



Sandleford Park, Newbury

Appendix F18: Ecological Mitigation and Management Plan



Bloor Homes and Sandleford Farm Partnership

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Appendix C – Wildlife Boxes



Glossary

ASPT	Average Score Per Taxon
BMWP	Biological Monitoring Working Party
BTO	British Trust for Ornithology
CEMP	Construction Environmental Management Plan
CEMMP	'Combined' Ecological Mitigation and Management Principles (Sandleford Park and Sandleford Park West)
CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
ECoW	Ecological Clerk of Works
EMMP	Ecological Mitigation and Management Plan
EPSL	European Protected Species Licence
GCN	Great crested newt
GradCIEEM	Graduate Member of Chartered Institute of Ecology & Environmental Management
Habitat Regulations	Conservation of Habitats and Species Regulations 2017
HAP	Habitat Action Plan
Hedgerow Regulations	Hedgerow Regulations 1997
HPI	Habitat of Principal Importance
JNCC	Join Nature Conservancy Council
LBAP	Local Biodiversity Action Plan
LPA	Local Planning Authority
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
RSPB	Royal Society for the Protection of Birds
SAP	Species Action Plan
SuDs	Sustainable Urban Drainage System



1.0 Introduction

1.1 Background

WYG was commissioned by Bloor Homes and the Sandleford Farm Partnership on 4th December 2018 to produce an Update EMMP of the site known as Sandleford Park, Newbury. It addresses the following items with a view to maintaining and enhancing the biodiversity value of the site in the long-term:

1. Mitigation for the protected and notable habitats and species that may be impacted by the proposals;
2. Management of retained, enhanced and created habitats.

This report has been prepared by Consultant Ecologist, Ben Cooke GradCIEEM, and updated by Associate Ecologist Tamsin Clark MCIEEM.

1.2 Site Location

The site is located at Sandleford Park in Newbury, West Berkshire and is centred at Ordnance Survey National Grid Reference SU 46847 64550. The survey area, hereafter referred to as the 'site', is shown on Figure 1 and comprises of agricultural fields with areas of grassland and several copses of ancient woodland dispersed throughout. A central valley runs from the north-western corner of the site towards the River Enborne at the site's southern boundary.

For details of the development description, please see the main ES chapter.

1.3 Context of the Management Plan

This EMMP is based on the results of the previous surveys and reports WYG carried out at the site, as well as update surveys completed during 2018. The surveys conducted to inform this Plan are as follows:

- Appendix F1: Ecological Appraisal
- Appendix F2: Great Crested Newt Survey Report
- Appendix F3: Reptile Presence/ Likely Absence Survey
- Appendix F4: Breeding Bird Survey
- Appendix F5: Barn Owl Survey
- Appendix F6: Nightjar Survey
- Appendix F7: Bat Roost Assessment of Trees & Bats Hibernation Survey
- Appendix F8: Bat Emergence/ Return Survey
- Appendix F9: Bat Activity Report
- Appendix F10: Hazel Dormouse Survey Report
- Appendix F11: Badger Survey Letter Report
- Appendix F12: Terrestrial Invertebrates Survey Report
- Appendix F13: Aquatic Invertebrate Survey Report
- Appendix F14: White-clawed Crayfish Survey Report
- Appendix F15: Otter and Water Vole Survey Report
- Appendix F16: Fungus Survey Report



- Appendix F17: Woodland National Vegetation Classification Survey Report
- Appendix F20: Proposed Residential Development Lighting Assessment
- Appendix F21: Net Gain Assessment
- Appendix F22: Grassland National Vegetation Classification Survey Report
- Appendix F23: Arable Plants Survey Report

It is also worth mentioning the below surveys, completed to provide further information within an ES addendum for 15/02300/OUTMAJ. Although these areas will not be impacted by the revised redline boundary, where findings are of relevance to the EMMP, they are discussed.

- Warren Road, Extended Phase 1 Habitat Survey (WYG, 2016a)
- Warren Road, Nocturnal bat emergence / return surveys of trees (WYG, 2016b)
- A339 Link Road, Extended Phase 1 Habitat Survey (WYG, 2016c)
- A339 Link Road, Climbed inspection of trees for bats (WYG, 2016d)
- A339 Link Road, Nocturnal bat emergence / return surveys of trees (WYG, 2016e)
- Warren Road and A339 Bat activity surveys (WYG, 2016f)

1.4 Plan Layout

- The EMMP first summarises the ecological baseline for the site. This information is presented in Section 2.0.
- Section 3.0 outlines the mitigation and prescribes management for retained and created habitats within the site boundary. Paragraph 170 of the *National Planning Policy Framework* (NPPF, 2018) states that: '*Planning policies and decisions should contribute to and enhance the natural and local environment by... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*'. Enhancements are included within the masterplan, particularly within the Country Park area of the site. This commitment to biodiversity augmentation is a central facet of the Masterplan design.
- Section 4.0 outlines the mitigation prescriptions for the protected species identified on site.
- Sections 5.0 and 6.0 **Error! Reference source not found.** present information on scheduling management activities and monitoring of the features of the site respectively.

This EMMP will guide detailed EMMPs to be produced to inform each future reserved matters application. Future phase-specific EMMPs will be based on up to date survey information, and updated as management continues on the site, likely to include a revision in year 5, with management prescriptions for a further 10 years, and reassessment at the end of this period.

In addition, a set of 'Combined' Ecological Mitigation and Management Principles have been produced (Appendix F19) to cover both Sandleford Park, and the adjacent Sandleford Park West application areas.



2.0 Ecological Baseline

2.1 Habitats

The habitats present within the site boundary can be viewed in Figure 1, and include:

- Broadleaved Semi-natural Woodland
- Dense/ Scattered Scrub
- Broadleaved Scattered Trees
- Hedgerows
- Marshy Grassland
- Neutral Semi-improved Grassland
- Acidic semi-improved to Improved Grassland
- Tall Ruderal
- Standing Water
- Running Water
- Arable
- Bare Ground
- Buildings

2.1.1 Broadleaved Semi-natural Woodland

There are seven main woodland blocks on-site, which form a network of semi-natural broadleaved woodland habitats in proximity to each other and largely connected by hedgerows and wide grassy tracks and banks. The central core of woodlands is set in a confined valley system and within a mosaic of wet grassland and semi-improved acidic grassland.

The woodlands are currently managed for game purposes and several have large pheasant release pens within them and feeding stations scattered throughout. No visible evidence of silvicultural practices were found during the survey apart from clearance for game shooting rides and the tidying of fallen trees.

All the woodlands on-site are considered to fulfil the criteria for the definition of the *Lowland Mixed Deciduous Woodland* UK Habitat of Principal Importance (HPI) as they are over 0.25ha and support characteristic plant communities.

All the woodlands with the exception of Gorse Covert, assessed during the NVC woodland survey (Appendix F17) are classified as ancient woodland.

2.1.2 Dense/ Scattered Scrub

There are areas of dense/ scattered scrub present throughout the site boundary, with the stands consisting predominantly of bramble. Areas of scattered scrub are situated along the western extent of the site and the field margins of the compartments within the eastern extent of the site. Areas of dense scrub are distributed more widely throughout the site although confined to the eastern half of the site.



2.1.3 Broadleaved Scattered Trees

There are a number of broadleaved scattered trees present within the site boundary, including some which are considered to be veteran trees due to their size and condition. In particular these are present within the eastern half of the site along the access tracks traversing the site.

2.1.4 Hedgerows

There is an extensive hedgerow network across the site (Figure 1) which consists of a combination of species-poor, species-rich, intact and defunct hedgerows. Two hedgerows (Hedgerow A and Hedgerow E) are considered likely to be '*important*' under the Hedgerow Regulations (see Appendix A) due to the presence of standard trees and seven woody species together with woodland indicator species in the ground layer. Hedgerow A is located along the western boundary of the site and Hedgerow E is located along the north eastern boundary of the site (shown on Figure 1).

These hedgerows form important corridors connecting woodlands and other habitats over the site, and provide commuting routes for nocturnal animals such as bats.

2.1.5 Marshy Grassland

The majority of the wet grassland habitats are located together within the centre of the site, encompassing several fields partitioned by hedgerows and streams, the grassland is very wet and mire-like in places. Springs and base-rich flushes emerge into the valley where the mires reach their greatest extent and are found slightly upslope away from the stream and valley bottom. A smaller strip of wet grassland is located within a field compartment at the eastern extent of the site.

The meadows straddle the main stream which flows north-south towards the River Enborne and are encircled by the ancient woodland copse. Together the woodland and wet grassland form an important habitat and feature for this site.

A National Vegetation Classification (NVC) survey was completed in 2018 (Appendix F22). The marshy grasslands were found to range in quality from some fairly uniform species-poor Yorkshire fog-dominated grasslands on the drier ground to mixed soft rush pastures on the wetter ground to some diverse sharp-flowered rush stands on the flat valley bottoms on the wettest soils (see Figure 2).

The sharp-flowered rush stands were considered to be the vegetation type M23 *Juncus effusus/acutiflorus* (rush species) – *Galium palustre* (marsh bedstraw) rush-pasture which forms part of the Purple Moor Grass and Rush Pastures HPI. The other marshy grassland types are generally regarded as a modified grassland types of lower botanical interest.

The small area of Purple Moor Grass and Rush Pastures HPI along the valley bottoms at Sandleford (0.445 ha) contains 16% of the known Berkshire resource of this habitat so is assessed as being of County Importance.

2.1.6 Neutral Grassland

This habitat is predominantly confined to field compartments along the eastern boundary some of which are utilised by grazing cattle. The species recorded historically within these compartments include; false oat grass, ox-eye daisy, crested dogs-tail, cock's-foot, perennial ryegrass, yarrow, spear thistle, soft brome, meadow foxtail, common nettle, creeping thistle, common sorrel, sheep fescue, dock sp., creeping bent, groundsel and meadow buttercup.



2.1.7 Acidic Grassland

Areas of acidic grassland are located in the well-drained elevated areas on-site and are semi-improved to improved, in character. These areas have been modified and degraded from intensive grazing and have been found to comprise the following species during earlier surveys; perennial ryegrass, bracken, cock's-foot, sheep fescue, common bent, creeping buttercup, common foxtail, white clover, creeping bent, crested dog's-tail, sweet vernal grass, heath speedwell, and lawn moss.

Due to the modification and degradation as a result of intensive management, the grassland is not considered to meet the Lowland Acidic Grassland UK Priority Habitat type criteria.

2.1.8 Tall Ruderal

Tall ruderal habitat is present within the site boundary located throughout the site. The largest extent is located within the area surrounding the ponds at the north eastern extent of the site, adjacent to Newtown Road. Species present within these areas include; common nettle, thistle sp. and white dead nettle. Saplings are also present within the aforementioned area including field maple, hawthorn, silver birch and hazel.

2.1.9 Standing Water

There are eight ponds present on-site. Many have little emergent aquatic vegetation and are shaded by surrounding woodland habitat. Several of the waterbodies were found to be dry or almost completely devoid of water. There are larger ponds located in Waterleaze Copse, whilst these are shaded, both ponds support emergent aquatic vegetation including water mint.

2.1.10 Running Water

The River Enborne which runs along the site's southern boundary is bordered by wet woodland (alder carr) which grades to elevated areas supporting damp to dry acidic woodland. The stream is shaded for much of its length as such the emergent and aquatic vegetation communities appear to be sparse.

The River Enborne at the site is recognised as a UK Priority Habitat by TVERC, and is structurally varied with a range of riverine features, including point bars, riffles, glides, pools and meandering bends. At several points, high earth-cliff banks have developed.

A stream tributary of the River Enborne runs through a central valley (to the south of Slockett's Copse and High Wood and to the north of Barn Copse and Dirty Ground Copse) before flowing into Waterleaze Copse. The stream bed is a mosaic of silt, bedrock and pebbles. The banks are heavily wooded in sections with dense scrub in places. The drain which flows into the stream flows through an open marshy field with stands of rush. The stream and drain both peter out into wet flushes in their upper reaches.

Some springs and seepages are present in the valleys and woodland areas, and are described in the water resources chapter (*Chapter 11*). They are considered to be fed from a combination of surface run off and infiltration to ground.

2.1.11 Arable

A significant proportion of the site is utilised for the growing of arable crops, with their agricultural use having changed regularly as recorded during previous surveys. All arable field compartments at the time of the survey had to some degree been recently ploughed and left fallow; as such a low level



of grass growth had begun to encompass several of these fields. In several fields, areas of maize have been planted for game cover.

Botanical surveys of arable plants have been completed in 2011, 2014 and 2018 (Appendix F23). The 2018 results were broadly similar to previous surveys, with some changes due to the different crops, natural turnover of species and differences in timing of the surveys.

The site is not rich in arable weeds and is assessed as being of Local value only. None of the arable weeds present are protected species listed under Schedule 8 of the Wildlife & Countryside Act 1981 (as amended). Five of the arable weeds are listed in the Berkshire Rare Plant Register (field woundwort, thorn apple, great brome, medium-flowered winter-cress and fool's parsley) (Crawley, 2005).

Under the IUCN threat categories, with the exception of sand spurrey which is Vulnerable, and field woundwort which is Near Threatened, all the native species and archeophytes (species thought to have been introduced to the UK prior to the 16th century), are of Least Concern. The arable field margins are not considered to qualify as HPI.

2.1.12 Bare Ground

A series of tracks are situated on-site; one runs centrally from east to west across the entirety of the site and another within the eastern extent of the site running from north to south. The latter emanates from the Newbury college campus before connecting to the former track.

2.1.13 Buildings

There are two buildings on-site; a stable and a pre-fabricated office building located within the eastern extent of the site.

2.2 Species

2.2.1 Great Crested Newt

Great crested newt presence / likely absence surveys have been previously completed on waterbodies on-site and within 500m of the site (2011, 2013 and 2015). No great crested newts were recorded during these surveys. In 2017, eDNA sampling was completed on P11 (the only accessible water body that was not dry at the time of the eDNA survey), which returned a negative result for the presence of GCN. As such, GCN are considered likely to be absent from the site (Appendix F2).

2.2.2 Reptiles

Reptile presence / likely absence surveys have previously been completed on-site, most recently in 2018 (Appendix F3). A low population of slow worm, grass snake and common lizard were recorded at the site. As the habitats and their composition on-site has remained relatively unchanged it is assumed that these species are potentially present within all areas of suitable habitat.

2.2.3 Bats: Activity

Bat activity surveys have been completed on-site in 2011, 2013, and 2016-2017 (Appendix F9). Up to eight species of bat were found to be using the habitats within the northern part of the site during 2016-17, including two recorded passes of a barbastelle. The majority of the site was found to support commuting or foraging bats to some extent as there were a number of commuting and



foraging routes along hedgerows tracks, woodland edges, between woodlands and along field margins. Surveys completed in 2011 and 2013 found up to 13 species of bat using the habitats across the Sandleford Park site. The species recorded were common pipistrelle, soprano pipistrelle, Nathusius pipistrelle, serotine, Leisler's, noctule, Natterer's, Daubenton's, a Myotis species (most likely a whiskered / Brandt's), an unidentified Myotis bat, a long-eared bat and potentially a barbastelle.

2.2.4 Bats: Roosts

Buildings

An open stable (TN3) (Figure 1) the building is open with a wooden beam structure and numerous cracks and crevices is located at the eastern extent of the site. The field compartment in which the stable is situated is currently grazed by cattle. The building is considered to offer low potential to support roosting bats, and was subject to nocturnal surveys in 2014 and 2015 which found no bats to be using the building at the time of the survey.

A small pre-fabricated office building (Figure 1) is also located at the eastern extent of the site to the north of the stable. There were no features noted which would allow access to the interior of the building or provide a suitable crevice for roosting and no roof void was present, in addition the building is utilised regularly and is therefore considered to be of negligible potential to support roosting bats (Appendix F7).

Trees

The site comprises seven ancient woodland compartments and fields bisected by several treelines and hedgerows within which there are numerous mature trees with potential roosting features (e.g. cracks and crevices) for bats. In addition there are a number of notable individual scattered trees throughout the site.

The majority of these individual trees are clustered primarily into three assemblages.

- The first is a group of oaks situated within the eastern extent of the site, parallel to the east of High Wood and adjacent to the off-site recycling centre.
- The second is a group of mature oaks situated within the south eastern extent of the site.
- The third is located to the west of Slockett's Copse.

During the course of previous assessments conducted on-site, a total of nine bat roosts (Figure 2) have been confirmed within individual trees on-site (Appendix F8).

2.2.5 Badgers

[REDACTED]

Badger Setts

[REDACTED]



[REDACTED]

[REDACTED]

Badger Foraging and Commuting

[REDACTED]

[REDACTED]

2.2.6 Hazel Dormice

The presence of dormice on-site was confirmed during surveys completed in 2014, however update surveys completed in 2017 did not confirm presence (Appendix F10).

2.2.7 Otter & Water Vole

An otter and water vole presence/ likely absence survey was completed in 2013. The presence of otter was confirmed utilising the River Enborne along the site's southern boundary, in the form of feeding remains and a spraint. There were no active holts identified on-site or within 100m of the boundary.

Water voles were confirmed along the same river with a small number of burrows and latrines noted. During the botanical surveys completed in 2014, a water vole was seen near the ponds at the eastern extent of the site near Newtown Road. The presence of water vole were again confirmed along the River Enborne with footprints noted along the northern bank in 2018 (Appendix F15). The footprints were noted in close proximity to the previous features confirming the presence of the species on-site in 2013. No signs of the presence of otter were noted in 2018.

2.2.8 Breeding Birds

Surveys have identified a range of notable bird species and birds of medium conservation concern on-site and the site is considered to offer suitable habitat for breeding birds (Appendix F4).

2.2.9 Barn Owl

Barn owls have previously been confirmed roosting within trees on-site (Appendix F5) with the central and eastern regions of the site considered to offer suitable foraging habitat (see Figure 2 for locations of potential roosts on-site).

2.2.10 Nightjars

Nightjars surveys were conducted in 2011, 2014 and 2018 based on anecdotal evidence that nightjars occasionally utilise the site (Appendix F6). No nightjars were identified on-site, as nightjars are usually associated with heathland and open woodland the habitat on-site is considered sub-optimal for breeding nightjars.

2.2.11 Aquatic Invertebrates

The locally important species golden-ringed dragonfly was identified within the stream on-site in 2011 and 2014, but was not noted in 2018, likely due to lower water levels as a consequence of a lack of rain (Appendix F13).

A low number of bullheads (fish) were caught within the stream during the aquatic invertebrate sampling but they do not form part of the BMWP and ASPT scores. Bullheads are listed on Schedule



II of the Conservation of Habitats and Species Regulations 2017, and are a UK Priority Species under Section 41 of the NERC Act.

2.2.12 White-clawed Crayfish

White clawed crayfish surveys were completed on-site in 2013, however no white-clawed crayfish were identified during this survey (Appendix F14). As signal crayfish remains were found along the River Enborne during an otter and water vole survey in 2013, it is considered likely that white-clawed crayfish are absent from the site.

2.2.13 Terrestrial Invertebrates

Terrestrial invertebrate surveys were completed in 2011, 2014 and 2018 (Appendix F12). Habitats on site have changed little on site since the initial terrestrial invertebrate survey undertaken in 2011, consequently the assemblage of terrestrial invertebrates has also remained similar during this period, although fewer species were recorded in 2018, and a number of notable species previously recorded on site were not recorded in 2018. Species not recorded in 2018 but within previous years are considered likely to be still present on site as habitats remain largely unchanged.

Using the invertebrate habitat significance criteria defined by Colin Plant (undated) this site has been assessed as being of County Importance due to the diversity of terrestrial invertebrates recorded with the potential for the habitats to support other protected or notable species.

Red Data Book species, including the nationally notable picture-winged fly *Orellia falcata* and the nationally scarce *Pipiza lugubris* (a hoverfly) across a range of habitats (e.g. wetland and woodland). Woodland insects were considered to be poorly represented.



3.0 Habitats: Management and Mitigation

The development of the site at Sandleford Park will retain some habitats, and create new habitats. The management/creation of habitats at the site will include the following:

- Broadleaved semi-natural Woodland
- Wet Woodland
- Mature Trees
- Hedgerows
- Marshy Grassland
- Neutral Grassland
- Acidic Grassland
- Waterbodies and Rivers
- Arable

3.1 Broadleaved semi-natural woodland

3.1.1 Pre and During Construction Mitigation

All woodlands will be retained, together with 15m buffer zones (or larger in the Country Park). These buffer zones will be clearly fenced using Heras style fencing to prevent impacts to this habitat, such as those arising from inappropriate storage of materials during the construction phase. The Sustainable Urban Drainage System (SuDS) measures outlined in the Water Resources Chapter (Chapter 11) seek to avoid adverse impacts due to changes in water quality or quantity. Connections between woodlands, e.g. along hedgelines, have been retained and enhanced wherever possible within the proposals.

Stands of sycamore trees are present in Barns Copse to an extent not found in the remaining woodlands and their presence is considered detrimental to the ground flora. Removal of sycamore will take place over the first five year period of this management plan to reduce their current local dominance and also to reduce the likelihood of this species invading other woodlands through a substantial reduction in the seed source.

The huge increase of holly in the understory of unmanaged woods in SE England over the last 50 years indicates that the Sandleford Park woods, without management over the next 20-30 years, may become uniformly dull and overgrown with holly as both a shrub and understory tree, resulting in dense shade and loss of ground flora plants such as the bluebells. This is already in Barn Copse where the north-west arm of the wood has a very poor ground flora due to shade from holly. Holly management will give a long-term benefit to the overall diversity of the woodlands.

As with the wet woodland, dead wood will be retained in-situ where practicable and where not adjacent to public footpaths. In these instances, the minimum amount of dead wood will be removed that is concordant with public safety. These dead trees will also be allowed to develop natural cavities and rot holes which will, in time, provide additional breeding and roosting habitat for owls and bats.

Footpaths through the woods will largely follow existing tracks which will encourage the public to avoid walking through dense stands of bracken which could potentially harbour deer ticks. The existing tracks will be mapped accurately to inform future reserved matters applications and assessed



for any requirement to improve their bases for use as paths (some of the muddier parts of tracks in High Wood have already been improved with ballast).

Sections of boardwalk will be installed as part of the footpath creation to cross areas of wet ground within the various woodland areas to prevent trampling of sensitive plant communities, in particular Dirty Ground Copse where the Berkshire-scarce thin-spiked wood-sedge grows in a wet flush adjacent to an existing woodland track.

It is not considered that ancient woodland indicator species will be impacted by creating footpaths as these are located along existing tracks, however if ancient woodland indicator species are to be impacted either the plant itself or the seed bank will be translocated to the areas of the woodland which have been cleared of bramble and sycamore, which is currently of lower botanical value. In the event the seedbank will be translocated this will be scraped off during autumn and early winter to minimise damage to soil and plants.

Himalayan balsam growing within Waterleaze Copse, and Himalayan cotoneaster in Slockett's Copse will require removal, the recommended methodology of which is detailed in Section 3.10.

3.1.2 Post-construction Management

The woodlands may require fencing in some areas, although this detail will be agreed with the Local Planning Authority.

Interpretation boards will be installed in prominent locations to provide wildlife information about the woodlands. It is expected that if members of the public have an understanding and appreciation of the wildlife interest they will be more likely not to enter and damage this important wildlife habitat.

The information boards will be assessed every year by the management company to ensure that the quality of information dissemination is not impaired by weathering / vandalism. Damaged boards will be replaced.

3.1.3 Post-construction Monitoring

Monitoring of the existing bluebell populations will take place annually in the spring (April to early May) to assess whether Spanish bluebells or hybrids between Spanish and native bluebells are becoming established through garden escapes or dumped garden waste. Spanish bluebells or hybrids will be removed if and when encountered. This is to maintain the genetic integrity of the native bluebell population. No further monitoring is proposed for the woodland habitat.

3.2 Wet Woodland

3.2.1 Pre and During Construction Mitigation

There is potential for impacts to the wet woodland habitat to occur as a result of changes to the drainage regime during construction. A detailed SuDS scheme has been developed (See Water Resources Chapter). This takes into account flow attenuation and water quality to maintain the water level within the wet woodland and to prevent pollutants impacting this habitat. This will retain the damp, humid conditions required by the *Lateral Cryphaea* moss population in Waterleaze Copse.

The wet woodland will be retained in its entirety within the final development, and footpaths will be diverted away from it to prevent trampling of sensitive plant communities and nesting birds.



3.2.2 Post-construction Management

The use of fertilisers close to the wet woodland will be avoided to prevent contaminated run-off during storm events from reaching this habitat, including the River Enborne. This will reduce the possibility of eutrophication of plant communities within the wet woodland and will retain the currently low population of algae growing on tree trunks along the River Enborne corridor. The *Lateral Cryphaea* moss is considered to be vulnerable to overgrowth by algae at this site as only a small population of the moss was recorded.

A small population of the invasive Himalayan balsam was recorded from Waterleaze Copse in an area directly adjacent to the River Enborne. A coordinated river catchment eradication programme would be the only way that this invasive species could be prevented from recurring on the site in the future.

The wet woodland may require fencing to prevent members of the public from entering, trampling and disturbing the flora and fauna of this habitat, although this detail will be agreed with the LPA. An interpretation board will be installed in a prominent location on the fence to provide wildlife information about the wet woodland. It is expected that if members of the public have an understanding and appreciation of the wildlife interest they will be more likely not to enter and damage this important wildlife habitat. As public access will be excluded, mature trees will be allowed to senesce and decay naturally, as also will dead or dying branches on living trees (except where these overhang footpaths in which instance they will be removed).

A non-intervention policy will be enacted for the wet woodland of Waterleaze Copse, including the section that is periodically inundated by flood events. Washed up dead wood will be left and allowed to rot in situ to provide habitat for invertebrates. Stands of umbelliferous plant species (such as hogweed and cow parsley) will also be retained as these provide valuable nectar and pollen resources for wood-dwelling invertebrates such as beetles.

The integrity of fencing, which separates the wet woodland will be checked by the management company on an annual basis to ensure that access is limited. Damaged sections will be replaced.

The information boards will be assessed every year by the management company to ensure that the quality of information dissemination is not impaired by weathering / vandalism and overgrowth by algae. Damaged boards will be replaced.

3.2.3 Post-construction Monitoring

No monitoring over and above the management regime is proposed for the wet woodland habitat. Although it is recommended that the growth of the population of Himalayan balsam (TN13, Figure 1) is monitored prior to removal. Any removal would need to be coordinated with the Environment Agency as it is considered likely that the population on site is the result of plants and/or seeds being washed down the River Enborne during flood events.

The woodland is considered to be a stable habitat type which would not require extensive management and which can be left to mature through non-intervention.



3.3 Broadleaved Scattered Trees – Mature Trees

3.3.1 Pre and During Construction Management

The majority of the mature trees will be retained on-site along with a suitable buffer. The majority of these are present within the country park (including the majority of those considered to be veteran / notable; however there are some mature trees present within the works areas; such as within the central area of marshy grassland. Six of the trees with potential to be impacted (by the proposals, or by arboricultural recommendations, not proposed within the current planning application) have been found to have the potential to support nesting barn owls, and nine trees/groups of trees identified as bat roosts (See Figure 2). Recommendations for these trees have been provided in Sections, 4.4, 4.7 and 4.8.

The integrity of the mature trees will be assessed during the construction phase and on an annual basis alongside the management of the central valley wildlife area (refer to Section 3.6). The assessment will be completed in accordance with the British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' (BSI, 2012).

An ecologist will be consulted for all necessary pruning works required for health and safety reasons. If features offering potential to support roosting bats or nesting barn owls will be impacted by pruning works, further surveys will be completed and necessary mitigation will be implemented.

3.3.2 Post Construction and Management of the Trees

Should new tree planting fail, it will be replaced during the next suitable planting period for that species. This will be undertaken in the dormant season (November to March inclusive) annually for five years post construction (alongside the monitoring of dormouse nest box and vegetated arches as detailed within Section 4.6.1).

3.4 Hedgerows

3.4.1 Pre and During Construction Management of Existing Hedgerows

During construction hedgerows will be retained within the site, wherever possible, together with a 3m buffer.

Retained hedgerows which have gaps present (Hedgerow B and F, Figure 1) will be infilled with native hedgerow species, comprising hawthorn, hazel, blackthorn, field maple and elder. Strengthening the hedgerows will have the additional benefit of preventing members of the public from walking through existing gaps, thereby reducing damage and disturbance to hedgerow flora and fauna.

Herbaceous vegetation will be encouraged to grow up around the base of the planted shrubs and hedges, as this provides cover and foraging habitat for birds and small mammals. Dense bushes should encourage nesting birds and aid their escape from predators.

3.4.2 Post Construction Creation and Management of New Hedgerows

New hedgerow planting will comprise planting of native species, including blackthorn, hawthorn, hazel, holly, guelder-rose and field maple. Post construction, the existing hedgerows will be maintained and enhanced for their nature conservation interest. It is accepted that unsafe trees and



limbs in the vicinity of footpaths may require removal to make them safe for house owners and members of the public using the site.

Timing and frequency of hedgerow cutting is important; cutting every two years instead of each year will result in increased berry production in the second year for most shrub species. Hedgerows will be cut between November and February inclusive to prevent impacts to nesting birds.

3.4.3 Principal Actions to Maintain and Manage Hedgerows

- New native hedgerows, trees and shrubs will be planted along the boundaries and currently gappy / defunct hedgerows will be infilled, including (Hedgerows B, C, D and G, Figure 1) to increase connectivity and commuting routes for a variety of flora and fauna.
- Carry out biennial pruning of native shrubs, thereby allowing them to produce fruit.
- Prevent colonisation of invasive exotics (e.g. butterfly bush) by removing saplings.
- Allow herbaceous vegetation to grow up around the bases of shrubs and hedges.
- Plants which have failed to establish will be replaced during the dormant season (November to March).

3.5 Marshy Grassland

3.5.1 Pre and During Construction Mitigation and Management

Appropriate pollution prevention control methods will be employed throughout the development process so as to avoid pollution entering the marshy grassland.

It is recommended that the detailed design of the road bridge and paths at the reserve matters stage are informed by accurate mapping of the small area of Purple Moor Grass and Rush Pastures Habitat of Principal Importance along the valley bottoms at Sandleford.

When the bridge construction works is undertaken, appropriate methods will be employed to avoid and reduce, to an absolute minimum, any siltation or runoff taking place, particularly when creating the crossings points over the watercourses. This can be partly achieved by making sure that excavated material is not stored adjacent to the watercourses themselves.

Following the construction of crossing points over the drain or stream, the banks will be reinstated to the same height and profile and allowed to vegetate naturally from the surrounding area. This will help to maintain the stream and ditch in as natural condition as possible.

3.5.2 Post Construction Management

Detailed management of the marshy grassland will be provided in the phase-specific Country Park EMMP. However, it is likely to include either an annual hay cut in late September to 150mm in height or grazing, to be agreed with the LPA.

3.5.3 Post-construction Monitoring

Monitoring of the marshy grassland may be required in later years to inform future habitat maintenance of the Country Park.



3.6 Neutral Grassland

3.6.1 During Construction Mitigation Principles for Wildlife Area

Retained grassland will be protected through the erection of Heras fencing around the areas of proposed development during the construction stage.

The south eastern part of the site which is currently arable will be established as tall grassland which will be managed for reptiles and other species such as barn owl, bat and badger foraging during the operational stage of the development which will form the Country Park.

The ground will be subjected to a light scarification for the top six inches of soil (the scarification will not impact the ground deeper than 6 inches to avoid exposing nutrient rich soils). Following ground preparation, the grassland will be laid on a fine tilth. These areas will be planted with a grass seed mix comprising species which are present within the existing habitats that are proposed to be lost as a result of the development, thus providing suitable habitat for reptiles. The grass seed mix will be dominated by fine-leaved grass species such as fescues (*Festuca*) and bents (*Agrostis*) which provides good quality reptile foraging habitat. The ground will be prepared between November and March with seeding taking place in the spring. It is considered likely that the restored habitat will be sufficiently established in a single growing season.

It is not considered necessary to cover the grassland at the site once laid but flicker tape/CDs will be hung to deter birds from feeding on the seed and this will be monitored as detailed below.

The establishment of the meadow will be monitored and the deterrent methods for birds will be assessed for their success and new methods in the worst case covering with an open wire mesh will be considered.

The establishment of the grassland will be monitored for competitive weeds, which will be spot sprayed where necessary or hand pulled. This will be undertaken every two months during the main growing period April to September for two years post sowing.

These areas will be incorporated into the public open space at the site, which will comprise designated paths through the area. Paths will be fenced on either side and will discourage members of the public from entering parts of the wildlife area that are of highest ecological value (i.e. grassland, hedgerows, trees and ponds) whilst allowing the public to appreciate the wildlife in this area.

Fences will be erected along the south-eastern and south-western boundaries of site to prevent trespassing into existing adjoining properties.

Enhancements will be made to increase the suitability of the wildlife area for a number of species as detailed in the relevant sections above. Habitat enhancements for this area are provided in the following sections.

3.6.2 Post Construction Management – Tall Grassland

Detailed management of the marshy grassland will be provided in the phase-specific Country Park EMMP. However, it is likely to include either an annual hay cut in late September to 150mm in height or grazing, to be agreed with the LPA. Once a year in September or October, the presence of scrub



will be monitored (see section 3.6.4) and will be removed if it is encroaching into the tall grassland habitat to the detriment of the grassland flora.

3.6.3 Post Construction Management – Hay Meadow

Until the detail of the Country Park is drawn up the exact location of the hay meadow is unknown but it is likely to be towards the south-eastern extent of the site adjacent to the River Enborne and Waterleaze Copse. Depending upon consultation with the LPA, this area may be mown, or fenced/stock-proof hedging created to contain cattle in order to graze the habitat.

3.6.4 Post-construction Monitoring

Once a year, the presence of scrub in the tall grassland will be monitored. Scrub will be removed if it is encroaching into the tall grassland habitat to the detriment of the grassland flora. A small amount of scrub will be tolerated to provide shelter and bird nesting habitat. An optimum baseline scrub level will be determined by the ecologist and long-term photo-monitoring from a fixed vantage point. This will be carried out to determine levels of scrub encroachment from the baseline.

3.7 Acid Grassland

3.7.1 Pre and During Construction Mitigation and Management

Depending upon the location, and reptile populations, Heras fencing will be erected surrounding this habitat to prevent encroachment from construction traffic or material storage.

3.7.2 Post Construction Management

Post construction management will comprise annual mowing at the same time as the marshy grassland.

3.8 Waterbodies and Rivers

3.8.1 Pre-construction and During Construction Mitigation Principles for Waterbodies

River Enborne

See section 3.10.1 below regarding the removal of Himalyan balsalm prior to construction.

A single managed access point will be provided to the edge of the River Enborne, the treatment of the footpath will be determined with West Berkshire Local Planning Authority as will the exact location of the entrance point into the River Enborne. Mitigation for footpaths will be addressed for ancient woodland indicator species as detailed in section 3.1.1.

On-site Waterbodies

See section 3.10.1 below regarding the removal of Himalyan balsam and New Zealand pygmyweed from the waterbodies within Waterleaze Copse prior to construction commencing.

All appropriate pollution prevention control methods will be employed throughout the development process so as to avoid pollution entering the watercourses on site and flowing into the River Enborne.



When the development work is undertaken, appropriate methods will be employed to avoid and reduce to an absolute minimum any siltation or runoff taking place, particularly when creating the crossings points over the watercourse. This can be partly achieved by making sure that all excavated material is not stored adjacent to the watercourses themselves.

Mitigation proposals are outlined in detail in the Water Resources Chapter (*Chapter 11*) for the effects of increased impermeable areas. The surface water management proposals will incorporate unlined source control, secondary and tertiary SUDS drainage features to allow infiltration of run off wherever possible to maximise infiltration and recharge. Pipes or culverts to convey stream flows beneath road crossing points will be adequately sized with capacity to convey unrestricted flows downstream. In summary, the surface water management proposals will minimise the hydrological impacts to existing springs and streams as well as mitigating the effects on groundwater recharge.

Silt will be removed from selected sections of the stream beds to provide deeper water areas, and refuge habitats in times of low water level for aquatic invertebrates. The removal should be conducted from mid-August to October to also avoid disturbance to spawning fish (e.g. bullhead, see Appendix F13) and breeding birds (Environment Agency, 2010).

Following the construction of crossing points over the drain or stream the banks will be reinstated to the same height and profile and allowed to vegetate naturally from the surrounding area. This will help to maintain the stream and ditch in as natural condition as possible.

3.8.2 Post Construction Management

See Section 3.10.1 below regarding monitoring of Himalayan balsam and other invasive species post development.

3.9 Arable

3.9.1 Pre-Construction and During Construction Mitigation Principles for Arable Habitat

Two skylark plots (4m x 5m) will be created within the Country Park. Seeds will be collected of the three notable arable plants in development areas (green pigweed, green field speedwell and subspecies of fool's-parsley) and these seeds will be sown in the skylark plots. The soil containing the seed bank within the receptor site will be managed to stimulate seed germination.

Arable plants seed will be collected over winter and stored over winter. Prior to the translocation, the skylark plots will be rotovated and tilled. Collected seed will be sown in Spring and allowed to become established. The management of the arable field will entail disturbance of the habitat following the arable plants growing period and following fledging of nesting skylarks i.e. post-October.

It is proposed that, in addition to the sowing of the arable plant seed, as described above, the associated seed bank, is translocated to skylark plots. This will involve the following:

- A tracked digger with a wide bladed bucket will remove the vegetation and soil supporting the notable species as marked out by the survey. Soil to a depth of approximately 500mm will be moved to ensure that as much of the seed bank as possible is translocated.



- The soil and plants will then be placed in a transportation vehicle appropriate for the site conditions and quantity of soil to be moved. It is important to keep the vegetated side facing upwards at all times, and an effort made to preserve the structure of the soil.
- The receptor site conditions will match the donor site exactly as both sites are within the same site context. Therefore, it is anticipated that the translocation will be successful.
- The translocated soil from the donor site must be placed at the centre of the pits at the receptor site, with an effort made to ensure that the structure of the soil is disturbed as little as possible and the vegetation side remains facing upwards. Gaps will be filled in with loose soil and watering can be done if required.

3.9.2 Post Construction Management

The receptor site area must then be left untouched until the following Autumn, when normal management designed to maintain site conditions for the arable annual plants can recommence. Current management, which should continue, comprises ploughing over winter.

3.10 Invasive Plants

3.10.1 Pre-Construction and During Construction Mitigation Principles for Invasive Plants

Himalayan balsam

Prior to construction commencing, the removal of Himalayan balsam should commence along the River Enborne (within Waterleaze Copse, TN13, Figure 1). The plants will be removed by hand pulling, which is an effective way of removing adult plants and is more environmentally friendly than chemical control which risks impacting the adjacent watercourses and damaging the notable ancient woodland ground flora of this area. Removal activities should, if possible, begin before seeding; therefore, ideally, removal should commence in mid-April and continue through the growing season.

Himalayan cotoneaster

Prior to construction commencing, the removal of Himalayan cotoneaster will take place in Slockett's Copse (Figure 1). The plant, if small enough can be removed by hand pulling, or can be excavated by hand and disposed of as waste for incineration.

Japanese knotweed

Japanese knotweed will be removed along the eastern boundary (TN11, Figure 1). It is recommended that advice from Japanese knotweed contractors is sought regarding the most appropriate method to remove this species from the site. It should be noted that under the Environmental Protection Act 1990, soil contaminated with Japanese knotweed would be classed as controlled waste and must be disposed of safely at an appropriately licensed landfill site.

New Zealand pygmyweed

New Zealand pygmyweed will be removed from Pond 1 (the northernmost pond within Waterleaze Copse, TN12, Figure 1) and this could be done by mechanical / manual control which is a short term solution. It could also be removed using chemicals but it is recommended that advice from invasive weed specialists is sought regarding the most appropriate method to remove this species.



3.10.2 Post Construction Management

Monitoring to check that these invasive species have been successfully removed from the site. This will comprise a spot check on an annual basis every year for five years post development. If invasive species continue to be present, additional treatment will be required, and this period of monitoring will need to be extended.

4.0 Protected Species Mitigation

4.1 Great Crested Newt

4.1.1 Pre and During Construction Mitigation Measures

Great crested newts have not been recorded on the site; however suitable habitat for this species does exist within the site boundary. A reptile displacement is to be conducted at the site, which will be undertaken during the great crested newt active season, and it is considered that in the unlikely event that great crested newts are using the terrestrial habitat on site, they will be detected during this displacement. In the event that a great crested newt is recorded, a great crested newt European Protected Species mitigation licence will be obtained from Natural England before any further works can commence.

As a precaution, all site clearance staff will be made aware of the low risk of finding great crested newts during works. The following procedure will be followed by all staff throughout the duration of works should a great crested newt be found:

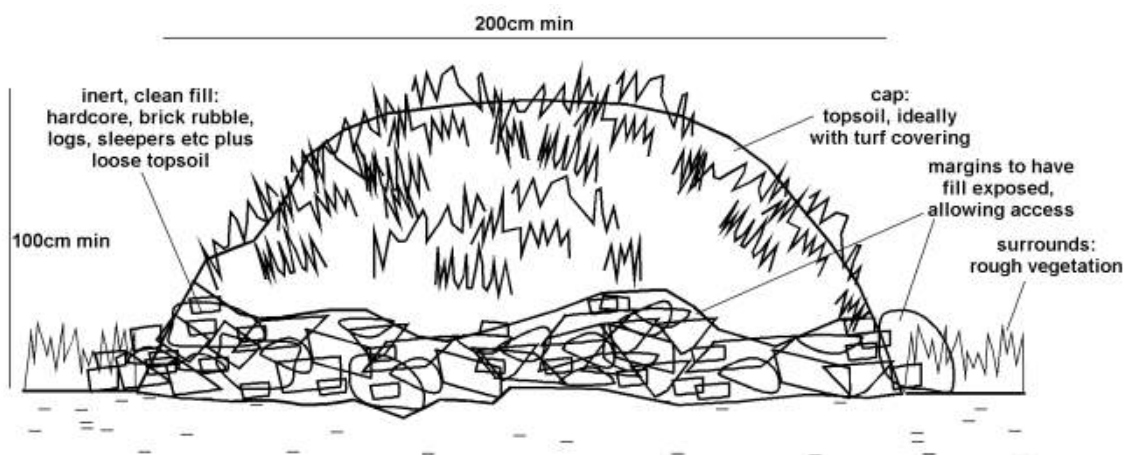
- Stop all work activities immediately.
- Do not attempt to handle the great crested newt.
- Contact the project ecologist.
- Wait for further instruction from the ecologist before proceeding with any further works.

4.1.2 Post-construction Recommendations for Enhancements

Enhancements for reptiles have been incorporated into the proposed development site in order to increase the habitat suitability and provide commuting routes through the site; these enhancements would also be of benefit to great crested newts in the event that they move onto this land in the future. It is proposed that the following enhancements are considered for the site to benefit great crested newts in the long term:

- Four hibernacula have been incorporated into the proposed development site as part of the reptile mitigation for the site. These hibernacula will also enhance the habitats at the site for great crested newts. Design of hibernacula is presented in Drawing 1, below.

Drawing 1 (Taken from the Great Crested Newt Mitigation Guidelines 2001).





- The country park will comprise tall grassland, which will be grazed or cut once a year in late September. This will provide suitable commuting habitat for great crested newts. Existing gappy hedgerows will be in-fill planted with native species.

4.1.3 Post-construction Monitoring

Great crested newts were not recorded during surveys completed for the site. Therefore, no monitoring for this species is recommended.

4.2 Reptiles

Given that reptiles have been recorded on the development site, reptile mitigation will need to be implemented at the site to prevent breaching the *Wildlife and Countryside Act 1981*. A low population of slow worms, grass snakes and common lizards have been recorded at the site. The majority of suitable reptile habitat will be retained but mitigation and enhancement is also proposed (Figure 2).

Given the size of the Sandleford site, and the retention of large areas of green space, a displacement will be completed to encourage the migration of reptiles to areas of retained habitat within the site boundary away from the development footprint.

Reptile hibernacula will be installed within the receptor habitat to provide additional refuge for reptiles and to act as a focal point of release for any reptiles which are translocated.

4.2.1 Pre-construction Management: Reptile Displacement

Within the areas with minimal coverage of suitable habitat (e.g. the margins of arable field compartments and woodland edges) where low populations of reptiles were recorded it is recommended that displacement works are undertaken between March and October. An Ecological Clerk of Works will supervise the strimming of the vegetation to 150mm, following which a finger-tip search will be undertaken to check for reptiles. If reptiles are found they will be translocated to the areas of suitable habitat within the site proposed to comprise the Country Park. Following this, the clearance of this area will be finalised by a destructive search. This approach will be agreed with the Local Planning Authority ecologist. The details of this method are described in Section 4.2.2 below.

4.2.2 Pre-construction Management: Destructive Search

Following the successful completion of the displacement of reptiles from the areas of proposed construction, these areas will be destructively cleared. This will involve two parts, hand search and a mechanical search, completed to the following specifications:

- A suitably qualified ecologist will supervise all aspects of the destructive search;
- Hand searches will be conducted, including the removal of debris on the ground in order to remove potential refuges including rubble, wood and vegetation piles;
- Using a medium sized excavator (approximately 8-10 tonnes) with a toothed bucket carry out a gradual scrape of the top one to two inches (25-50mm) of top soil;
- Both the areas from where soil is removed and the subsequent spoil heaps should be checked for reptiles and amphibians;
- Carry out deeper scrapes where necessary, such as beneath rot systems, buried material, cracks or holes in the ground; and



- The excavated spoil will be stored as directed by the ECOW, in consultation with the developers, in an area identified as unsuitable as reptile habitat.

4.2.3 Post-construction Management

The area will be managed sensitively for reptiles in the long term through cutting the grass to a height of no less than 6 inches during the late summer / early autumn (late September).

4.2.4 Post-construction Monitoring

Monitoring of the populations throughout the site may be required in later years to inform future habitat maintenance of the Country Park. Monitoring is normally completed during the 1st, 3rd and 5th year post translocation.

4.3 Bat Activity

This EMMP provides best practice prescriptions, below, on the routine maintenance of the proposed development site and to enhance areas of the site for bats, which will also contribute to increasing the site's overall value to biodiversity.

4.3.1 Pre-construction Mitigation: Hedgerow Retention and Replacement

The majority of hedgerows will be retained and protected within the development. However, Hedgerow A which leads south from the western extent of the existing public footpath will be bisected to accommodate the proposed access road. Access roads will also bisect the hedgerow F which runs along the northern boundary of the site, adjacent to Monk's Lane.

Infill planting of gaps within the existing hedgerows is proposed, which will enhance the remaining hedgerows and hence loss of bat commuting / foraging habitat will not be significant. Further mitigation and compensation for bats is included within the Masterplan in the form of native tree planting along the roads and throughout the residential development to re-create bat foraging and commuting habitat. Infill planting of gaps in other retained hedgerows throughout the site will be undertaken using native hedgerow species (see species list, Appendix B). Additional information in relation to hedgerow management is presented in Section 3.4.

4.3.2 Pre-construction Mitigation: Ecological Input to Landscape Plan

A diverse collection of native tree and shrub planting will be incorporated into the landscaping design (refer to Appendix B for species to be planted). The planting of native species will enhance the site for foraging / commuting bats.

The south eastern area of the site will be managed as tall grassland which will support a variety of invertebrate species, which will in turn benefit foraging bats.

4.3.3 Construction Phase Mitigation: Best Practice

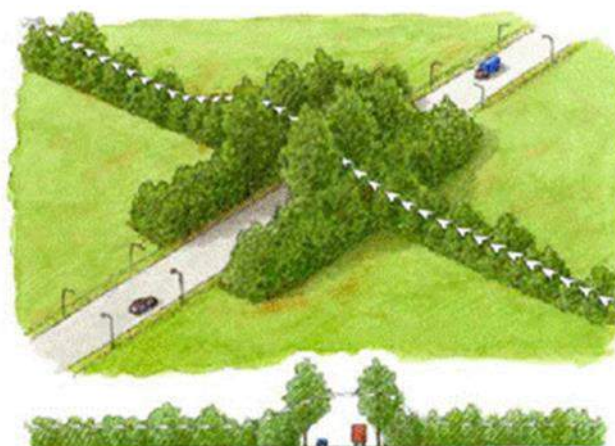
Ecological buffers will be retained between development areas and woodland areas that will be retained or created:

- 15m buffers will be retained between all areas of woodland and the development.
- 3 m buffers will be retained from all retained hedgerows and tree lines.

Construction activity in the vicinity of hedgerows and woodland will stop half an hour before sunset to avoid delaying the emergence of locally roosting bats or adversely impacting commuting and foraging bats. Additional information on the protection of trees and hedgerows is presented in Section 3.4.

4.3.4 Post-construction Mitigation: Reducing the Risk of Traffic Collisions

The central valley and the proposed country park will be enhanced for bats and will provide connectivity between the woodland along the southern boundary of the habitats to the woodland blocks within the centre and northern extent of the site. An access road will cross the central valley; however this will be a bridge to ensure the connectivity of the marshy grassland remains intact. At other locations where roads bisect bat foraging / commuting habitat trees will be planted / allowed to grow tall on each side of the road at the point where the road bisects the hedgerows. The trees will provide 'hop-overs' for bats, guiding them over the road and reducing the risk of traffic collisions. This will retain connectivity throughout the site and to woodland areas beyond the southern boundary of the site.



*Figure 1 planting to encourage bats to fly over roads or, on a smaller scale, hedgerow gaps.
Photo © Peter Twisk www.standardsforhighways.co.uk*

4.3.5 Post-construction Mitigation: Lighting

The lighting across the development footprint has been sensitively designed with consideration for bats, so that valuable bat foraging and commuting areas are retained and existing/new roost sites are not impacted by ambient light. Permanent lighting on site will be minimised in proximity to the following habitats:

- woodlands (including edges and woodland buffers);
- hedgerows;
- mature trees;
- boundary vegetation; and
- new roost sites (e.g. bat boxes installed as part of the scheme).

A new road bridge is proposed crossing the central valley. The section of road going through the valley will be lit by bollard lighting, with lighting columns located at either end of the road passing through the wildlife corridor and facing away from this habitat. No lighting is proposed for the northern side of the road crossing to the south of Crook's Copse (Appendix F20).



4.3.6 Post-construction: Enhancement

Paragraph 170 of the *National Planning Policy Framework* (Ministry of Housing Communities and Local Government, 2018) states '*Planning policies and decisions should contribute to and enhance the natural and local environment by.... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*'. Enhancements are included within the masterplan, particularly within the Country Park area of the site.

Within the Country Park, much of the grassland area will be managed as tall grassland, which will enhance the habitat for invertebrates and the bats which feed on invertebrates.

The existing pond (P1, TN12) within Waterleaze Copse is currently silty, with very little aquatic vegetation present; as such it is proposed that enhancement measures will be made which will benefit a range of species, including bats. The pond will be re-profiled to create shallow margins, which will encourage a range of aquatic plant species, which will in turn support a greater diversity of aquatic invertebrates and bats which feed on insects over the pond. In addition, scrub clearance surrounding the pond will be conducted, to allow more light in to the pond and enhance the pond for invertebrates and bats.

These enhancement measures will be in addition to in-fill planting of hedgerows and the creation of areas of tall grassland at the south eastern extent of the site, which will also enhance the site for foraging and commuting bats as part of the commitment of the development in the augmentation of biodiversity.

4.3.7 Post-construction: Monitoring

No monitoring is currently proposed in relation to foraging and commuting bats.

4.4 Bat Roosts

During the bat roost assessment, and the hibernation survey completed in 2018 (Appendix F7), one tree **T46** within **G47** was identified as a 'known or confirmed roost'. However, during the bat emergence / return surveys completed during 2014 no bats were seen emerging or returning to this tree.

Nocturnal emergence/return surveys completed in 2017 observed trees **T128, T127, T130, T123, T121 and G120** to have at least one bat emerge or return and are therefore considered to be active bat roosts (see Figure 4 for locations). These trees are not required to be removed for the A339 access road but may be impacted indirectly. To mitigate for these impacts it is recommended that work in proximity to these trees (and all hedgerows) will cease 30 minutes before dusk, and the tree (together with all retained trees and hedgerows) will be protected during the works phase.

It is possible that **T127** and **T130** will require some arboricultural works, based on the *Arboricultural Assessment* (Barrell Tree Care, 2018), however, these works do not form part of the current proposal. In the event that pollarding is required in the future, further surveys will be recommended to inform potential licence requirements.



4.4.1 Pre-construction Surveys for Bats

- Pre-works (either pre-construction, or pre-arboricultural works where arboricultural works are recommended, separate to the proposals) emergence/return surveys or climbed inspection will be required of those trees and the building with potential to support roosting bats (moderate or high suitability – G47, G120, T67, T109, T114, T116, T121, T122, T123, T127, T128, T129, T130, T133, T153, T154, T158, T159, T160, T173 and potentially the stable building (TN3)). The trees are shown as red (high suitability) and orange (moderate suitability) in Figure 4.
- The masterplan has sought to retain all trees within the Country Park. However, felling or pollarding has been recommended for some trees with high and moderate suitability (**T109, T127, T130, T153, T154, T172, T173**) within the arboricultural report for management purposes. In the event that felling or works are required, further surveys would be required to guide these works, and inform any requirement for a licence application. **T127 and T130 were observed to contain active bat roosts and will therefore require further surveys and possible license applications if deemed to still be active should future felling or pollarding works be proposed.**

4.4.2 Pre-construction Mitigation for Roosting Bats: Trees

As a precaution, tree 'soft-felling' methods will be used for limbs comprising suitable features within all trees classified as having a combination of low, moderate or high roost suitability under Bat Conservation Trust, 2016 guidelines, as shown on Figure 4.

Soft felling is a generic term used to describe more cautious felling approaches where cross cutting in proximity to cavities or hollows is avoided, and any sections containing cavities are lowered carefully using rope and cushioning techniques to reduce the impact of felling limbs which may have bats within cavities. The felled sections will be left on the ground (preferably for up to 48 hours, but for at least 24 hours) with the openings clear, allowing any remaining bats to escape. Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, to avoid trapping bats.

4.4.3 Post-construction Mitigation: Artificial Roost Provision

Additional measures to enhance the site for bats include the provision of artificial bat boxes in suitable habitat across the site.

Twenty bat boxes will be installed on mature trees within the site boundary. Trees within the existing woodland have been identified as the most suitable locations for bat boxes, as they are well connected to further areas of off-site habitat suitable for foraging and commuting bats. Bat boxes to be installed at the site will comprise a mixture of the following Schwegler bat boxes: Bat Box 2F, Bat Box 1FF and Bat Box 1FD (or similar), which are suitable for brown long-eared, noctule, common pipistrelle and soprano pipistrelle bats. Further details of specifications of bat boxes and bat tubes are provided in Appendix C. Refer to Figure 3 for a plan showing the proposed location of bat boxes within the site.

Tree bat boxes will be installed at a height of 3 – 6 m, and will not be obstructed by branches or foliage that would restrict access to them by bats. Two or three bat boxes will be installed on each tree, facing differing directions around the tree trunk, so that if one box gets too hot or cold the bats



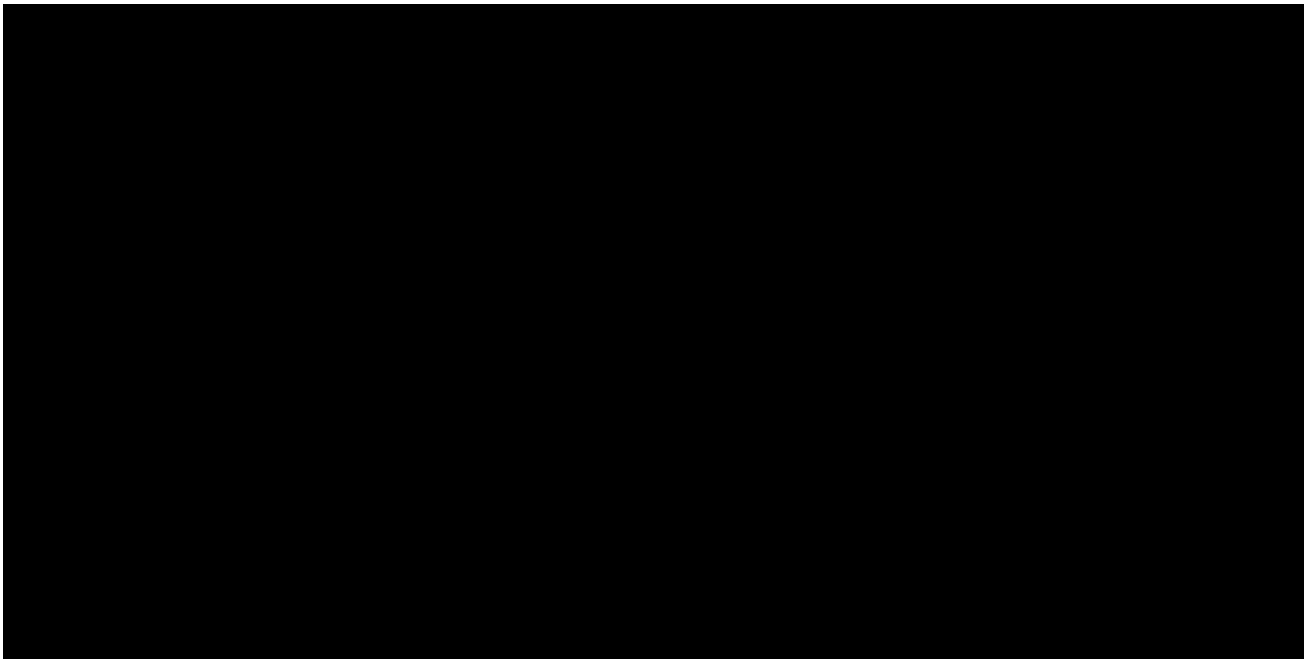
can move to another. Boxes will be attached to the tree using an aluminium nail or tied in position using wire / leather.

4.4.4 Post-construction Monitoring

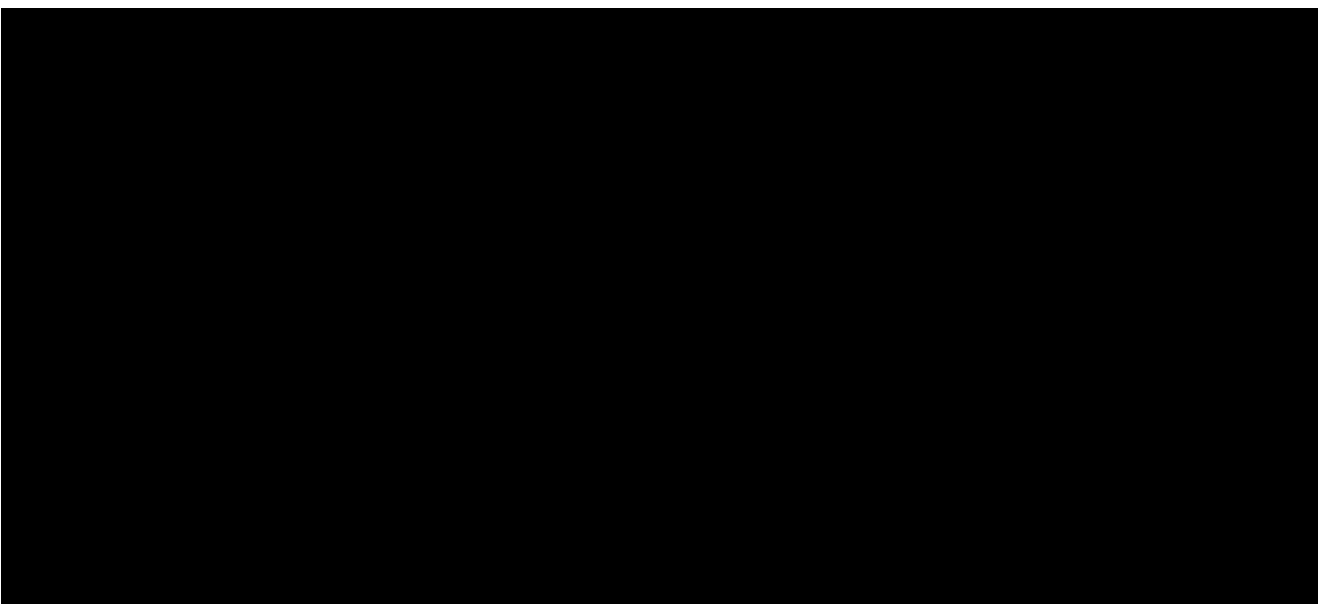
Bat boxes are to be installed as an enhancement. Therefore, monitoring of bat boxes is not currently proposed at the site.

4.5 Badger

4.5.1 Pre-construction Mitigation

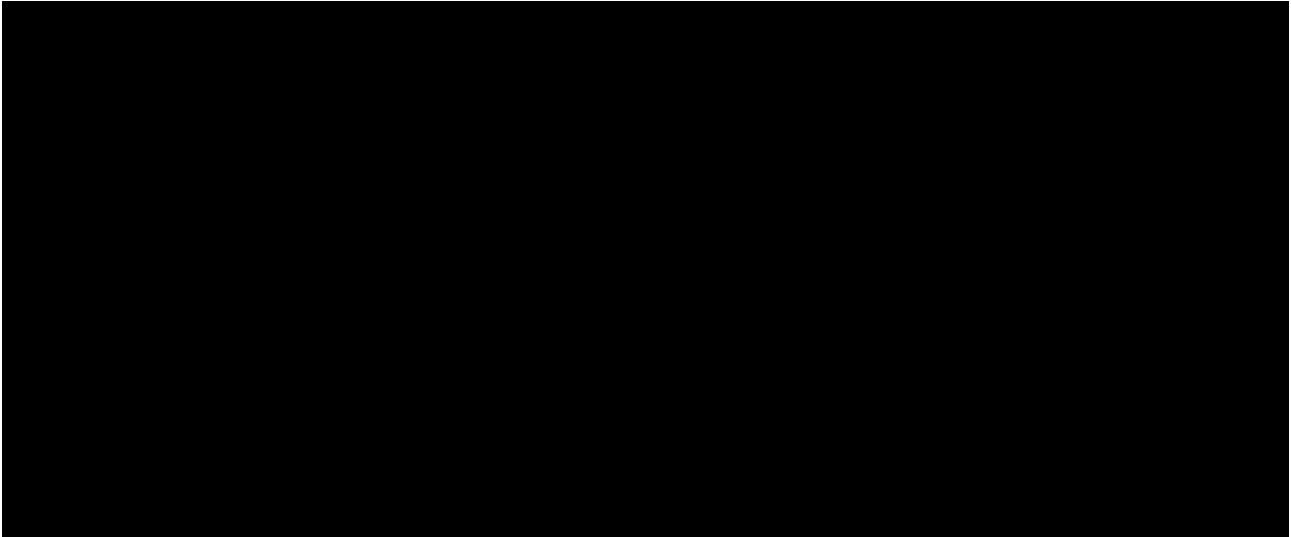


4.5.2 Construction Phase Mitigation: General Procedures During Works

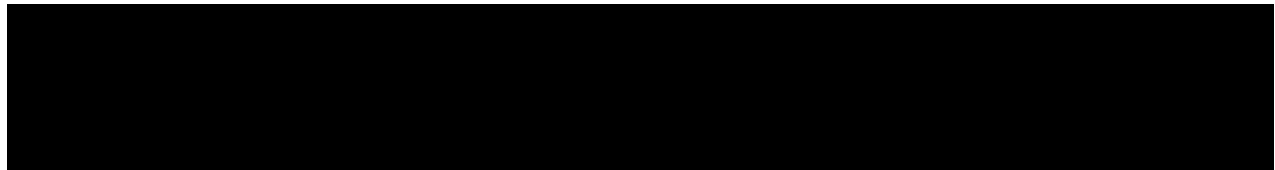




4.5.3 Post Construction Mitigation & Enhancement: Badger Foraging Areas



4.5.4 Post-construction Monitoring



4.6 Hazel Dormice

4.6.1 Pre-construction Mitigation

The masterplan has been designed to avoid, reduce and mitigate impacts on dormice and their habitats where possible. All woodlands will be retained within the masterplan with a 15 metre buffer surrounding them, and hedgerows will be largely retained with a 3m buffer. The retained hedgerows will be protected during the construction phase by erecting Heras fencing. This aims to avoid damage to hedgerows and retained trees which may be used by dormice.

However, where the main access road is proposed from Warren Road at the western extent of the site to Monk's Lane at the northern extent of the site, sections of dormouse habitat comprising hedgerows (Hedgerows A and H) and scrub will be lost, other breaches and hedgerow removal are also proposed.

To maintain the favourable conservation status of dormice within the site by providing compensatory habitat, new hedgerows will be planted where they are not currently present. Where existing hedgerows are present and gappy these will be infilled with native planting to improve connectivity for dormice.



The new hedgerows will be planted with a diverse mix of native species including hawthorn, hazel, holly, blackthorn, elder, guelder rose and honeysuckle all of which will provide a food source and nesting habitat for dormice.

Where the hedgerows are required to be bisected for roads and footpaths, taller trees will be planted either side of the breaches to create a vegetated arch to maintain connectivity for dormice.

Prior to any vegetation clearance, twenty standard design dormouse boxes will be erected within retained habitat. These boxes will provide long term shelter and breeding sites for dormice and will therefore enhance the habitat for dormice.

Prior to any clearance or construction works commencing, a toolbox talk will be given to all contractors by the named ecologist to explain the potential for discovering dormice during works and the procedure to take in the event a dormouse is found.

4.6.2 Construction Phase Mitigation

It is anticipated that approximately 1km of hedgerow and scrub habitat will be removed in total. In order to maintain connectivity between Barn Copse, where dormice were recorded in 2014 and the remainder of the site, it will be necessary to create a continuous vegetation arch over the proposed road, between Barn Copse and Dirty Ground Copse. Alternatively if the level of the valley crossing bridge is high enough, with enough light getting through to sustain a hedgerow a vegetative corridor beneath the bridge may be possible.

Infill planting of gappy hedgerows around the boundary of the site will be undertaken to provide alternative commuting routes for dormice where connectivity is reduced to accommodate the access road.

It is proposed that all vegetation clearance works of suitable dormouse habitat will be undertaken following a precautionary approach under a non-licensed method statement. A two-stage clearance process will be implemented to avoid the main dormouse hibernation and breeding seasons, in addition to the peak nesting bird season.

Winter vegetation clearance

As dormice have been found historically on site (although not during the most recent surveys), following a precautionary approach the above-ground vegetation will be cut to a minimum of 300mm between November and February. The suitably qualified ecologist will undertake hand searches of all the vegetation to be removed prior to cutting. Dormice hibernate at ground level; therefore, the ground level vegetation (i.e. all vegetation below 300mm) will remain *in situ* and undisturbed.

If any torpid dormice are found during the vegetation clearance all works must stop immediately. The suitably qualified ecologist and the ECoW present on site must be contacted immediately and made aware of the discovery. The ecologist will first contact the client and subsequently contact NE directly to begin the application process for an ESPL. The works cannot continue until an ESPL for the works has been obtained. Any dormice discovered on-site must not be handled by non-licensed personal.

Summer vegetation removal

Stump and root removal will also be undertaken between May and October, after the hibernation season is over, when any dormice (if present) will be using arboreal habitats.



The suitably qualified will undertake a hand search of all the vegetation to be removed prior to cutting and excavation of the roots/stumps. If any dormice are found all works must stop immediately. As described above the suitably qualified and ECoW present on site must be contacted immediately and made aware of the presence of dormice. NE will then be contacted to begin the process of obtaining an EPSL to allow works to continue. Dormice must not be handled by non-licensed personal.

Where public access is to be allowed into woodlands along designated public rights of way, there is potential for disturbance to dormice during the construction and operational phases. It is understood that these pathways are likely to follow existing pathways, and as such, any vegetation clearance required is likely to be minimal. However, should any vegetation require removal from woodland areas, this will be completed under an ecological clerk of works, and according to the mitigation measures within the licence, as outlined below. These pathways will be clearly demarcated with wood chip paths and notice boards will be erected to inform locals of the importance of this area to nature conservation to ensure that public pressure does not impact on dormouse habitats.

4.6.3 Summary of Post-construction Enhancements for Hazel Dormouse

Retained and created hedgerows, scrub and woodland habitat within the site will be managed in the long term to enhance fruit / seed production and minimise disturbance to hazel dormice. Pruning of hedgerows and control of scrub encroachment will be carried out over winter when dormice are hibernating at ground level.

The hedgerows will be cut once every two years to encourage the production of food such as berries.

The management of the woodland present on site will involve periodic removal and coppicing of the trees in Barns Copse where sycamore will be selectively removed over a five year period in order to reduce the competitiveness of this non-native tree. Felling will not be undertaken uniformly or immediately and small group fellings throughout the woodland at intervals will maintain the species richness if undertaken every five to eight years (Bright *et al.*, 2006).

Management works involving vegetation removal/ thinning operations will be carried out outside the bird breeding season (which is March to September); the best time to undertake these works is November to March as this allows the dormice to fully exploit the nut crop.

4.6.4 Post-construction Monitoring

Dormouse boxes will be monitored by a licensed dormouse surveyor twice a year (May and October) for up to five years after completion of the scheme (or creation of new habitats).

The monitoring visit will include an assessment of the need for any additional habitat enhancement and management work and a check of all compensatory planting establishment (including vegetated arches) and requirement for replacement. A summary email will be sent to Bloor Homes following each annual survey to provide the results of the surveys and to identify any potential requirement for changes to management as required.



4.7 Breeding Birds

4.7.1 Pre-construction Mitigation

As the woodland areas are due to be retained, the nesting opportunities for woodland species will be retained. However, where areas of development are positioned adjacent to the woodland, it is expected that the suitability of the woodland edge habitats for nesting will be reduced somewhat. This impact will be reduced by leaving a buffer of at least 15m between the woodland edge and residential properties, which will also retain foraging habitat for barn owls and nightjars (see below).

Species known to nest in hedgerows and scrub were generally recorded in relatively low numbers within the site, including house sparrow, linnet, yellowhammer and whitethroat. This is likely to be due to the sparse and disjointed nature of hedgerows within the site. As the proposed development is due to include the removal of some areas of hedgerow, these species will find even fewer nesting opportunities within the site. In order to enhance the remaining areas of the site for hedgerow-nesting species and maintain the current population levels of these species, the remaining hedgerows will be reinforced by the addition of native hedgerow species.

Although nightjars have been recorded on the site previously by the estate workers, they were not recorded during any survey work carried out for this species by WYG. There is not currently considered to be suitable breeding habitat within the site (although this could at least temporarily be created where large glades are created in any of the larger woodlands). It is considered possible that nightjars are using the site on a casual basis for foraging only, especially in replenishing fat reserves when they first arrive on spring migration (there is a known breeding site within a few kilometres at Greenham Common). The sheltered wet valley in the centre of the site and adjacent woodland edges are considered to provide good quality nightjar foraging habitat and these habitats are to be retained.

No footpaths will extend through Crook's Copse and this wood will remain as a no-access area allowing sensitive woodland breeding birds, such as woodcock to breed. Woodcocks have not been proven to breed on the site although they were recorded during bat surveys in the northern half of the site and the habitat is considered suitable for them, especially as good quality foraging habitat along the wet central valley is on close proximity.

4.7.2 Construction Phase Mitigation

Wherever possible, any necessary removal of other trees, hedgerows, scrub or buildings within the site will be carried out outside the bird nesting season, which runs from March to October inclusive. In order to avoid impacts to dormice, vegetation clearance conducted outside of the above time period will be cut to a height no lower than 300mm from ground level. The process of vegetation clearance on-site is detailed in Section 4.6.2 above. If this is not possible and vegetation removal is required within the nesting season, it will be inspected for the presence of nests by a suitably experienced ecologist beforehand. Should active nests be found, they will be left *in-situ* with at least a 5 m buffer of intact vegetation until all the young have fledged and cease to return to the nest. The buffer will be species dependant.

The proposed development will retain all of the woodland habitats within the site intact, along with a 15 metre buffer. Landscaping and planting within residential gardens of proposed dwellings will provide additional nesting opportunities for a range of passerine bird species. New buildings will provide additional nesting locations for species, such as swifts. Therefore it is considered that nesting



opportunities for the majority of passerine bird species recorded will not be reduced by the proposed development in the medium to long term. It is anticipated that there will be a like for like replacement in nesting opportunities for these species.

Habitat enhancements, which will benefit a range of breeding bird species, will be completed at the site. A number of the hedgerows within the site are currently gappy in nature. To provide further opportunities for nesting birds, hedgerow infill planting will be carried out within these hedgerows. This will comprise a variety of native species such as hawthorn, blackthorn, field maple, hazel, oak, beech, holly and willow. Reinforced hedgerows will provide nesting and feeding opportunities for birds, as well as a resource for invertebrates, mammals and other wildlife. Additional information on hedgerows is presented in Section 3.4.

4.7.3 Post-construction Mitigation

The proposed development includes a wildlife area through the central valley of the site connecting to an area of Country Park towards the eastern part of the site. The inclusion of these features will provide a continuous corridor for wildlife, including birds, linking woodland to the south of the site to habitats within the centre and north of the site. Additional information on the creation and management of these habitats is presented in Section 3.

The pond located within Waterleaze Copse will be retained and enhanced. It is currently heavily shaded and the water is stagnant and filled with leaf litter. In addition the SUDs features including ponds and swales will be created which will provide habitat for wetland bird species.

Inevitably, the proposed development is likely to bring a certain number of domestic cats to the area which may potentially predate wild birds nesting close to the residential areas. Although there is a risk that this predation pressure will negatively affect the breeding success of birds in the immediate area around the houses, the extent of proposed landscaping is expected to provide further nesting opportunities. Therefore on balance, the risk of predation from domestic cats is not expected to significantly affect the populations of birds within the site as a whole.

Conversely, the addition of residential dwellings will also increase the amount of bird feeding activity in the area, as residents are likely to erect bird feeders within gardens, providing a new source of food principally for passerine birds.

4.7.4 Post-construction Enhancements

Additional enhancements for nesting birds will include the following (refer to Appendix C for specifications). Illustrative locations are provided within Figure 3.

- Installation of two skylark plots (16-24m²) which will be left unsown in winter cereals to boost the nesting opportunities and food available for skylarks.
- Installation of 25 starling nest boxes and 10 house sparrow nesting boxes / terraces incorporated onto proposed buildings.
- Installation of eight nesting boxes with a variety of hole sizes from 25mm to 35mm – these will be suitable for a range of bird species.
- Installation of eight open fronted bird boxes, which will be used for species such as robins, spotted flycatchers and pied wagtails.
- Installation of eight wedge shaped nest boxes, which will be used for species such as treecreeper.



- Installation of two tawny owl nest boxes, two barn owl boxes and two little owl boxes (Refer to Appendix C).

4.7.5 Post-construction Monitoring

Bird boxes will be installed as an enhancement for nesting birds. Monitoring of bird boxes is not required at the site.

4.8 Barn Owl

4.8.1 Pre-construction Mitigation

Six trees (T158, T159, T160, T127, T173 and T34) on site are confirmed as potential nesting sites for barn owls (Figure 4). A 30m buffer zone of no construction will be incorporated around each tree where there will be no construction or development to avoid impacts to nesting barn owls between the breeding season March to September (Figure 2).

Three trees (T158, T159 and T160) were identified with particular features (e.g. cavities) making them suitable for nesting barn owls, although there was no evidence of nesting at the time of the surveys. However, these trees may become occupied by nesting barn owls in future years; therefore, as such a pre-commencement survey will be undertaken prior to development works commencing, to re-assess the use of the site by nesting barn owls. Whilst three trees were identified as particularly suitable, the survey should cover the whole site as other trees may become suitable in the meantime.

4.8.2 Construction Phase Mitigation

The masterplan retains all of the trees identified as currently having potential or confirmed for nesting barn owls. All trees with the exception of T34 are located within the Country Park. T34 is located within an area safeguarded for the expansion of Park House School. In the event that this tree will be lost to future proposals for Park House School, update surveys, and appropriate avoidance, mitigation and enhancement measures will be required. Whilst barn owls often nest in occupied buildings or close to human occupation, it is considered likely that the proposed new buildings to be constructed in close proximity to tree T34 will reduce its suitability for nesting barn owls.

Trees T127 and T173 (with potential to support barn owl) have been retained within the masterplan. However, felling or pollarding has been recommended within the arboricultural report for management purposes. In the event that felling or works are required, further surveys and recommendations would be inform these works.

As nesting barn owls are protected from disturbance, no construction works should be carried out within approximately 100m of a barn owl nest site during the nesting period (March to September inclusive). If nests are identified, a buffer zone will be set up inside which no construction work may be undertaken until the young have fledged and cease to return to the nest. The size of the buffer will depend on the nature of the disturbance, and should be advised by a suitably qualified ecologist but it is likely to be 100-150m. To avoid this constraint, it is recommended that construction works are not commenced during the bird nesting season. If disturbing works are already underway when the nesting season starts, and birds choose to nest nearby, then it may be assumed that the disturbance is not detrimental to them, but works should not encroach upon the nest site.



4.8.3 Post-construction Mitigation and Enhancement

Barn owl nest boxes will be installed on the edge of each of the woodlands to offer an enhancement for this species and to provide additional roosting opportunities.

The proposed development is likely to increase the number of people using the site for recreational purposes. This would be expected to increase the likelihood of disturbance to barn owls, for instance by dog-walkers or children playing. To minimise this risk footpaths across the site will be clearly marked, and a 30m buffer will be maintained between T158, T159 and T160 and any footpaths.

Areas of the Country Park will be managed to maximise barn owl foraging habitat which will encourage tall grassland to maximise foraging which will be tussocky with a thatch beneath. The grassland will be cut once a year in late September to 6 inches only.

4.8.4 Post-construction Monitoring

No monitoring of barn owls is proposed.

4.9 Aquatic Invertebrates

4.9.1 Pre-construction Mitigation Measures: Aquatic Invertebrates

Best practice measures will be included in the site management proposals to minimise the risk to local biodiversity:

- Construction will be avoided within 8m of streams to minimise the potential for pollutants entering the stream, other than in the area of road bridges (Appendix F13).
- Spill kits will be made available and used immediately should a pollution incident occur.
- All relevant Pollution Prevention Guidelines (PPGs) will be adhered to.
- During the construction of the crossing over the stream, siltation to the stream to be kept to an absolute minimum.
- Best management practices such as temporary sediment traps, silt fences and diversion trenches are all means to reduce runoff pollution and sedimentation that may be used where appropriate.

4.9.2 Post-construction Mitigation and Enhancements Measures: Aquatic Invertebrates

- Following construction the stream banks will be returned to their original height and shape (profile) and allowed to re-vegetate naturally from the surrounding area.
- If acceptable to the LPA, the management regime may include periodic grazing of the areas adjacent to the drain and stream e.g. twice a year, by cattle or an appropriate breed of sheep so as to maintain these habitats in a similar condition to present.

Enhancement measures along the stream will include:

- The careful removal of some of the understory trees along the stream banks thus allowing light onto the stream will be beneficial as it will allow aquatic vegetation to establish and grow. Vegetation removal should be avoided in areas along the River Enborne where otters and water voles have been recorded, a check for otters and water voles should be made prior to vegetation removal works commencing.



- Some careful removal of silt from the stream bed will help to provide areas that are deeper and thus provide refuge habitats in times of low water level for the aquatic invertebrates.

4.9.3 Post-construction Monitoring of Aquatic Invertebrates

No monitoring is recommended for invertebrates at the site.

4.10 Terrestrial Invertebrates

4.10.1 Pre-construction Mitigation Measures: Terrestrial Invertebrates

Table 1 provides details of notable invertebrates recorded within the site boundary, their habitat requirements and proposed mitigation/ enhancement for these species.

Table 1: Notable invertebrates recorded within site boundary

Notable invertebrate species	Location recorded	Requirements	Mitigation / enhancement
Soldier beetle (<i>Cantharis fusca</i>) Red data book	South east of High Wood (SU47296439)	Rank vegetation	Retention of rank grassland within the proposed Country Park
Hoverfly (<i>Pipiza lugubris</i>) Nationally scarce	Along the perimeter of Barn Copse (SU46446461) and along the main track (SU46346453)	Woodland and wetland habitats and hogweed (<i>Heracleum sphondylium</i>)	Retention of hogweed plants within the buffer zones around the woodlands and within the valley wetland corridor and Country Park
Picture-winged fly (<i>Orellia falcate</i>) Nationally scarce	Near Dirty Ground Copse (SU46726433)	Goats-beard (<i>Tragopogon pratensis</i>)	Translocation of goats – beard plants to these areas, or alternatively collection of seed and replanting may allow the host plant to successfully establish in other areas
Snail-killing fly (<i>Psacadina verbekei</i>) Nationally scarce	South of Slockett’s Copse (SU46706464)	Aquatic molluscs	Retention of wetland valley and careful consideration of hydrology to prevent wet areas drying out
A snail-killing fly (<i>Tetanocera punctifrons</i>) Nationally notable	Within the marshy grassland (SU46706464)	Aquatic molluscs	Retention of wetland valley and careful consideration of hydrology to prevent wet areas drying out
A mining bee (<i>Lasioglossum pauxillum</i>) Nationally scarce	Within an area of game cover south east of Dirty Ground Copse and south of Slockett’s Copse	Variety of habitats – this species has increased in rank and frequency	Retention of wetland valley and woodland



Notable invertebrate species	Location recorded	Requirements	Mitigation / enhancement
A jewel beetle (<i>Agrius laticornis</i>) Nationally scarce	Along the eastern perimeter of Gorse Covert (SU46736424)	Oak	Retention of all woodlands with 15m buffer

Many of the notable invertebrate species recorded on the proposed development site were recorded within and adjacent to the woodlands or within the marshy grassland. All of the woodlands, including a 15m buffer and the marshy grassland are being retained, as such these species are considered likely to remain on site. The snail-killing flies rely on aquatic molluscs to complete their lifecycle; as such these species also require the retention of wetland habitat.

Specimens of the Nationally Scarce picture – winged fly were recorded within the field to the south of Dirty Ground Copse and this area is scheduled for development within the current proposals. Larvae of *Orellia falcata* develop in the roots and stems of goat’s-beard, which was abundant in this field, but scarce or absent from the rest of the survey area. In order to attempt to preserve *Orellia falcata* within the site, it will be necessary to ensure that the host plant is retained in undeveloped areas of the site prior to the development of this field. Translocation of goat’s-beard plants to areas within the country park, which lie within close proximity of the existing location, or alternatively collection of seed from the existing location and scattering it in fields within the country park may allow the host plant to successfully establish in these areas. This will need to be undertaken prior to development occurring to increase the chances of success and will also need the ground to be disturbed prior to seed set to ensure seed penetration and successful germination.

4.10.2 Post-construction Mitigation and Enhancements Measures: Moths

All woodland within the site will be retained as part of the development proposals. Lighting will be directed away from this woodland habitat and hence impacts to moths are not anticipated.

4.10.3 Post-construction Monitoring of Invertebrates (All)

No monitoring is recommended for invertebrates at the site.



5.0 Management Activity

Table 2: Annual Management Summary

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 5 onwards
Tall grassland habitat to be grazed or cut once a year in late September to a height of 15cm						
Grazing to be considered for certain areas of the park (TBC with LPA)						
Plough arable weed areas / skylark plots overwinter						
Scrub management and seedling removal of opportunistic tree species (October)						
Hedgerow cutting (September) every other year						



6.0 Monitoring

Table 3: Monitoring summary

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15
Monitoring of reptile population if required (October)							
Monitoring of dormouse population (twice a year)							
Monitoring to confirm absence of invasive species							
Monitoring of the existing bluebell populations (April to early May)							
Monitor the establishment of the orchard for 15 years							
Meadow habitat – monitored once a year in July							
Monitoring of Himalayan balsam stands							

An annual monitoring summary will be compiled and will include suggestions and justification for proposed modifications for monitoring if necessary.

At the end of the 15 year period, a reassessment of the management plan will be made.



7.0 References

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- WYG, (2016c), A339 Link Road, Extended Phase 1 Habitat Survey.
- WYG, (2016d), A339 Link Road, Climbed inspection of trees for bats.
- WYG, (2016e), A339 Link Road, Nocturnal bat emergence / return surveys of trees.
- WYG, (2016f), Warren Road and A339 Bat activity surveys.



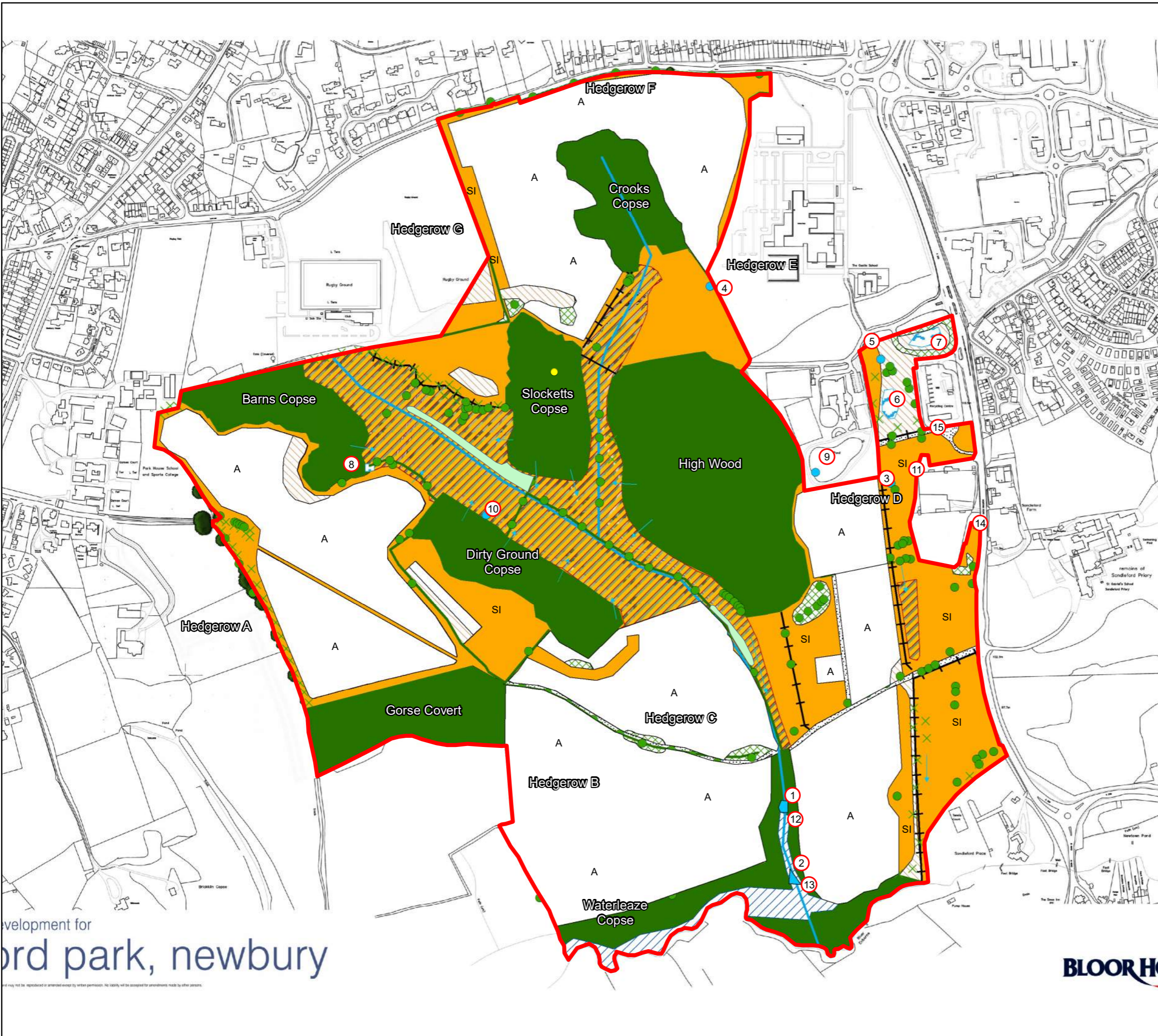
FIGURES

Figure 1 – Site Location & Phase 1 Habitat Plan

Figure 2 – Constraints Plan

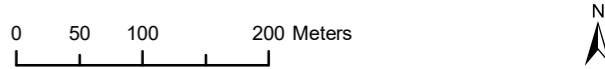
Figure 3 – Enhancement and Mitigation Plan

Figure 4 – Tree Roost Assessment



Rev	Date	Notes
A	14/12/18	Initial map production

- Legend**
- Cotoneaster
 - Purple Moor Grass and Rush Pastures HPI
 - 1 Target Note
 - Site boundary
 - Arable
 - × Scattered scrub
 - Scattered trees
 - Pond
 - +— Fence
 - Hedgerows
 - Spring and seepage points
 - Standing water
 - Running water
 - Buildings
 - Bare ground
 - Dense scrub
 - Dry waterbody
 - Wet woodland
 - Broadleaved semi-natural woodland
 - Marshy grassland
 - Tall ruderal
 - Semi-improved grassland



Site Location & Phase 1 Habitat Plan

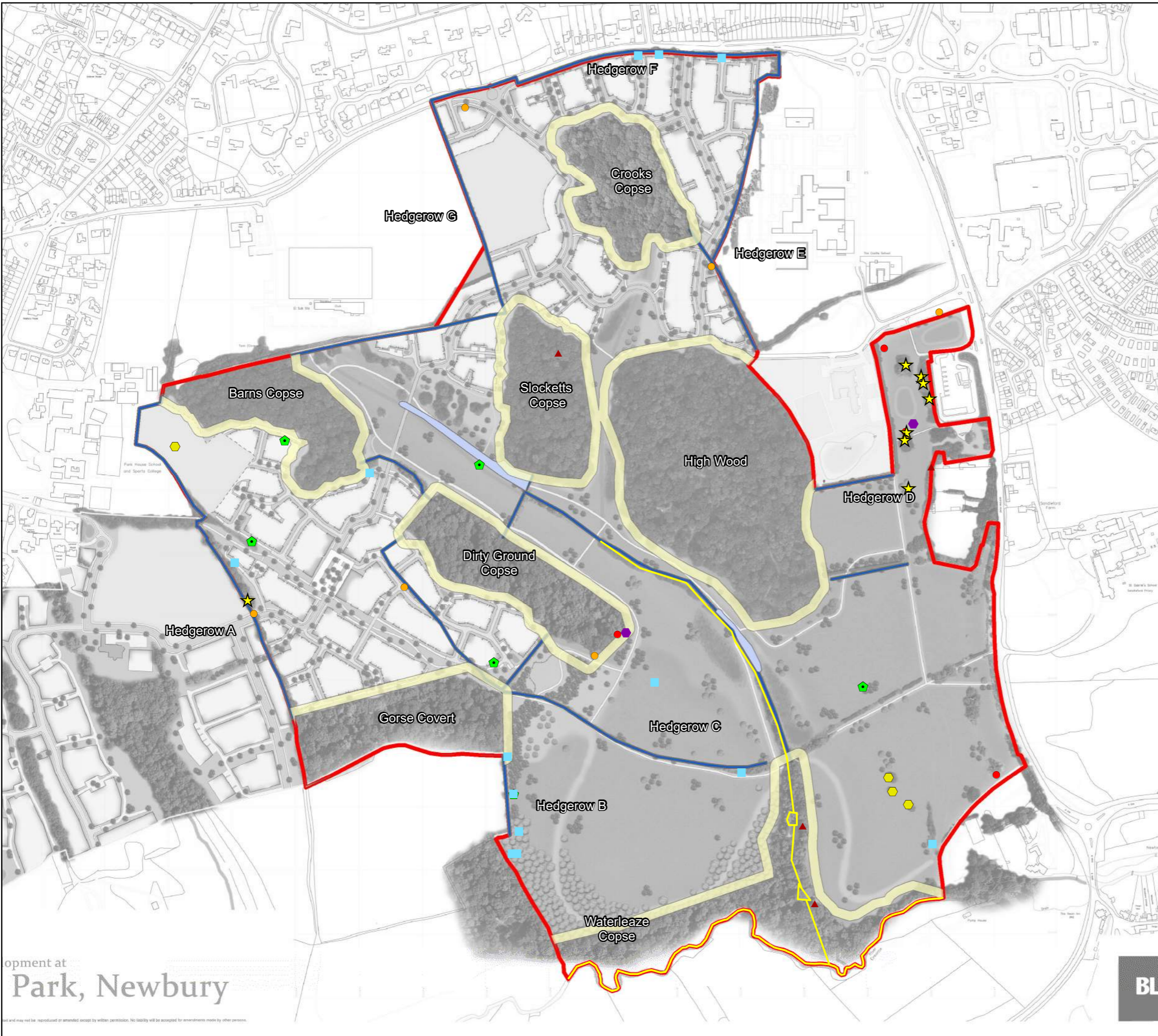
**Sandleford Park, Newbury
Bloor Homes & Sandleford Farm Partnership**

Scale at A3: 1:6,000	Project No: A070660-24	Drawing No: Figure 2	Revision: A
Drawn by: ben.cooke	Drawn date: 14/12/2018	Approved by: david.west	

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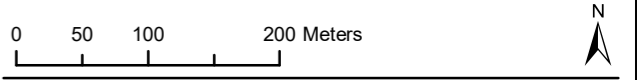
development for
Sandleford park, newbury





Rev	Date	Notes
A	17/12/18	Initial map production
B	14/02/19	Change basemap

- Legend**
- Site boundary
 - ◆ Confirmed Barn Owl Roost
 - ★ Confirmed Bat Roost
 - Tree - High Potential Roosting Bat Suitability
 - Tree - Moderate Potential Roosting Bat Suitability
 - ◆ Tree - Barn Owl Nesting Potential
 - ▲ Invasive Species Locations
 - Reptile Records
 - ◆ Scarce/Threatened Invertebrate Species
 - Purple Moor Grass and Rush Pastures HPI
 - 15m Woodland Buffer
 - Hedgerows with Potential for Dormouse
 - Watercourses - Otter & Water Vole Potential



Constraints Plan

**Sandleford Park, Newbury
Bloor Homes**

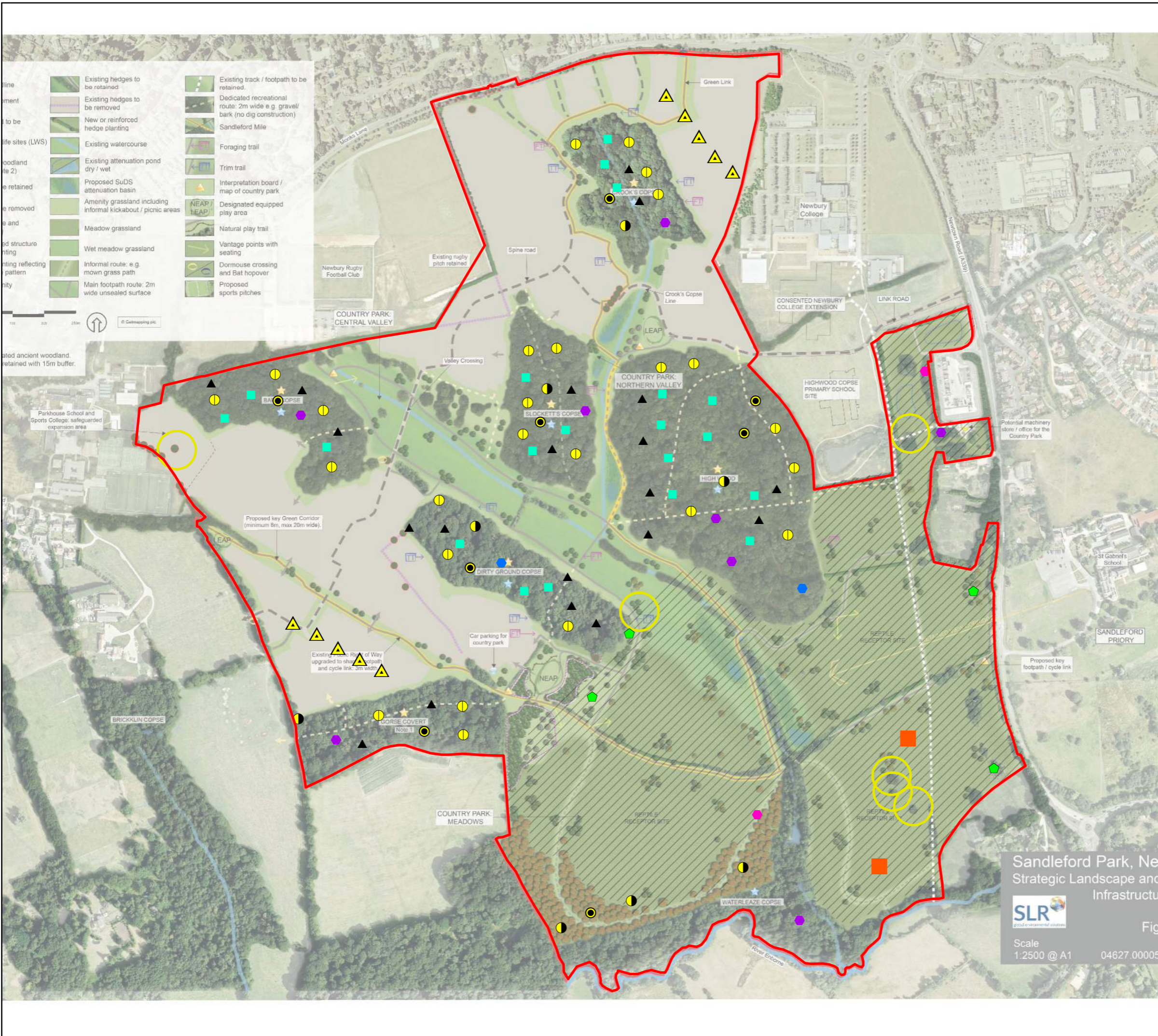
Scale at A3: 1:5,750	Project No: A070660-21	Drawing No: Figure 2	Revision: B
Drawn by: Ben Blowers	Drawn date: 14/02/2019	Approved by: David West	

Development at
Park, Newbury



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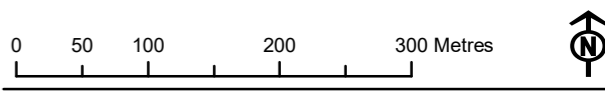


Existing hedges to be retained	Existing track / footpath to be retained
Existing hedges to be removed	Dedicated recreational route: 2m wide e.g. gravel/ bark (no dig construction)
New or reinforced hedge planting	Sandleford Mile
Existing watercourse	Foraging trail
Existing attenuation pond dry / wet	Trim trail
Proposed SuDS attenuation basin	Interpretation board / map of country park
Amenity grassland including informal kickabout / picnic areas	NEAP / LEAP Designated equipped play area
Meadow grassland	Natural play trail
Wet meadow grassland	Vantage points with seating
Informal route: e.g. mown grass path	Dormouse crossing and Bat hopover
Main footpath route: 2m wide unsealed surface	Proposed sports pitches

Rev	Date	Notes
A	20/12/18	Initial map production

Legend

- Site boundary
- Dormouse boxes
- Barn owl box
- Little owl box
- Tawny owl box
- 8 wedge shaped nest boxes
- 8 25mm-35mm nesting boxes
- 8 open front boxes
- 10 Sparrow nesting boxes
- 25 Starling nest boxes
- Skylark plots (20sq m) and Arable plant mitigation area
- Bat box (Indicative Location)
- Reptile hibernacula (Indicative Location)
- 30m Barn Owl Development Buffer
- Reptile mitigation area



Sandleford Park, Newbury
Strategic Landscape and Infrastructure
SLR
Scale 1:2500 @ A1 04627.00005

Enhancement & Mitigation Plan 2018

**Sandleford Park, Newbury
Bloor Homes & Sandleford Farm Partnership**

Scale at A3: 1:5,750	Project No: A070660-23	Drawing No: Figure 2	Revision: A
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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 2017 in England and Wales.

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 2017

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

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 Joint Nature Conservation Committee JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause 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	<i>Recurvirostra avosetta</i>	Osprey	<i>Pandion haliaetus</i>
Bee-eater	<i>Merops apiaster</i>	Owl, Barn	<i>Tyto alba</i>
Bittern	<i>Botaurus stellaris</i>	Owl, Snowy	<i>Nyctea scandiaca</i>
Bittern, Little	<i>Ixobrychus minutus</i>	Peregrine	<i>Falco peregrinus</i>
Bluethroat	<i>Luscinia svecica</i>	Petrel, Leach's	<i>Oceanodroma leucorhoa</i>
Brambling	<i>Fringilla montifringilla</i>	Phalarope, Red-necked	<i>Phalaropus lobatus</i>
Bunting, Cirl	<i>Emberiza cirlus</i>	Plover, Kentish	<i>Charadrius alexandrinus</i>
Bunting, Lapland	<i>Calcarius lapponicus</i>	Plover, Little Ringed	<i>Charadrius dubius</i>
Bunting, Snow	<i>Plectrophenax nivalis</i>	Quail, Common	<i>Coturnix coturnix</i>
Buzzard, Honey	<i>Pernis apivorus</i>	Redstart, Black	<i>Phoenicurus ochruros</i>
Capercaillie	<i>Tetrao urogallus</i>	Redwing	<i>Turdus iliacus</i>
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Rosefinch, Scarlet	<i>Carpodacus erythrinus</i>
Corncrake	<i>Crex crex</i>	Ruff	<i>Philomachus pugnax</i>
Crake, Spotted	<i>Porzana porzana</i>	Sandpiper, Green	<i>Tringa ochropus</i>
Crossbills (all species)	<i>Loxia</i>	Sandpiper, Purple	<i>Calidris maritima</i>
Curlew, Stone	<i>Burhinus oediacnemus</i>	Sandpiper, Wood	<i>Tringa glareola</i>
Divers (all species)	<i>Gavia</i>	Scaup	<i>Aythya marila</i>
Dotterel	<i>Charadrius morinellus</i>	Scoter, Common	<i>Melanitta nigra</i>
Duck, Long-tailed	<i>Clangula hyemalis</i>	Scoter, Velvet	<i>Melanitta fusca</i>
Eagle, Golden	<i>Aquila chrysaetos</i>	Serim	<i>Serinus serinus</i>
Eagle, White-tailed	<i>Haliaeetus albicilla</i>	Shorelark	<i>Eremophila alpestris</i>
Falcon, Gyr	<i>Falco rusticolus</i>	Shrike, Red-backed	<i>Lanius collurio</i>
Fieldfare	<i>Turdus pilaris</i>	Spoonbill	<i>Platalea leucorodia</i>
Firecrest	<i>Regulus ignicapillus</i>	Stilt, Black-winged	<i>Himantopus himantopus</i>
Garganey	<i>Anas querquedula</i>	Stint, Temminck's	<i>Calidris temminckii</i>
Godwit, Black-tailed	<i>Limosa limosa</i>	Swan, Bewick's	<i>Cygnus bewickii</i>



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



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.



Appendix B – Native Plant Species List



Gardening for bats

Aim at having flowers in bloom through the year, including both annuals and herbaceous perennials. Below are some suggestions, but this is by no means an exhaustive list. See what grows well in YOUR garden, and what seems most attractive to insects. Flowering times are approximate, varying in different areas. Regular dead-heading extends flowering period in many flowers. A=annual, HA=hardy annual, HHA=half-hardy annual, P=perennial, W=wild flower.

Flowers for borders			
St John's Wort	<i>Hypericum</i>	P	March-
marigolds	<i>Calendula</i>	H/A	March – Oct.
aubretia	<i>a. deltoidea</i>	P	March-June
honesty	<i>Lunaria rediva</i>	HB	March
forget-me-not	<i>Myosotis sp.</i>	A/P	March - May
elephant ears	<i>Bergenia</i>	P	April
Wallflowers	<i>Erysimum</i>	B	April - June
Cranesbills	<i>Geranium sp</i>	P	May – Sept.
Yarrow	<i>Achillea</i>	P	May -
Poppies	<i>Papaver sp.</i>	A	May - July
Dames violet	<i>Hesperis matronalis</i>	P	May - August
Red Valerian	<i>Centranthus ruber</i>	P	May – Sept.
Poached egg plant	<i>Limnanthes</i>	HA	June – Aug.
Knapweed	<i>Centaurea nigra</i>	P	June-Sept.
Phacelia		HA	June – Sept.
Ox-eye daisy	<i>Leucanthemum vulgare</i>	P	June – Aug.
Evening primrose	<i>Oenothera biennis</i>	B	June-Sept.
Candytuft	<i>Iberis umbellata</i>	HA	June – Sept.
Sweet William	<i>Dianthus barbatus</i>	B	June - July
Blanket flowers	<i>Gaillardia</i>	P	June -
Verbena	<i>V.bonariensis</i>	HHA	June – Oct.
Scabious	<i>knaulia arvensis</i>	P	July-Aug.
Night-scented stock	<i>matthiola bicornia</i>	HA	July-Aug
Pincushion flower	<i>Scabious sp.</i>	A/P	July – Sept.
Cherry pie	<i>helictrope</i>	HHA	July – Oct.
Mexican aster	<i>Cosmos sp.</i>	A/P	July – Oct.
Cone flower	<i>Rudbeckia sp.</i>	A/P	August-Nov.
Mallow	<i>lavatera sp.</i>	P	August-Oct.
Michaelmas daisy	<i>Aster sp.</i>	P	August-Sept.
Ice plant 'Pink lady'	<i>Sedum spectabile</i>	P	Sept.
Herbs – both leaves and flowers are fragrant			
Fennel	<i>Foeniculum vulgare</i>		July – Sept.
Bergamot	<i>Monarda didyma</i>		June - Sept
Sweet Cicely	<i>Myrrhis odorata</i>		April - June
Hyssop	<i>Hyssopus officianlis</i>		July - Sept
Feverfew	<i>Tanacetum parthenium</i>		June – Sept.
Borage	<i>Borago officinalis</i>		May – Sept.

Rosemary	<i>Rosemary officinalis</i>		March - May
Lemon balm	<i>Melissa officinalis</i>		
Coriander	<i>Copiantum sativum</i>		June - August
Lavenders	<i>Lavendula sp.</i>		
Marjoram	<i>Origanum sp</i>		
Trees, shrubs and climbers important to insects			
Oak	<i>Quercus sp.</i>		large gardens only
Silver birch	<i>Betula pendula</i>		
Common alder	<i>Alnus glutinosa</i>		Suitable for coppicing
Hazel	<i>Corylus avellana</i>		Suitable for coppicing
Elder	<i>Sambucus nigra</i>		Small
Pussy willow	<i>Salix caprea</i>		Suitable for coppicing
Hawthorn	<i>Crataegus monogyna</i>		Suitable for coppicing
Honeysuckle	<i>Lonicera sp.</i>		grow a variety for succession.
Dog rose	<i>Rosa canina</i>		Climber
Bramble	<i>Rubus fruticosus</i>		Climber
Ivy	<i>hedera helix</i>		Climber
Buddleia	<i>Buddleia davidii</i>		shrub
Gueider rose	<i>Vibernum opulus</i>		shrub
Gorse	<i>Ulex sp.</i>		shrub
Plants for pond edges and marshy areas			
Purple loosestrife	<i>Lythrum salicaria</i>	W	June – Aug.
Meadow sweet	<i>Filipendula ulmaria</i>	W	June – Sept.
Lady's smock	<i>Cardamine pratensis</i>	W	April - June
Water mint	<i>mentha aquatica</i>	W	July – Sept.
Angelica	<i>Angelica sylvestris</i>	W	July – Sept.
Hemp agrimony	<i>Eupatorium cannabinum</i>	W	July – Sept.
Marsh marigold	<i>Caltha palustris</i>	W	March – May
Creeping Jenny	<i>Lysimachia nummularia</i>	W	May - August
Fringed water lily	<i>Nymphoides peltata</i>	W	June – Sept.
Water forget-me-not	<i>Myosotis scorpioides</i>	W	June – Sept.

Allow part of your lawn to grow long in summer and cut in autumn, removing the clippings. Avoid using fertilizers. Compost heaps are good producers of insects too.

Add a seat to watch your garden come to life!



Appendix C – Wildlife Boxes



Bats

Bat Box

This type of box is made of woodcrete and is expected to last approximately 25 years. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats. Woodcrete (75% wood sawdust, concrete and clay mixture).

Width: 27cm; Height: 43cm; Weight: 8.3kg.



For Trees

Woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability. They are long lasting (approx. 25 years) and are rot- and predator-proof. Hang from a tree branch near the trunk, or fix to a trunk with the supplied 'tree-friendly' aluminium nail. Attractive to smaller British bats.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture); Diameter: 16cm; Height: 33cm; Weight: 4kg.



Bird nest boxes

The following briefly summarises three of the most common nesting box types used. There are many other designs, particular to the nesting preferences of the various species. For detailed information of the various nest box designs, please refer to Extracts from BTO Guide 23, Nestboxes (1993 edition) by Chris du Feu, available at:

<http://www.bto.org/sites/default/files/u15/downloads/publications/guides/nestbox.pdf>

Open Fronted Boxes

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts and is best situated on the walls of buildings with the entrance on one side. These woodcrete boxes are designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

Boxes with Entrance Holes

This box is attractive to smaller birds such as tits, wrens and tree sparrows. Sparrow terraces are also available.

Wedge shaped boxes

These boxes are attractive to a range of small birds but are particularly attractive to treecreepers as the box mimics crevices under loose bark that are used by this species.

Barn Owl Nest Box

This nest box is specifically designed for nesting barn owls. In the UK owl boxes now account for three-quarters of the nest sites used by Barn Owls.

Tawny Owl Box

Tawny owls uses small nest cavities that barn owls and thus the boxes tend to be smaller – tawny owl boxes are always sited on trees.

Little Owl Box

Little owls use fairly large boxes but with a small entrance hole and a dark nesting chamber. Typically these are installed on trees or buildings.

