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**Hatch End Industrial Estate, Middle Aston,  
Bicester, Oxfordshire OX25 5QL**



**Preliminary Ecological Appraisal**

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**October 2018**

***on behalf of JPPC Town Planners***

<b>Client</b>	JPPC Town Planners
<b>Job name</b>	Hatch End Industrial Estate, Middle Aston, Bicester, Oxfordshire OX25 5QL
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## 1 Summary of Study

- A Phase 1 Habitat Survey of Hatch End Industrial Estate, Middle Aston was undertaken by Windrush Ecology on the 16<sup>th</sup> October 2018.
- A Preliminary Roost Assessment of the buildings within the site was conducted concurrently with the phase 1 habitat survey.
- The Thames Valley Environmental Records Centre was contacted to request ecological information on statutory/non-statutory sites and protected/notable species records held within 1km of the site.
- There is a proposal to re-develop the site which will involve the removal of the majority of existing buildings.
- The main aim of the survey was to look for evidence of protected species and to classify habitats present within the site, and to assess the potential impacts on protected species and valued habitats.
- Habitats present within the site include: buildings, improved grassland, scrub, hedgerows, tree belts, ruderal vegetation, ephemeral vegetation and hard-standing.
- Semi-mature/mature trees and adjacent woodland are considered to be the habitats of greatest ecological value within the context of the site.
- All of the buildings, except for one, were assessed as having 'negligible' bat roost potential. The exception (Building F) was assessed as having 'low' bat roost potential
- Opportunities for nesting birds exist within trees, scrub, hedgerows and adjacent woodland.
- There are no foreseeable impacts on statutory or non-statutory sites.
- There are no foreseeable impacts on priority habitats listed under Section 41 of the NERC Act, 2006 or other habitats of high ecological value. The adjacent woodland will be protected within the development.
- All trees within the site will be protected and retained within the development.
- With the retention of Building F and all trees within the site, there are no foreseeable impacts on roosting bats.
- With the continued management of improved grassland, to prevent the habitat developing into suitable amphibian terrestrial habitat, there are no foreseeable impacts on amphibians including the great crested newt.
- No further ecological surveys are considered necessary at this stage.

- Recommendations are made with regard to sensitive timing of works to avoid impacts on nesting birds and amphibians, and the incorporation of enhancement measures within the developed site.

## **1 Introduction**

### **1.1 Site Description**

Hatch End Industrial Estate is located to the western side of Fir Lane within the hamlet of Middle Aston. The central Ordnance Survey grid reference for the site is SP 4754 2648. Middle Aston is located to the immediate north of the neighbouring village of Steeple Aston in the Cherwell district of Oxfordshire.

The focus of the current study is an operational industrial estate consisting of an area of concrete hard-standing with numerous industrial outbuildings. The majority of the buildings are former poultry sheds consisting of simple rectangular structures with wooden panel walls and pitched roofs of corrugated asbestos/metal. The site also includes an approximate 1.2ha area of grassland located to the west of the yard. The western site boundary is marked by a combination of a section of hedge and one row of a double planted tree belt. The northern and eastern edges of the site are also defined by tree belts, whereas the southern site boundary is marked by an adjacent area of woodland copse.

The site exists in a rural location, with open countryside extending to the east and west of the site. Middle Aston House (a large property) is large property located to the immediate north of the site, the property contains extensive grounds which include several large waterbodies and areas of woodland copse. The landscape surrounding Middle Aston is dominated by agriculture, with arable fields and areas of improved pasture set within a network of interconnecting hedgerows. The River Cherwell flows north-south approximately 850m to the east of the site and presents a notable ecological feature within the surroundings of Middle Aston.

### **1.2 Proposed Works**

There is a proposal to demolish most of the existing buildings (Building F to be retained) and redevelop the site. Proposed layout plans had yet to be finalised at the time this report was prepared.

### **1.3 Aims of Study**

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The report discusses the likely impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species. The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species. The need for further ecological survey work is discussed in light of the impact assessment.

One specific aim of this study is to survey the buildings for bats and/or evidence of bats, and other protected species including nesting birds such as the barn owl. The study assesses the overall potential of the buildings to support roosting bats, and other protected species, and discusses the likely impact of the proposed works on protected species and their habitats.

The report makes recommendations for appropriate mitigation, compensation and enhancement measure and the potential impacts are assessed in accordance with the legal protection afforded to bats under The Conservation of Habitats & Species Regulations 2017. The need for a European Protected Species (Bat) licence is also discussed in light of the impact assessment.

## **2 Methodology**

### **2.1 Desk Study**

The Thames Valley Environmental Records Centre (TVERC) was contacted in October 2018 to gather records that it holds for protected and notable species, of nature conservation importance from within a 1km radius of the site.

The Multi-Agency Geographic Information for the Countryside ([www.magic.gov.uk](http://www.magic.gov.uk)) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the site and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius. Other Internet resources interrogated as part of the desk study include:

- The Ordnance Survey - [www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk)
- Bing Maps - [www.bing.com/maps](http://www.bing.com/maps)
- Old Maps - [www.old-maps.co.uk](http://www.old-maps.co.uk)
- Google Earth - [www.earth.google.co.uk](http://www.earth.google.co.uk)

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, was also consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation was used to place the study sites into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to put the site into an ecological context and to provide a baseline to the habitat assessment.

## 2.2 Extended Phase 1 Habitat Survey

An extended Phase 1 Habitat Survey was undertaken on 16<sup>th</sup> October 2018 by Owen Crawshaw *BSc ACIEEM* and Robbie Birkett *MSci*. A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC 2010).

Target notes were also prepared on features of particular ecological interest within the site and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006).

## 2.3 Initial Bat Survey/Preliminary Roost Assessment

A building inspection survey (initial bat survey) was also undertaken on 16<sup>th</sup> October 2018 by Owen Crawshaw *BSc ACIEEM* and Robbie Birkett *MSci*. Mr Crawshaw holds a licence from Natural England to survey for bats within all counties of England (2018-36986-CLS-CLS) and has over four years of experience in undertaking bat surveys.

A detailed survey of the buildings was undertaken using a 1 million candle-power torch and close-focusing binoculars in order to look for bats and/or evidence of bats and to assess the potential of the buildings to support roosting bats. The elevations of the buildings were inspected for evidence of bats including, bat droppings, urine stains, feeding remains (such as moth wings) and characteristic fur staining around access points.

Notes were made on the relative freshness, shape and size of bat droppings and the location and quantity of any feeding remains. 'Clean' gaps and crevices within the structure of the buildings were looked for as this can indicate where bats may have gained access to the interior spaces and the fabric of the walls.

The bat survey was undertaken according to best practice guidelines published by the Bat Conservation Trust (Collins, 2016) and the *Bat Workers Manual* (JNCC, 2012).

The study also takes into account the structures and ecological context of the buildings, including the following factors which may increase the likelihood of roosting bats being present:

- Age of the building (pre-20<sup>th</sup> Century or early 20<sup>th</sup> Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces



- Large (>20 cm) roof timbers with mortice/tenon joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool.
- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting.

The following criteria are used for as guidelines for assessing the potential suitability of buildings for bats (Collins, 2016):

Table 1. Criteria for the assessment of buildings for roosting bats (Collins 2016).

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after the presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitats.

Confirmed presence of roosting bats is where evidence is found to show that a building or structure is used by bats, this includes:

- bats seen roosting or observed flying from a roost or freely in the habitat;
- droppings, carcasses, feeding remains etc. found and/or
- bats heard ‘chattering’ inside a roost on a warm day or at dusk.

In addition to the bat survey, the buildings were checked for evidence of nesting birds including old birds’ nests, bird droppings, feathers and eggs.

### 3 Results & Evaluation

#### 3.1 Constraints to Current Study

Internal access to Buildings: B, C, E and F was not achieved during the survey. With the exception of Building F which contains loft voids, lack of access to the buildings is not considered to present a significant constraint given that the majority of the buildings within the site are of very similar construction and are largely unsuitable for roosting bats.

## 3.2 Sites of Nature Conservation Importance

A summary of sites of nature conservation importance is given below; please refer to Appendix 5 for full citations of these sites. Species records are discussed within Section 3.3, alongside the results of the field surveys.

### 3.2.1 Statutory Sites

There are no sites of national conservation importance i.e. Sites of Special Scientific Interest (SSSIs) within 1km of the site. Furthermore, there are no sites of international conservation importance e.g. Special Areas of Conservation (SACs)/Special Protected Areas (SPAs) within 5km of the site.

### 3.2.2 Non-statutory Sites

The Upper Cherwell Conservation Target Area (CTA) is located approximately 700m to the north-east of the site. The CTA includes habitats created within the valley created by the River Cherwell/Oxford Canal. Habitats associated with the CTA include:

- Floodplain grazing marsh
- Lowland meadows
- River

## 3.3 Habitats

Photographs of the site are presented in Appendix 1, showing habitats and buildings. A Phase 1 Habitat Plan is provided in Appendix 3.

### 3.3.1 Buildings

Descriptions of the buildings are provided below, and the locations of the buildings are shown in Figure 2. For the purposes of this report, the buildings are labelled Building A to Building I.

#### 3.3.1.1 Building A

Building A currently serves as a scout hut and is used for the storage of outdoor equipment. The building covers a small rectangular footprint and is created on a concrete plinth with walls of wooden plywood. Wrapped metal edging exists at the eaves of the northern and southern gables. The roof is created from a pitched arrangement of corrugated asbestos. The interior space is open to the underside of the roof which is supported by a simple timber frame with no underlining.

Building A is assessed as having 'negligible' bat roost potential (Collins 2016).

#### 3.3.1.2 Building B

Building B is a large former barn arranged over a rectangular footprint and set on a plinth of concrete blockwork. The northern and southern gable ends are created from tight-fitting wooden shiplap boarding. Wooden bargeboards have been fitted at the gable ends and are set away from the wall face and sealed by sunken soffits underneath.

The eastern and western elevations display tapering walls covered with corrugated metal sheeting set against the vertical internal walls. The nature of the external walls creates a sheltered void between the external (tapering) wall and internal (vertical) wall which is open at the base. The roof of the building is of a shallow pitch and created from sheets of corrugated metal.

Building B is assessed as having 'negligible' bat roost potential.

#### 3.3.1.3 Building C

Building C is a large former barn arranged over a rectangular footprint and set on a plinth of concrete blockwork. The walls of the building are constructed from tight-fitting wooden shiplap boarding with wooden boxed eaves at the gable ends and wooden fascia board along its side elevations. Gaps were

observed at the eaves of the southern gable end; however, these features are considered to lead directly into the internal space and do not create sheltered crevice features. Three wooden bird boxes have been installed on the eastern elevation of the building. The roof of the building is created from a pitched arrangement of corrugated asbestos sheeting.

Building C is assessed as having 'negligible' bat roost potential.

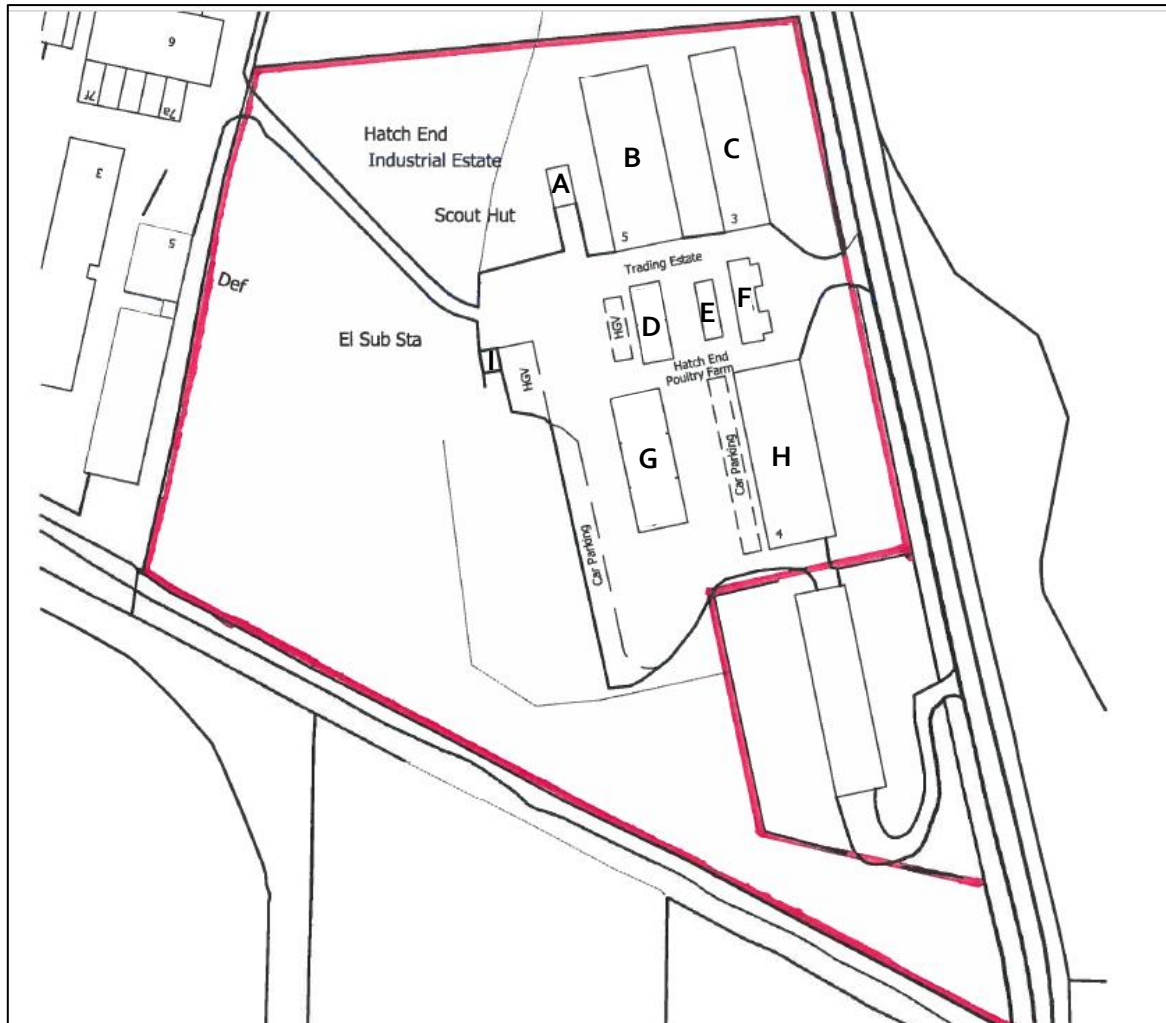


Figure 2. The locations of the study buildings at Hatch End Industrial Estate.

#### 3.3.1.4 Building D

Building D is a converted agricultural barn which is currently in use as an arts and crafts workshop/storage facility. The building is rectangular in shape and set atop a plinth of concrete blockwork. The walls of the building are created from tight-fitting wooden shiplap boarding. Wooden boxed eaves exist at the roof-wall junctions of the northern and southern gable ends. A small gap is created at the southern elevation due to a damaged bargeboard. A large hole exists within the northern wall (towards the apex), the hole has been partially sealed by boarding from the inside, however a significant gap remains at the top of the feature providing access into the roof space.

Two accessible loft spaces exist within the roof of Building D and are separated from the workspace below by a wooden panel ceiling. The loft space within the northern section of the building has an approximate floor-ridge height of 1.25m, whereas the void within the southern section is shallower (max 1m). Both spaces contain a thick layer of dirt throughout, with dense accumulations of cobwebbing at the ridge. The underside of the roof is unlined within both loft spaces.

Building D is assessed as having 'negligible' bat roost potential.

#### 3.3.1.5 Building E

Building E is arranged over a rectangular footprint and is set upon a plinth of concrete blockwork. The walls of the building are created from tight-fitting wooden shiplap boarding with wooden boxed eaves created at the northern and southern gable ends. The roof is created from a pitched arrangement of corrugated asbestos sheeting and is lined on its underside by wooden panelling. There are not considered to be any accessible loft spaces within the building.

Building E is assessed as having 'negligible' bat roost potential.

#### 3.3.1.6 Building F

Building F covers a 'U'-shaped footprint: being created from a main rectangular section with two protruding gables at its eastern elevation. The building is constructed upon a plinth of concrete blockwork with walls of tight-fitting wooden shiplap boarding. Wooden boxed eaves exist at the roof-wall junctions, with gaps observed at the northern and southern gables.

The roof is pitched and covered with concrete pantiles. The roof tiling is described as being in a 'very good' state of repair with no slipped or missing tiles. A single small gap was observed at the north-eastern corner of the roof where an area of missing mortar creates a potential roost feature beneath a roof tile. A central cupola (clock tower) exists at the ridge of the roof and is created from wooden sides with a hipped roof of lead flashing. Accessible loft voids exist within the roof of Building F; however, these could not be accessed during the survey.

Building F is assessed as having 'low' bat roost potential due to gaps within the exterior of the building and the presence of roof voids which could not be accessed during the survey.

#### 3.3.1.7 Building G

Building G is similar in its construction to Building E.

Building G is assessed as having 'negligible' bat roost potential.

#### 3.3.1.8 Building H

Building H is identical in its construction to Building B.

Building H is assessed as having 'negligible' bat roost potential.

#### 3.3.1.9 Building I

Building I is a simple shed with wall of wooden shiplap boarding and a sloping roof of bitumen and hessian roofing felt.

Building I is assessed as having 'negligible' bat roost potential.

### 3.3.2 Improved Grassland

An area of improved grassland habitat extends the southern and western edges of the site. The grassland is considered to occasional management, however is unlikely to be mowed more than once a year. The grassland has a maximum sward height of 20cm and was beginning to develop characteristic of 'rough grassland' with a loose thatch starting to form.

The grassland is dominated by common grasses including cock's foot *Dactylis glomerata*, false oat-grass *Arrhenatherum elatius* and Yorkshire fog *Holcus lanatus*. The habitat is described as species-poor: containing a low diversity of common herbaceous plants which are present in relatively low

abundance. Species of herb recorded amongst the grasses include: stinging nettle *Urtica dioica*, white dead-nettle *Lamium album*, cleavers *Galium aparine*, herb Robert *Geranium robertianum*, ground ivy *Glechoma hederacea*, ivy *Hederacea helix*, hogweed *Heracleum sphondylium*, dove's-foot crane's-bill *Geranium molle*, cow parsley *Anthriscus sylvestris*, sow thistle *Sonchus* sp. and broad-leaved dock *Rumex obtusifolius*.

Additional areas of improved grassland surround the buildings at the northern end of the yard and to the immediate west of the yard. These areas are regularly mowed and have a maximum sward height of 5cm. the habitat is dominated by common grasses and contains a greater abundance of herbs in comparison the areas previously described. Species present within the shorter areas of improved grassland include: creeping buttercup *Ranunculus repens*, dove's-foot crane's-bill, creeping cinquefoil *Potentilla reptans*, dandelion *Taraxacum officinale*, germander speedwell *Veronica chamaedrys*, spear thistle, broad-leaved dock and inkcap mushroom *Coprinopsis atramentaria*.

The described areas of improved grassland are not considered to meet the criteria of any priority grassland habitats, such as those listed under Section 41 of the NERC Act, 2006 e.g. Lowland Meadows. The improved grassland is considered to be of low ecological value.

### 3.3.3 Scrub

Areas of planted coppice exist along the northern half of the site's eastern boundary. Hazel *Corylus avellana* and dogwood *Cornus sanguinea* are the dominant species with some field maple *Acer campestre* and rowan *Sorbus aucuparia* also present. The ground beneath the coppiced shrub is covered with leaf litter, the ground flora recorded during the survey was limited to wood avens *Geum urbanum* and ground ivy.

The areas of coppiced scrub are not considered to meet the criteria of any priority woodland habitat listed within Section 41 of the NERC Act 2006, however the habitat is considered to be of ecological value within the context of the site.

### 3.3.4 Woodland

The southern site boundary is marked by an area of adjacent woodland habitat. The habitat is dominated by semi-mature and mature trees including specimens of: ash *Fraxinus excelsior*, willow *Salix* sp., beech *Fagus sylvatica*, rowan, cherry *Prunus avium*, sycamore *Acer pseudoplatanus*, lime *Tilia x europaea* and horse chestnut *Aesculus hippocastanum*, with an understorey of hawthorn *Crataegus monogyna*. The ground flora beneath the trees contains: stinging nettle, ivy, cleavers and bramble *Rubus fruticosus* agg.

The habitat is listed within the government's woodland inventory (<https://magic.defra.gov.uk/>). The habitat is considered to qualify as Lowland Mixed Deciduous Woodland. The adjacent woodland habitat is considered to be the feature of greatest ecological value within the context of the site and its immediate surroundings.

### 3.3.5 Tree Belts

A double avenue of planted trees exists towards the north-western corner of the site and extends northwards beyond the site, with an approximate total length of 150m, and connects to woodland within the local area. The habitat is created by mature specimens of horse chestnut and beech. The feature is of high ecological value within the site and the immediate surroundings.

The western site boundary is marked by a mature tree belt including horse chestnut, lime, and beech trees. The northern site boundary is marked by a row of mature/semi-mature: birch *Betula* sp., silver birch *Betula pendula*, cherry *Prunus* sp. with some coppiced hazels. A row of mature lime trees has been planted along the road verge at the eastern site boundary. Mature trees are considered to be of high ecological value.

### 3.3.6 Hedgerows

A hedgerow exists towards the western side of the site and serves to separate the yard and its areas of improved grassland from the taller areas of grassland within the western half of the site. The hedge consists largely of field maple and hawthorn with some dogwood and rowan also present. Ground flora beneath the hedge is created by the adjacent improved grassland habitats.

The hedgerow is considered to qualify as priority habitat under 'Hedgerows' within Section 41 of the NERC Act, 2006, however does not qualify as an Important Hedgerow under the Hedgerow Regulations 1997. The hedgerow is considered to be of high ecological value.

A short section of garden hedge comprised exclusively of cherry laurel exists at the western side of the site. The feature is considered to be of low ecological value.

### 3.3.7 Ruderal Vegetation

Areas of ruderal vegetation exist within the site in the form of a dense bed of sting nettles at the southern corner as well as a strip along the northern site boundary. Species present within the habitat include: stinging nettle, chickweed *Stellaria media*, wood avens, ground ivy, and great willowherb *Epilobium hirsutum*. Areas of ruderal vegetation are considered to be of low ecological value.

### 3.3.8 Ephemeral Vegetation

Pioneer species of ruderal vegetation were observed growing amongst gravel hard-standing within the yard. Species recorded include: ribwort plantain *Plantago lanceolata*, creeping bent *Agrostis stolonifera*, spear thistle *Cirsium vulgare*, dandelion *Taraxacum officinale* and ragwort. Areas of ephemeral vegetation are considered to be of negligible ecological value.

### 3.3.9 Hard-Standing

Areas of tarmacked and gravel hard-standing exist within the centre of the site to create the working yard. Areas of hard-standing are of negligible ecological value.

## 3.4 Species

The following sections collate data collected during the site survey of 16<sup>th</sup> October 2018 with the species data held by the Thames Valley Environmental Records Centre (TVERC) in order to assess the suitability of the habitats within the study for protected species.

The TVERC holds records of protected/notable plant, bird and mammal species from within a 1km radius of the site. A summary of the most pertinent species, given the nature of the habitats within the site and the surrounding landscape, are provided below. Full details of protected/notable species records can be found in Appendix 5.

### 3.4.1 Plants

The local records centre holds a record of common valerian *Valeriana officinalis* from near Upper Heyford (exact location unknown). The species typical grows within woodland clearings and ditches. While no suitable habitat for the species exists within the site, the woodland habitat to the south of the site could potentially support common valerian as well as other protected/notable species of plant including bluebells *Hyacinthoides non-scripta*.

Habitats within the site are not considered suitable for rare/protected species of plant.

### 3.4.2 Invertebrates

A number of historic (1993) butterfly records exist from a property located approximately 700m to the south of the site. Species recorded include small heath *Coenonympha pamphilus*, wall *Lasiommata megera*, pearl-bordered fritillary *Boloria selene* and large tortoiseshell *Nymphalis polychloros*. The large tortoiseshell was once common and widespread in areas with significant woodland habitat,

however the species is now considered to be extinct in the UK. Both small heath and wall butterflies occur in areas of species-rich grassland i.e. meadows, where their larval stages feed on fine grasses. The pearl-bordered fritillary inhabits woodland clearings where violets are found.

Habitats within the site are unsuitable for uncommon/rare species of butterfly, however the woodland habitat located immediately beyond the site's southern boundary is potentially suitable for the pearl-bordered fritillary.

The mature tree belts, scrub and hedgerow habitats within the site are likely to support a variety of moths, potentially including priority species listed under Section 41 of the NERC Act 2006.

#### 3.4.3 Amphibians

There are no ponds within the site or immediately adjacent to the site boundary. The nearest waterbody is located approximately 150m to the north of the site.

There are no records of amphibians, including the great crested newt *Triturus cristatus*, from within 1km of the site.

The tree belts, woodland, hedgerow and scrub habitats within the site and along the site boundaries are considered to provide suitable terrestrial habitat for amphibians during the terrestrial phase of their life cycle. The areas of improved grassland, ruderal vegetation and hard-standing are not considered to constitute amphibian terrestrial habitat.

#### 3.4.4 Reptiles

There are no records of reptiles from within 1km of the site. Habitats within the site are not considered suitable for reptiles.

#### 3.4.5 Birds

Species of bird observed within the site and its immediate surroundings during the survey of 16<sup>th</sup> October 2018 include: robin *Erithacus rubecula*, wood pigeon *Columba palumbus*, carrion crow *Corvus corone*, blue tit *Cyanistes caeruleus*, great tit *Parus major*, chaffinch *Fringilla coelebs* and nuthatch *Sitta europaea*.

The majority of records returned by TVERC within the data search pertain to birds observed within Middle Aston and the local surroundings. There are several historic records of the lesser spotted woodpecker from woodland within the local area, although the age of the records is unlikely to provide accurate information on the species' current distribution within the local area. The adjacent woodland habitat (to the south) is potentially suitable for woodcock *Scolopax rusticola* (a red list species). In addition, mature trees such as those within the site's tree belts and adjacent woodland are suitable for nesting by raptors including red kite *Milvus milvus*.

Opportunities for common and widespread species of garden and farmland bird are created within the site's hedgerows, coppice scrub, tree belts and by nest boxes on Building C. The breeding bird assemblage within the site is likely to consist largely of common and widespread species of garden bird, several of which are listed as priority under the NERC Act, 2006 e.g. song thrush *Turdus philomelos*, bullfinch *Pyrrhula pyrrhula* and dunnock *Prunella modularis*.

#### 3.4.6 Bats

No bats or evidence was found in association with any of the buildings during the inspection of 16<sup>th</sup> October 2018. With the exception of Building F which was assessed as having 'low' bat roost potential, the buildings were all assessed as having 'negligible' bat roost potential.

The TVERC holds a record of brown long-eared bat droppings observed within a building to the immediate north of the site. Other species of bat known to occur within Middle Aston and the local

surroundings include: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, serotine *Eptesicus serotinus*, noctule *Nyctalus noctule* and several species of 'mouse-eared' bat within the genus *Myotis*.

The site boundaries and linear features (i.e. tree belts and hedges) within the site are considered to provide highly suitable foraging channels and commuting corridors for bats. Although a specific survey of individual trees was not undertaken within the current study the mature trees within the site are likely to contain potential roost features which could support roosting bats.

#### 3.4.7 Other Mammals

No badger *Meles meles* setts or other evidence of badgers was recorded within the site.

The records centre holds numerous records of otter *Lutra lutra* from the River Cherwell. Given the absence of watercourses from the site and its surroundings otters are considered to be absent from the immediate zone of influence.

The site provides suitable foraging habitat for hedgehogs *Erinaceus europaeus* along linear features of vegetation and potential areas of shelter beneath scrub/hedges.

### 3.5 Relevant Legislation & Policy Guidance

#### 3.5.1 Nesting Birds

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August, inclusive.

#### 3.5.2 Bats

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in land use and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017. Taken together, these make it an offence to:

- (a) Deliberately capture or intentionally take a bat
- (b) Deliberately or intentionally kill or injure a bat
- (c) To be in possession or control of any live or dead wild bat or any part of, or anything derived from a wild bat
- (d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
- (e) Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection
- (f) Deliberately disturb any bat, in particular any disturbance which is likely
  - to impair their ability;
  - (i) to survive, breed, reproduce or to rear or nurture their young; or
  - (ii) in the case of hibernating or migratory species, to hibernate or migrate; or



- to affect significantly the local distribution or abundance of the species to which they belong

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017 through the issuing of licences. Where a lawful operation is required to be carried out, but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed. However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment';
- 'There is no satisfactory alternative';
- The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

A licence application includes a Method Statement which details the ecological survey work that has been undertaken and assesses the impacts on bats and their roost sites as a result of the development proposals. It also presents a mitigation strategy for maintaining the 'favourable conservation status' of the bats. This strategy will often include careful timing of work to avoid disturbance to bats, sensitive work practices to avoid the killing and injury of bats and the provision of alternative and enhanced roosting sites and roosting opportunities such as bat lofts and bat boxes. These compensation features will be appropriate to the species of bat and the type of roost site, such as maternity, hibernation or transient.

The Method Statement is prepared by a suitably qualified and experienced ecologist on behalf of the applicant. The licence application may also include a Reasoned Statement which is completed by the applicant (not the ecologist) to address the first two requirements of the Regulations which consider the 'need' of the development and any satisfactory alternatives.

### 3.5.3 *The Natural Environment and Rural Communities Act 2006*

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity.

It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework (paragraph 117) affords planning policy protection to the habitats of species listed by virtue of Section 41.

Habitats listed within Section 41 of the NERC Act 2006 that are considered to be relevant to the site include:

- Lowland mixed deciduous woodland (adjacent to site)
- Hedgerow (within site)

Species listed within Section 41 of the NERC Act 2006 that are considered to be relevant, or potentially relevant, to the site include:

- Various common moth species
- Bullfinch (potentially nesting within site)
- Song thrush (potentially nesting within site)
- Dunnock (potentially nesting within site)
- Hedgehog (potentially foraging and sheltering within site)

#### 3.5.4 National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) was revised in July 2018 and this new document forms a key part of the Government's reforms to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. The NPPF states that the planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Local planning authorities should set criteria-based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks. To minimise impacts on biodiversity and geodiversity, planning policies should:

- plan for biodiversity at a landscape-scale across local authority boundaries;
- identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them, and areas identified by local partnerships for habitat restoration or creation;
- promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan;
- aim to prevent harm to geological conservation interests; and
- where Nature Improvement Areas are identified in Local Plans, consider specifying the types of development that may be appropriate in these Areas.

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

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse

effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;

- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;
- opportunities to incorporate biodiversity in and around developments should be encouraged;
- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and
- the following wildlife sites should be given the same protection as European sites:
  - ❖ potential Special Protection Areas and possible Special Areas of Conservation;
  - ❖ listed or proposed Ramsar sites; and
  - ❖ sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites

## 4 Potential Impacts

### 4.1 Sites of Nature Conservation Importance

There are no foreseeable impacts on statutory or non-statutory sites of nature conservation importance. This due to the distance of such sites from the proposed area of development, as well as the nature and scale of the proposals. The site exists outside of the Upper Cherwell CTA and any development within the site will have no foreseeable impacts on the CTA.

### 4.2 Habitats

Whilst proposed layout plans have yet to be finalised, development within the site will likely result in the loss of existing buildings to be replaced by other structures within the hard-standing yard. This will have no foreseeable ecological impacts given the negligible value of the built structures and associated hard-standing

Development is also likely to result in the partial loss of the improved grassland habitat at the western side of the site. The habitat is considered to be of low ecological value and will not result in any ecological impacts beyond those at the site-level.

There are no foreseeable impacts on habitats of higher ecological value including: adjacent woodland, hedgerows and mature trees. All of the habitats will be retained and protected within the developed site. Opportunities for ecological enhancement and net biodiversity gain are considered viable through additional planting/management within the coppice and mature tree belts (see Section 5.3).

### 4.3 Species

#### 4.3.1 *Amphibians*

The proposed development will have no foreseeable impacts on amphibian breeding ponds.

Without appropriate management there is the possibility that the area of taller improved grassland at the western side of the site could develop into rough grassland, thus providing suitable terrestrial habitat for the great crested newt. Subsequent clearance of this grassland could result in disturbance and killing/injury of newts. These impacts will be avoided through management of the grassland to maintain its unsuitability for amphibians.

Whilst the mature tree belt provides a potential movement corridor for great crested newt into the improved grassland habitat at the western side of the site, Natural England's Great Crested Newt

Rapid Risk Assessment (Table 2) indicates that given the size of the habitat and the distance from the nearest waterbodies development is unlikely to result in an offence.

Table 2. GCN Rapid Risk Assessment for development at Hatch End Industrial Estate.

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	0.5 - 1 ha lost or damaged	0.03
Individual great crested newts	No effect	0
	Maximum:	0.1
Rapid risk assessment result:	<b>GREEN: OFFENCE HIGHLY UNLIKELY</b>	

Given the above a European Protected Species (GCN) Mitigation Licence (EPSL) is not considered necessary in this instance.

#### 4.3.2 Birds

Demolition of Building C (which has bird boxes fixed to its exterior), as well as any vegetation clearance, has the potential to result in the destruction of active nests and the killing/injury of eggs/young if undertaken during the bird breeding season.

#### 4.3.3 Bats

There are no foreseeable impacts on roosting bats. Those buildings to be demolished are assessed as having ‘negligible’ bat roost potential. The only building considered potentially suitable for roosting bats (Building F) will be retained within the proposals.

All semi-mature and mature trees within the site will be protected and retained within the development. There are therefore no foreseeable impacts on bat roosts within trees.

Given the above assessment, an EPSL (bat) licence is not considered necessary in this instance.

#### 4.3.4 Other Species

There are no foreseeable impacts on hedgehogs or other species.

### 5 Recommendations

#### 5.1 Further Surveys

No further surveys are considered necessary at this stage; however, should plans change to involve removal of Building F or semi-mature/mature trees, further survey effort will be required.

#### 5.2 Habitats

##### 5.2.1 Protection of Existing Ecological Features

The adjacent woodland located at the southern site boundary will be protected through the establishment of an appropriate buffer zone (at least 10m) between the woodland and new areas of built development.

The hedgerow habitat as well as all semi-mature/mature trees will be retained within the site and protected in accordance with BS 5837:2012 and the establishment of appropriate root protection zones.

### 5.2.2 *Enhancement of Existing Habitats*

The opportunity for significant ecological enhancement is considered to exist through improvements to the: double tree belt, hedgerow and coppice habitats through establishing a species rich ground flora beneath the trees/shrubs. It is recommended that the areas are sowed with a seed-mixture of shade tolerant species of wildflower and grasses e.g. Emorsgate EW1 Woodland Mixture.

### 5.2.3 *Habitat Creation*

New areas of tree and shrub planting should be of native species, preferably of local origin. Native tree and shrub species which are considered suitable for the site include:

- Beech *Fagus sylvatica*
- Blackthorn *Prunus spinosa*
- Crab apple *Malus sylvestris*
- Dog rose *Rosa canina*
- Dogwood *Cornus sanguinea*
- English oak *Quercus robur*
- Field maple *Acer campestre*
- Guelder rose *Viburnum opulus*
- Hawthorn *Crataegus monogyna*
- Hazel *Corylus avellana*
- Holly *Ilex aquifolium*
- Hornbeam *Carpinus betulus*
- Spindle *Euonymus europaeus*
- Wayfaring tree *Viburnum lantana*
- Wild cherry *Prunus avium*

## 5.3 **Species**

### 5.3.1 *Great Crested Newt Mitigation Strategy*

The area of improved grassland along the western side of the site should be taken under management so as to prevent the grassland transitioning to tall rough grassland and becoming suitable for amphibians. The grassland should be regularly grazed to a short sward height up until the commencement of works.

With the adoption of this strategy it is considered that the risk of killing/injury of great crested newts can be negated.

### 5.3.2 *Bats*

#### 5.3.2.1 *Retention of Existing Features*

Building F as well as all mature/semi-mature trees will remain unaffected by the development, thus avoiding any impacts on roosting bats which may be exploiting features within the building and/or trees

#### 5.3.2.2 *Careful Works Practices*

Works should proceed in a careful and controlled manner. Contractors should be briefed with regard to the fact that individual bats can often exploit very small crevices as roost sites (such as gaps at the eaves) and that bats can move between roost sites on a regular basis.

In the very unlikely event that bats or significant evidence of bats (for example large accumulations of fresh bat droppings) are encountered, works should stop immediately, and advice sought from a suitably qualified ecologist.

### 5.3.2.3 Enhanced Roosting Opportunities

Roosting opportunities for bats within the developed site could be incorporated in a number of ways. This could be achieved through integrated features or externally mounted bat boxes on new buildings.

Options include:

- Istock Bat Brick
- Schwegler 1FR Bat Tubes, integrated into buildings
- Schwegler 1FF or 1FQ Bat Boxes for external mounting on buildings
- Traditional wooden (oak) bat boxes for buildings and/or trees
- Beaumaris Woodstone Bat Box

Where possible, bat roost features should be erected on south or east facing facades, and/or facing garden and boundary habitats. Exterior lighting should be avoided around bat roost features.

### 5.3.2.4 Sensitive Lighting Strategy

External lighting should be avoided on buildings, unless it is necessary for reasons of security and safety. In particular, lighting should be avoided around any new bat roosting features, including bat boxes on trees and integrated bat roosting features. Lighting of mature tree belts and adjacent woodland habitat will be absolutely avoided in order to prevent negative impacts on bat foraging and behaviour within the site.

If lighting is required elsewhere, it should be kept at low level and at low intensity, with hoods and baffles used to direct the light to where it is required (Bat Conservation Trust 2017, Emery 2008). To minimise the impact on bats, the use of low pressured sodium lamps is recommended in preference to mercury or metal halide lamps which have a UV element that can affect the distribution of insects and attract bats to the area, affecting their natural behaviour (Bat Conservation Trust 2017).

The key principals for choosing a suitable type of lamp are:

- Avoid blue-white short wavelength lights: these have a significant negative impact on the insect prey of bats. Use alternatives such as warm-white (long wavelength) lights as this will reduce the impact on insects and therefore bats.
- Avoid lights with high UV content: (e.g. metal halide or mercury light sources), or reduce/completely remove the UV content of the light. Use UV filters or glass housings on lamps which filter out a lot of the UV content.

Selecting an appropriate lamp unit that is designed to be environmentally friendly will minimise light spill, but further controls can be imposed by installing directional accessories such as baffles, hoods and louvres on lamps to direct light away from ecologically sensitive areas.

LED (Light Emitting Diode) units are an effective way to direct the light into small target areas and are recommended for lighting the proposed parking and turning area. Composite LEDs can be switched off to reduce/direct the light beam to specific areas.

## 5.3.3 Birds

### 5.3.3.1 Sensitive Timing of Works

Removal of bird boxes from building along with the clearance of any woody vegetation will be undertaken outside of the bird breeding season (avoiding March-August inclusive).

### 5.3.3.2 Enhanced Nesting Opportunities

As an enhancement, it is recommended that nest boxes for common or garden bird species are erected on new buildings. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows.

The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds. Consideration should also be given to the incorporation of house sparrow terraces and swift boxes within the new building.

On buildings, the integration of bird boxes is particularly recommended as species such as house sparrow, house martin and swift will readily adopt such features as nest sites. The following bird nesting features are recommended:

- 1MR Schwegler Avianex Nest Box
- Ibstock Swift Box
- Schwegler Swift Box Type 25
- Schwegler House Sparrow Brick Box Type 24
- Schwegler Sparrow Terrace 1SP

## 6 References

Bat Conservation Trust. 2018. *Bats and artificial lighting in the UK*. Bat Conservation Trust

Collins, J. 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn)*. The Bat Conservation Trust, London.

Emery, M. 2008. *The effect of street lighting on bats*. Urbis Lighting Ltd.

JNCC, 2010. *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. JNCC First published 1990; reprinted in 2010.



## 7 Appendix 1. Photographs



Photograph 1. Building A viewed from the south.



Photograph 2. Building B viewed from the south-west.



Photograph 3. Building C viewed from the north-west.



Photograph 4. Building D viewed from the north-west.



Photograph 5. The loft space within the northern section of Building D.



Photograph 6. The loft space within the southern section of Building D.



Photograph 7. Building E viewed from the north-east.



Photograph 8. Building F viewed from the east.



Photograph 9. One of several holes at the eaves of Building F's (northern elevation).



Photograph 10. A gap created by missing mortar at the northern elevation of Building F.



Photograph 11. Building G viewed from the south-east.



Photograph 12. Building H viewed from the north-west.





Photograph 13. Building I viewed from the east.



Photograph 14. The taller area of improved grassland habitat at the western side of the site.



Photograph 15. Areas of shorter-sward improved grassland amongst buildings towards the northern edge of the site.



Photograph 16. The mature double tree belt located towards the north-western corner of the site.



Photograph 17. An area of coppiced scrub located towards the eastern edge of the site.



Photograph 18. Areas of concrete and gravel hard-standing within the site's yard.



## 8 Appendix 2. Site Location Plans

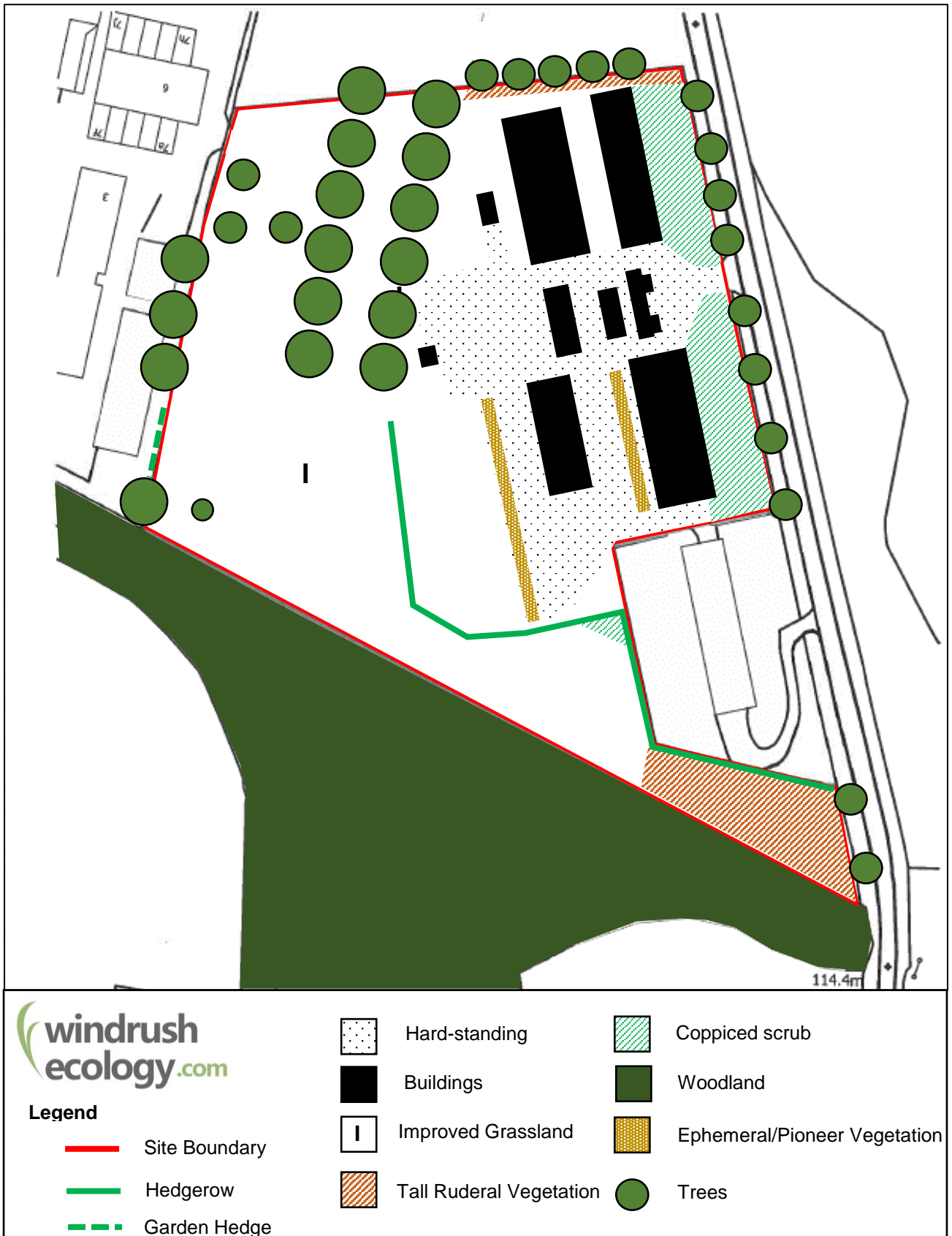


Aerial photograph showing the location of Hatch End Industrial Estate (outlined in red) Source: [www.bing.com/mapspreview/](http://www.bing.com/mapspreview/)



Ordnance Survey map showing the approximate location of the site (indicated by the red outline) within the local area. Source: [www.bing.com/mapspreview/](http://www.bing.com/mapspreview/)

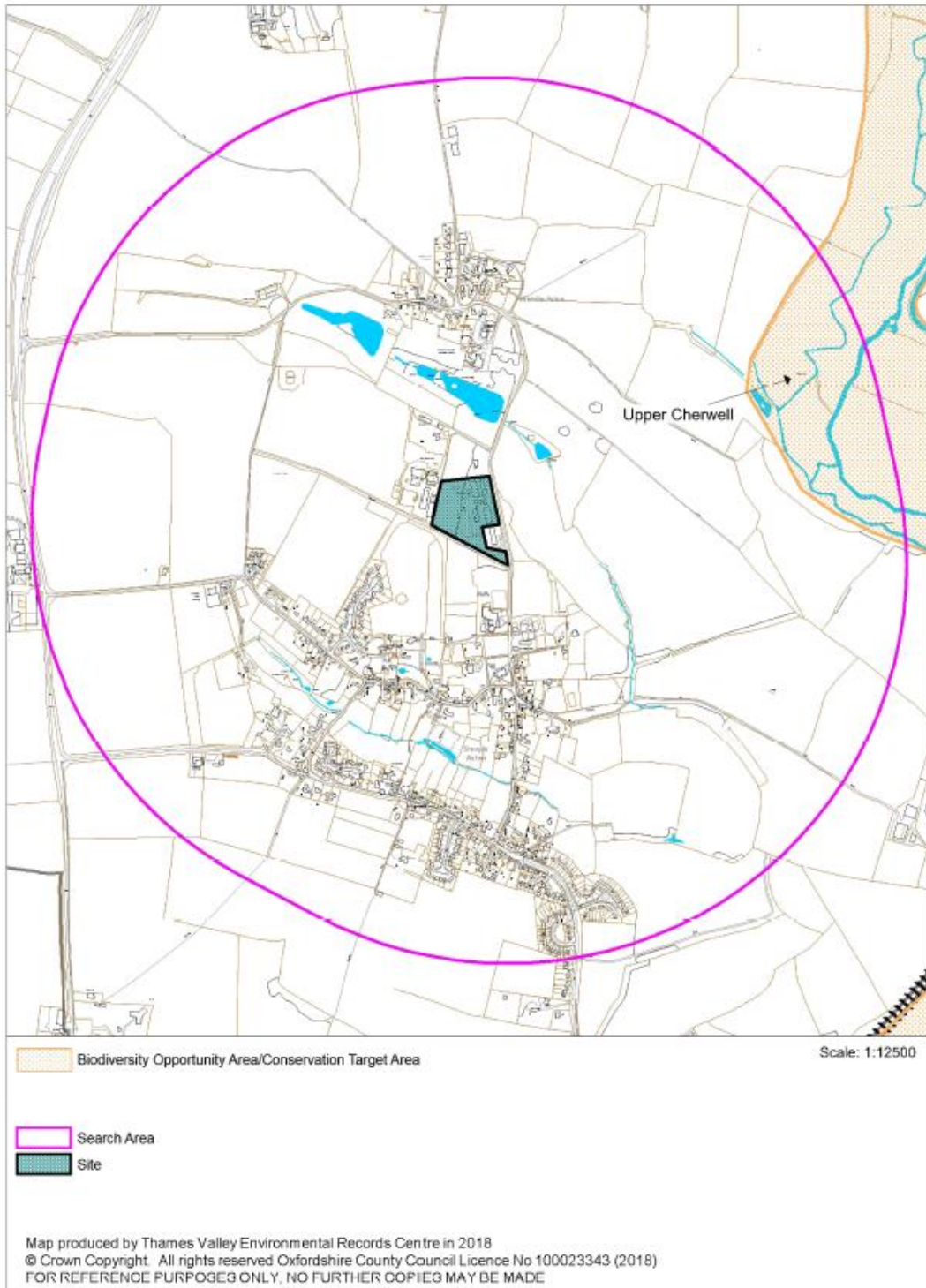
9 Appendix 3. Phase 1 Habitat Plan





### 10 Appendix 4. Non-Statutory Sites Map & Citations

#### Hatch End Industrial Estate, Middle Aston Designated Wildlife Sites



**Upper Cherwell Valley CTA (Conservation Target Area)**

The Cherwell Valley from Lower Heyford to Clifton. This encompasses the flat wet riverside land and the Oxford Canal, which often forms the boundary of the area.

**Joint Character Area:** Cotswolds

**Landscape Types:** River Meadowlands

**Geology:** Largely alluvium, some sand and gravel and Lias mudstone at the edge.

**Topography:** Flat riverside land.

**Area of CTA:** 451 hectares

**Biodiversity:**

- Floodplain grazing marsh: Several areas are being restored by landowners, particularly between Somerton and Clifton.
- Lowland meadows: There are several sites which in some cases were formerly grazing marsh before changes to the river and field drainage systems.
- River: The Cherwell here supports otter and water vole.
- Species: Several BAP bird species are found including curlew and lapwing on the grazing marsh. Additionally tree sparrow, reed bunting, skylark, grey partridge, yellow wagtail, yellowhammer and bullfinch are present. Bestmoor SSSI holds a high proportion of the UK population of narrow-leaved water dropwort.

**Access:** There is a towpath along the length of the canal and a good network of footpaths.

**Archaeology:****Oxfordshire Biodiversity Action Plan Targets associated with this CTA:**

1. Floodplain grazing marsh: management<sup>1</sup>, restoration and creation (for breeding waders and wintering wildfowl in particular)
2. Lowland meadow – management, restoration and creation.
3. Lowland fen – management and restoration.
4. Reedbed – creation.
5. River – management and restoration.

<sup>1</sup> "Management" implies both maintaining the quantity, and maintaining and improving the quality of existing BAP habitat and incorporates the following target definitions: "Maintaining extent" and "Achieving Condition".

## **11 Appendix 5. Protected/Notable Species Records**

Please refer to separate report from the Thames Valley Environmental Records Centre.