Strategic Eastleigh Site

Ecological Appraisal

The Highwood Group and Drew Smith Group

August 2017

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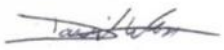
Prepared by:		David West CEnv MCIEEM **Principal Ecologist**
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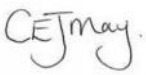
Verified By:		Clare May CEnv MCIEEM **Associate Director**

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Contents

Executive Summary

Contents	Summary
Site Location	The Site covers approximately 400ha and includes a range of habitats including semi-improved grassland, improved grassland, broadleaved woodland, ditches, streams, rivers, ponds, species-poor and species-rich hedgerows and marshy grassland. The majority of the Site is utilised as pasture, with the eastern portion of the Site comprising a golf course. South of the Site lie the towns of Bishopstoke and Fair Oak, and Stoke Park Wood, a large area of mixed woodland containing areas of broadleaved semi-natural and coniferous plantation. North of the Site are further agricultural areas, similar to those on Site, and further areas of broadleaved semi-natural woodland such as Upperbarn Copse and Park Hills Wood.
Proposals	The proposals are the allocation of the Site to deliver a strategic mixed use development incorporating c. 6000 dwellings (including affordable, elderly and other specialist accommodation); highways infrastructure (including a North of Bishopstoke Bypass alongside improvements to the local highway network including upgrading of a bridge across the River Itchen at Highbridge); green infrastructure (including public open space, recreation and biodiversity enhancements); sustainable travel (including strategic cycle and pedestrian routes); community infrastructure (including education, healthcare and community facilities); c. 30,000m2 of employment space and new local centres to provide shops and services. At the time of writing this report the proposals were still under discussion but information was based on Eastleigh Strategic Development - Options B and C Strategic Site Rationale and Proposed Delivery Strategy (WYG, 2016).
Existing Site Information	A previous extended Phase 1 habitat survey was conducted across the western half of the Site by WYG in 2015. This identified a number of HPIs including ponds, marsh/marshy grassland, wet woodland, broadleaved woodland and hedgerows. It also identified the potential for the presence of a wide range of protected and notable species including great crested newts, reptiles, bats (commuting, foraging and roosting), dormice, birds, water voles, otters invertebrates (including Southern damselfly) and vascular plants.
Scope of this Survey(s)	An Ecological Appraisal following CIEEM 2013 guidelines to identify the presence of and potential for notable habitats and species which could present a constraint to development, and where necessary to recommend further surveys and outline mitigation proposals.
Results	The desk study identified the River Itchen SAC (International value) and 70 SINCs (County value) within the study area. The extended Phase 1 survey found the site predominately comprised broadleaved semi-natural woodland (County value), species-rich hedgerows (County value), neutral semi-improved grassland (local value), marshy grassland (local value), running water (local value), improved grassland (site value) and amenity grassland (site value). Potential was noted for the presence of great crested newts, reptiles, hazel dormice, bats (foraging, commuting and roosting), breeding and wintering birds, otter, water vole, fish and notable invertebrates (including Southern damselfly).
Recommendations	To support an allocation, the following surveys and measures are recommended: • An HRA to address the potential for adverse effects upon the River Itchen SAC. • Buffers to prevent direct impacts to adjacent wet woodland and ancient woodland SINCs. These will be informed by future detailed surveys but are likely to range from 15 – 50m. • The design should seek to minimise fragmentation of woodland and areas of woodland should be planted in compensation for any which is to be lost. • 5m buffers are put into place and monitored during construction to prevent direct impacts to hedgerows. • The design should seek to minimise fragmentation of hedgerows and areas of species-rich hedgerow (at least like for like replacement) should be planted in compensation for any which is to be lost. • Semi-improved and marshy grassland be retained and protected wherever possible. Areas of compensation planting should be implemented for any loss of grassland. • A detailed hydrological study is completed to understand how the headwaters at the Site are fed and hence subsequently the River Itchen.

	• 20m buffers are maintained between headwaters and built development. • Pond 26 at the eastern extent of the Site is retained and forms the focus of an area of wildlife habitat enhancement. • Trapping and radiotracking surveys are completed due to the potential presence of Annex 2 species such as barbastelle. • It is recommended that additional planting to provide foraging and commuting habitat be implemented along with vegetated crossings for internal roads and the proposed bypass. Artificial lighting should be avoided wherever possible. • Assume presence of reptiles, hazel dormice, badgers, breeding and wintering birds, notable invertebrates, otters, water voles and fish. To support an application, the following surveys and measures are recommended: • A robust Construction Environmental Management Plan is produced to implement and monitor measures to avoid adverse effects on watercourses during construction. • Botanical surveys if adverse effects are likely to woodland habitats. • It may be necessary to complete updated GCN surveys dependent on the timescales for application and construction. • Reptile presence/likely absence survey. • A hazel dormouse presence/likely absence survey. • Internal inspections of all buildings with bat roost potential to be impacted and climbed tree inspections of all trees with bat roost potential to be lost. • Any potential roosts will then require nocturnal surveys. • Nocturnal activity surveys are completed in combination with the use of automated bat detectors to identify the most important areas of bat activity on Site. • Otter and water vole surveys are completed for any watercourses potentially affected by the proposals. • Any crossings of watercourses required should use the smallest footprint possible, avoid areas of otter or water vole activity and must allow continued passage of both species. • Breeding and winter bird surveys. • Terrrestrial invertebrate surveys and further aquatic invertebrate surveys. • It may be necessary to complete fish surveys to confirm presence or likely absence of qualifying species, identify areas of greatest value and inform mitigation, compensation and enhancement proposals. • Further monitoring and eradication of invasive species.

Glossary

AONB	Area(s) of Outstanding Natural Beauty
AWVP	Ancient Woodland Vascular Plants
Badger Act	Protection of Badgers Act 1994
BCT	Bat Conservation Trust
BoCC	Bird(s) of Conservation Concern
BTO	British Trust for Ornithology
CEco	Chartered Ecologist
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
EPS	European Protected Species
EPSL	European Protected Species Licence
GCN	Great crested newt
Habitat Regulations	Conservation of Habitats and Species Regulations 2010 (as amended)
HAP	Habitat Action Plan
Hedgerow Regulations	Hedgerow Regulations 1997
HPI	Habitat(s) of Principal Importance
HRA	Habitats Regulations Assessment
JNCC	Join Nature Conservancy Council
LERC	Local Ecological Record Centre
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LPA	Local Planning Authority
LWS	Local Wildlife Site
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SNCO	Statutory Nature Conservation Organisations
SPA	Special Protection Area
SPI	Species of Principal Importance
SINC	Site of Importance for Nature Conservation
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981

1.0 Introduction

1.1 Background

WYG was commissioned by Highwood Group in March 2017 to undertake a Preliminary Ecological Appraisal of a proposed strategic development site in the north of Eastleigh Borough in Hampshire. The proposals are shown in the Strategic Site Rationale and Proposed Delivery Strategy prepared by WYG (2016a).

This field work was undertaken by WYG Senior Ecologist John Simper MCIEEM, Associate Ecologist Phil Lomax CBiol and Principal Ecologist David West CEnv MCIEEM and the report was prepared by David West.

1.2 Site Location

The Site covers approximately 400ha and spans as far west to Allbrook Way, Allbrook, crosses Bishopstoke Way, east across Winchester Road with an additional parcel to the south of Mortimers Lane (B3037). The Site includes a range of habitats including semi-improved grassland, improved grassland, broadleaved woodland, ditches, streams, rivers, ponds, species-poor and species-rich hedgerows and marshy grassland. The majority of the Site is utilised as pasture, with the eastern portion of the Site comprising a golf course.

South of the Site lie the towns of Bishopstoke and Fair Oak, and Stoke Park Wood, a large area of mixed woodland containing areas of broadleaved semi-natural and coniferous plantation. North of the Site are further agricultural areas, similar to those on Site, and further areas of broadleaved semi-natural woodland such as Upperbarn Copse and Park Hills Wood.

To the south west of the Site is the River Itchen SAC, an Annex 1 habitat chalk river that is dominated throughout by aquatic Ranunculus species and surrounded by areas of coastal and floodplain grazing marsh and broadleaved woodland. This was not surveyed as it is considered that impacts will be avoided other than a small area at Highbridge.

1.3 Development Proposals

The proposals are the allocation of the Site to deliver a strategic mixed use development incorporating c. 6000 dwellings (including affordable, elderly and other specialist accommodation); highways infrastructure (including a North of Bishopstoke Bypass alongside improvements to the local highway network including upgrading of a bridge across the River Itchen at Highbridge); green infrastructure (including public open space, recreation and biodiversity enhancements); sustainable travel (including strategic cycle and pedestrian routes); community infrastructure (including education, healthcare and community facilities); c. 30,000m^2 of employment space and new local centres to provide shops and services.

1.4 Purpose of the Report

The objectives of this is assessment are to carry-out:

- A desk study to obtain existing information on statutory and non-statutory sites of nature conservation interest and relevant records of protected/notable species within the Site and its zone of influence;
- A preliminary ecological appraisal involving a walkover of the Site to record habitat types and dominant vegetation, including any invasive species, and a reconnaissance survey for evidence of protected fauna or habitats capable of supporting such species;
- An assessment of the potential ecological receptors present on Site, any constraints they pose to future development and any recommendations for any further surveys, avoidance, mitigation or enhancement measures that are needed (as appropriate). These have been broken out to surveys that are required to support the allocation and those that are required in the event the Site is allocated and outline planning applications are to be submitted for the Site.

Note that, where possible, common names for flora and fauna have been used throughout this report for ease of reading.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

A previous extended Phase 1 habitat survey was conducted across the western half of the Site by WYG in 2015. This identified a number of HPIs including ponds, marsh/marshy grassland, wet woodland, broadleaved woodland and hedgerows. It also identified the potential for the presence of a wide range of protected and notable species including great crested newts, reptiles, bats (commuting, foraging and roosting), dormice, birds, water voles, otters invertebrates (including Southern damselfly) and vascular plants.

2.1.2 Local Ecological Records Centre

Information was requested from the Hampshire Biodiversity Information Centre for information on any nature conservation designations and protected or notable species records within 2 km of the Site.

The data search covers:

- Non-statutory designated sites for nature conservation, namely LWS (known locally in Hampshire as SINCs);
- Legally protected species, such as great crested newts, bats and badger;
- Notable habitats and species, such as those listed as Habitats or Species of Principal Importance; and,
- Priority habitats or species within the Hampshire LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

2.1.3 Online Resources

A search for relevant information was also made on the following websites:

- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations and information on any EPSL applications that have been granted in the local area since 2015.

2.2 Field Surveys

The following methodologies have been used to identify the ecological receptors present on or near the Site, which are relevant to the proposed development.

2.2.1 Habitats

An extended Phase 1 habitat survey was undertaken on the Site between 13th May and 3rd June 2017 by WYG Associate Ecologist Phil Lomax CBiol, Principal Ecologist David West CEnv MCIEEM and Senior

Ecologist John Simper MCIEEM. The weather conditions on all survey visits were dry and suitable with good visibility.

The vegetation and broad habitat types within the Site were noted during the survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (Joint Nature Conservation Committee, 2010). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2010). The Site was also appraised for its suitability to support notable flora, with regard to the CIEEM Guidelines for Preliminary Ecological Appraisal (2013).

2.2.2 Protected & Notable Species

The Site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Schedule 2 of the Habitat Regulations, Schedule 5 of the W&CA, the CRoW Act, those given extra protection under the NERC Act, and species included in the Hampshire LBAP.

Great Crested Newt

The Site was appraised for its suitability to support GCN. The assessment was based on Guidance outlined in the Joint Nature Conservation Committees' published *Herpetofauna Workers' Manual* (Gent & Gibson, 2003) and the *Great Crested Newt Conservation Handbook* (Langton, Becket & Foster, 2001).

Bats

Roosting bats – Buildings/structures/trees

A high-level assessment of building complexes and suitable habitats (such as woodland and scattered trees) on Site was made from the ground for their suitability to support breeding, resting and hibernating bats using survey methods based on the BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed, 2016) – hereafter referred to as the 'BCT Guidelines'. The following system has therefore been used to categorise bat roost suitability:

Table 1 Categories of Bat Roost Suitability (BCT Guidelines)

Suitability	Typical Roosting Features
Negligible	Negligible habitat feature on Site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or 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 (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).

Suitability	Typical Roosting Features
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions & surrounding habitat.

Foraging/commuting bats

The BCT Guidelines use the following criteria to categorise the potential value of habitats and features for use by foraging and commuting bats and these have been used to characterise the value of this Site:

Table 2 Categories of Habitat Suitability (BCT Guidelines)

Suitability	Typical Foraging & Commuting Features
Negligible	Negligible habitat features on Site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Reptiles

The Site was appraised for its suitability to support reptiles. The assessment was based on guidance outlined in the Joint Nature Conservation Committees' published *Herpetofauna Workers' Manual* (Gent & Gibson, 2003).

Badgers

The Site was surveyed for evidence of badger setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).

Hazel Dormice

The Site was surveyed for its suitability to support hazel dormice. The assessment was based on guidance outlined in Bright *et al*. (2006).

Otter

Water courses on Site were assessed for their suitability to support otters. This assessment was based on guidance outlined in Monitoring the Otter (Chanin, 2003).

Water Vole

Following methods set out in the Water Vole Conservation Handbook (Strachan & Moorhouse, 2011), an assessment of waterbodies within and adjacent to the Site was undertaken to determine their suitability to support water voles and a search for evidence of activity was conducted, including droppings, latrines, burrows, footprints and feeding lawns, of any areas considered suitable.

Invertebrates

Incidental records of invertebrate species recorded on Site were made and all habitats assessed for their suitability to support invertebrates based on the guidance contained in Drake et al. (2007).

Other Species

The Site was also appraised for its suitability to support other protected or notable fauna including mammals, amphibians, birds and invertebrates with regard to CIEEM's *Guidelines for Preliminary Ecological Appraisal* (2013) and *BS42020:2013 Biodiversity – Code of Practice for Planning and Development*. Evidence of any current or historical presence of such species was recorded.

2.2.3 Invasive Species

The Site was searched for evidence of invasive plant species, such as Japanese knotweed, Himalayan balsam, giant hogweed, wall cotoneaster and rhododendron – however see Appendix A for a full list.

2.3 Limitations

The optimal period to undertake an extended Phase 1 habitat survey is April-September. The survey was completed in May and June which is in the optimal survey window. As such this is not considered to be a limitation to the accurate assessment of the habitats and the dominant species of the respective vegetation types were visible and identifiable.

It was not possible to access a full 50m beyond all Site boundaries as the Site borders a great number of private properties. However given the scale of the proposals (strategic development at the masterplan stage) it is considered unlikely that areas which could not be accessed would any features liable to result in a significant change to the assessment or recommendations made. As such this is not considered to represent a significant constraint.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the Site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to those given protection under UK or European wildlife legislation. This report cannot therefore be considered a comprehensive assessment of the ecological interest of the

Site. However, it does provide an assessment of the ecological interest present on the day the Site was visited and highlights areas where further survey work may be recommended.

A large parcel of the River Itchen SAC and SSSI lies between Allbrook Hill and Bishopstoke Lane, as this area is not to be directly impacted by the proposals as it is understood there will be no public access, this area was not surveyed and a summary of the habitats taken from the JNCC criteria for the SAC designation and Natural England criteria for the SSSI designation. This is not considered to be a constraint to the assessment below.

Furthermore, properties which are likely to be impacted as a result of the Allbrook link road were not accessed but viewed from the public highway as such the rear residential gardens were not accessed. Given this is a high level assessment of the habitats present, this is not considered to be a constraint but access will be required if the Site is allocated and outline planning applications are submitted.

Detailed inspections of buildings and trees were not completed, only a high-level assessment of their suitability for roosting bats. This is not considered to be a constraint but detailed assessments and potentially roost characterisation surveys will be required if the Site is allocated and outline planning applications are submitted.

The details of this report will remain valid for a period of **two years** from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be are any changes to the red line boundary or refinement of the proposals on which this report was based.

3.0 Baseline Conditions

3.1 Designated Sites

The following designated sites of nature conservation importance have been identified within 2km of the Site. The Site is not within the impact zone of any additional Natura 2000 sites beyond 2km.

Table 3 Designated Sites within 2km

Designation	Site Name	Distance & Direction	Summary of features
SAC, SSSI	River Itchen	0.36km W of Site. Proposed bridge upgrade is within the SAC.	The River Itchen is a classic example of an Annex 1 habitat chalk river that is dominated throughout by aquatic Ranunculus species. It also supports nationally important Annex 2 species: southern damselfly (*Coenagrion mercuriale*) and bullhead (*Cottus gobio*). The habitat type and species listed above are the primary reasons for designation however the following Annex 2 species; white clawed crayfish (*Austropotamobius pallipes*), brook lamprey (*Lampetra planeri*), Atlantic salmon (*Salmo salar*) and otter (*Lutra lutra*) are also present. In addition to the qualifying features listed above, the River Itchen SSSI is also designated for the following; water vole (*Arvicola terrestris*) and an assemblage of breeding birds. These include tufted duck (*Aythya fuligula*), pochard (*A. Farina*) and shoveler (*Anas clypeata*), the waders lapwing (*Vanellus vanellus*), redshank (*Tringa tetanus*) and snipe (*Gallinago gallinago*), and wetland passerines including sedge warbler (*Acrocephalus schoenobaenus*), reed warbler (*A. Scirpaceus*) and the Schedule 1 listed Cetti's warbler (*Cettia cetti*). The SSSI components adjacent to the bridge are 86 (lowland neutral grassland – unfavourable condition); 87(lowland neutral grassland – unfavourable recovering); 107 (rivers and streams - unfavourable) and 108 (rivers and streams - unfavourable).
SINC	Hill Copse, Fair Oak and Horton Heath	On Site	1A

Designation	Site Name	Distance & Direction	Summary of features
SINC	Gore Copse	On Site	1A
SINC	Tippers Copse	On Site	1A
SINC	Hall Lands Farm Wood	On Site	1A
SINC	Hall Lands Copse	On Site	1A
SINC	Stroud Wood, Fair Oak and Horton Heath	On Site	1A/1B
SINC	Moplands Copse	On Site	1A
SINC	Chestnut Gully Wood	0km N	1A
SINC	Judges Gully Copse	0km W	1Cii
SINC	Crowdhill Copse	0km S	1A/1B
SINC	Poplar Plantation (Stoke Park Wood)	0km W	1A/ 1Cii
SINC	Stoke Park Wood	0km S	1B/1Cii
SINC	Judges Gully Meadow	0km SW	2B
SINC	Park Hills Wood	0km N	1A
SINC	Brick Kiln Copse, Bishopstoke	0km W	1a
SINC	Land at Knowle Lane, Fair Oak	0km SW	2B
SINC	Upperbarn Copse	0km N	1B/6A
SINC	Fielders Farm meadows (Eastleigh)	0.05km NE	2D/5B/6A
SINC	Fielders Farm Meadows (Winchester)	0.05km NE	2D
SINC	Breach Sling Copse and Stoke Common Copse	0.13km W	1A/1B/1Cii
SINC	Fisher's Pond Wood	0.15km NE	1A
SINC	Barnhurst Meadow	0.2km E	2A/5B
SINC	The Mount, Fair Oak and Horton Heath	0.2km NE	1A
SINC	Knowle Lane Open Space	0.25km SW	7A
SINC	Colden Common Wood and Blacknells Copse	0.25km N	1A
SINC	Durley Copse	0.3km S	1B
SINC	Parker's Copse/Fir Plantation/Greenwood	0.4km SE	1B
SINC	Knowlehill Copse	0.45km SW	1A

Designation	Site Name	Distance & Direction	Summary of features
SINC	Finches Copse	0.5km N	1A
SINC	Blacknell's Copse Paddock	0.5km N	2A
SINC	Blacknells Brickwforks	0.6km N	2a
SINC	Lord's Wood, Colden Common	0.6km NW	1A
SINC	Church of the Holy Trinity	0.6km N	2A
SINC	Quobleigh Pond and Woods	0.65km S	1A/1Cii
SINC	Deeps Copse/Deeps Bushes Copse	0.7km N	1A
SINC	Colden Common Meadow and Woodland	0.75km N	2D
SINC	Ponds & Meadow adjacent to Wyvern Technology College	0.8km S	6A
SINC	Wyvern Technology College Meadow	0.85km S	2A
SINC	Breach Farm Meadows	0.9km W	5b/6a
SINC	Breach and Gully Copses	0.9km W	1A/1B/1Cii
SINC	Lower Upham Meadow	1km E	2A
SINC	Alma Meadows (North)	1km E	2A/6A
SINC	Upham Copse	1km NE	1A
SINC	Meadow between Railway and River Itchen (Eastleigh)	1.05km W	2a
SINC	Park Copse, Colden Common	1.2km N	1A/1B
SINC	West Horton Farm Woods	1.2km S	1Cii/5B/6A
SINC	Allbrook Meadow	1.2km W	2a/5b
SINC	Meadows at Allbrook	1.35km NW	2D
SINC	Otterbourne Wood	1.35km NW	1A
SINC	Allbrook Hill Copse	1.4km W	1A
SINC	Marshy Grassland, Bishopstoke	1.4km SW	2B/5B/6A
SINC	Dumford's Yard Meadow	1.42km N	2B/5B
SINC	Taylor's Copse	1.42km N	1A
SINC	Temple Usk Meadow	1.42km N	2A/5B/6A

Designation	Site Name	Distance & Direction	Summary of features
SINC	Sladfords and Leybushes Copses	1.45km N	1A/6A
SINC	Cowleaze Copse, Colden Common	1.45km N	1A
SINC	Cawtes Copse	1.5km NE	1A
SINC	Bushy Copse, Upham	1.5km NE	1A
SINC	Ashtrim Nurseries	1.5km SW	2D
SINC	Scoreys Copse Meadow	1.6km SW	2D
SINC	Scorey's Copse Rush Pasture	1.6km SW	2B/5B
SINC	Swamp West of Recreation Grounds	1.65km W	5B
SINC	Stanford Meadow	1.7km S	2B/5B
SINC	Allbrook Clay Pit	1.7km W	2D/5A
SINC	Hurst Wood/Pound Copse	1.75km N	1A
SINC	Lincolns Copse	1.8km W	1A
SINC	Otter Copse	1.8km NE	1A
SINC	Horsham Copse/West Copse	1.8km NE	1B
SINC	Scorey's Copse	1.9km S	1A
SINC	Snakemoor Farm Meadow	1.9km S	2A

SINC Criteria
1A - Ancient semi-natural woodlands
1B - Other woodland where there is a significant element of ancient semi-natural woodland surviving
1Cii - Other semi-natural woodland if they comprise important community types of restricted distribution in the County, such as yew woods and alder swamp woods
2A - Agriculturally unimproved grasslands
2B - Semi-improved grasslands which retain a significant element of unimproved grassland
3A – Areas of heathland vegetation; including matrices of dwarf shrub, acid grassland, valley mires and scrub
3Bi – Areas of heathland which are afforested or have succeeded to woodland if; they are contiguous with, or form an integral part of an open area of heathland
5A – Areas of open freshwater (e.g. Lakes, ponds, canals, rivers, streams and ditches) which support outstanding assemblages of floating/submerged/emergent plant species, invertebrates, birds or amphibians
5B - Fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged (seasonal or permanent) conditions
6A - Sites which support one or more notable species
6C – Sites which support an outstanding assemblage of species

3.2 Habitats

The following habitats have been identified through our field assessment:

3.2.1 Broad-leaved Semi-natural Woodland

There are numerous areas of broadleaved semi-natural woodland on Site. The majority of which are designated as SINCs.

The largest is W1 Upperbarn Copse (which lies in the centre of the Site proposed to be allocated but outside of the Site boundary), a woodland designated as a Site of Importance for Nature Conservation (SINC) for its element of remaining ancient semi-natural woodland and the presence of trailing tormentil. The woodland was dominated by holly, sweet chestnut, beech, hawthorn (common unless stated otherwise), silver birch and hazel. Ground flora included, bramble, butcher's broom and AWVPs bluebell (native unless stated otherwise), wood anemone, wood sorrel and dog violet.

At its north east corner Upperbarn Copse connects to W2 Hill Copse, a SINC designated for its ancient semi-natural woodland. W2 was dominated by ash, field maple and pedunculate oak with hawthorn, blackthorn, hazel and bramble AWVPs dog's mercury, male fern and wood avens.

W3 Brick Kiln Copse is located to the west of the Site and is a SINC designated for its ancient woodland. Dominant species in this dry woodland included pedunculate oak, holly, and ash. Ground flora included ivy, bramble and honeysuckle with AWVPs dog's mercury, false brome and bluebell.

W4 Poplar Plantation is a SINC designated for its element of remaining ancient semi-natural woodland and its community of restricted distribution within Hampshire. This wet woodland was dominated by hawthorn, goat willow, holly, pedunculate oak, field maple and hybrid black poplar.

W5 Judges Gully Copse is a SINC designated for its wet woodland. Similar in characteristics to W4, the woodland was dominated by alder with ash and pedunculate oak. Although designated as wet woodland the ground flora included the AWVP dog's mercury.

W6 is a strip of woodland dominated by willow with hawthorn, ash, hazel, guelder rose and bramble. The woodland contains a pond and a ditch which drains the surrounding fields.

W7 is a strip of woodland which thickens at each end dominated by pedunculate oak, hawthorn, blackthorn, ash and willow. A public right of way is adjacent with a blackthorn dominated hedgerow.

W8 is a strip of woodland running alongside Bow Lake dominated by alder, ash, hazel, hawthorn, blackthorn, bramble, elder and guelder rose.

W9 is a strip of woodland connecting W8 and W1. It is dominated by mature pedunculate oak with ash, field maple, hazel, hawthorn, willow, bramble and butcher's broom.

W10 is an area of relatively young woodland dominated by hawthorn and blackthorn with occasional mature ash and pedunculate oak.

W11 is an area of wet woodland dominated by willow, hawthorn, bramble and nettle with a large stand of Japanese knotweed.

W12 is an area of wet woodland dominated by goat willow and crack willow with common nettle, hogweed, hemlock water-dropwort and AWVPs dog's mercury and lords-and-ladies.

W13 Hall Lands Copse is a SINC designated for its ancient woodland. It is dominated by pedunculate oak with frequent ash, hazel, holly, blackthorn, and goat willow and occasional hawthorn, wild cherry and crack willow. Ground flora included lesser celandine, cleavers and AWVPs bluebell, dog's mercury, wood anemone, lords-and-ladies, herb Robert and wood sedge.

W14 Gore Copse is a SINC designated for its ancient woodland. It is dominated by ash, willow and alder with hazel and holly. Ground flora included bugle, germander speedwell, woody nightshade, primrose, creeping buttercup and AWVPs yellow pimpernel and dog's mercury. The woodland has a significant influx of non-native species which appear to have colonised from adjacent gardens to the south. These include Himalayan balsam, bamboo, montbretia, laurel and rhododendron.

W15 Tippers Copse is a SINC designated for its ancient woodland. It is dominated by pedunculate oak with ash and hazel. Ground flora included Solomon's seal, broad-leaved dock, creeping buttercup, butcher's broom and AWVPs bluebell and wood anemone.

W16 is an extension of Park Hills Wood but does not appear to fall within the SINC boundary. The woodland is comparable to the adjacent SINC woodland and the species assemblage is consistent with W16.

W17 Stroud Wood, Fair Oak and Horton Heath is a SINC designated for its ancient woodland. It is dominated by pedunculate oak with hawthorn, blackthorn, dog rose and bramble. Ground flora was dominated by common nettle and ivy.

W18 is a small patch of woodland dominated by pedunculate oak, goat willow and hawthorn with ash and crack willow.

W19 Moplands Copse is a SINC designated for its ancient woodland. It is dominated by pedunculate oak with bramble, hazel, holly, ash and field maple. Ground flora included broad-leaved willowherb, wood melick, primrose, Solomon's seal and AWVPs bluebell, wood sedge, wood anemone, wood avens and dog violet.

In addition to the woodland areas above there are a number of smaller woodland parcels distributed across the Site. These are typically dominated by pedunculate oak with broadleaved species such as hawthorn, hazel, alder and ash.

3.2.2 Dense Scrub

A small area of dense scrub is located adjacent to a wider section of Bow Lake where it forms a large pool. The scrub is dominated by alder, ash, hawthorn, blackthorn and bramble.

3.2.3 Broad-leaved Scattered Trees

There are large numbers of broad-leaved scattered trees across the Site. Typically these are located form field boundaries where hedgerows are absent, or occasionally occur within fields. Scattered trees on Site (not associated with hedgerows) are almost exclusively mature pedunculate oaks.

The exception is an area of scattered trees east of W18 within East Horton Golf Course. Here a large number of immature and semi-mature trees provide landscaping for a miniature 9-hole course (The Marwell Course). Species include crack willow, lime sp., horse chestnut, silver birch and white poplar.

3.2.4 Hedgerows

Hedgerows are distributed throughout the Site, typically demarcating field boundaries. Table 4 below details hedgerows on Site, dominant species, features, and the likelihood they would be classified as 'Important' under the Hedgerow Regulations. HBIC completed surveys of hedgerows north of Stoke Park Woods (south and west of W1) and north-east of Fair Oak (between W11 and W13) in 2015. All

hedgerows identified as species-rich or 'important' during the HBIC surveys were found to remain as such during this assessment.

Table 4 Hedgerow Details

Ref.	Type	Species	Features	Likely to be Important?
1	Species-rich	Field maple, hawthorn, blackthorn, hazel, elm, willow	Well-managed with occasional immature - semi-mature trees.	Yes
2	Species-rich	Hawthorn, field maple, hazel, blackthorn, holly, willow, oak, spindle	Unmanaged. Mature trees. Dry ditch at base.	Yes
3	Species-rich	Hawthorn, oak, field maple, blackthorn, willow, holly, ash, dogwood, spindle	Unmanaged. Mature trees. Dry ditch at base.	Yes
4	Species-rich	Hawthorn, field maple, hazel, blackthorn, holly, willow, oak	Unmanaged. Mature trees.	Yes
5	Species-rich	Oak, hawthorn, hazel, field maple, ash, elder, blackthorn, silver birch, holly, dog rose	Broad hedgerow atop bank. Unmanaged. Large number of mature trees. High bat potential.	Yes
6	Species-poor	Oak, beech	Line of immature beech with occasional mature oak. High bat potential.	No
7	Species-rich	Blackthorn, hawthorn, field maple, elm, oak, ash, willow, elder, buckthorn, dog rose	Unmanaged to west, signs of management to eastern extent. Occasional mature oak. High bat potential.	Yes
8	Species-rich	Blackthorn, hawthorn, field maple, oak, ash, crack willow, elder, alder, hazel, spindle	Unmanaged. Occasional mature oak. High bat potential. Stream (Bow lake) adjacent.	Yes
9	Species-poor	Oak, hawthorn, blackthorn	Unmanaged. Incomplete line of semi-mature and mature trees. High Bat Potential	No
10	Species-poor	Hawthorn, blackthorn	Well-managed.	No
11	Species-poor	Hawthorn, blackthorn	Well-managed.	No
12	Species-rich	Blackthorn, hazel, ash, beech, oak, elder, hawthorn, willow,	Tall unmanaged hedge with frequent mature trees.	Yes
13	Species-poor	Hawthorn, blackthorn, ash	Well-managed.	No
14	Species-rich	Hawthorn, blackthorn, ash, oak, hazel, willow, elder	Well managed.	Yes
15	Species-poor	Hawthorn, blackthorn, ash, oak	Well-managed with occasional immature - semi-mature trees.	No

16	Species-rich	Blackthorn, willow, hawthorn, hazel, spindle, oak, ash	Unmanaged. Dry ditch at base. Occasional mature oak. High bat potential.	Yes
17	Species-poor	Blackthorn, hawthorn, oak, bramble	Well-managed. Very occasional mature oak. High bat potential.	No
18	Species-poor	Blackthorn, hawthorn, oak, bramble	Well-managed. Very occasional mature oak. High bat potential.	No
19	Species-poor	Blackthorn, hawthorn, oak, bramble	Well-managed. Very occasional mature oak. High bat potential.	No
20	Species-poor	Blackthorn, hawthorn, oak, bramble	Well-managed. Very occasional mature oak. High bat potential.	No
21	Species-poor	Blackthorn, hawthorn, oak, bramble	Well-managed. Very occasional mature oak. High bat potential.	No
22	Species-rich	Hawthorn, oak, field maple, hazel, ash	Tall unmanaged hedge with frequent mature trees.	Yes
23	Species-poor	Blackthorn, hawthorn, bramble	Well-managed.	No
24	Species-poor	Blackthorn, hawthorn, bramble	Well-managed.	No
25	Species-rich	Oak, blackthorn, ash, field maple, holly, dogwood, hazel, hawthorn, elder	Tall unmanaged hedge with frequent mature trees. High bat potential.	Yes
26	Species-rich	Oak, blackthorn, ash, field maple, holly, dogwood, hazel, hawthorn, elder	Tall unmanaged hedge with frequent mature trees. High bat potential.	Yes
27	Species-poor	Beech, silver birch, willow	Line of immature beech with very occasional immature - semi-mature trees	No
28	Species-poor	Conifer	Managed non-native hedge	No
29	Species-poor	Laurel	Non-native laurel hedge	No
30	Species-poor	Oak, hawthorn, blackthorn, bramble	Unmanaged. Occasional mature oak. High bat roost potential.	No
31	Species-poor	Hawthorn, blackthorn, bramble	Unmanaged. Occasional mature oak. High bat roost potential.	No
32	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
33	Species-poor	Conifer	Tall non-native conifer hedge.	No
34	Species-poor	Oak, hawthorn, blackthorn, bramble	Unmanaged. Occasional mature oak. High bat roost potential.	No
35	Species-poor	Oak, hawthorn, blackthorn, bramble	Unmanaged. Occasional mature oak. High bat potential.	No
36	Species-rich	Oak, blackthorn, dog rose, holly, hazel, elder, hawthorn, field maple, ash, beech, goat willow	Tall unmanaged hedge with frequent mature trees. High bat roost potential.	Yes

37	Species-rich	Oak, blackthorn, dog rose, elm, field maple, hawthorn, holly, spindle, ash, bramble, hazel, dogwood	Tall unmanaged hedge with frequent mature trees. High bat roost potential.	Yes
38	Species-rich	Oak, field maple, elder, blackthorn, hazel, hawthorn	Tall unmanaged hedge with mature tree. High bat roost potential.	Yes
39	Species-rich	Oak, field maple, ash, holly, hazel, blackthorn, hawthorn	Tall unmanaged hedge with mature tree. High bat roost potential.	Yes
40	Species-rich	Oak, field maple, ash, holly, hazel, blackthorn, hawthorn	Tall unmanaged hedge with mature tree. High bat roost potential.	Yes
41	Species-rich	Oak, blackthorn, ash, hawthorn, hazel, field maple, dogwood, holly, alder, beech	Tall unmanaged hedge.	Yes
42	Species-rich	Oak, blackthorn, spindle, willow, hawthorn, dogwood,	Tall unmanaged hedge with mature tree. High bat roost potential.	Yes
43	Species-rich	Ash, field maple, holly, oak, hawthorn, hazel, willow	Tall unmanaged hedge with mature trees. High bat roost potential.	Yes
44	Species-rich	Blackthorn, hazel, dogwood, field maple, holly, hawthorn, ash, willow	Tall unmanaged hedge.	Yes
45	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
46	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
47	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
48	Species-rich	Field maple, blackthorn, willow, oak, hawthorn, ash, silver birch	Tall unmanaged hedge with mature trees. High bat roost potential.	Yes
49	Species-rich	Elder, field maple, holly, wych elm, hazel hawthorn, oak, blackthorn, ash	Tall unmanaged hedge with mature trees. High bat roost potential.	Yes
50	Species-rich	Dog rose, ash, hazel, blackthorn, hawthorn, guelder rose, elm, elder, field maple	Well-managed.	Yes
51	Species-rich	Blackthorn, hawthorn, hazel, oak, ash, field maple, dogwood	Well-managed.	Yes
52	Species-rich	Hazel, hawthorn, dogwood, ash, holly, blackthorn, dog rose	Predominately unmanaged	Yes
53	Species-poor	Beech	Well-managed	No
54	Species-rich	Hazel, blackthorn, field maple, holly, dog rose, sycamore, bramble.	Managed. Dry ditch on one side.	Yes
55	Species-rich	Oak, hazel, hawthorn, ash, blackthorn, field maple, yew, dogwood, holly	Tall unmanaged hedge with frequent mature trees. High roost bat potential.	Yes

56	Species-poor	Hawthorn, blackthorn, holly, ash	Well-managed with occasional semi-mature trees.	No
57	Species-rich	Oak, elder, ash, blackthorn, hawthorn, field maple, hazel, yew	Tall unmanaged hedge with frequent mature trees. High bat roost potential.	Yes
58	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
59	Species-rich	Elm, ash, blackthorn, hazel, hawthorn, elder	Well-managed. Ditch at base.	Yes
60	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
61	Species-rich	Elm, ash, spindle, hawthorn, hazel, oak, holly, field maple,	Well managed.	Yes
62	Species-poor	Dominated by non-native laurel, privet and bamboo with bramble and ash.	Partially managed. Occasional mature tree.	No
63	Species-rich	Ash, hazel, hawthorn, field maple, silver birch, oak, elder	Partially managed. Incomplete with frequent mature trees. High bat roost potential.	Yes
64	Species-rich	Hazel, blackthorn, dogwood, hawthorn, field maple, privet, butchers broom	Well managed.	Yes
65	Species-rich	Hazel, blackthorn, dogwood, hawthorn, field maple, privet, butchers broom	Well managed.	Yes
66	Species-rich	Ash, hazel, hawthorn, field maple, silver birch, oak, elder	Partially managed. Incomplete with frequent mature trees. High bat roost potential.	Yes
67	Species-rich	Elm, ash, spindle, hawthorn, hazel, oak, holly, field maple, butchers broom	Well managed.	Yes
68	Species-rich	Hazel, elm, ash, elder, hawthorn, bramble, blackthorn, sycamore	Tall unmanaged hedge with frequent mature trees. High bat roost potential.	Yes
69	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elder, field maple.	Tall unmanaged hedge with frequent mature trees. High bat roost potential.	Yes
70	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with frequent mature trees. High bat roost potential.	Yes
71	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
72	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with occasional mature trees. High bat roost potential.	Yes
73	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with frequent mature trees. High bat roost potential.	Yes

74	Species-poor	Hawthorn, blackthorn, ash, sycamore	Managed roadside hedge. Ditch at base.	No
75	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm, silver birch, sycamore	Well managed hedge with occasional mature trees. High bat roost potential.	Yes
76	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
77	Species-poor	Hawthorn, blackthorn, bramble	Well-managed.	No
78	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with occasional mature trees. High bat roost potential.	Yes
79	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with frequent mature trees. High bat roost potential.	Yes
80	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with occasional mature trees. High bat roost potential.	Yes
81	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm	Well managed hedge with frequent mature trees. High bat roost potential.	Yes
82	Species-poor	Hawthorn, blackthorn	Well managed.	No
83	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm.	Well managed hedge with frequent mature trees. High bat roost potential.	Yes
84	Species-rich	Hawthorn, oak, hazel, dog rose, blackthorn, elm.	Well managed hedge with frequent mature trees. High bat roost potential.	Yes
85	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed hedge with occasional mature trees. High bat roost potential.	No
86	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed hedge with occasional mature trees. High bat roost potential.	No
87	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed.	No
88	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed.	No
89	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed hedge with occasional mature trees. High bat roost potential.	No
90	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed.	No
91	Species-poor	Hawthorn, blackthorn, bramble, ivy.	Well managed.	No

92	Species-rich	Oak, field maple, ash, hazel, blackthorn, dogwood, holly.	Largely defunct. Line of mature oaks with occasional understorey. High bat roost potential.	No
93	Species-rich	Oak, field maple, ash, hazel, blackthorn, dogwood, holly.	Largely defunct. Line of mature oaks with occasional understorey. High bat roost potential.	No
94	Species-rich	Oak, field maple, ash, hazel, blackthorn, dogwood, holly.	Tall unmanaged hedge with frequent mature trees. High bat roost potential.	Yes
95	Species-rich	Oak, field maple, ash, hazel, blackthorn, dogwood, holly.	Largely defunct. Line of mature oaks with occasional understorey. High bat roost potential.	No
96	Species-rich	Elm, oak, hawthorn, blackthorn, hazel, field maple, ash, dog rose.	Tall unmanaged hedge with occasional mature trees. Ditch at base. High bat roost potential.	Yes
97	Species-rich	Ash, oak, hawthorn, holly, hazel.	Managed hedge with occasional mature trees. Ditch at base. High bat roost potential.	Yes
98	Species-rich	Oak, dogwood, hawthorn, dog rose, blackthorn, field maple, hazel, yew, goat willow.	Tall unmanaged hedge adjacent to stream with frequent mature trees. High bat roost potential.	Yes
99	Species-rich	Oak, hawthorn, butchers broom, dog rose, blackthorn, holly, wild privet, field maple, dogwood.	Tall unmanaged hedge adjacent to stream with frequent mature trees. High bat roost potential.	Yes
100	Species-poor	Bramble, hawthorn.	Low defunct hedge along stock fence.	No
101	Species-poor	Bramble, hawthorn.	Low defunct hedge along stock fence.	No
102	Species-rich	Hawthorn, hazel, blackthorn elder, bramble.	Low, well-managed.	Yes
103	Species-rich	Pedunculate oak, hawthorn, blackthorn, ash, bramble.	Tall and unmanaged with gaps. Frequent mature trees.	Yes
104	Species-rich	Pedunculate oak, elder, hawthorn, blackthorn, ash, elm, bramble.	Tall and unmanaged. Frequent immature and semi-mature trees to eastern extent, mature trees to west.	Yes
105	Species-rich	Field maple, hawthorn, blackthorn, hazel, elm, willow, bramble.	Tall and unmanaged. Frequent immature and semi-mature trees.	Yes
106	Species-rich	Field maple, hawthorn, blackthorn, hazel, elm, willow, bramble.	Unmanaged.	Yes
107	Species-rich	Field maple, hawthorn, blackthorn, hazel, elm, willow.	Well-managed	Yes

108	Species-rich	Blackthorn, hawthorn, field maple, elm, oak, ash, willow, elder, buckthorn, dog rose.	Tall and unmanaged. Occasional mature oak. High bat roost potential.	Yes
109	Species-rich	Blackthorn, hawthorn, field maple, elm, oak, ash, willow, elder, buckthorn, dog rose.	Tall and unmanaged. Occasional mature oak. High bat roost potential.	Yes
110	Species-rich	Blackthorn, hawthorn, field maple, elm, oak, ash, willow, elder, buckthorn, dog rose.	Tall and unmanaged. Occasional mature oak. High bat roost potential.	Yes
111	Species-rich	Ash, field maple, pedunculate oak, spindle, dogwood, blackthorn, hawthorn, sycamore.	Tall and unmanaged. Occasional mature oak. High bat roost potential.	Yes
112	Species-rich	Ash, pedunculate oak, blackthorn, hawthorn, rose.	Tall and unmanaged. Occasional mature oak. High bat roost potential.	Yes
113	Species-rich	Field maple, hawthorn, blackthorn, hazel, elm, ash, pedunculate oak.	Well-managed with occasional immature - semi-mature trees.	Yes
114	Species-rich	Field maple, hawthorn, blackthorn, hazel, ash, holly, yew, pedunculate oak.	Tall and unmanaged. Line of large mature oaks. High bat roost potential.	Yes
115	Species-poor	Hawthorn	Well-managed hedgerow with poor structure.	No

Hedgerow surveys were completed by HBIC in 2015 covering Land North of Stoke Park Woods (H1-15, 22-27, 108-112 and 114-115) and Land North of Fair Oak (H36-64). The findings above were consistent with those from the HBIC surveys (i.e. hedgerows previously considered likely to be important remained so).

3.2.5 Improved Grassland

The Site is dominated by fields of improved grassland, dominated by (but not limited to) perennial rye grass with Yorkshire fog, sweet vernal-grass, meadow foxtail, and occasionally creeping bent. Forbs are typically rare within the fields comprising occasional white clover, dandelion, daisy and creeping buttercup.

Management of the fields varies across the Site but includes cattle grazing, horse grazing and leys grown for hay or silage.

3.2.6 Neutral Semi-improved Grassland

Neutral semi-improved grassland is most prevalent within East Horton Golf Course where it forms areas of rough. These areas are dominated by meadow foxtail, red fescue and common sorrel with a diverse species assemblage including creeping buttercup, meadow buttercup, sweet vernal grass, creeping thistle, bird's-foot trefoil, white clover, common mouse-ear, black knapweed, creeping cinquefoil, soft rush, common cat's-tail, lesser stitchwort, meadow vetchling, bugle, ragged robin, common spotted orchid, Southern marsh orchid and corky-fruited water dropwort.

3.2.7 Marshy Grassland

An area of marshy grassland is located at the south east corner of East Horton Golf Course. It is dominated by soft rush, hard rush, compact rush and jointed rush with meadow vetchling, giant fescue, common sedge, gypswort, false fox sedge skullcap and Southern marsh orchid.

3.2.8 Amenity Grassland

The majority of amenity grassland on Site is present within East Horton Golf Course where it comprises the fairways, greens and other areas of formal landscaping. Other small patches of amenity grassland are present as lawns or formal gardens associated with residential properties within the Site boundary. Management is typically heavy in the form of regular mowing and application of fertiliser.

Amenity grassland on Site is dominated by perennial rye grass with occasional creeping buttercup, white clover, greater plantain, daisy and self-heal.

3.2.9 Standing Water

Standing water is present on Site in the form of a number of ponds. These are described in greater detail within Section 3.3.1 below.

To the south east of Stoke Park Farm between W3 and W4 lies a large number of lakes. These comprise Hampshire Carp Hatcheries, a commercial fish farm which supplies both ornamental and coarse fish.

3.2.10 Running Water and Dry Ditches

S1 Bow Lake is a small stream approximately 2m wide with moderate flow. It has steep banks with little in-channel vegetation and a sediment substrate. It is flanked by hedgerows with mature broadleaved trees for the majority of its length. The stream was not surveyed in detail but is likely to be of value as it flows into the River Itchen SAC.

S2 is a small stream which runs along the eastern boundary of East Horton Golf Course. It is approximately 2m wide with a gravel base and steep banks. The water was typically slow flowing and shallow but there were deeper pools of up to 10cm. There was little aquatic vegetation and the stream was heavily shaded by adjacent trees.

S3 is a small stream which runs along the north boundary of Hall Lands Copse before running south west. It was slow-flowing and contained little aquatic vegetation. Similar to S1 and S2 it is overshadowed by woodland and mature hedgerows for its length.

S4 is a small slow-flowing stream with a gravel base within W14. No aquatic vegetation was present and the stream was heavily shaded.

D1 is a small ditch located within W4. It contained a small amount of water at the time of the survey. Species included water mint, hemlock water-dropwort, fool's-water-cress, flote-grass and opposite-leaved golden-saxifrage. HBIC (2016) refers to the headwater (HW1.6) comprising a narrow and seasonally wet ditch which has (in part) been dug out as a flight pond (probably in the 1970's) and is now mostly silted up, but the marginal communities here are typical of [S23]: Other water-margin vegetation, in character, including water mint, hemlock water-dropwort, flote-grass and greater pond-sedge. HBIC (2016) recorded 49 woodland species of which 17 were AWVS. To the south of W4 HBIC

also recorded a further headwater (HW1.5 - outside the survey boundary for this assessment) described as a narrow and seasonally wet ditch arising by small spring head seepages and explains the drain lines to mainly be located in small spring head valleys of periglacial origin and as such mainly escaped direct replanting (although are often overstood by adjacent plantation stands) so retain a "wet woodland" [W7c]: *Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum* woodland; *Deschampsia cespitosa* sub-community, with an excellent range of wet woodland species present. HBIC (2016) recorded 30 woodland species of which 9 were AWVS.

D2 is located to the south of Stoke Park Farm and drains the surrounding fields although it was dry at the time of the survey. HBIC (2016) surveyed D2 (headwater of River Itchen; HW1.4) and described D2 as largely heavily shaded and only seasonally wet and therefore dominated by ruderal herb or recent woodland type species. HBIC (2016) recorded 21 woodland species of which 3 were AWVP. At the time of the WYG survey this ditch was dominated by common nettle and ivy with soft rush, male fern and creeping bent and hence agreed with the findings of the HBIC (2016) report.

D3 is located west of W1 and extends into W1. HBIC previously surveyed the headwaters of the River Itchen as part of a botanical study in 2016 which stated that the headwater within W2 (HW1.2) comprises a small drain arising from seasonal spring head seepage on the tertial deposits within the wood, and as such lacks the potential to hold species associated with chalk headwaters. HBIC describes the headwater as seasonal for the most part and the habitat community as heavily overstood by plantation woodland, with some proto [W7c]: *Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum* woodland; *Deschampsia cespitosa* subcommunity flora is present, but this is not well developed so high up in the catchment. 12 woodland species of which 2 were AWVP have been recorded in 2016 (HBIC). HBIC (2016) refers to a detailed phase II survey undertaken by HBIC in 2015 but this was not available to us at the time of writing the report. Extending north west of W1 is D3 which is another headwater (HW1.3). HBIC has also surveyed this headwater in 2016 and also found it to be seasonally dry supporting no notable species or habitat however the W7c flora that was noted at H2 becomes more well developed at H4. HBIC (2016) describes the habitat community within the ditch as dominated by a variety of tall hedgerow type trees and shrubs and numerous grey willow and willow spp. trees and bushes. The flora in the gulley is reported to be dominated by woodland species, although at the extreme north western edge beyond the farm track a small section holds a patch of fool's water-cress, which is here typical of early phase [S23]: Other water-margin vegetation. During this field survey, the ditch was dry and is narrow but deep in places and dominated by common nettle, cleavers and greater willowherb.

D4 is a ditch north of W2 which was dry at the time of the survey which runs parallel to the northern boundary of Hill Copse. D4 is a headwater (HW1.1) which feeds the River Itchen SSSI and SAC. HBIC (2016) describes the drain itself, which was dry at the time of the survey, as largely overstood and overgrown by the edge of the wood but retains a flora which includes a few species of plant typical of marginal or emergent communities and wet woodland edges. HBIC (2016) recorded 33 woodland species of which 10 are AWVP. The ditch was largely overgrown by the edge of the wood by common nettle and hedge bindweed, but some of the flora present including reed canary-grass, wild Angelica and hemlock water-dropwort are typical of marginal or emergent communities and wet woodland edges.

D5 is an unvegetated dry ditch which runs along the base of H2 and H3.

D6 is a dry ditch west of W17. Dry at the time of the survey it is heavily vegetated with creeping bent, Yorkshire fog, creeping buttercup, jointed rush, creeping thistle, red clover, corky-fruited water-dropwort and hairy sedge. D6 is a headwater (HW2.3) which feeds the River Hamble SSSI. HBIC (2016) described it as a horse-grazed drain with a short section running through Stroud Wood; an old Oak plantation. Some of the drain has previously been excavated and formed into a small flight pond. HBIC (2016) recorded 20 woodland species of which 4 were AWVS and one acid/neutral grassland indicator.

D7 is a dry ditch dominated by common nettle, ivy, creeping bent and greater willowherb. D7 is a headwater (HW2.2) which feeds the River Hamble SSSI. HBIC (2016) described it as a drain heavily overstood by the small wood and hedgerow shrub species along the edge. Largely lacking any identifiable wetland communities, where the edge opens up slightly ruderal herb communities and bramble dominate. HBIC (2016) recorded 12 woodland species of which 1 was an AWVS.

D8 is a dry ditch east of W17. Dry at the time of the survey it is heavily vegetated with common nettle, bramble, soft rush, creeping thistle, creeping bent, ivy, creeping buttercup, flote-grass, hedge bindweed, hogweed and greater willowherb. D8 is a headwater (HW2.1N) which feeds the River Hamble SSSI. HBIC (2016) described it as a sequence of mature field drains, seasonally wet in nature and typically associated with enclosure type clipped hedges, which over stand and shade out most wetland plant communities in the drains. However, locally where the hedges are reduced in size, or become more relict in nature, a relict wetland flora ([S23]: Other water-margin vegetation) is present. The immediately adjacent "transitional" emergent vegetation can be extremely flowery and herb dominated. No indicator species were flagged as no habitat was recorded.

D9 is a dry ditch which continues along the line of H59.

D10 is a wet ditch in East Horton Golf Course and continues from D8. There was no flow during the survey but the ditch held approximately 20cm of water. Species included lesser water-parsnip, teasel, flote-grass, ragged robin, ox-eye daisy, false fox-sedge, meadowsweet, fleabane and wild angelica. D10 is a headwater (HW2.1S) which feeds the River Hamble SSSI. HBIC (2016) described it as mostly open (although flow through small culverts locally) and (locally) retaining a reasonably herb rich "rush pasture" type flora in the margins where they are left uncut, but the main sections crossing the fairways are regularly cut short. The drains retain [S23]: Other water-margin vegetation (usually just fool's water-cress, brooklime and flote-grass, but tufted forget-me-not is present) and some relict [S14]: *Sparganium erectum* swamp is also present locally. No indicator species were flagged as no habitat was recorded.

D11 is located east of D10 and had 10cm of slow-flowing water. Species included lesser water-parsnip, soft rush, duckweed, flote-grass, ragged robin, water cress, water forget-me-not, ox-eye daisy, false fox-sedge, meadowsweet, fleabane, water mint and wild angelica.

D12 is located east of D11 and is a shallow dry ditch. Species included creeping buttercup, meadowsweet, false fox-sedge, soft rush, false brome, remote sedge and ivy.

D13 is a dry ditch in the north of the golf course. Species included creeping buttercup, meadowsweet, creeping cinquefoil, soft rush, greater willowherb, fleabane and white clover.

D14 is a dry ditch at the base of H96 dominated by common nettle.

D15 is a dry ditch at the base of H97 dominated by common nettle, soft rush, common fleabane and bittersweet.

D16 is a dry ditch east of D15. Species included greater willowherb, cock's-foot, timothy, red rescue, soft rush, cleavers, fleabane, creeping buttercup and Yorkshire fog.

D17 is a shallow dry ditch north of W19. Species included common sorrel, common sedge, gypsywort, fleabane, cleavers, soft rush, meadow buttercup, common mouse-ear, lesser stitchwort and corky-fruited water-dropwort.

D18 is a narrow ditch with steep sides and flowing water. Species included yellow iris, curled dock, fleabane, creeping buttercup, cock's-foot, common vetch, Yorkshire fog, marsh bedstraw, red clover, soft rush and false brome.

D19 continues from D18 after a culverted section. Species included sweet vernal-grass, false oat-grass, common sedge, red clover, meadowsweet, greater willowherb, lesser water-parsnip, false brome, soft rush, false fox-sedge, remote sedge and giant fescue. D19 is a headwater (HW2.4) which feeds the River Hamble SSSI. HBIC (2016) described it as drains which are mostly open (although flow through small culverts locally) and (locally) retain a reasonably herb rich "rush pasture" type flora in the margins where they are left uncut, but the main sections crossing the fairways are regularly cut short. The drains retain [S23]: Other water-margin vegetation (usually just fool's water-cress, brooklime and flote-grass, but tufted Forget-me-not is present) and some relict [S14]: *Sparganium erectum* swamp is also present locally. No acid/neutral grassland indicators were recorded by HBIC (2016).

D20 is a shallow dry ditch. Species included curled dock, common nettle, fleabane, soft rush, common mouse-ear, creeping thistle, false fox-sedge and meadow vethcling.

D21 is a wet ditch at the base of H94. There was no flow and approximately 10cm of water. Species included fleabane, soft rush, creeping bent, pendulous sedge, creeping buttercup, hard rush, hogweed and creeping thistle.

D22 is a wet ditch culverted beneath the access track. Species included greater willowherb, fleabane, soft rush, creeping bent, pendulous sedge, remote sedge and marsh bedstraw. D22 is a headwater (HW2.5) which feeds the River Hamble SSSI. HBIC (2016) described it as a field drain crossing the East Horton Golf Course. Vegetation often mown, but where unmown dominated by a mixture of [S23]: Other water-margin vegetation and [S12]: Typha latifolia swamp. One acid/neutral grassland indicator was recorded by HBIC (2016).

3.2.11 Bare Ground

Bare ground on Site is typically present in the form of concrete or tarmac hardstanding associated with the farms on Site. There are also a number of gravel tracks and a tarmac road which serves East Horton Golf Course.

3.2.12 Buildings

B1 - Stoke Park Farm comprises 10 agricultural buildings of variously steel, concrete and breeze block construction with pitched metal and asbestos-type roofs. There is also a brick farmhouse with a pitched, clay tiled roof to the north of the farm complex. To the west is a metal building associated with Hampshire Carp Hatcheries**.**

B2 - Crowdhill Farm comprises 6 agricultural buildings of variously steel, concrete and breeze block construction with pitched metal, clay tile and asbestos-type roofs. There is also a brick farmhouse and outbuilding with pitched, clay tiled roof to the north of the farm complex.

B3 - East of H28 are two residential properties. Both are of brick construction with pitched tiled roofs and both have hanging tile decoration. A modern converted barn is located to the north**.**

B4 - Oak Park House is a modern brick dwelling with a pitched tiled roof north of H33. To the east of the house are three industrial buildings of metal and block construction with pitched metal roofs. Further to the east is Oak Park Equestrian Centre which is a large timber clad building with a pitched metal roof.

B5 - Fieldfare Nurseries includes a large greenhouse, a small corrugated metal outbuilding and a brick dwelling.

B6 - Middle Farm comprises three agricultural buildings of variously steel, concrete and breeze block construction and a brick farmhouse with a pitched, tiled roof.

B7 – Part of Hall Lands Farm comprises a large timber clad stable block and two small outbuildings.

B8 - Pembers Hill Farm comprises two agricultural buildings of variously steel, concrete and breeze block construction, a brick farmhouse and a timber clad out building with a pitched tiled roof.

B9 - Sunnyside Cottage is a brick dwelling with a pitched slate tiled roof. St Francis Animal Welfare comprises three large single-storey buildings of block construction and three timber animal shelters with pitched roofs.

B10 - Broadoak Stables comprises a large agricultural building and a modern brick dwelling with a pitched clay tiled roof.

B11 – Stroudwood Farm comprises two metal agricultural buildings with open sides**.** To the north is a small building of timber construction with a pitched roof.

B12 - is a modern brick dwelling with a pitched tiled roof south of W19.

B13 - The two semi-detached bungalows within Allbrook are of brick construction with pitched tiled roofs. The northern of the two has hanging tiles around a dormer window**.**

3.3 Protected & Notable Species

3.3.1 Great Crested Newts

HBIC returned one record of GCN, approximately 1.5km north of the Site. The North Eastleigh Strategic GCN Study (WYG 2016) identified historic records of GCN in 6 ponds within 2km of the Site, all located South of Fair Oak, approximately 1km to the south of the Site. The desk study revealed a single granted EPS licence for GCN (granted in 2016) approximately 850m east of the Site.

There are 39 ponds present within 500m of the Site. The field survey element of the study (WYG 2016b) included presence/likely absence surveys of several of these and the results are summarised below, along with the results of HSI assessments for those waterbodies which were accessible.

Pond Ref.	Summary	HSI Result	Presence/Likely Absence
P1	Large pond. Possible backwater of River Itchen. Could not be accessed.	N/A	N/A
P2	Heavily shaded pond with no vegetation. Poor water quality.	**0.68 Average**	N/A
P3	Heavily shaded with low water level. Poor water quality.	**0.67 Average**	N/A
P4	Large pond with poor terrestrial habitat and little vegetation. Appeared to be used for swimming and/or boating.	**0.65 Average**	N/A
P5	Pond located within woodland to the south of fishery; no aquatic vegetation; partially shaded; outflow channel causes pond to dry out annually.	**0.61 Average**	N/A
P6	Shallow pond forming part of stream running through the woodland; almost completely shaded by understory; with no aquatic vegetation present.	**0.56 Below Average**	N/A
P7	Possibly man-made pond as northern bank constructed with wooden frame located within field boundary hedgerow/ treeline; shaded; minimal aquatic vegetation.	**0.73 Good**	Likely absent.
P8	Slurry pit	N/A	N/A
P9	Slurry pit	N/A	N/A
P10	Slurry pit	N/A	N/A
P11	Within dense woodland. Could not be accessed.	N/A	N/A
P12	Within dense woodland. Could not be accessed.	N/A	N/A
P13	Within dense woodland. Could not be accessed.	N/A	N/A
P14	Within woodland. Private fishing lake. Could not be accessed.	N/A	N/A
P15	Within woodland. Appears to be private fishing lake. Could not be accessed.	N/A	N/A
P16	Fenced pond within the grounds of a residential property; large waterfowl presence; partially shaded.	**0.47 Poor**	N/A
P17	Fenced pond within area of woodland in northern Fair Oak on	**0.66 Average**	Likely absent

	edge of area of public open space; trees surrounding pond are immature therefore the pond is not shaded; aquatic vegetation present (approximately coverage 30%).		
P18	Small man-made pond containing large number of fish; no shading; minimal aquatic vegetation.	**0.34 Poor**	N/A
P19	Small pond within woodland once forming part of larger pond (Pond 60); minimal shading; and aquatic vegetation (5%).	**0.65 Average**	N/A
P20	Small pond within woodland once forming part of larger pond with P21; partially shaded; pond completely covered in aquatic vegetation.	**0.69 Average**	Likely absent
P21	Small pond within woodland once forming part of P20; partially shaded; majority of pond covered in aquatic vegetation (90%).	**0.61 Average**	Likely absent
P22	Small garden pond almost completely shaded by adjacent woodland; minimal aquatic vegetation.	**0.50 Below Average**	N/A
P23	Within dense woodland. Could not be accessed.	N/A	N/A
P24	Within dense woodland. Could not be accessed.	N/A	N/A
P25	Large pond situated on edge of residential garden containing a large number of both fish and fowl; partially shaded by treeline along the southern bank; no aquatic vegetation.	**0.31 Poor**	N/A
P26	Man-made pond situated within amenity grassland habitat; no shading; majority of the pond contains submerged aquatic vegetation.	**0.72 Good**	Present
P27	Fenced pond situated within farmyard surrounded by hardstanding; with large number of fish and fowl present; partial shading from adjacent farm buildings; majority of pond covered in aquatic vegetation.	**0.27 Poor**	N/A
P28	Pond located at western extent of gold course bordered by amenity grassland to the east with wooded areas and boundary treeline encompassing the	**0.75 Good**	Likely absent

	remaining banks; shaded; minimal aquatic vegetation.		
P29	CMS Aggregates Site. Could not be accessed.	N/A	N/A
P30	Garden pond within residential property within golf course.	**0.28 Poor**	N/A
P31	Could not be accessed. Disconnected by stream.	N/A	N/A
P32	Could not be accessed. Disconnected by stream.	N/A	N/A
P33	Balancing pond located within area of grassland for adjacent P34 connected via two pipes; shaded by treeline to south; dries annually; minimal aquatic vegetation.	**0.59 Below Average**	N/A
P34	Pond situated within grassland area and connected to adjacent P33; partially shaded; minimal aquatic vegetation.	**0.57 Below Average**	N/A
P35	Small shallow pond situated within wet woodland; almost completely shaded; no aquatic vegetation.	**0.45 Poor**	N/A
P36	Small shallow pond situated within wet woodland; almost completely shaded; no aquatic vegetation.	**0.36 Poor**	N/A
P37	Shallow pond situated within wet woodland; almost completely shaded; no aquatic vegetation.	**0.42 Poor**	N/A
P38	Small pond situated within wet woodland; almost completely shaded; no aquatic vegetation.	**0.33 Poor**	N/A
P39	Small shallow pond situated within wet woodland; almost completely shaded; no aquatic vegetation.	**0.33 Poor**	N/A
P40	Large pond situated on edge of residential garden containing a large number of both fish and fowl; partially shaded by treeline along the southern bank; no aquatic vegetation.	**0.38 Poor**	N/A

The Site has an abundance of high suitability terrestrial habitat in the form of hedgerows and broadleaved woodland. There are also suitable commuting features in the form of hedgerows and ditches. Based on the confirmed presence in P26 on Site in 2016, the habitat around East Horton Golf Course is considered to have **high potential** for GCN. This pond is considered to represent the western extent of a metapopulation, supported by a granted licence 850m to the west. Due to the lack of high suitability ponds and negative survey results from 2016 the wider Site is considered to have **low potential** for GCN.

3.3.2 Reptiles

HBIC supplied five records of grass snake, three records of common lizard and three records of slow worm within 2km of the Site. The closest record is of a grass snake on the edge of Stoke Park Wood adjacent to the southern boundary of the Site.

Although the Site is dominated by improved grassland fields which are of poor suitability for reptiles, the field margins are typically rougher and unmanaged where they abut the network of hedgerows. This provides a connected network of high suitability habitat across the Site. The edges of the broadleaved woodland on Site also has high suitability for reptiles. The areas of semi-improved grassland (mostly located within East Horton Golf Course) have high suitability due to their low-intensity management and structural diversity. Due to the distribution of high quality habitat across the Site (although limited in area) the Site is considered to have **high potential** for reptiles.

3.3.3 Bats

HBIC returned records of brown long eared bat, Daubenton's bat, Nathusius' pipistrelle, Natterer's bat, noctule, common pipistrelle, serotine, soprano pipistrelle, barbastelle, whiskered bat and whiskered/Brandt's bat. The closest record was of a common pipistrelle within Judge's Gully Copse at south east corner of the Site. The desk study also revealed a total of 12 granted EPS licences for bats within 2km of the Site since 2014. These covered common pipistrelle, serotine, brown long-eared bat, soprano pipistrelle and Natterer's bat. Trapping and radiotracking surveys completed by Davidson Watts Ecology (2016) in Stoke Park Woods, Crowdhill Copse and Upper Barn Copse recorded barbastelle, common pipistrelle, soprano pipistrelle, brown long-eared, whiskered, Brandt's, Natterer's, serotine and noctule.

Roosting bats – Trees

A full bat roost assessment of trees was not completed during the extended Phase 1 habitat survey as it was not known which trees would be impacted by the development proposals. However, a large number of mature trees are located within the survey area along hedgerows and field boundaries. The majority of these are mature pedunculate oaks and were considered to have moderate to high suitability for roosting bats. Furthermore the abundant woodland adjacent to the survey area is likely to include further trees with bat roosting potential. The trees on Site are therefore considered to have **high potential** for roosting bats.

Roosting bats – Buildings

B1 - Stoke Park Farm comprises 10 agricultural buildings of variously steel, concrete and breeze block construction with pitched metal and asbestos-type roofs. There is also a brick farmhouse with a pitched, clay tiled roof to the north of the farm complex. The agricultural buildings were considered to have **low to moderate potential** for roosting bats. The farmhouse, which exhibited gaps in the clay tiles, was considered to have **high potential** for roosting bats. To the west is a metal building associated with Hampshire Carp Hatcheries which had **negligible potential.**

B2 - Crowdhill Farm comprises 6 agricultural buildings of variously steel, concrete and breeze block construction with pitched metal, clay tile and asbestos-type roofs. There is also a brick farmhouse and outbuilding with pitched, clay tiled roof to the north of the farm complex. The agricultural buildings were considered to have **low to moderate potential** for roosting bats. The farmhouse, which exhibited gaps in the clay tiles, was considered to have **high potential** for roosting bats.

B3 - East of H28 are two residential properties. Both are of brick construction with pitched tiled roofs and both have hanging tile decoration. Both are considered to have **high potential** for roosting bats due to the presence of hanging tiles. A modern converted barn is located to the north which had **negligible potential.**

B4 - Oak Park House is a modern brick dwelling with a pitched tiled roof north of H33. It is in good condition and considered to have **negligible potential** for roosting bats. To the east of the house are three industrial buildings of metal and block construction with pitched metal roofs. Further to the east is Oak Park Equestrian Centre which is a large timber clad building with a pitched metal roof. All are considered to have **low potential** for roosting bats.

B5 - Fieldfare Nurseries includes a large greenhouse, a small corrugated metal outbuilding and a brick dwelling. The greenhouse and outbuilding are considered to have **negligible potential** for roosting bats and the dwelling is considered to have **moderate potential**.

B6 - Middle Farm comprises three agricultural buildings of variously steel, concrete and breeze block construction and a brick farmhouse with a pitched, tiled roof. The agricultural buildings were considered to have **low to moderate potential** for roosting bats. The farmhouse, which exhibited gaps in the clay tiles, was considered to have **high potential** for roosting bats.

B7 – Part of Hall Lands Farm comprises a large timber clad stable block and two small outbuildings. The stable block is considered to have **low potential** for roosting bats and the outbuildings are considered to have **negligible potential**.

B8 - Pembers Hill Farm comprises two agricultural buildings of variously steel, concrete and breeze block construction, a brick farmhouse and a timber clad out building with a pitched tiled roof. The agricultural buildings were considered to have **low potential** for roosting bats. The farmhouse, which exhibited gaps in the clay tiles, was considered to have **high potential** for roosting bats.

B9 - Sunnyside Cottage is considered to have **low potential** for roosting bats due to a lack of significant gaps in the roof. St Francis Animal Welfare comprises three large single-storey buildings of block construction and three timber animal shelters with pitched roofs considered to have **negligible to low potential** for roosting bats.

B10 - Broadoak Stables comprises a large agricultural building and a modern brick dwelling with a pitched clay tiled roof. The agricultural building is considered to have **low potential** for roosting bats and the dwelling has **negligible potential.**

B11 – Stroudwood Farm comprises two metal agricultural buildings with open sides considered to have **negligible potential.** To the north is a small building of timber construction with a pitched roof and **low suitability** for roosting bats.

B12 - is a modern brick dwelling with a pitched tiled roof south of W19. It is in good condition and considered to have **negligible potential** for roosting bats.

B13 - The two semi-detached bungalows within Allbrook are of brick construction with pitched tiled roofs. Both appeared in good condition with few gaps. The northern of the two has hanging tiles around a dormer window and is considered to have **moderate potential** for roosting bats. The southern has **low potential.**

Foraging and Commuting Bats

The Site comprises a matrix of habitats including woodland, watercourses, fields of improved and semi-improved grassland, hedgerows and ponds, which would provide potentially suitable habitat for foraging and commuting bats. The Site is located within the context of a relatively rural landscape, with further pasture and arable fields interspersed with blocks of woodland surrounding the Site to the north, east, and south and the river corridor along the Itchen to the west. The wider landscape therefore presents a matrix of suitable habitats, including potential roosting sites, with good connectivity and access to potential foraging sites. The Site is considered to offer **high potential** for foraging and commuting bats.

3.3.4 Badger

HBIC returned records of badgers within three 4-digit grid squares which the Site falls within. The records are sensitive and exact locations are unknown. HBIC (2015a and 2015b) recorded badger evidence in the following hedgerows: 7, 8, 12, 13, 14, 36, 37, 41, 42, 43, 44, 45, 46, 48, 49, 51, 57, 59, 61, 107, 111 and 112 and woodlands W1 and W9.

Two outlier setts were identified within H59 south of Hall Lands Copse. One had two entrances and the other only one. There was no debris in the entrances and spoil (albeit not recent). Both are likely to be active. A main sett was identified within W14 along the south east edge. It was not possible to fully examine the sett due to dense vegetation however there appeared to be a large number of entrances (c.10) and a high level of activity in the form of spoil and mammal runs. The landowner at the time of the survey suggested that a further sett was located at the south west corner of W14 however no evidence was found at the time of the survey (although vegetation was extremely dense). Mammal runs were identified in many of the hedgerows on Site, however there was no evidence to confirm these were made by badger.

The hedgerows, woodland and grassland within and adjacent to the Site are assessed as offering **high suitability** as sett-forming habitat, in particular the broadleaved woodland where numerous banks and sandy soils are present. The Site has overall been assessed as offering **high potential** for foraging and commuting badgers.

3.3.5 Hazel Dormice

HBIC returned no records of hazel dormice within 2km of the Site and no granted EPS licences for hazel dormice were identified during the desk study.

The Site offers a variety of habitats potentially suitable for dormice. The broadleaved and ancient woodland adjacent to the Site is considered likely to be highly suitable for dormice with a high diversity of tree species and abundant understorey. Many of the hedgerows on Site are species-rich and unmanaged and all provide connectivity across the Site and to the adjacent woodland. The Site is assessed as offering **high potential** to support dormice.

3.3.6 Otter & Water Vole

HBIC returned records of otter within six 2-digit grid squares which the Site falls within. The records are sensitive and exact locations are unknown, although otter are a qualifying feature of the River Itchen SAC and considered likely to be present within the River. HBIC returned 55 records of water vole within 2km of the Site, all from the River Itchen or Itchen Navigation.

No signs of otter, such as holts or spraints, were identified along the banks of the streams on Site during the extended Phase 1 habitat survey. However, mature and fallen trees along all watercourses would provide potentially suitable otter ledges or holts. All offer suitable foraging and commuting habitat for otters. The streams are considered to have **high potential** for otters.

The ditch and headwater network across the Site offers poor suitability for holts or couches and is fragmented by culverted and dry sections. The ditches are considered to have **low potential** for otters, however based on discussions with Eastleigh Borough Council they are assumed to be present for the purposes of the allocation.

The streams have steep banks in places which are potentially suitable for water vole burrows although none were recorded. In addition, the riparian vegetation offered suitable foraging habitat for water voles due to the presence of suitable food sources such as rushes and sedges. The majority of ditches were dry or with very low water levels at the time of the survey and are fragmented by culverted and dry sections. The streams are considered to have **high potential** for water voles, the ditch network is considered to have **low potential**.

3.3.7 Birds

HBIC returned records of the following W&CA Schedule 1 listed birds within 2km of the Site: barn owl, black redstart, brambling, Cetti's warbler, crossbill, kingfisher, hobby, honey buzzard, fieldfare, firecrest, green sandpiper, herring gull, hoopoe, osprey, peregrine falcon, red kite, redwing, Slavonian grebe, spotted crake, whimbrel and woodlark.

The woodland, hedgerows, scattered trees and grassland located within the Site boundary offer a matrix of habitats that could potentially support a range of breeding bird species, including ground-nesting species such as skylark. There are a large number of trees and buildings on or near the Site which could provide potential nest sites for barn owl, and suitable habitat for other Schedule 1 species, in particular the broadleaved woodland. The Site is therefore considered to offer ***high potential*** for a range of breeding bird species.

3.3.8 Invertebrates

HBIC returned records of a large number of notable invertebrates from within 2km of the Site. This included the following SPIs: Southern damselfly, stag beetle, blood vein, buff ermine, cinnabar, current shoot borer, dark-barred twin-spot carpet, duke of burgundy, heath rustic, oak hook-tip, sallow, striped lychnis, white admiral and white ermine. The Southern damselfly is of particular interest as it is a primary reason for the selection of the River Itchen SAC. The closest records are from Highbridge, immediately to the south of the proposed bridge upgrade. An aquatic invertebrate survey was completed by Arcadian Ecology in 2016 which included the following watercourses: D1, D2, D4, S3, D6, D7 D8, D14, D21 and S2. The report concluded that these watercourses were of low to moderate value for aquatic invertebrates. White-clawed crayfish are listed as a qualifying feature of the SAC but are considered likely to be absent due to the presence of signal crayfish in the catchment.

The ancient woodland, hedgerow, scrub, semi-improved grassland and ponds provide a matrix of habitats that may support terrestrial invertebrate species. The Site is assessed as offering **high potential** to support notable terrestrial invertebrates. Based on the results of the Arcadian Ecology report (2016) the Site is assessed as offering **low to moderate potential** to support notable aquatic invertebrates.

3.3.9 Fish

HBIC returned records of grayling from within 2km of the Site, the closest 850m south west of the proposed bridge upgrade. The River Itchen SAC is designated due to the presence of the following Annex 2 species; bullhead, brook lamprey and Atlantic salmon. The site is therefore considered to have **high potential** for protected and notable fish species.

3.3.10 Invasive Species

Japanese knotweed was recorded to the east of W11 and Himalayan balsam, rhododendron and Montbretia were recorded within W14. There is therefore **confirmed presence** of invasive species on Site.

3.4 Importance of Ecological Features

In line with the CIEEM PEA Guidelines, and based on the above baseline information, each ecological feature recorded within the study area is considered to have the following importance, as defined within the CIEEM EcIA Guidelines (2016):

Table 5 Importance of Ecological Features

Feature	Importance	Rationale
River Itchen SAC	International	A designated Natura 2000 site for rare riverine chalk habitat and associated species.
SINCs	County	Areas of notable and restricted habitat, in particular ancient woodland.
Broadleaved semi-natural woodland	County	Most woodland qualifies as lowland woodland HPI.
Species-rich Hedgerows	County	53 hedgerows could qualify as Important Hedgerows.
Semi-improved grassland	Local	Exhibits high species diversity with several notable species.
Marshy grassland	Local	Exhibits high species diversity with several notable species.
Running water	Local	Serval streams/ditches which supply the Itchen.
Improved grassland	Site	Low botanical interest.
Amenity grassland	Site	Low botanical interest.
GCN	Local	Small breeding population present.
Badgers	Local	Small number of setts recorded.
Reptiles	Unknown	Further surveys required.
Hazel Dormice	Unknown	Further surveys required.
Bats	Unknown	Further night-time surveys required.
Birds	Unknown	Further surveys required.
Otter	Unknown	Further surveys required.

Feature	Importance	Rationale
Water vole	Unknown	Further surveys required.
Terrestrial invertebrates	Unknown	Further surveys required.
Aquatic invertebrates	Local	Low to moderate value.
Invasive species	Legal obligation	Confirmed within W11 and W14.
Either: International (incl. European) / National / Regional / County / Local / Site level **Or:** Unknown (i.e. further surveys/information needed)		

The potential for the proposals to have adverse or beneficial impacts on these features, along with the need for any mitigation or enhancement measures are discussed in detail below.

4.0 Relevant Planning Policy & Legislation

4.1 National Planning Policy Framework

The NPPF was adopted in March 2012. Section 11 of the NPPF, *Conserving and Enhancing the Natural Environment* replaces *Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation*. However, government Circular *06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*, which relates to PPS9 remains valid and is referenced within Paragraph 113 of the NPPF.

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. The NPPF also states that '*planning policies should promote the protection of priority species populations linked to national and local targets*'.

Furthermore, central and local government policy now points towards ecological enhancement on development sites. The NPPF considers enhancement in the statement '*The planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes….and minimising impacts on biodiversity and providing net gains in biodiversity*'.

4.2 Biodiversity 2020: A strategy for England's wildlife & ecosystem services

Biodiversity 2020 replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act (see Appendix A for further details).

4.3 Local Plan

The works identified in this report are to support the allocation of the site under the Eastleigh Borough Local Plan 2011-2036 which is currently being developed and when adopted will replace the saved policies of the 2001-2011 Local Plan. In advance of this the following saved policies of the 2001-2011 Local Plan are relevant.

21.NC – Development which is likely to adversely affect the integrity of a European nature conservation site will not be permitted.

22.NC – Development which is likely to have a direct or indirect adverse affect on a Site of Special Scientific Interest will not be permitted, unless the Borough Council is satisfied that the reasons for the development clearly outweigh the harm to the nature conservation value of the site.

23.NC – Development which is likely to have a direct or indirect adverse affect on a Site of Importance for Nature Conservation (SINC) will not be permitted, unless it can be demonstrated to the satisfaction of the Borough Council that the benefits of the development clearly outweigh the need to safeguard the nature conservation value of the site. If development is to be permitted, the Council will require

appropriate measures to be taken to mitigate for the adverse effects on the SINC.

24.NC – Development will not be permitted where it would adversely affect species or habitats which are protected by legislation, unless appropriate measures are proposed which would acceptably mitigate the impact on those species.

25.NC – Development which will adversely affect a habitat or feature of importance for wild fauna and flora will not be permitted, unless it can be demonstrated to the satisfaction of the Council that:

i. the benefits of the development outweigh the adverse impacts;
ii. the adverse impacts are unavoidable, and
iii. appropriate measures are taken which would mitigate or compensate for any adverse impact.

26.NC – Development proposals will be required to include measures to enhance the value of features and habitats of nature conservation importance where reasonable opportunities exist in connection with the development.

4.4 Legislation

Full details of the UK legislation and offences which are relevant to the ecological receptors identified are included in Appendix A. However, based on the findings of our assessment, it is considered that the proposals will need to consider the following legal provisions:

- Harm to a Natura 2000 site
- Disturbance or killing of an EPS
- Disturbance of nesting wild birds
- Disturbance of nesting Schedule 1 bird species or their dependant young
- Cause of permit the spread of an invasive species into the wild

5.0 Discussion

5.1 Designated Sites

Natura 2000 Sites

The Site is in close proximity to the River Itchen SAC and development will include the upgrading of a bridge over the Itchen at Highbridge.

The Site Improvement Plan (SIP) for the SAC lists 15 issues which cause threats or pressures affecting the condition of the site. The majority of these (such as grazing and inappropriate weed control) relate to the management of the site and are considered unlikely to be affected by the proposals.

The mixed development is located some 0.36km east of the River Itchen and is considered unlikely to result in direct adverse effects. There is the potential for indirect effects through pollution such as sedimentation or chemical spills into the watercourses/headwater on Site which feed the Itchen. Water pollution and sedimentation are Issues 1 and 3 in the SIP. There is also potential for increased recreation within the SAC (along the Itchen Navigation which is an existing PROW) to cause increased disturbance to wildlife and degradation of habitats, however this is not included as a key issue within the SIP. There is also the potential for adverse effects to the SAC should the development require increased abstraction listed as Issue 5 within the SIP.

The works to Highbridge have the potential to cause direct effects to the SAC in the form of physical modification (for example for footings) and indirect effects through pollution events and increased shading of the river. Physical modification is Issue 2 within the SIP. The proposed bypass likewise has potential for adverse effects during construction as a result of pollution events.

There is also potential for adverse effects upon the qualifying species and habitats of the SAC. Physical modification may cause disturbance (noise and vibration) and habitat loss to qualifying species including fish and Southern damselfly. There is also potential for loss of the Ranunculus vegetation for which the SAC is notified. Pollution events as described above are likely to cause adverse effects to all qualifying species.

During operation there is potential for adverse effects through increased nitrogen deposition and hydrocarbon runoff from increased road traffic. In particular, the effects of nitrogen pollution on Southern damselfly is considered by the Local Planning Authority and Natural England to be a key factor in assessing the proposed scheme.

Local Wildlife Sites

There are 12 SINCs on or immediately adjacent to the Site. A further 13 are present within 500m. Although no SINCs are likely to be lost to the proposed development, during construction there is the potential for direct effects (such as damage from machinery, root compaction etc.) and indirect effects (such as pollution and fragmentation). During operation there is potential for adverse effects as a result of pollution from increased vehicle traffic and recreation and disturbance from noise and artificial lighting.

5.2 Habitats

Broadleaved semi-natural woodland

The majority of broadleaved semi-natural woodland is considered likely to qualify as HPI and is likely to be retained, however there is the potential for small areas to be lost to accommodate the proposed bypass. There is also potential for indirect effects through pollution events during construction and fragmentation.

Species-rich Hedgerows

Of the hedgerows present on Site, 65 have been identified as likely to be Important. Although the majority of hedgerows are likely to be retained, it is also likely that there will be a small amount of removal to accommodate the bypass and internal road layout. This will result in fragmentation of the hedgerow network. There is also potential for adverse effects during construction from accidental damage and compaction.

Semi-improved grassland

Semi-improved grassland is relatively restricted in distribution however it is likely to qualify as HPI. There is likely to be some loss to accommodate the bypass (at Allbrook) and development (at East Horton Golf Course). There is also potential for adverse effects during construction such as encroachment by construction traffic, material storage etc.

Marshy grassland

Marshy grassland is restricted in distribution and is likely to qualify as HPI. It is unlikely to be lost to the proposed development. There is potential for adverse effects during construction such as encroachment by construction traffic, material storage, changes in hydrology etc.

Running water

The streams and ditches on Site are likely to be retained and used as part of the SuDS strategy for the Site. As such there is potential for adverse effects from sediment and pollution runoff during construction and operation and also modifications to the hydrology of the area. There is also potential for direct effects during construction as crossings will be required of several watercourses to accommodate the bypass and internal road layout.

5.3 Protected & Notable Species

Great crested newt

A GCN population has been identified at the eastern extent of the Site. There is therefore potential for loss and fragmentation of habitat during construction, as well as potential killing and injury of individual GCN.

During operation there is potential for mortality due to increased traffic, disturbance from artificial lighting and changes to hydrology or runoff affecting Pond 26 known to be in use by GCN.

Reptiles

The majority of suitable reptile habitat on Site is likely to be retained however some will be lost, in particular semi-improved grassland and sections of hedgerow. There is therefore potential for loss

and fragmentation of habitat during construction, as well as potential killing and injury of individual reptiles.

Hazel dormice

There is likely to be loss of hedgerows to accommodate the bypass and internal road layout. There is therefore potential for loss and fragmentation of habitat during construction, as well as potential killing, injury and disturbance of individual hazel dormice.

During operation there is potential for disturbance from artificial lighting and predation due to increased numbers of domestic cats.

Bats

The majority of suitable foraging and commuting habitat is likely to be retained although there will be some loss of hedgerows to accommodate the bypass and internal road layout. There will also be a loss of potential roosts in the form of buildings and trees. There is therefore potential for loss of roosts and loss and fragmentation of foraging and commuting habitat during construction, as well as potential killing and injury of individual bats. In addition, there is potential to roost disturbance from noise, vibration and construction lighting.

During operation there is potential for disturbance from artificial lighting and potential killing and injury of individual bats from increased traffic use on Site bisecting woodland habitats.

Otter and Water vole

The majority of suitable habitat is likely to be retained although there will be crossing of watercourses to accommodate the bypass and internal road layout. There is therefore potential for direct impacts to otter resting places and water vole burrows during construction. There is also potential for adverse effects to their habitats through pollution events and disturbance of otters during construction. The hydrology at the Site is complex, and the headwaters and ditches which consequently feed the River Itchen, could be impacted during construction through urbanisation of land that feeds the headwaters and consequently the River Itchen.

During operation there is potential for disturbance from artificial lighting and adverse effects to watercourses through runoff.

Badgers

The majority of suitable habitat on Site is likely to be retained however some will be lost, in particular sections of hedgerow. There is therefore potential for loss and fragmentation of habitat during construction, as well as potential disturbance of setts.

During operation there is potential for disturbance from artificial lighting and recreation and potential killing and injury of individual badgers from increased traffic use on Site bisecting hedgerows and woodland habitats.

Birds

The majority of suitable foraging and nesting habitat is likely to be retained although there will be some loss of hedgerows to accommodate the bypass and internal road layout. There is also potential for development within the improved grassland to cause habitat loss for ground-nesting species such

as skylark. There is therefore potential for loss of habitat and damage or disturbance of active nests during construction.

During operation there is potential for noise disturbance from the proposed bypass and increased predation from domestic cats.

Invertebrates

The majority of suitable habitat for notable invertebrates is likely to be retained although there will be some loss of hedgerows and semi-improved grassland, and impacts to watercourses, to accommodate the bypass and internal road layout. There is therefore potential for loss of habitat during construction.

During operation there is potential for surface water runoff or pollution events to cause adverse effects to aquatic invertebrates. Effects to Southern damselfly are considered in 5.1 Designated Sites.

Fish

Effects to fish are considered in 5.1 Designated Sites.

Invasive species

There is potential for construction activities to result in the spread of invasive species through poor soil management, inappropriate control of invasive species and movement of vehicles on Site.

6.0 Summary & Recommendations

6.1 Designated Sites

Natura 2000 Sites

An HRA will be required to address the potential for adverse effects upon the River Itchen SAC. This is likely to focus on the key issues identified above from the SIP including water pollution, physical modification, siltation and water abstraction.

It is recommended that a robust Construction Environmental Management Plan is produced to implement and monitor measures to avoid adverse effects on the SAC during construction.

It is recommended that public open space is incorporated into the development in order to divert foot traffic away from the SAC.

Input from Southern Water will be required to confirm the likely requirements of the development in respect of abstraction.

It is recommended that the improvements to Highbridge include footings and construction activities taking place outside the SAC. It is also recommended that design seeks to improve the quality of the SAC below through increasing natural light levels and managing surface water runoff.

It is understood that Eastleigh Borough Council are currently in the process of developing a mitigation strategy in respect of impacts to the SAC from nitrogen deposition.

Local Wildlife Sites

It is recommended that buffers are put into place and monitored during construction to prevent direct impacts to adjacent wet woodland and ancient woodland SINCs. These will be informed by future detailed surveys but are likely to range from 15 – 50m.

It is also recommended that the development incorporate buffers to prevent impacts during operation from traffic, light spill and fly-tipping. Open space should also be incorporated into the development to divert recreation away from the SINCs.

6.2 Habitats

Broadleaved semi-natural woodland

To support allocation, it is recommended that buffers are put into place and monitored during construction to prevent direct impacts to broadleaved semi-natural woodland. The design should seek to minimise fragmentation of woodland and areas of woodland should be planted in compensation for any which is to be lost.

To support a planning application, further botanical surveys are recommended if adverse effects are likely in order to identify areas of greatest value and to inform suitable mitigation.

Species-rich Hedgerows

To support allocation, it is recommended that 5m buffers are put into place and monitored during construction to prevent direct impacts to hedgerows. The design should seek to minimise

fragmentation of hedgerows and areas of species-rich hedgerow (at least like for like replacement) should be planted in compensation for any which is to be lost. If areas of hedgerow loss are unavoidable, it is recommended that species-poor (preferably defunct and isolated) hedgerow should be removed in preference to species-rich hedgerow.

Semi-improved grassland

To support allocation, it is recommended that semi-improved grassland be retained and protected wherever possible. Areas of compensation planting should be implemented for any loss of grassland.

To support a planning application, further botanical surveys are recommended if adverse effects are likely to identify areas of greatest value and to inform suitable mitigation.

Marshy grassland

To support allocation, it is recommended that marshy grassland be retained and protected during construction. The surface water drainage and levels strategies should seek to maintain the current hydrology on Site.

To support a planning application, further botanical surveys are recommended if adverse effects are likely to identify areas of greatest value and inform suitable mitigation.

Running water

To support allocation, it is recommended that a detailed hydrological study is completed to understand how the headwaters at the Site are fed and hence subsequently the River Itchen. It is recommended that 20m buffers are maintained between headwaters and built development. The streams and ditches on Site should be retained and used as part of the SuDS strategy for the Site, provided that suitable treatment stages are included ensure no adverse effect to the watercourses.

To support a planning application, it is recommended that a robust Construction Environmental Management Plan is produced to implement and monitor measures to avoid adverse effects on watercourses during construction. Any crossings required should use the smallest footprint possible and select locations of lowest value to be guided by further detailed surveys. It is also recommended that existing culverted or degraded sections are restored where possible.

6.3 Protected & Notable Species

Great crested newt

To support allocation, it is recommended that Pond 26 at the eastern extent of the Site is retained and forms the focus of an area of wildlife habitat enhancement. It is also recommended that additional waterbodies are created to allow the population to expand to further suitable habitat along the eastern edge of the development Site. Artificial lighting should be avoided or minimised and roads should avoid the use of gully pots.

To support a planning application, it may be necessary to complete updated GCN surveys dependent on the timescales for application and construction. Further surveys of ponds which have no existing survey data may also be required. It may be necessary to apply for an EPS licence if adverse effects are likely during construction.

Reptiles

To support allocation, it is assumed that reptiles are present on site, and that suitable mitigation measures are achievable given the large amount of open space included within the Site Delivery Strategy.

To support a planning application, a reptile presence/likely absence survey will be required to confirm if reptiles are present, which species, and their population size and distribution. The surveys would be undertaken to the methodology described in Froglife Advice Sheet 10. Seven site visits would be required during appropriate times of the year (March – October, inclusive, although higher temperatures can be a limiting factor between July and September) in order to establish presence / likely absence. Cut 0.5m x 0.5m squares of roofing felt would be placed with areas of suitable habitat on Site and would be checked systematically during the surveys for reptiles, or evidence of reptiles.

The results of this survey will inform appropriate mitigation which is likely to include retention and protection of suitable habitat where possible, creation of compensation habitat and relocation of reptiles through habitat displacement, translocation and destructive searching.

Hazel dormice

To support allocation, it is assumed that hazel dormice are present on site, and that suitable mitigation measures are achievable given the large amount of open space included within the Site Delivery Strategy.

A hazel dormouse presence/likely absence survey will be required to confirm if hazel dormice are present and their distribution. The surveys would be undertaken to the methodology described in Bright *et al.* (2006). Artificial nest tubes would be installed in suitable hedgerows and woodland at 30m intervals. Monthly checks would be required between March – October to achieve 20 survey points.

The results of this survey will inform appropriate mitigation (and licensing) if required, which is likely to include wildlife-friendly lighting, retention and protection of suitable habitat, creation of compensation habitat, aerial crossings and relocation of hazel dormice through two-stage displacement.

Bats

To support allocation, it is recommended that trapping and radiotracking surveys are completed due to the potential presence of Annex 2 species such as barbastelle. It is recommended that buffers are put into place to prevent direct impacts to woodland important for bats. These will be informed by future detailed surveys but are likely to range from 15 – 50m.

To support a planning application it is recommended that internal inspections are made of all buildings with bat roost potential to be impacted (which are safe to enter) and climbed tree inspections of all trees with bat roost potential to be lost (which are safe to climb). Any potential roosts will then require nocturnal surveys to determine the presence or likely absence of roosting bats and inform suitable mitigation and EPS licence applications.

It is recommended that nocturnal activity surveys are completed in combination with the use of automated bat detectors to identify the most important areas of bat activity on Site. These should be retained, protected and enhanced as part of the development. It is recommended that additional

planting to provide foraging and commuting habitat be implemented along with vegetated crossings for internal roads and the proposed bypass. Artificial lighting should be avoided wherever possible.

Otter and Water vole

To support allocation, it is assumed that otter and water vole are present on site, and that suitable mitigation measures are achievable given the large amount of open space included within the Site Delivery Strategy.

To support a planning application, it is recommended that otter and water vole surveys are completed for any watercourses potentially affected by the proposals.

Any crossings of watercourses required should use the smallest footprint possible, avoid areas of otter or water vole activity and must allow continued passage of both species. A buffer should be maintained between watercourses and development (to be informed by further surveys) and artificial illumination of watercourses should be avoided.

Badgers

To support allocation, it is assumed that badgers are present on site, and that suitable mitigation measures are achievable given the large amount of open space included within the Site Delivery Strategy.

To support a planning application, it is recommended that badger surveys are completed and updated to monitor badger activity and locations of setts on site.

Setts recorded should be retained and protected during construction and operation and artificial illumination of foraging and commuting areas should be avoided. Underpasses may be required to avoid increased mortality from the new bypass and internal roads.

Birds

To support allocation, it is assumed that breeding and wintering birds are present on site, and that suitable mitigation measures are achievable given the large amount of open space included within the Site Delivery Strategy.

To support a planning application, it is recommended that breeding and winter bird surveys are completed to identify the bird assemblage on Site, identify areas of greatest value and inform mitigation, compensation and enhancement proposals. Surveys of suitable trees and buildings should be completed to identify barn owl nest sites. Key habitats identified should be retained wherever possible and landscape and green infrastructure plans provide enhancements for the species recorded on Site. Increased buffer planting may be recommended for sensitive areas to reduce the potential for predation. Any vegetation removal should take place outside the nesting bird season, or be preceded by a nesting bird check.

Invertebrates

To support allocation, it is assumed that notable invertebrates are present on site, and that suitable mitigation measures are achievable given the large amount of open space included within the Site Delivery Strategy.

To support a planning application, it is recommended that terrestrial invertebrate surveys and further aquatic invertebrate surveys are completed to identify the assemblage on Site, identify areas of greatest value and inform mitigation, compensation and enhancement proposals. Key habitats identified should be retained wherever possible and landscape and green infrastructure plans should seek to provide enhancements for the species recorded on Site.

Fish

To support allocation, it is assumed that notable and protected fish are present on site, and that suitable mitigation measures are achievable.

To support a planning application, it may be necessary to complete fish surveys to confirm presence or likely absence of qualifying species, identify areas of greatest value and inform mitigation, compensation and enhancement proposals.

Invasive species

To support allocation, it is recommended that invasive species present on Site are eradicated. The measures employed should be informed by further monitoring during the planning process. This monitoring should also seek to identify any new locations of invasive species.

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FIGURES

Figure 1 – Phase 1 Habitat Plan

Rev	Date	Notes
A	18/08/17	Initial map production

Legend

- Site boundary
- A — Amenity grassland
- I — Improved grassland
- SI — Semi-improved neutral grassland
- Marshy grassland
- Broadleaved semi-natural woodland
- Buildings
- Bare ground
- Standing water
- Intact species-poor hedge
- Intact species-rich hedge
- Species-rich hedge with trees
- Running water
- Dry ditch
- Fenceline
- Tree

0 50 100 200 300 Meters

N

Eastleigh Strategic

Figure 1a Phase 1 Habitat Map

Scale at A3:	Drawn by:	Drawn date:	Approved by:
1:6,000	ben.blowers	22/08/2017	david.west

Project No:	Office division:	Drawing No:	Revision:
A101764	**4594**	Figure 1a	A

Rev	Date	Notes
A	18/08/17	Initial map production

Legend

- Site boundary
- A — Amenity grassland
- I — Improved grassland
- SI — Semi-improved neutral grassland
- Broadleaved woodland plantation
- Broadleaved semi-natural woodland
- Buildings
- Bare ground
- Standing water
- Intact species-poor hedge
- Intact species-rich hedge
- Species-poor hedge with trees
- Species-rich hedge with trees
- Running water
- Dry ditch
- Fenceline
- Tree

0 50 100 200 300 Meters

N

Eastleigh Strategic

Figure 1b Phase 1 Habitat Map

Scale at A3:	Drawn by:	Drawn date:	Approved by:
1:6,000	ben.blowers	22/08/2017	david.west
Project No:	**Office division:**	**Drawing No:**	**Revision:**
A101764	**4594**	Figure 1b	A

Rev	Date	Notes
A	18/08/17	Initial map production

Legend

- Site boundary
- A — Amenity grassland
- I — Improved grassland
- SI — Poor semi-improved grassland
- Dense scrub
- Broadleaved woodland plantation
- Broadleaved semi-natural woodland
- Buildings
- Bare ground
- Standing water
- Intact species-poor hedge
- Intact species-rich hedge
- Species-poor hedge with trees
- Species-rich hedge with trees
- Running water
- Dry ditch
- Tree

0 50 100 200 300 Meters

N

Eastleigh Strategic

Figure 1c Phase 1 Habitat Map

Scale at A3:	Drawn by:	Drawn date:	Approved by:
1:6,000	ben.blowers	22/08/2017	

Project No:	Office division:	Drawing No:	Revision:
A101764	**4594**	Figure 1c	A

Rev	Date	Notes
A	18/08/17	Initial map production

Legend

- Site boundary
- A — Amenity grassland
- I — Improved grassland
- SI — Poor semi-improved grassland
- SI — Semi-improved neutral grassland
- Dense scrub
- Broadleaved semi-natural woodland
- Buildings
- Bare ground
- Standing water
- Intact species-poor hedge
- Intact species-rich hedge
- Species-poor hedge with trees
- Species-rich hedge with trees
- Running water
- Dry ditch
- Tree

0 50 100 200 300 Meters

N

Eastleigh Strategic

Figure 1d Phase 1 Habitat Map

Scale at A3:	Drawn by:	Drawn date:	Approved by:
1:6,250	ben.blowers	22/08/2017	david.west
Project No:	**Office division:**	**Drawing No:**	**Revision:**
A101764	**4594**	Figure 1d	A

Appendix A – Wildlife Legislation

Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the of the Convention, and regulate the exploitation of speices listed in Appendix 3. The regulation imposes legal obligations on participating countires to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Fora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2010 (as amended) in England and Wales, and via the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (791409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Conservation of Habitats and Species Regulations 2010 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. Amendments made in 2012 stipulated that public bodies help preserve, maintain and re-establish habitats for wild birds.

The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	**Schedule 5 – European Protected Species of Plants**
Horseshoe bats *Rhinolophidae* - all species	Shore dock *Rumex rupestris*
Common bats *Vespertilionidae* - all species	Killarney fern *Trichomanes speciosum*
Wild cat *Felis silvestris*	Early gentian *Gentianella anglica*
Dolphins, porpoises and whales *Cetacea* – all sp.	Lady's-slipper *Cypripedium calceolus*
Dormouse *Muscardinus avellanarius*	Creeping marshwort *Apium repens*
Pool frog *Rana lessonae*	Slender naiad *Najas flexilis*
Sand lizard *Lacerta agilis*	Fen orchid *Liparis loeselii*
Fisher's estuarine moth *Gortyna borelii lunata*	Floating-leaved water plantain *Luronium natans*
Great crested newt *Triturus cristatus*	Yellow marsh saxifrage *Saxifraga hirculus*
Otter *Lutra lutra*	
Lesser whirlpool ram's-horn snail *Anisus vorticulus*	
Smooth snake *Coronella austriaca*	
Sturgeon *Acipenser sturio*	
Natterjack toad *Epidalea calamita*	
Marine turtles *Caretta caretta, Chelonia mydas, Lepidochelys kempii, Eretmochelys imbricata, Dermochelys coriacea*	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;

- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise case to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties			
Avocet	*Recurvirostra avosetta*	Osprey	*Pandion haliaetus*
Bee-eater	*Merops apiaster*	Owl, Barn	*Tyto alba*
Bittern	*Botaurus stellaris*	Owl, Snowy	*Nyctea scandiaca*
Bittern, Little	*Ixobrychus minutus*	Peregrine	*Falco peregrinus*
Bluethroat	*Luscinia svecica*	Petrel, Leach's	*Oceanodroma leucorhoa*
Brambling	*Fringilla montifringilla*	Phalarope, Red-necked	*Phalaropus lobatus*
Bunting, Cirl	*Emberiza cirlus*	Plover, Kentish	*Charadrius alexandrinus*
Bunting, Lapland	*Calcarius lapponicus*	Plover, Little Ringed	*Charadrius dubius*
Bunting, Snow	*Plectrophenax nivalis*	Quail, Common	*Coturnix coturnix*
Buzzard, Honey	*Pernis apivorus*	Redstart, Black	*Phoenicurus ochruros*
Capercaillie	*Tetrao urogallus*	Redwing	*Turdus iliacus*
Chough	*Pyrrhocorax pyrrhocorax*	Rosefinch, Scarlet	*Carpodacus erythrinus*
Corncrake	*Crex crex*	Ruff	*Philomachus pugnax*
Crake, Spotted	*Porzana porzana*	Sandpiper, Green	*Tringa ochropus*
Crossbills (all species)	*Loxia*	Sandpiper, Purple	*Calidris maritima*
Curlew, Stone	*Burhinus oedicnemus*	Sandpiper, Wood	*Tringa glareola*
Divers (all species)	*Gavia*	Scaup	*Aythya marila*
Dotterel	*Charadrius morinellus*	Scoter, Common	*Melanitta nigra*
Duck, Long-tailed	*Clangula hyemalis*	Scoter, Velvet	*Melanitta fusca*
Eagle, Golden	*Aquila chrysaetos*	Serin	*Serinus serinus*
Eagle, White-tailed	*Haliaetus albicilla*	Shorelark	*Eremophila alpestris*
Falcon, Gyr	*Falco rusticolus*	Shrike, Red-backed	*Lanius collurio*
Fieldfare	*Turdus pilaris*	Spoonbill	*Platalea leucorodia*
Firecrest	*Regulus ignicapillus*	Stilt, Black-winged	*Himantopus himantopus*
Garganey	*Anas querquedula*	Stint, Temminck's	*Calidris temminckii*
Godwit, Black-tailed	*Limosa limosa*	Swan, Bewick's	*Cygnus bewickii*

Goshawk	*Accipiter gentilis*	Swan, Whooper	*Cygnus cygnus*
Grebe, Black-necked	*Podiceps nigricollis*	Tern, Black	*Chlidonias niger*
Grebe, Slavonian	*Podiceps auritus*	Tern, Little	*Sterna albifrons*
Greenshank	*Tringa nebularia*	Tern, Roseate	*Sterna dougallii*
Gull, Little	*Larus minutus*	Tit, Bearded	*Panurus biarmicus*
Gull, Mediterranean	*Larus melanocephalus*	Tit, Crested	*Parus cristatus*
Harriers (all species)	*Circus*	Treecreeper, Short-toed	*Certhia brachydactyla*
Heron, Purple	*Ardea purpurea*	Warbler, Cetti's	*Cettia cetti*
Hobby	*Falco subbuteo*	Warbler, Dartford	*Sylvia undata*
Hoopoe	*Upupa epops*	Warbler, Marsh	*Acrocephalus palustris*
Kingfisher	*Alcedo atthis*	Warbler, Savi's	*Locustella luscinioides*
Kite, Red	*Milvus milvus*	Whimbrel	*Numenius phaeopus*
Merlin	*Falco columbarius*	Woodlark	*Lullula arborea*
Oriole, Golden	*Oriolus oriolus*	Wryneck	*Jynx torquilla*
Invasive plant species listed in Schedule 9			
Australian swamp stonecrop or New Zealand pygmyweed	*Crassula helmsii*	Japanese rose	*Rosa rugosa*
Californian red seaweed	*Pikea californica*	Japanese seaweed	*Sargassum muticum*
Curly waterweed	*Lagarosiphon major*	Laver seaweeds (except native species)	*Porphyra* spp
Duck potato	*Sagittaria latifolia*	Parrot's-feather	*Myriophyllum aquaticum*
Entire-leaved cotoneaster	*Cotoneaster integrifolius*	Perfoliate alexanders	*Smyrnium perfoliatum*
False Virginia creeper	*Parthenocissus inserta*	Pontic rhododendron	*Rhododendron ponticum*
Fanwort or Carolina water-shield	*Cabomba caroliniana*	Purple dewplant	*Disphyma crassifolium*
Few-flowered garlic	*Allium paradoxum*	Red algae	*Grateloupia luxurians*
Floating pennywort	*Hydrocotyle ranunculoides*	Rhododendron	*Rhododendron ponticum* × *Rhododendron maximum*
Floating water primrose	*Ludwigia peploides*	Small-leaved cotoneaster	*Cotoneaster microphyllus*
Giant hogweed	*Heracleum mantegazzianum*	Three-cornered garlic	*Allium triquetrum*
Giant kelp	*Macrocystis* spp.	Variegated yellow archangel	*Lamiastrum galeobdolon* subsp. *argentatum*
Giant knotweed	*Fallopia sachalinensis*	Virginia creeper	*Parthenocissus quinquefolia*
Giant rhubarb	*Gunnera tinctoria*	Wakame	*Undaria pinnatifida*
Giant salvinia	*Salvinia molesta*	Wall cotoneaster	*Cotoneaster horizontalis*
Green seafingers	*Codium fragile*	Water fern	*Azolla filiculoides*
Himalayan cotoneaster	*Cotoneaster simonsii*	Water hyacinth	*Eichhornia crassipes*
Hollyberry cotoneaster	*Cotoneaster bullatus*	Water lettuce	*Pistia stratiotes*
Hooked asparagus seaweed	*Asparagopsis armata*	Water primrose	*Ludwigia grandiflora*
Hottentot fig	*Carpobrotus edulis*	Water primrose	*Ludwigia uruguayensis*
Hybrid knotweed	*Fallopia japonica* × *Fallopia sachalinensis*	Waterweeds	*Elodea* spp.
Indian (Himalayan) balsam	*Impatiens glandulifera*	Yellow azalea	*Rhododendron luteum*
Japanese knotweed	*Fallopia japonica*		

Protection of Badgers Act 1992

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

Hedgerow Regulations 1997

The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Birds of Conservation Concern

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2015 (Eaton *et al*, 2015) and identified 67 red list species, 96 amber species, and 81 green species. The criteria are complex, but generally:

- **Red list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.
- **Amber list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.
- **Green list** species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.

Wild Mammals (Protection) Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.