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NATURAL PROGRESSION

Land at Hornbrook Farm, Brighton Road, Horsham

Preliminary Ecological Appraisal Report

February 2026

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Preliminary Ecological Appraisal Report

Client:	Jaynic Properties Ltd	
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Contents

0	Executive Summary	i
0.1	Introduction	i
0.2	Results	i
0.3	Evaluation	i
0.4	Recommendations	iii
0.5	Conclusions	v
1	Introduction	1
1.1	Purpose of this Report	1
1.2	Objectives and Approach of the Study	1
1.3	Survey Area	1
1.4	Proposed Construction Activities	2
1.5	Previous Ecological Assessments	2
2	Survey Methodology	5
2.1	Desk Study	5
2.2	Preliminary Ecological Appraisal	5
2.3	Hedgerow Regulations Survey	6
2.4	Preliminary Roost Assessment	6
2.5	Limitations	7
2.6	Personnel	8
3	Results	9
3.1	Desk Study	9
3.2	Phase 1 Habitats	16
3.3	Preliminary Roost Assessment	22
4	Evaluation	26
4.1	Introduction	26
4.2	Designated Sites	26
4.3	Habitats	26
4.4	Species	29

5	Recommendations	36
5.1	Introduction	36
5.2	Protected Species Surveys	36
5.3	Precautionary Measures	39
5.4	Ecological Protection Measures	40
5.5	Recommendations for Ecological Enhancement	41
6	Summary and Conclusions	44
6.1	Introduction	44
6.2	Results	44
6.3	Evaluation	44
6.4	Recommendations	46
6.5	Conclusions	47
	References and Bibliography	50
	Appendix I: Phase 1 Habitat Plan	A
	Appendix II: Pond Plan	C
	Appendix III: Hedgerow Regulations Survey	E
	Appendix IV: Botanical Species List	H
	Appendix V: Plant Species which encourage Bats	N
	Appendix VI: Legislation and Planning Context	R
	Legislation	R
	Planning context	U
	Appendix VII: Legal and Technical Limitations	Y

List of Tables and Figures

<i>Table 0.1: Summary of ecological constraints and opportunities</i>	<i>i</i>
<i>Table 0.2: Summary of recommendations</i>	<i>iii</i>
<i>Table 2.1: Potential suitability of structures/trees for roosting bats (after Collins, 2016)</i>	<i>7</i>
<i>Table 3.1: Nature conservation sites within the desk study search area</i>	<i>9</i>
<i>Table 3.2: Records of protected, rare & notable species within the desk study search area</i>	<i>14</i>
<i>Table 3.3: European Protected Species Licences within 2km of the site</i>	<i>16</i>
<i>Table 3.4: Classification of trees with bat roosting potential</i>	<i>22</i>
<i>Table 4.1: Preliminary evaluation of habitats within the survey area</i>	<i>26</i>
<i>Table 4.2: Hedgerow assessment</i>	<i>28</i>
<i>Table 5.1: Recommendations for further ecological surveys</i>	<i>36</i>
<i>Table 5.2: Recommended precautionary measures</i>	<i>39</i>
<i>Table 5.3: Recommended ecological protection measures</i>	<i>40</i>
<i>Table 5.4: Preliminary recommendations for ecological enhancement</i>	<i>41</i>
<i>Table 6.1: Summary of ecological constraints and opportunities</i>	<i>44</i>
<i>Table 6.2: Summary of recommendations</i>	<i>46</i>
<i>Figure 1.1: Survey area</i>	<i>3</i>
<i>Figure 1.2: Illustrative Masterplan</i>	<i>4</i>
<i>Figure 3.1: Statutory nature conservation sites within the desk study search area</i>	<i>11</i>
<i>Figure 3.2: Non-statutory nature conservation sites within the desk study search area</i>	<i>12</i>
<i>Figure 3.3: Priority habitats within the desk study search area</i>	<i>13</i>

Abbreviations

AONB	Area of Outstanding Natural Beauty
CEMP	Construction Environmental Management Plan
CHS	Conservation of Habitats and Species Regulations 2017 (as amended)
EclA	Ecological Impact Assessment
ECow	Ecological Clerk of Works
eDNA	Environmental DNA
EPSL	European Protected Species Licence
GLTA	Ground Level Tree Assessment
HPI	Habitat of Principal Importance
HSI	Habitat Suitability Index
INNS	Invasive Non-Native Species
LWS	Local Wildlife Site
NERC	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Assessment
PRA	Preliminary Roost Assessment
PRF	Potential Roost Feature
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest
SxBRC	Sussex Biological Records Centre
TN	Target Note
WCA	Wildlife & Countryside Act 1981 (as amended)

0 Executive Summary

0.1 Introduction

- 0.1.1 A Preliminary Ecological Appraisal was undertaken for the site of a proposed residential development at Land at Hornbrook Farm, Brighton Road, Horsham (Grid Reference: TQ 18906 29780). The report was prepared to establish the site's suitability for development, inform the design process for the proposal, record the ecological baseline and identify key ecological features within and around the proposal site.

0.2 Results

- 0.2.1 No internationally important wildlife sites are located within 5km of the site, but two Sites of Special Scientific Interest (SSSI) and the High Weald Area of Outstanding Natural Beauty are located within 2km of the site boundary. Additionally, there are four non-statutory Local Wildlife Sites, within 2km of the site boundary. There are records of a range of protected or notable species in the locality, including amphibians, birds, invertebrates, terrestrial mammals, flowering plants and terrestrial reptiles, together with at least eight priority habitats: Lowland Mixed Deciduous Woodland, Ancient Woodland, Ghyll Woodland, Traditional Orchard, Wood-pasture and Parkland, Lowland Meadow, Reedbed and open water.
- 0.2.2 The survey area lies to the south-east of the town of Horsham in the Horsham District of West Sussex. It comprises c.10.25ha of undeveloped agricultural land. The open fields are interspersed by hedgerows, with strips of woodland and Horn Brook located along the site boundaries, and occasional patches of tall ruderal, bracken and scrub. The survey area is bound by Horn Brook and woodland to the north and west; Doomsday Lane to the east; and Brighton Road (A281) to the south. The wider landscape is dominated by farmland and housing associated with Horsham, with large blocks of woodland to the east. Six ponds lie within 500m of the site.

0.3 Evaluation

- 0.3.1 Table 0.1 presents a summary of ecological constraints and opportunities identified within the survey area.

Table 0.1: Summary of ecological constraints and opportunities

Feature	Detail
Constraints:	
Designated sites	The site falls within the impact risk zones for both St. Leonard's Park Ponds SSSI and St. Leonard's Forest SSSI. Consultation with Natural England on the likely effects the proposals might have on the designated sites is required.

Feature	Detail
	None of the other statutory or non-statutory wildlife sites within the desk-study search zone are likely to be affected directly or indirectly as a result of the development of the site.
Priority habitats	The woodland on site qualifies as Lowland Mixed Deciduous Woodland HPI, which is of high intrinsic ecological value. It is currently anticipated that the woodland will be retained and protected during construction. All of the hedgerows on site are classified as Hedgerows HPI, with the exception of H4 and H5a. It is currently anticipated that the northern sections of hedgerows H5 and H6 will be removed and narrow central sections of H3 and H5a would be severed to make way for new site accesses.
Other habitats	The proposed development would result in permanent losses of up to c.9.51ha of improved grassland, poor semi-improved grassland, semi-improved neutral grassland, dense/scattered scrub, bracken, tall ruderal/bracken/scrub mosaic, tall ruderal and scattered trees, across the site. These areas are of relatively low intrinsic ecological value and of negligible to site-level importance.
Great crested newt	Permanent loss of suitable terrestrial habitats (poor semi-improved grassland, semi-improved neutral grassland, broadleaved woodland, dense scrub, tall ruderal/bracken/scrub mosaic, tall ruderal and hedgerows). No direct impact on aquatic habitats
Birds (breeding)	Permanent loss of breeding habitats (poor semi-improved grassland, semi-improved neutral grassland, dense scrub, hedgerow and scattered trees).
White-claw crayfish	Possible degradation of sub-optimal habitat (running water).
Bats (roosting)	Trees at T1-T3 were of <u>Moderate-High</u> suitability for roosting bats. It is currently anticipated that these will be retained as part of the proposed development, but six trees will be removed from hedgerow H3 to provide site access along with three trees in the north-western section of the survey area.
Bats (foraging/commuting)	Effects on high and moderate suitability habitats (woodland, semi-improved neutral grassland, scrub, hedgerows, mature trees and running water) for foraging and commuting bats, including through increases in artificial light.
Hazel dormouse	Permanent losses of dense scrub and hedgerow habitat suitable for hazel dormouse.
Hedgehog, harvest mouse	Permanent loss of grassland, scrub and hedgerow bases.
Invasive non-native plants	Rhododendron and Himalayan balsam were recorded within the broadleaved woodland/dense scrub habitats on site. Both are listed on Schedule 9 of the WCA. American skunk cabbage was recorded in multiple locations along Horn Brook, which is listed within the Sussex INNS report.
Reptiles	Permanent losses of suitable habitats (grassland, woodland, scrub and hedgerows) and piles of grass cuttings.
<u>Opportunities:</u>	
Priority habitats	The hedgerow and woodland priority habitats within the survey area are of high intrinsic value and can provide a focus for ecological enhancement measures.

Feature	Detail
Habitat creation/enhancement	Habitat creation and enhancement opportunities include wildflower meadow planting, hedgerow creation, pond creation, habitat piles and bird/bat boxes.

0.4 Recommendations

0.4.1 Recommendations are made for further protected species surveys, together with preliminary recommendations for the protection of important ecological features to avoid or mitigate ecological impacts, and to enhance the site for wildlife following construction; these are summarised in Table 0.2. It is intended that these recommendations should be considered during future changes to the design of development proposals so that protection of important ecological features is secured and opportunities for ecological enhancement are realised. The recommendations should be reviewed following the completion of further ecological surveys.

Table 0.2: Summary of recommendations

#	Summary of recommendations
Protected species surveys	
R1	Presence/likely absence surveys for great crested newt in ponds within 500m of the site, undertaken using environmental DNA (eDNA) sampling techniques from mid-April to end June, or using conventional techniques from mid-March to mid-June.
R2	Breeding bird surveys, undertaken from April – July.
R3	Ground-level tree assessment for roosting bats within scattered trees and hedgerows H3 and H4, if removal is required, preferably during winter or spring.
R4	Presence/likely absence surveys for roosting bats within trees T1-T3 if they are affected by proposals for the site, undertaken between May and August.
R5	Bat activity surveys, undertaken between April and October.
R6	Presence/likely absence surveys for hazel dormouse, undertaken between April and November.
R7	Presence/likely absence surveys for reptiles, undertaken between April and September within suitable habitats on site.
R8	A full EcIA of the effects of the proposed development should be carried out based on the results of recommended surveys. The EcIA will include detailed advice on ecological avoidance, mitigation, enhancement and/or compensation measures. This is in line with the latest guidance from the Chartered Institute of Ecology and Environmental Management (2017a, 2017b, 2018).
Precautionary measures	
R9	Standard site procedures to prevent impacts on aquatic environments, including pollution prevention and construction methods which avoid the risk of impacts to white-clawed crayfish.
R10	Removal of nesting bird habitats (including vegetation and buildings) will be undertaken outside of the bird nesting season, which runs from 1 March to 30 September. It will therefore

#	Summary of recommendations
	be carried out between September and February, but should be planned and implemented in accordance with the findings of the further ecological surveys recommended above.
R11	Negative impacts on otter and water vole will be avoided by establishing a 15m exclusion zone around the running water on site within which construction activity is prohibited.
Ecological protection measures	
R12	Construction works will avoid tree removal or disturbance and buffer the woodland and retained hedgerow on site. Hedgerow losses will be offset by the creation of new native species-rich hedgerow creation throughout the development.
R13	Standard site procedures to prevent impacts on hedgerows and trees will be adhered to during construction.
R14	A method statement will be prepared to ensure adequate control measures are adopted to prevent the spread of invasive rhododendron, Himalayan balsam and American skunk during construction.
R15	Construction works (including ground works and vegetation clearance) will be carried out in accordance with a CEMP.
R16	The use of external lighting will be avoided or minimised to prevent impacts to nocturnal species. Lighting will not be directed towards retained woodland, hedgerows or any newly created bat roosting features.
R17	Small access gaps will be provisioned at the base of new fence boundaries to enable continued dispersal of small mammals across the site.
R18	Protection of existing hedgerows/creation of new hedgerows and provision of areas of tall grass within newly created greenspaces.
R19	At the end of each working day excavations will be covered over and open pipework capped to prevent entrapment of mammals, amphibians and other fauna.
Ecological enhancement	
R20	Retained woodland should be enhanced through additional understorey planting and selective tree thinning.
R21	Green spaces will be sown with a native wildflower and grass seed mix.
R22	Hedgerow creation and enhancement will use a range of native fruit, seed, nut and nectar-bearing shrub species.
R23	New wetland habitat will be created within the proposed development as part of the drainage strategy and to increase aquatic habitat availability.
R24	The site's landscaping plans will utilise plant species which encourage bats by providing additional food sources or roosting opportunities.
R25	Habitat piles for amphibians, invertebrates and reptiles will be created at the edges of the site close to boundary woodland and hedgerows.
R26	The value of the site for birds will be enhanced by installing a range of artificial nest boxes onto new buildings and retained trees.
R27	The value of the site for bats will be enhanced by installing a range of artificial roost boxes onto new buildings and retained trees.

0.5 Conclusions

- 0.5.1 A large proportion of the land proposed for development (improved/poor semi-improved grassland) is of low ecological value. However, habitats of greater value are present at the edge of the field compartments including woodland and hedgerows of high ecological value. Constraints to development were identified including priority habitats, and the potential presence of great crested newt, breeding birds, roosting/commuting/foraging bats, hazel dormouse, invasive species and reptiles. Further ecological surveys and impact assessment are required prior to submitting a planning application, to determine the value of the site for these species and to formulate a suitable mitigation strategy. Precautionary and ecological protection measures are recommended on an interim basis to enable offences under the relevant legislation to be avoided, along with recommendations for ecological enhancement.

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1 Introduction

1.1 Purpose of this Report

- 1.1.1 This report presents a Preliminary Ecological Appraisal (PEA) for the site of a proposed residential development at Land at Hornbrook Farm, Brighton Road, Horsham (Grid Reference: TQ 18906 29780). The report has been prepared to establish the site's suitability for development, inform the design process for the proposal, record the ecological baseline and identify key ecological features within and around the proposal site.
- 1.1.2 As badgers *Meles meles* and their setts can suffer from persecution, all information relating to badger at the survey area is contained within a separate confidential report (UEEC, 2026).

1.2 Objectives and Approach of the Study

- 1.2.1 The objectives of the PEA were to:
- ▶ Identify features present on the site or adjacent which are ecologically significant and which may act as constraints or opportunities to the proposed development;
 - ▶ Consider the need for further ecological surveys which may be necessary; and
 - ▶ Make preliminary recommendations for the protection of important ecological features, to avoid or mitigate ecological impacts, and to enhance the ecology of the site post-construction.
- 1.2.2 The approach to establishing the ecological baseline found within this report has been achieved through:
- ▶ A desk study involving a review of statutory and non-statutory nature conservation sites, and records of habitats and species from the local area (2km radius from the site boundary);
 - ▶ An extended Phase 1 Habitat survey identifying the main habitats on site and adjacent, and the presence of, or potential for, protected and/or notable species; and
 - ▶ A PEA of the effects of development proposals with respect to the nature conservation value of the site.

1.3 Survey Area

- 1.3.1 The survey area is larger than the Application Site boundary, as a result of a change in the size of the Application Site after the surveys had been completed. The majority of the survey area contains the Application Site, barring a linear strip of habitat on the south-eastern boundary, within which a visibility splay will be created. The Application Site measures c.9.23ha and its extent is shown in blue on Figure 1.1.

1.3.1 The survey area lies to the south-east of the town of Horsham in the Horsham District of West Sussex. It comprises c.10.25ha of undeveloped agricultural land. The open grassland fields are interspersed by hedgerows, with strips of woodland and Horn Brook located along the site boundaries, and occasional patches of tall ruderal, bracken and scrub. The extent of the survey area is highlighted in red on Figure 1.1.

1.3.2 The survey area is bound by Horn Brook and woodland to the north and west; Doomsday Lane to the east; and Brighton Road (A281) to the south. The wider landscape is dominated by farmland and housing associated with Horsham, with large blocks of woodland to the east. Six ponds lie within 500m of the site.

1.4 Proposed Construction Activities

1.4.1 Outline planning application for up to 180 dwellings, open space and associated works and infrastructure with all other matters reserved apart from access. The Illustrative Masterplan is illustrated in Figure 1.2.

1.5 Previous Ecological Assessments

1.5.1 A PEA was undertaken at the site in 2019 (Reideco, 2019), which included a Preliminary Roost Assessment (PRA) for bats. The principal habitats recorded were neutral semi-improved grassland, broadleaved woodland, tall ruderal, dense/scattered scrub, hedgerows, scattered trees and running water. The survey identified ecological constraints in relation to the following protected species/species groups: great crested newt *Triturus cristatus*, bats, breeding birds, hazel dormouse *Muscardinus avellanarius* and reptiles.

Hornbrook Farm, Horsham, West Sussex

-  Survey area
-  Application Site

Figure 1.1: Survey area



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Ordnance Survey AC0000808122

Scale (at A4): 1:5,000 Created by: EM

Date: Jan 2026 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook: Site location: 260119



Figure 1.2: Illustrative Masterplan

2 Survey Methodology

2.1 Desk Study

2.1.1 A desk-based study was undertaken to examine published information and biological records from within the search area (site boundary plus 2km). This was extended to 5km for internationally designated sites. The desk study established the presence of designated sites of nature conservation interest, or records of protected/notable habitats/species within the site and its surrounding area. This information was collected from the following sources:

- ▶ The 'MAGIC' (Multi-agency Geographic Information for the Countryside) website: www.magic.gov.uk; and
- ▶ Sussex Biological Records Centre (SxBRC).

2.2 Preliminary Ecological Appraisal

2.2.1 The PEA (compliant to British Standard BS42020:2013) is based on a survey of the site undertaken on 21 September 2021 by an experienced ecologist. Weather conditions were warm (c.18-21°C), with a light breeze (Beaufort Scale 2), 20% cloud cover and no precipitation.

2.2.2 Within the survey area every parcel of land was classified, recorded and mapped using standard colour codes, in accordance with a list of ninety habitat types specified within the methodology for Phase 1 Habitat survey (Joint Nature Conservation Council, 2010). This allows rapid visual assessment of the extent and distribution of different habitat types. Target notes (TN) were used to provide supplementary information on features which were particularly interesting or significant to specific construction proposals, or too small to map, or to provide additional details, for example relating to species composition and structure.

2.2.3 This basic methodology was extended to provide more detail in relation to habitats with potential to support rare or protected fauna, as described by the Chartered Institute of Ecology and Environmental Management's *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017b). The assessment of habitat suitability for protected, rare or priority species is based on current good practice guidance such as that presented in the *Herpetofauna Workers' Manual* (Gent and Gibson, 2003) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collin (ed.), 2016). Where a species/group is not specifically evaluated, this indicates that no habitat of potential value for the species was identified during the survey.

Scope of the survey

2.2.4 The buffer zone for the desk study was set at 2km from the site boundary (5km for international sites) – a distance within which any notable ecological features likely to be affected by the proposed scheme would be identified.

- 2.2.5 All habitats within the survey area as indicated on Figure 1.1 were included in order to identify any ecological constraints that would be likely to apply to the scheme from within this zone. Adjacent habitats were also surveyed where appropriate in order to identify constraints falling outside of the proposed development site and to place the survey area in its ecological context.

Evaluation criteria

- 2.2.6 Important ecological features were evaluated to the extent possible under the survey methods used, and in relation to a geographical frame of reference, i.e. international/European value being most important, then national, regional, metropolitan/county/district/borough, and lastly local (based on CIEEM, 2018).
- 2.2.7 Value judgements are based on various characteristics that contribute to the importance of ecological features. These include site designations (such as Sites of Special Scientific Interest, or for undesignated features, the extent, naturalness, conservation status (local or national importance and so on), and quality of the ecological resource. Quality can refer to habitats (for instance if they are particularly diverse, are a good example of a specific habitat type, or provide for the requirements of important species or assemblages), other features (such as connectivity provided by wildlife corridors or mosaics of habitats) or the richness and abundance of species populations or assemblages.

2.3 Hedgerow Regulations Survey

- 2.3.1 If a hedgerow is classified as important under the Hedgerow Regulations 1997, local planning authorities are able to prevent its removal. To be classified as important, the hedgerow should be over 30 years old and should comprise one of the following:
- ▶ At least 7 woody species/30m;
 - ▶ At least 6 woody species/30m and at least 3 features such as; an associated ditch, bank or wall, standard trees, parallel hedge, or connections to woodland or pond;
 - ▶ At least 6 woody species/30m and including any one of black poplar *Populus nigra*, wild service tree *Sorbus torminalis*, small-leaved lime *Tilia cordata*, large-leaved lime *Tilia platyphyllos*;
 - ▶ At least 5 woody species and at least 4 associated features;
 - ▶ If adjacent to a bridleway or footpath, at least 4 woody species and at least 2 features.
- 2.3.2 The Hedgerow Regulations do not apply to hedgerows which form the curtilage of residential properties or gardens. It should also be noted that hedgerows may qualify as important for historic or archaeological reasons and this report only assesses them according to the ecological criteria set out in the Hedgerow Regulations (HMSO, 1997).

2.4 Preliminary Roost Assessment

- 2.4.1 The trees within/adjacent to the survey area were subject to an external inspection for potential bat roost features (subject to safe access). All observable features potentially suitable for bats

were noted and the overall suitability of the tree for roosting bats was classified with reference to Table 2.1. The objective was to establish whether each feature was of negligible, low, moderate or high roosting bat suitability, or a confirmed roost based on the presence of bats or their droppings.

- 2.4.2 A rapid assessment of trees was completed during the PEA survey, whereby the general presence of Potential (bat) Roost Features (PRF) on site such as woodpecker holes, cavities, cracks or splits in major limbs (e.g. hazard beams, rot holes, frost cracks, knot holes, occlusions, flush cuts, tear-outs, cankers or butt-rots), loose platey bark, aerial deadwood and dense ivy or epicormic growth was noted. The tree inspection was carried out from ground level and utilised close-focusing binoculars to view areas inaccessible on foot and a digital camera with flash to record any evidence of bats or features suitable for use by bats.

Table 2.1: Potential suitability of structures/trees for roosting bats (after Collins, 2016)

Suitability	Roosting habitats
<u>Negligible</u>	Negligible habitat features on site likely to be used by roosting bats
<u>Low</u>	A tree of sufficient size and age to contain PRFs but with none seen from the ground/using ladders or features seen with only very limited roosting potential
<u>Moderate</u>	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (for roost type only)
<u>High</u>	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat
<u>Confirmed roost</u>	Bats or unequivocal evidence of bats found, i.e. bat droppings

2.5 Limitations

- 2.5.1 As the size of the Application Site was changed after the survey within this report was completed, a small section of habitat along the south-eastern boundary was not surveyed. It is currently understood that this addition to the Application Site boundary is for a visibility splay and will affect a small strip of roadside vegetation. As such, this is not considered a major limitation to this report achieving its objectives.
- 2.5.2 Biological records gathered during the desk study can provide an indication of the likely presence of a species on or adjacent to a site, however, the absence of records for protected species does not equate to evidence of their absence from the locality. Data search accuracy is variable and records are often georeferenced to the nearest 1km grid square.
- 2.5.3 Time of year when the survey was carried out and other variations will influence the results of the survey. Botanical species vary considerably in their flowering, seeding and fruiting periods, and surveys outside of these periods can confound accurate species identification. Where this is the case plants have been identified to lowest possible taxonomic group, normally genus. The

possibility nonetheless exists for other species to be present on the site which were not recorded or otherwise indicated by the survey.

- 2.5.4 Whilst the majority of the site was readily accessible for survey, it was not possible to comprehensively search areas of dense scrub along the north-western boundary for signs of protected species. Additionally, the adjacent residential gardens to the north-east and along the southern boundary could not be fully surveyed although attempts were made to visually assess neighbouring land from within the site itself. Ponds P2, P4 and P5 could not be assessed for amphibian suitability as they are located within private land.
- 2.5.5 This report aims to provide general advice on the ecological constraints associated with development proposals for the site and includes recommendations for further survey where appropriate. Where impacts are likely or further ecological surveys are recommended, a more detailed Ecological Impact Assessment (EclA) of the effects of the proposed development should be carried out based on the results of recommended surveys. The EclA will include detailed advice on ecological avoidance, mitigation, enhancement and/or compensation measures. This is in line with the latest guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017a, 2017b, 2018).
- 2.5.6 The details of this report will remain valid for a period of 18 months from the date of the survey (September 2021), after which the validity of this assessment should be reviewed to determine whether further updates are necessary (CIEEM, 2019). Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the site boundary or development proposals upon which this report was based.
- 2.5.7 See Appendix VII for general Legal and Technical Limitations which apply to this document.

2.6 Personnel

- 2.6.1 The site survey was carried out by Tim Lees BA (Hons) MSc MCIEEM, a Principal Ecologist with nine years' professional consultancy experience in ecological field survey for a wide range of sites and development projects. Tim holds Natural England Class Licences to survey for great crested newt (WML-CL08) and bats (WML-CL17).

3 Results

3.1 Desk Study

Statutory and non-statutory site designations

- 3.1.1 No internationally important wildlife sites are located within 5km of the site, but two Sites of Special Scientific Interest (SSSI) and the High Weald Area of Outstanding Natural Beauty (AONB) are located within 2km of the site boundary. Additionally there are four non-statutory Local Wildlife Sites (LWS), within 2km of the site boundary. The information provided by SxBRC regarding these sites is presented in Table 3.1, while Figure 3.1 and Figure 3.2 show the locations of sites within 2km.

Priority habitats

- 3.1.2 Priority habitats include those listed on local Biodiversity Action Plans and Habitats of Principal Importance (HPI) listed under section 41 of the Natural Environment and Rural Communities Act 2006 (NERC). SxBRC and a search of the MAGIC database returned the following data on priority and other habitats within the desk study search area: Lowland Mixed Deciduous Woodland, Ancient Woodland, Ghyll Woodland, Traditional Orchard, Wood-pasture and Parkland, Lowland Meadow, Reedbed and open water. Areas of open water are included, which are assumed to qualify as Ponds, Eutrophic Standing Waters or Rivers HPI. The majority of the woodland along the northern boundary is mapped as Lowland Mixed Deciduous Woodland; see Figure 3.3.

Table 3.1: Nature conservation sites within the desk study search area

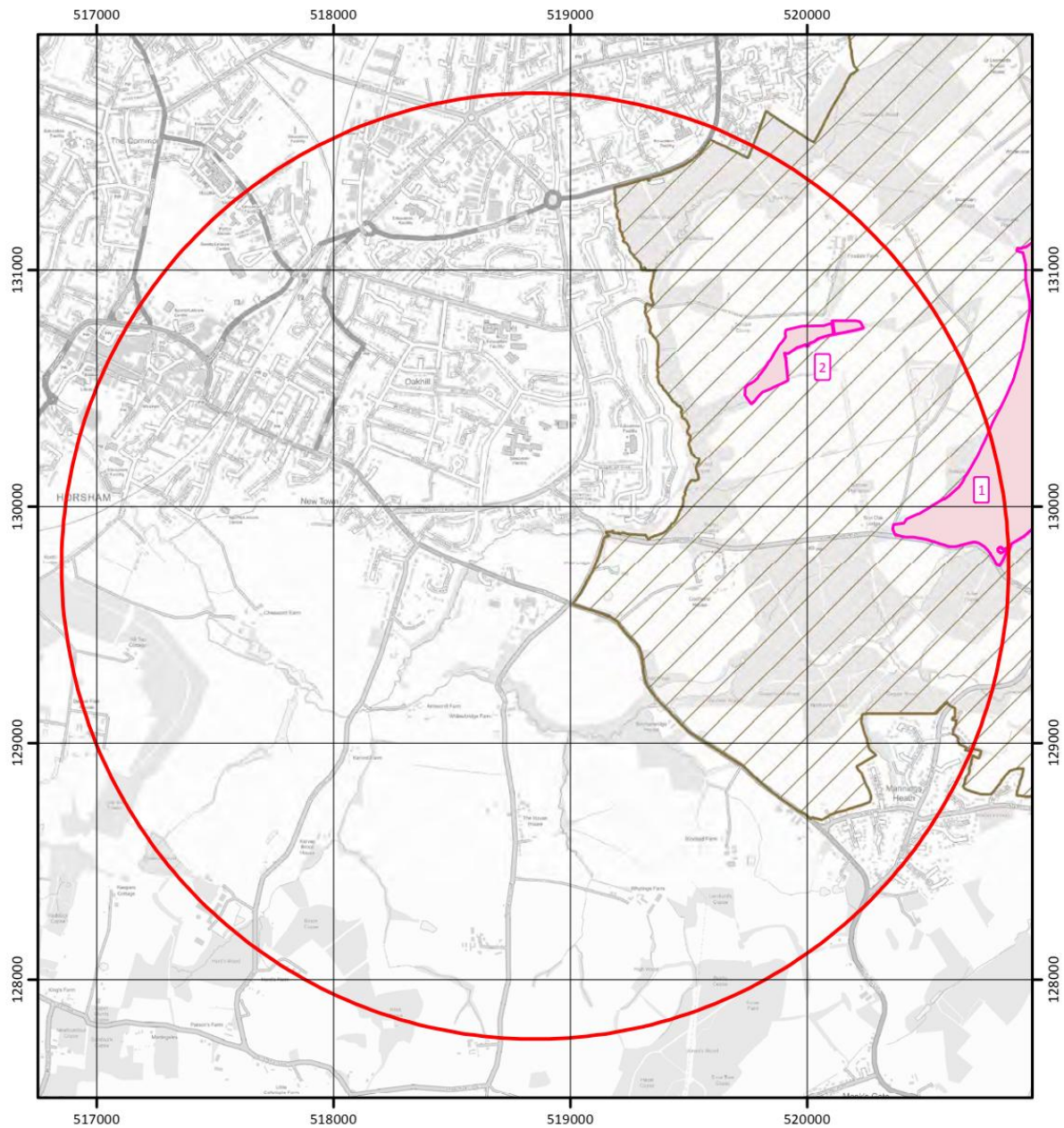
Site name	Location*	Description
National statutory sites		
High Weald AONB	8m east	This area comprises an extensive landscape of woodland and traditional mixed farming, which supports a well-connected green and blue infrastructure. The high proportion of semi-natural habitat forms a complex mosaic supporting a rich diversity of wildlife.
St. Leonard's Park Ponds SSSI	833m north-east	These species-rich ponds lie along a wooded stream, surrounded by fen and marginal vegetation. The fen surrounding the ponds includes the locally uncommon shoreweed <i>Littorella uniflora</i> and floating club-rush <i>Eleogiton fluitans</i> . The nationally rare yellow centaury <i>Cicendia filiformis</i> and a number of uncommon bryophytes are also known to occur on the site. The site supports a wide range of dragonflies including the uncommon variable damselfly <i>Coenagrion pulchellum</i> .
St. Leonard's Forest SSSI	1.22km east	This site includes the remnants of a more extensive deciduous forest on the Tunbridge Wells Sands. Much of the deciduous

Site name	Location*	Description
		woodland is dominated by pedunculate oak <i>Quercus robur</i> . In the more open areas of woodland, species characteristic of heathland occur. The damp areas adjacent to the gills have stands of alder <i>Alnus glutinosa</i> with willow. A number of rare bryophytes are also known to occur on the site. The woodlands support populations of the rare purple emperor butterfly <i>Apatura iris</i> and a diversity of woodland breeding birds including all three British woodpeckers, nightjar <i>Caprimulgus europaeus</i> , redstart <i>Phoenicurus phoenicurus</i> and wood warbler <i>Phylloscopus sibilatrix</i> .
Non-statutory sites		
Chesworth Farm LWS	426m west	This site comprises fields of semi-improved neutral grassland bound by a network of species rich hedgerows, with a complex of wetland habitats next to the River Arun. The site is important for birds with 96 species recorded between 2008-2018.
Leechpool & Owlbeech Woods LWS	999m north	This is a large area of woodland situated on the very edge of an urban area. Leechpool Wood consists of mainly oak <i>Quercus</i> sp. and beech <i>Fagus sylvatica</i> , and Owlbeech Wood is predominantly pine <i>Pinus</i> sp. plantation. A number of streams run through the woodlands and the site supports a variety of floral, bird, amphibian and reptile species.
Denne Road Cemetery LWS	1.31km west	A small urban Victorian cemetery with a mosaic of habitats including mixed woodland, grassland and scattered trees. The site includes records for a number of notable species from a range of taxonomic groups.
St. Leonard's Forest LWS	1.67km east	This site is a large area of coniferous and deciduous plantation, directly connected St. Leonard's Forest SSSI. Most of the site comprises coniferous plantations, which support wet and dry heath plant communities. There are also some areas of more semi-natural deciduous woodland similar to the SSSI. These areas support a variety of breeding birds, butterflies and dragonflies.

* Approximate distance and bearing from the survey area

Map 1: Statutory site designations

Land at Hornbrook Farm, Horsham + 2km radius
 SxBRC/21/533 - 24/09/2021



Key to Map:
 Search area
 Site of Special Scientific Interest
 Area of Outstanding Natural Beauty

Statutory designated site boundaries supplied by Natural England. Contains public sector information licensed under the Open Government Licence v3.0.

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Figure 3.1: Statutory nature conservation sites within the desk study search area

Map 2: Non-statutory site designations

Land at Hornbrook Farm, Horsham + 2km radius

SxBRC/21/533 - 24/09/2021



Local Wildlife Site boundaries maintained by Sussex Biodiversity Record Centre (SxBRC) on behalf of Sussex Local Wildlife Site Initiative. Notable Road Verge data provided by local authorities. Local Geological Site data created by SxBRC in partnership with Sussex Geodiversity Group.

Key to Map:

- Search area
- Local Wildlife Site

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Figure 3.2: Non-statutory nature conservation sites within the desk study search area

Map 4: Section 41 habitats and other

Land at Hornbrook Farm, Horsham + 2km radius

SxBRC/21/533 - 24/09/2021

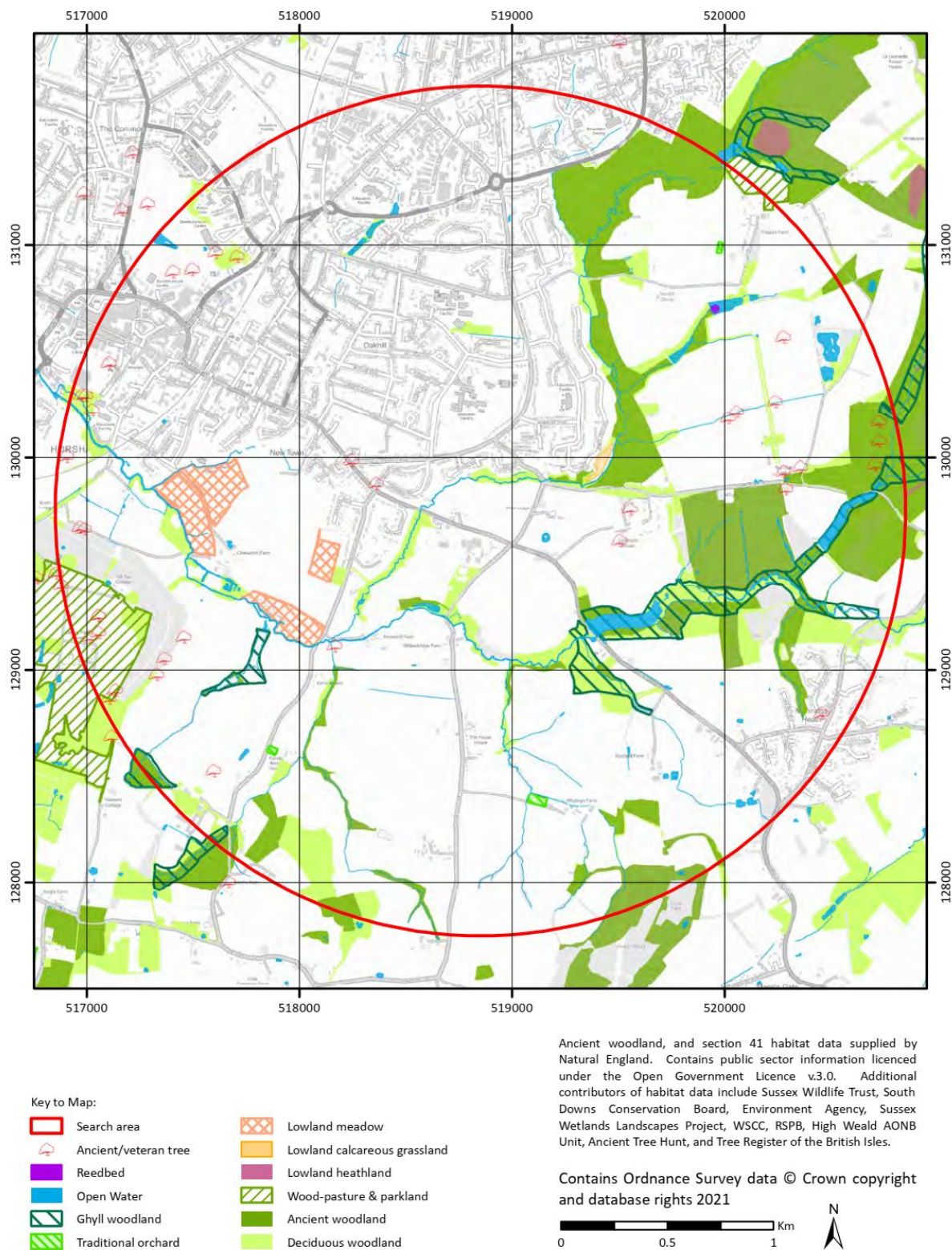


Figure 3.3: Priority habitats within the desk study search area

Records of protected, rare and notable species

3.1.3 Biological records were obtained from SxBRC for the desk study search area and are summarised in Table 3.1.

Table 3.2: Records of protected, rare & notable species within the desk study search area

Group	Species	Designation
Amphibians	Great crested newt	Habs.Dir.2&4, CHS Sch.2, WCA Sch.5 full, NERC s41
	Natterjack toad <i>Epidalea calamita</i> , Pool frog <i>Pelophylax lessonae</i>	Habs.Dir.4, CHS Sch.2, WCA Sch.5 part, NERC s41
	Common toad <i>Bufo bufo</i>	WCA Sch.5 part, NERC s41
	Palmate newt <i>Lissotriton helveticus</i> , Smooth newt <i>Lissotriton vulgaris</i> , Common frog <i>Rana temporaria</i>	WCA Sch.5 part
Birds (note: species may appear more than once)	Kingfisher <i>Alcedo atthis</i> , White-fronted goose <i>Anser albifrons flavirostris</i> , Merlin <i>Falco columbarius</i> , Woodlark <i>Lullula arborea</i> , Pied avocet <i>Recurvirostra avosetta</i>	Birds Dir.1
	Kingfisher, Merlin, Common crossbill <i>Loxia curvirostra</i> , Woodlark, Hobby <i>Falco subbuteo</i> , Red kite <i>Milvus milvus</i> , Merlin <i>Falco columbarius</i> , Black redstart, Spoonbill <i>Platalea leucorodia</i> , Pied avocet, Firecrest <i>Regulus ignicapillus</i> , Barn owl <i>Tyto alba</i>	WCA Sch.1
	Lesser redpoll <i>Acanthis cabaret</i> , Skylark <i>Alauda arvensis</i> , Tree pipit <i>Anthus trivialis</i> , Cuckoo <i>Cuculus canorus</i> , Hawfinch <i>Coccothraustes coccothraustes</i> , Yellowhammer <i>Emberiza citrinella</i> , Reed bunting <i>Emberiza schoeniclus</i> , Dunnock <i>Prunella modularis</i> , Herring gull <i>Larus argentatus</i> , Linnet <i>Linaria cannabina</i> , Grasshopper warbler <i>Locustella naevia</i> , Woodlark, Spotted flycatcher <i>Muscicapa striata</i> , House sparrow <i>Passer domesticus</i> , Tree sparrow <i>Passer montanus</i> , Wood warbler, Marsh tit <i>Poecile palustris</i> , Bullfinch <i>Pyrrhula pyrrhula</i> , Turtle dove <i>Streptopelia turtur</i> , Starling <i>Sturnus vulgaris</i> , Song thrush <i>Turdus philomelos</i> , Lapwing <i>Vanellus vanellus</i>	NERC s41
	Lesser redpoll, Skylark, Tree pipit, Cuckoo, Hawfinch, Yellowhammer, Merlin, Herring gull, Linnet, Grasshopper warbler, Nightingale <i>Luscinia megarhynchos</i> , Grey wagtail <i>Motacilla cinerea</i> , Spotted flycatcher, House sparrow, Tree sparrow, Black redstart, Wood warbler, Marsh tit, Whinchat <i>Saxicola rubetra</i> , Woodcock, Turtle dove, Starling, Mistle thrush <i>Turdus viscivorus</i> , Song thrush, Lapwing,	RL

Group	Species	Designation
	Common sandpiper <i>Actitis hypoleucos</i> , Kingfisher, Mallard <i>Anas platyrhynchos</i> , Meadow pipit <i>Anthus pratensis</i> , Swift <i>Apus apus</i> , Nightjar, Black-headed gull <i>Chroicocephalus ridibundus</i> , Stock dove <i>Columba oenas</i> , Mute swan <i>Cygnus olor</i> , House martin <i>Delichon urbicum</i> , Reed bunting Kestrel <i>Falco tinnunculus</i> , Snipe <i>Gallinago gallinago</i> , Common gull <i>Larus canus</i> , Redstart, Spoonbill, Dunnock, Willow warbler <i>Phylloscopus trochilus</i> , Bullfinch, Pied avocet, Tawny owl <i>Strix aluco</i>	AL
Invertebrates	Stag beetle <i>Lucanus cervus</i>	Habs.Dir.2, WCA Sch.5 part, NERC s41
	Purple emperor <i>Apatura iris</i> , Brown hairstreak <i>Thecla betulae</i>	WCA Sch.5 part
	Knot grass <i>Acronitica rumicis</i> , Beaded chestnut <i>Agrochola lychnidis</i> , Green-brindled crescent <i>Allophyes oxyacanthae</i> , Centre-barred sallow <i>Atethmia centrargo</i> , Ear moth <i>Amphipoea oculea</i> , Dusky brocade <i>Apamea remissa</i> , Deep-brown dart <i>Aporophyla lutulenta</i> , Sprawler <i>Asteroscopus sphinx</i> , Mottled rustic <i>Caradrina Morpheus</i> , Small heath <i>Coenonympha pamphilus</i> , Sallow <i>Cirrhia icteritia</i> , Small square-spot <i>Diarsia rubi</i> , Small phoenix <i>Ecliptopera silaceata</i> , Dusky thorn <i>Ennomos fuscantaria</i> , September thorn <i>Ennomos erosaria</i> , Dingy skipper <i>Erynnis tages</i> , Ghost moth <i>Hepialus humuli humuli</i> , Rustic <i>Hoplodrina blanda</i> , Rosy rustic <i>Hydraecia micacea</i> , White admiral <i>Limenitis Camilla</i> , Shoulder-striped wainscot <i>Leucania comma</i> , Brindled beauty <i>Lycia hirtaria</i> , Dot moth <i>Melanchra persicariae</i> , Powdered quaker <i>Orthosia gracilis</i> , Grizzled skipper <i>Pyrgus malvae</i> , Large wainscot <i>Rhizedra lutosa</i> , Shaded broad-bar <i>Scotopteryx chenopodiata</i> , White ermine <i>Spilosoma lubricipeda</i> , Buff ermine <i>Spilosoma lutea</i> , Brown hairstreak <i>Thecla betulae</i> , Feathered gothic <i>Tholera decimalis</i> , Blood-vein <i>Timandra comae</i> , Cinnabar <i>Tyria jacobaeae</i> , Oak hook-tip <i>Watsonalla binaria</i> ,	NERC s41
Mammals (terrestrial)	Noctule <i>Nyctalus noctula</i> , Hazel dormouse, Soprano pipistrelle <i>Pipistrellus pygmaeus</i> , Brown Long-eared <i>Plecotus auritus</i>	Habs.Dir.2&4, CHS Sch.2, WCA Sch.5 full, NERC s41
	Serotine <i>Eptesicus serotinus</i> , Daubenton's bat <i>Myotis daubentonii</i> , Common pipistrelle <i>Pipistrellus pipistrellus</i>	Habs.Dir.2&4, CHS Sch.2, WCA Sch.5 full
	European Water Vole <i>Arvicola amphibius</i>	WCA Sch.5 full, NERC s41
	West European hedgehog <i>Erinaceus europaeus</i> , Harvest mouse <i>Micromys minutus</i>	NERC s41
Plants	Cut-grass <i>Leersia oryzoides</i>	WCA Sch.8, NERC s41

Group	Species	Designation
	Bluebell <i>Hyacinthoides non-scripta</i>	WCA Sch.8
	Cornflower <i>Centaurea cyanus</i> , Eyebright <i>Euphrasia pseudokernerl</i>	NERC s41
Reptiles (terrestrial)	Slow worm <i>Anguis fragilis</i> , Grass snake <i>Natrix helvetica</i> , Adder <i>Vipera berus</i> , Common lizard <i>Zootoca vivipara</i>	WCA Sch.5 part, NERC s41

Birds.Dir.1	Wild Birds Directive 2009/147/EC Annex 1
Habs.Dir.2/4	Habitats Directive 92/43/EEC Annex 2 or 4
CHS Sch.X	Conservation of Habitats & Species Regulations 2017 Schedules 2 (EPS animals) or 5 (EPS plants)
WCA s1/Sch.X	Wildlife and Countryside Act 1981 Section 1/Schedules 1, 5 (fully or partially protected), 6 or 8
NERC s41	Natural Environment & Rural Communities Act 2006 Section 41 Species of Principal Importance
RL/AL	Red/Amber Listed (IUCN or Birds of Conservation Concern 4 (Eaton <i>et al.</i> , 2015))

European Protected Species Licences

3.1.4 Three European Protected Species Licences (EPSL) were identified within the desk study search area, as summarised in Table 3.3.

Table 3.3: European Protected Species Licences within 2km of the site

Reference	Location	Dates Applicable	Description
2014-3464-EPS-MIT	1.35km north-west	07/10/2014 – 30/11/2019	Licence for damage to a resting place of common pipistrelle.
2016-26580-EPS-MIT	1.67km north-west	17/11/2016 – 17/11/2016	Licence for destruction of a resting place of common pipistrelle.
EPSM2013-6687	1.93km north-east	28/11/2013 – 30/09/2015	Licence for destruction of a breeding site of common pipistrelle and brown long-eared.

3.2 Phase 1 Habitats

3.2.1 The following Phase 1 Habitats were identified within or adjacent to the survey area and are shown on the Phase 1 Habitat plan at Appendix I. The habitats are described below broadly in the order of their extent.

- ▶ Improved grassland
- ▶ Poor semi-improved grassland
- ▶ Semi-improved neutral grassland
- ▶ Broadleaved woodland
- ▶ Dense/scattered scrub
- ▶ Bracken

- ▶ Tall ruderal/bracken/scrub mosaic
- ▶ Tall ruderal
- ▶ Hedgerows
- ▶ Running water
- ▶ Scattered trees

Improved grassland

- 3.2.2 The eastern extent of site was dominated by a large compartment of improved grassland. The field had previously been sown with crops (established following a conversation with the landowner) and was being treated with herbicide during the survey. The sward was c.5-10cm in height and dominated by a mixture of grasses often associated with agricultural improvement. This comprised of dominant Italian rye-grass *Lolium multiflorum*, frequent cock's-foot *Dactylis glomerata*, and occasional false oat-grass *Arrhenatherum elatius*, Timothy *Phleum pratense* and red fescue *Festuca rubra*. Occasional forb species included creeping buttercup *Ranunculus repens*, white cover *Trifolium repens* and broad-leaved dock *Rumex obtusifoliosus*.

Poor semi-improved grassland

- 3.2.3 The central field was subject to a less intensive management regime, with infrequent cutting for silage (established following a conversation with the landowner). The sward height varied, ranging from c.10-40cm. Whilst the field was grass dominated, there was greater diversity of herbaceous species (albeit rarely occurring) and a noticeable change from the improved grassland in the east. Grasses included abundant perennial rye-grass *Lolium perenne* and Timothy, with frequent cock's-foot, false oat-grass and Yorkshire-fog *Holcus lanatus*. Occasional forb species included creeping buttercup, white cover and creeping thistle *Cirsium arvense*.
- 3.2.4 In the south-western corner of the grassland common nettle and bramble had started to colonise a pile of grass cuttings, creating a refuge for wildlife (TN1).

Semi-improved neutral grassland

- 3.2.5 The western field provided the greatest diversity in terms of grasses and forb species. The grassland was not actively managed (established following a conversation with the landowner), which resulted in a varied, tussocky structure with taller patches of vegetation over 70cm. Grass species included abundant cock's-foot and Yorkshire-fog, with frequent false oat-grass and common bent *Agrostis capillaris*, and occasional Timothy and red fescue. Herbaceous species included frequent creeping buttercup, yarrow *Achillea millefolium*, and occasional germander speedwell *Veronica chamaedrys*, common sorrel *Rumex acetosa*, marsh thistle *Cirsium palustre* and silverweed *Potentilla anserina*. The ground sloped towards the surrounding woodland and Horn Brook in the north-west of the field. In this area locally frequent marsh thistle and common fleabane *Pulicaria dysenterica* was recorded, in addition to other rarely occurring species indicative of wetter grassland (full species list provided in Appendix IV).
- 3.2.6 Three bee hives were located in the south-western corner of the grassland, where it met the adjacent broadleaved woodland (TN2).

Broadleaved woodland

- 3.2.7 Two separate blocks of semi-natural broadleaved woodland were present on site, connected by an area of dense scrub.
- 3.2.8 The first comprised of a strip of woodland along the northern boundary which surrounded Horn Brook and continued north off site. Heron Copse, a large expanse of semi-natural ancient woodland, also extended north-east beyond the site, albeit separated by Hammerpond Road. The canopy consisted of pedunculate oak, with beech, ash *Fraxinus excelsior* and wild cherry *Prunus avium*. The understorey was a mixture of dense hazel *Corylus avellana*, holly *Ilex aquifolium*, yew *Taxus baccata* and sycamore *Acer pseudoplatanus* stands, and more open areas with young holly and wild cherry trees. Two small stands of the non-native invasive species rhododendron *Rhododendron ponticum* (listed on schedule 9 of the Wildlife & Countryside Act 1981 (as amended) (WCA)) were identified in the eastern extent of the woodland (TN3). The ground flora was mostly bare, with large areas of leaf litter from the canopy. Small occurrences of dog's mercury *Mercurialis perennis*, common nettle *Urtica dioica*, bramble *Rubus fruticosus* and common ivy *Hedera helix* were noted in places. Dead wood was limited to fallen branches towards the western edge of the woodland.
- 3.2.9 The second area of woodland was located along the western boundary, bordered by Horn Brook, and continued south-west of the site beyond Brighton Road. The majority of the canopy comprised of pedunculate oak and alder, with ash located along a vertical section at the south-western boundary. The understorey was cluttered comprising of coppiced hazel, hawthorn *Crataegus monogyna*, holly and elder. The ground flora comprised of a range of species associated with damp woodland habitats. These included remote sedge *Carex remota*, wood avens *Geum urbanum*, enchanter's nightshade *Circaea lutetiana* pendulous sedge *Carex pendula*, tutsan *Hypericum androsaemum* and wild angelica *Angelica sylvestris*. The non-native invasive species Himalayan balsam *Impatiens glandulifera* (listed on schedule 9 of the WCA) was identified in two locations adjacent to Horn Brook (TN4). Small areas of dead wood were recorded, consisting of fallen branches and failed young trees.
- 3.2.10 Both blocks of woodland qualified as Lowland Mixed Deciduous Woodland HPI (Maddock, 2008).

Dense and scattered scrub

- 3.2.11 A large area of dense scrub had formed at the edge of the western field compartment, with smaller accumulations along the southern boundary.
- 3.2.12 The western strip of dense scrub comprised almost entirely of bramble, with pedunculate oak saplings in places. The scrub connected the two areas of woodland and a stand of Himalayan balsam was identified within this section (TN4). Smaller build-ups of bramble scrub had developed surrounding a young ash tree in close proximity to the western strip and also at the connection point between hedgerows H6 and H7 on the southern boundary.
- 3.2.13 Small patches of scattered scrub were recorded along the field margins, consisting of bramble and pedunculate oak saplings.

Continuous bracken

- 3.2.14 A narrow strip of bracken *Pteridium aquilinum* was located along the northern edge of the improved grassland and separated it from the broadleaved woodland.

Tall ruderal/bracken/scrub

- 3.2.15 A dense but narrow strip of vegetation formed the south-eastern boundary and consisted of a mixture of tall ruderal vegetation, scrub and bracken. Tall ruderal species included common nettle, creeping thistle and docks *Rumex* spp., with intermittent bramble, hazel, dog-rose, holly and ash saplings forming the scrub element of the vegetation.

Tall ruderal

- 3.2.16 A short strip of tall ruderal vegetation was located towards the centre of site, beneath two of the mature pedunculate oak trees. It comprised entirely of common nettle and formed part of the field boundary between the improved and poor semi-improved grassland.

Hedgerows

- 3.2.17 A total of 10 hedgerows were recorded on site, mainly at the site boundaries, but also separating field compartments. Hedgerow H3 comprised of native species-rich hedge and trees; H6 was native species-rich hedge; H1, H2, H4, H5, H7 and H8 were species-poor hedge; and H5a was species-poor defunct hedge. For full hedgerow descriptions see Table 4.2.

Running water

- 3.2.18 Horn Brook was a narrow stream flowing east to west, which demarcated the northern and western site boundaries. The surveyed length of the watercourse commences north-east of the site, where it emerges from a culvert beneath Hammerpond Lane. As the watercourse slowly meanders through the woodland the channel varied from c.1-2.5m wide. The water level was generally shallow (c.5-10cm), but this deepened to 30-40cm in places. The channel bed was formed of pebbles and silt, but shallower sections revealed exposed cobbles and occasional boulders. The banks varied between c.0.1-1.5m in height, with both steep and shallow sections recorded. They were generally bare along the northern section, with only young and matures trees, patches of moss and American skunk cabbage *Lysichiton americanus* recorded in places. The banks along the western section were more cluttered, with scrub and sedge encroachment from the surrounding woodland. There were moderate amounts of woody debris within the channel, mostly of a small size, but also some young fallen trees.
- 3.2.19 The water course was not considered to meet any of the qualifying criteria required to be classified as Rivers HPI (Maddock, 2008).

Scattered trees

- 3.2.20 Seven mature pedunculate oak trees were recorded along the south-eastern boundary and towards the centre of site, and a single young ash was located in the north-west of site.



Improved grassland – view looking west



Poor semi-improved grassland – view looking north-east



Refugia within poor semi-improved grassland (TN1) – view looking north-west



Semi-improved neutral grassland – view looking north-west



Semi-improved neutral grassland (damp section) – view looking north-east



Bee hives within semi-improved neutral grassland (TN2) – view looking north



Broadleaved woodland (northern section) – view looking west



Rhododendron within northern section of broadleaved woodland (TN3) – view looking north



Broadleaved woodland (western section) – view looking north



Dense scrub in north-west of site – view looking west



Himalayan balsam within dense scrub (TN4) – view looking west



Continuous bracken – view looking west



Tall ruderal/bracken/scrub – view looking north



Tall rudreal – view looking south-west



Horn Brook (northern section) – view looking west



Horn Brook (western section) – view looking south-west

3.3 Preliminary Roost Assessment

3.3.1.1 A full Ground Level Tree Assessment (GLTA) of the woodland and scattered trees was not completed. As such, if trees are proposed for removal, then further assessment will be required. However, PRFs were identified upon three mature specimens at the centre of site and these were assessed as providing Moderate-High suitability to support roosting bats (see Table 3.4 for full details).

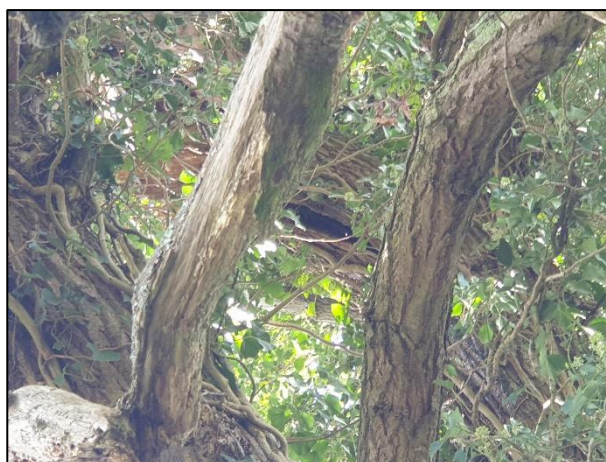
Table 3.4: Classification of trees with bat roosting potential

Tree #	Suitability	Species	Grid reference	Potential roosting features
T1	<u>Moderate</u>	Pedunculate oak	TQ 18829 29660	▶ Downward facing cracked branch creating potential cavity at c.8m on main stem; and ▶ Rotting branches facing north at c. 6m.
T2	<u>High</u>	Pedunculate oak	TQ 18845 29683	▶ Cracked and rotting bark at c. 8m facing north; and ▶ South facing rot hole at c.14m.

Tree #	Suitability	Species	Grid reference	Potential roosting features
T3	High	Pedunculate oak	TQ 18852 29715	▶ North facing dead branch on western aspect at 5m leaving cracks; ▶ North facing dead branch on eastern aspect at 5m leaving cracks; and ▶ Multiple socket holes within canopy.



T1 – view looking south-west



Crack in main stem (T1)



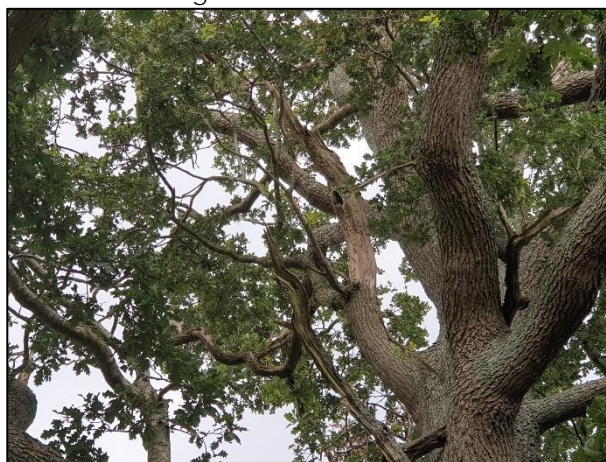
Rotting branches (T1)



T2 – view looking south-east



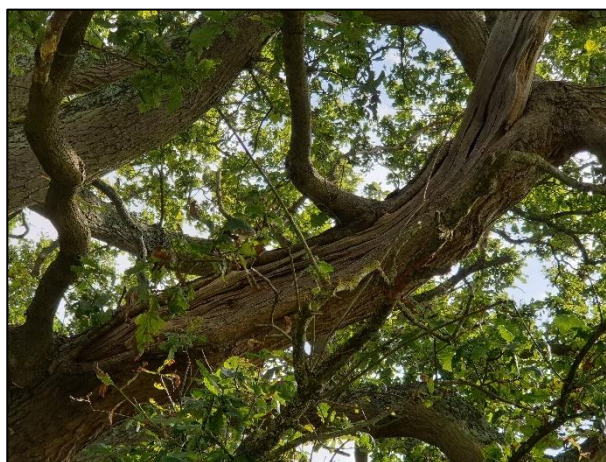
Cracked/rotting bark (T2)



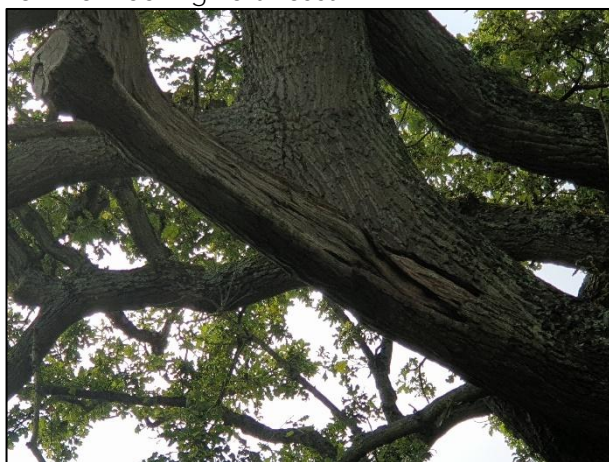
Rot hole (T2)



T3 – view looking north-east



Western dead branch (T3)



Eastern dead branch (T3)

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4 Evaluation

4.1 Introduction

- 4.1.1 This section evaluates the survey area in terms of the habitats and species present or potentially present on site or its immediate vicinity, in the context of relevant legislation and planning policy. See Appendix VI for a review of the legislation and planning context.

4.2 Designated Sites

- 4.2.1 The site falls within the impact risk zones for both St. Leonard's Park Ponds SSSI and St. Leonard's Forest SSSI. Within this zone residential developments of 100 or more dwellings are required to consult Natural England on the likely effects the proposals might have on the designated sites.
- 4.2.2 None of the other statutory or non-statutory wildlife sites within the desk-study search zone are likely to be directly affected as a result of the development of the site due the distance from the designated sites; closest designation is c.426m east (Chesworth Farm LWS).

4.3 Habitats

Evaluation

- 4.3.1 Table 4.1 presents a preliminary evaluation of the habitats recorded within or adjacent to the survey area, with reference to the criteria defined at section 2.2.6. It is important to note that these preliminary evaluations may be updated following completion of more detailed protected species surveys.

Table 4.1: Preliminary evaluation of habitats within the survey area

Habitat	Evaluation	Rationale
Hedgerows H3 and H6	Local	Whilst this habitat qualifies as HPI, similar habitat of this quality is not uncommon in the Horsham District, which restricts their importance.
Running Water	Local	This habitat is not considered to be a high-quality example, but connects Horn Brook with the wider riverine network (including the River Arun), which heightens its importance.
Broadleaved woodland Hedgerows H1, H2, H4, H5 and H8	Site	Whilst these habitats qualify as HPI, they are not considered to be high-quality examples and are set within a landscape which includes large areas of better-quality woodland and an established hedgerow network.
All other habitats	Negligible	These habitats are common and widespread or poor-quality examples, none of which are HPI habitats.

Priority habitats

4.3.2 Priority habitats present within the survey area or at its boundaries include:

- ▶ Lowland Mixed Deciduous Woodland
- ▶ Hedgerows

HPI Lowland Mixed Deciduous Woodland

4.3.3 Lowland Mixed Deciduous Woodland includes “woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England... It occurs largely within enclosed landscapes, usually on sites with well-defined boundaries, at relatively low altitudes... The woods tend to be small, less than 20 ha. Often there is evidence of past coppicing, particularly on moderately acid to base-rich soils; on very acid sands the type may be represented by former wood-pastures of oak and birch. There is great variety in the species composition of the canopy layer and the ground flora... *Quercus robur* is generally the commoner oak (although *Quercus petraea* may be abundant locally) and may occur with virtually all combinations of other locally native tree species” (Maddock, 2008).

4.3.4 These features are of high intrinsic ecological value and provide habitats suitable for a range of protected species, including nesting birds, foraging, commuting and roosting bats, and hazel dormouse. Dead wood within these habitats also provides valuable habitat for fungi and saproxylic invertebrates (e.g. stag beetle) and refuge/hibernation habitats for widespread amphibians, great crested newt and reptile species.

4.3.5 Although a priority habitat, the HPI woodland on site is not considered to be a high-quality example of this habitat and is set within a landscape which includes large areas of better-quality woodland; it is therefore considered to be of importance at the site level only. In any case, the habitat is due to be retained as part of the proposed works and will be protected during construction.

HPI Hedgerows

4.3.6 Hedgerow H3 comprised of a native species-rich hedge and trees; H6 was native species-rich hedge; H1, H2, H4, H5, H7 and H8 were species-poor hedge; and H5a was species-poor defunct hedge. Priority hedgerow habitats are defined “as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m wide..., consisting predominantly (i.e. 80% cover or more) of at least one woody UK native species” (any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow) (Maddock, 2008). All of the hedgerows on site fall into this classification, with the exception of H4 and H5a.

4.3.7 Hedgerows HPI are of high intrinsic ecological value and provide habitats suitable for a range of protected species, including amphibians and reptiles (shelter and dispersal), nesting birds, invertebrates, foraging/commuting bats, and hazel dormouse.

- 4.3.8 All the hedgerows within the site were assessed according to criteria set out in the Hedgerow Regulations 1997; see Table 4.2. A table showing full survey results is presented in Appendix III. If a hedgerow is classified as Important under the Regulations, local planning authorities are able to prevent its removal.
- 4.3.9 It is currently anticipated that the northern sections of hedgerows H5 and H6 will be removed, along with small central sections of H3 and H5a to make way for new site accesses. This loss will be offset by the creation of new native species-rich hedgerow creation throughout the development.

Table 4.2: Hedgerow assessment

Ref	Description of dominant species, width & height	Significance *
H1	Hawthorn dominated, well maintained hedgerow along the access road to site. Other species recorded included hazel and ash, with occasional bramble. Ground flora included dog's mercury, but generally consisted of grassland species on either side (amenity/poor semi-improved). 2.5-3m high, 1.5m wide, c.28m long.	Priority Habitat
H2	Dense continuous section of hedge comprising hawthorn, hazel, blackthorn, dog-rose and elder, with bramble and common ivy climbers. Ground flora comprised of common nettle and poor semi-improved grassland species within the adjacent habitat. 2-3m high, 1.5-2m wide, c.77m long.	Priority Habitat Important
H3	Long species-rich hedgerow along the southern boundary. Species included hawthorn, hazel, field maple, ash, blackthorn, dog-rose, elder and sycamore. Pedunculate oak and holly standards were present as were bramble, and common ivy climbers. Ground flora was limited due to improved adjacent grassland. 2.5-3m high, 1.5-2m wide, c.184m long.	Priority Habitat Important Species-rich
H4	Tall hedgerow dominated by sycamore trees. Other species included hawthorn, hazel, ash, pedunculate oak and blackthorn. Climbers included bramble and common ivy, with limited ground flora consisting of the adjacent improved grassland. 15-20m high, 1-2.5m wide, c.150m long.	-
H5	Tree dominated hedgerow at the centre of site. These mostly comprised of ash, with some pedunculate oak specimens present. Other species included hawthorn and yew. Climbers included bramble and common ivy, with limited ground flora consisting of common nettle and grassland species on either side (improved/poor semi-improved). 10-12m high, 1m wide, c.95m long.	Priority Habitat
H5a	This hedgerow extended south from H5, but has been classified independently as a defunct hedgerow. This gappy section was dominated by hawthorn, with rarely occurring dog-rose. Ground flora was dominated by the grassland species on either side (improved/poor semi-improved). 1.5m high, 2-2.5 wide, c.75m long.	-
H6	Dense continuous section of species-rich hedge comprising hawthorn, ash, dogwood <i>Cornus sanguinea</i> , blackthorn, holly and dog-rose, with bramble, common ivy and black bryony <i>Tamus communis</i> climbers. Ground flora comprised of common nettle and the grassland species on either side (poor	Priority Habitat Species-rich

Ref	Description of dominant species, width & height	Significance *
	semi-improved/semi-improved neutral). 3-3.5m high, 2-3m wide, c.160m long.	
H7	Short well-managed residential hedgerow, dominated by beech, with rarely occurring pedunculate oak. Ground flora comprised of the adjacent semi-improved neutral grassland, but a narrow strip had been mown short along its length. 2m high, 1.5m wide, c.37m long.	Priority Habitat
H8	Short section of hedgerow which connected the broadleaved woodland the residential properties in the south-west of site. The hedgerow continued east (off-site) where it became more tree dominated. It comprised of a mix of blackthorn and dog-rose, with bramble climbers. Ground flora comprised of the adjacent semi-improved neutral grassland. 2m high, 1.5m wide, c.9m long (on site).	Priority Habitat

* Hedge sections are marked as: Priority Habitat (NERC Act 2006), Important (Hedgerow Regulations 1997), or species rich (5 or more native woody species per 30m section).

Other habitats

- 4.3.10 The proposed development would result in permanent losses of up to c.9.51ha of improved grassland, poor semi-improved grassland, semi-improved neutral grassland, dense/scattered scrub, bracken, tall ruderal/bracken/scrub mosaic, tall ruderal and scattered trees, depending on the extent and layout of development proposals. These areas are of relatively low intrinsic ecological value and of negligible to site-level importance.

4.4 Species

Amphibians (excluding great crested newt)

- 4.4.1 SxBRC returned 159 records of amphibian species from within the desk-study search zone, including common toad, smooth newt, palmate newt and common frog. The closest and most recent records comprised of both common toad and common frog located c.33m north of the site in 2002.
- 4.4.2 The improved grassland habitat on site is of low ecological value for common and widespread amphibian species due to its uniform structure and short sward height. The areas poor semi-improved grassland, semi-improved neutral grassland, broadleaved woodland, dense scrub, tall ruderal/bracken/scrub mosaic, tall ruderal and hedgerows provide potentially suitable terrestrial habitats. The majority of these habitats will be lost, but habitats of similar suitability are widely available in the surrounding area. Common amphibians are not considered to present a constraint to the development proposals.

Great crested newt

- 4.4.3 SxBRC returned seven records of great crested newt from within the desk-study search zone between 1987 and 2019. The closest record was located c.208m north of the site boundary.

- 4.4.4 The improved grassland habitat on site is of low ecological value for great crested newt due to its uniform structure and short sward height. However, the site contains good quality terrestrial habitat for great crested newt in the form of poor semi-improved grassland, semi-improved neutral grassland, scrub, woodland and hedgerows. The composition of coarse grasses in the grassland, with a variable sward height and structure is suitable for foraging great crested newt. The boundary hedgerows and scrub provide shelter and dispersal habitat, while the woodland on and adjacent to site offer hibernation potential.
- 4.4.5 There are no ponds within the survey area, however an analysis of Ordnance Survey maps and aerial photography indicated that six ponds are present within 500m of the site; see Appendix II for a pond plan. Ponds P1 and P3 were maintained swimming pools located within an installers showroom, at the nearby business park off Brighton Road. P6 was identified through aerial mapping, but consisted of a dry grassed depression, within a recreation ground to the north-west. These ponds were scoped out from the assessment, as they would not provide opportunities to breeding great crested. Ponds P2, P4 and P5 could not be accessed to complete a Habitat Suitability Index (HSI) assessment.
- 4.4.6 P2 was located c.100m east of the site within farmland and P5 was located c.290m east of the site within a residential garden. Pond P4 was located c.400m south of site, beyond Brighton Road and the nearby business park. Research undertaken by Natural England (Cresswell & Whitworth, 2004) suggests great crested newt will rarely move further than 200-250m from a breeding pond, with much reduced distances recorded where adjacent habitats are of good quality. Jehle (2000) also determined a terrestrial zone of 63m, within which 95% of summer great crested newt refuges were located. In addition, following the breeding season, Jehle and Arntzen (2000) recorded 64% of newts within 20m of the pond edge. As such, it is considered highly unlikely that any newts present within P4 commute to the site. This is due to the suboptimal nature of adjoining habitats, which may leave them exposed to predation. Additionally, large areas of comparable habitat are in closer proximity to P4 than the site.
- 4.4.7 In conclusion, great crested newt may be present within the suitable terrestrial habitat on site and may use nearby ponds (P2 and P5) for breeding. Construction works would likely involve site clearance, creation of access tracks and materials storage compounds, vehicle movements and groundworks, which together could result in destruction of great crested newt habitat or present a risk of killing, injury or disturbance for great crested newt if present. Further surveys for great crested newt in the nearby suitable ponds are recommended at section 5.2.

Birds (nesting)

- 4.4.8 SxBRC returned records of 53 notable bird species from within the desk-study search zone between 1980 and 2021.
- 4.4.9 The mosaic of woodland, dense scrub, grassland and hedgerows on site are suitable for a variety of nesting birds such as wren *Troglodytes troglodytes*, dunnoek (Species of Principal Importance (SPI) listed under section 41 of NERC and Amber-list), robin *Erithacus rubecula* and chaffinch *Fringilla coelebs*. The semi-improved neutral grassland and to a lesser extent the poor semi-improved grassland, provide some limited suitability for ground-nesting species such as skylark (SPI and Red-list) and meadow pipit (Amber-list).

- 4.4.10 Woodland habitats are of particular importance for species such as blackcap *Sylvia atricapilla*, great spotted woodpecker *Dendrocopos major*, green woodpecker *Picus viridis*, treecreeper *Certhia familiaris*, cuckoo (SPI and Amber-list) and nightingale (Red-list).
- 4.4.11 Some of the larger mature pedunculate oaks at the field margins and mature specimens within the woodland may offer opportunities for species such as barn owl, hobby and red kite.
- 4.4.12 The woodland, mature trees and most of the boundary hedgerow habitats are proposed to be retained and protected as part of the proposals, but the northern sections of H5 and H6 would be removed and small severances of the central sections of hedgerows H3 and H5a will be required for access. These losses could result in a detrimental effect on bird populations and, depending on the timing of vegetation clearance works, could result in the killing/injury of birds/eggs or destruction of active nests. Further breeding bird surveys are recommended at section 5.2.

Invertebrates

- 4.4.13 SxBRC returned records of 36 species of protected invertebrate from within the desk-study search zone between 2005 and 2019, 13 of which were stag beetle (WCA and SPI).
- 4.4.14 The woodland habitats, semi-improved neutral grassland, scrub, hedgerows, mature trees and running water are likely to provide moderate value for a common and widespread range of invertebrates. Any deadwood within the woodland on site provides potential habitat for saproxylic species such as stag beetle, which was recorded c.411m west of the site in 2015. Species such as small heath and dingy skipper (SPI) will potentially be attracted to the site's grassland which provides suitable larval host plants including cock's-foot and Yorkshire-fog. However, a large proportion of the grassland on site is subject to intense management and herbicide treatment. This is likely to limit its value to invertebrates and habitats of similar or better quality are present in the surrounding area.
- 4.4.15 The woodland (including deadwood habitat), mature trees and boundary hedgerow habitats are proposed to be retained and protected as part of the proposals (though a small severance to the centre of hedgerow H3 and removal of six trees within H3 will be required for access). The running water is beyond the site limits and will be protected as part of the development. Provided this is the case, invertebrates are not considered to present a constraint to the development proposals and no further surveys for this group are required.

White-clawed crayfish

- 4.4.16 No records of white-clawed crayfish *Austropotamobius pallipes* were returned within the desk study search area.
- 4.4.17 The running water adjacent to site potentially provide suitable habitat for this species. The tree lined banks around these features will provide burrowing opportunities, where roots lie. No evidence such as burrows along the banks was identified, although an exhaustive search was not completed as part of the Phase 1 Habitat survey. The aquatic habitats are due to be retained and protected as part of the development. Accordingly, further survey for white-clawed crayfish is

not required, but precautionary measures related to working near water and protection zones for this species are recommended at section 5.3.

Mammals (terrestrial)

Bats

- 4.4.18 SxBRC returned 90 records of bats from within the desk-study search zone between 1982 and 2021. This included 31 roost records for common pipistrelle, soprano pipistrelle, *Pipistrellus* species, brown long-eared, long-eared species, noctule, Daubenton's bat and unknown bat species. The closest of which comprised of an unspecified roost for brown long-eared and *Pipistrellus* species, approximately 212m west of the site in 2011. The remaining records comprised flying and grounded bats, including records for common pipistrelle, soprano pipistrelle, *Pipistrellus* species, brown long-eared, long-eared species, noctule, serotine, Daubenton's bat and unidentified bats. One EPSL for the destruction of a brown long-eared and common pipistrelle breeding site and two EPSLs for the destruction of common pipistrelle resting places, were also identified 2km west of site.
- 4.4.19 The PRA concluded that three mature pedunculate oaks (T1-T3) at the centre of site were of Moderate-High suitability for roosting bats due to the PRFs recorded. These trees are proposed to be retained and protected. If proposals change and felling or arboricultural works to T1-T3 are required, it could result in destruction of a bat roost or present a risk of killing, injury or disturbance if bats are present during the works. Accordingly, further surveys for bats roosting in trees are recommended at section 5.2.
- 4.4.20 A full GLTA of all trees within site was not undertaken and it is likely that limited tree felling within hedgerows H3 and H4 may be required to provide access. Once proposals are finalised and tree-felling/pruning has been confirmed, a GLTA for roosting bats is recommended, as described at section 5.2.
- 4.4.21 The improved grassland and poor semi-improved grassland which dominate the central and eastern extents of site, are unlikely to host an abundant invertebrate fauna due to the lack of diversity in forb and flowering plant species. They are considered to be of low suitability for foraging habitat for bats. However, the areas of woodland in combination with the semi-improved neutral grassland, scrub, mature trees and running water is likely to provide a mosaic of high suitability foraging habitat. The hedgerows along the site boundaries may serve as navigation routes or foraging features for bats and are of moderate-high suitability, dependent upon their connectivity with the woodland on site. It is currently anticipated that the majority of the grassland will be removed, along with the northern sections of H5 and H6 and small central sections of H3 and H5 to make way for new site accesses. There is also potential for an increase in artificial lighting following development of the site upon any retained or adjacent off-site habitats. This may render them less suitable for foraging/commuting bats. Accordingly, further bat activity surveys are recommended at section 5.2.

Hazel dormouse

- 4.4.22 SxBRC returned eight records of hazel dormouse from within the desk-study search zone between 1993 and 2019. The most recent and closest to the site was located c.840m south-west in 2019.
- 4.4.23 Areas of woodland, scrub and the majority of hedgerow habitat within the survey area is dense and largely intact, providing potential habitat for hazel dormouse. Food plants are present (including hazel, hawthorn, oak, sycamore, blackthorn and bramble) providing a good year-round source of food. These habitats are also well connected to other woodland blocks, particularly east and north-east of the site. The woodland and majority of boundary hedgerows will be retained and protected during construction. However, the northern sections of H5 and H6 will be removed, and small central sections of H3 and H5a would be severed to make way for new site accesses, and it is likely that the dense scrub habitats within the site will be removed. As such, there is a risk of habitat loss, killing, injury or disturbance to dormice during the works. Further surveys for hazel dormouse are recommended in section 5.2.

Water vole and otter

- 4.4.24 SxBRC returned two records of European water vole within the desk study search area; the closest located 661m south-east of the site in 2001. SxBRC does not supply records of otter *Lutra lutra*.
- 4.4.25 Horn Brook, which bounds the site to the north and west, may provide suitable habitat for water vole, with steep, vegetated banksides suitable for burrowing and foraging in places, although the high level of shade cast by surrounding trees is likely to reduce its suitability. Whilst the stream may be used by otter as part of a wider range, the probability of presence is considered low due to its small size and water levels, and the species' low abundance in Sussex. In any case it is anticipated that Horn Brook will be retained and protected as part of any development proposals. As such, neither species is considered to present a constraint to development proposals and further surveys are not required, but precautionary measures related to working near water and protection zones for these species are recommended at section 5.3.

Plants, native

- 4.4.26 SxBRC returned records for cornflower, glandular eyebright and cut-grass between 2014 and 2020. The habitats recorded on site are unlikely to support any of these species. Additionally, 26 records of bluebell were also returned, which is listed on schedule 8 of the WCA. This affords the species protection against possession, transport and trade.
- 4.4.27 Bluebell was not recorded on site, though the woodland is considered suitable for this species. No other rare or protected species of flora were recorded within the survey area, but the time of year may have resulted in botanical species being under recorded due to an absence of inflorescences (including bluebell). However, as the woodland is due to be retained and protected, no further botanical surveys are considered necessary.

Plants – invasive non-native species and injurious weeds

- 4.4.28 Rhododendron and Himalayan balsam, both invasive non-native species listed on Schedule 9 of the WCA, were recorded within the woodland and scrub habitats on site (TN3 and TN4). As such, control measures are advised to prevent these species spreading into the wild; see section 5.4.
- 4.4.29 No significant stands of injurious weed species were noted (ragwort *Senecio jacobea*, spear thistle *Cirsium vulgare*, creeping thistle, curled dock *Rumex crispus*, and broadleaved dock).
- 4.4.30 American skunk cabbage was recorded along the banks of Horn Brook within the woodland on site. This species is not included on schedule 9 of the WCA, but is listed on the Sussex Invasive Non-Native Species (INNS) report. As such, control measures are advised to prevent this species spreading into the wild; see section 5.4.

Reptiles (terrestrial)

- 4.4.31 SxBRC returned 320 records of terrestrial reptile species from within the desk-study search area between 1981 and 2020. All four of the widespread species have been recorded in the vicinity; slow worm, common lizard, grass snake and adder. The closest record to the site was a grass snake located c.35m north in 2002.
- 4.4.32 The improved grassland on site is of low ecological value for reptiles due to its uniform structure and short sward height. However, the site contains good quality habitats for reptiles, in the form of poor semi-improved grassland, semi-improved neutral grassland, woodland, scrub and hedgerows. The composition of coarse grasses in the grasslands, in combination with the woodland edge and hedgerows, creates a mosaic for foraging reptiles. The boundary hedgerows and scrub provide shelter and dispersal habitat, while the woodland offers hibernation potential. The grass cuttings pile in the south of site (TN1) also provides potential egg-laying habitat for grass snake. Construction works would involve site clearance, creation of access tracks and materials storage compounds, vehicle movements and groundworks, which together could present a risk of killing or injury for reptiles if present within the survey area. Further surveys for reptiles are recommended at section 5.2.

Other protected, rare or notable species

- 4.4.33 SxBRC returned 36 records of hedgehog from within the desk-study search zone between 2005 and 2021. The closest to the site was located c.126m west of the site in 2017. The survey area contains habitats suitable for this species, including grassland, woodland, hedgerows and scrub. Hedgehog is listed as an SPI and is undergoing a significant population decline. Measures should be taken to continue accommodating this species on the site post-development (see section 5.4).
- 4.4.34 SxBRC returned seven records of harvest mouse from within the desk-study search zone between 2010 and 2019. The closest to the site was located c.838m west of the site in 2017. The survey area contains habitats suitable for this species, including grassland, scrub and hedgerows. Years in which cereal crops are grown in the eastern field will increase opportunities further. Harvest mouse listed as an SPI and whilst its status is unclear, changes in habitat management and agricultural methods are thought to be contributing to the loss of populations. Measures should be taken to continue accommodating this species on the site post-development (see section 5.4).

5 Recommendations

5.1 Introduction

- 5.1.1 With regard to the objectives of this PEA, recommendations are made below for further protected species survey where necessary. Preliminary recommendations are also made for the protection of important ecological features, and/or to avoid or mitigate ecological impacts, and to enhance the site for wildlife following construction. It is intended that these recommendations should be considered during future changes to the design of development proposals so that protection of important ecological features is secured and opportunities for ecological enhancement are realised. The recommendations should be reviewed following the completion of further ecological surveys.

5.2 Protected Species Surveys

- 5.2.1 The following species/groups (Table 5.1) will require additional surveys prior to refining development designs and formulating a suitable avoidance and mitigation strategy (if required).

Table 5.1: Recommendations for further ecological surveys

#	Recommendations for further ecological survey
R1	Presence/likely absence surveys for great crested newt in ponds within 500m of the site, undertaken using environmental DNA (eDNA) sampling techniques from mid-April to end June, or using conventional techniques from mid-March to mid-June.
R2	Breeding bird surveys, undertaken from April – July.
R3	Ground-level tree assessment for roosting bats within scattered trees and hedgerows H3 and H4, if removal is required, preferably during winter or spring.
R4	Presence/likely absence surveys for roosting bats within trees T1-T3 if they are affected by proposals for the site, undertaken between May and August.
R5	Bat activity surveys, undertaken between April and October.
R6	Presence/likely absence surveys for hazel dormouse, undertaken between April and November.
R7	Presence/likely absence surveys for reptiles, undertaken between April and September within suitable habitats on site.
R8	A full EclA of the effects of the proposed development should be carried out based on the results of recommended surveys. The EclA will include detailed advice on ecological avoidance, mitigation, enhancement and/or compensation measures. This is in line with the latest guidance from the Chartered Institute of Ecology and Environmental Management (2017a, 2017b, 2018).

Great crested newt

- 5.2.2 A great crested newt survey is recommended to establish whether the species is present in ponds within 500m of the proposed construction site, and if so in what numbers and whether they are breeding. If great crested newt are absent from these ponds, then it is likely they are also absent from the application site. The surveys could take one of two formats:
- ▶ eDNA sampling for each of the ponds; or
 - ▶ Pond surveys using conventional techniques (torchlight, traps, nets and egg searches).
- 5.2.3 eDNA sampling has the advantage of being more time- and cost-efficient where there is a high number of waterbodies. A single visit to each pond should be made between 15 April and 30 June. However, this method carries the risk that conventional survey techniques (which are more resource-intensive) will still be required if great crested newt is recorded. Twenty water samples are collected from each waterbody during the visit using purpose-designed sterile sampling kits, preserved in ethanol and subsequently dispatched for laboratory analysis. The sampling and analysis should follow the latest protocols set out in Natural England's '*Technical advice note for field and laboratory sampling of great crested newt environmental DNA*' (Biggs *et al.*, 2014).
- 5.2.4 Surveys using conventional techniques should be carried out by a licenced herpetologist following recommended guidelines (English Nature, 2001). Each pond should be surveyed on at least four occasions during the breeding season (between mid-March and mid-June), with at least two visits between mid-April and mid-May, to determine presence/absence. Methods include torch survey, bottle trapping and egg searches. A further two surveys are necessary to provide a population estimate should great crested newts be recorded.

Breeding birds

- 5.2.5 Hedgerows, woodland, mature trees, scrub, and grassland within the survey area all provide potential breeding habitats for a range of bird species, including Birds of Conservation Concern. Loss of these habitats could result in a detrimental effect on bird populations and, depending on the timing of clearance and demolition works, could result in an offence under the relevant legislation.
- 5.2.6 A breeding bird survey is recommended and should be undertaken with reference to the Common Bird Census (CBC) methodology (Gilbert *et al.*, 1998) comprising three visits to the site between April and July, with all species mapped using standard British Trust for Ornithology species codes and annotations. The objective of the surveys will be to make an assessment of the breeding bird assemblage using the site, the number of territories of each species present in the survey area, and the overall importance of the site as a breeding habitat in the context of surrounding habitats which will continue to exist once the development is operational.
- 5.2.7 On each survey, early morning transects should be slowly walked around all field boundaries and across fields such that no part of the survey area is further than 50m from the transect route. Route directions should be varied between visits to avoid systematically surveying the same areas at similar times of day on each visit.

Roosting bats

- 5.2.8 A GLTA following current guidelines (Collins, (ed.) 2016) is required to establish the potential for individual trees or those within hedgerows H3 and H4 or the woodland habitats on site to support roosting bats, if felling or arboricultural works to facilitate development works are required. The objective is to classify each tree as of negligible, low, moderate or high suitability for roosting bats, to inform the need for further tree-climbing or presence/absence surveys.
- 5.2.9 The location of each tree potentially suitable for roosting bats within the construction site should be recorded, along with the following standard data: species, life stage, diameter at breast height, form and condition, types of roost feature present, their aspect, stem orientation and approximate height above ground level. GLTA is best carried out during winter or early spring (after the leaves have fallen and before re-growth) in order to gain adequate view of potential roost features.
- 5.2.10 It is recommended that trees T1-T3 are retained as part of the development proposals. However, if felling or arboricultural works to trees is required, then these works could result in destruction of a bat roost or killing, injury or disturbance to roosting bats. As such, further surveys are recommended to determine their presence or likely absence with these features. The surveys should follow current guidelines (Collins, (ed.) 2016), comprising dusk emergence and/or dawn re-entry surveys, and can be carried out between May and September (May to August is the optimal period). It should be noted that in the event that roost is confirmed in any of the trees, further survey may be required to characterise the roost and inform the licencing process. Surveys should begin at least quarter of an hour before dusk and continue for up to 2 hours after sunset, or begin 1.5 to 2 hours before dawn and continue until at least 15mins after sunrise. The level of survey effort required is dependent on each feature's suitability for roosting bats, as follows:
- ▶ Confirmed roost/High suitability: At least three surveys visits in total, including at least one dusk emergence and at least one separate dawn re-entry survey;
 - ▶ Moderate suitability: At least one dusk emergence and a separate dawn re-entry survey;
 - ▶ Low suitability: At least one dusk emergence or dawn re-entry survey, or no surveys if reasonable avoidance measures can be adhered to during felling works.
- 5.2.11 An alternative approach for trees is to carry out a PRF inspection by a suitably licenced tree-climber in the first instance, to determine whether there is a need for presence/absence survey.

Foraging and commuting bats

- 5.2.12 Bat activity surveys are recommended due to the high and moderate suitability foraging and commuting habitats (woodland, grassland, scrub, hedgerows and running water), which may be affected by development proposals. Bat activity surveys should follow current guidelines (Collins (ed.), 2016), combining transect surveys with static automated monitoring and supplementary methods as appropriate, and can be carried out between April and October. Transect surveys should begin at sunset and continue for 2–3hrs, or begin 2 hours before dawn and continue at least until sunrise, or continue through the night. As the high suitability habitats will be retained and protected as part of development proposals it is considered proportionate that the level of survey effort should follow guidelines in relation to moderate suitability. For moderate suitability

the level of survey effort required is one survey visit per month (April to October), including at least one dusk and pre-dawn survey, combined with two static detector locations per transect, each monitored for five consecutive nights per month.

Hazel dormouse

- 5.2.13 The woodland, hedgerow and scrub habitats within the survey area are dense and largely intact, providing potential habitat for hazel dormouse. The scrub habitats will likely be removed to facilitate the development and some of the hedgerows will be lost. As such, there is a risk of habitat loss, killing, injury or disturbance to hazel dormice during the works and surveys to establish the presence or likely absence of hazel dormouse are recommended.
- 5.2.14 The surveys should be undertaken by a suitably experienced and licensed ecologist following current guidelines (Bright *et al.*, 2006), comprising hazel nut searches and nest tube surveys, and can be carried out between April and November.

Reptiles

- 5.2.15 The survey area contains habitats suitable for reptiles including grassland, woodland, scrub and hedgerows. Therefore, there is a risk of killing or injury to reptiles and further surveys by an experienced herpetologist are required to establish their presence or likely absence within the proposed construction footprint. The survey should involve a minimum of seven visits to the site in suitable weather conditions during the active season (broadly April to September), following current guidelines (Froglife, 1999; Gent & Gibson, 2003). Methods include visual encounter surveys (i.e. targeted transects) and searches of artificial and natural refuges.

5.3 Precautionary Measures

- 5.3.1 The following species/groups (Table 5.2) require specific precautionary measures to be adhered to prior to and during construction to ensure that an offence under the relevant legislation is avoided. These measures may need to be added to or amended following completion of the protected species surveys described above.

Table 5.2: Recommended precautionary measures

#	Recommended precautionary measures
R9	Adopt standard site procedures to prevent impacts on Horn Brook, including pollution prevention and construction methods which avoid the risk of impacts to white-clawed crayfish by protecting the water courses from changes in morphology, turbidity or flow regime. Detailed methods should be outlined in a Construction Environmental Management Plan (CEMP) (see R17) and will be carried out under the supervision of a suitably qualified ecologist.
R10	Removal of nesting bird habitats will be undertaken outside of the bird nesting season, which runs from 1 March to 30 September. It will therefore be carried out between October and February, but should be planned and implemented in accordance with measures to protect other species which may still be present outside of the bird breeding season. Any construction works undertaken within the bird breeding season where suitable bird breeding habitat exists will require a site check for nesting birds by a suitably qualified ecologist.

#	Recommended precautionary measures
	This will take place no more than two days prior to works commencing. This is to ensure that no disturbance to active bird nests occurs. If a nest is found it must be cordoned off and works adjacent to the nest must be delayed until such time that the chicks have fledged from the nest. This will be supervised by a suitably qualified ecologist.
R11	Negative impacts on otter, water vole, their holts and burrows will be avoided by establishing a 15m exclusion zone around the running water adjacent to site (Horn Brook) within which construction activity is prohibited.

5.4 Ecological Protection Measures

- 5.4.1 The following protection measures (Table 5.3) will be carried out as part of the proposed scheme, alongside any specific measures that are recommended following the protected species surveys described above.

Table 5.3: Recommended ecological protection measures

#	Recommended ecological protection measures
R12	The two sections of Lowland Mixed Deciduous Woodland HPI along the northern and western boundaries of the site were not considered to be high quality examples of this habitat type and were evaluated as of site-level importance. Nevertheless it is recommended that loss of this habitat is minimised and that retained woodland is protected during construction, and should provide a focus for ecological enhancement measures (see R22). All hedgerows on site, with the exception of H4 and H5a qualify as Hedgerow HPI, while H2 and H3 are also Important under the Hedgerow Regulations. It is currently anticipated that the northern sections of hedgerows H5 and H6 will be removed, and narrow central sections of H3 and H5a would be severed to make way for new site accesses. This loss will be offset by the creation of new native species-rich hedgerow creation throughout the development.
R13	British Standard BS 5837:2012 and/or National Joint Utilities Group Guidelines (NJUG, 1995) will be followed at all times during construction when working in close proximity to retained hedgerows and trees. According to NJUG Guidelines the root protection zone or precautionary area is 4x the circumference of the trunk (circumference is measured around the trunk at a height of 1.5m above ground level). The distance is measured from the centre of the trunk to the nearest part of any excavation or other work. If a separate tree survey is carried out for the proposed development, works will be undertaken in accordance with the recommendations therein.
R14	Rhododendron is present within the woodland in the north of site. This species is highly invasive and it is inadvisable to have it present in woodland. A method statement will be prepared to ensure adequate control measures are adopted to prevent it spreading within the woodland on and beyond the site. A suitably qualified contractor will be appointed to eradicate the Himalayan balsam and American skunk cabbage infestation located along Horn Brook, prior to any works commencing in this part of the site. It is recommended that early preventative measures are undertaken to avoid the infestation spreading further into the developable area or onto neighbouring properties.

#	Recommended ecological protection measures
	A method statement will be prepared and included within the CEMP to ensure adequate control measures are adopted during construction to prevent these species spreading from the site.
R15	Construction works (including ground works and vegetation clearance) will be carried out in accordance with a CEMP. The CEMP will specify: potentially damaging construction activities; "biodiversity protection zones"; measures to avoid or reduce impacts during construction (including protective fences, exclusion barriers, pollution control and methodological or seasonal restrictions); location and timing of sensitive works; periods during which ecological supervision is required; and the role & responsibilities of an Ecological Clerk of Works (ECOW).
R16	The use of external lighting will be avoided or reduced to the minimum required for its intended purpose, during both construction and operation. This will be of benefit to nocturnal species e.g. bats. Where external lighting is to be provided, it should be low-level, directional lighting with minimal spill and glare, and consideration should be given to reduced hours of operation and/or a movement responsive system of control. Use narrow-spectrum bulbs and light sources that emit minimal UV light, avoiding white and blue wavelengths of the spectrum. Use glass lantern covers instead of plastic to filter UV light. Lighting will not be directed towards the areas of woodland, hedgerows or any newly created bat roosting features (see R29).
R17	To enable continued dispersal of hedgehogs (which require large territory sizes) and other small mammals across the site and within the local area following development, small access gaps to measure c.13x13cm are recommended to be provisioned at the base of all new fence boundaries. These will allow easy passage for small mammals to continue foraging in the area while still being small enough to contain pets.
R18	To enable the continued use of the site by harvest mouse, existing hedgerows should be retained and protected (R14), new hedgerows should be created to increase connectivity throughout the site (R22) and areas of tall grass should be provided within the newly created greenspaces (R22).
R19	All excavations left overnight will either be covered over, or provided with a ramp to enable easy escape of hedgehogs, small mammals, amphibians and other fauna, and inspected each morning prior to recommencement. Open pipework greater than 150mm outside diameter should be blanked off at the end of each working day.

5.5 Recommendations for Ecological Enhancement

- 5.5.1 The following ecological enhancements (Table 5.4) should be considered for the site to contribute towards net gains for biodiversity in line with the requirements of local and national policy and guidance, but should be reviewed and specified further following the completion of recommended protected species surveys.

Table 5.4: Preliminary recommendations for ecological enhancement

#	Preliminary recommendations for ecological enhancement
R20	The retained woodland should be enhanced through additional understorey planting of a range of native fruiting shrubs of local provenance and selective tree thinning to increase light penetration.

#	Preliminary recommendations for ecological enhancement
R21	New green spaces will be sown with a native wildflower and grass seed mix (i.e. wildflower meadow) to increase botanical richness above that currently present. This will be particularly targeted towards retained habitat features such as woodland and hedgerows to maintain/enhance ecological connectivity through the site, but will also be extended to public realm areas such as open spaces and road verges. The wildflower meadow treatment will include tussock-forming grass species (such as cock's-foot, Yorkshire-fog, tufted hair-grass <i>Deschampsia cespitosa</i> and false oat-grass) to provide shelter and ecological connectivity for reptiles, amphibians and small mammals, and provide foraging opportunities for invertebrates.
R22	Landscaping for the site will include hedgerow creation and enhancement of existing hedgerows, comprising a range of native shrub species. Fruit, seed, nut and nectar-bearing species will be used preferentially when selecting species for landscape planting, so that food sources are available throughout the year (e.g. hazel, hawthorn, blackthorn, rowan <i>Sorbus aucuparia</i> and honeysuckle <i>Lonicera periclymenum</i>). If an evergreen hedge is required for landscape screening, suitable native species include holly and yew.
R23	A new pond(s) will be created within the proposed development as part of the drainage strategy and to increase habitat availability for species such as grass snake, amphibians and invertebrates such as dragonflies. Newly created wetland habitats should be profiled to incorporate a variety of depths, with shallow sloping sides providing access points for wildlife, and planted with appropriate native vegetation. Plants suitable for damp margins include; amphibious bistort <i>Persicaria amphibian</i> , marsh marigold <i>Caltha palustris</i> , reed canary grass <i>Phalaris arundinacea</i> , brooklime <i>Veronica beccabunga</i> , wild angelica, purple loosestrife <i>Lythrum salicaria</i> , greater bird's-foot trefoil, and gypsywort <i>Lycopus europaeus</i> . Aquatic vegetation includes; water crowfoot <i>Ranunculus aquatilis</i> , lesser spearwort <i>R. flammula</i> , water mint <i>Mentha aquatic</i> , water forget-me-not <i>Myosotis scorpioides</i> and branched bur-weed <i>Sparganium erectum</i> , all of which can be used by newts for egg laying. Drainage engineers and landscape architects should be involved in specifying the mix of species as their suitability is dependent on how frequently wetland areas will be inundated.
R24	The site's landscaping plans will utilise plant species which encourage bats. The table at Appendix V lists species of plants that can provide benefit for bats either by providing a food source for insects on which bats feed, or providing additional roosting opportunities (Gunnell et al., 2012). The plant species are predominantly native to Britain, but not all species will be suitable in all situations. The aim is to encourage a diverse range of invertebrate food sources and increased bat roost potential.
R25	Habitat piles will be created within areas of retained vegetation at the edges of the site close to boundary woodland and hedgerows. These will provide additional hibernation and shelter resources for amphibians, invertebrates, reptiles, and a range of other wildlife, and egg-laying substrate for grass snake. Hibernacula can be created by partially burying logs and stones in sheltered areas away from flood risk, and covering over with earth or turf. Breeding habitats can be created by collecting grass clippings and other prunings arising from landscape management of the site, and composting them in a secluded corner of the site. Deadwood piles can be created using site-won material from site clearance to provide shelter and breeding opportunities for invertebrates, particularly saproxylic species which are dependent on deadwood.
R26	The value of the site for birds will be enhanced by installing a range of artificial nest boxes. These will be placed on retained mature trees within the development or at the site boundaries, or incorporated within building facades. For instance:

#	Preliminary recommendations for ecological enhancement
	▪ New buildings: nest boxes can be installed under the eaves for birds that utilise buildings for nesting, e.g. house martin, house sparrow and starling (all SPI). ▪ Trees: nest boxes with entrance holes suitable for tit species, woodpeckers and nuthatches, and open-fronted boxes suitable for spotted flycatcher or song thrush and treecreeper boxes. ▪ Artificial nest boxes for kestrel, barn owl and tawny owl can be erected in areas of public open space/undeveloped areas, with appropriate habitat management regimes adopted to create areas/corridors of wildflower meadow as foraging habitat for these species.
R27	The value of the site for bats will be enhanced by installing a range of artificial roost boxes. These will be placed on retained mature trees at the site boundaries or incorporated within building facades. Boxes suitable for a range of species should be used, for instance: ▪ New buildings: integral bat tubes can be installed within buildings which face vegetated areas, particularly towards the south and west. Bat tubes can be incorporated into the design of the building so that only the access holes are visible from the exterior of the building. The Schwegler 1FR or 2FR Bat Tube, or other manufacturer's equivalent, is designed to meet the characteristic requirements of the types of bats that inhabit buildings such as pipistrelles <i>Pipistrellus spp.</i> or serotine. It is designed to be installed on the external walls of buildings, either flush or beneath a rendered surface. ▪ Pipistrelles: bat boxes suitable to install on mature trees either within or at the edges of the development include the Schwegler 1FF Flat Bat Box, or equivalent. ▪ Noctules <i>Nyctalus spp.</i> and brown long eared bats: bat boxes suitable to install on mature trees either within or at the edges of the development include the Schwegler 2F General Purpose Bat Box or the 2FN Woodland Bat Box, or equivalent.

6 Summary and Conclusions

6.1 Introduction

- 6.1.1 A PEA was undertaken for the site of a proposed residential development at Land at Hornbrook Farm, Brighton Road, Horsham. The report was prepared to establish the site's suitability for development, inform the design process for the proposal, record the ecological baseline and identify key ecological features within and around the proposal site.

6.2 Results

- 6.2.1 No internationally important wildlife sites are located within 5km of the site, but two SSSI and the High Weald AONB are located within 2km of the site boundary. Additionally, there are four non-statutory LWS, within 2km of the site boundary. There are records of a range of protected or notable species in the locality, including amphibians, birds, invertebrates, terrestrial mammals, flowering plants and terrestrial reptiles, together with at least eight priority habitats: Lowland Mixed Deciduous Woodland, Ancient Woodland, Ghyll Woodland, Traditional Orchard, Wood-pasture and Parkland, Lowland Meadow, Reedbed and open water.
- 6.2.2 The site lies to the south-east of the town of Horsham in the Horsham District of West Sussex. It comprises c.10.25ha of undeveloped agricultural land. The open fields are interspersed by hedgerows, with strips of woodland and Horn Brook located along the site boundaries, and occasional patches of tall ruderal, bracken and scrub. The site is bound by Horn Brook and woodland to the north and west; Doomsday Lane to the east; and Brighton Road (A281) to the south. The wider landscape is dominated by farmland and housing associated with Horsham, with large blocks of woodland to the east. Six ponds lie within 500m of the site.

6.3 Evaluation

- 6.3.1 Table 6.1 presents a summary of ecological constraints and opportunities identified within the survey area.

Table 6.1: Summary of ecological constraints and opportunities

Feature	Detail
Constraints:	
Designated sites	The site falls within the impact risk zones for both St. Leonard's Park Ponds SSSI and St. Leonard's Forest SSSI. Consultation with Natural England on the likely effects the proposals might have on the designated sites is required. None of the other statutory or non-statutory wildlife sites within the desk-study search zone are likely to be affected directly or indirectly as a result of the development of the site.

Feature	Detail
Priority habitats	The woodland on site qualifies as Lowland Mixed Deciduous Woodland HPI, which is of high intrinsic ecological value. It is currently anticipated that the woodland will be retained and protected during construction. All of the hedgerows on site are classified as Hedgerows HPI, with the exception of H4 and H5a. It is currently anticipated that the northern sections of hedgerows H5 and H6 will be removed, and narrow central sections of H3 and H5a would be severed to make way for new site accesses.
Other habitats	The proposed development would result in permanent losses of up to c.9.51ha of improved grassland, poor semi-improved grassland, semi-improved neutral grassland, dense/scattered scrub, bracken, tall ruderal/bracken/scrub mosaic, tall ruderal and scattered trees, across the site. These areas are of relatively low intrinsic ecological value and of negligible to site-level importance.
Great crested newt	Permanent loss of suitable terrestrial habitats (poor semi-improved grassland, semi-improved neutral grassland, broadleaved woodland, dense scrub, tall ruderal/bracken/scrub mosaic, tall ruderal and hedgerows). No direct impact on aquatic habitats
Birds (breeding)	Permanent loss of breeding habitats (poor semi-improved grassland, semi-improved neutral grassland, dense scrub, hedgerow and scattered trees).
White-claw crayfish	Possible degradation of sub-optimal habitat (running water).
Bats (roosting)	Trees at T1-T3 were of <u>Moderate-High</u> suitability for roosting bats. It is currently anticipated that these will be retained as part of the proposed development, but six trees will need to be removed from hedgerow H3 to provide site access, along with three trees in the north-west of the survey area
Bats (foraging/commuting)	Effects on high and moderate suitability habitats (woodland, semi-improved neutral grassland, scrub, hedgerows, mature trees and running water) for foraging and commuting bats, including through increases in artificial light.
Hazel dormouse	Permanent losses of dense scrub and hedgerow habitat suitable for hazel dormouse.
Hedgehog, harvest mouse	Permanent loss of grassland, scrub and hedgerow bases.
Invasive non-native plants	Rhododendron and Himalayan balsam were recorded within the broadleaved woodland/dense scrub habitats on site. Both are listed on Schedule 9 of the WCA. American skunk cabbage was recorded in multiple locations along Horn Brook, which is listed within the Sussex INNS report.
Reptiles	Permanent losses of suitable habitats (grassland, woodland, scrub and hedgerows) and piles of grass cuttings.
Opportunities:	
Priority habitats	The hedgerow and woodland priority habitats within the survey area are of high intrinsic value and can provide a focus for ecological enhancement measures.
Habitat creation/enhancement	Habitat creation and enhancement opportunities include wildflower meadow planting, hedgerow creation, pond creation, habitat piles and bird/bat boxes.

6.4 Recommendations

6.4.1 Recommendations are made for further protected species surveys, together with preliminary recommendations for the protection of important ecological features to avoid or mitigate ecological impacts, and to enhance the site for wildlife following construction; these are summarised in Table 6.2. It is intended that these recommendations should be considered during future changes to the design of development proposals so that protection of important ecological features is secured and opportunities for ecological enhancement are realised. The recommendations should be reviewed following the completion of further ecological surveys.

Table 6.2: Summary of recommendations

#	Summary of recommendations
Protected species surveys	
R1	Presence/likely absence surveys for great crested newt in ponds within 500m of the site, undertaken using environmental DNA (eDNA) sampling techniques from mid-April to end June, or using conventional techniques from mid-March to mid-June.
R2	Breeding bird surveys, undertaken from April – July.
R3	Ground-level tree assessment for roosting bats within scattered trees and hedgerows H3 and H4, if removal is required, preferably during winter or spring.
R4	Presence/likely absence surveys for roosting bats within trees T1-T3 if they are affected by proposals for the site, undertaken between May and August.
R5	Bat activity surveys, undertaken between April and October.
R6	Presence/likely absence surveys for hazel dormouse, undertaken between April and November.
R7	Presence/likely absence surveys for reptiles, undertaken between April and September within suitable habitats on site.
R8	A full EcIA of the effects of the proposed development should be carried out based on the results of recommended surveys. The EcIA will include detailed advice on ecological avoidance, mitigation, enhancement and/or compensation measures. This is in line with the latest guidance from the Chartered Institute of Ecology and Environmental Management (2017a, 2017b, 2018).
Precautionary measures	
R9	Standard site procedures to prevent impacts on aquatic environments, including pollution prevention and construction methods which avoid the risk of impacts to white-clawed crayfish.
R10	Removal of nesting bird habitats (including vegetation and buildings) will be undertaken outside of the bird nesting season, which runs from 1 March to 30 September. It will therefore be carried out between September and February, but should be planned and implemented in accordance with the findings of the further ecological surveys recommended above.
R11	Negative impacts on otter and water vole will be avoided by establishing a 15m exclusion zone around the running water on site within which construction activity is prohibited.
Ecological protection measures	
R12	Construction works will avoid tree removal or disturbance and buffer the woodland and retained hedgerow on site. Hedgerow losses will be offset by the creation of new native species-rich hedgerow creation throughout the development.

#	Summary of recommendations
R13	Standard site procedures to prevent impacts on hedgerows and trees will be adhered to during construction.
R14	A method statement will be prepared to ensure adequate control measures are adopted to prevent the spread of invasive rhododendron, Himalayan balsam and American skunk during construction.
R15	Construction works (including ground works and vegetation clearance) will be carried out in accordance with a CEMP.
R16	The use of external lighting will be avoided or minimised to prevent impacts to nocturnal species. Lighting will not be directed towards retained woodland, hedgerows or any newly created bat roosting features.
R17	Small access gaps will be provisioned at the base of new fence boundaries to enable continued dispersal of small mammals across the site.
R18	Protection of existing hedgerows/creation of new hedgerows and provision of areas of tall grass within newly created greenspaces.
R19	At the end of each working day excavations will be covered over and open pipework capped to prevent entrapment of mammals, amphibians and other fauna.
Ecological enhancement	
R20	Retained woodland should be enhanced through additional understorey planting and selective tree thinning.
R21	Green spaces will be sown with a native wildflower and grass seed mix.
R22	Hedgerow creation and enhancement will use a range of native fruit, seed, nut and nectar-bearing shrub species.
R23	New wetland habitat will be created within the proposed development as part of the drainage strategy and to increase aquatic habitat availability.
R24	The site's landscaping plans will utilise plant species which encourage bats by providing additional food sources or roosting opportunities.
R25	Habitat piles for amphibians, invertebrates and reptiles will be created at the edges of the site close to boundary woodland and hedgerows.
R26	The value of the site for birds will be enhanced by installing a range of artificial nest boxes onto new buildings and retained trees.
R27	The value of the site for bats will be enhanced by installing a range of artificial roost boxes onto new buildings and retained trees.

6.5 Conclusions

- 6.5.1 A large proportion of the land proposed for development (improved/poor semi-improved grassland) is of low ecological value. However, habitats of greater value are present at the edge of the field compartments including woodland and hedgerows of high ecological value. Constraints to development were identified including priority habitats, and the potential presence of great crested newt, breeding birds, roosting/commuting/foraging bats, hazel dormouse, invasive species and reptiles. Further ecological surveys and impact assessment are

required prior to submitting a planning application, to determine the value of the site for these species and to formulate a suitable mitigation strategy. Precautionary and ecological protection measures are recommended on an interim basis to enable offences under the relevant legislation to be avoided, along with recommendations for ecological enhancement.

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Appendix I: Phase 1 Habitat Plan

- Survey area
- Broadleaved woodland
- Dense scrub
- Neutral semi-improved grassland
- Improved grassland
- Poor semi-improved grassland
- Bracken
- Bracken/tall ruderal/scrub
- Tall ruderal
- Running water
- Native species-rich hedge
- Native species-poor hedge
- Species-poor defunct hedge
- Native species-rich hedge with trees
- Native species-poor hedge with trees
- Scattered tree
- Tree with bat roost potential



Appendix II: Pond Plan

Hornbrook Farm Brighton Road, Horsham West Sussex

-  Survey area
-  Pond numbers
-  100m buffer
-  250m buffer
-  500m buffer



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Ordnance Survey 0100031673

Scale: 1:8,000 Created by: AD
Date: Oct 2021 Reviewed by: NP
Drawing number:
UE0470ECO-Ponds211021



Appendix III: Hedgerow Regulations Survey

Hedgerow Regulations assessment results for all hedgerows within and adjacent to the survey area are shown below.

Feature	Hedgerow Number							
	H1	H2	H3	H4	H5	H5a	H7	H8
Adjacent to bridleway/path	No	Yes	Yes	Yes	No	No	No	Yes
<i>Populus nigra</i> , <i>Sorbus torminalis</i> , <i>Tilia cordata</i> , <i>Tilia platyphyllos</i> present	No	No	No	No	No	No	No	No
Average number of woody species within 30m sections	3	4	7	3	3	1	2	2
Associated bank or wall	No	No	No	No	No	No	No	No
Intact hedgerow	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Trees present within hedge	No	No	Yes	Yes	Yes	No	No	No
Ditch	No	No	No	No	No	No	No	No
Connection points	Two	One	One	Two	Three	One	-	Three
Parallel hedge	No	No	No	No	No	No	No	No
Residential curtilage	No	No	No	No	No	No	Yes	No
IMPORTANT	No	Yes	Yes	No	No	No	No	No

Appendix IV: Botanical Species List

Scientific nomenclature and common names for vascular plants follow Stace (2010). Please note that this plant species list was generated as part of a Phase 1 Habitat survey, does not constitute a full botanical survey and should be read in conjunction with the associated results section of this PEA.

Scientific name	Common name	Habitat/Abundance							
		Improved grassland	Poor semi-improved grassland	Semi-improved neutral grassland	Broadleaved woodland	Dense/scattered scrub	Tall ruderal/bracken/scrub mosaic	Scattered broadleaved trees	Hedgerows
<i>Achillea millefolium</i>	Yarrow		R	F					
<i>Acer campestre</i>	Field maple								R
<i>Acer pseudoplatanus</i>	Sycamore				O				O
<i>Agrostis capillaris</i>	Common bent	O	O	F					
<i>Alnus glutinosa</i>	Alder				F				
<i>Angelica sylvestris</i>	Wild angelica				R				
<i>Anthriscus sylvestris</i>	Cow parsley			R					
<i>Arrhenatherum elatius</i>	False oat-grass	O	F	F					
<i>Carex pendula</i>	Pendulous sedge				R				R
<i>Carex remota</i>	Remote sedge				R				
<i>Cerastium fontanum</i>	Common mouse-ear			R					
<i>Circaea lutetiana</i>	Enchanter's nightshade				R				
<i>Cirsium arvense</i>	Creeping thistle	R	O	O					
<i>Cirsium palustre</i>	Marsh thistle			O LF			R		
<i>Cornus sanguinea</i>	Dogwood								R

Scientific name	Common name	Habitat/Abundance							
		Improved grassland	Poor semi-improved grassland	Semi-improved neutral grassland	Broadleaved woodland	Dense/scattered scrub	Tall ruderal/bracken/scrub mosaic	Scattered broadleaved trees	Hedgerows
<i>Corylus avellana</i>	Hazel				O		R		R
<i>Crataegus monogyna</i>	Hawthorn				O				F
<i>Dactylis glomerata</i>	Cock's-foot	F	F	A					
<i>Epilobium montanum</i>	Broad-leaved willowherb	R	R						
<i>Fagus sylvatica</i>	Beech				F				R
<i>Festuca rubra</i>	Red fescue	O	R	O					
<i>Fraxinus excelsior</i>	Ash		F				R	R	F
<i>Geum urbanum</i>	Wood avens				R				
<i>Glechoma hederacea</i>	Ground-ivy			R					
<i>Hedera helix</i>	Common ivy				O				R
<i>Heracleum sphondylium</i>	Hogweed			R					
<i>Holcus lanatus</i>	Yorkshire-fog	R	F	A					
<i>Hypericum androsaemum</i>	Tutsan				R				
<i>Hypochaeris radicata</i>	Cat's-ear			R LF					
<i>Ilex aquifolium</i>	Holly				F		R		O
<i>Iris foetidissima</i>	Stinking iris		R		R				

Scientific name	Common name	Habitat/Abundance							
		Improved grassland	Poor semi-improved grassland	Semi-improved neutral grassland	Broadleaved woodland	Dense/scattered scrub	Tall ruderal/bracken/scrub mosaic	Scattered broadleaved trees	Hedgerows
<i>Juncus acutiflorus</i>	Sharp-flowered rush			R					
<i>Juncus effusus</i>	Soft rush			R					
<i>Lathyrus pratensis</i>	Meadow vetchling	R							
<i>Leucanthemum vulgare</i>	Oxeye daisy		R						
<i>Lolium multiflorum</i>	Italian rye-grass	D	R						
<i>Lolium perenne</i>	Perennial rye-grass		A						
<i>Medicago lupulina</i>	Black medick		R						
<i>Mercurialis perennis</i>	Dog's mercury				R				R
<i>Persicaria hydropiper</i>	Water-pepper	R	R						
<i>Phleum bertolonii</i>	Smaller cat's-tail			R					
<i>Phleum pratense</i>	Timothy	O	A	O					
<i>Plantago lanceolata</i>	Ribwort plantain			R					
<i>Potentilla erecta</i>	Tormentil			R					
<i>Prunella vulgaris</i>	Selfheal	R							
<i>Prunus avium</i>	Wild cherry				R				
<i>Prunus spinosa</i>	Blackthorn								R

Scientific name	Common name	Habitat/Abundance							
		Improved grassland	Poor semi-improved grassland	Semi-improved neutral grassland	Broadleaved woodland	Dense/scattered scrub	Tall ruderal/bracken/scrub mosaic	Scattered broadleaved trees	Hedgerows
<i>Pteridium aquilinum</i>	Bracken						F		R
<i>Pulicaria dysenterica</i>	Common fleabane			R LF					
<i>Quercus robur</i>	Pedunculate oak				A	R		D	O
<i>Ranunculus repens</i>	Creeping buttercup	O	O	F					
<i>Rhododendron ponticum</i>	Rhododendron				R				
<i>Rosa canina</i>	Dog-rose						R		R
<i>Rubus fruticosus</i>	Bramble				O	D	F		R
<i>Rumex acetosa</i>	Common sorrel		R	O					
<i>Rumex crispus</i>	Curled dock	R					R		
<i>Rumex obtusifolius</i>	Broad-leaved dock	R	R	R			R		
<i>Sambucus nigra</i>	Elder				R				R
<i>Senecio cineraria</i>	Silverweed			O					
<i>Senecio jacobaea</i>	Ragwort		R	R					
<i>Senecio vulgare</i>	Groundsel		R						
<i>Stellaria graminea</i>	Lesser stitchwort			R					

Scientific name	Common name	Habitat/Abundance							
		Improved grassland	Poor semi-improved grassland	Semi-improved neutral grassland	Broadleaved woodland	Dense/scattered scrub	Tall ruderal/bracken/scrub mosaic	Scattered broadleaved trees	Hedgerows
<i>Stellaria media</i>	Common chickweed	R							R
<i>Tamus communis</i>	Black bryony								R
<i>Tanacetum parthenium</i>	Feverfew				R				
<i>Taraxacum</i> sp.	Dandelion	R	R						
<i>Taxus baccata</i>	Yew				R				R
<i>Trifolium repens</i>	White clover	O	O	R					
<i>Tripleurospermum inodorum</i>	Scentless mayweed		R						
<i>Urtica dioica</i>	Common nettle		R	R	R		F		R
<i>Veronica chamaedrys</i>	Germander speedwell			O					

D – Dominant >75% A – Abundant 51 - 75% F – Frequent 26 - 50% O – Occasional 11 - 25% R – Rare 1 - 10%

LF – Locally Dominant

Appendix V: Plant Species which encourage Bats

Please see following pages which are drawn from Gunnell *et al.* (2012).

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Plant Species	Common name	Native	Type	Benefit	Soil	Light	Extensive green roofs	Living walls	Rain Gardens	Hedges/trees	Beds/borders
<i>Acer campestre</i>	Field maple	N	T/S	C	Any	Sun / shade				Y	
<i>Acer platanoides</i>	Norway maple		T	S	Well drained / alkaline	Sun / shade				Y	
<i>Acer saccharum</i>	Sugar maple		T	S	Any	Sun / shade				Y	
<i>Achillea millefolium</i>	Yarrow	N	HP	C,F	Well drained	Sun	Y				
<i>Ajuga reptans</i>	Bugle	N	HP	C,F	Any	Sun / shade	Y				
<i>Anthyllis vulneraria</i>	Kidney vetch	N	HP	F	Well drained	Sun	Y				
<i>Aubrieta deltoidea</i>	Aubrieta		H	F	Well drained	Sun / shade		Y			
<i>Betula pendula</i>	Silver birch	N	T	C	Sandy / Acid	Sun				Y	
<i>Cardamine pratensis</i>	Cuckoo-flower	N	HP	F	Moist	Sun / shade					Y
<i>Carpinus betulus</i>	Hornbeam	N	T	C	Clay	Sun				Y	
<i>Centaurea nigra</i>	Common knapweed	N	HP	C,F	Dry, not acid	Sun	Y				Y
<i>Centranthus ruber</i>	Red valerian		HP	F	Well drained / alkaline	Sun	Y				Y
<i>Clematis vitalba</i>	Old man's beard	N	C	F	Well drained / alkaline	Sun				Y	
<i>Corylus avellana</i>	Hazel	N	S	C	Any dry	Sun / shade		Y		Y	
<i>Crataegus monogyna</i>	Hawthorn	N	S	S,C	Any	Sun / shade				Y	
<i>Daucus carota</i>	Wild carrot	N	Bi	S,C,F	Any	Sun	Y				Y
<i>Dianthus spp.</i>	Pinks	N	A-Bi	F	Well drained	Sun	Y	Y			Y
<i>Digitalis purpurea</i>	Foxglove	N	Bi	C	Well drained	Shade / partial shade				Y	Y
<i>Erica cineria</i>	Bell heather	N	S	F	Sandy	Full sun					Y
<i>Erysimum cheiri</i>	Wallflower		Bi-P	F	Well drained	Sun		Y			
<i>Eupatorium cannabinum</i>	Hemp agrimony	N	H	F	Moist	Sun / shade					Y
<i>Fagus sylvatica</i>	Beech	N	T	C,R	Well drained / alkaline	Sun / shade				Y	
<i>Foeniculum vulgare</i>	Fennel		H	F	Well drained	Sun					Y
<i>Fraxinus excelsior</i>	Common ash	N	T	C,R	Any	Sun / shade				Y	
<i>Hebe spp.</i>	Hebe species		S	F	Well drained	Sun / shade				Y	Y
<i>Hedera helix</i>	Ivy	N	C	F,C	Any	Sun / shade		Y		Y	Y
<i>Hesperis matronalis</i>	Sweet rocket		H	F	Well drained / dry	Sun / shade					Y
<i>Hyacinoides non-scripta</i>	Bluebell	N	B	F	Loam	Shade / partial shade		Y		Y	Y
<i>Ilex aquifolium</i>	Holly	N	T	C	Any	Sun / shade				Y	
<i>Jasminum officinale</i>	Common jasmine		C	F	Well drained	Sun		Y			Y
<i>Lavandula spp.</i>	Lavender species		S	F	Well drained / sandy	Sun		Y			Y
<i>Linaria vulgaris</i>	Toadflax	N	HP	C	Well drained / alkaline	Sun	Y				Y
<i>Lonicera periclymenum</i>	Honeysuckle	N	C	F	Well drained	Sun		Y		Y	
<i>Lotus corniculatus</i>	Bird's foot trefoil	N	HP	F	Well drained / dry	Sun	Y				Y
<i>Lunaria annua</i>	Honesty		Bi	F	Any	Sun / partial shade	Y				
<i>Malus spp.</i>	Apple		T	C	Any	Sun				Y	
<i>Matthiola longipetala</i>	Night-scented stock		A	F	Well drained/ moist	Sun			Y		
<i>Myosotis spp.</i>	forget-me-not	N	A	F	Any	Sun	Y	Y			
<i>Nicotiana glauca</i>	Ornamental tobacco		A	F	Well drained/ moist	Sun / partial shade			Y		
<i>Oenothera spp.</i>	Evening primrose species		Bi	F	Well drained/ dry	Sun	Y				
<i>Origanum vulgare</i>	Marjoram	N	HP	F	Well drained/ dry	Sun	Y	Y			
<i>Populus alba</i>	White poplar	N	T	C	Clay loam	Sun				Y	
<i>Primula veris</i>	Cowslip	N	HP	F	Well drained/moist	Sun / partial shade	Y				
<i>Primula vulgaris</i>	Primrose	N	HP	F	Moist	Partial shade	Y	Y		Y	
<i>Prunus avium</i>	Wild cherry	N	T	C	Any	Sun				Y	

Plant Species	Common name	Native	Type	Benefit	Soil	Light	Extensive green roofs	Living walls	Rain Gardens	Hedges/trees	Beds/borders
<i>Prunus domestica</i>	Plum		T	C	Well drained/ moist	Sun				Y	
<i>Prunus spinosa</i>	Blackthorn	N	S	C	Any	Sun / partial shade				Y	
<i>Quercus petraea</i>	Sessile oak	N	T	C,R	Sandy loam	Sun / shade				Y	
<i>Quercus robur</i>	Common oak	N	T	C,R	Clay loam	Sun / shade				Y	
<i>Rosa canina</i>	Dog rose	N	S	C	Any	Sun			Y	Y	
<i>Salix spp.</i>	Willow species	N	S	S,C	Moist	Sun / shade			Y	Y	
<i>Sambucus nigra</i>	Elder	N	T	C	Clay loam	Sun				Y	
<i>Saponaria officinalis</i>	Soapwort	N	HP	F	Any	Sun					
<i>Saxifraga oppositifolia</i>	Saxifrage	N	HP	C	Well drained	Sun	Y	Y			
<i>Scabiosa columbaria</i>	Small scabious	N	HP	F	Well drained/ alkaline	Sun	Y				
<i>Sedum spectabile</i>	Ice plant		HP	F	Well drained/ dry	Sun	Y				
<i>Silene dioecia</i>	Red campion	N	HP	F	Any	Shade / partial shade		Y	Y	Y	
<i>Sorbus aucuparia</i>	Rowan	N	T	C	Well drained	Sun				Y	
<i>Stachys lanata</i>	Lamb's ears		HP	F	Well drained/dry	Sun	Y				
<i>Symphotrichum spp.</i>	Michaelmas daisies		HP	F	Any	Sun					
<i>Tegetes patula</i>	French marigold		A	F	Well drained/moist	Sun					
<i>Thymus serpyllum</i>	Creeping thyme	N	HP/S	F	Well drained/dry	Sun	Y	Y			
<i>Tilia x europaea</i>	Common lime		Type	C	Any	Sun / shade				Y	
<i>Trifolium spp.</i>	Clover species	N	HP	F	Any	Sun	Y				
<i>Valeriana spp.</i>	Valerian species	N	HP	F	Moist	Sun / partial shade			Y		
<i>Verbascum spp.</i>	Mulleins	N	Bi,HP	C	Well drained	Sun	Y				
<i>Verbena bonariensis</i>	Verbena		HP	F	Well drained/moist	Sun					
<i>Viburnum lantana</i>	Wayfaring tree	N	S	C	Any	Sun / shade				Y	
<i>Viburnum opulus</i>	Guelder rose	N	S	C	Moist	Sun / shade			Y	Y	
<i>Viola tricolor</i>	Pansy	N	A	F	Well drained/moist		Y	Y			

The table above is derived from the BCT publication Landscape and Urban Design for Bats and Biodiversity (Gunnell et al., 2012) and lists suggested plant species that can provide benefit for bats either by providing a food source for insects or roost potential. The plants listed are predominately native to Britain. The small group of non-native plants is included for their documented value for wildlife. This list has been checked against Natural England's list of invasive non-native plants.

HP: Herbaceous perennial	T: Tree	A: Annual	Benefit:				
Bi: Biennial	S: Shrub	B: Bulb	C: Moth caterpillar food plant	F: Flowers attract adult moths			
BiP: Biennial perennial	H: Herb	C: Creeper/climber	S: Sap sucking insects (e.g. whiteflies)	R: Good roost potential			

Appendix VI: Legislation and Planning Context

Legislation

General

The main legislative instruments for ecological protection in England and Wales are: the Wildlife and Countryside Act 1981 (WCA; as amended); Countryside and Rights of Way Act 2000 (CRoW; as amended); Natural Environment and Rural Communities Act 2006 (NERC; as amended); the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations; as amended); and the Environment Act 2021.

WCA 1981 consolidated and amended pre-existing national wildlife legislation in order to implement the Bern Convention and the European Union Wild Birds Directive (Council Directive 2009/147/EC). It complements the Habitats Regulations, offering protection to a wider range of species than the latter. The Act also provided for the designation and protection of nationally important conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSI). Schedules of the act list protected species of flora and fauna, as well as invasive species, and detail the possible offences that apply to these species.

The CROW Act 2000 amended and strengthened existing wildlife legislation detailed in the WCA. It placed a duty on government departments & the National Assembly for Wales to have regard for biodiversity, provided increased powers for the protection and maintenance of SSSI, and created a right of access to parts of the countryside. The Act contained lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The NERC Act 2006 consolidated and replaced aspects of earlier legislation. Section 40 of the Act places a duty upon all local authorities and public bodies in England and Wales to have regard to the purpose of conserving biodiversity in exercising all of their functions, including by restoring or enhancing habitats and species populations. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity (otherwise known as priority habitats/species as listed in the now superseded UK Biodiversity Action Plan). These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Habitats Regulations 2017 are the principal means by the European Union Habitats Directive (Council Directive 92/43/EEC) was transposed into English and Welsh law, and place a duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria in Europe are designated as Sites of Community Importance by the European Commission, and subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. Since the UK's departure from the European Union the European Commission no longer has a role in designating SACs in the UK. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 establish a single stage designation process, where the appropriate authority is the decision maker. The selection and designation of SACs is based on the criteria set out in Annex III of the Habitats Directive insofar as it applies to the UK, and having regard to the advice of the appropriate nature conservation body.

The 2019 Amendment Regulations have created a new national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs, existing Special

Protection Areas (SPA) originally designated as a result of Council Directive 2009/147/EC on the Conservation of Wild Birds, and any new SACs and SPAs designated under the 2019 Regulations. SACs and SPAs in the UK therefore no longer form part of the EU's Natura 2000 ecological network.

The Habitats Regulations also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively (European Protected Species (EPS)). Schedule 2 includes species such as otter and GCN for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade in these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations. Under the Habitats Regulations disturbance includes any activity which is likely to: impair the ability of a EPS to survive, breed, reproduce, or rear/nurture its young; impair the ability of a EPS to migrate or hibernate; or significantly affect the local distribution or abundance of the species.

The Environment Act 2021, among other things: established an Office for Environmental Protection; introduced a mandatory requirement for all new development requiring planning permission to achieve a net gain for biodiversity of at least 10% (although implementation of this is transitional); amended the NERC Act duty to conserve biodiversity by explicitly adding a duty to enhance; and requires local authorities to produce local nature recovery strategies.**Bats (Chiroptera)**

Bats and their roosts are fully protected by protected by the WCA and the Habitats Regulations, and seven species of bats are species of principal importance. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take a bat.
- ▶ Possess or control a live or dead bat, any part of a bat, or anything derived from a bat.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a bat uses for shelter or protection. This is taken to mean all bat roosts whether bats are present or not.
- ▶ Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- ▶ Make a false statement in order to obtain a licence for bat work.

Birds

Birds are protected by the Wildlife and Countryside Act, 1981 (as amended). This legislation makes it an offence to intentionally kill, injure or take away any wild bird. It is also an offence to take, damage or destroy the nest of any wild bird while it is in use or being built or to take or destroy the egg of any wild bird. In addition, certain species are listed on Schedule 1 of the WCA (such as kingfisher *Alcedo atthis*). This makes it an additional offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young. Such species are considered to be in greater need of legal protection or of high nature conservation priority.

Birds of Conservation Concern ("BoCC4) are included on Red and Amber lists (Eaton *et al.*, 2015). Birds on the Red list are those of highest conservation priority due significant and sustained population decreases and/or range contractions (e.g. house sparrow *Passer domesticus* and starling *Sturnus vulgaris*). Birds on the Amber list are the next most critical group and include species whose population/range have shown moderate declines, or which have recovered to some extent from historical decline, such as dunnoek *Prunella modularis*.

Dormouse (*Muscardinus avellanarius*)

Dormouse is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*:

- ▶ Intentionally kill, injure or take a dormouse.
- ▶ Possess or control a live or dead dormouse, any part of, or anything derived from a dormouse.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a dormouse uses for shelter or protection.
- ▶ Intentionally or recklessly disturb a dormouse while it is occupying a structure or place that it uses for shelter or protection.

Great crested newt (*Triturus cristatus*; GCN) (and natterjack toad *Bufo calamita*)

GCN is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take a GCN (including its eggs).
- ▶ Possess or control a live or dead GCN, any part of, or anything derived from a GCN.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a GCN uses for shelter or protection.
- ▶ Intentionally or recklessly disturb a GCN while it is occupying a structure or place that it uses for shelter or protection.

Otter (*Lutra lutra*)

Otter is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take an otter.
- ▶ Possess or control a live or dead otter, any part of, or anything derived from an otter.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that an otter uses for shelter or protection.
- ▶ Intentionally or recklessly disturb an otter while it is occupying a structure or place that it uses for shelter or protection.

Reptiles

The four common species (slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, adder *Vipera berus* and grass snake *Natrix helvetica*) are partially protected under the WCA. They are protected, *inter alia*, against intentional killing and injuring. The handling and translocation of these reptiles does not require a licence.

Smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* are fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take a smooth snake or sand lizard.
- ▶ Possess or control a live or dead smooth snake or sand lizard, any part of, or anything derived from a smooth snake or sand lizard.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a smooth snake or sand lizard uses for shelter or protection.
- ▶ Intentionally or recklessly disturb a smooth snake or sand lizard while it is occupying a structure or place that it uses for shelter or protection.

Water vole (*Arvicola amphibious*)

Water vole is fully protected by the WCA. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take a water vole.
- ▶ Possess or control a live or dead water vole, any part of, or anything derived from a water vole.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a water vole uses for shelter or protection.
- ▶ Intentionally or recklessly disturb a water vole while it is occupying a structure or place that it uses for shelter or protection.

Weeds Act 1959/Ragwort Control Act 2003

This legislation provides for orders to be made for control where notifiable weed species such as ragwort are said to be a problem. The act does not make it illegal to have ragwort (or other weed species) on your land, make it illegal to allow ragwort to spread, or force landowners automatically to control it. However, if DEFRA is satisfied that there are injurious weeds to which this Act applies growing upon any land it may serve upon the occupier of the land a notice in writing requiring them, within the time specified in the notice, to take such action as may be necessary to prevent the weeds from spreading.

Planning context

National Planning Policy Framework (Section 15: Conserving and enhancing the natural environment)

The National Planning Policy Framework (NPPF), published in December 2024, outlines the Government's commitment to the conservation of wildlife and natural features. It is concerned with:

- ▶ Protecting and enhancing valued landscapes, sites of biodiversity or geological conservation value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- ▶ Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- ▶ Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- ▶ Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current & future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;
- ▶ Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- ▶ Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

The NPPF requires that local plans should “distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...; take a strategic approach to

maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries”.

To protect and enhance biodiversity and geodiversity, the NPPF states that planning policies should:

- ▶ Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- ▶ Promote the conservation, restoration and enhancement of Priority Habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should aim to protect and enhance biodiversity by applying the following principles:

- ▶ if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- ▶ development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- ▶ development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- ▶ development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

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

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

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. The policies within the NPPF (and additional guidance contained within Circular 06/2005) are a material planning consideration.

UK/Local Biodiversity Action Plan Designations and Birds of Conservation Concern and Red Data Book Listings

Note that BAP designations and status as RSPB Birds of Conservation Concern or Red Data Book species does not offer any further legal protection, but planning authorities are required to prevent these species from being adversely affected by development in accordance with National Planning Policy and the CROW and NERC Acts. The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contained a list of priority habitats and species of conservation concern in the UK, and outlined biodiversity initiatives designed to enhance their conservation status.

However, as a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focussed at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK lists of priority habitats and species nonetheless remain an important reference source and were used to draw up statutory lists of priority habitats and species in England, Northern Ireland, Scotland and Wales. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP required that conservation of biodiversity be addressed at a County level through the production of Local BAPs. These are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. Where they exist, Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Local Planning Policy

The following policies relating to wildlife and biodiversity are contained within the adopted Horsham District Planning Framework (Horsham District Council, 2015):

Green Infrastructure and Biodiversity

1. Development will be supported where it can demonstrate that it maintains or enhances the existing network of green infrastructure. Proposals that would result in the loss of existing green infrastructure will be resisted unless it can be demonstrated that new opportunities will be provided that mitigates or compensates for this loss, and ensures that the ecosystem services of the area are retained.

2. Development proposals will be required to contribute to the enhancement of existing biodiversity, and should create and manage new habitats where appropriate. The Council will support new development which retains and/or enhances significant features of nature conservation on development sites. The Council will also support development which makes a positive contribution to biodiversity through the creation of green spaces, and linkages between habitats to create local and regional ecological networks.

3. Where felling of protected trees is necessary, replacement planting with a suitable species will be required.

4. a) Particular consideration will be given to the hierarchy of sites and habitats in the district as follows:

i. Special Protection Area (SPA) and Special Areas of Conservation (SAC)

ii. Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs)

iii. Sites of Nature Conservation Importance (SNCIs), Local Nature Reserves (LNRs) and any areas of Ancient woodland, local geodiversity or other irreplaceable habitats not already identified in i & ii above.

b) Where development is anticipated to have a direct or indirect adverse impact on sites or features for biodiversity, development will be refused unless it can be demonstrated that:

i. The reason for the development clearly outweighs the need to protect the value of the site; and,

ii. That appropriate mitigation and compensation measures are provided.

5. Any development with the potential to impact Arun Valley SPA or the Mens SAC will be subject to a HRA to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the HRA of this plan.

Appendix VII: Legal and Technical Limitations

- This report has been prepared by Urban Edge Environmental Consulting Ltd (UEEC Ltd) with all reasonable skill, care and diligence within the terms of the contract made with the Client to undertake this work, and taking into account the information made available by the Client. No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by us.
- UEEC Ltd disclaims any responsibility to the Client and others in respect of any matters outside the scope of this contract. This report is confidential to the Client and is not to be disclosed to third parties. If disclosed to third parties, UEEC Ltd accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any third party relies upon the contents of this report at their own risk and the report is not to be relied upon by any party, other than the Client without the prior and express written agreement of UEEC Ltd.
- The advice provided in this report does not constitute legal advice. As such, the services of lawyers may also be considered to be warranted.
- Unless otherwise stated in this report, the assessments made assume that the sites and facilities that have been considered in this report will continue to be used for their current planned purpose without significant change.
- All work carried out in preparing this report has utilised and is based upon UEEC Ltd's current professional knowledge and understanding of current relevant UK standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future and may cause any conclusions to become inappropriate or incorrect. UEEC Ltd does not accept responsibility for advising the Client or other interested parties of the facts or implications of any such changes;
- Where this report presents or relies upon the findings of ecological field surveys (including habitat, botanical or protected/notable species surveys), its conclusions should not be relied upon for longer than a maximum period of two years from the date of the original field surveys. Ecological change (e.g. colonisation of a site by a protected species) can occur rapidly and this limitation is not intended to imply that a likely absence of, for instance, a protected species will persist for any period of time;
- This report has been prepared using factual information contained in maps and documents prepared by others. No responsibility can be accepted by UEEC Ltd for the accuracy of such information;
- Every effort has been made to accurately represent the location of mapped features, however, the precise locations of features should not be relied upon;
- Populations of animals and plants are often transient in nature and a single survey visit can only provide a general indication of species present on site. Time of year when the survey was carried out, weather conditions and other variables will influence the results of an ecological survey (e.g. it is possible that some flowering plant species which flower at other times of the year were not observed). Every effort has been made to accurately note indicators of presence of protected, rare and notable species within and adjacent to the site but the possibility nonetheless exists for other species to be present which were not recorded or otherwise indicated by the survey;
- Any works undertaken as a consequence of the recommendations provided within this report should be subjected to the necessary health & safety checks and full risk assessments.

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