

Development of 8 dwellings

Land off Delamere Gardens, Fair
Oak, GU34 5EP

Preliminary Ecological
Appraisal

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Client: Ms A. Denham-Harding.

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EXECUTIVE SUMMARY

Southern Planning Practice Ltd is instructed on behalf Mrs Antoinette Denham-Harding to undertake a Preliminary Ecological Appraisal (PEA) of land off Delamere Gardens, Fair Oak, Hampshire (the site). The purpose of the assessment is to identify ecological features of importance which may be affected by the proposed development. The following survey work was undertaken:

- Desk study using freely available resources and data provided by Hampshire Biodiversity Information Centre (HBIC).
- An extended habitat survey utilising UK Habitat Classification (UKHabs) methodology.

Habitats with the potential to host the following species were identified on site, and may be adversely impacted in the absence of appropriate mitigation/ compensation:

- Low potential for commuting and foraging bats
- Low potential for foraging badgers

In the absence of any mitigation measures, the proposed development is anticipated to result in **minor potential adverse impacts**. Measures, are outlined within section 7.0 of this document, to mitigate where impacts (which includes further survey work where appropriate) have been identified, as well as provide targeted ecological enhancements.

1.0 INTRODUCTION

1.1 Southern Planning Practice Ltd is commissioned on behalf of Ms Antoinette Denham-Harding to undertake a Preliminary Ecological Appraisal (PEA) in support of an application for 8 dwellings with associated access and parking on land located off of Delamere Gardens, Fair Oak, Hampshire (the site).

1.1.1 The objectives of the PEA are to:

- Identify any ecological constraints associated with the proposed development.
- Following the mitigation hierarchy identify any mitigation measures required.
- Identify requirements for further survey work which may be required.
- Make recommendations to deliver ecological enhancement.

1.1.2 The site has been subject to an earlier application (ref: F/21/90322) which was dismissed at appeal on 3 August 2023, by reason that a legal agreement had not been entered into to achieve nutrient neutrality. A PEA was submitted with the original application (ecosupport, 7 April 2021) and the recommendation of the report were accepted. In line with CIEEM Guidance for Preliminary Ecological Appraisals (2017) this report seeks to provide an update to the original PEA which can be found at Appendix A.

Note: The findings of this report are valid for 18 months and should works not be undertaken within this timeframe the report may need updating.

1.2 Site Description

1.2.1 The site is a rectangular parcel of land, previously used as garden/paddock for Oakfields, a residential property fronting Winchester Road (B3354) (centred on OS grid reference SU 4904 1971) (Figure 1). The site extends approximately 0.2ha and comprises an area of modified grassland. To the west of the site are properties fronting Delamere Garden. The site is bounded by a 1.8m close board fence and is not accessible to the public however there is a footpath to the west of the site

serving Delamere Gardens which links to a footpath through a small wooded crescent to the north of the site. The wider area is predominantly residential to the south with woodlands comprising Stoke Park Wood, Crowdhill Copse and Upperbarn Copse to the west of the site.

- 1.2.2 The Environment Agency flood risk map locates the site in Flood Zone 1, not considered to be at risk from flooding from rivers and the sea.

Figure 1. Site location with approximate red line boundary.



Note. Adapted from Google Earth, 2021.

1.3 **Proposal**

- 1.3.1 The proposed development is for 8 dwellings comprising 4 no. four bed and 2 no. pairs of semi-detached three bedroom dwellings, with access via Delamere gardens. The plan proposes a mixed native hedgerow fronting Delamere gardens with birch hedge (*Carpinus betulus*) to the rear garden boundaries. New field maples (*Acer campestre*) are proposed along the road frontage with additional planting for pollinators within the site. See plan at Appendix B.

2.0 LEGISLATION

2.1 **The Conservation of Habitats and Species Regulations 2017 (as amended).**

The EU habitats directive is transposed into UK law by the Conservation of Habitats and Species Regulations. Part 2 of the regulations provide protection for European designated sites and species whilst Part 3 provides protection to species listed in Schedule 2. Paragraph 43 makes it an offence to deliberately disturb*, capture, injure or kill Schedule 2 listed species as well as destroy eggs or damage or destroy breeding or resting places. The 2019 amendment (The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 ensures existing protection for habitats and species is maintained.

2.2 **The Wildlife and Countryside Act 1981**

The Wildlife and Countryside Act 1981 is the primary legislation protecting animals, plants and certain habitats in the UK. Protected flora and fauna are listed in Schedules 1, 5, 6 & 8 of the Act, including all species of UK bats and reptiles as well as wild birds, their eggs and nests.

2.3 **The Countryside and Rights of Way Act 2000**

Part III and Schedule 12 of the Act strengthen existing powers under the Wildlife and Countryside Act creating an offence of 'recklessness' and strengthening police powers.

2.4 **Natural Environment and Rural Communities Act 2006**

The NERC Act 2006 makes provision with respect to biodiversity and requires all public bodies to have due regard to the conservation of biodiversity. Section 41 of the Act makes a requirement for a list of Habitats and species of principle importance in England to be published. In Nov 2022 (last update) this includes 56 habitats and 943 species.

2.5 **Protection of Badgers Act 1992**

The Act makes it an offence to wilfully kill, injure take a badger, or attempt to do so; Possess a dead badger, or any part of; Ill treat a badger; Interfere with, damage, or destroy a badger sett; cause a dog to enter a sett; Or disturb a badger whilst occupying a set.

2.6 Hedgerow Regulations 1997

The Regulations provide protection to 'important' hedgerows as defined within the Regulations. Any works to such hedgerows will require permission from the local Authority. Garden hedgerows are not affected.

2.7 The Environment Act 2021

Of relevance, the Environment Act 2021 makes provision for targets, plans, and policies for protecting and improving water quality, air quality and nature and biodiversity. The legislation established the Office for Environmental protection, tasked to hold the government accountable on environmental issues. Part 6 details requirement for the achievement of 10% biodiversity gain mandatory for development under the Town and Country Planning Act (1990)

3.0 POLICY

3.1 **National Planning Policy Framework 2023**

The National Planning Policy Framework (NPPF) sets a presumption in favour of sustainable development to which there are 3 dimensions; economic, social and environmental. The environmental objective seeks to protect and enhance the natural environment and improve biodiversity.

Chapter 15 seeks to protect and enhance biodiversity, minimising impacts on, and providing net gains, for biodiversity and improving local environmental conditions.

3.2 **UK Post 2010 Biodiversity Framework**

The UK Biodiversity Action Plan (UKBAP) is superseded by the UK Post 2010 Biodiversity Framework and is in response to the EU Biodiversity Strategy and an internationally agreed set of commitments termed the Aichi Targets, which combined aim to halt biodiversity losses. The habitats and species contained within the UKBAP are regarded as priorities under the Framework and are a material consideration in the planning process.

3.3 **Local: Eastleigh Borough Council**

The Eastleigh Borough Council Local Plan 2016-2036 was adopted on 25 April 2022. The earlier appeal was determined in accordance with this plan. The plan outlines a number of policies that seek to preserve and enhance biodiversity which are detailed below.

3.3.1 Policy S1. Delivering sustainable development

This policy highlights several strategic aims including to *'maintain, enhance, extend and connect the natural habitats within and landscape value of the Borough, extending natural habitats into new and existing development to achieve an environmental net gain'* (1.k.)

3.3.2 Policy S9. Green infrastructure

The Council seeks to retain, enhance or create multifunctional green infrastructure to improve connectivity for biodiversity across the district.

3.3.3 Policy DM1 General criteria for new development

This states all new development should not have a unacceptable impact on biodiversity, and where possible should enhance it.

3.3.4 Policy DM11. Nature conservation

This is the councils overarching policy for biodiversity and protection of species and habitats including all statutory and non statutory conservation designations. The policy highlights achieving biodiversity targets as well as seeking biodiversity net gain on all development sites.

At **international level** the policy reiterates the legal requirement for Habitat Regulation Assessments and proposes the development of a strategic approach to the protection and enhancement of internationally designated sites which are to include:

a. implementing:

- i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and*
- ii. the interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance;*

b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent;

c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and

d. seek contributions towards measures set out in the Southern Damselfly Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.

At a **national and local level**, the policy seeks to ensure development will not adversely affect a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) utilising the mitigation hierarchy and includes biodiversity net gain. The same approach is advocated for **Priority habitats, protected and priority species and the local ecological network**. And in all but exceptional circumstances, and with appropriate compensatory measure

development is not permitted which would result in the loss or deterioration of **irreplaceable habitats**. There is a requirement for development free buffers and survey requirements for protected species notably as part of the great crested newt strategic survey strategy and the strategic bat trapping survey.

4.0 METHODOLOGY

4.1 Desk study

4.1.1 Designated sites/ protected species

A search for protected habitats within 2km of the site was undertaken using freely available online maps. A data search for records of protected habitats and species within 2km of the site was requested from Hampshire Biodiversity Information Centre (HBIC).

4.1.2 Waterbodies

A search for waterbodies within 250m of the site was made using online maps and aerial images.

4.2 Field survey

The site was surveyed on 25 September 2023 by Nichola Windebank (MSc.). The weather was warm (18°C) dry and sunny with a light breeze. Habitats were classified in accordance with Habitat Definitions Version 2.0 (UKHab Ltd., 2023). Any signs of protected or notable species were also recorded.

4.2.1 **Badgers**

In accordance with the 'Badger Trust Badger Protection: Best Practice Guidance for Developers, Ecologists and Planners (2023) and Natural England Standing Advice the site was searched for signs of badger activity or setts.

4.2.2 **Bats**

No trees or buildings are within the site and therefore a suitability assessment for roosting bats was not required.

4.2.3 **Reptiles**

The site was assessed for suitability to support reptile species.

4.2.4 **Nesting birds**

No trees hedgerows or other nesting sites are within the site and therefore a nesting birds assessment was not required.

4.3 **Limitations**

There are no significant limitations to this report with all areas of the site accessible. The site is mown so species were identified from their vegetative growth which is more difficult than flowering growth. However, given the nature of the habitat types present and species recorded this will not affect the sites valuation. Please note this survey does not constitute a full assessment for invasive species.

This survey is a snapshot of the site taken at a singular point in time however ecological habitats can change and therefore this report is only valid for 18 months.

5.0 **RESULTS**

5.1 **Desk Study**

5.1.1 **Statutory Designated Sites**

There are no known statutory designated sites within 2km of the site.

5.1.2 **Non-Statutory Designated Site**

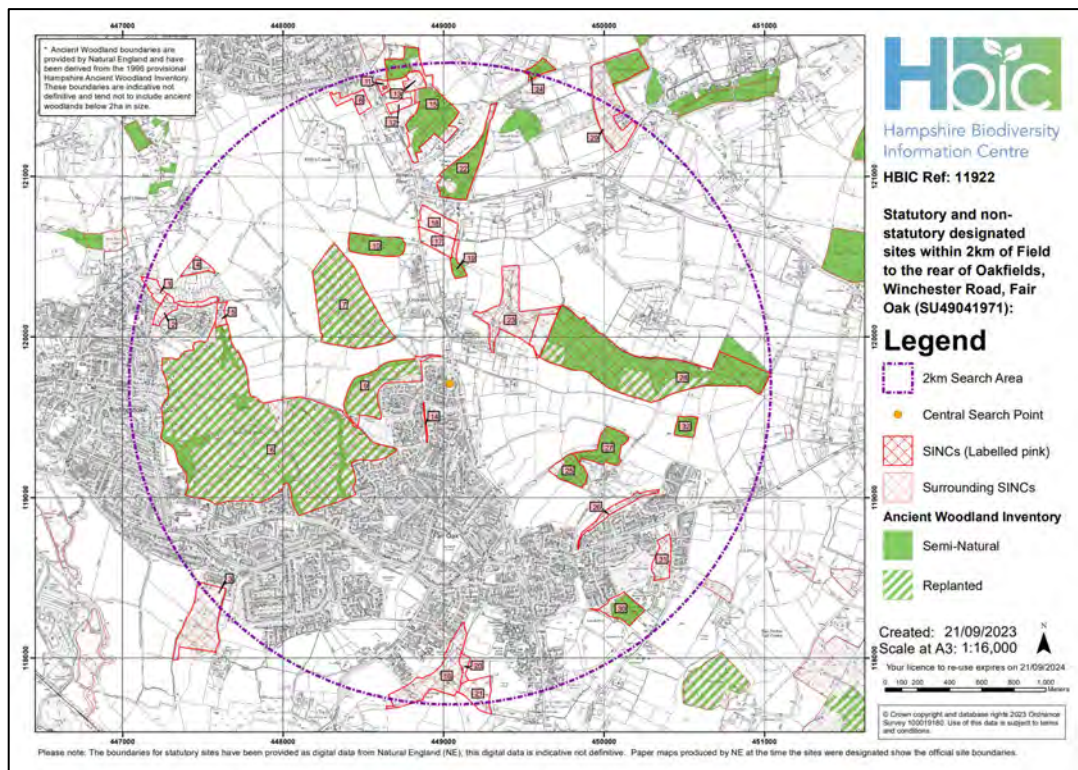
32 Sites of Importance for Nature Conservation (SINC) were identified within 2 km of the site as detailed within Table 1 below and indicated in Fig 2. 11 which are identified as Ancient Woodland, the closest being Crowdhill Copse approximately 200m to the north and the larger Stoke Park Wood 250m to the west. Both of these SINCs are separated from the site by urban development.

Table 1. Sites of Importance for Nature Conservation within 2km of the site.

Map Label	Status	SINC Ref	SINC Name	Central Grid Ref.	SINC Criteria	Species supported that meet Section 6 of SINC Selection Criteria	Area (ha)
1	SINC	EA0054	Judges Gully Meadow	SU47202030	2B		1.18
2	SINC	EA0058	Judges Gully Copse	SU47302010	1B/1Cii		2.19
3	SINC	EA0059	West Horton Farm Woods	SU47401830	1Cii/5B/6A	Persicaria bistorta	8.51
4	SINC	EA0061	Brick Kiln Copse, Bishopstoke	SU47502040	1A		1.24
5	SINC	EA0064	Poplar Plantation (Stoke Park Wood)	SU47602020	1A/1Cii		0.85
6	SINC	EA0073	Stoke Park Wood	SU48001940	1B/1Cii		90.31
7	SINC	EA0082	Upperbarn Copse	SU48402020	1B		19.33
8	SINC	WC0086	Finches Copse	SU48402150	1A		1.69
9	SINC	EA0089	Crowdhill Copse	SU48601970	1A/1B		9.36
10	SINC	EA0090	Hill Copse, Fair Oak and Horton Heath	SU48602060	1A		4.16
11	SINC	WC0088	Church of The Holy Trinity	SU48602150	2A		0.50
12	SINC	WC0092	Blacknell's Copse Paddock	SU48722145	2A		0.88
13	SINC	WC0094	Blacknells Brickworks	SU48802160	2B		1.29
14	SINC	EA0149	Hardings Lane Wooded Bank	SU48881947	1A		0.16
15	SINC	WC0095	Colden Common Wood & Blacknells Copse	SU48902150	1A		11.95
16	SINC	EA0096	Quobleigh Pond & Woods	SU49001790	1A/1Cii		8.06
17	SINC	EA0097	Fielders Farm Meadows (Eastleigh)	SU49002060	2D*/5B/6A	Oenanthe fistulosa	2.27
18	SINC	WC0682	Fielders Farm Meadows (Winchester)	SU49002070	2D*		2.88
19	SINC	EA0098	The Mount, Fair Oak and Horton Heath	SU49102040	1A		1.08
20	SINC	EA0099	Ponds & Meadow adjacent to Wyvern Technology College	SU49121800	6A	Triturus cristatus	0.73
21	SINC	EA0101	Wyvern Technology College Meadow	SU49201780	2A		2.98
22	SINC	WC0101	Fishers Pond Wood	SU49302110	1A		6.40
23	SINC	EA0102	Chestnut Gully Wood	SU49402030	1A		9.06
24	SINC	WC0107	Moreland's Copse	SU49602165	1A		1.21
25	SINC	EA0108	Hall Lands Farm Wood	SU49801920	1A		2.90
26	SINC	EA0110	Gore Copse	SU50001890	1A		1.72
27	SINC	EA0111	Hall Lands Copse	SU50001930	1A		4.03
28	SINC	WC0116	Park Hills Wood	SU50101980	1A		32.67
29	SINC	WC0117	Cowleaze Copse, Colden Common	SU50102150	1A		10.97
30	SINC	EA0114	Knowlehill Copse	SU50201840	1A		3.06
31	SINC	EA0116	Knowle Lane Open Space	SU50351860	7A		2.44
32	SINC	EA0119	Tippers Copse	SU50501940	1A		1.54

Note: From HBIC 21/09/2023

Figure 2. Statutory and non-statutory designations within 2km of the site.

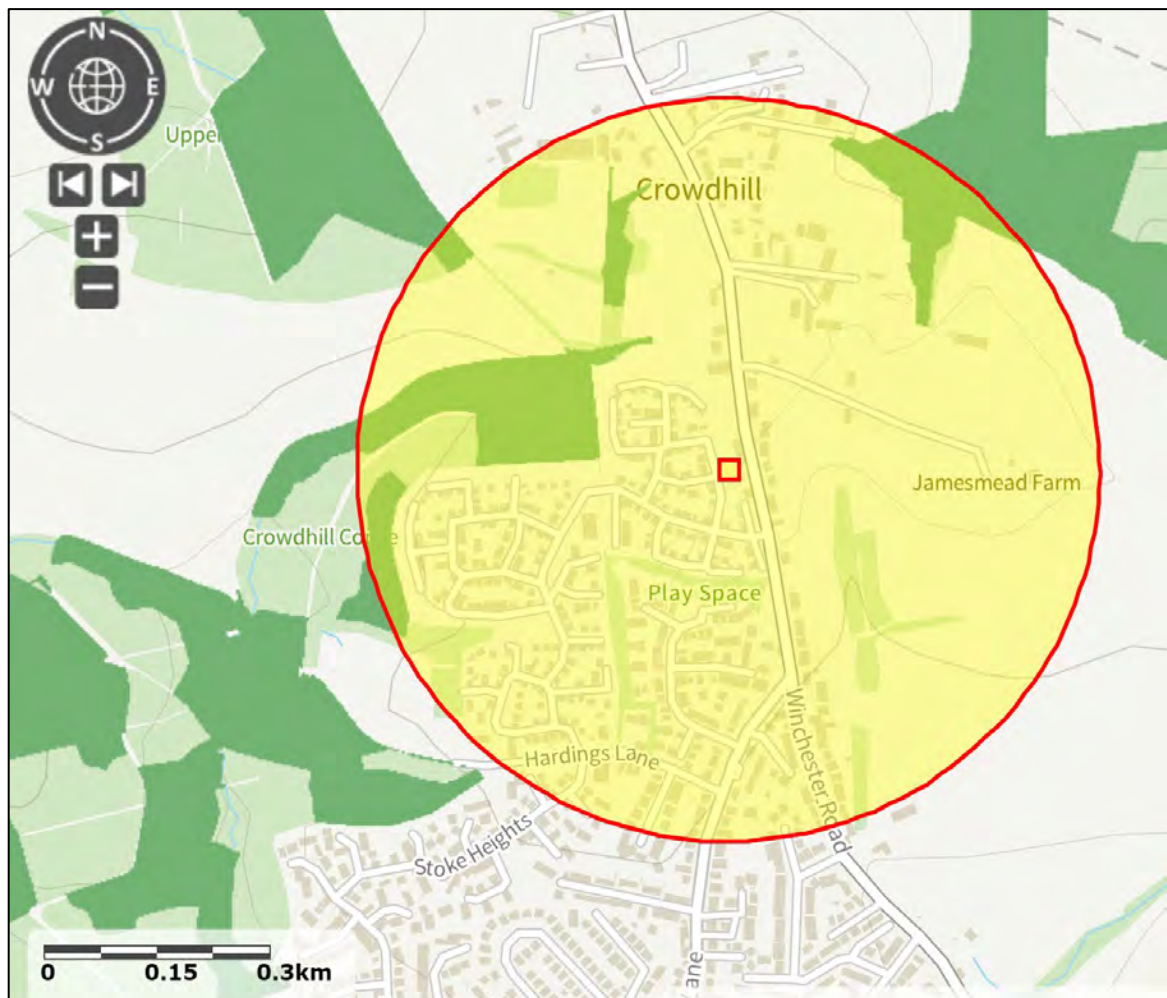


Note: From HBIC 21/09/2023

5.1.3 Priority Habitats

Four deciduous woodland priority habitats were identified within 500m of the site. The closest being Crowdhill Copse approximately 200m to the north, also a priority wet woodland (Figure 3).

Figure 3. Priority habitats within 500m of the site



Note: From Magic maps 2023

5.1.4 Protected Species

The data search results include records of ten bat species within 2km of the site:

- Western Barbastelle *Barbastella barbastellus*
- Serotine *Eptesicus serotinus*
- Brandt's Myotis *brandtii*
- Daubenton's *M. daubentoniid*
- Whiskered *M. mystacinus*
- Natterer's *M. nattereri*
- Noctule *Nyctalus noctule*

- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *P. pygmaeus*
- Brown Long-eared *Plecotus auratus*

5.1.5 MAGIC gives details of three Bat licences granted by Natural England for works within 2km of the site. None are within 1.5km of the site.

Table 3 . Bat licences granted by Natural England within 2km of the site.

Date issued	Species	Impacts
06/2013	Common Pipistrelle	Destruction of a resting place
03/2019	Common Pipistrelle/ Soprano pipistrelle	Destruction of a resting place
08/2020	Soprano Pipistrelle	Damage of a resting place

5.1.6 MAGIC gives details of FIVE Great Crested Newt (GCN) licences granted by Natural England for works within 2km of the site. None are within 1.5km of the site

Table 4 . GCN licences granted by Natural England within 2km of the site.

Date issued	Species	Impacts
08/2018	GCN	Destruction of a resting place
01/2018	GCN	Damage/ Destruction of a resting place
06/2009	GCN	Destruction of a resting place
07/2019	GCN	Damage/ Destruction of a resting place
04/2019	GCN	Damage/ Destruction of a resting place

- 5.1.7 The data search results also include records of Water Vole (*Avicola amphibius*) hedgehog (*Erinaceus europaeus*), brown hare (*Lepus europaeus*), Otter (*Lutra lutra*), badger (*Meles meles*), harvest mouse (*Micromys minutus*), and hazel dormouse (*Muscardinus avellanarius*).

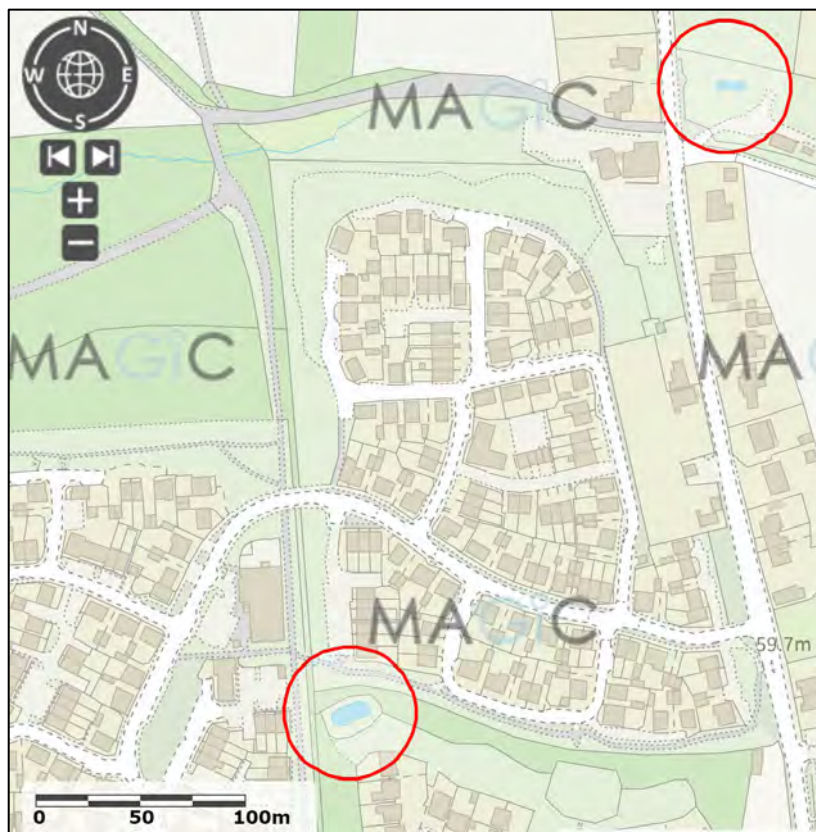
There are four records of great crested newt (*Triturus cristata*). The closest being approximately 1.8km south of the site and separated by urban development.

Three common reptile species (slow worm *Anguis fragilis*, grass snake *Natrix natrix*, and common lizard *Lacerta vivipara*) have been recorded within 2km of the site.

5.1.8 Water bodies

There are two ponds within 250m of the site (Figure 4). There are no ponds or other water environments on site.

Figure 4. Ponds within 250m of the site



Note. From MAGIC maps (2023)

5.2 **Field Survey**

5.2.1 **UK Habitat Survey**

The vegetation within the site comprises the following habitats as classified with UKHab Ltd, 2023:

- Modified Grassland (g4) ,(Additional Secondary Codes 108 Frequently mown)

This is in line with the former botany survey which utilised classifications detailed in JNCC (2010) Phase 1 habitat surveying.

5.2.2 Modified Grassland (g4) (Additional Secondary Codes 108 Frequently mown) (Figure 5 and 6).

The site is predominantly grassland which shows signs of frequent mowing and appears to have been formerly used as a residential garden/ recreational space. The grassland is low in species diversity with the south and east boundaries dominated by nettle (*Urtica dioica*), and a band of cleavers (*Galium aparine*) on the west boundary. Species present include (but are not limited to) Ribwort plantain (*Plantago lanceolata*), Broadleaf dock (*Rumex obtusifolius*), Dandelion (*Taraxacum officinale* agg), Creeping Buttercup (*Ranunculus repens*), Creeping cinquefoil (*Potentilla reptans*) Ragwort (*Jacobaea vulgaris*), Yarrow (*Achillea millefolium*), Cow parsnip (*Hercleum sphondylium*), Spear thistle (*Cirsium vulgare*), Creeping thistle (*Cirsium arvense*) and Daisy (*Bellis perrenis*).

Figure 5. *Modified grassland. Taken looking north.*



Note:. Image authors own taken 25/09/23.

Figure 6. *Modified grassland. Taken looking south.*



Note: Image authors own taken 25/09/23.

5.3 Species

5.3.1 Badger

No evidence of badgers was found during the survey and the site does not contain the necessary habitats to support foraging badgers. The surrounding landscape is a mosaic of habitats including woodland, grassland and pasture which is suitable for badgers. However, as the site is virtually inaccessible to badgers being enclosed by a fence and with a busy road on the only open access point it is considered to have low potential to support foraging badgers.

5.3.2 Bats

- Roosting

There are no buildings, structures or trees on the site which could be used by roosting bats and therefore the site is considered to have negligible potential for roosting bats

- Foraging and commuting.

The grassland is kept at a short sward height with unvegetated fence lines and no trees. The surrounding area is comprised of a mosaic of suitable habitats including woodland, hedgerows and

pasture which are suitable habitat. Therefore, the site is considered to have low potential for foraging and commuting

5.3.3 Reptile

The site is mown to a short sward and the fence is a barricade for dispersion across the site. This is not considered to provide the opportunity, structure, or heterogeneity needed by foraging and sheltering reptiles.

5.3.4 Nesting Birds

Given the lack of any hedgerow, trees or scrub to provide any habitat for breeding and nesting birds the site is considered to have negligible potential for breeding and nesting birds.

5.3.5 Hedgehogs

The homogeneity of the site provides very limited opportunities for commuting and foraging hedgehogs and the fence limits any access and dispersion through the site. This is not considered to provide the opportunity, structure, or heterogeneity needed by hedgehogs.

5.3.6 Great Crested Newts (GNC)

There are two ponds located within 250m of the proposed site approximately 157 meters to the southwest and 125 meters to the northeast. Whilst this is considered within the dispersal range of GNC both are separated from the site by urban development and infrastructure that pose significant barriers to any potential dispersal. In addition, based on the lack of suitable habitat on site, the site is considered to hold negligible potential for GNC.

6.0 IMPACTS

The CIEEM guideline (2018) require that potential impacts of the development must be considered in the absence of mitigation and that in order for significant adverse effect to occur the feature affected must be of at least local value. Any significant effects identified may be appropriately mitigated.

6.1 During Construction

6.1.1 Impacts to habitats

There are no habitats of significant value that will be lost as a result of the works. The grassland is species poor, with a high proportion of injurious weeds, and only of value at site level. Therefore, the development is considered to have potential minor impacts to habitats of significance at the site level.

6.1.2 Impacts to wildlife

Clearance works have the potential to disrupt the commuting habitats of foraging mammals (including badgers) with open excavations risking trapping individuals. Therefore, the development has potential for adverse impacts.

6.2 Operational activities

Once operational the development has the potential to increase light pollution in the area from streetlights and internal and external lighting of homes. Lighting can have a particular impact on the commuting and foraging behaviour of nocturnal animals and therefore the development has potential for adverse impacts on nocturnal species.

7.0 MITIGATION AND RECOMENDATIONS

7.1 Recommendations are made below to mitigate for the impacts identified in section 6 above as well as offer opportunities for enhancements post development. Any proposed mitigation or compensation must be appropriate and proportionate.

7.1.1 **Construction**

The following steps should be taken to avoid accidental harm to animals moving across the site during development works:

- Any excavations (open holes, ditches, drains etc) should be covered or adapted so that any animal that falls into it is able to escape, either by leaving a gradient at one end, or placing a structure (such as a plank of wood) in the trench to allow animals to climb out;
- Anything that may present a fire or other hazard (eg. stored chemicals) should be kept securely locked and made inaccessible to wild animals moving around the site at night.
- Netting should be kept off the ground to avoid entanglement and any slack netting tied up.
- Rubbish should be kept contained in a designated area to avoid animals becoming trapped in litter.
- Netting should not be used to cover hedges of planting as netting poses a serious risk to birds and small mammals, as they use hedgerows for nesting, foraging and as corridors for travel.

7.1.2 **Lighting**

Inappropriate lighting can have a significant impact on the foraging and commuting behaviours of bats and other nocturnal animals. Any new lighting should follow the Institute of Lighting Professionals (ILP) Guidance note 8 Bats and Artificial lighting in the UK (2023) to comply with its specifications detailed at Appendix C.

7.2 **Enhancements**

7.2.1 **Hedgehogs**

Close board fences are proposed around the site perimeter and between the properties. To improve connectivity across the site and through the wider landscape all fencing, railing and gates should be made permeable through the construction of hedgehog holes. These should be 13 cm X 13 cm holes at ground level and are to include a form of hedgehog highway sign to ensure they remain open upon occupation. A hedgehog hole is to be created in between each rear garden, and from each rear garden into the surrounding habitats. The Peoples Trust for Endangered Species (PTES) can provide signage and the purchase will support conservation efforts (Figure 7).



Note: From Hedgehogstreet.org (2023)

7.2.2 **Bat, bird, and bee bricks**

To provide for biodiversity enhancement, each new dwelling will incorporate one bird brick, one bat brick and one bee brick.

7.2.3 Bird bricks

The Ibstock 'Eco Home for Swifts' (Figure 8) is to be installed under the eaves or in high walls in shaded area out of direct sunlight and away from windows and doors. They are available in a variety of colours and require no maintenance

Figure 8. *The Ibstock 'Eco Home for Swifts' swift box*



7.2.4 Bat brick

The Ibstock 'Bat brick B' (Figure 9) is to be installed on the east or south facing elevation of each dwelling at least 12ft above the ground and away from any windows and doors and away from any artificial lighting.

Figure 9. *The Ibstock 'Bat brick B'.*



7.2.5 Bee brick

Ibstock bee bricks (Figure 10) should be placed on the east elevation of the dwellings in a warm sunny spot with no vegetation in front but close to bee friendly (flowering) plants for a potential food source which will increase the likelihood of use. It can be placed anywhere upward of 1m from the ground. Siting close to door or windows should be avoided.

Figure 10. *The Ibstock bee brick.*



7.2.6 Planting

As agreed in the earlier submission any landscape planting will aim for a 70:30 ratio in favor of native over non-natives and ornamentals and species should include Rowan, Alder, Hazel, Holly, Silver Birch, Small leaved Lime, Willow. Non-natives and ornamentals should be pollinator friendly species and only given a bias in formal locations where aesthetics is a priority. Any non-natives can be replaced by occupiers for other comparable native bee friendly plants.

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APPENDIX A

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Land off Delamere
Gardens, Oakfields, Fair
Oak

Preliminary Ecological Appraisal

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Client:

Ms Antionette Denham-Harding

Updated 7th April 2021

Report	Preliminary Ecological Appraisal
Site Name	Land off Delamere Gardens, Oakfields, Fair Oak
Author(s)	Gareth Ainscough BSc (Hons) MSc & Adam Jessop MSc ACIEEM
Client	Ms Antionette Denham-Harding
Date of Issue	Updated 7 th April 2021
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Executive Summary

Ecosupport Ltd was instructed by Southern Planning Practise Ltd on behalf of Mrs Antionette Denham-Harding to undertake a Preliminary Ecological Appraisal (PEA) of the parcel of land located off Delamere Gardens, Fair Oak (here after referred to as 'the site'). to identify any potentially important ecological features that may be affected by the proposed development. As part of this assessment, the following surveys were undertaken:

- Extended phase I habitat survey (August 2020)

The following important ecological features were identified on site following the conclusion of the above survey work and may be subject to adverse impacts in the absence of suitable mitigation / compensation:

- Low potential for commuting and foraging Bats
- Low potential for foraging Badgers

In the absence of any mitigation measures, the proposed development is anticipated to result in, ***minor potential adverse effects***. Suitable mitigation measures and enhancements are outlined within section 6.0 of this document.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was commissioned by Southern Planning Practise Ltd on behalf of Ms Antionette Denham-Harding to conduct a Preliminary Ecological Appraisal (PEA) of the parcel of land located off Delamere Gardens, Fair Oak (here after referred to as 'the site'). The purpose of this survey was to assess any ecological impacts that may arise as a result of the proposed development. The objectives of the survey were as follows:

- Identify and classify any priority habitats;
- Assess the ecological value of the site;
- Identify any signs of protected species and potential features that may support them
- Make recommendations for further survey work as necessary;
- Make recommendations for any necessary ecological avoidance and mitigation where possible at PEA stage.

NB: If the works do not take place within 18 months of this report¹ then the findings of this survey will no longer be considered valid and may require updating.

1.2 Site Description & Location

The site comprises a parcel of land located off Delamere Gardens, Fair Oak (Nearest postcode SO50 7HA)(centred on OS grid reference SU 490 197) (**Fig 1**). The site currently forms the rear garden of the adjacent 'Oakfields' dwelling which is located to the east of the site alongside a neighbouring dwelling and associated front garden and garage/stables located off a hardstanding driveway. The site is bounded by Delamere Gardens road to the west with further dwellings beyond both this road and to the south of the site. The northern edge of the site is bounded by a small area of scrub which forms a crescent around the nearby housing estate. The site is completely enclosed by wooden close boarded fencing to the north, west and south. The wider environ consists of further residential dwellings to the south, with woodland in the form of Stoke Park Wood, Crowdhill Copse and Upperbarn Copse located to the west of the site. To the east the habitats consists of mixed-use agricultural fields with semi-urban dwellings/industrial parks alongside woodland, hedgerow and scattered trees to the north.

¹ <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

Figure 1. Google aerial image with the sites approximate redline boundary (Google Earth, 2020).



1.3 Proposed Development

It is understood that the proposed development will include the construction of 9 dwellings (5 x Four beds & 4 x Three beds) and associated bay parking areas, with an additional garage proposed (**Fig 2**). The proposals will also include the alteration/ removal of the current hard standing patio area to the rear of the existing 'Oakfields' dwelling to enable the construction of a garage.

Figure 2. Updated layout of the proposed scheme (T2 architects, Drawing No2009_1001, 2020).

2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019)*

This instrument makes changes to the three existing instruments which transpose the Habitats and Wild Birds Directives so that they continue to work (are operable) upon the UK's exit from the European Union (EU). These include The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017. This instrument also amends section 27 of the Wildlife and Countryside Act 1981 to ensure existing protections continue. The intention is to ensure habitat and species protection and standards as set out under the Nature Directives are implemented in the same way or an equivalent way when the UK exits the EU.

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

2.1.2 *The Wildlife and Countryside Act (1981) (as amended)*

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly, this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

The Wildlife & Countryside Act (1981) states that it is an offence to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9 part II of the Act. This list over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrot's Feather (*Myriophyllum aquaticum*).

2.1.3 *The Countryside and Rights of Way Act (2000)*

This Act strengthens the Wildlife & Countryside Act by the addition of "reckless" offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.4 Natural Environment and Rural Communities Act (2006)

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies have due regard to the conservation of biodiversity. This means that Planning authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post – 2010 Biodiversity Framework*.

2.1.5 Protection of Badgers Act

The Protection of Badgers Act (1992) relates to the welfare of Badgers (*Meles meles*) as opposed to nature conservation considerations. The Act prevents:

- The wilful killing, injury, ill treatment or taking of Badgers and / or
- Interference with a Badger sett
- Damaging or destroying all or part of a sett
- Causing a dog to enter a set and
- Disturbing a Badger while it is occupying a sett

Provisions are included within the Act to allow for the lawful licensing of certain activities that would otherwise constitute an offence under the Act.

2.2 Policy

2.2.1 National

The revised National Planning Policy and Framework (NPPF) (last updated February 2019) replaces the previous NPPF (published 2012, revised July 2018) and sets out the Government's vision for biodiversity in England in line with the country's 25 Year Environment Plan. The revised NPPF is supported by the National Planning Practice Guidance (NPPG) (published January 2016, last updated July 2019). The relevant section of the Guidance concerning biodiversity is 'Natural Environment: Biodiversity, Geodiversity and Ecosystems'. Under this Guidance, Local Authorities' duty to have due regard to the conservation of biodiversity under the NERC Act (2006) is highlighted.

Chapter 15 of the revised NPPF, 'Conserving and Enhancing the Natural Environment', together with associated guidance within the NPPG, outlines key principles related to the natural environment.

Development plans should contribute to and enhance the natural environment. Plans should take both an individual and strategic approach to minimising biodiversity impacts, creating, conserving, restoring and enhancing priority habitats and habitat networks, protecting and aiding in the recovery of priority species and their populations, and providing measurable biodiversity net gains. Individual developments must consider how they can contribute to habitat networks in the wider area (including as part of the Nature Recovery Network), thereby increasing their resilience to current and future pressures.

2.2.2 Local

The Eastleigh Borough Councils Adopted Local Plan (2001 – 2011) outlines a number of policies that seek to preserve and enhance the Boroughs biodiversity. These include:

- *'21 NC – Development which is likely to adversely affect the integrity of a European nature conservation site will not be permitted.*
- *22 NC – Development which is likely to have a direct or indirect adverse effect on a SSSI will not be permitted, unless the Borough Council is satisfied that the reasons for the development clearly outweigh the harm to nature conservation value of the site.*
- *23 NC – Development which is likely to have a direct or indirect adverse effect on a Site of Importance for Nature Conservation (SINC) will not be permitted, unless it can be demonstrated to the satisfaction of the BC that benefits of the development clearly outweigh the need to safeguard the nature conservation value of the site. If development is to be permitted, the Council will require appropriate measures to be taken to mitigate for the adverse effects on the SINC.*
- *24 NC – Development will not be permitted where it would adversely affect species or habitats which are protected by legislation, unless appropriate measures are proposed which would acceptably mitigate the impact on those species.*
- *25 NC – Development which will adversely affect a habitat or feature of importance for wild fauna and flora will not be permitted, unless it can be demonstrated to the satisfaction of the Council that:*
 - i) the benefits of the development outweigh the adverse impacts;*
 - ii) the adverse impacts are unavoidable, and*
 - iii) appropriate measures are taken which would mitigate or compensate for any adverse impact.*
- *26 NC – Development proposals will be required to include measures to enhance the value of features and habitats of nature conservation importance where reasonable opportunities exists in connection with the development. '*

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 Waterbodies

Any ponds located within 500m of the proposed development were searched for using Ordnance Survey maps and available aerial images.

3.1.2 Designated sites

A search for designated sites that may be impacted by the proposals was conducted using freely available online maps.

3.2 Field Survey

3.2.1 Habitats

The field survey work which forms the basis of the findings of this report was carried out by Gareth Ainscough, a Project Ecologist with Ecosupport (2 years post MSc graduation experience) on the 10th August 2020.

The Phase 1 Habitat survey (JNCC, 2010) methodology was adopted which is a method of classifying and mapping wildlife habitats in Great Britain. It was originally intended to provide “...relatively rapidly, a record of semi-natural vegetation and wildlife habitat over large areas of the countryside”. The standard Phase 1 Habitat survey methodology has been ‘extended’ in this report to include the following:

- Floral species lists for each identified habitat;
- Descriptions of habitat structure, the evidence of management and a broad assessment of habitat condition;
- Mapping of additional habitat types (e.g. hardstanding);
- Identification of Priority Habitats under Section 41 of the NERC Act;
- Evidence of, or potential for, the presence of certain species/groups

3.2.2 Phase 1 Mapping

The Phase I habitat map supplied within this document was produced using both Google Earth Quantum GIS, with the corresponding features mapped utilising the phase 1 habitat survey.

3.2.3 Badger

The site was thoroughly searched for evidence of use by Badgers (*Meles meles*), with the specific aim of identifying the presence and location of any setts. In accordance with the *Badgers and Development: A Guide to Best Practice and Licensing* (Natural England, 2011) guidance, the survey extended for a 30m from the site’s boundary (observed where possible i.e. does not conflict with private dwellings). Evidence of Badgers could include latrines, dung pits, feeding remains and foraging evidence, trails and setts.

3.2.4 Bats

No trees or buildings were noted within the proposed site, and therefore an suitability assessment for roosting bats was not required.

3.3 Assessment Methodology

3.3.1 Introduction

The methodology for the assessment of the likely ecological effects of the proposed development is based on CIEEM's *Guidelines for Ecological Assessment in the UK* (CIEEM 2018). Although this assessment does not constitute a formal Ecological/ Environmental Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

3.3.2 Valuation

Features of ecological interest are valued on a geographic scale. Value is assigned on the basis of legal protection, national and local biodiversity policy and cultural and/or social significance.

3.4 Limitations

There were not considered to be any limitations on the results of the survey with all areas of the site accessible and the survey conducted at a suitable time of year for vascular flowering plants.

4.0 ECOLOGICAL BASELINE

4.1 Designated Sites

4.1.1 Statutory

There are no statutory designated sites located within 1 km of the site, with the nearest site being the South Downs National Park which is located approximately 1.8km to the east of the site. The next nearest designated site is the River Itchen SAC & SSSI which lies approximately 2.4km to the west of the proposed site.

4.2 Vegetation Survey Results

The vegetation within the site has been described below using the broad Phase I habitat classification terminology as described with JNCC (2010). The below species noted should not be considered an exhaustive list and instead refer to dominant, characteristic and other noteworthy species associated with each community within the survey area. The habitat types on site comprise:

- Amenity Grassland
- Tall Ruderal
- Bare Ground
- Hard standing

4.2.1 Amenity Grassland

The dominant habitat which encapsulates nearly the entirety of the site is amenity grassland (**Fig 3**), which has undergone mowing operations leaving a short sward cut flush to the fence line, with no denser vegetation around the site boundary. The grassland was noted as being very low in terms of species diversity with Common Daisy (*Bellis perennis*), Dandelion (*Taraxacum spp*), Ribwort Plantain (*Plantago lanceolate*), White Clover (*Trifolium repens*), Fat Hen (*Chenopodium album*), Spear Thistle (*Cirsium vulgare*) and Broad-leaved Dock (*Rumex obtusifolius*) noted in addition to Perennial Ryegrass (*Lolium perenne*).

Figure 3. Photo of amenity grassland habitat taken facing the southern site boundary (Ecosupport 2020).



4.2.2 Tall Ruderal

At the edge of the southern boundary adjoining the adjacent plot (**Fig 2**), there was a small section of tall ruderal vegetation noted alongside some scraped back turf taken from adjoining amenity grassland (**Fig 4**). In addition to cutting arisings, Common Nettle (*Urtica dioica*), Lesser Burdock (*Arctium minus*), Common Hogweed (*Heracleum sphondylium*), Common Fleabane (*Pulicaria dysenterica*), Fat Hen (*Chenopodium album*) and Rosebay Willowherb (*Chamaenerion angustifolium*) were noted. In addition, a small section of suspected Japanese Knotweed (*Reynoutria japonica*) was noted in this corner which continued behind the wooden stables within the adjacent plot.

NB: Following onsite discussions with the client, they are aware of the presence of Japanese Knotweed within the site, with previous works undertaken to remove this invasive species listed on Schedule 9 of the Wildlife and Countryside Act.

Figure 4. Small section of tall ruderal which continues behind the stables of the adjacent plot (with a small stand of Japanese Knotweed also present) (Ecosupport 2020).



4.2.3 Bare Ground

Towards the south-eastern corner of the site there is a small circular section of bare ground, which was previously used as a fire-pit area (**Fig 5**).

Figure 5. Small section of bare ground, with adjacent housing estate visible along the western border (Ecosupport 2020)



4.2.4 Hard Standing

There is a small hard standing patio area located to rear of the existing Oakfields dwelling, with some potted ornamental species noted around the border. This area is separated from the grassland by a wooden fence (**Fig 6**).

Figure 6. A view of the rear of existing Oakfields dwelling, with a small patio area located to rear adjacent to the amenity grassland (Ecosupport 2020).



4.3 Bat Survey Results

4.3.1 Trees & Buildings

As previously noted, the site did not contain any trees or buildings, and therefore is considered to hold **Negligible potential** for roosting bats.

4.3.2 Foraging and commuting

The site comprises almost entirely of amenity grassland cut to a short sward height, with unvegetated fence lines. Based on the nature of the habitats on site and within the surrounding area, the site is considered to hold a **Low potential** for foraging and commuting bats.

4.4 Badgers

There was no evidence of resident or foraging Badger (*Meles meles*) activity noted on site. Notwithstanding this, whilst the site is surrounded by close boarded wooden fencing (of which burrowing evidence would be expected to be found along the boundary if present), the surrounding environment provides a mosaic of habitats favored by Badgers including woodland, grassland and pasture. Given these factors, and the abundance of favorable foraging habitat surrounding the site, it is considered to have **Low potential** to support foraging Badgers.

4.5 Reptiles

Whilst the majority of the site is well managed, with no unmanaged borders or longer areas of vegetation, there is a small section of tall ruderal/ cutting arisings which continue behind the stables within the adjacent plot. Notwithstanding this, based on the isolated nature (surrounded by amenity grassland and hard standing) and marginal size of the area, the site is considered to hold **Negligible potential** for reptiles.

4.6 Breeding and Nesting Birds

Based on the lack of scrub, hedgerow or any other suitable habitat for breeding and nesting birds, the site is considered to hold **Negligible potential** for breeding and nesting birds.

4.7 Waterbodies & Great Crested Newts

Two ponds were identified within 250 meters of the proposed site, with one located approximately 157 meters to the south-west and one located to the north-east approximately 125 meters away. Whilst these are considered to be within dispersal range of terrestrial GCN, both are separated from the site by urban infrastructure that poses significant barriers to any potential dispersal. Therefore, based on the above and the lack of suitable terrestrial habitat on site, it is considered to hold **Negligible potential** for terrestrial GCN.

5.0 LIKELY ECOLOGICAL IMPACTS IN ABSENCE OF MITIGATION

5.1 Introduction

The CIEEM guidelines (CIEEM 2018) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However, in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

5.2 Site Preparation and Construction

5.2.1 Impacts to Habitats

There are no habitats of significant ecological value that will be lost as a result of the works, with the majority of the site comprising of improved grassland hard with a small section of ruderal habitat. As such, the habitats on site are only considered to be of value at the **Site** level. Therefore, the development is assessed as having **potential minor adverse impact** to habitats of significance at the site level.

5.2.2 Impacts to Wildlife

Clearance works and excavations have the potential to disrupt the commuting habits of foraging mammals (including Badgers) with open excavations posing the risk of trapping individuals if suitable mitigation measures are not followed. Therefore, it is considered a **potential adverse impact** is likely.

5.3 Site Operation

5.3.1 Impacts to Wildlife

The development will result in an increase in lighting within the general area from street lights and external lights on the dwellings. This can affect the behaviour, particularly foraging, of nocturnal wildlife. Therefore, a **minor adverse impact is likely** on nocturnal species.

6.0 MITIGATION & RECOMMENDATIONS

6.1 Introduction

The below sections outline a number of recommendations for further survey work required to fully assess the potential ecological impacts of the development and ensure proposed mitigation and compensation is appropriate and proportionate.

6.2 Badgers

During the construction phase, any open excavations left overnight should either be covered to prevent commuting Badgers falling in or escape ladders should be used to prevent them from becoming trapped. Any open pipework should be checked and then capped nightly.

6.3 Enhancements

6.3.1 Hedgehogs

Should close-board fencing be installed at property boundaries provision will be made to promote site connectivity and extended foraging ranges and opportunities for European Hedgehog. Holes measuring 5 square inches will be made at the base of fences into and between each garden and the surrounding habitats, such as the ecology buffer strips. Small signage could be installed at these points to ensure they remain open upon completion of the development. The People's Trust for Endangered Species provide such signage, the purchase of which also supports conservation efforts (**Fig 7**).

Figure 7. Example of Hedgehog Highway signage to be placed above fence gaps provided to allow movements between gardens (PTES, 2019).



6.3.2 Planting

As a general enhancement, any landscape planting will aim for a 70:30 ratio in favour of native species over non-natives and ornamentals (in line with the CIEEM guidance outlined within Smith & Day (2012). Species that can be considered within any planting include: Rowan

(*Sorbus aucuparia*), Alder (*Alnus glutinosa*), Hazel (*Corylus avellana*), Holly (*Illex aquifolium*), Silver Birch (*Betula pendula*), Small-leaved Lime (*Tilia cordata*) and Willow (*Salix* spp.). Non-natives and ornamentals should only be given a bias in formal locations where aesthetics is a priority.

6.3.3 Sensitive Lighting

A new document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has recently been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented provided there are no conflicts with any legal limits of illumination (in which case a suitable compromise should be reached). *'Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:*

- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.*
- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill.*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.*
- *Luminaires should always be mounted on the horizontal, ie no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*

As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed' (Fig 8).

Figure 8. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2018)



6.3.4 Bat and Bird Bricks

To act as biodiversity enhancement, each of the newly built dwellings will incorporate one Swift brick and one bat brick. The Ibstock 'Eco Home for Swifts' bricks will be installed (**Fig 9**) as they are a discreet and attractive box ideal for new dwellings. The boxes should be installed under the eaves or in high walls in shaded areas out of direct sunlight and away from windows. The installation of such boxes has also been shown to be beneficial for House Sparrows (*Passer domesticus*) which are a nationally declining species. The bat bricks used should be the Ibstock Bat Brick B as they are available in a variety of different brick colours and requires no maintenance (**Fig 10**). Both types of boxes should be positioned as close to the eaves as possible and away from windows.

Figure 9. Ibstock eco home for swifts that will be incorporated into the newly built dwellings.



Figure 10. The Ibstock bat brick 'B' that will be incorporated into the newly built dwellings.



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Appendix : Phase 1 Habitat Survey Map

**Legend**

— Site boundary

🎯 TN 1 - Japanese knotweed

Ⓐ Amenity Grassland

▨ Tall Ruderal

⬤ Bare ground

■ Hard Standing



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Map	Phase I Habitat Survey
Site	Land off Delamere Gardens, Oakfields, Fair Oak
Client	Southern Planning Practice Ltd
Date	19/08/2020

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APPENDIX C

Lighting specification GN08/23 ILP

'Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
 - Internal luminaires can be recessed (as opposed to using a pendant fitting - See Figure 5) where installed in proximity to windows to reduce glare and light spill
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges (see Case Study 1)
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards
 - Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01
 - Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand
- Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS
 - The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination

efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.

- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.
