Adverse effect, significant at Local (District) scale / minor adverse	Yes	Sections 6.2 and 6.3, Appendix 9.1
Operation	Retained woodland, hedgerows, trees and unimproved calcareous grassland	Loss of biodiversity value due to a lack of, or inappropriate, habitat management.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.3, Appendix 9.1
Operation	Bats	Although illumination at height will be limited, the proposed development could still result in minor increases in illumination, leading to disturbance/fragmentation of roosting, foraging and/or commuting habitat	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1; Appendices 9.2, 9.3 and 9.4
Operation	Terrestrial mammals (badgers and hedgehogs)	Increase in road-related mortality due to increase in vehicle movements within application site, leading to decline in favourable conservation status.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1, Appendix 9.5
Operation	Reptiles, dormice and birds	Increased predation by domestic pets, leading to decline in favourable conservation status.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1, Appendices 9.6, 9.9 and 9.10
Operation	Nesting birds	Killing/injury during habitat management.	Adverse effect, significant at Local (Site) scale / minor adverse	Yes	Section 6.4, Appendix 9.1, Appendix 9.6
Operation	Bats, badgers, hedgehogs, reptiles, dormice, birds and invertebrates	Enhancement of retained habitat and provision of new habitats will provide suitable roosting/nesting/refuge/foraging opportunities for a range of species groups.	Beneficial effect, significant at up to Local (District) scale	Yes	Appendix 9.12.

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9.7 MITIGATION & ENHANCEMENT MEASURES

PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER	SCALE OF EFFECT POST-MITIGATION	ADVERSE/BENEFICIAL	FURTHER INFORMATION
Construction	Temporary, minor changes to habitat assemblage of Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites and unimproved calcareous grassland due to construction phase pollution and dust.	Implementation of best practice construction measures, including maintenance checks of construction vehicles and dust suppression measures. In accordance with extant outline planning permission, all ancient woodland will be retained and a minimum 15m buffer will be implemented between development plots and ancient woodland. Appropriate protection measures outlined in a Framework Ecological Mitigation Strategy (FEMS) and implemented via a Construction Ecological Management Plan (CEcMP), prepared for each phase of the development.	Planning condition	Negligible	n/a	Sections 6.2 and 7.1, Appendix 9.1
Construction	Potential loss of small areas of broadleaved semi-natural woodland to accommodate attenuation ponds.	Although it may not be possible to avoid the initial loss of habitat, the enhancement of retained woodland and creation of new habitats will improve ecological and structural diversity and connectivity in the long-term, and has been incorporated into the design of the proposed development. Retained and created habitats to be managed in accordance with a Landscape and Ecological Management Plan (LEMP).	Planning condition	Medium-term, Local (Site) scale / minor	Adverse	Appendix 9.12
Construction	Removal of scattered trees within site.	New replacement tree planting incorporated into design of proposed development. Trees will take time to establish, but will provide valuable habitat in the long-term. Habitat management in accordance with a LEMP.	Planning condition	Medium-term, Local (Site) scale / minor	Adverse	Appendix 9.12
Construction	Physical damage or disturbance of retained woodland, hedgerows and trees, through compaction of soils and damage to the root stock, leading to localised degradation and loss of these habitats.	Implementation of a tree protection plan in accordance with British Standard 5837: 2012 Trees in relation to design, demolition and construction. In accordance with extant outline planning permission, all woodland will be retained, and scattered trees will be retained where possible. Appropriate protection measures outlined in a FEMS and implemented via a Construction Ecological Management Plan (CEcMP), prepared for each phase of the development.	Planning condition	Negligible	n/a	Sections 6.3 and 7.2, Appendix 9.1
Construction	Loss, damage or disturbance of a bat roost. Killing/injury of individual roosting bats.	All works carried out in accordance with a method statement, formally approved by Natural England through receipt of development licence. Compliance with legislation will inform need for licence/s on a phased basis. In accordance with extant outline planning permission, a purpose-built bat house will be provided in the south-western part of the site and additional bat boxes will be installed in the woodland and within new builds, providing additional roosting habitat for bats.	Compliance with legislation requiring Natural England Licence	Local (Site) / minor	Beneficial	Section 6.4, Appendix 9.1; Appendices 9.2 and 9.3
Construction	Loss, damage or disturbance of bat foraging and commuting habitat.	Appropriate measures for protection of retained habitats and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. Method statement/s submitted in support of Natural England development licence application/s will confirm how favourable conservation status of bat populations at the site will be maintained.	Planning condition, compliance with legislation requiring Natural England Licence	Negligible	n/a	Section 6.4, Appendix 9.1; Appendices 9.2, 9.3 and 9.4
Construction	Loss, damage or disturbance of a badger sett. Killing/injury of individual badgers.	All works carried out in accordance with a method statement, formally approved by Natural England through receipt of development licence. Compliance with legislation will inform need for licence/s on a phased basis. At least one sett (Sett 5, see Figure 9.4) will need to be temporarily closed to accommodate works. The main sett (Sett 1) is to be retained. As such, an artificial badger sett is unlikely to be required in accordance with the extant outline planning permission.	Compliance with legislation requiring Natural England Licence	Negligible	n/a	Section 6.4, Appendix 9.1; Appendix 9.5
Construction	Loss or fragmentation of badger foraging and commuting habitat.	Appropriate measures for protection of retained habitats (broad-leaved semi-natural woodland, broad-leaved plantation woodland and grassland) which form part of likely foraging range for badgers using active setts (Setts 1, 5 and 6, see Figure 9.4), provision of suitable gaps in construction-phase fencing and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. Method statement/s submitted in support of Natural England development licence application/s will confirm how favourable conservation status of badger populations at the site will be maintained. Tunnels to be provided under proposed security fencing for QinetiQ Group, to ensure badgers can continue to move through the site.	Planning condition, compliance with legislation requiring Natural England Licence	Negligible	n/a	Section 6.4, Appendix 9.1; Appendix 9.5

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Construction	Loss, damage or disturbance of dormice nesting habitat. Killing/injury of individual dormice.	All works carried out in accordance with a method statement, formally approved by Natural England through receipt of development licence. Compliance with legislation will inform need for licence/s on a phased basis. In accordance with extant outline planning permission, dormice boxes will be installed in the woodland, providing additional nesting habitat for this species.	Compliance with legislation requiring Natural England Licence	Local (Site) / minor	Beneficial	Section 6.4, Appendix 9.1; Appendix 9.10
Construction	Loss or fragmentation of dormouse foraging and commuting habitat.	Appropriate measures for protection of retained habitats and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. Method statement/s submitted in support of Natural England development licence application/s will confirm how favourable conservation status of dormice populations at the site will be maintained.	Planning condition, compliance with legislation requiring Natural England Licence	Negligible	n/a	Section 6.4, Appendix 9.1; Appendix 9.10
Construction	Killing/injury or disturbance of hedgehogs during vegetation clearance.	Appropriate measures for protection of retained habitats and control and timing of vegetation clearance outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1
Construction	Temporary reduction in foraging success of terrestrial mammals due to killing/injury as a result of falling into open excavations or colliding with vehicles	Appropriate measures for covering excavations and pipework outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1
Construction	Loss, damage or disturbance of a birds nest. Killing/injury of nesting birds.	Appropriate measures for protection of retained habitats and control and timing of vegetation clearance outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. In accordance with extant outline planning permission, bird boxes will be installed in the woodland and within new builds, providing additional nesting habitat.	Planning condition	Local (Site) / minor	Beneficial	Section 6.4, Appendix 9.1; Appendix 9.6
Construction	Loss, damage or disturbance of bird nesting and foraging habitat.	Appropriate measures for protection of retained habitats and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1; Appendix 9.6
Construction	Killing/injury of individual reptiles.	Appropriate measures for protection of retained habitats and control and timing of vegetation clearance outlined in a Reptile Mitigation Strategy, incorporated into the FEMS.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1; Appendix 9.9
Construction	Loss or fragmentation of reptile foraging/basking/refuge habitat.	Appropriate measures for protection of retained habitats outlined in a Reptile Mitigation Strategy, incorporated into the FEMS. In accordance with extant outline planning permission, reptile refugia will be installed within appropriate habitats, providing additional habitat for this species group.	Planning condition	Local (Site) / minor	Beneficial	Section 6.4, Appendix 9.1; Appendix 9.9
Operation	Recreational disturbance and damage to Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site, resulting in degradation and a decline in favourable conservation status.	Access management measures, such as the provision of clearly defined pathways away from habitats of greatest value in accordance with the extant outline planning permission, will be outlined in a LEMP.	Planning condition	Negligible	n/a	Section 6.2, Appendix 9.1

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Operation	Increased illumination leading to disturbance/fragmentation of Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site, resulting in degradation and a decline in favourable conservation status.	Operational Lighting Strategy designed with ecological input, in accordance with best practice guidance. In accordance with extant outline planning permission, low level / directional lighting will be used in proximity to woodland edges and habitats of ecological value to retain and create dark corridors.	Planning condition	Negligible	n/a	Sections 6.2 and 6.3, Appendix 9.1, draft Lighting Impact Assessment Report.
Operation	Loss of biodiversity value of woodland, hedgerows, trees and unimproved calcareous grassland due to a lack of, or inappropriate, management.	Habitat management and monitoring measures outlined in LEMP. In accordance with the extant outline planning permission, the following measures will be implemented: enhancement of woodland connectivity and native woodland infill and scrub planting; provision of a species-rich wildflower grassland 'wildlife area'; new tree planting and creation of ponds and SuDS. Appropriate long-term management of retained and created habitats will increase structural and species diversity within woodland and grassland areas, contribute to providing a net gain in biodiversity and create valuable green connective corridors.	Planning condition	Up to County scale / moderate for ancient woodland and up to Local (District) scale / minor for grassland habitats	Beneficial	Section 6.3, Appendix 9.1
Operation	Increased illumination leading to disturbance/fragmentation of bat roosting, foraging and/or commuting habitat	Operational Lighting Strategy designed with ecological input, in accordance with best practice guidance. In accordance with extant outline planning permission, low level / directional lighting will be used in proximity to woodland edges and habitats of ecological value to retain and create dark corridors.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1; Appendices 9.2, 9.3 and 9.4
Operation	Increase in road-related mortality of terrestrial mammals (badgers and hedgehogs) due to increase in vehicle movements within application site, leading to decline in favourable conservation status.	Implementation of speed limit within site. The design of the internal highway network will be compatible with the requirements for designation as a 20mph zone. This has resulted in a number of traffic calming features within the internal site which have been agreed with KCC. Tunnels to be provided under Crow Road, to ensure badgers can continue to move through the site.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1, Appendix 9.5, Chapter 10: Transportation
Operation	Increased predation of reptiles, dormice and birds by domestic pets, leading to decline in favourable conservation status.	In accordance with the extant outline planning permission, wild areas will be created within the green infrastructure for domestic pets. However, it will not be possible to prevent domestic pets (particularly cats) from entering more valuable habitat areas which support reptiles, dormice and nesting birds.	n/a	Local (Site)	Adverse	Section 6.4, Appendix 9.1, Appendices 9.6, 9.9 and 9.10
Operation	Killing/injury of nesting birds during habitat management	Suitable timing of habitat management outlined in LEMP.	Planning condition	Negligible	n/a	Section 6.4, Appendix 9.1, Appendix 9.6
Operation	Enhancement of retained habitat and provision of new habitats providing suitable roosting/nesting/refuge/foraging opportunities for bats, badgers, hedgehogs, reptiles, dormice, birds and invertebrates	Habitat retention and creation incorporated into design of proposed development. Retained and created habitats to be managed in accordance with a LEMP.		Up to Local (District) scale	Beneficial	Appendix 9.12.

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9.8 ASSESSMENT POST-MITIGATION

PHASE	RECEPTOR	RESIDUAL IMPACT	RESIDUAL EFFECT						COMPARISON WITH FUTURE BASELINE
			SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR	
Construction	Nature conservation sites (Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites).	Subject to the implementation of the measures detailed in the CEMP, construction phase impacts on nature conservation sites (minor changes in habitat assemblage due to localised increase in air pollutants and dust) can be reduced to a level at which they are not significant. No residual impacts.	Negligible	-	-	-	-	-	Consistent with future baseline
Construction	Broadleaved semi-natural woodland	Potential loss of small areas of habitat to accommodate attenuation ponds. Although it may not be possible to avoid the initial loss of habitat, the enhancement of retained woodland and creation of new habitats (in accordance with the LEMP) will improve ecological and structural diversity and connectivity in the long-term.	Local (Site)	ADV	MT	D	P	IRR	Greater effect predicted in comparison to future baseline
Construction	Scattered trees	Loss of some habitat within site. Although this loss is unavoidable, replacement tree planting has been incorporated into the design of the proposed development, and habitats will be managed long-term in accordance with the LEMP.	Local (Site)	ADV	MT	D	P	IRR	Greater effect predicted in comparison to future baseline
Construction	Retained habitats (woodland, hedgerows and trees).	Subject to the implementation of the measures detailed in the CEMP, construction phase impacts on retained habitats (physical damage or disturbance leading to degradation) can be reduced to a level at which they are not significant. No residual impacts.	Negligible	-	-	-	-	-	Consistent with future baseline
Construction	Protected and notable species (bats, badgers, dormice, hedgehog, birds, reptiles).	Subject to the implementation of the measures detailed in the CEMP and the completion of works in accordance with Natural England Licences, as required, construction phase impacts on protected and notable species (killing, injury, disturbance, habitat loss) and breaches of legislation can be avoided. No residual impacts.	Negligible	-	-	-	-	-	Consistent with future baseline
Construction	Protected and notable species (bats, dormice, birds, reptiles).	Provision of additional bat, bird and dormice boxes and reptile refugia will increase the available roosting/nesting/refuge habitat for these species.	Local (Site)	BEN	LT	IND	P	IRR	Consistent with future baseline
Operation	Nature conservation sites (Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites).	Subject to the implementation of measures detailed in the LEMP, recreational disturbance impacts on nature conservation sites will be minimised. Subject to the implementation of the Operational Lighting Strategy, illumination impacts on nature conservation sites will be minimised. No residual impacts.	Negligible	-	-	-	-	-	Consistent with future baseline

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PHASE	RECEPTOR	RESIDUAL IMPACT	RESIDUAL EFFECT						COMPARISON WITH FUTURE BASELINE
			SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR	
Operation	Nature conservation sites (ancient woodland sites) and retained habitats (woodland, grassland hedgerows and trees).	Subject to the implementation of habitat management measures outlined in the LEMP, the structural and species diversity within the ancient woodland, other woodland, grassland and hedgerows will be enhanced. Ecological connectivity will be improved.	Up to County for ancient woodland, up to Local (District) for other habitats	BEN	LT	D	P	IR	Consistent with future baseline
Operation	Protected and notable species (bats, badgers, dormice, hedgehog, birds, reptiles).	Subject to the implementation of measures detailed in the LEMP, recreational disturbance impacts on nature conservation sites will be minimised. Subject to the implementation of the Operational Lighting Strategy, illumination impacts on nature conservation sites will be minimised. No residual impacts.	Negligible	-	-	-	-	-	Consistent with future baseline
Operation	Reptiles, dormice and birds	Increased predation by domestic pets, leading to decline in favourable conservation status.	Local (Site) scale / minor	ADV	LT	D	P	IRR	Greater effect predicted in comparison to future baseline
Operation	Bats, badgers, hedgehogs, reptiles, dormice, birds and invertebrates	Enhancement of retained habitat and provision of new habitats will provide suitable roosting/nesting/refuge/foraging opportunities for a range of species groups.	Up to Local (District) scale / minor	BEN	LT	IND	P	R	Consistent with future baseline

Key: ADV/BEN = Adverse/Beneficial; ST/MT/LT = Short-term/Medium-term/Long-term; D/IND = Direct/Indirect; P/T = Permanent/Temporary; R/IRR = Reversible/Irreversible

9.9 GLOSSARY & ABBREVIATIONS

TERM/ABBREVIATION	DESCRIPTION
CIEEM	Chartered Institute of Ecology and Environmental Management
SSSI	Site of Special Scientific Interest
LWS	Local Wildlife Site
BoCC4	Birds of Conservation Concern 4
SuDS	Sustainable Drainage System
FEMS	Framework Ecological Mitigation Strategy
CEcMP	Construction Ecological Management Plan
LEMP	Landscape and Ecological Management Plan

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9.10 WORKS CITED

9.11

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