

Land west of Ravensden Road, Salph End
(1005175)

Ecological Appraisal

September 2019

Quality Management	
Client:	Manor Oak Homes
Project:	Land west of Ravensden Road, Salph End
Report Title:	Ecological Appraisal
Project Number:	1005175
File Reference:	5175 EcoAp vf CL/KR
Date:	05/09/2019

Copyright

The copyright of this document remains with Aspect Ecology. All rights reserved. The contents of this document therefore must not be copied or reproduced in whole or in part for any purpose without the written consent of Aspect Ecology.

Confidentiality

This report may contain sensitive information relating to protected species. All records of Badger setts must remain confidential. Where this report is circulated publicly or uploaded to online planning portals, reference to Badger setts must be redacted and any maps pertaining to the locations of Badger setts removed from the document.

Legal Guidance

The information set out within this report in no way constitutes a legal opinion on the relevant legislation (refer to the relevant Appendix for the main provisions of the legislation). The opinion of a legal professional should be sought if further advice is required.

Liability

This report has been prepared for the exclusive use of the commissioning client and unless otherwise agreed in writing by Aspect Ecology no other party may use, or rely on the contents of the report. No liability is accepted by Aspect Ecology for any use of this report, other than for the purposes for which it was originally prepared and provided. No warranty, express or implied, is made as to the advice in this report. The content of this report is partly based on information provided by third parties; Aspect accepts no liability for any reliance placed on such information. This report is subject to the restrictions and limitations referenced in Aspect Ecology's standard Terms of Business.

Contact Details

Aspect Ecology Ltd
 Hardwick Business Park | Noral Way | Banbury | Oxfordshire OX16 2AF
 t 01295 279721 e info@aspect-ecology.com
 w www.aspect-ecology.com

Contents

Text:

Executive Summary	1
1 Introduction	2
2 Methodology	3
3 Ecological Designations.....	8
4 Habitats and Ecological Features.....	11
5 Faunal Use of the Site	15
6 Mitigation Measures and Ecological Enhancements.....	24
7 Conclusions.....	30

Plans:

Plan 5175/ECO1	Site Location
Plan 5175/ECO2	Ecological Designations
Plan 5175/ECO3	Habitats & Ecological Features

Appendices:

Appendix 5175/1	Proposed Parameters Plan <i>R G + P Drawing No. 40986 013D</i>
Appendix 5175/2	Evaluation Methodology
Appendix 5175/2	Desktop Study Data

Executive Summary

- i) **Introduction.** Aspect Ecology has been commissioned by Manor Oak Homes to undertake an Ecological Appraisal in respect of proposed development of the site, located west of Ravensden Road, Salph End in Bedfordshire.
- ii) **Proposals.** The proposals are for development of the site to provide up to 400 new dwellings, land for a new primary school and associated open space and access.
- iii) **Survey.** The site was originally surveyed by Aspect Ecology Ltd in June 2017, with further update survey work undertaken in August 2019. Surveys were based on standard extended Phase 1 methodology. In addition, a general appraisal of faunal species was undertaken to record the potential presence of any protected, rare or notable species, with specific consideration and surveys conducted in respect of bats, Badger and Great Crested Newt.
- iv) **Ecological Designations.** The site itself is not subject to any statutory or non-statutory ecological designations. The ecological designation is Putnoe Wood LNR and CWS, which is located approximately 0.3km west of the site. All of the ecological designations in the surrounding area are physically well separated from the site and are therefore unlikely to be adversely affected by the proposals.
- v) **Habitats.** The site itself is dominated by intensively managed arable land within 2 fields with associated boundary hedgerows and vegetation. Other habitats are limited to the existing residential property at 25 Hookhams Lane in order to provide access to the site. The proposals have sought to retain and protect habitats of elevated ecological value, namely the existing field boundary features, with considerable buffers of open space provided to ensure these corridors remain fully protected and indeed strengthened and enhanced under the proposals.
- vi) **Protected Species.** The site generally offers limited opportunities for protected species, with no specific evidence of any such species present, albeit suitable habitats are present within the surrounding area that could potentially support Great Crested Newt, whilst it is likely that birds nest within suitable habitat at the site and could therefore potentially be adversely affected by the proposals. Appropriate mitigation measures, will minimise potential for adverse effects on faunal species, including Great Crested Newts, whilst careful timing of works be implemented to safeguard nesting birds during relevant site clearance works.
- vii) **Enhancements.** The proposals present the opportunity to secure substantial ecological benefits, including additional native habitat planting, new roosting opportunities for bats, and more diverse nesting habitats for birds.
- viii) **Summary.** In summary, the proposals have sought to minimise impacts on biodiversity and subject to the implementation of appropriate avoidance, mitigation and compensation measures, it is considered unlikely that the proposals will result in significant harm to ecological receptors.

1 Introduction

1.1 Background and Proposals

1.1.1 Aspect Ecology has been commissioned by Manor Oak Homes to undertake an Ecological Appraisal in respect of proposed development of the site, located west of Ravensden Road, Salph End in Bedfordshire, centred at grid reference TL 074 528 (see Plan 5175/ECO1).

1.1.2 The site is proposed for strategic development, including up to 400 new dwellings, land for a new primary school and associated open space and access, for which an outline planning application is proposed, relating to the proposed parameters plan (Appendix 5175/1).

1.2 Site Overview

1.2.1 The site is located west of Ravensden Road and north of Hookhams Lane, at the north west of Salph End. Accordingly, much of the southern and eastern site boundaries are marked by existing residential curtilages associated with individual properties along Ravensden Road and Hookhams Lane, with further development within Salph End beyond. West of the site is Mowsbury Golf Course, whilst north of the site is a small area of woodland with a number of further residential properties along Ravensden Road situated beyond, within Renhold.

1.2.2 The site itself is formed by agricultural land in the form of two large, intensively managed arable fields, with associated boundary vegetation, along with the existing residential property at 27 Hookhams Lane, which is proposed for access from Hookhams Lane.

1.3 Purpose of the Report

1.3.1 This report documents the methods and findings of the baseline ecology surveys and desktop study carried out in order to establish the existing ecological interest of the site, and subsequently provides an appraisal of the likely ecological effects of the proposals. The importance of the habitats and species present is evaluated. Where necessary, avoidance, mitigation and compensation measures are proposed so as to safeguard any significant existing ecological interest within the site and where appropriate, opportunities for ecological enhancement are identified with reference to national conservation priorities and local Biodiversity Action Plans (BAPs).

2 Methodology

2.1 Desktop Study

- 2.1.1 In order to compile background information on the site and its immediate surroundings Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) was contacted, with data requested on the basis of a search radius of 2km around the site.
- 2.1.2 Information on statutory designations was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database, which utilises data provided by Natural England, including an extended search radius (up to 25km in relation to relevant international level ecological designations). In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site.
- 2.1.3 Where information has been obtained from the above sources, this is reproduced at Appendix 5175/2 and on Plan 5175/ECO2, where appropriate.
- 2.1.4 In addition, where available the Woodland Trust database was searched for any records of ancient, veteran or notable trees within or adjacent to the site.

2.2 Habitat Survey

- 2.2.1 The site was originally surveyed in June 2017, with further surveys undertaken during August 2019 in order to ascertain the general ecological value of the land contained within the boundaries of the site and to identify the main habitats and ecological features present.
- 2.2.2 The site was surveyed based on standard Phase 1 Habitat Survey methodology¹, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal² to record details on the actual or potential presence of any notable or protected species or habitats.
- 2.2.3 Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified. The nomenclature used for plant species is based on the Botanical Society for the British Isles (BSBI) Checklist.

2.3 Faunal Surveys

- 2.3.1 General faunal activity, such as mammals or birds observed visually or by call during the course of the surveys was recorded. Specific attention was also paid to the potential presence of any protected, rare or notable species, and specific consideration was given to bats and Badger, as described below.

¹ Joint Nature Conservation Committee (2010, as amended) '*Handbook for Phase 1 habitat survey: A technique for environmental audit.*'

² Chartered Institute for Ecology and Environmental Management (CIEEM) (2013) '*Guidelines for Preliminary Ecological Appraisal.*'

Bats³

Visual Inspection Surveys

- 2.3.2 **Buildings.** Buildings within the site were subject to specific internal and external inspection surveys using ladders, torches and binoculars where necessary in August 2019.
- 2.3.3 During the external inspections, particular attention was given to any potential roost features or access points, such as broken or lifted roof tiles, lifted lead flashing, soffit boxes, weatherboarding, hanging tiles, etc. and for any external signs of use by bats such as accumulations of bat droppings or staining. Binoculars were used to inspect any inaccessible areas more closely where appropriate.
- 2.3.4 During the internal inspections, evidence for the presence of bats was searched for with particular attention paid to any loft voids and relevant potential roost features and locations, such as ridge boards, rafters, purlins, gable walls, and mortise joints. Specific searches were made for bat droppings that can indicate present or past use and extent of use, whilst other signs that can indicate the possible presence of bats were also searched for, e.g. presence of stained areas, feeding remains, corpses, etc. Any droppings collected during the course of the surveys were visually assessed and attributed to a species where possible on the basis of size/shape/texture⁴. Where appropriate, samples of similar droppings were collected with gloved hands and put into labelled eppendorfs, and forwarded to the University of Warwick for DNA analysis.
- 2.3.5 **Trees.** Trees were assessed for their suitability to support roosting bats based on the presence of features such as holes, cracks, splits or loose bark. Suitability for roosting bats was rated based on relevant guidance⁵ as:
- Negligible;
 - Low;
 - Moderate; or
 - High.
- 2.3.6 Any potential roost features identified were also inspected for any signs indicating possible use by bats, e.g. staining, scratch marks, bat droppings, etc.

Badger (*Meles meles*)⁶

- 2.3.7 A detailed Badger survey was carried out in August 2019. The survey comprised two main elements. The first element involved searching for evidence of Badger setts. For any setts that were encountered, each sett entrance was noted and mapped. The following information was recorded:
- Number and location of well used / active entrances; these are clear from any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently;

³ Surveys based on: English Nature (2004) '*Bat Mitigation Guidelines*' and Collins, J. (ed.) (2016) '*Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn).' Bat Conservation Trust

⁴ Stebbings, RE, Yalden DW and Herman, JS (2007). '*Which bat is it? A guide to bat identification in Great Britain and Ireland.*' The Mammal Society

⁵ Collins, J. (ed.) (2016) '*Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn).' Bat Conservation Trust

⁶ Based on: Mammal Society (1989) '*Occasional Publication No. 9 – Surveying Badgers*'

- Number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance; and
- Number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.

2.3.8 The second element involved searching for signs of Badger activity such as well-worn paths and push-throughs, snagged hair, footprints, latrines and foraging signs, so as to build up a picture of any use of the site by Badger.

2.4 Survey Constraints and Limitations

2.4.1 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent during different seasons. The Phase 1 habitat survey was undertaken within the optimal season therefore allowing a robust assessment of habitats and botanical interest across the site.

2.4.2 Attention was paid to the presence of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, the detectability of such species varies due to a number of factors, e.g. time of year, site management, etc., and hence the absence of invasive species should not be assumed even if no such species were detected during the Phase 1 survey.

2.4.3 Any further, specific consideration of individual constraints relating to individual species or issues is set out below, within the body of the text as appropriate.

2.5 Ecological Evaluation Methodology

2.5.1 The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)⁷, which involves identifying 'important ecological features' within a defined geographical context (i.e. international, national, regional, county, district, local or site importance). For full details refer to Appendix 5175/2.

2.6 National Policy Approach to Biodiversity in the Planning System

2.6.1 The National Planning Policy Framework (NPPF)⁸ describes the Government's national policies on 'conserving and enhancing the natural environment' (Chapter 15). NPPF is accompanied by Planning Practice Guidance on 'Biodiversity, ecosystems and green infrastructure' and ODPM Circular 06/2005⁹.

2.6.2 NPPF takes forward the Government's strategic objective to halt overall biodiversity loss¹⁰, as set out at Paragraph 170, which states that planning policies and decisions should contribute to and enhance the natural and local environment by:

⁷ CIEEM (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine', Chartered Institute of Ecology and Environmental Management, Winchester

⁸ Ministry of Housing, Communities & Local Government (2019) 'National Planning Policy Framework'

⁹ ODPM (2006) 'Circular 06/2005: Planning for Biodiversity and Geological Conservation – A Guide to Good Practice'

¹⁰ DEFRA (2011) 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services'

'minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'

2.6.3 The approach to dealing with biodiversity in the context of planning applications is set out at Paragraph 175:

'When determining planning applications, local planning authorities should apply the following principles:

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

2.6.4 The above approach encapsulates the 'mitigation hierarchy' described in British Standard BS 42020:2019¹¹, which involves the following step-wise process:

- **Avoidance** – avoiding adverse effects through good design;
- **Mitigation** – where it is unavoidable, mitigation measures should be employed to minimise adverse effects;
- **Compensation** – where residual effects remain after mitigation it may be necessary to provide compensation to offset any harm; and
- **Enhancement** – planning decisions often present the opportunity to deliver benefits for biodiversity, which can also be explored alongside the above measures to resolve potential adverse effects.

2.6.5 The measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development (BS 42020:2019, section 5.5).

¹¹ British Standards Institution (2013) 'Biodiversity – Code of practice for planning and development', BS 42020:2019

2.7 Local Policy

2.7.1 Bedford Borough Council adopted the current Core Strategy and Rural Issues Development Plan in April 2008. It sets out an overall strategy to guide development across the Borough until 2021. The following core policies of the Core Strategy are of particular relevance to ecology at the site:

2.7.2 CP2 (Sustainable Development Principles) states that:

'The development and use of land will ensure that:

...

ii) Biodiversity is protected and scarce resources are conserved; and,

iii) Climate change, renewable energy and drainage issues are properly addressed

...'

2.7.3 CP22 (Green Infrastructure) states that:

'Existing green infrastructure of both local and strategic importance will be protected from development. Where appropriate, development will provide green infrastructure in accordance with adopted local standards. Where provision on site is not possible or preferred, a contribution towards off-site provision or where appropriate, enhancement will be required. Both on site and off site provision/enhancement will be made with regard to the priorities identified in the council's Greenspace Strategy. As a contribution to the greenspace network, tourism and the vitality of the town centre, the creation of the Bedford to Milton Keynes canal will be supported. Where necessary and appropriate the council will seek the use of planning obligations to secure a contribution towards the cost of future management and maintenance of green infrastructure.'

2.7.4 CP25 (Biodiversity) states that:

'The biodiversity and geodiversity of the borough and in particular priority habitats, species and geodiversity features, will be protected and where appropriate enhanced. Where harm to biodiversity and/or geodiversity is likely to be a result of development, appropriate mitigation and/or compensation will be required. Any replacement assets should be of a comparable or enhanced value.'

2.7.5 CP26 (Climate Change And Pollution) states that:

'The council will require development to:

i) Minimise the emission of pollutants into the wider environment; and,

...

viii) Limit any adverse effects on water quality, reduce water consumption and minimise the risk of flooding.

...'

2.7.6 Emerging local planning policy within Bedford Borough includes the Bedford Borough Local Plan 2030, which remains under consideration and is therefore of relevance to forthcoming development proposals. The emerging Local Plan includes two policies (43S and 44) in regard to the protection and enhancement of biodiversity.

3 Ecological Designations

3.1 Statutory Designations

Description

- 3.1.1 The relevant statutory designations of ecological importance that occur within the local area are shown on Plan 5175/ECO2 and listed at Table 3.1., below.
- 3.1.2 No identified statutory ecological designations are present within any part of the site, nor immediately adjacent to the site. The nearest statutory designation to the site is Putnoe Wood Local Nature Reserve (LNR), which is located approximately 0.3km west of the site. Putnoe Wood is connected to the western part of the site via footpath and bridleway links with a walking distance of approximately 0.5km (0.6km to the closest proposed residential area).
- 3.1.3 The closest international level ecological designation to the site is Nene Valley Gravel Pits Special Protection Area (SPA), which is located approximately 19.6km north west of the site at its closest point.
- 3.1.4 Natural England has developed Impact Risk Zones (IRZs) as an initial tool to help assess the risk of developments adversely affecting SSSIs, taking into account the type and scale of developments. The site is not located within any identified IRZ of relevance to residential development.

Evaluation

- 3.1.5 The site itself is not subject to any statutory ecological designations. All statutory ecological designations in the surrounding area are physically removed and separated from the site. Accordingly, particularly given the distances involved it is clear that the proposals will not result in any direct damage or disturbance (including physical, noise or visual effects) on any such designations.
- 3.1.6 Putnoe Wood is connected to the site by footpath links with a walking distance of approximately 500m. The Wood is designated as a Local Nature Reserve, which is therefore promoted for public access and is owned and managed by The Council with the assistance of the Friends of Putnoe Wood and Mowsbury Hillfort. Accordingly, the wood is accessible for recreational use with appropriate management in place. The proposals incorporate considerable areas of open space, including formal sports pitches and informal open space which are located between the proposed residential areas and the available route to Putnoe Wood. Accordingly, subject to suitable detailed design the proposed open space areas would be anticipated to direct visitor movement within the site and accommodate recreational use by new residents, thereby minimising any potential additional recreational pressures on Putnoe Wood as a result of the proposals.
- 3.1.7 Other statutory designations are well separated from the site, such that no adverse effects are anticipated as a result of the development.

3.2 Non-statutory Designations

Description

- 3.2.1 The non-statutory designations of nature conservation interest that occur within the local area are shown on Plan 5438/ECO2 and listed at Table 3.1., below. The nearest non-

statutory designation to the site is Putnoe Wood County Wildlife Site (CWS), which is consistent with the Putnoe Wood LNR boundary (see above), being located approximately 0.3km west of the site at its closest point.

3.2.2 Similarly, Mowsbury Hill CWS is located approximately 0.5km west of the site (consistent with the associated LNR designation boundary, as described above).

3.2.3 The next nearest non-statutory ecological designation to the site is Great and Little Early Grove CWS, which is located approximately 1.3km east of the site, beyond existing development within Salph End, including a number of roads.

3.2.4 All other identified non-statutory nature conservation designations are similarly well-removed and separated from the site.

Evaluation

3.2.5 The site itself is not subject to any non-statutory nature conservation designations.

3.2.6 Putnoe Wood CWS and Mowsbury Hill CWS are consistent with the relevant LNR designation boundaries and accordingly, are considered above in relation to these designations.

3.2.7 Great and Little Early Grove, along with all non-statutory designations in the surrounding area are well separated from the site by existing development and as such, these designations are unlikely to be affected.

3.3 Priority Habitats, Ancient Woodland and Notable Trees

Description

3.3.1 There are no records of any notable or veteran trees within or adjacent to the site. The nearest recorded ancient woodland to the site is Putnoe Wood (identified as Ancient and Semi-Natural Woodland on the MAGIC database), which is consistent with the LNR boundary (see above) and as such is located approximately 0.3km west of the site, beyond Mowsbury Golf Course.

Evaluation

3.3.2 On the basis of the above considerations and subject to the implementation of appropriate mitigation measures (including as discussed below in Chapters 4 and 6, where appropriate), it is unlikely that any Priority Habitats or any ancient woodland, notable or veteran trees will be significantly affected by the proposals.

3.4 Summary

3.4.1 In summary, the site itself is not subject to any statutory or non-statutory ecological designations and, subject to the implementation of appropriate mitigation measures (as described above), it is unlikely that any such designations in the surrounding area will be significantly affected by the proposals.

Table 3.1: Statutory and non-statutory ecological designations identified within the vicinity of the site.

Designation Name	Designation	Approximate Distance and Direction from Site
<i>Statutory Designations</i>		
Putnoe Wood	LNR	0.3km W

Mowsbury Hill	LNR	0.5 km W
Park Wood	LNR	2.4km W
Hill Rise	LNR	3.0 km W
Tilwick Meadows	SSSI	3.4km N
Fenlake Meadows	LNR	3.5km S
Bromham Lake	LNR	4.4km W
Browns Wood	LNR	4.9km W
<i>Non-statutory Designations</i>		
Putnoe Wood	CWS	0.3km W
Mowsbury Hill	CWS	0.5 km W
Cleat Hill	CWS	0.8km W
Great and Little Early Groves	CWS	1.3km E

4 Habitats and Ecological Features

4.1 Background Records

4.1.1 No specific records of any protected, rare or notable plant species from within or immediately adjacent to the site are included within the information returned from the Records Centre.

4.2 Overview

4.2.1 The habitats and ecological features present within the site are described below and evaluated in terms of whether they constitute an important ecological feature and their level of importance, taking into account the status of habitat types and the presence of rare plant communities or individual plant species of elevated interest. The likely effects of the proposals on the habitats and ecological features are then assessed. The value of habitats for the fauna they may support is considered separately in Chapter 5 below.

4.2.2 The following habitats/ecological features were identified within/adjacent to the site:

- Arable;
- Hedgerows and Trees; and
- Buildings, Hardstanding and Amenity Garden.

4.2.3 The locations of these habitat types and features are illustrated on Plan 5175/ECO3, whilst a description of each habitat type is set out below.

4.3 Priority Habitats

4.3.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats which are of principal importance for conservation in England. This list is largely derived from the 'Priority Habitats' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority habitats under the subsequent country-level biodiversity strategies.

4.3.2 Of the habitats within the site, hedgerows are considered to qualify as UK Priority Habitats. This is discussed further in the relevant habitat sections below.

4.4 Arable

Description

4.4.1 The vast majority of the site is dominated by arable land, within two large fields, which were recorded to remain under intensive cultivation during the course of the surveys, with cereal crops noted to be present. The cultivated areas are clearly intensively managed and cropped, with few weed species, albeit field margin vegetation extends to a width of 3-4m in places, supporting grasses and ruderal weeds typical of improved field margins including False Oat-grass *Arrhenatherum elatius*, Cock's-foot *Dactylis glomerata*, Field Bindweed *Convolvulus arvensis*, Smooth Sow-thistle *Sonchus oleraceus*, Stinging Nettle *Urtica dioica* and Bramble.

Evaluation

- 4.4.2 Given the intensively farmed nature of the arable land, supporting a limited range of common arable weed species typical of arable farmland, this habitat is considered to be of negligible ecological value and does not represent an important ecological feature.

4.5 Hedgerows and Trees

Description

- 4.5.1 A number of hedgerows are present within the site, forming the field boundaries, as shown at Plan 5175/ECO3. The hedgerows are summarised at Table 4.1 below.

Table 4.1. Hedgerow descriptions.

No.	H	W	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify#
H1	10-12m	3m	Conifer	1	Bare ground, Scentless Mayweed, Barren Brome, Stinging Nettle	None	Existing residential curtilage..	N
H2	4-5m	2-3m	<u>Hawthorn (D)</u> , <u>Blackthorn</u> , <u>Rose</u> , Bramble	2-3	F. Oat-grass, Cock's-foot, Perennial Ryegrass, White Clover, Creeping Buttercup	Adjacent footpath, <10% gaps, connects with hedges	Generally dense, continuous albeit with a number of garden fences beyond marking the adjacent residential curtilages.	N
H3	4-5m	1-2m	<u>Hawthorn (D)</u> , <u>Blackthorn</u> , Bramble	2		Adjacent footpath	Forms residential curtilage.	N
H4	4-5m	3m	<u>Elm</u> , <u>Blackthorn</u> , <u>Hawthorn</u> , <u>Dog Rose</u> , <u>Field Maple</u> , <u>Elm</u> , Bramble	3-4	Bare ground, Stinging Nettle, False Oat-grass, Lesser Burdock	Mature standard trees at each end.		N
H5	8m	5m	<u>Blackthorn (D)</u> , <u>Hawthorn</u>	2	Largely bare, with occasional Dock and Bramble	Mature standard trees		N
H6	6m	4m	<u>Hawthorn</u> , <u>Blackthorn</u> , <u>Field Maple</u> , Bramble	2	False Oat-grass, White Clover, Tufted Vetch, Hogweed, White Bryony, Bristly Ox-tongue	Mature standard trees, Dry ditch	Occasional gaps	N
H7	4-6m	5m	<u>Elm (D)</u> , <u>Blackthorn (D)</u> , <u>Field Maple</u> , <u>Hawthorn</u> , <u>Spindle</u> , <u>Elder</u> , Bramble	4-5	Ivy	Mature trees, shallow dry ditch	Continuous dense corridor adjacent to offsite golf course.	Possible

Woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) and woodland ground flora species (as listed under Schedule 2 of the Hedgerows Regulations 1997) underlined, y = young, sm = semi-mature, m = mature, pv = possible veteran, B = bank, W = wall, br = bridleway, f/p = footpath, b/w = byway, (D) = dominant species

* estimated average number of woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) in any one 30m stretch

likely to qualify – as 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997

- 4.5.2 In addition, a number of mature standard trees are present within the site, including within the hedgerows, along with a small number of individual standard trees set within the arable areas, which are dominated by Oak *Quercus robur*. These include a single mature tree

located internally within the centre of the western field, which appeared dead by the time of the most recent (August 2019) survey.

Evaluation

- 4.5.3 Given the size of the site, only a relatively small number of hedgerows are present, with the most substantial being concentrated at the west of the site, whilst smaller hedgerows associated with the existing residential curtilages at the east of the site likely to be of reduced value.
- 4.5.4 With the exception of H1 (comprising a conifer hedge forming an existing residential curtilage), all of the hedgerows within the site are likely to qualify as a Priority Habitat based on the standard definition¹², which includes all hedgerows (>20m long and <5m wide) consisting predominantly (≥80%) of at least one native woody species. It has been estimated that approximately 84% of countryside hedgerows in GB qualify as a Priority Habitat under this definition.¹²
- 4.5.5 On this basis, a number of the hedgerows within the site constitute important ecological features, although given the relatively limited network present, are only of importance at the local level.
- 4.5.6 The proposals allow for the retention of the existing hedgerows and the majority of the trees, within considerable enhanced landscape corridors at the site, albeit the loss of sections of H2 (representing the existing residential curtilage to number 25 Hookhams Lane) and H4 in particular will be required order to allow for the primary access route.
- 4.5.7 Retained hedgerows and trees will be protected during the construction phase of the proposals in line with the recommendations included at Chapter 6 below. Furthermore, the proposals incorporate considerable new planting which will link with and strengthen the existing / retained hedgerows and serve to enhance the value of these features for biodiversity.

4.6 Buildings, Hardstanding and Amenity Garden

Description

- 4.6.1 The site boundary includes a single existing residential property at number 25 Hookhams Lane, including the existing residential building (B1).
- 4.6.2 Building B1 is a single-storey brick residential building, with additional accommodation built into the hipped, tiled roof. Associated with the rear of the building are a number of small wooden shed structures providing storage and garden use, whilst gravel driveway areas form the majority of the (southern) frontage within the property, which are largely devoid of vegetation.
- 4.6.3 Areas of amenity residential garden are present within the curtilage of number 25 Hookhams Lane. The garden areas were recorded to be well managed and maintained by the current occupant, including closely managed, mown grass lawns, amenity planted beds and vegetable plots, including Lavender *Lavandula* sp., Thyme *Thymus* sp., Butterfly-bush *Buddleja davidii*, Bamboo (Bambuseae), *Cotoneaster* sp., Montbretia *Crocsmia x crocosmiifolia*, *Rosa* sp., Portugal Laurel *Prunus lusitanica*, Snowberry *Symphoricarpos* sp., Oregon Grape *Mahonia* sp., Raspberry *Rubus idaeus*, Onion *Allium* sp, and Brassicaceae.

¹² Based on: Biodiversity Reporting and Information Group (2011) 'UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions', ed. Ant Maddock

Also present within the garden areas are a small number of Apple *Malus* sp. trees, a small raised Goldfish pond and a further very small water feature.

Evaluation

4.6.4 The buildings and hardstanding support a limited range of common and widespread floral species and are inherently of negligible ecological value, whilst the amenity garden areas within the curtilage of the property are clearly closely managed and dominated by non-native, ornamental species. As such, they do not form important ecological features. Potential for the buildings to support faunal species such as roosting bats is discussed below in Chapter 5.

4.6.5 The residential garden areas were recorded to include *Cotoneaster* species and Montbretia. Montbretia, along with a number of *Cotoneaster* species are listed under Schedule 9 Part II of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to cause to grow in the wild any plant listed on the schedule, albeit these species remain widely planted within residential gardens. Further discussion of this issue along with a number of recommendations in regard to these species is included at Chapter 6.

4.7 Habitat Evaluation Summary

4.7.1 On the basis of the above, the following habitats within and adjacent to the site are considered to form important ecological features:

Table 4.1. Evaluation summary of habitats forming important ecological features.

Habitat	Level of Importance
Hedgerows	Local

4.7.2 The vast majority of the remainder of the site is dominated by intensive arable land, with other habitats present within the site boundary including scattered trees, buildings, hardstanding and amenity garden areas. However, these habitats do not form important ecological features.

5 Faunal Use of the Site

5.1 Overview

5.1.1 During the survey work, general observations were made of any faunal use of the site with specific attention paid to the potential presence of protected or notable species. Specific survey work and consideration was undertaken in respect of Badgers, bats and Great Crested Newt, with the results described below.

5.2 Priority Species

5.2.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of principal importance for conservation in England. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority species under the subsequent country-level biodiversity strategies.

5.2.2 Specific consideration in regard to the potential presence of listed Priority Species within the site is set out below at the relevant sections in regard to individual faunal species, where appropriate.

5.3 Bats

5.3.1 **Legislation.** All British bats are classed as European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended) and are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). As such, both bats and their roosts (breeding sites and resting places) receive full protection under the legislation. If proposed development work is likely to result in an offence a licence may need to be obtained from Natural England which would be subject to appropriate measures to safeguard bats. Given all bats are protected species, they are considered to represent important ecological features. A number of bat species are also considered S41 Priority Species.

5.3.2 **Background Records.** No records of bats from within or adjacent to the site were returned from the desktop study.

5.3.3 Survey Results and Evaluation

Roosting

5.3.4 Buildings within the site are limited to the existing residential property at number 25 Hookhams Lane in the south of the site. The existing residential building is required for demolition in order to provide the primary access into the site and accordingly, the building was subject to specific inspection and appraisal survey work in respect of bats.

5.3.5 The building is a single storey residential building of brick construction, with further accommodation built into the hipped, tiled roof. Accordingly, a number of dormer windows are present within the northern pitch of the roof, which were recorded to support areas of modern concrete hanging tiles and metal flashing (based on available aerial imagery, these features appear to have been constructed into the building roof subsequent to 2009 and do not therefore represent traditional structures), along with well-sealed modern uPVC-type

guttering and soffits boxes. These sections were subject to visual inspection, with no evident droppings, staining or other evidence of use by bats noted during the survey. Internally, the living areas within the affected section of the building were recorded to extend into the roof spaces.

- 5.3.6 Internally, the living areas extend through much of the roof structures (as set out above), however small voids are present at the front of the building, measuring up to 2m height at the apex, with closely fitting concrete tiles lined with felt and modern breathable roofing membrane. These areas were inspected during August 2019, with no evidence for any use by bats recorded.
- 5.3.7 On the basis of the survey work undertaken, no evidence for any use of the building by bats was recorded, whilst the building is removed (over 200m) from any features such as woodland or water that could provide raised potential for bats to be present and does not appear to represent any of the features listed on the 'Planning Trigger List' within "Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edn)" (2016) that would appear to trigger any need for further survey in regard to this group.
- 5.3.8 No other significant structures are present within the site that could provide potential opportunities to support roosting bats.
- 5.3.9 A number of semi-mature and mature trees are present on site, which were recorded to support features offering apparent potential for use by roosting bats (albeit closer inspection of individual features could rule out any such potential, for instance should evident rot holes be found not to extend back into viable cavities). A summary of these trees and the associated identified features is set out at Table 5.1., below, whilst the location of individual trees is identified at Plan 5175/ECO3.

Table 5.1. Summary of trees identified to offer potential to support roosting bats (refer to Plan 5175/ECO3 for locations).

Tree No.	Species	Age	Potential Roost Features	Suitability
T1	Oak	Mature	Rot hole and small split limb/loose bark noted.	Low
T2	Oak	Mature	Loose/lifted bark on E side. Large split on s side of trunk and further splits.	Moderate to high
T3	Ash	Mature	Former pollard with large cavity facing downwards in main trunk.	Low
T4	Oak	Dead	Dead tree in centre of arable field. Cracked wood and lifted bark.	Low to moderate (dead)
T5	Oak	Mature	Minor die-back with dead wood including split limb.	Low

- 5.3.1 The majority of the existing trees within the site, including those described above with identified potential to support roosting bats (with the exception of T4 [see below]), are associated with the site boundary hedgerows and accordingly, are anticipated to be retained under the proposals, such that in the event that bats are present within the trees they will remain unaffected by development works. Nonetheless, should this position change, or future arboricultural or management actions require any works affecting trees supporting suitable features for roosting bats, further consideration and/or mitigation may be required in regard to this group.
- 5.3.2 Tree T4 represents a dead tree, which was recorded to support minor cracked wood and lifted bark that provide low potential for use by roosting bats. The tree is located within an

area proposed for sports pitches, whilst in any event given it is dead it would likely have limited future lifespan. Nonetheless, in the short term (and assuming significant further deterioration does not occur prior to removal), the removal of the tree has potential to affect roosting bats in the unlikely event they are present and accordingly in line with standard guidance (BCT, 2016) in regard to trees identified to support low suitability for bats, it is recommended that a precautionary approach to removal be put in place, as set out at Chapter 6.

Foraging / Commuting

- 5.3.3 The majority of internal areas at the site are dominated by intensively managed arable land, which is unlikely to offer particular foraging opportunities for bats. Nonetheless, the field boundary hedgerows and associated vegetation (which are to be largely retained and enhanced under the proposals) provide potential flyways and foraging opportunities for bats in association with the available offsite habitats in the surrounding areas.
- 5.3.4 The proposals incorporate the retention of the majority of hedgerows within considerable areas of new open space and green infrastructure, with the potential under any detailed landscaping scheme to incorporate new planting and features of considerable benefit to foraging/commuting bats, including new native structural tree and hedgerow planting providing cover and movement corridors, along with wetland/drainage features and wildlife habitats. Accordingly, subject to suitable protective measures (in particular relating to design of any lighting scheme to maintain dark corridors and foraging areas for this group, as set out at section 6., below) the proposals represent the opportunity to provide strengthened corridors, cover and support invertebrate prey populations that would provide potentially suitable and indeed enhanced opportunities for bat species at the site.
- 5.3.5 As such, subject to the implementation of the recommendations outlined at Section 6 below in relation to lighting and trees, it is considered that bats will be fully safeguarded under the proposals.

5.4 Badger

- 5.4.1 **Legislation.** Badger receive legislative protection under the Protection of Badgers Act 1992, and as such should be assessed as an important ecological feature. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It is the duty of planning authorities to consider the conservation and welfare impacts of development upon Badger and issue permissions accordingly.
- 5.4.2 Licences can be obtained from Natural England for development activities that would otherwise be unlawful under the legislation. Guidance on the types of activity that should be licensed is laid out in the relevant best practice guidance.^{13, 14}
- 5.4.3 **Background Records.** A number of records of Badger within the 2km search area around the site were returned from the desktop study, indicating this species to be present within the local area, albeit the closest specific record is located over 1km from the site.
- 5.4.4 **Survey Results and Evaluation.** No Badger setts were recorded to be present within the site during the survey work undertaken. A small number of Badger latrines were recorded at the site, associated with the existing (retained) hedgerow corridors, indicating that this

¹³ English Nature (2002) 'Badgers and Development'

¹⁴ Natural England (2011) 'Badgers and Development: A Guide to Best Practice and Licensing', Interim Guidance Document

species makes use of the site, albeit no other evidence of Badger presence or specific foraging activity was recorded within the site.

5.4.5 In terms of the habitats present, the majority of the site is formed by intensively managed arable land, which is unlikely to provide significant opportunities for this species, albeit the field boundary hedgerows and associated corridors provide cover, movement corridors and foraging opportunities for Badger.

5.4.6 Given the lack of any recorded Badger setts within the site, the proposals do not appear likely to result in any adverse effects on existing Badger setts. Further, the proposals include the retention of the majority of the existing boundary corridors and vegetation, broken only by internal access roads and access from Ravensden Road to the north west, such that these will likely remain as potential movement and foraging corridors for use by Badger in the long term, with considerable additional opportunities to provide new foraging opportunities for Badger in the long term as part of the wider green infrastructure provision.

5.4.7 In addition, in order to ensure that individual Badgers are fully safeguarded in the event they should be present within the site during the course of construction works and ensure compliance with the relevant legislation in regard to this species, a number of specific construction measures and recommendations are set out at section 6., below in regard to this species.

5.5 Other Mammals

5.5.1 **Legislation.** A number of other mammal species are subject to detailed legislative protection under specific provision or through the provisions of the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Further UK mammal species do not receive direct legislative protection relevant to development activities but may receive protection against acts of cruelty (e.g. under the Wild Mammals (Protection) Act 1996). In addition, a number of these mammal species are S41/Priority Species.

5.5.2 **Background Records.** No specific records of other mammals from within or adjacent to the site were returned from the desktop study. A number of records of mammal species within the wider search area were included within the information returned from the BRMC, including records of Water Vole *Arvicola amphibius*, Otter *Lutra lutra* and Hedgehog *Erinaceus europaeus* (Priority Species), albeit all of the records are well-removed from the site boundary.

5.5.3 **Survey Results and Evaluation.** No evidence of any other protected, rare or notable mammal species was recorded within the site. Other mammal species likely to utilise the site, such as Fox *Vulpes vulpes*, remain common in both a local and national context, and as mentioned above do not receive specific legislative protection in a development context. As such, these species are not a material planning consideration and the loss of potential opportunities for these species to the proposals is of negligible significance.

5.5.4 The desktop study returned background records of Hedgehog within the surrounding area and it is likely that individuals present within the local area would make some use of the site (albeit the majority of the habitats present are dominated by arable land which is unlikely to provide particular opportunities for this species, with any use likely largely limited to the existing hedgerow corridors and boundary features). Hedgehog is included as a species of principal importance under the list produced under Section 41 of the NERC Act, albeit this species remains common and widespread in England, including within urban areas.

- 5.5.5 The features offering greatest potential for use by such species (namely the field boundary hedgerows and associated corridors) will be largely retained and incorporated into a comprehensive and substantial green infrastructure across the site, which will likely provide considerably enhanced opportunities for such species in the long term.
- 5.5.6 In addition, general construction safeguards set out at Chapter 6., below will minimise any potential risk of harm to individual mammal species (including Hedgehog) that may be present within the site at the time of the works.

5.6 Amphibians

- 5.6.1 **Legislation.** All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as amended). Great Crested Newt is protected under the Act and is also classed as a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). As such, both Great Crested Newt and habitats utilised by this species are afforded protection. Great Crested Newt is also a S41 Priority Species, as are Common Toad *Bufo bufo*, Natterjack Toad *Epidalea calamita*, and Pool Frog *Pelophylax lessonae*. As such, these species should be assessed as important ecological features.
- 5.6.2 **Background Records.** No specific records of Great Crested Newt from within the site itself were returned from the desktop study. However, a number of records of Great Crested Newt and Common Toad were returned from the search area surrounding the site, including in particular records of Great Crested Newt from ponds within the adjacent Mowsbury Golf Course. Of these, the most recent record dates from 2017 and based on the information received represents the results of specific eDNA survey work undertaken on a single offsite pond (P1a), located approximately 200m west of the site boundary (see Plan 5175/ECO4).
- 5.6.3 **Survey Results and Evaluation.** The site itself does not contain any ponds or waterbodies that could offer potential breeding opportunities for amphibians such as Great Crested Newt. The habitats within the majority of the site, dominated by intensively managed arable land provide sub-optimal terrestrial opportunities for this species, albeit the field boundary vegetation and hedgerows in particular provide suitable corridors and terrestrial opportunities for amphibians such as Great Crested Newt.
- 5.6.4 A number of offsite ponds and waterbodies have been identified within the surrounding vicinity of the site, including a total of three (P1a, P1b and P1c) within Mowsbury Golf Course, situated west of the site and a further three (P2 to P4) located within existing residential properties east of the site, which are located within 250m of the site boundaries. The locations of the offsite ponds are shown at Plan 5175/ECO4. Where access was available, the location of the waterbodies was viewed from publicly accessible vantage points or within the site boundaries, which confirmed the continued presence of the waterbodies on the ground.
- 5.6.5 The presence of recent background records confirming (through eDNA survey undertaken in 2017) the presence of Great Crested Newt within an offsite pond (P1a) located approximately 130m west of the site, within Mowsbury Golf Course. As such, it is likely that this species would make some use of the terrestrial habitats within the site, albeit the habitats present within the site are not optimal for this species. Accordingly, overall the site is considered to be of importance to amphibian species at the local level.
- 5.6.6 All of the identified ponds (Great Crested Newt breeding habitats) lie off-site and will therefore not be directly affected by the proposals. The vast majority of the hedgerows and boundary vegetation, forming the habitats with greatest potential for use by Great Crested

Newt will be retained under the proposals, forming part of the wider open space, whilst substantial suitable (and higher quality) terrestrial habitats appear to be present within closer proximity to the offsite ponds. The proposed residential areas in particular are further removed from the pond (P1a) confirmed to support Great Crested Newt based on background records, with proposed open space areas situated within the closest areas to the pond. Further, the provision of additional open space areas as part of the proposals represents the opportunity to provide substantial enhancements for amphibians such as Great Crested Newt as part of the proposals, including potential breeding and terrestrial habitats.

5.6.7 Accordingly, subject to appropriate measures and long-term favourable management it is considered that the conservation status of the GCN population will be maintained and potentially enhanced in the long term.

5.6.8 Nonetheless, the proposals will involve the overall loss of approximately 1.3ha land within 250m of a confirmed Great Crested Newt breeding pond (P1a), along with a further 13.5ha of land located within 250m of other identified offsite ponds, albeit much of this is sub-optimal terrestrial habitat. Accordingly, based on the relevant guidance, the proposals will likely result in a medium to low scale impact on the Great Crested Newt population, due to the destruction of terrestrial habitats¹⁵. It will therefore be necessary to implement a licensed mitigation strategy. This could be in the form of a site based Natural England licensing approach under detailed methodology. The full details of the mitigation strategy would be detailed within a formal Natural England mitigation licence application, which would likely need to be informed by specific Great Crested Newt survey work undertaken at the appropriate time, albeit it is clear based on the nature of the habitats present, along with the substantial areas of open space proposed, that the favourable conservation status of this species at the site could suitably be maintained (and substantially enhanced) as part of any suitably designed scheme.

5.6.9 An alternative approach would be to register the scheme under the district level licence held by Bedford Borough Council. Under the District Licence, the LPA is able to authorise operations that may affect Great Crested Newts on development sites. As part of the District Licence, the LPA is required to create or manage habitat / land within the district for the benefit of Great Crested Newt. The developer would provide a monetary contribution towards the funding required for the on-going habitat / land management. The level of contribution required by the developer would be calculated as part of the developer's application process, whilst if site-based mitigation work is required, this would be significantly reduced in comparison to the standard licensing approach. The full details of the mitigation strategy would be detailed within the District Licence.

5.6.10 Accordingly, in summary either of the above licensing approaches at the appropriate stage, would provide an appropriate mitigation strategy, which would ensure that the local favourable conservation status of Great Crested Newt is maintained and this species is appropriately considered as part of the proposals.

5.7 Reptiles

5.7.1 **Legislation.** All six species of British reptile are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), which protects individuals against intentional killing or injury. Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* receive additional protection under the Conservation of Habitats and Species Regulations 2017 (as amended).

¹⁵ Natural England (2001) *Great Crested Newt Mitigation Guidelines*

All six reptile species are also S41 Priority Species. As such, all reptile species should be assessed as important ecological features.

- 5.7.2 **Background Records.** Information returned from the BMRC includes records of Grass Snake *Natrix helvetica* [sic] and Common Lizard *Zootoca vivipara* from the search area around the site, all of which appear to arise from Mowsbury Hill LNR, approximately 0.5km west of the site.
- 5.7.3 **Survey Results.** The vast majority of the site is dominated by intensively managed arable land, which does not offer suitable opportunities for reptiles.
- 5.7.4 Minor potential opportunities for reptiles are provided by the field margin vegetation associated with the hedgerow corridors, the majority of which will be retained within the proposed open space and will therefore remain largely unaffected by the development proposals (subject to suitable protection measures associated with tree and hedgerow retention). Further, the proposed substantial open space and green infrastructure provision (if managed appropriately) would likely provide considerable additional opportunities and enhancement for reptiles should they colonise the site.
- 5.7.5 It is therefore considered that reptiles are unlikely to pose a particular constraint to proposals, although as a precautionary measure, it is recommended that safeguards are implemented during any works to potential reptile habitats associated with the field margins to mitigate against any risk of killing or injury and avoid an offence under relevant legislation, should individuals be present within these areas. Such measures are outlined in Section 6..

5.8 Birds

- 5.8.1 **Legislation.** All wild birds and their nests receive protection under Section 1 of the Wildlife and Countryside Act 1981 (as amended) in respect of killing and injury, and their nests, whilst being built or in use, cannot be taken, damaged or destroyed. Species included on Schedule 1 of the Act receive greater protection and are subject to special penalties.
- 5.8.2 **Conservation Status.** The conservation importance of British bird species is categorised based on a number of criteria including the level of threat to a species' population status¹⁶. Species are listed as Green, Amber or Red. Red Listed species are considered to be of the highest conservation concern being either globally threatened and or experiencing a high/rapid level of population decline (>50% over the past 25 years). A number of birds are also S41 Priority Species. Red and Amber listed species and priority species should be assessed as important ecological features.
- 5.8.3 **Background Records.** Information from the data search included records for several bird species in the vicinity of the site, including the Red Listed species Skylark *Alauda arvensis*, Yellowhammer *Emberiza citrinella*, Linnet *Carduelis cannabina*, House Sparrow *Passer domesticus*, Tree Sparrow *Passer montanus*, Fieldfare *Turdus pilaris* and Song Thrush *Turdus philomelos*, which are also all Priority Species. None of the records appear to originate from within the site itself.
- 5.8.4 **Survey Results and Evaluation.** The site is likely to support a number of widespread Birds of Conservation Concern, particularly within the boundary vegetation, including potentially red listed species (A single Skylark *Alauda arvensis* was recorded within the larger arable

¹⁶ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) 'Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man' British Birds 108, pp.708-746

field during the 2017 survey work, whilst Yellowhammer was recorded calling within the vicinity). Other bird species recorded within the site during the survey work include Woodpigeon *Columba pallumbus*, Wren *Troglodytes troglodytes*, Blackbird *Turdus merula*, Blue Tit *Cyanistes caeruleus* and Carrion Crow *Corvus corone*.

- 5.8.5 The field boundary hedgerows and trees provide cover and potential nesting opportunities likely to be of general value to a wider range of common nesting bird species.
- 5.8.6 Many farmland specialist species, including Skylark and Yellowhammer have suffered major declines over recent years, largely as a result of agricultural intensification through production of autumn / winter cereals and increasing use of agrochemicals, both factors that reduce food supply for nestlings and winter foraging resources for adults.
- 5.8.7 The arable land recorded within the site was noted to be intensively managed, while conservation features such as substantial set-aside, grassy managed field corners, conservation headlands or Skylark plots were recorded to be absent from the arable fields. Such intensively managed arable land is likely to receive agro-chemical input, while crops such as Wheat are often winter sown, thus providing limited stubble as forage for birds (and in particular known to reduce breeding attempts by Skylark). Further, similar arable habitats remain abundant within the local area.
- 5.8.8 Accordingly, the overall the site appears likely to support an unremarkable range of common and widespread breeding bird species. Further, the proposals incorporate the retention of the majority of the existing boundary hedgerows and associated vegetation as part of the comprehensive green infrastructure, which will therefore continue to provide suitable opportunities for a range of bird species in the long term. Nonetheless, where suitable vegetation is required for removal, a number of safeguards in respect of nesting birds are proposed, as set out at section 6., below in order to ensure this group is safeguarded and avoid any potential offence in this regard.

5.9 Invertebrates

- 5.9.1 **Legislation.** A number of invertebrate species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In addition, Large Blue Butterfly *Maculinea arion*, Fisher's Estuarine Moth *Gortyna borelii lunata* and Lesser Whirlpool Ram's-horn Snail *Anisus vorticulus* receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended). A number of invertebrates are also S41 Priority Species. Where such species are present, they should be assessed as important ecological features.
- 5.9.2 **Background Records.** No specific records of invertebrates were returned from within or adjacent to the site.
- 5.9.3 **Survey Results and Evaluation.** The vast majority of the site is dominated by intensively managed arable land that is unlikely to provide opportunities for more than a very limited range of common invertebrate species. The field boundary hedgerows and associated vegetation are likely to offer opportunities for a range of invertebrate species, albeit no evidence was recorded to suggest the presence of a significant invertebrate assemblage or any rare or notable invertebrate species. Further, the majority of these habitats will be retained under the proposals, whilst new native habitats within the wider green infrastructure at the site will provide considerable new habitats that will (subject to suitable implementation and management) provide considerably enhanced opportunities for invertebrates at the site in the long term.

- 5.9.4 As such, the site appears unlikely to represent an important resource for significant invertebrate populations in the local area and on the basis of the evidence available, this group does not appear to represent particular constraint to the proposed development.

6 Mitigation Measures and Ecological Enhancements

6.1 Mitigation

6.1.1 Based on the habitats, ecological features and associated fauna identified within / adjacent to the site, it is proposed that the following mitigation measures (**MM1** to **MM11**) are implemented under the proposals. If required, further, detailed mitigation strategies or method statements can be secured via suitably-worded planning conditions, as recommended by relevant best practice guidance (BS 42020:2013).

General Safeguards and Protective Measures

6.1.2 **MM1 – General construction safeguards and working practices.** In order to minimise any potential adverse effects on ecological receptors that may be associated with construction activities at the site, a number of general safeguarding measures should be implemented throughout any construction works, including the following:

- Any storage of any chemicals and hazardous materials within the site should be in line with best practice guidelines, ensuring that they are kept secure and away from the site boundaries and cannot be accessed or knocked over by roaming animals;
- Potential sources of dust will be dampened down during construction where appropriate;
- Fires should only be lit in secure compounds and not allowed to remain lit during the night;
- Any trenches or deep pits within the site that are to be left open overnight should be provided with a means of escape should faunal species such as mammals enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water;
- Unsecured food and litter should not be left within the working area overnight.

Hedgerows and Trees

6.1.3 **MM2 – Hedgerow and Tree Protection.** All hedgerows and trees to be retained within the proposed development should be protected throughout the construction period in line with standard arboricultural best practice (BS5837:2012) or as otherwise directed by a suitably competent arboriculturalist. This will involve the use of protective fencing or other methods appropriate to safeguard the root protection areas of retained trees / hedgerows.

Bats

6.1.4 **MM3 – Roosting Bats.** As detailed above, under the current masterplan layout, the majority of the trees noted to support features offering potential for use by roosting bats are located within areas of retained and enhanced corridors vegetation based on the current masterplan. Accordingly, where possible (subject to arboricultural considerations), it is recommended that these be retained and protected throughout the works, so that they continue to provide potentially suitable opportunities for this group at the site.

6.1.5 Precautions will be undertaken to ensure that retained trees with potential opportunities for roosting bats are safeguarded during works. Such trees will be protected with suitable tree protection fencing (e.g. Heras fencing or similar), whilst all contractors will be made aware of such trees and the potential presence of roosting bats within trees. If appropriate, associated mitigation (such as soft-felling techniques and/or prior inspection and ecological supervision) will be put in place at the appropriate time (including in respect of the removal of the dead tree (T4) should this continue to provide some (low) suitability for bats at that time.

- 6.1.6 Should any works be proposed to other individual trees offering potential to support roosting bats (e.g. to address arboricultural management requirements and/or for health and safety), any such works should be preceded by further specific ecological consideration and a suitably qualified ecologist (e.g. Aspect Ecology) should first be contacted for further advice in regard to any potential to affect this group.
- 6.1.7 Where evidence of bat roosting activity is found, it may be necessary to undertake further, more detailed mitigation/compensation works, including obtaining a European Protected Species licence in order to continue with works at that time.
- 6.1.8 **MM4 – Lighting.** The effects of lighting vary between species, with some bat species such as Common Pipistrelle and Soprano Pipistrelle able to cope with relatively high light levels (of up to 14 lux) (Fure, 2006)¹⁷ and known to utilise lights as a foraging focus for insects attracted to lights (BCT, 2009)¹⁸. However, many bat species (particularly late emerging species such as Brown Long-eared and *Myotis* bats) will avoid lit areas, and attraction of insects to lit areas can result in adjacent habitats supporting reduced numbers of insects, further impacting on the ability of bats being able to feed.
- 6.1.9 To minimise the effects of lighting on habitats utilised by bats (and other nocturnal species) within and around the site (particularly associated with the proposed substantial green infrastructure/open space areas and corridors through the site), it is recommended that a detailed lighting design is prepared at the appropriate stage, setting out measures to maintain dark corridors and reduce light spill towards the southern ecological enhancement area in particular, where practical. Such a strategy would likely include a number of design principles and mitigation measures such as:
- Avoidance of lighting where possible adjacent to the boundary vegetation;
 - Use of additional design measures where required, such as louvres, shields or hoods, to control light spill;
 - Careful selection of luminaries and their location in relation to sensitive habitats to minimise light spill; and
 - Use of low pressure sodium lights or LED lights with a correlated temperature of lower than 4200K, reducing the blue and WV light content, in line with recent BCT guidance¹⁹.

Badger and other Mammals

- 6.1.10 **MM5 – Badger Construction Safeguards.** In order to safeguard individual Badgers should they enter the site during construction works, the following measures will be implemented:
- Any trenches or deep pits within the site that are to be left open overnight will be provided with a means of escape should a Badger enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water;
 - Any temporarily exposed open pipes (>150mm outside diameter) should be blanked off at the end of each working day so as to prevent Badgers gaining access as may happen when contractors are off-site;
 - Any trenches/pits will be inspected each morning to ensure no Badgers have become trapped overnight. Should a Badger become trapped in a trench it will

¹⁷ Fure, A. (2006) *Bats and Lighting*. The London Naturalist: No. 85.

¹⁸ Bat Conservation Trust (2009) *Bats and Lighting*.

¹⁹ Bat Conservation Trust (2014) *Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact artificial lighting*.

likely attempt to dig itself into the side of the trench, forming a temporary sett. Should a trapped Badger be encountered a suitably qualified ecologist will be contacted immediately for further advice;

- The storage of topsoil or other 'soft' building materials in the site will be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these will be kept to a minimum and any essential mounds subject to daily inspections with consideration given to temporarily fencing any such mounds to exclude Badgers;
- The storage of any chemicals at the site will be contained in such a way that they cannot be accessed or knocked over by any roaming Badgers;
- Fires will only be lit in secure compounds away from areas of Badger activity and not allowed to remain lit during the night;
- Unsecured food and litter will not be left within the working area overnight.

6.1.11 MM6 – Update check survey. Badgers are dynamic animals and accordingly, levels and nature of use can change over time and setts may be abandoned or brought back into use, or new setts created. Accordingly, given the existing use of the site by this species, confirmed through the presence of active latrines, it is recommended that further update survey work be undertaken in order to establish the up to date position with regard to the Badger setts at the site within 3 months of commencement of any development works at the site.

Reptiles

6.1.12 MM7 – Precautionary mitigation. As set out above, the vast majority of habitats present at the site are currently unlikely to support reptile species, albeit the field margins could be used by small numbers of reptiles should this group be present (noting in particular the presence of a nearby record of Grass Snake and Common Lizard).

6.1.13 Accordingly, in order to ensure this group is suitably safeguarded in the event individuals may be present within the site, it is recommended that a precautionary approach be put in place in respect of any minor works affecting vegetated and boundary habitats. Suitable measures would likely include the following:

- Construction staff should be briefed on the potential for reptile species to be present within the site;
- Prior to works within vegetated areas, a visual inspection of the affected areas will be undertaken to check for any evidence of reptiles or particular features that could conceal reptiles (e.g. rubble, rock or log piles, sheets of metal etc);
- Where features such as logs, rubble, rubbish piles or other potential refugia/hibernacula are present within affected areas, these should be dismantled carefully, by hand where possible, outside of the winter hibernation period (i.e. outside of November to February/March), watching for any reptiles that may be present;
- Where works areas of denser vegetation such as Bramble, tall grassland or other cover is present, prior to ground works (particularly including boundary vegetation) these areas should be subject to above ground vegetation clearance (e.g. through strimming) in order to initially remove suitable cover for reptiles, encouraging any

present to vacate these areas, escape to unaffected habitats prior to ground works occurring;

- Ongoing intensive management of arable areas to continue until such time as construction works comment in order to prevent further suitable habitats or cover from developing at the site, which could encourage or conceal individual reptiles;
- In the unlikely event that any reptile species are observed at the site at any time during clearance or construction activities, works should cease in those areas and the reptiles allowed to disperse to more favourable areas. Aspect Ecology Ltd should be contacted for further advice in order to ensure the safeguarding of any individuals present.

6.1.14 Given the low likelihood of the presence of any significant reptile population, the provision of the above measures is considered appropriate in order to ensure this group is appropriately safeguarded.

6.1.15 **MM8 – Site Management.** Should the current intensive agricultural regime at the site cease for any length of time, the potential exists for vegetation to develop over time that could become favourable for reptiles. Accordingly, it is recommended that management measures be maintained at the site until commencement of any site clearance and progression of works in order to prevent the development of suitable opportunities within areas to be affected and thereby avoid potential future harm to individual reptiles that may otherwise colonise the site. Following completion of the proposed development works, considerable new areas of informal open space and habitats will be present, which will provide considerable additional opportunities for reptiles and it is recommended that these be managed accordingly, in order to maximise opportunities for this group at the site in the long term (see below).

Great Crested Newt

6.1.16 **MM9 – Licensed Mitigation.** Due to the loss of terrestrial foraging and commuting habitat, and the risk of harm to individual Great Crested Newts, either a site based Natural England licensing approach or the registering the scheme under the Bedford Borough Council District Licence will be required in-order to address the legislative requirements in regard to this protected species and ensure the overall maintenance of the favourable conservation status of Great Crested Newts. The details of the mitigation strategy would be set out as part of a Natural England development licence application or as part of the District Licence, depending on the approach taken.

6.1.17 **MM10 – Habitat Compensation.** The amount of habitat compensation required for Great Crested Newt mitigation, will be dependent on the approach to Great Crested Newt mitigation chosen, as outlined above in MM9. A site based Natural England licensing approach would require the creation of high quality terrestrial habitats within the site, in sufficient quantities to mitigate for the loss of existing intermediate / sub-optimal quality habitat at the site. Registering the scheme under the Bedford Borough Council District Licence would require a financial contribution to be made in order for a suitable amount of habitat to be created off-site in the region. The levels of on-site mitigation, including specific habitat required to be provided would be significantly reduced with this approach (compared to the site based Natural England Licensing approach), although connectivity across the site would likely still be required, whilst in any event the proposals incorporate substantial areas of open space that would likely (subject to suitable design) represent substantial enhancement opportunities for Great Crested Newt in the long term.

Nesting Birds

- 6.1.18 **MM11 – Timing of Works.** To avoid a potential offence under the relevant legislation, no clearance of suitable vegetation should be undertaken during the bird-nesting season (1st March to 31st August inclusive). If this is not practicable, any potential nesting habitat to be removed should first be checked by a competent ecologist in order to determine the location of any active nests. Any active nests identified would then need to be cordoned off (minimum 5m buffer) and protected until the end of the nesting season or until the birds have fledged. These checking surveys would need to be carried out no more than three days in advance of vegetation clearance.

6.2 Ecological Enhancements

- 6.2.1 The National Planning Policy Framework (NPPF) encourages new developments to maximise the opportunities for biodiversity through incorporation of enhancement measures. The proposals present the opportunity to deliver ecological enhancements at the site for the benefit of local biodiversity, thereby making a positive contribution towards the broad objectives of national conservation priorities and the local Biodiversity Action Plan (BAP) The recommendations and enhancements summarised below are considered appropriate given the context of the site and the scale and nature of the proposals.

Habitat Creation

- 6.2.2 **EE1 – Wildflower Grassland.** It is recommended that areas of wildflower grassland are created within the proposed strategic open space and green infrastructure provision, such that opportunities for wildlife will be maximised under the proposals. This would make a positive contribution towards the Bedfordshire BAP, which lists ‘lowland meadows’ as a priority habitat, with targets including creation of lowland meadow from arable or improved grassland habitats.
- 6.2.3 **EE2 – New Planting.** It is recommended that where practicable, new planting within the site be comprised of native species common to the local area, including tree and shrub species. Suitable species for inclusion within the planting, in particularly providing increased diversity and structure within the ecological enhancement area, could include native trees such as Oak, Birch *Betula pendula* and Field Maple, whilst native shrub species of particular benefit would likely include fruit and nut bearing species which would provide additional food for wildlife, such as Blackthorn, Hawthorn, Crab Apple *Malus sylvestris*, Hazel *Corylus avellana* and Elder.
- 6.2.4 **EE3 – Wetland Features.** The opportunity exists under the proposals to create substantial new wetland habitats that will provide a range of opportunities for wildlife. It is recommended that the potential to create ponds or other wetland habitats such as Sustainable Urban Drainage Systems (SUDS) under the proposals be given due consideration. Creation of such habitats would provide opportunities for a range of wildlife (if guided by ecological principles) while also helping to attenuate surface water run-off.

Bats

- 6.2.5 **EE4 - Bat Boxes.** It is recommended that a number of bat boxes be incorporated within the proposed development. The provision of bat boxes will provide new roosting opportunities for bats in the area, such as Soprano Pipistrelle, a national Priority Species. In order to maximise their potential use, the bat boxes should ideally be situated on suitable retained trees, erected as high up as possible and sited in sheltered wind-free areas.

- 6.2.6 In addition, where architectural design allows, a number of integrated bat boxes / roost features should be incorporated into a proportion of the new build. The precise number and locations of boxes / roost features should be determined by a competent ecologist, once the relevant final development design details have been approved.

Birds

- 6.2.7 **EE5 - Bird Boxes.** It is recommended that a number of bird nesting boxes be incorporated within the proposed development. Ideally, bird boxes will have greater potential for use if sited on suitable, retained trees, situated as high up as possible. The precise number and locations of boxes should be determined by a competent ecologist, once the relevant final development design details have been approved.

Invertebrates

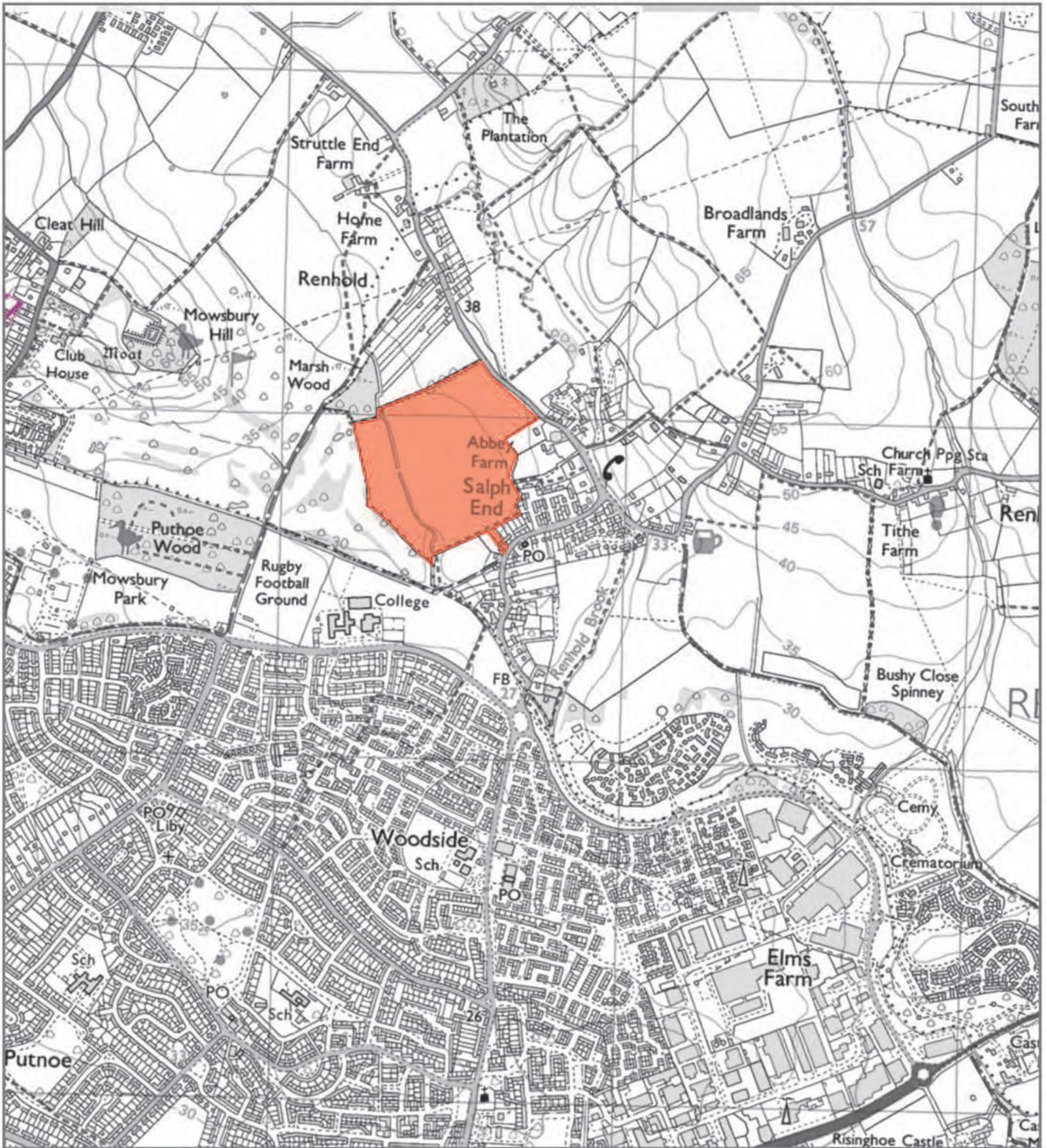
- 6.2.8 **EE6 – Habitat Piles.** Where possible, deadwood arising from any minor vegetation clearance and/or management works should be retained within the site in wood piles located within the vegetated corridors and green infrastructure, in order to provide potential habitat opportunities for invertebrate species in particular, which in turn could provide a prey source for a range of other wildlife. In addition, the provision and management of new native landscape planting will likely provide additional opportunities for invertebrates at the site in the long term.

7 Conclusions

- 7.1 Aspect Ecology has carried out an Ecological Appraisal of the proposed development, based on the results of a desktop study, Phase 1 habitat survey and faunal/protected species surveys.
- 7.2 The available information confirms that no statutory or non-statutory nature conservation designations are present within or adjacent to the site, and subject to the implementation of appropriate safeguards and measures as set out in this report, none of the designations within the surrounding area are likely to be adversely affected by the proposals.
- 7.3 The Phase 1 habitat survey has established that the site is dominated by habitats of low to negligible ecological value (arable land), whilst the proposals have sought to retain those habitats of greatest ecological value (namely hedgerows, trees and associated field boundary vegetation) and provide the opportunity to retain and significantly extend and enhance these features as part of a comprehensive green infrastructure strategy. A number of measures and recommendations are set out in order to ensure the suitable protection of the retained habitats and associated fauna, whilst considerable opportunities exist under the proposals to provide new ecologically valuable habitats at the site, incorporating native species for the benefit of local wildlife.
- 7.4 The habitats within the site provide few opportunities for faunal species, being dominated largely by open, intensively managed arable land, albeit the field boundary vegetation and associated features provide some potential for use by common nesting birds, Badger and bats in particular. Accordingly, a number of recommendations and measures are set out with regard to protected species, (with compensatory and enhancement measures proposed where appropriate), in order to ensure that they are fully safeguarded, and the conservation status of local populations is maintained under the proposals, following which the proposals are unlikely to adversely affect any such species.
- 7.5 In conclusion, the proposals have sought to minimise impacts and subject to the implementation of appropriate avoidance, mitigation and compensation measures, it is considered unlikely that the proposals will result in significant harm to biodiversity. On the contrary, the opportunity exists to provide a number of biodiversity benefits as part of the proposals.

Plan 5175/ECO1:

Site Location



Key:



Site Location

aspect ecology

Aspect Ecology Limited - West Court - Hardwick Business Park
 Noral Way - Banbury - Oxfordshire - OX16 2AF
 01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Land at Salph End, Bedford PROJECT

Site Location TITLE

5175/ECO1 DRAWING NO.

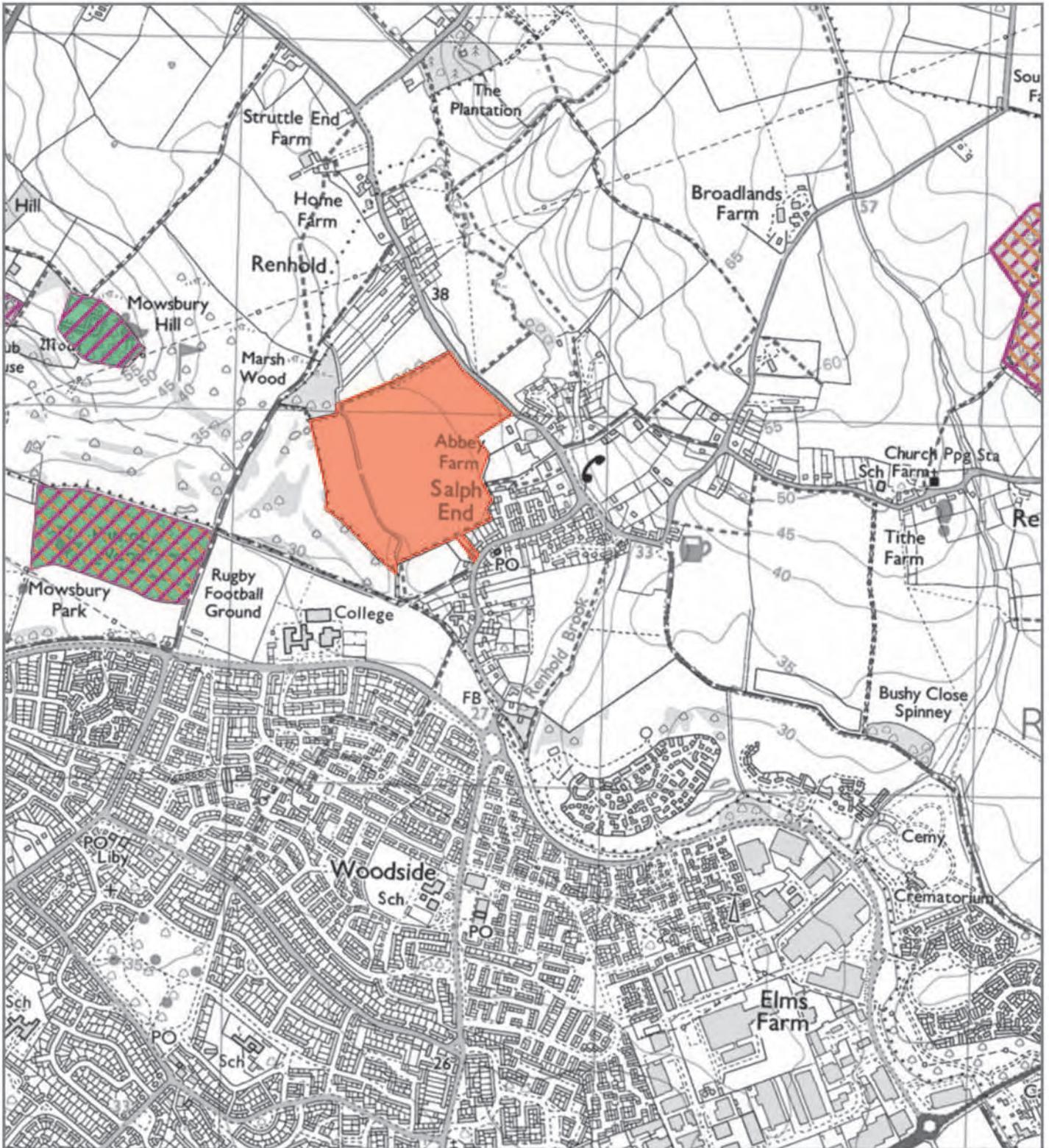
- REV.

August 2019 DATE



Plan 5175/ECO2:

Ecological Designations



Key:

-  Site Location
-  Local Nature Reserve (LNR)
-  County Wildlife Site (CWS)
-  Ancient Semi-Natural Woodland (ASNW)

aspect ecology

Aspect Ecology Limited - West Court - Hardwick Business Park
 Noral Way - Banbury - Oxfordshire - OX16 2AF
 01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Land at Salph End, Bedford PROJECT

Ecological Designations TITLE

5175/ECO2 DRAWING NO.

- REV.

August 2019 DATE



Plan 5175/ECO3:

Habitats & Ecological Features



- Key:**
- Site Boundary
 - Arable
 - Residential Garden
 - Scrub/Woodland
 - Tree
 - Offsite Tree with potential to support Roosting Bats
 - Hedgerow
 - Building
 - Hardstanding
 - Badger Latrine
 - Photograph Location

aspect ecology

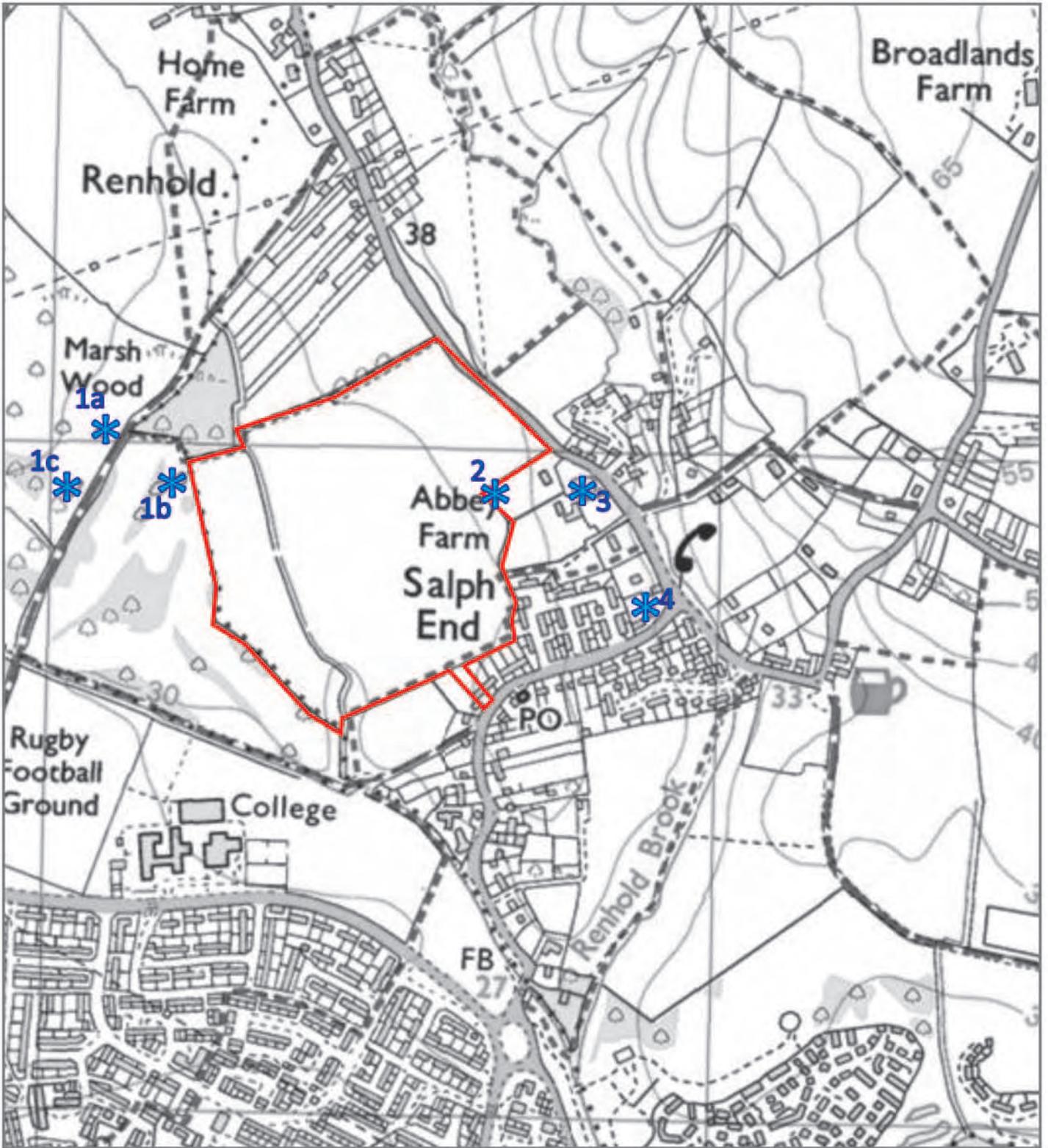
Aspect Ecology Limited - West Court - Hardwick Business Park
 Noral Way - Banbury - Oxfordshire - OX16 2AF
 01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Land at Salph End, Bedfordshire	PROJECT
Habitats and Ecological Features	TITLE
5175/ECO3	DRAWING NO.
-	REV.
August 2019	DATE



Plan 5175/ECO4:

Offsite Pond Locations



Key:

-  Site Boundary
-  Offsite Pond location

aspect ecology

Aspect Ecology Limited - West Court - Hardwick Business Park
 Noral Way - Banbury - Oxfordshire - OX16 2AF
 01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Land at Salph End, Bedfordshire PROJECT

Offsite Pond Locations TITLE

5175/ECO4 DRAWING NO.

A. REV.

August 2019 DATE



Appendix 5175/1:

Proposed Parameters Plan

R G + P Drawing No. 40986 013D



- Site area 19.65ha
- Open Space 3.25ha
- Developable area 10.75ha
Includes primary route
- School area 2.1ha
- Attenuation basins 0.59ha
Area excluded from open space calculation
- Flood zone 1.88ha
- Sports pitches 1.08ha
- Primary route
- Indicative vehicular access and parking
for sports pitches.
- Easement

Revision:	Date:	
A	12.08.19	HW/DW Plan updated with revised distribution of POS and relocation of site access.
B	20.08.19	HW/DW Developable, open space and attenuation areas updated.
C	22.08.19	HW/DW Attenuation basin amended. Site area added to key.
D	02.09.19	HW/DW Boundary to northern edge amended. Site and POS areas updated



Architects · Project Managers · Quantity Surveyors
 130 New Walk
 Leicester, LE1 7JA
 Tel: 0116 204 5800, Fax: 0116 204 5801
 email: design@rg-p.co.uk, www.rg-p.co.uk

Project:	A development at Salph End, Bedford	
Client:	Manor Oak Homes	
Sheet title:	Parameters Plan	
Ref:	40986 013D	
Scale:	1:2500 @ A3	
Date:	25.07.19	
Drawn:	HW	Checked: DW

All dimensions to be checked on site. This drawing is the copyright of the Architect, and not to be reproduced without their permission. Ordnance Survey map information reproduced with permission of HMSO Crown Copyright reserved. rg+p Ltd. Trading as rg+p

Appendix 5175/2:

Evaluation Methodology

Evaluation Methodology

1. The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (2018)¹.

Importance of Ecological Features

2. Ecological features within the site/study area have been evaluated in terms of whether they qualify as 'important ecological features'. In this regard, CIEEM guidance states that *"it is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable"*.
3. Various characteristics contribute to the importance of ecological features, including:
 - Naturalness;
 - Animal or plant species, sub-species or varieties that are rare or uncommon, either internationally, nationally or more locally, including those that may be seasonally transient;
 - Ecosystems and their component parts, which provide the habitats required by important species, populations and/or assemblages;
 - Endemic species or locally distinct sub-populations of a species;
 - Habitat diversity;
 - Habitat connectivity and/or synergistic associations;
 - Habitats and species in decline;
 - Rich assemblages of plants and animals;
 - Large populations of species or concentrations of species considered uncommon or threatened in a wider context;
 - Plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetation types, including examples of naturally species-poor communities; and
 - Species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.
4. As an objective starting point for identifying important ecological features, European, national and local governments have identified sites, habitats and species which form a key focus for biodiversity conservation in the UK, supported by policy and legislation. These are summarised by CIEEM guidance as follows:

Designated Sites

- Statutory sites designated or classified under international conventions or European legislation, for example World Heritage Sites, Biosphere Reserves, Wetlands of International Importance (Ramsar sites), Special Areas of Conservation (SAC), Special Protection Areas (SPA);

¹ CIEEM (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine', Chartered Institute of Ecology and Environmental Management, Winchester

- Statutory sites designated under national legislation, for example Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR);
- Locally designated wildlife sites, e.g. Local Wildlife Sites (LWS).

Biodiversity Lists

- Habitats and species of principal importance for the conservation of biodiversity in England and Wales (largely drawn from UK BAP priority habitats and priority species), often referred to simply as Priority Habitats / Species;
- Local BAP priority species and habitats.

Red Listed, Rare, Legally Protected Species

- Species of conservation concern, Red Data Book (RDB) species;
- Birds of Conservation Concern;
- Nationally rare and nationally scarce species;
- Legally protected species.

5. In addition to this list, other features may be considered to be of importance on the basis of local rarity, where they enable effective conservation of other important features, or play a key functional role in the landscape.

Assigning Level of Importance

6. The importance of an ecological feature should then be considered within a defined geographical context. Based on CIEEM guidance, the following frame of reference is used:
 - International (European);
 - National;
 - Regional;
 - County;
 - District;
 - Local (e.g. Parish or Neighbourhood);
 - Site (not of importance beyond the immediate context of the site).
7. Features of 'local' importance are those considered to be below a district level of importance, but are considered to appreciably enrich the nature conservation resource or are of elevated importance beyond the context of the site.
8. Where features are identified as 'important' based on the list of key sites, habitats and species set out above, but are very limited in extent or quality (in terms of habitat resource or species population) and do not appreciably contribute to the biodiversity interest beyond the context of the site, they are considered to be of 'site' importance.
9. In terms of assigning the level of importance, the following considerations are relevant:

Designated Sites

10. For designated sites, importance should reflect the geographical context of the designation (e.g. SAC/SPA/Ramsar sites are designated at the international level whereas SSSIs are designated at the national level). Consideration should be given to multiple designations as appropriate (where an area is subject to differing levels of nature conservation designations).

Habitats

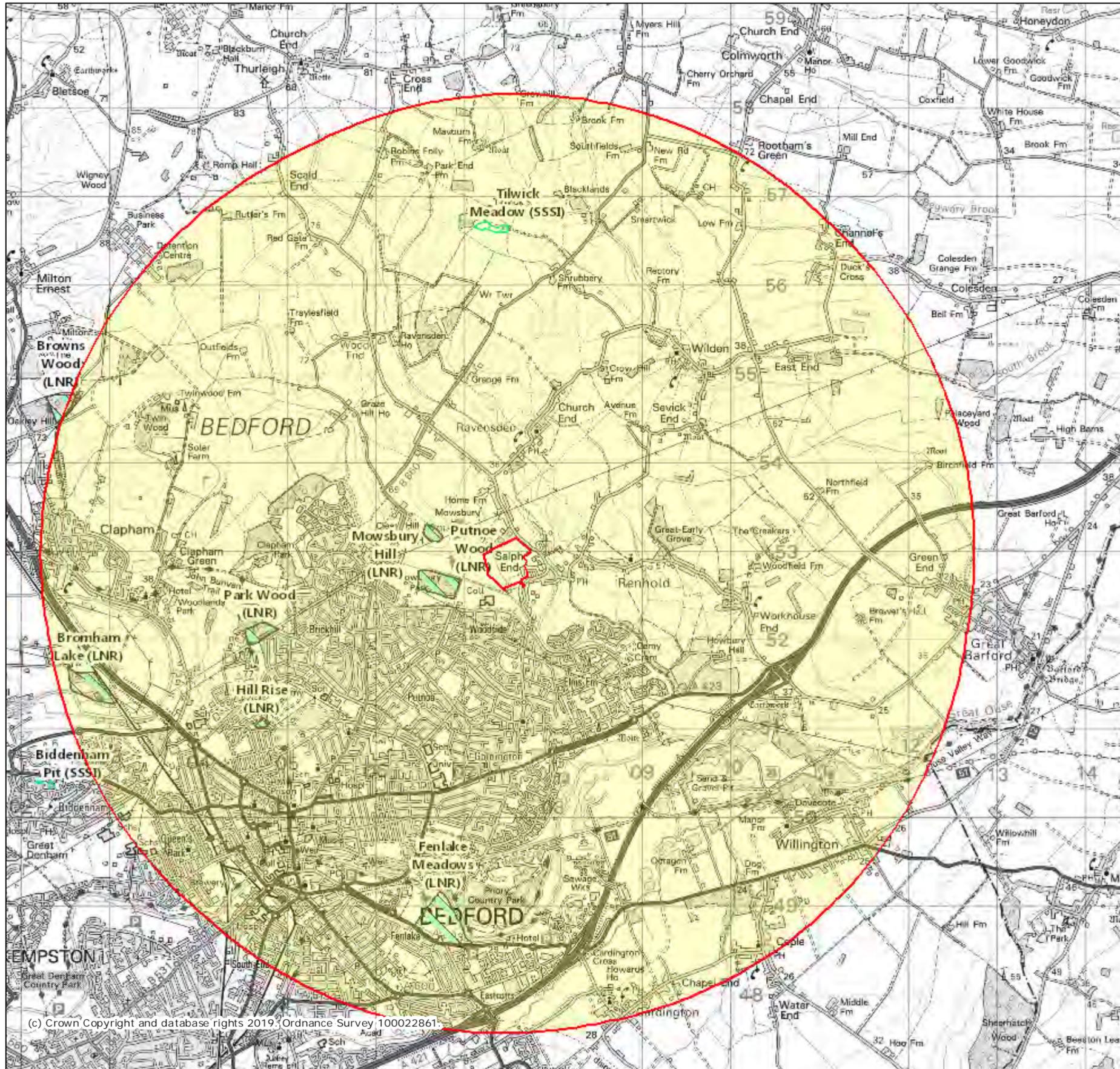
11. In certain cases, the value of a habitat can be measured against known selection criteria, e.g. SAC selection criteria, 'Guidelines for the selection of biological SSSIs' and the Hedgerows Regulations 1997. However, for the majority of commonly encountered sites, the most relevant habitat evaluation will be at a more localised level and based on relevant factors such as antiquity, size, species-diversity, potential, naturalness, rarity, fragility and typicalness (Ratcliffe, 1977). The ability to restore or re-create the habitat is also an important consideration, for example in the case of ancient woodland.
12. Whether habitats are listed as priorities for conservation at a national level in accordance with Sections 41 and 42 of the Natural Environment and Rural Communities Act (NERC) 2006, so called 'Habitats of Principal Importance' or 'Priority Habitats', or within regional or local Biodiversity Action Plans (BAPs) is also relevant, albeit the listing of a particular habitat under a BAP does not in itself imply any specific level of importance.
13. Habitat inventories (such as habitat mapping on the MAGIC database) or information relating to the status of particular habitats within a district, county or region can also assist in determining the appropriate scale at which a habitat is of importance.

Species

14. Deciding the importance of species populations should make use of existing criteria where available. For example, there are established criteria for defining nationally and internationally important populations of waterfowl. The scale within which importance is determined could also relate to a particular population, e.g. the breeding population of common toads within a suite of ponds or an otter population within a catchment.
15. When determining the importance of a species population, contextual information about distribution and abundance is fundamental, including trends based on historical records. For example, a species could be considered particularly important if it is rare and its population is in decline. With respect to rarity, this can apply across the geographic frame of reference and particular regard is given to populations where the UK holds a large or significant proportion of the international population of a species.
16. Whether species are listed as priorities for conservation at a national level in accordance with Sections 41 and 42 of the Natural Environment and Rural Communities Act (NERC) 2006, so called 'Species of Principal Importance' or 'Priority Species', or within regional or local Biodiversity Action Plans (BAPs) is also relevant, albeit the listing of a particular species under a BAP does not in itself imply any specific level of importance.
17. Species populations should also be considered in terms of the potential zone of influence of the proposals, i.e. if the entire species population within the site and surrounding area were to be affected by the proposed development, would this be of significance at a local, district, county or wider scale? This should also consider the foraging and territory ranges of individual species (e.g. bats roosting some distance from site may forage within site whereas other species such as invertebrates may be more sedentary).

Appendix 5175/3:

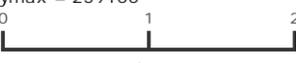
Desktop Study Data



Legend

-  Local Nature Reserves (England)
-  National Nature Reserves (England)
-  Sites of Special Scientific Interest (England)

Projection = OSGB36
 xmin = 497600
 ymin = 247200
 xmax = 518700
 ymax = 259100



Map produced by MAGiC on 9 August, 2019.
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGiC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Local Nature Reserves (England)

Reference	1008808
Name	BROMHAM LAKE
Hectares	10.89
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1008808
Reference	1008812
Name	BROWNS WOOD
Hectares	6.03
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1008812
Reference	1008896
Name	FENLAKE MEADOWS
Hectares	19.15
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1008896
Reference	1009262
Name	HILL RISE
Hectares	0.85
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1009262
Reference	1009040
Name	MOWSBURY HILL
Hectares	2.77
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1009040
Reference	1009086
Name	PUTNOE WOOD
Hectares	10.35
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1009086
Reference	1134140
Name	PARK WOOD
Hectares	5.2
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteL.NRDdetail.aspx?SiteCode=L1134140

Sites of Special Scientific Interest (England) - points

Name	Tilwick Meadow SSSI
Reference	1002804
Natural England Contact	TIMOTHY HOPWELL
Natural England Phone Number	0845 600 3078
Hectares	2.54
Citation	1000819
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000819

Sites of Special Scientific Interest (England)

Name	Tilwick Meadow SSSI
Reference	1002804
Natural England Contact	TIMOTHY HOPWELL
Natural England Phone Number	0845 600 3078
Hectares	2.54
Citation	1000819
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000819

National Nature Reserves (England) - points

No Features found

National Nature Reserves (England)

No Features found

SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?

All Planning Applications

Infrastructure

Wind & Solar Energy

Minerals, Oil & Gas

Rural Non Residential

Residential

Rural Residential

Air Pollution

Combustion

Waste

Composting

Discharges

Water Supply

Notes 1

Notes 2

GUIDANCE - How to use the Impact Risk Zones

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

Airports, helipads and other aviation proposals.

Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t.

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

Ramsar Sites (England) - points

Name	UPPER NENE VALLEY GRAVEL PITS
Reference	UK11083
Hectares	1357.68

Ramsar Sites (England)

Name	UPPER NENE VALLEY GRAVEL PITS
Reference	UK11083
Hectares	1357.68

Special Areas of Conservation (England) - points

Name	PORTHOLME
Reference	UK0030054
Hectares	91.79
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0030054

Special Areas of Conservation (England)

Name	PORTHOLME
Reference	UK0030054
Hectares	91.79
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0030054

Special Protection Areas (England) - points

Name	UPPER NENE VALLEY GRAVEL PITS
Reference	UK9020296
Hectares	1357.68

Special Protection Areas (England)

Name	UPPER NENE VALLEY GRAVEL PITS
Reference	UK9020296
Hectares	1357.68

Proposed Ramsar Sites (England) - points

No Features found

Proposed Ramsar Sites (England)

No Features found

Possible Special Areas of Conservation (England) - points

No Features found

Possible Special Areas of Conservation (England)

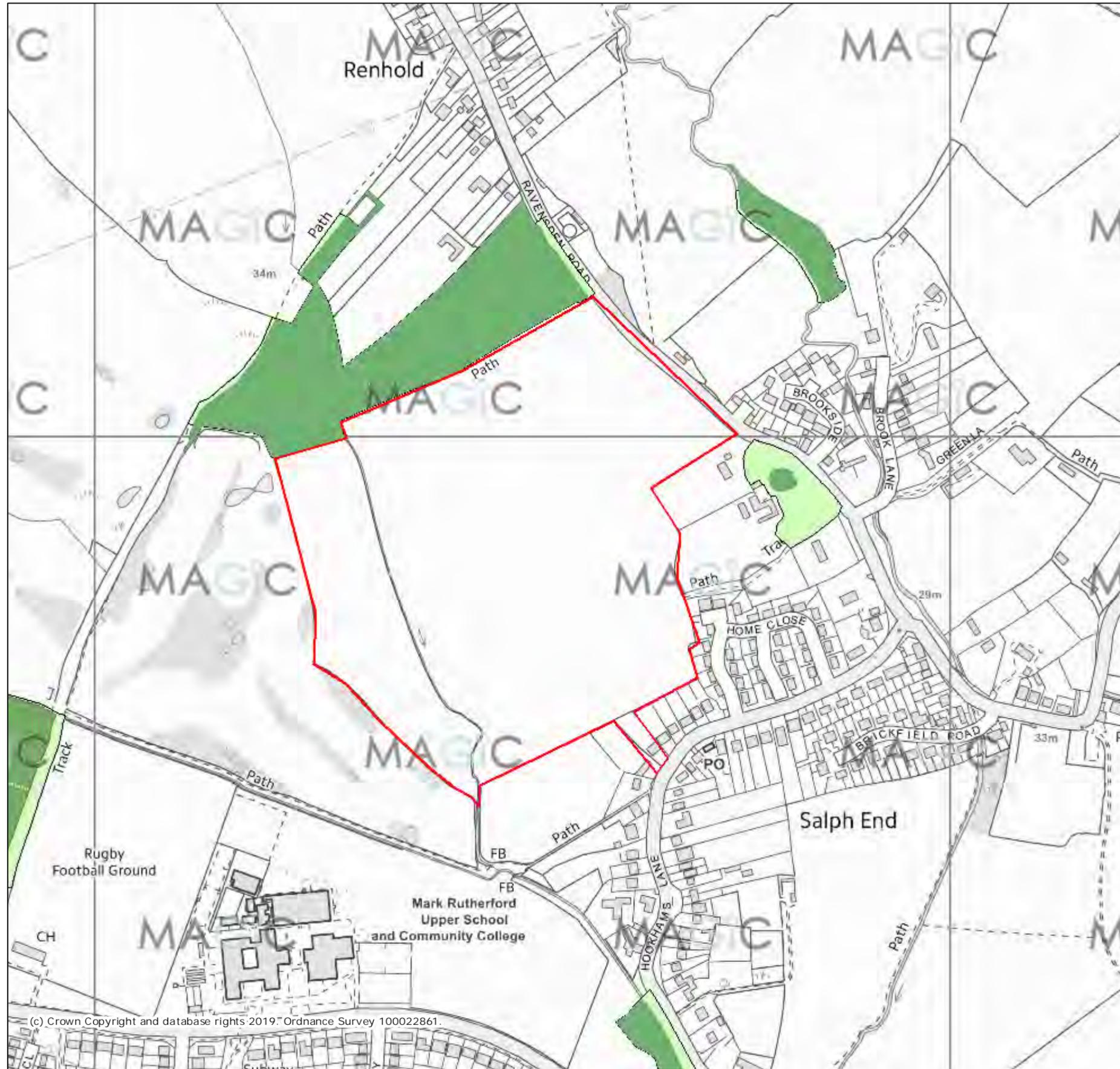
No Features found

Potential Special Protection Areas (England) - points

No Features found

Potential Special Protection Areas (England)

No Features found



Legend

- Priority Habitat Inventory - Coastal Saltmarsh (England)
- Priority Habitat Inventory - Coastal Sand Dunes (England)
- Priority Habitat Inventory - Coastal Vegetated Shingle (England)
- Priority Habitat Inventory - Maritime Cliffs and Slopes (England)
- Priority Habitat Inventory - Mudflats (England)
- Priority Habitat Inventory - Saline Lagoons (England)
- Saline Lagoons (Wales)
- Saltmarsh (Wales)
- Sand Dunes (Wales)
- Priority Habitat Inventory - Calaminarian Grassland (England)
- Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)
- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)
- Priority Habitat Inventory - Lowland Calcareous Grassland (England)
- Priority Habitat Inventory - Lowland Dry Acid Grassland (England)
- Priority Habitat Inventory - Lowland Meadows (England)
- Priority Habitat Inventory - Purple Moor Grass and Rush Pasture (England)
- Priority Habitat Inventory - Upland Calcareous Grassland (England)
- Priority Habitat Inventory - Upland Hay Meadows (England)
- Priority Habitat Inventory - Lowland Heathland (England)
- Priority Habitat Inventory - Mountain Heaths and Willow Scrub (England)
- Priority Habitat Inventory - Upland Heathland (England)
- Priority Habitat Inventory - Limestone Pavements (England)

Projection = OSGB36
 xmin = 506500
 ymin = 252300
 xmax = 508600
 ymax = 253500

Map produced by MAGIC on 9 August, 2019.
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

ecology • landscape planning • arboriculture

aspect

Aspect Ecology Ltd
West Court
Hardwick Business Park
Noral Way
Banbury
Oxfordshire OX16 2AF

T: 01295 279721
E: info@aspect-ecology.com
W: www.aspect-ecology.com