Stratfield Farm, Kidlington
(1005176)

Ecological Appraisal

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Quality Management	
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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

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Executive Summary

i) **Introduction.** Aspect Ecology has been commissioned by Manor Oak Homes to undertake an Ecological Appraisal in respect of proposed development of land at Stratfield Farm, Kidlington.

ii) **Proposals.** The site is proposed for residential development and associated works, for which it is included as an allocation (Policy PR7b) within the Cherwell Local Plan 2011-2031 (Part 1) Partial Review (adopted September 2020).

iii) **Survey.** The site was initially surveyed in May 2017, with further surveys undertaken subsequently in 2018 and 2021 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 surveys conducted in respect of bats, Badger, Great Crested Newt and reptiles.

iv) **Ecological Designations.** The site itself is not subject to any statutory ecological designations. The nearest statutory designation to the site is Rushy Meadows Site of Special Scientific Interest (SSSI), located approximately 1.8km north west of the site. The nearest Local Wildlife Site (LWS) to the site is Meadows West of the Oxford Canal LWS, located approximately 250m south west of the site. In addition, the western field within the site lies within the Lower Cherwell Valley Conservation Target Area (CTA), associated with the adjacent canal corridor. The habitats within CTA will be retained and enhanced under the proposals. All other 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 is dominated by arable farmland, with a variety of other habitats including mixed woodland, traditional orchard, hedgerows (and other boundary vegetation), grassland, scattered trees, waterbodies, dense scrub, buildings and hardstanding. The woodland, traditional orchard, hedgerows mature trees will be largely retained under the proposals. The remaining habitats within the site are not considered to form important ecological features and their loss to the proposals is of negligible significance, whilst further new habitats and habitat enhancements will be incorporated at the site as part of the proposals.

vi) **Protected Species.** The site provides opportunities for a variety of protected species. In particular, roosting bats, nesting birds and common reptiles have been recorded within site. Appropriate mitigation measures are therefore set out in regard to these species, where appropriate.

vii) **Enhancements.** The proposals present the opportunity to secure a number of ecological enhancements, including additional native tree 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.

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 land at Stratfield Farm, Kidlington, centred at grid reference SP 495 124 (see Plan 5176/ECO1), hereafter referred to as 'the site'.

1.1.2 The site is proposed for residential development and associated works (see Appendix 5176/1), for which it is included as an allocation (Policy PR7b) within the Cherwell Local Plan 2011-2031 (Part 1) Partial Review (adopted September 2020).

1.2 Site Overview

1.2.1 The site is located at the south of Kidlington, within the Cherwell District. The site is bounded to the north by existing residential development along Croxford Gardens and South Avenue, to the east by Oxford Road and associated roundabout junction, to the south by Stratfield Brake Sports Ground and Stratfield Brake Woodland Trust Reserve (WTR) and to the west by the Oxford Canal with farmland and a solar farm beyond.

1.2.2 The site itself is dominated by arable fields surrounded by grassland/ruderal field margins and intersected by hedgerows and wider belts of trees/scrub. Other habitats present include mixed woodland, orchard areas, semi-improved grassland, trees, waterbodies, scrub, hardstanding, buildings and associated amenity garden areas.

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 TVERC was originally contacted in 2017, with data requested on the basis of a search radius of 2km.

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, with an extended search radius (25km). In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site. Relevant information is reproduced at Appendix 5176/2 and on Plan 5176/ECO2, where appropriate.

2.1.3 In addition, 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 initially surveyed in May 2017, 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. Further survey work was conducted at the site during September 2018 to 2021 in order to ensure that the information available remains accurate and up to date in regard to the habitats present.

2.2.2 The site was surveyed based on standard Phase 1 Habitat Survey methodology[1], 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 Appraisal[2] 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 surveys were undertaken in respect of bats, Badger *Meles meles*, amphibians (Great Crested Newt) and reptiles.

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.*'

Bats[3]

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. Initial inspections were undertaken in May 2017, with further full internal and external inspection surveys undertaken in September 2018.

2.3.3 During the external inspections, particular attention was given to any potential roosting features or access points, such as broken or lifted roof tiles, lifted lead flashing, soffit boxes, weatherboarding or hanging tiles 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.

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 guidance[4] 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.

Dusk Emergence/ Dawn Re-entry Survey

2.3.7 Dusk emergence surveys were carried out on 2nd June and 6th July 2020, and a dawn re-entry survey was carried out on 23rd June 2020 to identify any bats roosting in the trees and buildings highlighted to have potential to support roosting bats.

2.3.8 Surveyors employed Echometer EM3, EM Touch, or Anabat Scout handheld bat detectors alongside BatBox Duet detectors (excluding for Anabat Scout detectors) to aid identification of any bats observed. An Infrared (IR) camera set-up, comprising a 1080p IR sensitive camera and two Evolva T38 IR lights, was deployed facing building B2 during the two dusk surveys, with locations shown on Plan 5176/ECO4. IR cameras allow the identification of precise roosting locations and confirm the number of any emerging / re-entering bats recorded. At dusk, surveyors and cameras were in position 15-30 minutes prior to sunset, remaining in place for approximately 2 hours. At dawn, surveyors were in place approximately 1 hour 30 minutes to 2 hours before sunrise and remained in place until 15

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

minutes after sunrise. This survey method aims to identify any roosting bats emerging from or returning to potential roost sites.

2.3.9 This survey work was carried out during suitable weather conditions, as set out in Tables 2.1 and 2.2 below.

Table 2.1. Dusk survey details.

Date	Start & end times & time of sunset	Structure reference / location	Equipment used	Weather
02/06/2020	Start time: 21.01 End time: 23.16 Sunset: 21.16	B2, B6	Anabat Scout and 1080p IR sensitive camera with two Evolva T38 IR lights.	Dry, 5% cloud, BF1, 19°C
Comments: Building B6 was surveyed by three surveyors, while the IR camera was used to cover the specific features of interest on Building B2.				
06/07/2020	Start time: 21.10 End time: 23.25 Sunset: 21.25	B2, B6	Bat Box Duet, Echo Meter EM Touch and 1080p IR sensitive camera with two Evolva T38 IR lights.	Dry, 5% cloud, BF0, 13°C
Comments: Building B6 was surveyed by three surveyors, while the IR camera was used to cover the specific features of interest on Building B2.				

BF0 = calm, BF12 = hurricane force.

Table 2.2. Dawn survey details.

Date	Start & end times & time of sunrise	Structure reference / location	Equipment used	Weather
23/06/2020	Start time: 03.15 End time: 05.02 Sunrise: 04.47	B6	Bat Box Duet, Echometer EM3 and Anabat Scout.	Dry, 0% cloud, BF1, 13°C
Comments: This survey was undertaken by 3 surveyors.				

BF0 = calm, BF12 = hurricane force.

Activity Surveys

2.3.10 Walked transect surveys were undertaken between July and September 2021 to ascertain the level of usage of the site by foraging or commuting bats. This survey method involves walking planned transect routes with key listening points, specifically covering habitats/features with particular potential for commuting or foraging bats. Echometer EM3 and Anabat Scout handheld bat detectors were employed (alongside BatBox Duet detectors in the case of Echometer EM3) to aid identification of any bats observed. Each transect was walked from approximately 15 minutes prior to sunset, for 2-3 hours, with a minimum 3 minute stop at each listening point.

2.3.11 This survey work was carried out during suitable weather conditions, as set out in Table 2.3 below.

Table 2.3. Dusk walked transect survey details.

Date	Start & end times & time of sunset	Equipment used	Weather
08/07/2021	Start time: 21.23 End time: 23.27 Sunset: 21.23	Anabat Scout.	Dry, 50% cloud, BF0, 20°C
27/08/2021	Start time: 20.03 End time: 22.08 Sunset: 20.03	Bat Box Duet, Echo Meter EM3	Dry, 100% cloud, BF2, 17°C
29/09/2021	Start time: 18.47 End time: 20.47 Sunset: 18.47	Anabat Scout.	Dry, 10% cloud, BF1, 13°C

BF0 = calm, BF12 = hurricane force

2.3.12 Automated static detector surveys were also carried out in 2021, during which a Song Meter 2 (SM2) detector was positioned at a single location within the site between 8th and 15th July, 27th August and 1st September and 29th September and 6th October, in order to record any bat activity. On each occasion, the detector was placed at a single location within the centre of the site as shown at plan 5176/ECO4.

2.3.13 The detectors were set to switch on approximately 30 minutes before sunset and switch off approximately 30 minutes after sunrise. The weather conditions during the static detector surveys are provided in Table 2.4 below.

Table 2.4. Automated detector survey details. *BF0 = calm, BF12 = hurricane force*

Survey Date	Min Wind (BF)	Max Wind (BF)	Max Temp(c)	Min Temp(c)	Precipitation
08/07/2021	1	3	19	14	0
09/07/2021	2	3	17	12	0
10/07/2021	1	1	16	12	0
11/07/2021	1	3	15	14	0
12/07/2021	0	2	18	10	0
13/07/2021	1	2	18	12	Brief drizzle around midnight
14/07/2021	0	2	19	9	0
15/07/2021	1	2	17	8	0
27/08/2021	0	3	16	8	0
28/08/2021	1	2	17	7	0
29/08/2021	2	3	16	13	0
30/08/2021	2	3	16	13	0
31/08/2021	2	3	15	13	0
01/09/2021	2	4	17	13	0
29/09/2021	1	4	13	5	0
30/09/2021	4	5	16	15	Mostly dry, occasional brief showers
01/10/2021	2	3	13	6	0
02/10/2021	2	2	14	9	0
03/10/2021	3	4	14	10	0
04/10/2021	2	5	13	10	One brief light shower
05/10/2021	2	4	13	9	0
06/10/2021	1	3	14	11	0

Information approximated from daily historic data records at www.timeanddate.com, using Benson weather station.

Analysis of Bat Survey Recordings

2.3.14 All bat calls were analysed using Analook W v4.4a to verify the species recorded during the survey work. Where recordings could not be reliably attributed to species (such as for *Myotis* species) or where overlaps between otherwise distinguishable species occur (such as in Pipistrelle bat calls around 40kHz or 50kHz) calls were identified to genus level; in the case of calls which could not be distinguished between *Nyctalus* sp. and Serotine, these have been labelled as 'big bat' species.

Badger[5]

2.3.15 A detailed Badger survey was carried out in May 2017, with further update surveys carried out in September 2018 and updated in July and August 2021. The survey comprised two main elements. The first element involved searching for evidence of Badger setts.

2.3.16 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.

Reptiles[6]

2.3.17 Given the presence of potentially suitable reptile habitat within the site, specific survey work was undertaken to establish the presence or likely absence of common reptile species during April to June 2020.

2.3.18 A total of 105 50x50cm sheets of thick roofing felt were placed within suitable areas across the site to act as artificial refugia. The refugia, or 'tins', provide shelter and heat up more quickly than their surroundings in the morning and can remain warmer than their surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature, which allows them to forage earlier and later in the day. Therefore, checking the refugia at appropriate times of the day (morning and evening) enables the presence/absence of common reptiles to be determined.

2.3.19 The refugia remained undisturbed for approximately 1-2 weeks to allow reptiles to find and start using them. Following this initial bedding-in period, refugia were checked at appropriate times of the day on seven occasions during suitable weather conditions, as set out below in Table 2.5.

Table 2.5. Reptile Survey dates and weather conditions during reptile survey work undertaken at the site.

Survey Date	Weather Conditions			
	Wind (BF)	Temp(°C)	Cloud Cover (%)	Precipitation
14/04/2020	3	10	25	Dry
20/04/2020	1	11	5	Dry
27/04/2020	1	17	80	Dry
05/05/2020	4	14	40	Dry
11/05/2020	3	11	55	Dry
15/05/2020	3	16	75	Dry
02/06/2020	1	19	0	Dry

BF0 = calm, BF12 = hurricane force

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

6 Surveys based on: Froglife Advice Sheet 10 (1999) '*Reptile Survey - an introduction to planning, conducting and interpreting surveys for snake and lizard conservation.*'

2.3.20 In addition, reptiles basking in the open or partial cover were actively searched for in suitable locations across the site through direct observation. Existing natural objects (e.g. logs and rocks) and artificial refugia (e.g. debris, tyres, etc.) were also searched, where these were present/encountered during individual survey visits, for reptiles or evidence of reptiles (e.g. sloughed skin).

Great Crested Newt (*Triturus cristatus)*

Habitat Suitability Index (HSI)

2.3.21 As a first step in identifying the potential presence of Great Crested Newt at the site, a Habitat Suitability Index (HSI) study was undertaken of all relevant water bodies within 250m of the site boundary (based on a review of Ordnance Survey mapping and satellite imagery). Guidance set out within Natural England's Method Statement template, to be used when applying for a Great Crested Newt development licence, states that surveys of ponds within 500m of the site boundary are only required when '(a) data indicates that the pond(s) has potential to support a large Great Crested Newt population, (b) the footprint contains particularly favourable habitat, (c) the development would have a substantial negative effect on that habitat and (d) there is an absence of dispersal barriers.' Given that in this instance, none of the four points listed above are applicable to the site, it is considered that survey of ponds within 500m of the site boundary is not required, and that survey of ponds within 250m represents adequate survey effort.

2.3.22 An HSI study is used to assess the potential of water bodies to support Great Crested Newt. It is undertaken by attributing a score to a number of factors that can affect the presence or absence of this species. Ten factors are utilised in an HSI assessment, as described below:

- *SI1 Location.* The location of the water body within Great Britain;
- *SI2 Pond area.* The size of the water body;
- *SI3 Permanence.* How often the water body dries out;
- *SI4 Water Quality.* The water quality, based primarily on invertebrate diversity;
- *SI5 Shade.* The percentage of the perimeter of the water body that is shaded;
- *SI6 Fowl.* The presence or absence of water fowl;
- *SI7 Fish.* The presence or absence of fish;
- *SI8 Pond Count.* The number of water bodies within 1km of the surveyed water body (not counting those on the far side of major barriers such as roads);
- *SI9 Terrestrial.* The quality of terrestrial habitat surrounding the water body; and
- *SI10 Macrophytes.* The percentage cover of the surface area of the water body covered by macrophytes (aquatic plants).

2.3.23 The overall suitability of the water body is then determined by entering these figures into an equation devised by Oldham *et al*. (2000)[7]. The suitability of water bodies is classed into one of five categories, either 'poor', 'below average', 'average', 'good' or 'excellent'.

2.3.24 This HSI study was undertaken in line with the guidelines developed by Oldham *et al.* and subsequently adapted by ARG UK (2010)[8]. A suitably experienced ecologist undertook the

[7] Oldham RS, Keeble J, Swan MJS & Jeffcote M (2000) '*Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*'. Herpetological Journal 10 (4), 143-155

[8] Amphibian & Reptile Groups of the UK (2010) '*ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index*'

assessment in line with these guidelines, with the study also supplemented by desktop research where appropriate.

Environmental DNA (eDNA)

2.3.25 An initial eDNA survey was carried out in 2017 to determine the presence/absence of Great Crested Newt within one of the on-site ponds (P1) as well as the on-site ditch D1 (see Plan 5176/ECO5). Water samples were collected in May 2017 following the procedure outlined in the methods manual prepared for DEFRA by Biggs *et al*. (2014)[9]. The survey fell within the acceptable seasonal window set out by Natural England (15th April to 30th June)[10]. A further eDNA survey of the on-site ponds P1 and P2, and ditch D1 was undertaken in June 2020 in order to provide updated results. Samples were collected by suitably licensed Aspect Ecology staff. The water samples were sent for laboratory analysis which was conducted by 'Fera' and also followed the procedure set out by Biggs *et al.* (2014)[14].

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 Due to very warm weather conditions, the final reptile survey was undertaken at 19°c (above the optimal temperature range of 9-18°c[11]). Nonetheless, the remaining six reptile surveys were within the optimal temperature range and given the temperature during the final survey was only marginally above optimal, the reptile surveys are deemed adequate.

2.4.4 Densely vegetated habitats within the site have the potential to reduce the detectability of field signs for faunal species such as Badger. A detailed survey was able to be completed and, whilst dense scrub vegetation is present within the site, it is considered that the survey results do provide an accurate baseline to assess the potential for impacts on Badger under the development proposals, particularly given the numerous survey visits and considerable time period over which the surveys took place.

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

[9] Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. and Dunn F. (2014). '*Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA*'. Freshwater Habitats Trust, Oxford.

[10] Natural England (2015) '*Great crested newts: surveys and mitigation for development projects. Standing advice for local planning authorities who need to assess the impacts of development on great crested newts*'. Last updated at www.gov.uk on 24/12/2015.

[11] Ibid., 6.

Environmental Management (CIEEM, 2018)[12], 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 5176/3.

2.6 National Policy Approach to Biodiversity in the Planning System

2.6.1 The National Planning Policy Framework (NPPF)[13] 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 06/2005[14].

2.6.2 NPPF takes forward the Government's strategic objective to halt overall biodiversity loss[15], as set out at Paragraph 174, which states that planning policies and decisions should contribute to and enhance the natural and local environment by:

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

2.6.3 The approach to dealing with biodiversity in the context of planning applications is set out at Paragraph 180:

'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 improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

[12] CIEEM (2018) '*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*', ver. 1.1, Chartered Institute of Ecology and Environmental Management, Winchester
[13] Ministry of Housing, Communities & Local Government (2021) '*National Planning Policy Framework*'
[14] ODPM (2006) '*Circular 06/2005: Planning for Biodiversity and Geological Conservation – A Guide to Good Practice*'
[15] DEFRA (2011) '*Biodiversity 2020: A strategy for England's wildlife and ecosystem services*'

2.6.4 The above approach encapsulates the 'mitigation hierarchy' described in British Standard BS 42020:2019[16], 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).

2.7 Local Policy

Cherwell Local Plan 2011 – 2031

2.7.1 Planning policies of relevance to ecology at the site can be found within the Cherwell Local Plan 2011 – 2031, which sets out an overall strategy to guide development across the district until 2031, and was formally adopted by Cherwell District Council on 20 July 2015 (Policy Bicester 13 being re-adopted on 19 December 2016). The following policies of the Local Plan are of particular relevance to ecology:

2.7.2 **Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment** states:

'Protection and enhancement of biodiversity and the natural environment will be achieved by the following:

- *In considering proposals for the development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources*
- *The protection of trees will be encouraged, with an aim to increase the number of trees in the District*
- *The reuse of soils will be sought*
- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or as a last resort, a compensated for, then development will not be permitted.*
- *Development which would result in damage to or loss of a site of international value will be subject to the Habitats Regulations Assessment process and will not be permitted unless it can be demonstrated that there will be no likely significant effects on the international site or that effects can be mitigated*
- *Development which would result in damage or loss of a site of biodiversity or geological value of national importance will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site and the wider national network of SSSIs and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity*

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

- *Development which would result in damage to or loss of a site of biodiversity or geological value of regional or local importance including habitats of species of principle importance for biodiversity will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity*
- *Development proposals will be expected to incorporate features to encourage biodiversity, and retain and where possible enhance existing features of nature conservation value within the site. existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity*
- *Relevant habitat and species surveys and associated reports will be required to accompany planning applications which may affect a site, habitat or species of known or potential ecological value*
- *Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution*
- *Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be viewed favourable*
- *A monitoring and management plan will be required for biodiversity features on site to ensure their long term suitable management.'*

2.7.3 **Policy ESD 11: Conservation Target Areas** states:

Where development is proposed within or adjacent to a Conservation Target Area biodiversity surveys and a report will be required to identify constraints and opportunities for biodiversity enhancement. Development which would prevent the aims of a Conservation Target Area being achieved will not be permitted. Where there is potential for development, the design and layout of the development, planning conditions or obligations will be used to secure biodiversity enhancement to help achieve the aims of the Conservation Target Area.'

2.7.4 **Policy ESD 17: Green Infrastructure states:**

The District's green infrastructure network will be maintained and enhanced through the following measures:

- *Pursuing opportunities for joint working to maintain and improve the green infrastructure network, whilst protecting sites of importance for nature conservation*
- *Protecting and enhancing existing sites and features forming part of the green infrastructure network and improving sustainable connectivity between sites in accordance with policies on supporting amodal shift in transport (Policy SLE4: Improved Transport and Connections), open space, sport and recreation (Policy BSC10: Open Space, Outdoor Sport and Recreation Provision), adapting to climate change (PolicyESD1: Mitigating and Adapting to Climate Change), SuDS (Policy ESD7: Sustainable Drainage Systems (SuDS)), biodiversity and the natural environment (Policy ESD10: Protection and Enhancement of Biodiversity and the Natural Environment), Conservation Target Areas (Policy ESD11: Conservation Target Areas), heritage assets (Policy ESD15) and the Oxford Canal (Policy ESD16)*
- *Ensuring that green infrastructure network considerations are integral to the planning of new development. Proposals should maximise the opportunity to maintain and*

extend green infrastructure links to form a multi-functional network of open space, providing opportunities for walking and cycling, and connecting the towns to the urban fringe and the wider countryside beyond

- *All strategic development sites (Section C: 'Policies for Cherwell's Places') will be required to incorporate green infrastructure provision and proposals should include details for future management and maintenance.*

Cherwell Local Plan 2011-2031 (Part 1) Partial Review (adopted September 2020)

2.7.5 In addition, as stated above, the site is allocated for residential development under policy PR7b within the Cherwell Local Plan 2011-2031 (Part 1) Partial Review (adopted September 2020).

3 Ecological Designations

3.1 Statutory Designations

Description

3.1.1 The statutory designations of ecological importance that occur within the local area around the site are shown on Plan 5716/ECO2.

3.1.2 The nearest statutory designation to the site is Rushy Meadows Site of Special Scientific Interest (SSSI), which is located approximately 1.8km north west of the site. This SSSI is designated on the basis of the unimproved grassland adjacent to the Oxford Canal, supporting rich meadow and fen communities. The SSSI also supports a fine *Cynosurus cristatus-Centaurea nigra* meadow and pasture community, while a balancing reservoir is also present, supporting uncommon species such as marsh arrow-grass *Triglochin palustris*. The SSSI also supports notable bird species including include breeding Grasshopper Warbler *Locustella naevia* and Snipe *Gallinago gallinago*, and over-wintering Water-rail *Rallus aquaticus*. The next nearest statutory designation to the site is Oxford Meadows Special Area of Conservation (SAC)/The Pixy and Yarnton Meads SSSI, which is located approximately 1.9km south west of the site. The SAC is designated on the basis of the lowland hay meadows present, and for the presence of Creeping Marshwort *Apium repens*, whilst the SSSI is designated on the basis of the natural grassland present.

3.1.3 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 located within IRZs apparently in relation to both Rushy Meadows SSSI and The Pixy and Yarnton Meads SSSI, but these IRZs do not relate to residential development.

Evaluation

3.1.4 The site itself is not subject to any statutory ecological designations. All statutory ecological designations in the surrounding area are well removed and separated from the site, whilst the site is not located within any identified IRZs of relevance to new residential development. As such, and given the nature and scale of the proposals, identified statutory ecological designations are unlikely to be adversely affected by the proposals.

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 5176/ECO2.

3.2.2 The nearest Local Wildlife Site (LWS) to the site is Meadows West of the Oxford Canal Local Wildlife Site (LWS), which is located approximately 250m south west of the site. The LWS is designated on the basis of the two fields containing lowland meadow and fen and bordered by species rich hedges.

3.2.3 The western field within the site is located within the Lower Cherwell Valley Conservation Target Area (CTA), which extends along the adjacent canal corridor. In addition, Stratfield Brake, located immediately south of the site, forms a Woodland Trust Reserve (WTR) which is therefore of identified ecological importance. The WTR includes both mature and recently

planted woodland. The reserve also contains grazed, open wetland and grassland habitats managed for wildlife value.

Evaluation

3.2.4 The western field within the site lies within a Lower Cherwell Valley CTA. Such areas are identified to act as target areas for habitat management and restoration in order to provide strategic ecological improvement. In addition, the southern site boundary at the western end of the site, (associated with the CTA) is located adjacent to an area of wetland and grassland within Stratfield Brake WTR. The site layout has therefore been designed to focus the open space and green infrastructure in these areas, as described at Chapter 6 below.

All other non-statutory designations in the surrounding area are sufficiently removed from the site and/or separated by existing development and given the nature and scale of the proposals, 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, or ancient woodland within or adjacent to the site. Information on the MAGIC database identifies the presence of an area of 'Traditional Orchard' habitat within the centre of the site. This is discussed further below at Chapter 4, in relation to habitats present within the site.

Evaluation

3.3.2 As set out above, the site is identified within the MAGIC database to include an area of traditional orchard. This is discussed further at Chapter 4 below, albeit the orchard habitat present will be fully retained, protected and enhanced, including through the incorporation of suitable long-term management measures under the proposals. Subject to the implementation of appropriate mitigation measures (as discussed below at Chapter 4 and Chapter 6) it is unlikely that any Priority Habitats or any notable or veteran trees will be significantly affected by the proposals. On the contrary, the proposed development offers the opportunity to secure long-term suitable management and extension of the existing Traditional Orchard, of benefit to wildlife.

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. Further, the proposals have been designed in order to protect and enhance the habitats located within the CTA, along with identified priority habitats (traditional orchard), whilst providing appropriate buffers and safeguards in order to similarly protect the habitats within the adjacent offsite Stratfield Brake WTR.

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. A number of records of notable plant species were returned from TVERC, including the Wildlife and Countryside Act 1981 Species Bluebell *Hyacinthoides non-scripta*, the Priority Species Marsh Stitchwort, *Stellaria palustris*, and Tubular Water-dropwort *Oenanthe fistulosa* and the Great Britain Red Listed species Pale St John's-wort *Hypericum montanum*, dating between 2004 and 2015. None of these species were recorded within or adjacent to the site and no evidence for the presence of any of these species within the site was recorded during the survey work undertaken.

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;
- Semi-improved Grassland;
- Orchard;
- Hedgerows;
- Woodland, Scrub and Trees;
- Waterbodies;
- Buildings, Hardstanding and Associated Features; and
- Invasive Species.

4.2.3 The locations of these habitat types and features are illustrated on Plan 5176/ECO3 and described in detail 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, mixed woodland, traditional orchard and hedgerows are considered to qualify as Priority Habitats and therefore constitute important ecological features. This is discussed further in the relevant habitat sections below.

4.4 Arable

Description

4.4.1 The eastern and central parts of the site (including the majority of areas proposed for residential development) are dominated by arable land, which is subject to intensive management for arable cropping, including regular ploughing. The arable areas were recorded to include wide un-ploughed field margins of approximately 5-10m width, supporting grassland with scattered forbs including Common Fleabane *Pulicaria dysenterica*, Spear Thistle *Cirsium vulgare*, Common Ragwort *Senecio jacobaea*, Hoary Ragwort *Senecio erucifolius*, Red Clover *Trifolium pratense*, Common Mouse-ear *Cerastium fontanum*, seedling Oak *Quercus robur*, Bramble *Rubus fruticosus*, Michaelmas-daisy *Aster sp*., Hogweed *Heracleum sphondylium*, Creeping Thistle *Cirsium arvense* and Redshank *Persicaria maculosa.*

Evaluation

4.4.2 The interior of the arable fields are subject to intensive agricultural management including frequent disturbance and support at best a limited range of common weed species such that their removal under the proposals is of negligible ecological significance. The field margins provide wide buffers to the associated field boundary vegetation, albeit support a limited range of common and widespread species typical of such habitats. As such, the arable fields and associated margins are not considered to constitute important ecological features and their loss to the proposals is also therefore of no ecological significance.

4.5 Semi-improved Grassland

Description

4.5.1 The western part of the site forms a single, grassland field supporting a tall, rank sward. Grasses include Meadow Foxtail Alopecurus pratensis (which was recorded to be dominant in a number of areas), Cock's-foot Dactylis glomerata, Fescue Festuca sp. Yorkshire Fog *Holcus lanatus* and Meadow-grass *Poa* sp.. scattered to frequent herbs are present, with greatest diversity recorded towards the south of the field, which is damper in nature. Species present include Common Nettle *Urtica dioica*, *Meadowsweet Filipendula ulmaria*, Angelica *Angelica sylvestris*, Common Vetch *Vicia sativa*, Meadow Vetchling *Lathyrus pratensis*, Cow Parsley *Anthriscus sylvestris*, Cleavers *Galium aparine*, Cut-leaved Crane's-bill *Geranium dissectum*, Creeping Buttercup *Ranunculus repens*, Common Sorrel *Rumex acetosa*, Red Campion *Silene dioica*, Common Ragwort, Great *Willowherb Epilobium hirsutum*, Common Mouse-ear, Sedges *Carex* sp., Tufted Vetch V*icia cracca*, White Dead-nettle *Lamium album*, Ground Ivy *Glechoma hederacea*, Lesser Stitchwort *Stellaria graminea* and Marsh Thistle *Cirsium palustre*. Frequent scattered mature scrub (dominated by Hawthorn) is present throughout the grassland field.

4.5.2 Elsewhere within the site areas of semi-improved grassland are present, associated with the existing orchard areas (see below) and buildings towards the centre of the site, typically dominated by coarse grass species such as Cock's-foot and Meadow Foxtail with Meadow-grass, Common Vetch, Common Nettle, Meadow Vetchling, Willowherb, Hogweed, Cleavers, Creeping Buttercup, Marsh Thistle, Forget-me-not., Creeping Thistle, Silverweed *Potentilla anserine*, Common Sorrel along with encroaching Bramble *Rubus fruticosus*.

Evaluation

4.5.3 The semi-improved grassland within the south western part of the site includes a range of species typical of damp grassland, with varied species composition, albeit in common with the remainder of the western field was noted to support a tall sward with little evidence of recent management and scattered encroaching scrub.

4.5.4 The remaining grassland was recorded to support a low diversity of common and widespread species and based on the type and abundance of species present it can be classified as species-poor semi-improved grassland[17]. Semi-improved grassland is not uncommon in the local area and higher quality areas of grassland are present in the surrounding area. As such, the species-poor semi-improved grassland does not constitute an important ecological feature and the loss of grassland to the proposals is therefore of minor ecological significance.

4.5.5 In any event, the majority of semi-improved grassland areas will be retained under the proposals, whilst further wildflower grassland will be provided within the proposed open space.

4.6 Orchard

Description

4.6.1 The site includes two small area of orchard (both of which are identified as Traditional Orchard habitat on the MAGIC database) as identified on Plan 5176/ECO3.

4.6.2 The southern orchard area is open in nature, with spaced fruit trees dominated by Plum *Prunus sp*. with a small number of small Walnut *Juglans regia* noted. The grassland beneath includes Cock's-foot *Dactylis glomerata*, Sweet Vernal-grass *Anthoxanthum odoratum*, Meadow Foxtail *Alopecurus pratensis*, False Oat-grass *Arrhenatherum elatius*, Crested Dog's-tail *Cynosurus cristatus*, Common Vetch, Common Mouse-ear, Meadow Vetchling *Lathyrus pratensis*, Forget-me-not *Myosotis* sp. Willowherb *Epilobium* sp., Meadow Buttercup, Broad-leaved Dock, Marsh Thistle *Cirsium palustre*, Herb Bennet *Geum urbanum*, Common Ragwort *Senecio jacobaea*, Cut-leaved Crane's-bill, White Clover *Trifolium arvense* and Creeping Buttercup.

4.6.3 The northern orchard area is largely enclosed by hedgerows, trees and scrub and accessed from the residential garden area associated with the buildings present. Fruit trees are dominated by Apple *Malus sp*., which are mature in nature, with occasional Pear *Pyrus*. Ground flora includes Meadow-grass *Poa sp*., Creeping Buttercup *Ranunculus repens*, Broad-leaved Dock *Rumex obtusifolius*, Cut-leaved Crane's-bill *Geranium dissectum*, Common Vetch *Vicia sativa*, Shepherd's-purse *Capsella bursa-pastoris*, Common Nettle, Spear Thistle *Cirsium vulgare*, Germander Speedwell *Veronica chamaedrys*, Common Mouse-ear *Cerastium fontanum*, Hogweed *Heracleum sphondylium*, Lords-and-Ladies *Arum maculatum*, Wall Speedwell *Veronica arvensis*, Dandelion *Taraxacum officinale* agg., Cleavers *Galium aparine* and Meadow Buttercup *Ranunculus acris*.

Evaluation

4.6.4 The orchards within the site comprise species which are common and widespread in the local area, and were not recorded to support any species of particular botanical interest at the time of surveying. However, traditional orchards represent a Priority Habitat and are

[17] Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition

inherently of elevated ecological value, particularly with regards to their potential to support a diversity of fauna. As such, the orchard areas within the site are considered to represent important ecological features at the local level.

4.6.5 The proposals include the retention and protection of the existing orchard areas (as detailed at Chapter 6 below), whilst suitable management measures will be put in place and further enhancement and new planting will be provided in order to extend and enhance the southern orchard area at the site in the long term.

4.7 Hedgerows

Description

4.7.1 A total of ten hedgerows have been recorded to be present within the site, located at the site and field boundaries. 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	5-6m	3-4m	Hawthorn, Norway Maple *Acer platanoides* and Elder.	<4	Ivy *Hedera helix*, Garlic Mustard, Cleavers and occasional Japanese Honeysuckle *Lonicera japonica* and Herb Robert *Geranium robertianum*	<10% gaps	Outgrown, but cut back on western side.	**N**
H2	Varies	Varies	Blackthorn *Prunus spinosa/Prunus sp.* (D), Hawthorn, Dogwood *Cornus sanguinea* and rare Elm *Ulmus sp.* and Willow	<4	Bramble, Field-rose *Rosa arvensis*	<10% gaps	Towards the east, the hedgerow is thin and is clipped from the north (garden side). Further west, the hedgerow is wider and forms a substantial buffer along the boundary. A thinner section is present to the west comprising mostly bramble, but with some remaining Elm, Willow etc. and garden fences beyond. The extreme west extends into tall, dense scrub (mostly Blackthorn/*Prunus*).	**N**

No.	H	W	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify#
H3	6-8m	3-4m	Field Maple *Acer campestre*, Hawthorn, willows, Hazel *Corylus avellana*, Dogwood and rare Guelder Rose *Viburnum opulus* and Buckthorn *Rhamnus cathartica*	≥4	Meadow Vetchling, Garlic Mustard, Cow Parsley and Willowherb	Trees, well-connected, <10% gaps	Towards the western end, the hedgerow has been cut back to the boundary.	**N**
H4	<2m	2m	Hawthorn (D) , Blackthorn (D) and Oak *Quercus sp.*	<4	-	<10% gaps	Heavily flailed and thin in places. Single standard young Oak tree at southern end, no other trees.	**N**
H5	1.5m	3-4m	Hawthorn (D), Dog Rose and occasional Elder	<4	Bramble, Common Nettle, Willowherb, Garlic Mustard, Creeping Thistle, Great Willowherb *Epilobium hirsute* and Woody nightshade *Solanum dulcamarra*	<10% gaps	Internal field boundary hedgerow, recently cut at time of most recent survey.	**N**
H6	2-3m	2m	Hawthorn (D)	<4	Virginia-creeper *Parthenocissus sp*., Cleavers, Garlic Mustard and Bramble	<10% gaps?	Residential curtilage associated with the garden to the north.	**N**
H7	≤1m	<50cm	Hawthorn (D)	<4	Common Nettle and White Bryony *Bryonia dioica*	-	Mostly overgrown with nettles	**N**
H8	<2m	3-4m	Hawthorn (D) and Elder	<4	Bramble, Cleavers, Common Nettle and Garlic Mustard	<10% gaps	Internal field boundary hedgerow, recently cut at time of most recent survey.	**N**
H9	4-6m	3-4m	Dogwood, Hazel, Field Maple, Goat Willow *Salix caprea*, Elder and Hawthorn	≥4	Occasional Cow Parsley, Buttercup *Ranunculus sp*., Hogweed, Creeping Thistle and very rare Stinking Iris *Iris foetidissima*	<10% gaps, well-connected	Mature hedgerow cut back to fence line. Old tree guards still present in places.	**N**
H10	6-8m +	3-4m	Hawthorn (D), Ash *Fraxinus excelsior*, Willow and Field Maple	<4	Bramble, Ivy	Trees, <10% gaps	Tall, dense, mature hedge. Small number of mature trees.	**N**

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

Evaluation

4.7.2 The hedgerows present within the site range from substantial, sometimes outgrown hedgerows with standard trees to smaller garden hedges. None of the hedgerows are considered to qualify as ecologically 'important' under the Hedgerows Regulations 1997 (based on the number of woody species and associated features).

4.7.3 The hedgerows present within the site are likely to qualify as Priority Habitats based on the standard definition[18], 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.[18]

4.7.4 On this basis, the hedgerows within the site are considered to form important ecological features, of importance at the local level.

4.7.5 The proposals incorporate the retention of the vast majority the hedgerows present within the, albeit minor losses are required in order to facilitate access into the site (H1) and between individual fields (H5 and H8). Retained hedgerows will be protected during the construction phase of the proposals in line with the recommendations included at Chapter 6 below. Furthermore, the proposals incorporate new planting which will link with and strengthen the existing / retained hedgerows, along with the incorporation of new hedgerows, which will aim to extend and enhance the existing hedgerow network at the site.

4.8 Woodland, Trees and Scrub

Description

4.8.1 A small area of mixed (predominantly broadleaved) woodland is present within the site. The canopy is mostly dominated by Sycamore *Acer pseudoplatanus* providing dense shading, albeit a dense understorey is present in places including Elm, Ivy, and Elder *Sambucus nigra*. The ground flora is patchy with frequent Garlic Mustard *Alliaria petiolata,* Common Nettle *Urtica dioica* and Bramble *Rubus fruticosus*, along with Cow Parsley *Anthriscus sylvestris* and Sycamore seedlings in the more open northern areas. Lines of conifers and Willow *Salix sp*. are dominant within the north east of the woodland, representing former planting, along with Hawthorn *Crataegus monogyna* , with ground flora in these areas formed by Common Nettle, Cow Parsley and Hedge Woundwort *Stachys sylvatica*.

4.8.2 A further narrow band of woodland extends through the site, dividing the western field from the remainder of the site, dominated by mature Willows *Salix* sp., with mature Oak, semi-mature Ash, Hawthorn, Elder, Elm and Hazel. Ground flora species are dominated by Common Nettle, Bramble, Cow Parsley and Garlic Mustard, with occasional Hemp-agrimony *Eupatorium cannabinum*. Dense woody vegetation is also present along the western site boundary, forming a dense buffer to the offsite Oxford Canal corridor beyond.

4.8.3 Dense scrub is present elsewhere within the site, including west of the existing orchard area and associated with the site boundaries, the majority of which is dominated by dense

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

Blackthorn *Prunus spinosa,* with Hawthorn and scattered trees. Scattered Hawthorn scrub is present within the grassland areas in the west of the site.

4.8.4 A number of individual trees are present elsewhere within the site, largely associated with the boundary vegetation and hedgerows and within the residential garden areas. These trees range from young to mature in age and include Field Maple, Hawthorn, Sycamore, Norway Maple, Scots Pine *Pinus sylvestris*, Elm, Ash, Hornbeam *Carpinus betulus*, Oak and Willow. In addition, a band of mature Willow trees runs across the width of the site from north to south, east of the western field. Dense bramble is present beneath the trees, along with a dry ditch.

Evaluation

4.8.5 The woodland, trees and scrub a composed of species which are common and widespread, and were not recorded to support any species of particular botanical interest, albeit provide mature vegetation and cover and is inherently of elevated ecological value in the context of the site and provide cover and foraging opportunities for a range of faunal species. The woodland in particular is considered to be an important ecological feature at the local level. The proposals incorporate the retention of the existing woodland, along with the majority of existing scrub and trees which will be subject to suitable safeguards and long term enhancement measures, including appropriate management and suitable protection, as described at Chapter 6 below.

4.9 Waterbodies

Description

4.9.1 Two ponds and one ditch are located within the site, labelled **P1, P2 and D1** on Plan 5176/ECO3. These features are described in Table 4.2 below:

Table 4.2. Waterbody descriptions.

Pond no.	Brief description	Approx. size	Shading	Aquatic/ emergent & marginal vegetation	Comments
P1	Permanent pond within deep depression overshaded by mature trees/ woodland.	20x30m	100% overshadowed by mature trees and vegetation.	Duckweed present along with silt, leaf litter and twigs. Willow encroaching into pond. No other evident aquatic or marginal vegetation.	Frequent rubbish including fallen wood and shopping trolleys; chain-link fencing present extending into pond area; apparent poor water quality. Pond recorded to be entirely dry during 2018 survey work, albeit supported low levels of water in 2020 and 2021.
P2	Shallow pond located within woodland.	10x20m	100% overshadowed by surrounding woodland.	None.	Recorded to contain shallow water (<30cm) during May 2017 albeit remained dry during 2018, 2020 and 2021 surveys.
D1	Boundary ditch	2m wide	Overshadowed by bramble and scrub	Pond Sedge *Carex sp*., Great Willowherb, Cattail *Typha sp*., Horsetail *Equisetum sp*., Touch-me-not *Impatiens sp*., Angelica, Water Figwort *Scrophularia auriculata* and Iris *sp*.	Drain along southern site boundary with standing water about 30cm deep in places, likely overflows during rainfall.

Evaluation

4.9.2 Pond P1 within the north of the site forms a permanent waterbody, which was recorded to retain water during most years (albeit dry during 2018). The pond is heavily overshaded and appears to support poor water quality, with frequent dumped rubbish and lacking in any aquatic or marginal vegetation. Pond P2 was recorded to support low levels of water during initial survey work in 2017, albeit remained dry for the majority of the subsequent period, as confirmed during surveys in 2018, 2020 and 2021, such that at best this represents a temporary water body of limited ecological value.

4.9.3 Ditch D1, within the south west of the site appears to provide a hydrological link with offsite habitats within Stratfield Brake and was recorded to support water for much of the survey period, with less overgrown sections containing a variety of wetland plant species indicative of permanently damp conditions and as such is considered to be an important ecological feature at the local level.

4.9.4 The proposals incorporate the retention of the existing ponds and ditch D1, whilst the opportunity exists in particular for enhancement measures to be provided (in particular in respect of pond P1) in the long term through appropriate management measures.

4.10 Buildings, other structures and Hardstanding

Description

4.10.1 A number of buildings are present within the site, identified as buildings **B1** to **B7** on Plan 5176/ECO3, including a dingle residential dwelling (B6) along with associated open barns and associated outbuildings, farm buildings and glasshouses which appear to be in a considerable state of disrepair. Descriptions of individual buildings are provided below in regard to potential for use by bats (Table 5.1.)

4.10.2 Associated with the buildings and other structures are areas of hardstanding including driveways and access. The hardstanding is largely devoid of vegetation, with the exception of colonising grasses and common weeds within occasional gaps and cracks.

4.10.3 In addition, areas of amenity garden are present associated with building B6, including mown grassland, ornamental planting and vegetable plots. Species present include Apple, Norway Maple, Pine *Pinus sp*., and Sycamore, Potato *Solanum tuberosum*, Gooseberry *Ribes uva-crispa* and Raspberry *Rubus idaeus*, are present. Other garden vegetation includes Rose *Rosa sp*., Cherry Laurel *Prunus laurocerasus*, Montbretia *Crocosmia x crocosmiiflora,* Virginia-creeper *Parthenocissus quinquefolia,* Cotoneaster *Cotoneaster sp*. and frequent Common Nettle.

Evaluation

4.10.4 The buildings, other structures and hardstanding support a limited range of common and widespread colonising weed species and are inherently of negligible ecological value, and as such their removal under the proposals is of negligible ecological significance. The amenity garden areas are generally well-managed and maintained and support non-native species and common colonising weeds, such that they offer no more than low ecological value. Accordingly, these habitats are not considered to represent important ecological features, whilst in any event they will remain largely unaffected under the current proposals.

4.10.5 Potential for the buildings to support faunal species such as roosting bats and birds is discussed below in Chapter 5.

4.11 Invasive Species

Description

During the survey work undertaken, the presence of small amounts of Montbretia, Cotoneaster and Virginia-creeper were recorded within the amenity garden areas at the site.

Evaluation

4.11.1 Virginia-creeper and 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. Further discussion of this issue along with a number of recommendations for removing these species are included at Chapter 6.

4.12 Habitat Evaluation Summary

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

Table 4.3. Evaluation summary of habitats forming important ecological features.

Habitat	Level of Importance
Orchard	Local
Hedgerows	Local
Woodland	Local

4.12.2 Other habitats present within the site are not considered to 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 was undertaken in respect of bats, badger, amphibians and reptiles.

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 During the survey work undertaken, the Priority Species Soprano Pipistrelle *Pipistrellus pygmaeus*, Slow Worm *Anguis fragilis*, Grass Snake *Anguis fragilis* and Bullfinch *Pyrrhula pyrrhula* were recorded within the site. These are discussed further below in respect of the individual species groups, as 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 (see Appendix 5176/4 for detailed provisions). 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 specific records of bats from within or adjacent to the site were returned from the desktop study. Information received from the LRC includes records of Brown Long-eared Bat *Plecotus auritus*, Common Pipistrelle, Soprano Pipistrelle, Pipistrelle bat species *Pipistrelle sp.*, Leisler's Bat *Nyctalus leisleri*, Natterer's Bat *Myotis nattereri*, unidentified *Myotis* species Noctule *Nyctalus noctula* and an unidentified bat species (Chiroptera), within 2km of the site. The closest record to the site is of Soprano Pipistrelle, recorded in 2010, located approximately 0.5km north of the site.

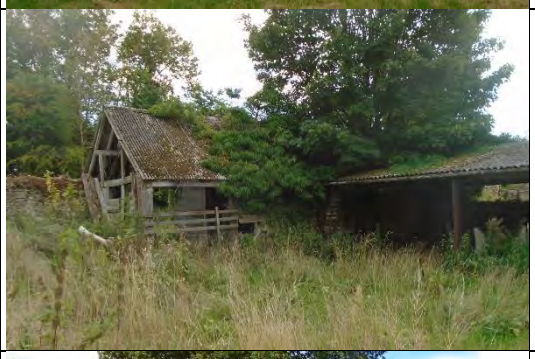
5.3.3 **Survey Results and Evaluation**

Visual Inspection Surveys

Buildings

5.3.4 A summary of the potential for the buildings within the site to support roosting bats is included in Table 5.1 below.

Table 5.1. Summary of Building Inspection Surveys.

Building number	Photo	Description / bat roosting potential
B1		Open, metal framed modern barn used for storage of machinery, with a pitched roof and facades of corrugated asbestos (with much of the facades open and lacking sheeting). No evidence for any use by bats recorded during internal/external survey work. **Negligible potential to support roosting bats**
B2		Stone building with a mostly corrugated, metal roof, albeit the western end is comprised of wooden facades with a pitched, tiles. The western end is partially collapsed and contains ivy on the northern side. No evidence for any use by bats recorded during internal/external survey work. **Low potential to support roosting bats.**
B3		Open, metal framed barn with largely open facades and shallow pitched roof supporting corrugated asbestos. No evidence for any use by bats recorded during internal/external survey work. **Negligible potential to support roosting bats.**
B4		Single storey dilapidated barn with a wooden frame and a pitched roof with asbestos sheeting. Ivy is present over the top of the building, while a mature self-set sycamore is present within the centre of the building. No evidence for any use by bats recorded during internal/external survey work. **Negligible potential to support roosting bats.**
B5		Two-storey storage building with a brick base, wooden first floor and a corrugated metal, pitched roof. No evidence for any use by bats recorded during internal/external survey work. **Low potential to support roosting bats.**

Building number	Photo	Description / bat roosting potential
B6		Two-storey residential stone building with a pitched, concrete tiled roof. No evidence for any use by bats recorded during internal/external survey work. **Confirmed bat roost (see below)**
B7		Glasshouse associated with building B6 with a brick base and metal frame. The glazing is mostly smashed and dominated by nettles with some Virginia-creeper. No evidence for any use by bats recorded during internal/external survey work. **Negligible potential to support roosting bats.**
B8		Defunct glass-house associated with Orchard area. No evidence for any use by bats recorded during internal/external survey work. **Negligible potential to support roosting bats.**

Trees

5.3.5 A number of semi-mature and mature trees are present on site, which were subject to specific inspection surveys in order to establish any likely potential to support roosting bats. The results of the tree assessment work undertaken at the site are illustrated on Plan 5176/ECO3 and summarised in Table 5.2 below:

Table 5.2. Tree inspection results (Tree numbers consistent with Arboricultural Survey information provided within the Arboricultural Impact Assessment prepared by Aspect Arboriculture Ltd).

Tree No.	Species	Age	Potential Roost Features	Suitability
T(G10)	Ash	Mature	Large cavity in main trunk	High
T6	Crack Willow	Mature	Evident tree works to lower limbs, with cracks	Low
T68	Norway Maple	Mature	Contains lifted bark and a cavity	Moderate
T115	Ash	Mature	Upper limb collapsed above woodpecker hole, with a further woodpecker hole facing east into scrub	Low - Moderate

5.3.6 The areas of woodland within the site are likely to contain additional trees with features offering potential for use by bats that may be obscured from ground view (particularly mature Willows within the vegetated corridor extending through the western part of the

site) or transient in nature, albeit no obvious such features were noted during the survey work. In any event, these trees will be retained under the proposals. Further, in order to ensure that roosting bats remain unaffected (e.g. should additional works be required to individual trees offering potential for use by bats, for example due to ongoing arboricultural management or health and safety), suitable mitigation measures are set out at Chapter 6.

Dusk and Dawn Surveys

Emergence / re-entry surveys (buildings)

5.3.7 As set out above, buildings B2 and B6 present within the site were recorded to provide potentially suitable opportunities for use bat roosting bats. As such, suitable buildings were subject to further survey work in the form of dusk emergence and dawn re-entry surveys in order to inform the proposed development. The results of these surveys are summarised in Table 5.3 below.

Table 5.3. Emergence / re-entry survey results.

Building	Date	Sunset/ sunrise	Emergence/ re-entry (including location references; see Plan 5176/ECO4)	Summary of other activity
B2	2nd June 2020 (dusk)	Sunset: 21:16	None	Frequent Common Pipistrelle and Soprano Pipistrelle Passes were detected in the vicinity of this building, while a number of passes by 'big bat' species were also recorded.
B2	6th July 2021 (dusk)	Sunset: 21:25	None	-
B6	2nd June 2020 (dusk)	Sunset: 21:16	A single Soprano Pipistrelle was observed entering and re-emerging under the eaves at the southern elevation of building B6 at 21:46 (ref. A;). Two further Soprano Pipistrelles were recorded emerging from the same location at 21:55.	Frequent Common Pipistrelle and Soprano Pipistrelle activity was recorded surrounding this building, with particularly high levels to the south. A number of passes by 'big bat' species were also recorded.

Building	Date	Sunset/ sunrise	Emergence/ re-entry (including location references; see Plan 5176/ECO4)	Summary of other activity
	23rd June 2020 (dawn)	Sunrise 4:47	A single Common Pipistrelle re-entered a gap in the brickwork beneath the gutter on the eastern elevation (ref. B) at 3:34 and a single Soprano Pipistrelle re-entered under the eaves, above the gutter on the southern elevation at 4:08 (ref. C).	Low levels of activity by Common Pipistrelle and Soprano Pipistrelle were recorded surrounding this building.
	6th July 2020 (dusk)	Sunset: 21:25	A single Soprano Pipistrelle is likely to have emerged at 22:09 from a hole in the brickwork low down on the eastern elevation (ref. E). Two further emergences were recorded from a gap in the brickwork on the western elevation (ref. D), the first of which was by an unidentified pipistrelle species at 22:15, and the second was by a Soprano Pipistrelle at 22:22.	Moderate numbers of Common Pipistrelle and Soprano Pipistrelle passes were recorded surrounding the building, while a single, high-up 'big bat' pass was also recorded.

5.3.8 Overall, a small number of confirmed emergences/re-entries by individual/small numbers of bats were recorded at four different locations across building B6 (five by Soprano Pipistrelle, one by Common Pipistrelle, and one by an unidentified Pipistrelle species) during the survey work undertaken. A further likely Soprano Pipistrelle emergence was also recorded at a fifth location within building B6. Accordingly, on the basis of the survey work undertaken, Building B6 is considered to represent a small day roost used by a small number of Common and Soprano Pipistrelles.

5.3.9 No evidence for any use of building B2 by roosting bats was recorded during the survey work undertaken. The remaining structures present include open metal framed modern structures and dilapidated former buildings and glasshouses that are of construction types offering negligible potential for use by roosting bats and as such are unlikely to support use by this group.

5.3.10 Building B6 will remain unaffected under the current proposals (see Appendix 5176/1) and accordingly the proposals are unlikely to result in any direct damage or disturbance to roosts. New lighting under the proposals has potential to affect bats accessing the existing roost (along with other areas within the site) and accordingly, suitable mitigation measures are set out in regard to this group at Chapter 6, below. Further, the opportunity exists to provide enhancement measures for roosting bats, including new roost provision as set out at Chapter 6.

Activity surveys (foraging/commuting)

5.3.11 The habitats present within the site, in particular structural vegetation and cover including the woodland, orchards and boundary vegetation offer opportunities for foraging bats as they are likely to support a reasonable biomass of invertebrate prey. These habitats could also act as navigational aids for commuting bats and provide connectivity to similar off-site habitats in the surrounding area including within the adjacent offsite Stratfield Brake WTR. As such, in order to assess levels of bat activity along with key features and commuting routes, bat activity surveys were undertaken at the site between July and October 2021.

5.3.12 **Manual walked transect surveys.** Summary tables of the activity survey results are provided at tables 5.4 to 5.6, below.

Table 5.4. Results of the dusk walked transect on 8th July 2021.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	27	36
Soprano Pipistrelle	15	20
Pipistrelle species	1	1
Noctule	30	40
Myotis	2	3
Total	**75**	**100**

Table 5.5. Results of the dusk walked transect on 27th August 2021.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	4	15
Soprano Pipistrelle	19	73
Noctule	2	8
Myotis	1	4
Total	**26**	**100**

Table 5.6. Results of the dusk walked transect on 29th September 2021.

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	3	10
Soprano Pipistrelle	26	87
Myotis	1	3
Total	**30**	**100**

5.3.13 As shown by the above results, during the dusk activity surveys undertaken between July and September 2021, Soprano Pipistrelle was the most commonly recorded species overall (consistent with the above consideration in regard to roosting bats), accounting for 46% of all registrations across the three surveys. Common Pipistrelle accounted for 26% of all registrations, with unidentified pipistrelle (likely Common or Soprano Pipistrelle), accounting for a further 1% and Noctule for 24% of registrations. Other species recorded during the manual transect surveys were limited to *Myotis* species registrations, accounting for 3% of registrations.

5.3.14 During the walked transects, the highest level of bat activity was recorded within the centre of the site, associated with the interface between the woodland and existing farm buildings in this location (stopping points 2-3, as shown at Plan 5176/ECO4). Elsewhere, levels of bat activity were recorded to be greatest along the western, south western and northern site boundaries, with little activity noted internally within the site.

5.3.15 **Remote Detector Surveys.** The results of the automated static bat surveys are summarised in Table 5.7 to 5.9, below.

Table 5.7. Automated static bat survey summary (Deployment 1)

Date (2021)	Number of registrations by species#				
	Myotis	Big Bat	Pip 45	Pip 55	Pip
8th July	0	14	20	5	0
9th July	0	10	24	1	0
10st July	0	45	30	14	1
11nd July	0	16	30	30	0
12rd July	0	26	20	31	0
13th July	0	17	27	6	0
14th July	0	30	25	14	1
15th July	0	43	76	14	0
Total registrations	0	201	252	115	2
Approximate % of total registrations	0	35	44	20	0

Key:

Myotis- *Myotis* sp.
Pip 45- Common Pipistrelle
Pip 55- Soprano Pipistrelle
Pip- Common Pipistrelle or Soprano Pipistrelle
'Big Bat' - Noctule, Leislers or Serotine

- Figures shown are the total no. of registrations recorded during the dusk to the proceeding dawn period for each date shown, i.e. a recording 'night' for the 20th June will be registrations recorded from ~18.00 on the 20/06 till 07.00 on the morning of the 21/06.

Table 5.8. Automated static bat survey summary (Deployment 2)

Date (2021)	Number of registrations by species#				
	Myotis	Big Bat	Pip 45	Pip 55	Pip
27th August	0	0	20	10	2
28th August	0	0	3	12	3
29th August	0	0	175	58	16
30th August	0	0	5	16	3
31st August	0	0	7	10	9
1st September	0	0	9	10	3
Total registrations	0	0	219	116	36
Approximate % of total registrations	0	0	59	31	10

Key:

Myotis- *Myotis* sp.
Pip 45- Common Pipistrelle
Pip 55- Soprano Pipistrelle
Pip- Common Pipistrelle or Soprano Pipistrelle
'Big Bat' - Noctule, Leislers or Serotine

- Figures shown are the total no. of registrations recorded during the dusk to the proceeding dawn period for each date shown, i.e. a recording 'night' for the 20th June will be registrations recorded from ~18.00 on the 20/06 till 07.00 on the morning of the 21/06.

Table 5.9. Automated static bat survey summary (Deployment 3)

Date (2021)	Number of registrations by species#				
	Myotis	Big Bat	Pip 45	Pip 55	Pip
29th September	1	2	21	4	0
30th September	0	0	6	2	0

1st October	0	2	51	43	0
2nd October	0	0	1	6	0
3rd October	1	0	38	24	0
4th October	1	1	34	11	0
5th October	0	1	2	7	0
6th October	2	1	53	34	0
Total registrations	5	7	206	131	0
Approximate % of total registrations	1	2	59	38	0

Key:

Myotis- *Myotis* sp.
Pip 45- Common Pipistrelle
Pip 55- Soprano Pipistrelle
Pip- Common Pipistrelle or Soprano Pipistrelle
'Big Bat' - Noctule, Leislers or Serotine

- Figures shown are the total no. of registrations recorded during the dusk to the proceeding dawn period for each date shown, i.e. a recording 'night' for the 20th June will be registrations recorded from ~18.00 on the 20/06 till 07.00 on the morning of the 21/06.

Table 5.10. Number of bat passes per night across automated static bat surveys

Date (2021)	**Average number of passes per night**				
	Myotis	**Big Bat**	**Pip 45**	**Pip 55**	**Pip**
18th-15th July	0.0	25.1	31.5	14.4	0.3
27th August - 1st September	0.0	0.0	36.5	19.3	6.0
29th September - 2nd October	0.6	0.9	25.8	16.4	0.0
Total average across all 22 nights.	0.2	9.5	30.8	16.5	1.7

5.3.1 During the first survey, carried out in July 2021, 44% of all registrations were attributed to Common Pipistrelle, 35% to 'Big Bats' and 20% to Soprano Pipistrelle. During Survey 2, carried out between late August and early September, 59% of registrations were attributed to Common Pipistrelle, 31% to Soprano Pipistrelle and 10% to unidentified pipistrelle species (Common/Soprano Pipistrelles). During the third survey carried out between late September and early October, 59% of registrations were attributed to Common Pipistrelle, 38% to Soprano Pipistrelle, 2% to 'Big Bats' and 1% to Myotis species.

5.3.2 The average number of bat passes per night was relatively consistent for Common Pipistrelle and Soprano Pipistrelle across the three surveys, with combined averages of approximately 31 and 17 passes per night respectively across the three surveys. The average number passes of passes by 'Big Bat' species and Myotis species was generally fewer than 1 per night, with the exception of the first survey where approximately 25 'Big Bats' per night were recorded.

5.3.3 Overall, the woodland, orchards, scrub, hedgerows and boundary vegetation within the site offer cover, foraging/commuting habitat and potential navigational features for bats, while the walked activity transect surveys highlighted specific areas with elevated levels of bat activity, particularly associated with the central woodland and existing buildings, which will be retained under the current proposals. The vast majority of bat activity recorded during both the walked transects and automated surveys was limited to Common and Soprano Pipistrelle (both common species found throughout the UK, including within urban areas and particularly tolerant of raised lighting levels). The remaining registrations included smaller numbers of Noctule/'Big Bat' (particularly during the July 2020 survey), and very low numbers of passes by *Myotis* species.

5.3.4 Woodland, hedgerows and boundary vegetation occur frequently in the surrounding area and taking this into the account, together with the levels of activity and species recorded during the survey work, the site is considered to be of value to bats at no more than the local level, albeit likely provides connectivity with wider foraging habitats in particular within the offsite Stratfield Brake to the south west. The woodland, orchards and the vast majority of boundary vegetation, along with areas of semi-improved grassland will be retained under the proposals, including providing continuous vegetated corridors across the site, along with continued foraging opportunities. Accordingly, subject to the implementation of the recommendations outlined at Chapter 6 below, along with other ecological enhancements, it is considered that the conservation status of local bat populations will be fully safeguarded under the proposals.

5.4 Badger

5.4.1 **Legislation.** Badger receives legislative protection under the Protection of Badgers Act 1992 (see Appendix 5176/4 for detailed provisions), 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. [19, 20]

5.4.3 **Background Records.** No records of Badger were returned from the desktop study from within or immediately adjacent to the study area. Data returned from TVERC includes four records of Badger within 2km of the site, with the closest two records located 930m to the south of the study area and dated from 2006.

5.4.4 **Survey Results and Evaluation.** No evidence of Badger was recorded during the survey work undertaken at the site, which took place over a number of visits spanning a period of several years, such that this species is unlikely to make significant use of the site. Nonetheless, Badger remains common and widespread, including within the local vicinity of the site (including as confirmed through local records), such that it is possible that individual Badgers would enter the site from the surrounding habitats, and therefore general precautionary safeguards are set out at Chapter 6, below, which will ensure that any Badgers, or other faunal species are safeguarded should they enter the site during any construction works.

5.5 Other Mammals

5.5.1 **Legislation.** A number of other 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 and should be assessed as important ecological features.

5.5.2 **Background Records.** No specific records of other mammals from within the site were returned from the desktop study. A number of records of Hedgehog *Erinaceus europaeus*

[19] English Nature (2002) '*Badgers and Development*'
[20] Natural England (2011) '*Badgers and Development: A Guide to Best Practice and Licensing*', Interim Guidance Document

(Priority Species) were returned from within the search area around the site, including a record adjacent to the site to the north, recorded in 2014.

5.5.3 **Survey Results and Evaluation.** No evidence of any other protected, rare or notable mammal species was recorded within the site. Muntjac Deer *Muntiacus reevesi* and Roe Deer *Capreolus capreolus* were recorded within the site during the course of the surveys, along with evidence of Mole *Talpa europaea* and Field Vole *Microtus agrestis*, while other common mammal species such as Fox *Vulpes vulpes* are also likely to utilise the site. These species remain common in both a local and national context and 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. Hedgehog is a Priority Species, albeit this species remains common and widespread in England. The site offers potential opportunities for this species, particularly in the form of woodland, orchard, scrub and associated boundary corridors, although these habitats are widespread and common in the surrounding areas such that the habitats within the site itself are unlikely to be of particular, or wider importance to Hedgehog. The vast majority of the more mature habitat areas offering cover and foraging opportunities at the site will be retained under the proposals. In any event, abundant similar opportunities are present within the local area and there is no evidence to suggest the proposals will significantly affect local populations of this species. However, it is recommended that precautionary safeguards are put in place to minimise the risk of harm to Hedgehog in the event this species is present, as detailed in Chapter 6 below.

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 (see Appendix 5176/4 for detailed provisions). 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 records of Great Crested Newt from within or adjacent to the site were returned from the desktop study. A number of records of Great Crested Newt, Common Frog *Rana temporaria*, Smooth Newt *Lissotriton vulgaris*, Palmate Newt *Lissotriton helveticus* and a single record of Common Toad were returned from the search area surrounding the site, with the closest two records of Great Crested Newt located approximately 0.8km to the south of the site, both recorded in 2009.

5.6.3 **Survey Results and Evaluation.** As discussed at section two ponds (P1 and P2) and wet ditch (D1) are present within the site (albeit P2 was recorded to remain dry for much of the survey period). A further three waterbodies were identified within 250m of the site based on available background information, (labelled P3 to P5 at Plan 5176/ECO4). On inspection, P3 was recorded to remain dry, such that it clearly does not provide potentially suitable breeding opportunities for Great Crested Newt. An initial appraisal of the waterbodies was made using the HSI system to identify potential suitability to support Great Crested Newt (see Table 5.8, below).

Table 5.11. Great Crested Newt HSI assessment results of waterbodies.

Pond	Suitability Indices										HSI Score	Suitability
	SI 1 Location	**SI 2** Pond Area	**SI 3** Pond Drying	**SI 4** Water Quality	**SI 5** Shade	**SI 6** Water Fowl	**SI 7** Fish	**SI 8** Ponds	**SI 9** Terrestrial Habitat	**SI 10** Macrophytes		
P1	1	1	0.5	0.33	0.2	1	0.67	0.85	1	0.3	0.62	*Average*
P2	1	0.2	0.1	0.33	0.2	1	1	0.85	1	0.3	0.45	*Poor*
D1	1	0.05	0.5	0.67	1	1	1	0.85	1	0.8	0.61	*Average*
P3	*N/A - Dry*											
P4	1	N/A*	0.9	1	1	0.67	1	0.85	1	0.5	0.82	*Excellent*
P5	1	N/A*	0.9	1	1	0.67	1	0.85	1	0.3	0.78	*Good*

** For waterbodies larger than 2000m^2, HSI guidance sets out that this factor should be omitted (due to lack of data for such large ponds) and revised formula used.*

5.6.4 In summary, pond P1 and ditch D1 were identified to provide 'average' potential suitability for Great Crested Newt, whilst pond P2 was identified to offer 'poor' suitability for this species (notwithstanding this pond was recorded to remain dry for much of the survey period).

5.6.5 Offsite waterbodies P4 and P5 form large waterbodies with considerable use by waterfowl (albeit submerged vegetation was noted, such that there were assigned a value of 0.67, representing minor disturbance by waterfowl on a precautionary basis), however on the basis of the HSI assessment these waterbodies were recorded to provide 'excellent' and 'good' suitability for Great Crested Newt respectively.

5.6.6 Accordingly, specific eDNA survey work for Great Crested Newt was undertaken of ponds P1 and D1 during 2017, which returned a 'negative' result (GCN absent) from D1 and a 'positive' result for P1 (indicating Great Crested Newt as being likely present at that time). In order to provide updated information, further specific eDNA survey work for Great Crested Newt was undertaken of ponds P1, D1 and offsite P4 during 2020, all of which returned 'negative' results, indicating the likely absence of Great Crested Newt. It is noted that the previous survey work indicated the likely presence of this species within P1 (albeit not D1) in 2017. On this basis, it appears likely that either the previous eDNA sample produced a 'false-positive' result (such that Great Crested Newt was in fact absent) or small numbers of this species were present during 2017, which have subsequently died out such that this species is no longer present.

5.6.7 Accordingly, on the basis of the most up to date survey work, Great Crested Newt is unlikely to be present and does not appear to represent a particular constraint on the proposed development of the site. In any event, the proposals incorporate the retention and enhancement of the existing waterbodies within the site, along with substantial areas of vegetated habitats which will continue to provide suitable opportunities for amphibian species, whilst measures in place in respect of common reptile species (see below) would likely also help to highlight any residual presence of amphibian species. Nonetheless, in the event that any evidence for the presence of Great Crested Newt is identified at the site, works would need to stop and further consideration given on the need for mitigation measures and/or licensing in regard to this species.

5.6.8 During the reptile survey work undertaken at the site (see below), a number of Common Toad, a Priority Species, were identified within the field margins, semi-improved grassland and traditional orchard habitats. Although Common Toad does not receive specific protection in a development context, it is a Priority Species. However, given that the majority of suitable habitat at the site will be retained under the proposals, and given the availability of suitable habitat in the surrounding area, there is no evidence to suggest that the proposals will significantly affect local populations of this species. Therefore, subject to the safeguards set out in Chapter 6 below, it is considered that amphibian populations will not be significantly impacted by 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); refer to Appendix 5176/4 for detailed provisions. 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 TVERC returned a single record of Grass Snake, located approximately 1.8km south of the site, recorded in 2001.

5.7.3 **Survey Results and Evaluation.** Specific survey work for reptiles was undertaken at the site during 2020, the results of which are summarised in Table 5.9 below and illustrated on Plan 5176/ECO6.

Table 5.12. Reptile survey results summary.

Visit	Date	Common Lizard		Slow Worm		Grass Snake		Other Species
		Adult	Juv.	Adult	Juv.	Adult	Juv.	
1	14/04/2020	0	0	2	0	2	0	2x Common Toad
2	20/04/2020	0	0	0	0	3	0	2x Common Toad
3	27/04/2020	0	0	1	0	3	0	2x Common Toad
4	05/05/2020	0	0	0	0	3	1	6x Common Toad
5	11/05/2020	0	0	0	0	4	2	3x Common Toad
6	15/05/2020	0	0	0	0	5	0	0
7	02/06/2020	0	0	0	0	0	0	0
Peak Count		**0**		**2**		**5**		

5.7.4 The survey work undertaken confirmed the presence of common reptile species, with peak counts of two Slow-worm and five Grass Snake was recorded during the survey work at the site, with the majority of animals recorded within the grassland margins in the central parts of the site. A single slow worm was also found within the traditional orchard habitat (transect F). The area of suitable reptile habitat at the site measures approximately c.6.5ha and therefore the peak count equates to a population of <0.5 slow worm per hectare and <1 grass snake per hectare, which would be classified as a low population of each species

under the standard guidance[21]. As such, it is considered that the population of reptiles supported by the site is of importance at the local level only.

5.7.5 The proposals will affect areas of suitable habitat confirmed to support common reptile species and accordingly, will result in the loss of available habitats and potential for killing or injury of individuals that may be present. As such, suitable mitigation is proposed in order to ensure that reptiles are fully safeguarded under the proposals, as described at Chapter 6 below. In addition, the proposals incorporate substantial areas of informal open space and native habitats representing suitable reptile habitats, which will (subject to suitable management) will provide appropriate opportunities to continue to support the reptile populations present.

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 (see Appendix 5176/4 for detailed provisions).

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 status[22]. 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 Wildlife and Countryside Act Schedule 1, Part 1 species Green Sandpiper *Tringa ochropus*, the Red Listed and Priority Species Linnet *Linaria cannabina*, Lapwing *Vanellus vanellus*, Yellowhammer *Emberiza citronella*, Marsh Tit *Poecile palustris*, Spotted Flycatcher *Muscicapa striata*, Cuckoo *Cuculus canorus* and Herring Gull *Larus argentatus* and the Amber Listed species Wheatear *Oenanthe oenanthe*, Common Sandpiper *Actitis hypoleucos*, Meadow Pipit *Anthus pratensis*, Pintail *Anas acuta* and Redshank *Tringa tetanus*. Of these, a single record of Common Sandpiper (identified as arising from Stratfield Brake Wood and Fields) relates to a grid reference that appears to be situated within the western field within the site, from 2002.

5.8.4 **Survey Results and Evaluation.** A number of species of bird were observed within the site during the survey work undertaken, including Bullfinch *Pyrrhula pyrrhula*, Blue Tit *Cyanistes caeruleus*, Wood Pigeon *Columba palumbus*, Blackbird *Turdus merula*, Robin *Erithacus rubecula*, Wren *Troglodytes troglodytes*, Jackdaw *Corvus monedula*, Pheasant *Phasianus colchicus* and Great Tit *Parus major*. In particular, Bullfinch was recorded exhibiting nest-building behaviour within dense vegetation in the centre of the site, whilst Blue Tit was recorded nesting within cavities in the structure of building B6.

5.8.5 The majority of the birds recorded at the site are not listed as having any special conservation status, although Bullfinch (seen nesting on site) is Amber Listed due to strong

[21] Herpetofauna Groups of Britain and Ireland (1998) 'Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards'

[22] 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

UK declines in these species, while Bullfinch is also a Priority Species. Further, the site contains several habitats suitable for foraging and nesting birds including woodland, orchards, trees and scrub and as such the site is considered to be of value for birds at the local level.

5.8.6 The proposals incorporate the retention of the majority of habitats present offering raised opportunities for bird species, including woodland, hedgerows, trees and grassland, such that this will continue to provide suitable opportunities in the long term. Nonetheless, the proposals will result in the loss of sections of hedgerow, boundary vegetation and scrub and this could potentially affect any nesting birds that may be present at the time of works. Accordingly, safeguards in respect of nesting birds are proposed, as detailed in Chapter 6 below. In the long-term, new nesting opportunities will be available for birds as described in Chapter 6 below.

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); refer to Appendix 5176/4 for detailed provisions. 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 records of invertebrates were returned from within or adjacent to the site. A number of records of notable species were returned from TVERC, including the Priority Species Cinnabar *Tyria jacobaea*, and the true-fly species *Volucella zonaria*, *Epistrophe diaphana* and *Cheilosia soror*, with the closest records being for *Epistrophe diaphana* and *Cheilosia soror*, both recorded in 2011, approximately 0.3km south of the site.

5.9.3 **Survey Results and Evaluation.** No evidence for the presence of any protected, rare or notable invertebrate species was recorded within the site. The habitats present provide a range of opportunities for invertebrate species, in particular within the woodland, ponds, scrub and boundary vegetation, albeit the arable areas (representing the majority of areas affected under the proposed development), are unlikely to support significant invertebrate populations. In any event, those habitats offering greatest potential for invertebrate species will be retained under the proposals, whilst the opportunity exists under the proposals to incorporate a range of new and enhanced opportunities to benefit invertebrate species in the long term, as set out at Chapter 6.

5.10 Summary

5.10.1 On the basis of the above, a summary of the evaluation of fauna is provided below:

Table 5.13. Evaluation summary of fauna forming important ecological features.

Species / Group	Supported by or associated with the site	Level of Importance
Bats – Roosting	Confirmed roost in building B6 and potential roosting habitat in retained trees	Local
Bats – Foraging / Commuting	Confirmed presence	Local
Reptiles	Confirmed presence	Local
Birds	Confirmed presence	Local

5.10.2 Other fauna supported by the site include non-priority species of mammals, amphibians and invertebrates. However, these species do not form important ecological features.

6 Mitigation Measures and Biodiversity Net Gains

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 **MM8**) are implemented under the proposals. Further, detailed mitigation strategies or method statements can be secured via suitably-worded planning conditions, as recommended by relevant best practice guidance (BS 42020:2019).

General Construction Safeguards and Pollution Prevention

6.1.2 **MM1 – Pollution Prevention.** In order to safeguard retained habitats (including offsite habitats) against any potential run-off or pollution events during construction, suitable safeguards and working practices should be ensured during all construction works, including in particular the following measures:

- Storage areas for chemicals, fuels, etc. will be sited well away from the northern and eastern site boundaries (minimum 10m), and stored on an impervious base within an oil-tight bund with no drainage outlet. Spill kits with sand, earth or commercial products approved for the stored materials shall be kept close to storage areas for use in case of spillages;
- Damping down of dust sources and covering of loose materials to reduce dust deposition within adjacent habitats;
- Where possible, and with prior agreement of the sewage undertaker, silty water should be disposed of to the foul sewer or via another suitable form of disposal, e.g. tanker off-site;

Hedgerows and Trees

6.1.3 **MM2 – Hedgerow and Tree Protection.** All hedgerows and trees to be retained within the proposed development shall be protected during construction 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 – Felling of Trees Supporting Bat Roosting Potential.** No trees supporting bat roosting potential have been identified for removal under the current layout, although should a need for works to these trees be identified at a later stage (e.g. for health and safety purposes) it is recommended a suitably qualified ecologist is consulted to advise on any further survey requirements and mitigation measures. Such measures may include climbing inspections to investigate potential roosting features and soft felling of trees under an ecological watching brief.

6.1.5 **MM4 – Sensitive Lighting.** The development proposals are well-suited to preserving the dark corridors where most bat activity on site has been recorded. For instance, the proposed buildings west of the woodland are largely fronted into the existing courtyard and as such any necessary lighting is likely to be shielded from the woodland. Further, under the proposals, boundary corridor C2 and hedgerow H9 (both of which were subject to relatively high bat activity during the survey work) are to be largely bordered by greenspace and as such will be largely separated from new lighting.

6.1.6 Light-spill onto other retained and newly created habitat across the site will also be minimised in accordance with good practice guidance[23] to reduce potential impacts on light-sensitive bats (and other nocturnal fauna). This may be achieved through the implementation of a sensitively designed lighting strategy, with consideration given to the following key factors:

- **Light exclusion zones –** ideally no lighting should be used in areas likely to be used by bats. Light exclusion zones or 'dark buffers' may be used to provide interconnected areas free of artificial illumination to allow bats to move around the site;
- **Appropriate luminaire specifications** – consideration should be given to the type of luminaires used, in particular luminaries should lack UV elements and metal halide and fluorescent sources should be avoided in preference for LED luminaries. A warm white spectrum (ideally <2,700K) should be adopted to reduce the blue light component;
- **Light barriers / screening –** new planting (e.g. hedgerows and trees) or fences, walls and buildings can be strategically positioned to reduce light spill;
- **Spacing and height of lighting units –** increasing spacing between lighting units will minimise the area illuminated and allow bats to fly in the dark refuges between lights. Reducing the height of lighting will also help decrease the volume of illuminated space and give bats a chance to fly over lighting units (providing the light does not spill above the vertical plane). Low level lighting options should be considered for any parking areas and pedestrian / cycle routes, e.g. bollard lighting, handrail lighting or LED footpath lighting;
- **Light intensity –** light intensity (i.e. lux levels) should be kept as low as possible to reduce the overall amount and spread of illumination;
- **Directionality –** to avoid light spill lighting should be directed only to where it is needed. Particular attention should be paid to avoid the upward spread of light so as to minimise trespass and sky glow;
- **Dimming and part-night lighting –** lighting control management systems can be used, which involves switching off/dimming lights for periods during the night, for example when human activity is generally low (e.g. 12.30 – 5.30am). The use of such control systems may be particularly beneficial during the active bat season (April to October). Motion sensors can also be used to limit the time lighting is operational.

<u>Reptiles</u>

6.1.7 **MM5 - Reptile Mitigation.** As set out above, the site was recorded to support low populations of the common reptile species Grass Snake and Slow-worm. Accordingly, mitigation measures will be required in order to safeguard the reptile populations present under the proposed development and avoid any potential offence. Suitable mitigation measures would likely be provided through an appropriate translocation exercise, whereby individual reptiles are relocated away from areas affected by development.

[23] Bat Conservation Trust and Institute of Lighting Professionals (2018) '*Guidance Note 08/18: Bats and artificial lighting in the UK*'; Stone, E.L. (2013) '*Bats and lighting: Overview of current evidence and mitigation guidance*.'; ILP (2011) '*Guidance notes for the reduction of obtrusive light*' Institution of Lighting Professionals, GN01:2011.

6.1.8 The proposals incorporate substantial retained and new ecological habitats, such that considerable potential exists for the incorporation of suitable new/enhanced opportunities suitable to continue to support the reptile populations in the long term. Subject to suitable programming, appropriate habitat provision/enhancement measures would therefore likely be available in the long term under the proposals in order to continue to accommodate the reptile populations within the site. Such areas should incorporate new wildflower grassland areas, along with additional features such as hibernacula, varied topography and features such as log and rock piles specifically designed for the benefit of reptiles (and likely linking with offsite habitats). The provision of such mitigation would be required in order to ensure that legislative requirements in respect of this protected species group are addressed, whilst further confidence in the precise details of any mitigation scheme/translocation exercise could be suitably ensured through the use of an appropriately worded planning condition or obligation, albeit the precise details would likely need to be determined at the detailed design stage, in particular to reflect proposed development programme and timescales once these are available.

Hedgehogs

6.1.9 **MM6 – Hedgehog Safeguards.** In order to safeguard Hedgehogs and other small mammals should they enter the site during construction works, the following measures will be implemented:

- A watching brief should be maintained for Hedgehog and other small mammals throughout any clearance works;
- Any piles of material already present on site, particularly vegetation/leaves, etc. and any areas of dense scrub or hedgerows, shall be dismantled/removed by hand and checked for Hedgehog prior to the use of any machinery/disposal;
- Any material to be disposed of by burning, particularly waste from vegetation clearance and tree works, should not be left piled on site for more than 24 hours in order to minimise the risk of Hedgehogs occupying the pile. If this cannot be avoided, material should be stored within a container such as a skip to prevent animals from gaining access. Any material which has been stored on the ground overnight should be moved prior to burning to allow a thorough check for any animals which may have been occupying the pile;
- In the event that an injured Hedgehog is found, the animal should be wrapped carefully in a towel, the British Hedgehog Preservation Society (BHPS) phoned (01584 890 801) and the Hedgehog taken to a local vet immediately;
- To maintain connectivity throughout the site for Hedgehog and to allow access to suitable foraging habitat contained within residential gardens, small holes (13cmx13cm) should be created within garden fences or under gates.

Nesting Birds

6.1.10 **MM7 – Timing of Works.** To avoid a potential offence under the relevant legislation, no clearance of suitable vegetation or structures 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.

Invasive Species

6.1.11 **MM8 – Invasive Species Safeguards.** During the course of the survey work undertaken, the presence of Montbretia, Virginia-creeper and Cotoneaster species was recorded within the existing amenity garden areas at the site. Montbretia, Virginia Creeper and a number of Cotoneaster species are listed on Schedule 9 Part II of the Wildlife and Countryside Act 1981, making it an offence to cause these species to grow in the wild. As such, all relevant precautions should be taken when carrying out actions that could potentially spread these plants. The government has set out guidance on what can be considered 'causing to grow in the wild' within a response to the Schedule 9 review which states:

"We would expect that where plants listed in Schedule 9 are grown in private gardens, amenity areas etc., reasonable measures will be taken to confine them to the cultivated area so as to prevent their spreading to the wider environment and beyond the landowner's control. It is our view that any failure to do so, which in turn results in the plant spreading to the wild, could be considered as 'causing to grow in the wild' and as such would constitute an offence…Additionally, negligent or reckless behaviour such as inappropriate disposal of garden waste, where this results in Schedule 9 species becoming established in the wild would also constitute an offence."

6.1.12 As such, it is recommended that appropriate safeguards be put in place to prevent the spread of the above species during the proposed development works. In practice, it remains acceptable for such species to be included within ornamental planted areas, for instance in residential gardens, whilst the existing amenity garden areas will remain unaffected under the current scheme. Nonetheless, suitable site management procedures to prevent any inadvertent spread (particularly should they spread to other areas of the site in the future) would appear to be appropriate, including in particular suitable disposal of removed vegetative material either through retention and composting on-site or removal to known approved waste facilities.

6.2 Biodiversity Net Gains

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. Through implementation of the following ecological enhancements (**EE1** to **EE7**), the opportunity exists for the proposals to deliver a number of biodiversity net gains at the site.

Habitat Creation

6.2.2 **EE1 – New Planting.** The proposed development offers substantial opportunity for new planting, such as within the nature conservation area. It is recommended that where practicable, new planting within the site be comprised of native species of local provenance, including trees and shrubs appropriate to the local area. Suitable species for inclusion within the planting could include native trees such as Oak, Ash, 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 and Elder. Where non-native species are proposed, these should include species of value to wildlife, such as varieties listed on the

RHS' 'Plants for Pollinators' database, providing a nectar source for bees and other pollinating insects.

6.2.3 **EE2 – Community Orchard**. The proposals include the retention and enhancement of the existing orchard areas, including provision of suitable management and new planting, of benefit to wildlife and contributing to the aims of Oxfordshire and National BAPs in regard to Traditional Orchard habitat.

6.2.4 **EE3 – Wildflower Grassland.** New areas of wildflower grassland will be created within the site, in order to maximise opportunities for biodiversity under the proposals. Consideration should be given to the laying of wildflower turfs, comprising locally appropriate native species, to establish wildflower grassland. This would ensure rapid establishment of these habitats, and reduce the timeframe for delivering the range of ecological benefits that are proposed.

6.2.5 **EE4 – Wetland Features.** The proposals include a new drainage features in the south of the site, while the opportunity also exists under the proposals to create other attenuation features such as ponds. Creation of such habitats would provide opportunities for a range of wildlife while also helping to attenuate surface water run-off.

Bats

6.2.6 **EE5 - Bat Boxes.** A number of bat boxes will 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. A proportion of the bat boxes should be situated on suitable retained trees, erected as high up as possible and sited in sheltered wind-free areas that are exposed to the sun for part of the day, facing a south-east, south or south-westerly direction. 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, post-planning once the relevant final development design details have been approved.

Birds

6.2.7 **EE6 – Bird Boxes**. A number of bird nesting boxes will be provided under the proposals. A proportion of these should be sited on suitable, retained trees, situated as high up as possible. In addition, bird boxes should be incorporated within the design of the new buildings, in order to offer nesting opportunities for declining species such as House Sparrow (Priority Species) and Swift *Apus apus* (Amber Listed species). The precise number and locations of boxes should be determined by a competent ecologist, post-planning once the relevant final development design details have been approved.

Invertebrates

6.2.8 **EE7 – Habitat Piles.** A proportion of any deadwood arising from vegetation clearance works should be retained within the site in a number of wood piles located within areas of retained habitats/new planting in order to provide potential habitat opportunities for invertebrate species, 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 Biodiversity Net Gain Assessment (BNGA)

7.1 Defra Biodiversity Metric

7.1.1 To quantify the level of biodiversity net gain that can be delivered under the proposed development, the proposals have been considered in accordance with the Defra Biodiversity Metric 3.0 calculation tool and associated user guide[24]. This takes account of the size, distinctiveness and ecological condition of existing and proposed habitat areas to provide a proxy measure of the present and forecast biodiversity value of a site, and therefore determine the overall change in biodiversity value.

7.1.2 Relevant outputs from the completed spreadsheet tool and associated target notes are provided at Appendix 5176/5 (a completed copy of the metric calculator tool in MS Excel (.xlsx) format can be provided on request, if required).

7.1.3 Broad habitat areas have been identified based on the survey work undertaken at the site, as described above. Habitat conditions and connectivity scores have then been assigned based on the guidance set out in the Technical Supplement[25], other appropriate guidance and professional judgement.

7.1.4 The post development information used to inform the DEFRA 3.0 Biodiversity Metric Calculation Tool are based on the latest proposed drawings (see Appendix 5176/1). Specific considerations and assumptions in regard to individual habitats are noted against the relevant input line within the comments where appropriate.

7.2 Biodiversity Net Gain Assessment

Habitat Biodiversity Impact Calculations

7.2.1 As set out above, the majority of the proposed development areas are dominated by arable areas, whilst other habitats within the site include woodland, scrub, grassland, ponds and orchard, along with a number of hedgerows.

7.2.2 The proposals are for new residential development, access, landscaping and associated works, with associated open space (see Appendix 5176/1).

7.2.3 On the basis of the considerations and proposals set out (including the assumptions and limitations set out above and within the comments in the spreadsheet tool, along with the condition assessment summarised at Appendix 5176/5), the DEFRA 3.0 Metric calculator indicates a net habitat biodiversity unit change for the proposals within the site boundary of approximately *+6.94* Habitat Units representing a gain of *13.31%* within the site boundary.

7.2.4 Accordingly, based on the results of the BNGA using the current Defra (3.0) metric calculator, no further offsetting or offsite provision is considered necessary in regard to the current proposals, indeed it is clear that the proposals will result in a net gain in habitat biodiversity units at the site as calculated using the Defra metric.

[24] Natural England (July 2021) *Natural England Joint Publication JP039. Biodiversity Metric 3.0: auditing and accounting for biodiversity – User Guide.*
[25] Natural England (July 2021) *Natural England Joint Publication JP039. The Biodiversity Metric 3.0: auditing and accounting for biodiversity – Technical Supplement*

Hedgerow Impact Assessment

7.2.5 The proposals incorporate the retention of the majority of the existing hedgerows (with the only exceptions being sections of hedgerows H1, H5 and H8 required to facilitate access into the site and between individual fields within the site), whilst the opportunity exists for new native hedgerows to be incorporated into the proposed development, representing considerable enhancement measures in this regard. In particular, on the basis of the assumptions set out, the DEFRA 3.0 Metric calculator indicates the provision of approximately 240m new native species-rich hedgerows with trees (managed to provide moderate condition) would result in an anticipated net change of at least *+1.54* hedgerow units, representing a calculated net gain of 10.67% hedgerow units.

Overall BIA Consideration

7.2.6 Overall, on the basis of the above considerations and proposed landscape information prepared in respect of the proposed development at the site, the results of the consideration with the Defra Biodiversity Metric 3.0 are summarised below at Table 7.1, below, whilst copies of the relevant sections of the completed BIA tool are provided at Appendix 5176/5.

Table 7.1. *Summary results of consideration using Defra Biodiversity Metric 3.0 based on the current proposals (see Appendices 5176/1 and 5176/5)*

Unit type	***Existing baseline 'value'***	***Calculated 'value' under the proposals***	**Identified net unit change**	**Identified net % change**
Habitat units	*52.13 units*	*59.07 units*	*+6.94 units*	*+13.31%*
Hedgerow units *(based on provision of at least 240m new native hedgerows with trees)*	*14.40 units*	*15.94 units*	*+1.54 units*	*+10.67%*
River units	*N/A – No Rivers or Streams present/affected*			

7.2.7 A number of faunal enhancements are proposed under the scheme, which are anticipated to provide additional gains for biodiversity. These faunal enhancements include the provision of bat and bird boxes, as set out above. However, it is not possible to quantify faunal enhancements with the DEFRA 3.0 Biodiversity Impact Assessment Calculator and these are therefore additional to the calculated Net Gain figure using the tool.

7.2.8 On this basis (and subject to the successful implementation of the proposed measures and long term suitable management), the proposals represent the opportunity to provide substantial calculated net gains in biodiversity (in line with the 10% figure identified within emerging policy and legislative requirements).

8 Conclusions

8.1 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 a number of detailed protected species surveys.

8.2 The available information confirms that no statutory or non-statutory nature conservation designations are present within or adjacent to the site, and none of the designations within the surrounding area are likely to be adversely affected by the proposals.

8.3 The Phase 1 habitat survey has established that the site is dominated by habitats not considered to be of ecological importance, whilst the proposals have sought to retain those features identified to be of value. Where it has not been practicable to avoid loss of habitats, new habitat creation has been proposed to offset losses, in conjunction with the landscape proposals.

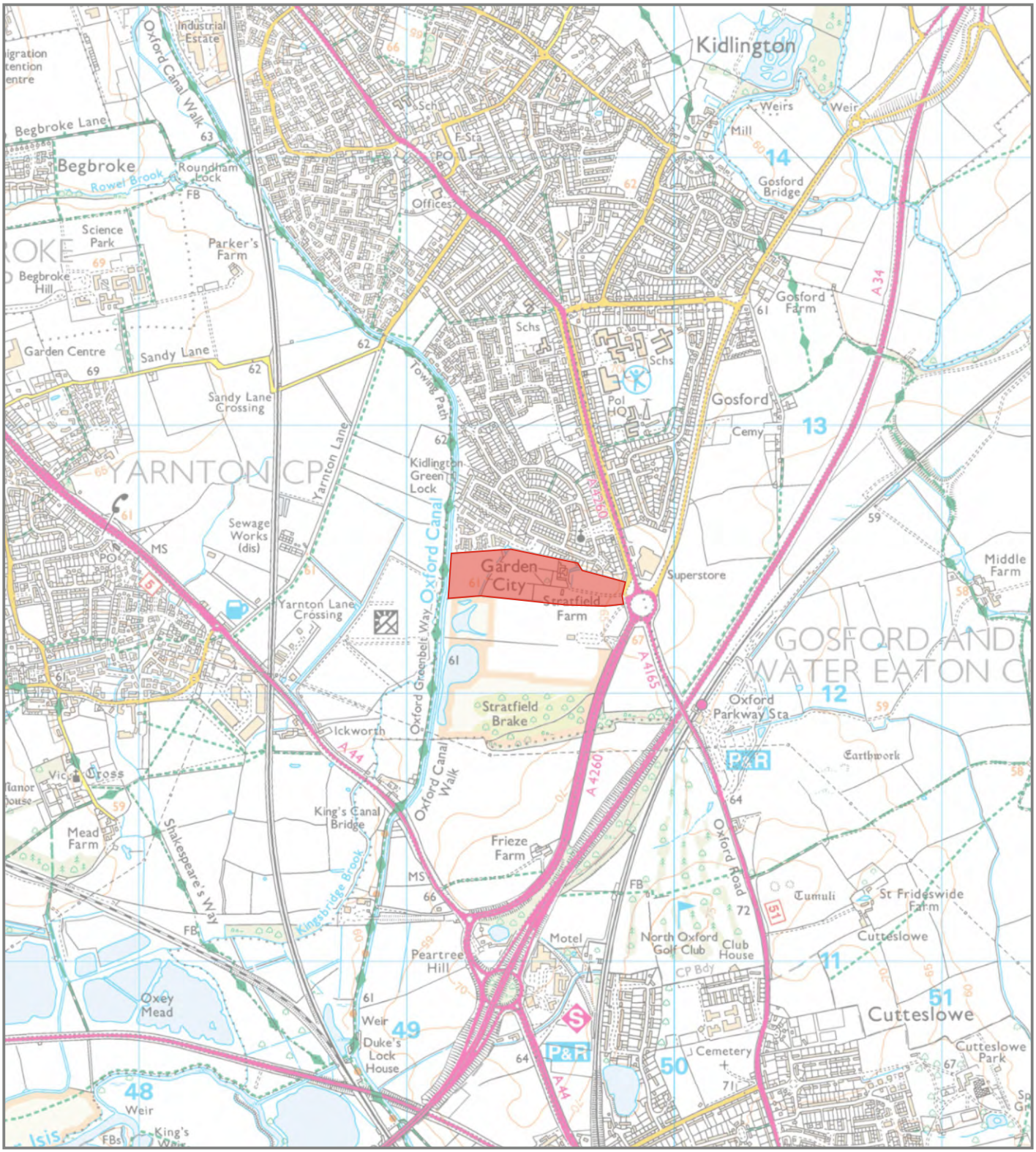
8.4 The habitats within the site support several protected species, including species protected under both national and European legislation. Accordingly, a number of mitigation measures have been proposed to minimise the risk of harm to protected species, with compensatory measures proposed, where appropriate, in order to maintain the conservation status of local populations.

8.5 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 net gains as part of the proposals.

Plans

Plan 5176/ECO1:

Site Location



Key:

Site Location

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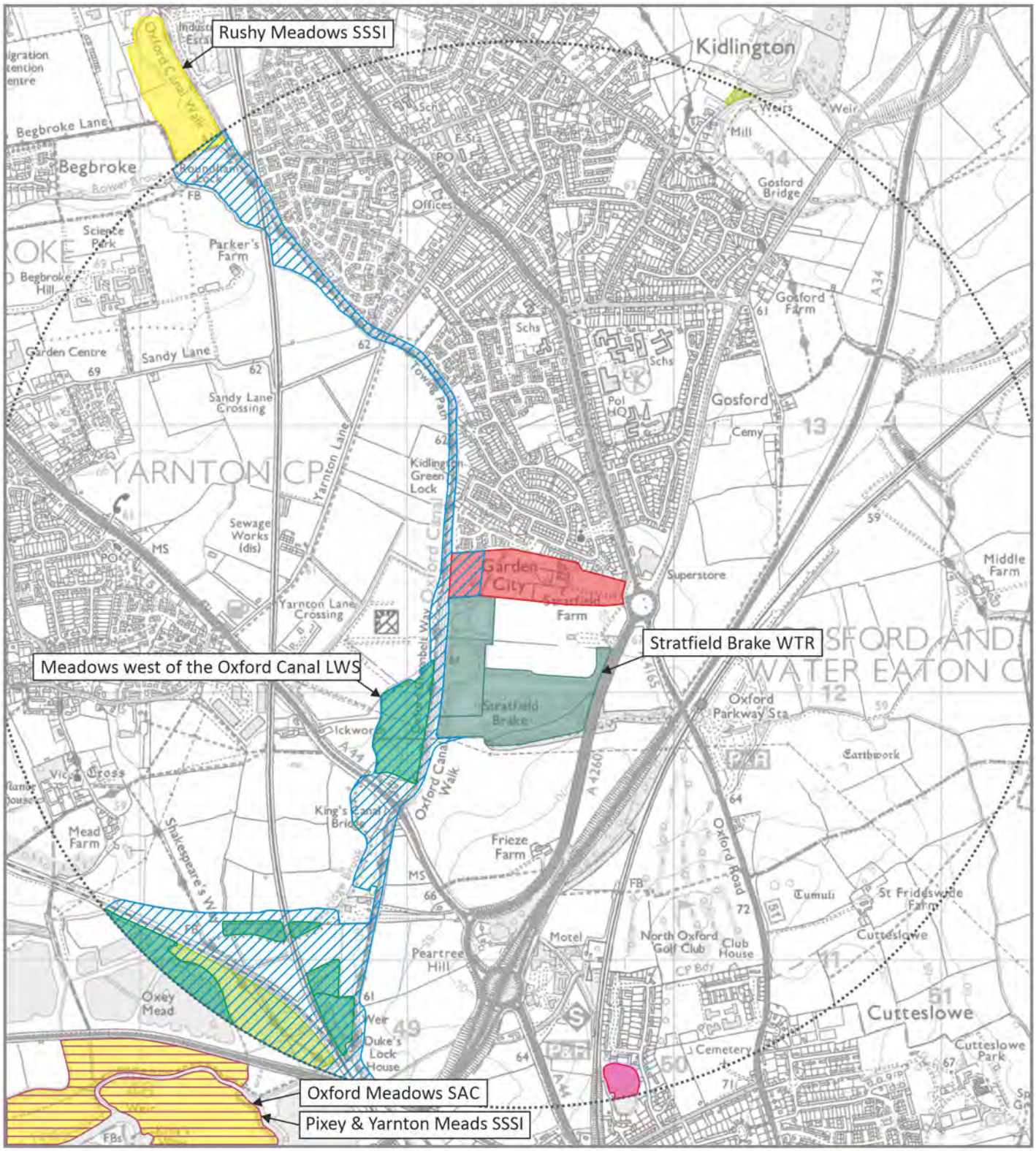
Stratfield Farm, Kidlington	PROJECT
Site Location	TITLE
5176/ECO1	DRAWING NO.
-	REV.
July 2020	DATE

Plan 5176/ECO2:

Ecological Designations



Key:

- Site Location
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)
- Proposed Local Wildlife Site (pLWS)
- Woodland Trust Reserve (WTR)
- Conservation Target Area (CTA)
- Site of Local Importance to Nature Conservation (SLINC)

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Stratfield Farm, Kidlington — PROJECT

Ecological Designations — TITLE

5176/ECO2 — DRAWING NO.

\- — REV.

July 2020 — DATE

Plan 5176/ECO3:

Habitats and Ecological Features

Key:

- Site Boundary
- Hardstanding
- Building/Structure
- Pond
- Woodland
- Orchard
- Scrub
- Improved Grassland
- Other Neutral Grassland
- Residential Garden
- Tall Ruderal Vegetation
- Arable
- Arable Field Margin
- Ditch
- Hedgerow
- Tree
- Tree with Identified Bat Roosting Potential
- Scattered Scrub
- Parthenocissus
- Montbretia

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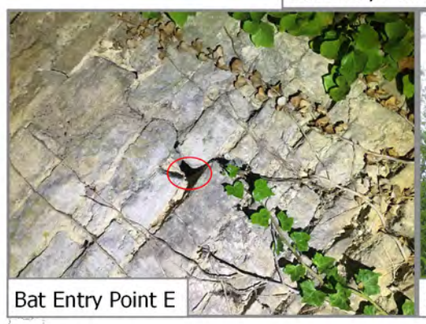
Stratfield Farm, Kidlington	PROJECT
Habitats and Ecological Features	TITLE
5176/ECO3	DRAWING NO.
D/JP	REV
March 2022	DATE

Plan 5176/ECO4:

Bat Survey Plan

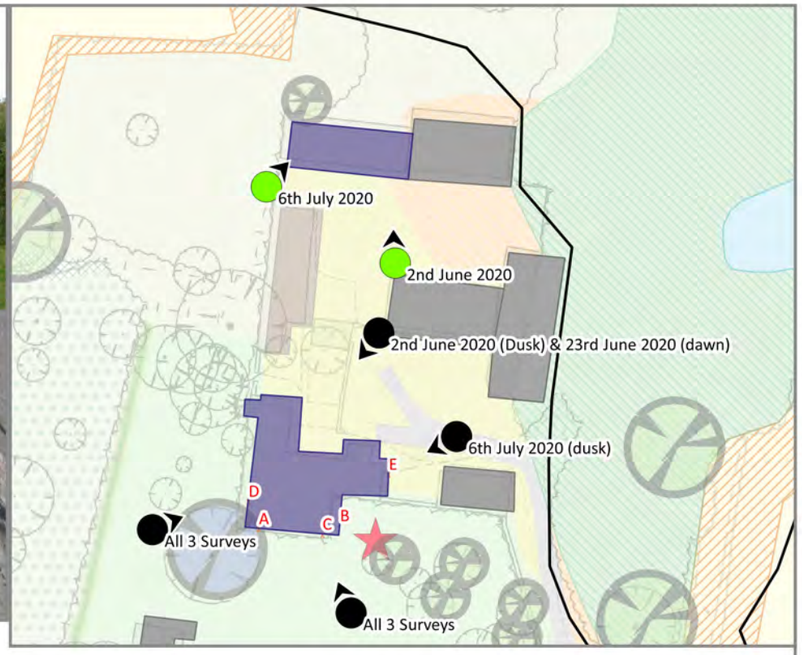

Bat Entry Point B


Bat Entry Point A


Bat Entry Point E


Bat Entry Point D


Bat Entry Point C



Key:

- Site Boundary
- Building with Potential to Support Roosting Bats
- Static Bat Detector Location
- Stop Location
- Transect Route
- IR Camera
- Surveyor

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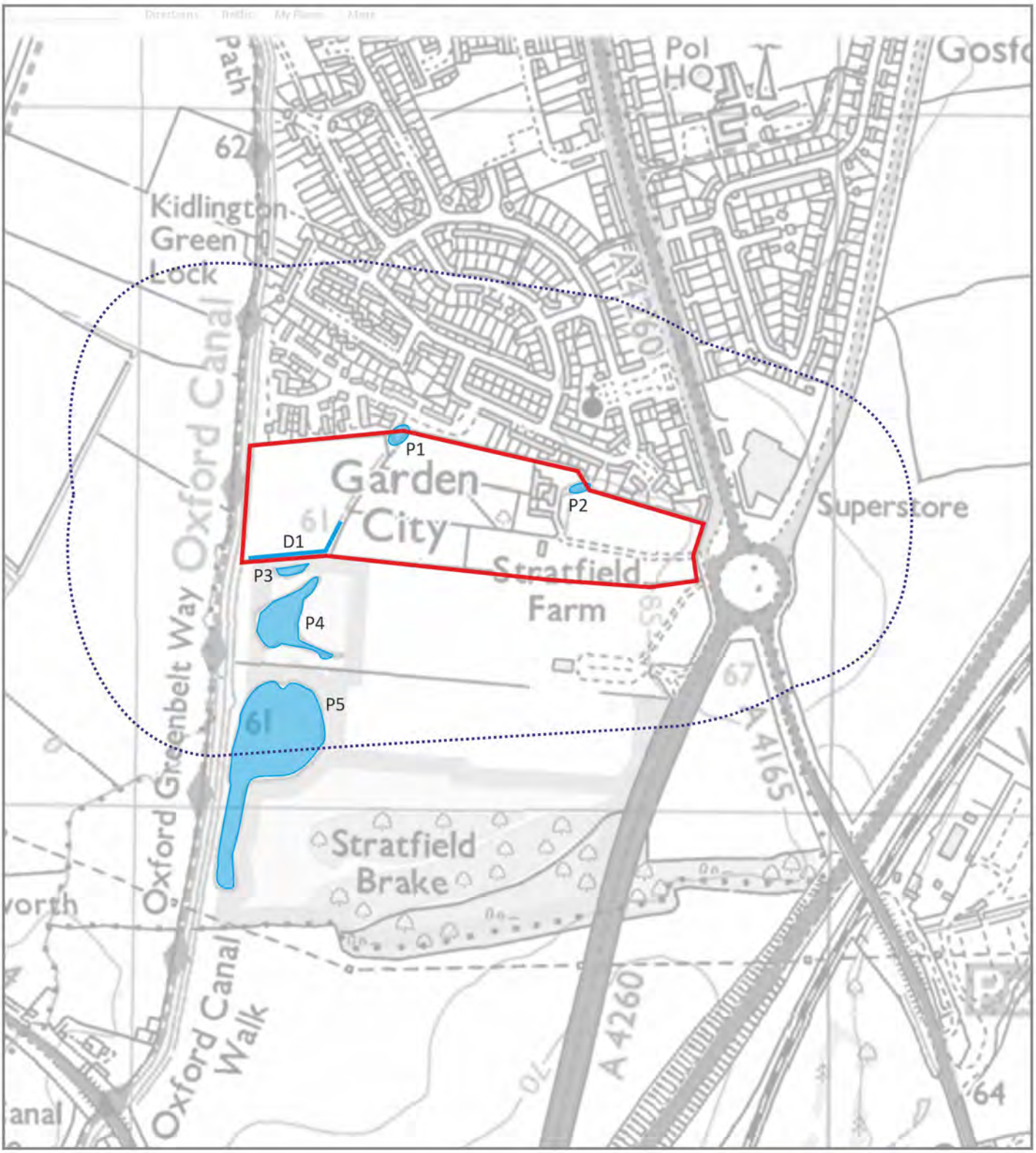
01295 279721 · info@aspect ecology.com · www.aspect ecology.com

Stratfield Farm, Kidlington	PROJECT
Bat Survey Plan	TITLE
5716/ECO4	DRAWING NO.
A/BG	REV
October 2021	DATE

Plan 5176/ECO5:

GCN Pond Plan



Key:

- Site Boundary
- Location of waterbody
- Indicative 250m zone around site

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Stratfield Farm, Kidlington	PROJECT
GCN Pond Plan	TITLE
5176/ECO5	DRAWING NO.
B/JP	REV.
April 2022	DATE

Plan 5176/ECO6:

Reptile Transect Plan

Reptile Survey Results

Visit No.	Date	Transect Ref.											
		A	B	C	D	E	F	G	H	I	J	K-N	O	P
1	14/04/2020			1 GS						1 SW	1 SW		1 GS	
2	20/04/2020			2 GS							1 GS			
3	27/04/2020						1 SW				3 GS			
4	05/05/2020			1 GS, 1 GS (J)						1 GS	1 GS			
5	11/05/2020			3 GS, 1 GS (J)	1 GS (J)						1 GS			
6	15/05/2020			4 GS						1 GS				
7	02/06/2020													

GS = Grass Snake, SW = Slow Worm, J = Juvenile

Key:

- Site Boundary
- Reptile Mat Location
- Indicative Extent of Habitats Providing Greatest Opportunities for Reptiles

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Stratfield Farm, Kidlington	PROJECT
Reptile Transect Plan	TITLE
5716/ECO6	DRAWING NO.
A/BG	REV
October 2021	DATE

Appendices

Appendix 5176/1:

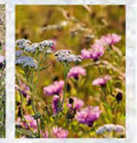
Proposed Landscape Plan

Internal Street Trees
Tillia rancho
Ulmus new horizon
Acer campestre 'Streetwise'
Tillia tomentosa Brabant
Carpinus betulus 'Lucas'
Corylus colurna
Malus trilobata
Malus tschonoskii
Pyrus calleryana Chanticleer

Open Space Trees
Quercus robur
Tillia cordata
Tillia x euchlora
Fagus slvatica
Corpinus betula
Sorbus acucuparia
Sorbus aria 'Whitebeam'
Corylus avallana 'Hazel'
Acer campestre
Turkey oak
Pine sylvestris

Native Shrub Planting
Cornus sanguinea
Corylus avellana
Ligustrum vulgare
Prunus spinosa
Rhamnus cathartica
viburnum lanata
Viburnum opulus
Acer campestre
Alnus glutinosa
Betula pendula
Prunus avium

Species Rich Wildflower
Emorsgate EM2,
General Purpose Meadow Mix,
EH1 Hedgerow Mix &
EM10 Tussock Mix



Garden Trees
Malus hupehensis
Magnolia
Carpinus betula fastigiata
Sorbus 'golden wonder'

Proposed Hoggin footpath and cycle route through new species-rich wildflower and wet grassland areas provided for ecological benefits.

Established Category B tree belt which bisects the site identified as being of moderate amenity value.

Opportunities to retain and enhance areas of Traditional Orchard within the centre of the site.

Pocket of Category B, predominantly self set trees identified as being of moderate amenity value.

Street trees to provide vertical interest to the scheme with an emphasis on seasonal colour. Planting of these in strategic locations serve to enhance the street scene.

New native planting to the rear of the properties provides reinforcement to the northern boundary.

Internal ornamental trees, hedges and shrub planting is included to create a high quality landscape setting for the new properties, this will offer wildlife interest to the area.

Attenuation basin provides opportunities for extensive new species-rich wildflower and wet grassland areas that will provide localised biodiversity enhancements.

Area of public open space within the southern portion of the site to incorporate a mosaic of habitats and native planting.

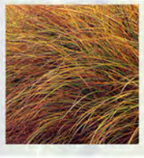
Proposed location of LEAP

Modern Orchard

Retention and enhancement of the southern site boundary, assisting to integrate the site and existing settlement edge of Kidlington into the recieving landscape fabric.

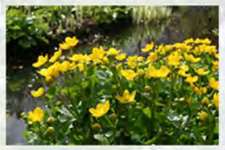
Attenuation planting and wetland meadow
Emorsgate Wet Grass Mix EM8, Cornus sanguinea, Coppiced willow (Salix alba), Alder, Silver Birch, Osier.

Ornamental Shrubs
Azalea 'Pleasant White', Cistus corbariensis, Cornus sanguinea, Euonymus fortunei 'Silver Queen', Fatsia japonica, Hebe 'Nicola's Blush', Hebe rakaiensis, Viburnum davidii



Native Hedge Planting
Acer campestre, Crataegus monogyna, Ilex aquifolium, Corylus avellana, Ligustrum vulgare, Prunus spinosa, Viburnum lanata, Viburnum opulus

Marginal Planting Mix
Caltha palustris
Filipendula ulmaria
Iris pseudacorus
Juncus effusus
Potentilla palustris
Sagittaria sagittifolia



Ornamental Hedge Planting:

NOTES:
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Licence 100045345

0m 20m 40m 100m

Key:

- Site Boundary
- Oxford Greenbelt Way
- Existing/Retained Vegetation
- Proposed Open Space Tree Planting
- Proposed Street Tree Planting
- Proposed Garden Tree Planting
- Proposed Feature Tree Planting
- Proposed Native Hedge Planting
- Proposed Native Shrub Planting
- Proposed Ornamental Hedge Planting
- Proposed Ornamental Shrub Planting
- Attenuation Basin
- Marginal Planting
- Attenuation Wet Grass Mix
- Proposed Species Rich Wildflower Grass Mix
- Mown Grass Footpath
- Hoggin Footpath
- Proposed Tarmac Road & Path
- Proposed Residential Parking

REV	DATE	NOTE	DRAWN	CHK'D

REVISIONS

aspect landscape planning

TITLE
Stratfield Farm, Kidlington
Landscape Masterplan

CLIENT
Manor Oak Homes

SCALE	DATE	DRAWN	CHK'D
1:2500 @ A3	MAR 2022	BS	BW

DRAWING NUMBER
6078/ ASP3

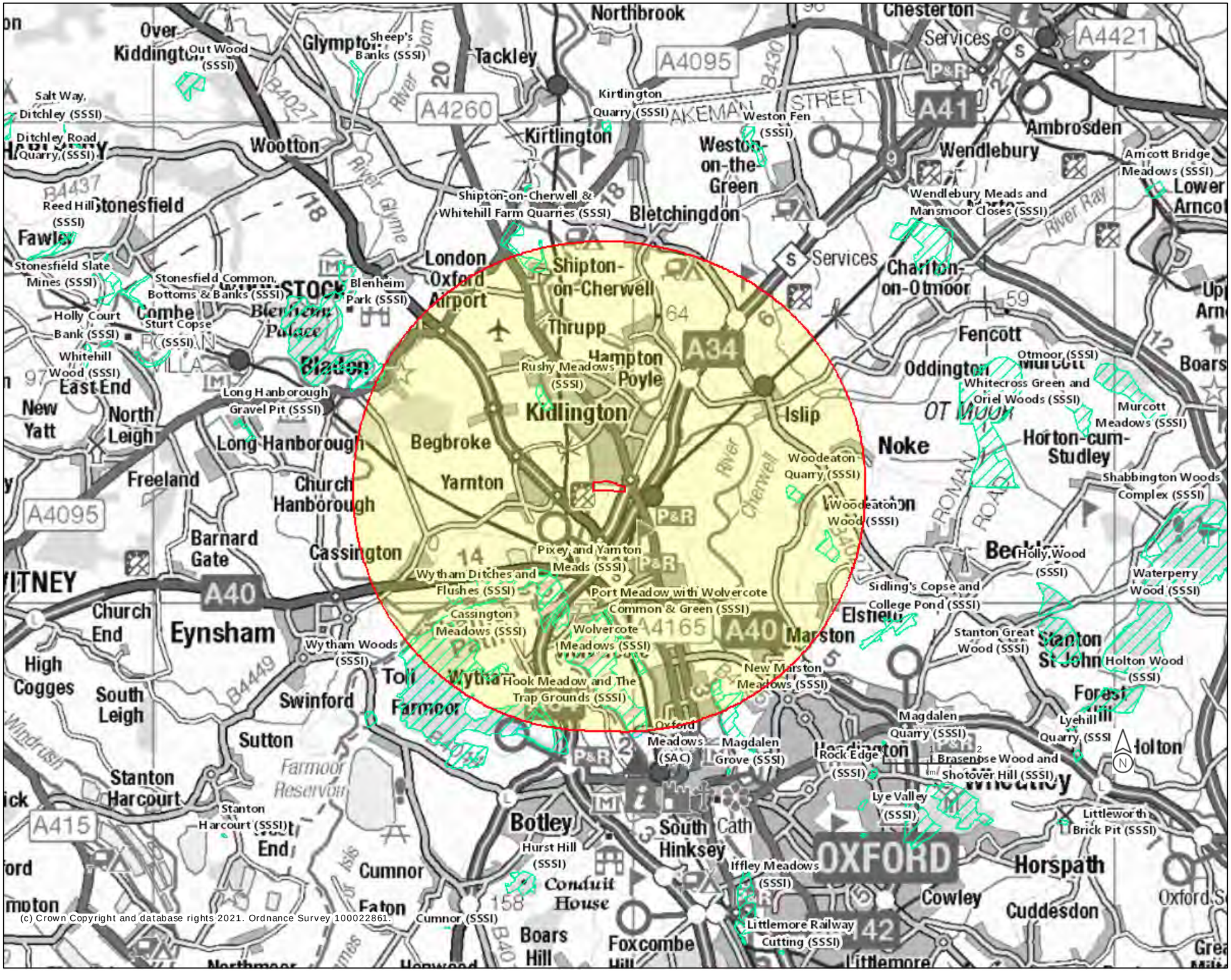
REVISION

Appendix 5176/2:

Desktop Study Data

MAGiC

Statutory Designations Within 5km



Legend

- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)

Projection = OSGB36
xmin = 429500
ymin = 202200
xmax = 469800
ymax = 222700

0 1.5 3
km

Map produced by MAGIC on 31 August, 2021.

Site Check Report Report generated on Tue Aug 31 2021
You selected the location: Centroid Grid Ref: SP49481243
The following features have been found in your search area:

Sites of Special Scientific Interest (England)

Name	Woodeaton Wood SSSI
Reference	1006198
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	14.03
Citation	1001261
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001261

Name	Blenheim Park SSSI
Reference	1000732
Natural England Contact	SAM MERRELL
Natural England Phone Number	0845 600 3078
Hectares	224.26
Citation	1001566
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001566

Name	Wytham Ditches and Flushes SSSI
Reference	1000913
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	2.74
Citation	1004058
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1004058

Name	Shipton-on-Cherwell & Whitehill Farm Quarries SSSI
Reference	1000433
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	26.97
Citation	1000312
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000312

Name	Rushy Meadows SSSI
Reference	1000951
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	8.93
Citation	1001685
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001685

Name	Wolvercote Meadows SSSI
Reference	1000952
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	7.06
Citation	1001707
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001707

Name	Wytham Woods SSSI
Reference	1000812
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	423.83
Citation	1001309
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001309

Name	Cassington Meadows SSSI
Reference	1000771
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	6.89
Citation	1006658
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1006658

Name	Hook Meadow and The Trap Grounds SSSI
Reference	1000569
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	11.85

Citation	1002183
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1002183

Name	New Marston Meadows SSSI
Reference	1000756
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	44.7
Citation	1006612
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1006612

Name	Pixey and Yarnton Meads SSSI
Reference	1000777
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	86.38
Citation	1000131
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000131

Name	Port Meadow with Wolvercote Common & Green SSSI
Reference	1000778
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	167.14
Citation	1000153
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1000153

Name	Woodeaton Quarry SSSI
Reference	1000810
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	7.3
Citation	1001234
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001234

Special Areas of Conservation (England)

Name	OXFORD MEADOWS
Reference	UK0012845
Hectares	265.31
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0012845

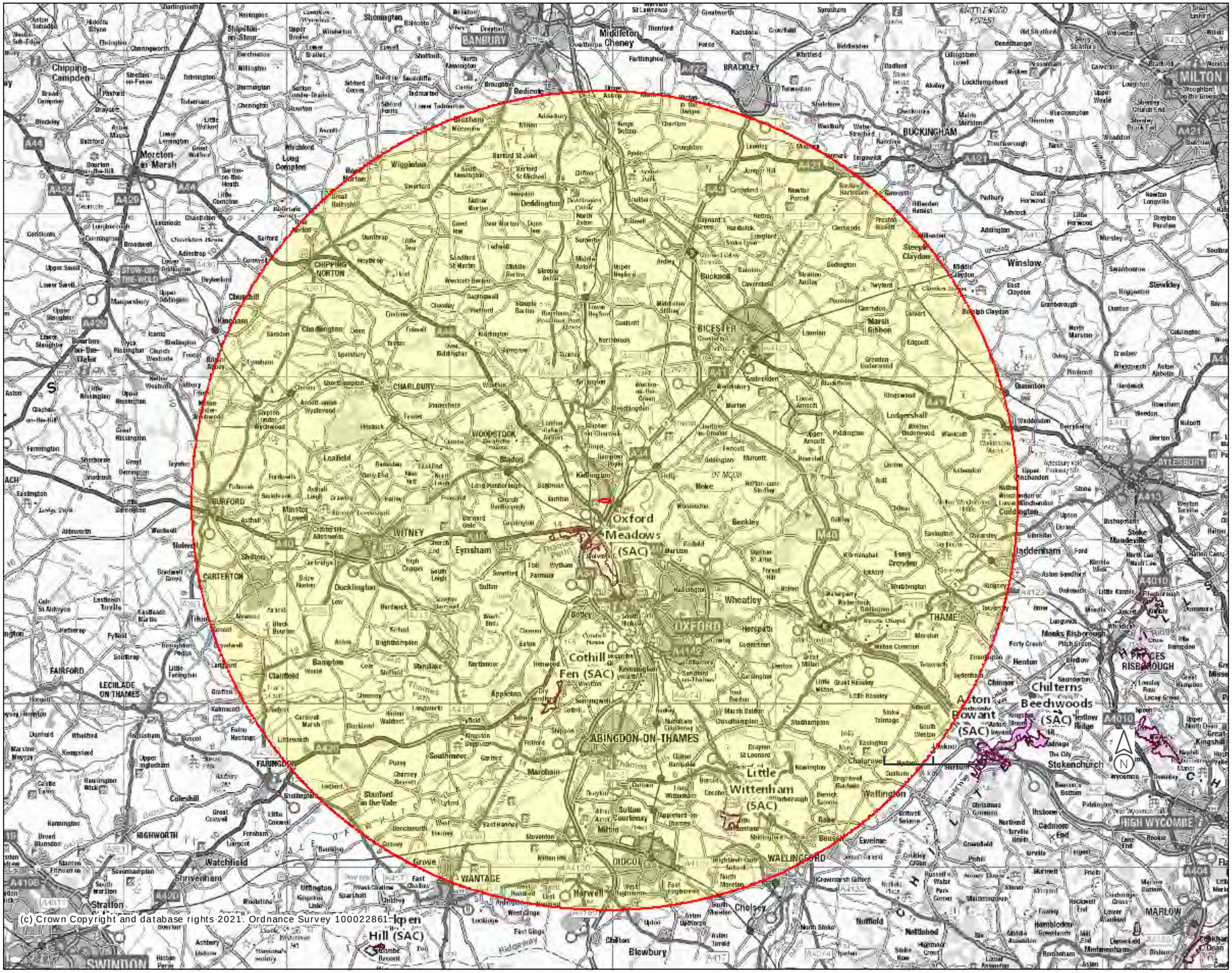
Site Check Report Report generated on Tue Aug 31 2021
You selected the location: Centroid Grid Ref: SP49481242
The following features have been found in your search area:

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?	2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:
All Planning Applications	
Infrastructure	Airports, helipads and other aviation proposals.
Wind & Solar Energy	
Minerals, Oil & Gas	Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
Rural Non Residential	
Residential	
Rural Residential	
Air Pollution	Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t).
Combustion	General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste	
Composting	
Discharges	Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.
Water Supply	
Notes 1	
Notes 2	
GUIDANCE - How to use the Impact Risk Zones	/Metadata_for_magic/SSSI IRZ User Guidance MAGIC.pdf

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?	2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:
All Planning Applications	
Infrastructure	Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.
Wind & Solar Energy	
Minerals, Oil & Gas	Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
Rural Non Residential	
Residential	
Rural Residential	
Air Pollution	Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t).
Combustion	General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste	Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.
Composting	Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.
Discharges	Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.
Water Supply	Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.
Notes 1	
Notes 2	
GUIDANCE - How to use the Impact Risk Zones	/Metadata_for_magic/SSSI IRZ User Guidance MAGIC.pdf

International Designations Within 25km



Legend

- Special Areas of Conservation (England)

Projection = OSGB36
xmin = 390800
ymin = 184800
xmax = 509600
ymax = 241800

0 4.5 9 km

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Site Check Report Report generated on Tue Aug 31 2021
You selected the location: Centroid Grid Ref: SP49491243
The following features have been found in your search area:

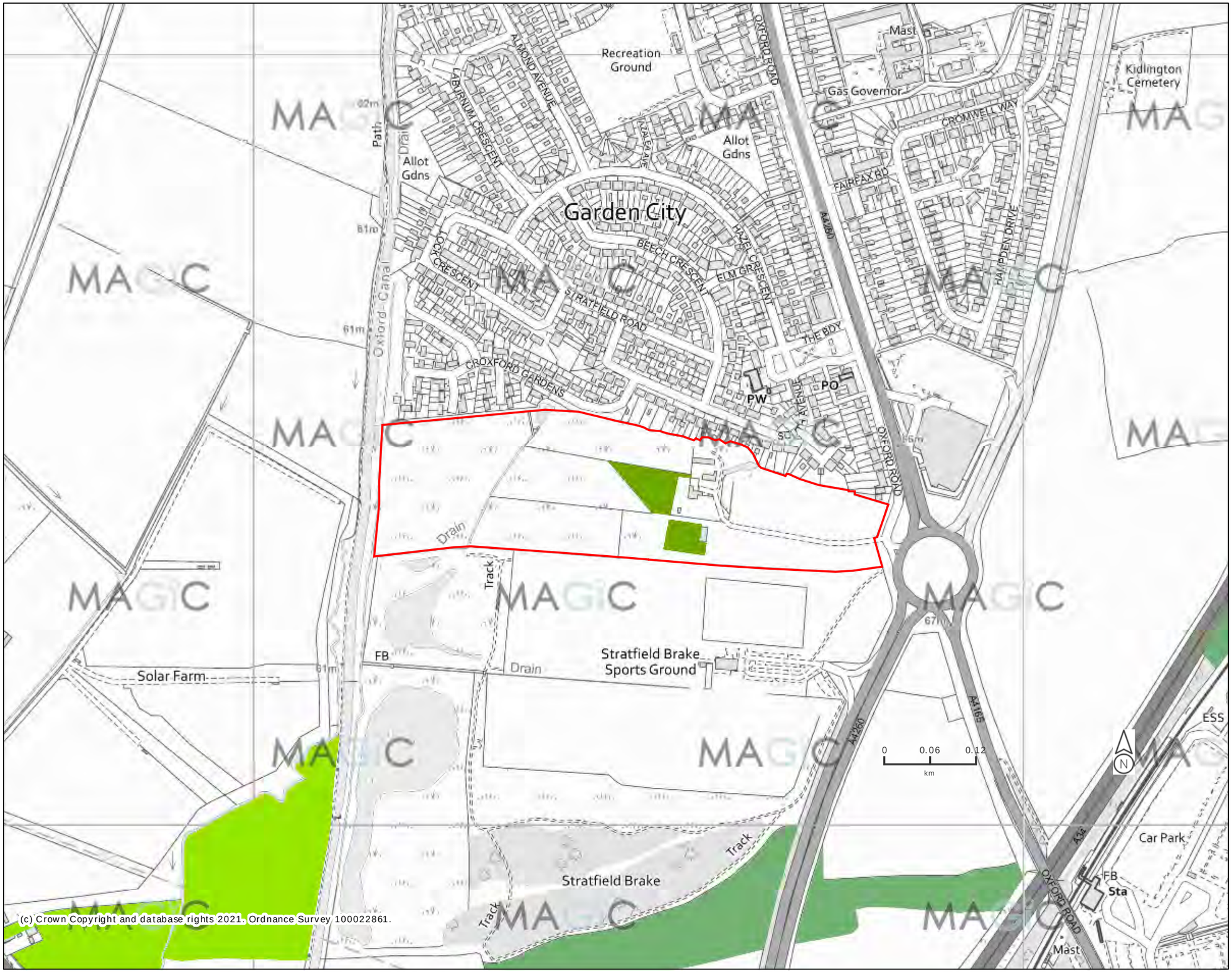
Special Areas of Conservation (England)

Name	LITTLE WITTENHAM
Reference	UK0030184
Hectares	68.92
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0030184

Name	OXFORD MEADOWS
Reference	UK0012845
Hectares	265.31
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0012845

Name	COTHILL FEN
Reference	UK0012889
Hectares	43.26
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?eucode=UK0012889

On Site / Nearby Priority Habitats



Legend

- Priority Habitat Inventory - Lowland Meadows (England)
- Priority Habitat Inventory - Deciduous Woodland (England)
- Priority Habitat Inventory - Traditional Orchards (England)

Projection = OSGB36
xmin = 448200
ymin = 211800
xmax = 450700
ymax = 213100

0 0.095 0.19
km

Map produced by MAGIC on 14 September, 2021.
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Appendix 5176/3:

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.

<u>Assigning Level of Importance</u>

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 5176/4:

Legislation Summary

LEGISLATION SUMMARY

1. In England and Wales primary legislation is made by the UK Parliament, and in Scotland by the Scottish Parliament, in the form of Acts. The main piece of legislation relating to nature conservation in the UK is the Wildlife and Countryside Act 1981 (as amended).

2. Acts of Parliament confer powers on Ministers to make more detailed orders, rules or regulations by means of secondary legislation in the form of statutory instruments. Statutory instruments are used to provide the necessary detail that would be too complex to include in an Act itself[1]. The provisions of an Act of Parliament can also be enforced, amended or updated by secondary legislation.

3. In summary, the key pieces of legislation relating to nature conservation in the UK are:

    - Wildlife and Countryside Act 1981 (as amended)
    - Protection of Badgers Act 1992
    - Hedgerows Regulations 1997
    - Countryside and Rights of Way (CRoW) Act for England and Wales 2000
    - Natural Environment and Rural Communities Act 2006
    - Conservation of Habitats and Species Regulations 2017

4. A brief summary of the relevant legislation is provided below. The original Acts and instruments should be referred to for the full and most up to date text of the legislation.

5. **Wildlife and Countryside Act 1981 (as amended)**. The WCA Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) identified for their flora, fauna, geological or physiographical features. The Act contains strict measures for the protection and management of SSSIs.

6. The Act also refers to the treatment of UK wildlife including protected species listed under Schedules 1 (birds), 5 (mammals, herpetofauna, fish, invertebrates) and 8 (plants).

7. Under Section 1(1) of the Act, all wild birds are protected such that is an offence to intentionally:

    - Kill, injure or take any wild bird;
    - Take, damage or destroy the nest of any wild bird whilst in use* or being built;
    - Take or destroy an egg of any wild bird.

    * The nests of birds that re-use their nests as listed under Schedule ZA1, e.g. Golden Eagle, are protected against taking, damage or destruction irrespective of whether they are in use or not.

8. Offences in respect of Schedule 1 birds are subject to special, i.e. higher, penalties. Schedule 1 birds also receive greater protection such that it is an offence to intentionally or recklessly:

    - Disturb any wild bird included in Schedule 1 while it is building a nest or while it is in, on or near a nest containing eggs or young;
    - Disturb dependent young of such a bird.

[1] http://www.parliament.uk/business/bills-and-legislation/secondary-legislation/statutory-instruments/

9. Under Section 9(1) of the Act, it is an offence to:

- Intentionally kill, injure or take any wild animal included in Schedule 5.

10. In addition, under Section 9(4) it is an offence to intentionally or recklessly:

- Obstruct access to, any structure or place which any wild animal included in Schedule 5 uses for shelter or protection; or
- Disturb any wild animal included in Schedule 5 while occupying a structure or place which it uses for that purpose.

11. Under Section 13(1) it is an offence:

- To intentionally pick, uproot or destroy any wild plant listed in Schedule 8; or
- Unless the authorised person, to intentionally uproot any wild plant not included in Schedule 8.

12. The Act also contains measures (S.14) for preventing the establishment of non-native species that may be detrimental to native wildlife, prohibiting the introduction into the wild of animals (releases or allows to escape) and plants (plants or causes to grow) listed under Schedule 9.

13. **Protection of Badgers Act 1992.** The Act 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 should be noted that the legislation is not intended to prevent properly authorised development. Under the Act it is an offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat* a Badger, or attempt to do so;
- To intentionally or recklessly interfere with a sett# (this includes disturbing Badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

* the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence

\# A sett is defined as "*any structure or place which displays signs indicating current use by a Badger*". Natural England advice (June 2009) is that a sett is protected so long as such signs remain present, which in practice could potentially be for some time after the last actual occupation by Badger. Interference with a sett includes blocking tunnels or damaging the sett in any way

14. Licences can be obtained from the Statutory Nature Conservation Organisation (SNCO) for development activities that would otherwise be unlawful under the legislation, provided there is suitable justification. The SNCO for England is Natural England.

15. **Hedgerows Regulations 1997**. 'Important' hedgerows (as defined by the Regulations) are protected from removal (up-rooting or otherwise destroying). Various criteria specified in the Regulations are employed to identify 'important' hedgerows for wildlife, landscape or historical reasons.

16. **Countryside and Rights of Way (CRoW) Act for England and Wales 2000.** The CRoW Act provides increased measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation. Schedule 12 of the Act amends the species provisions of the WCA 1981, strengthening the legal protection for threatened species. The Act also introduced a duty on Government to have regard to the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

17. **Natural Environment and Rural Communities Act 2006.** Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as local planning authorities, in implementing their duty under Section 40 of the Act, to have regard to the conservation of biodiversity in England, when exercising their normal functions. 56 habitats and 943 species of principal importance are included on the S41 list. These are all the habitats and species in England that were identified as requiring action in the UK Biodiversity Action Plan (BAP).

18. **Conservation of Habitats and Species Regulations 2017 (as amended).** The Regulations enact the European Union's Habitats Directive (92/43/EEC) in the UK. The Habitats Directive was designed to contribute to the maintenance of biodiversity within member states through the conservation of sites, known in the UK as Special Areas of Conservation (SACs), containing habitats and species selected as being of EC importance (as listed in Annexes I and II of the Habitats Directive respectively). Member states are required to take measures to maintain or restore these natural and semi-natural habitats and wild species at a favourable conservation status.

19. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs)[2] classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites constitute the Natura 2000 network. The Regulations impose restrictions on planning decisions likely to significantly affect SPAs or SACs.

20. The Regulations also provide protection to European Protected Species of animals that largely overlaps with the WCA 1981, albeit the provisions are generally stricter. Under Regulation 43 it is an offence, *inter alia*, to:

- Deliberately capture, injure or kill any wild animal of a European Protected Species;
- Deliberately disturb any wild animals of any such species, including in particular any disturbance likely to impair their ability to survive, to breed or reproduce, to rear or nurture their young, to hibernate or migrate, or which is likely to affect significantly their local distribution or abundance;
- Deliberately take or destroy the eggs of such an animal;
- Damage or destroy a breeding site or resting place of such an animal.

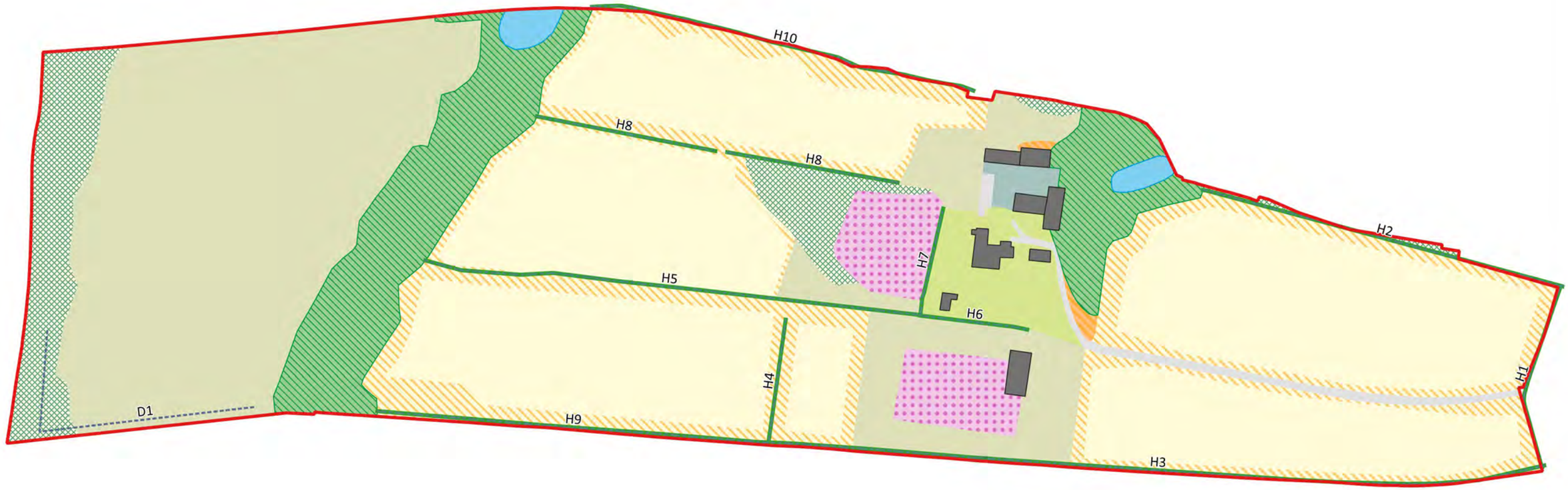
21. Similar protection is afforded to European Protected Species of plants, as detailed under Regulation 47.

22. The Regulations do provide a licensing system that permits otherwise illegal activities in relation to European Protected Species, subject to certain tests being fulfilled.

[2] Special Protection Areas (SPAs) are protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC) (aka the Birds Directive), which came into force in April 1979. SPAs are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

Appendix 5176/5:

Relevant output from the DEFRA 3.0 Metric Calculation Tool



Key:

- Site Boundary
- Hardstanding
- Building/Structure
- Pond
- Woodland
- Orchard
- Scrub
- Improved Grassland
- Other Neutral Grassland
- Residential Garden
- Tall Ruderal Vegetation
- Arable
- Arable Field Margin
- Ditch
- Hedgerow

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Stratfield Farm, Kidlington	PROJECT
Pre-development Habitat Measurements	TITLE
5176/BNGA1	DRAWING NO.
B/JP	REV
April 2022	DATE

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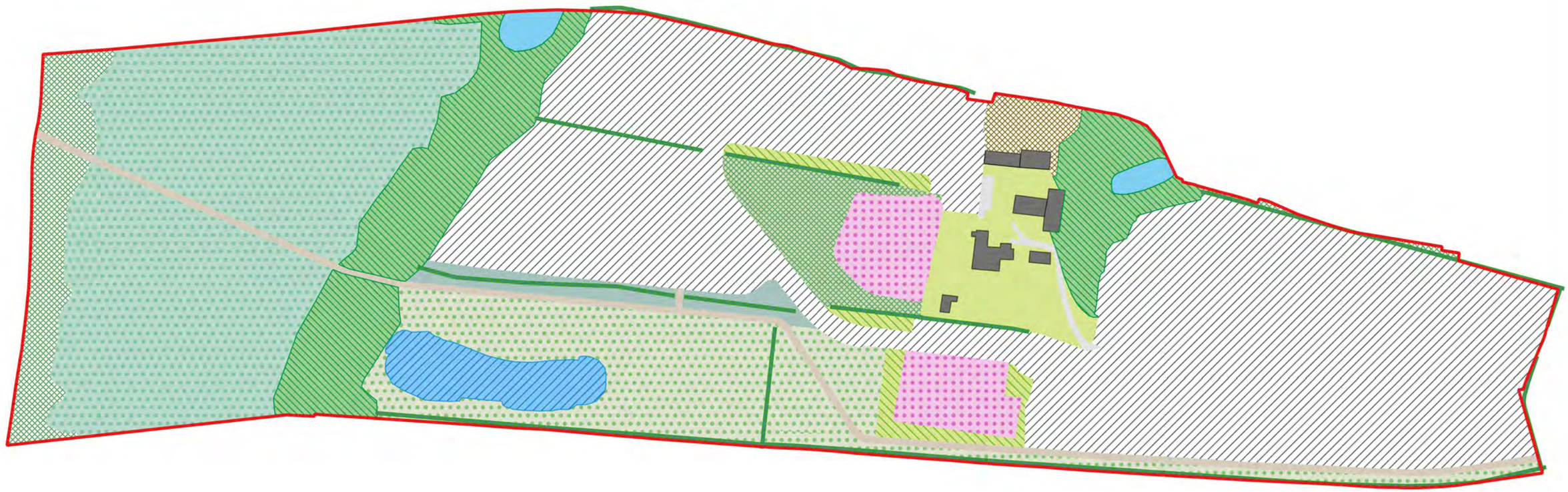

Key:

- Site Boundary
- Building (Retained)
- Development Area
- Hardstanding (Retained)
- Open Space
- Orchard
- Pond (Enhanced)
- Scrub
- Scrub (Retained)
- Scrub (Retained/Enhanced)
- Vegetated Gardens (Retained)
- Wildflower Grassland
- Wildflower Grassland (Attenuation Pond)
- Wildflower Grassland (Enhanced)
- Other Neutral Grassland
- Woodland (Retained)
- Path
- Hedgerow (Retained)

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Stratfield Farm, Kidlington	PROJECT
Post-development Habitat	TITLE
5176/BNGA2	DRAWING NO.
B/JP	REV
April 2022	DATE

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HABITAT CONDITION ASSESSMENT MATRIX

PROJECT NAME: Stratfield Farm, Kidlington
PROJECT NUMBER: 5176

	Habitat type/criteria	Feature Reference							
Grassland (low distinctiveness)									
1	6-8 species per m2	Pass							
2	Varied sward height (>20% less than 7cm, >20% more than 7cm)	Fail							
3	Less than 20% scrub	Pass							
4	Less than 5% subject to physical damage (excessive poaching, machinery use/storage etc)	Fail							
5	Cover of bare ground between 1 and 5%	Fail							
6	Less than 20% bracken	Pass							
7	Absence of Sch9 invasive species and less than 5% undesirable species (C Thistle, Sp Thistle, Docks, Nettle, G Plantain, W Clover, Cow Parsley)	Fail							
Condition		**Poor**							
Grassland (medium distinctiveness and above)									
1	Closely matches characteristics of specific habitat type	Pass							
2	Varied sward height (>20% less than 7cm, >20% more than 7cm)	Fail							
3	Cover of bare ground between 1 and 5%	Fail							
4	Less than 20% bracken and 5% scrub	Fail							
5	Absence of Sch9 invasive species and less than 5% combined undesirable species (C Thistle, Sp Thistle, Docks, Nettle, G Plantain, W Clover, Cow Parsley) or physical damage (excessive poaching, machinery use/storage etc)	Pass							
Condition		**Poor**							
Traditional orchard									
1	Presence of ancient and/or veteran trees	Pass	Pass						
2	Less than 5% of trees smothered by scrub, less than 10% scrub ground cover	Pass	Fail						
3	Evidence of formative and/or restorative pruning to maintain longevity of trees	Fail	Fail						
4	Presence of standing and/or fallen dead wood	Pass	Fail						
5	At least 95% of trees free from damage caused by humans or animals (e.g. browsing, bark stripping, rubbing)	Pass	Pass						
6	Sward height is varied (between 5-30cm) and small patches of bare ground present, up to 10% cover of tall herb vegetation	Fail	Fail						
7	Grassland species richness equivalent to medium, high or very high distinctiveness grassland (more than 9 species per m2)	Fail	Fail						
8	Absence of Sch9 invasive species and less than 10% undesirable species (C Thistle, Sp Thistle, Docks, Nettle)	Pass	Pass						
Condition		**Moderate**	**Poor**						
Pond		**P1**	**P2**						
1	Good water quality with clear water and no obvious signs of pollution. Turbidity acceptable if grazed by livestock.	Fail	N/A						
2	Semi-natural habitat (moderate distinctiveness or above) at least 10m from pond edge.	Pass	Pass						
3	Less than 10% duckweed or filamentous algae	Fail	N/A						
4	Pond not artifically connected to other waterbodies	Pass	Pass						
5	Pond water levels able to fluctuate naturally throughout year - no obvious dams, pumps or pipework	Fail	Pass						
6	Absence of non-native plant and animal species	Pass	Pass						
7	Pond is not artifically stocked with fish. If naturally contains fish is a native fish assemablage at low densities.	Pass	Pass						
8	**Non-woodland ponds only:** Emergent, submerged or floating plants cover at least 50% of pond area that is less than 3m deep	N/A	N/A						
9	**Non-woodland ponds only:** Less than 50% shaded by woody bankside species	N/A	N/A						
Condition		**Poor**	**Moderate**						

Scrub									
1	Habitat is representative of UKHab description. At least 3 woody species, with no one species more than 75% cover (except Juniper, Sea Buckthorn and Box)	Pass							
2	Good age range with seedlings, young shrubs and mature shrubs present	Fail							
3	Absence of Sch9 invasive species and less than 5% undesirable species (C Thistle, Nettle, Cherry Laurel, Snowberry, Buddleia, Cotoneaster, Spanish Bluebell)	Pass							
4	Scrub has well developed edge with scattered scrub and tall grassland/herbs present between scrub and adjacent habitats	Pass							
5	Clearings, glades or rides present providing sheltered edges	Pass							
Condition		**Moderate**							
Woodland (assign scores of 3/2/1 accordingly)									
1	Three/two/one age classes present	2							
2	No significant browsing/browsing across no more than 40% of woodland/browsing across more than 40% of woodland	3							
3	No invasive species/Rhododendron or Laurel absent, other species less than 10% cover/Rhododendron or Laurel present, other species more than 10% cover	2							
4	5+ native tree or species/3-4 native tree or shrub species/up to 2 native tree or shrub species (per 10m radius, across woodland parcel)	2							
5	More than 80% canopy trees and understorey shrubs are native/50-80% are native/less than 50% are native	2							
6	Less than 20% temporary open space, or 10-20% temporary open space if woodland over 10ha/21-40% temporary open space/more than 40% temporary open space	3							
7	Three/two/one classes of regeneration present - trees 4-7cm dbh; saplings/seedlings; advanced coppice regrowth	2							
8	Tree mortality less than 10%, no pests, diseases or crown dieback/11-25% mortality, low risk pests, diseases or crown dieback/more than 25% mortality, high risk pests or diseases	3							
9	Ground flora - AWI present/recognisable NVC plant community present/no recognisable NVC community	1							
10	Woodland vertical structure (across all survey plots) - three or more storeys/two storeys/one or less storey	2							
11	2+ veteran trees per ha/1 veteran tree per ha/no veteran trees	1							
12	50% of survey plots have standing deadwood, large dead branches, stems and stumps/25-50% deadwood/less than 25% deadwood	2							
13	No nutrient enrichment or damaged ground/less than 1ha nutrient enrichment or 20% damaged ground/more than 1ha nutrient enrichment or 20% damaged ground	2							
Condition		**Moderate**							
Wood pasture and parkland									
1	Presence of ancient and/or veteran trees								
2	At least three age classes present, including at least one of mature, late mature and ancient/veteran								
3	80% of ancient and veteran trees have standing deadwood, large dead branches, stems and stumps associated with them								
4	Little or no evidence of impact on tree health by anthropogenic activities, livestock, wild animals, pests or diseases (e.g. no poaching, nettles, ground compaction, grazing damage)								
5	Ground cover comprises semi-natural grassland or heathland								
6	Grassland - varied sward height (>20% less than 7cm, >20% more than 7cm) / heathland - pioneer heather 10-40%, building/mature heather - 20-80%, degenerate heather <30% and dead heather <10%								
Condition									

Urban / Sparsely vegetated land - ruderal/ephemeral									
1	Varied vegetation structure providing opportunities for insects, birds and bats to live and breed. No more than 80% of area comprises a single habitat type (i.e. early successional vegetation, grassland, herb dominated, heathland, woodland and scrub, wetland, water features).	Fail							
2	Diverse range of flowering plant species providing nectar sources for insects.	Fail							
	- Above criteria satisfied by native species only.	N/A							
3	Sch9 invasive species cover less than 5% of total vegetated area.	Pass							
	- Complete absence of Sch9 invasive species.	Pass							
4a	**Open mosaic habitat on previously developed land only:** Forms a mosaic of at least four early successional communities (annuals; mosses/liverworts; lichens; ruderals; inundation species; open grassland; flower-rich grassland; heathland) PLUS bare substrate PLUS pools.	Fail							
4b	**Bioswale and SUDS only:** Water table is at or near the surface throughout the year - forming open water or saturation of the soil at the surface.	Fail							
Condition		**Poor**							
Wetland									
1	Water table is at or near the surface throughout the year - forming open water or saturation of the soil at the surface. No artifical drainage unless specifically to maintain water levels as above.								
2	Appearance and composition of vegetation matches characteristics of specific wetland habitat type and indicator species clearly visible.								
3	Water supply to the wetland is of good water quality with clear water indicating no obvious signs of pollution.								
4	Cover of scrub and scattered trees less than 10%.								
5	Cover of bare ground less than 5%.								
6	Absence of Sch9 invasive species and less than 5% undesirable species (C Thistle, S Thistle, Nettle, Docks, Cherry Laurel, C Ragwort)								
7a	**Fen / purple moor grass and rush pasture only:** No more than 25% of area has continuous cover of litter (i.e. dead vegetation) preventing regeneration.								
7b	**Bog only:** Sphagnum and cottongrasses at least frequent, cover of ericaceous dwarf shrubs less than 75%								
7c	**Reedbed only:** Diverse structure with between 60-80% reeds and at least 10% open water, may also include species-rich fen and/or wet woodland.								
7d	**Floodplain wetland mosaic (CFGM) only:** All ditches within habitat achieve good condition.								
Condition									

The Biodiversity Metric 3.0 - Calculation Tool
Start page

Project details	
Planning authority:	Cherwell District Council
Project name:	Stratfield Farm, Kidlington
Applicant:	Manor Oak Homes
Application type:	Outline
Planning application reference:	TBC
Assessor:	Aspect Ecology
Reviewer:	
Metric version:	Defra 3.0
Assessment date:	26/04/2022
Planning authority reviewer:	

Instructions

Main menu

Results

View all

Reset view

Cell style conventions

	Enter data
	Automatic lookup
	Result

On-site baseline map — Insert

On-site post intervention map — Insert

Off-site baseline map — Insert

Off-site post intervention map — Insert

Stratfield Farm, Kidlington

Headline Results

Return to results menu

On-site baseline	*Habitat units*	52.13
	Hedgerow units	14.40
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	59.07
	Hedgerow units	15.94
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	13.31%
	Hedgerow units	10.67%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	6.94
	Hedgerow units	1.54
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	13.31%
	Hedgerow units	10.67%
	River units	0.00%

Trading rules Satisfied?	Yes

Stratfield Farm, Kidlington

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)	*Habitat units*	6.94
	Hedgerow units	1.54
	River units	0.00
Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)	*Habitat units*	13.31%
	Hedgerow units	10.67%
	River units	0.00%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total area / length	10.40	1.46	0.00
Total units	52.13	14.40	0.00
Area / length retained	2.05	1.40	0.00
Units Retained	14.36	13.92	0.00
Area / length proposed for enhancement	2.41	0.00	0.00
Baseline units proposed for enhancement	21.35	0.00	0.00
Area / length lost	5.94	0.06	0.00
Units lost	16.42	0.48	0.00

Area Habitats

Area habitats

On site change by broad habitat type

Habitat group	Baseline: Existing area	Baseline: Existing value	Post development on site: Proposed area	Post development on site: Proposed value	Onsite Change: Area change	Onsite Change: Onsite Unit change
Cropland	3.96	7.92	0.00	0.00	-3.96	-7.92
Grassland	4.35	31.17	4.19	42.86	-0.16	11.69
Heathland and shrub	0.58	4.64	0.67	5.40	0.09	0.76
Lakes	0.06	0.24	0.06	0.38	0.00	0.14
Sparsely vegetated land	0.02	0.04	0.00	0.00	-0.02	-0.04
Urban	0.49	0.60	4.54	2.39	4.05	1.79
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.94	7.52	0.93	7.44	-0.01	-0.08
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Off site change by broad habitat type

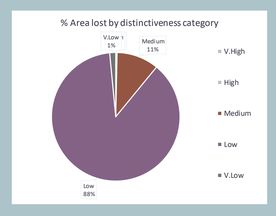
Habitat group	Baseline: Existing area	Baseline: Off-site Existing value	Post development Off-site: Off-site proposed area	Post development Off-site: Off site Proposed value	Off-site Change: Off-site area change	Off-site Change: Off-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.00	0.00	0.00	0.00	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

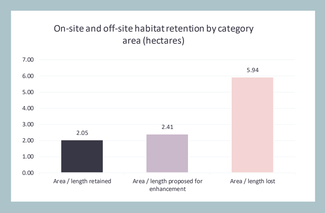
Combined on site and off site change by broad habitat type

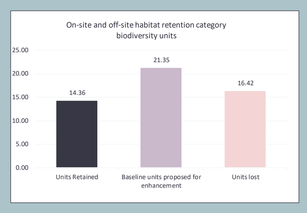
Habitat group	Baseline: Existing area	Baseline: Existing value	On-site and Off-site post development: Combined proposed area	On-site and Off-site post development: Combined proposed value	Combined change: Proposed area	Combined change: Proposed value
Cropland	3.96	7.92	0.00	0.00	-3.96	-7.92
Grassland	4.35	31.17	4.19	42.86	-0.16	11.69
Heathland and shrub	0.58	4.64	0.67	5.40	0.09	0.76
Lakes	0.06	0.24	0.06	0.38	0.00	0.14
Sparsely vegetated land	0.02	0.04	0.00	0.00	-0.02	-0.04
Urban	0.49	0.60	4.54	2.39	4.05	1.79
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.94	7.52	0.93	7.44	-0.01	-0.08
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

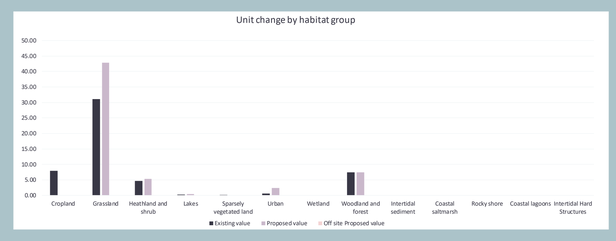
Combined area lost by distinctiveness band

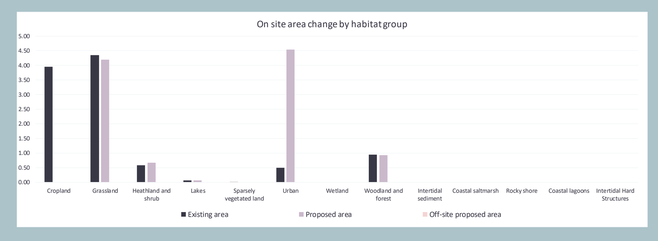
Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0.02	0
Medium	0.63	11
Low	5.2	88
V.Low	0.09	2

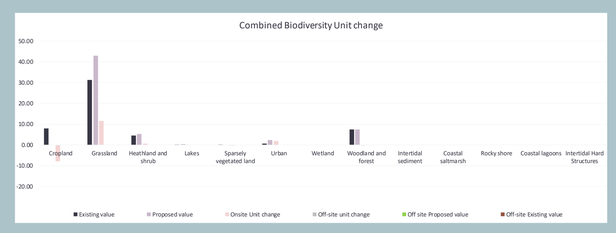


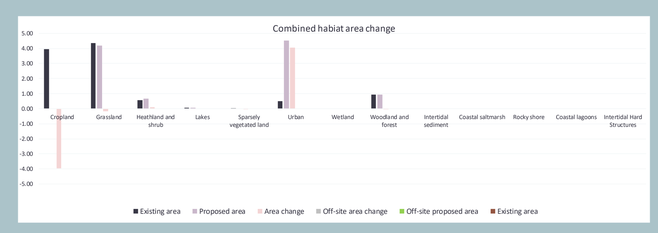












Hedgerows and Lines of Trees

Hedgerows and lines of trees

On site change by hedgerow type

Hedgerow type	Baseline: Existing length on-site	Baseline: Existing value	Post development on site: Proposed length on-site	Post development on site: Proposed value on-site	Onsite Change: On-site length change	Onsite Change: On-site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.24	2.02	0.24	2.02
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.94	11.28	0.92	11.04	-0.02	-0.24
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.52	3.12	0.48	2.88	-0.04	-0.24
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

Off site change by hedgerow type

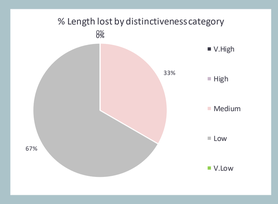
Hedgerow type	Off site baseline: Existing length off-site	Off site baseline: Existing value off-site	Post development off site: Proposed length off-site	Post development off site: Proposed value off-site	Off site Change: Off-site length change	Off site Change: Off site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

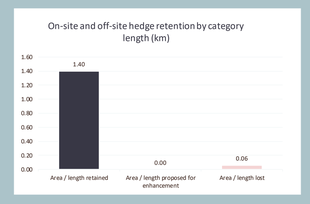
Combined on and off site change by hedgerow type

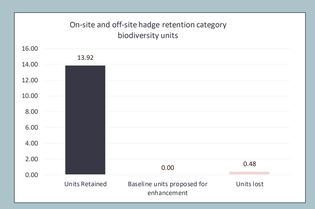
Hedgerow type	Baseline: Existing length	Baseline: Existing value	Post development on site: Proposed length	Post development on site: Proposed value	Onsite Change: length change	Onsite Change: Onsite Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.24	2.02	0.24	2.02
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.94	11.28	0.92	11.04	-0.02	-0.24
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.52	3.12	0.48	2.88	-0.04	-0.24
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

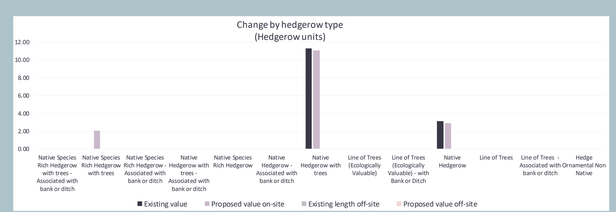
Combined length lost by distinctiveness band

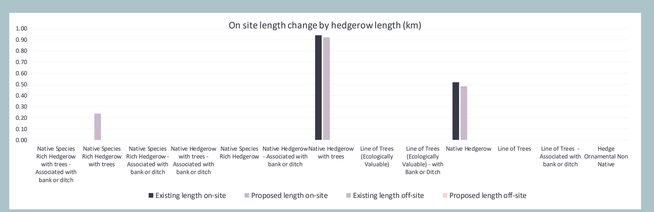
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0.02	33
Low	0.04	67
V.Low	0	

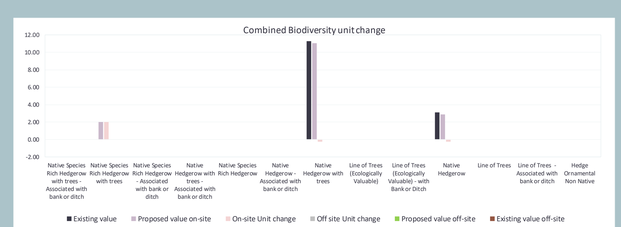


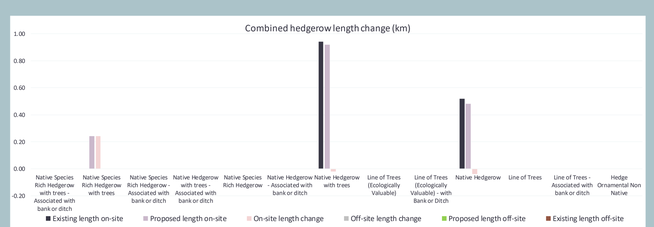












Rivers and Streams

Rivers and Streams

On site change by river type

River type	Baseline: Existing length	Baseline: Existing value	Post development on site: Proposed length	Post development on site: Proposed value	Onsite Change: length change	Onsite Change: Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Off site change by river type

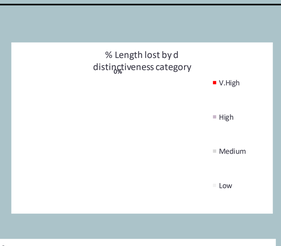
River type	Baseline: Existing length off-site	Baseline: Existing value off-site	Post development off-site: Proposed length off-site	Post development off-site: Proposed value off-site	Off-site Change: Off-site length change	Off-site Change: Off-site unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

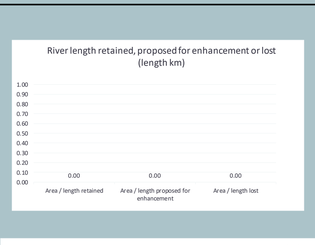
Combined on and off site change by river type

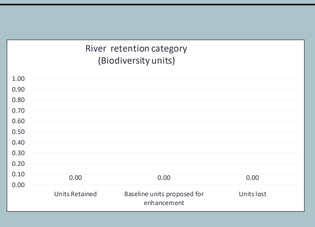
River type	Baseline: Existing length	Baseline: Existing value	Post development on site: Proposed length	Post development on site: Proposed value	Onsite Change: length change	Onsite Change: Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

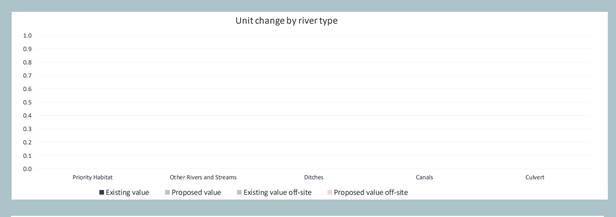
Combined length lost by distinctiveness band

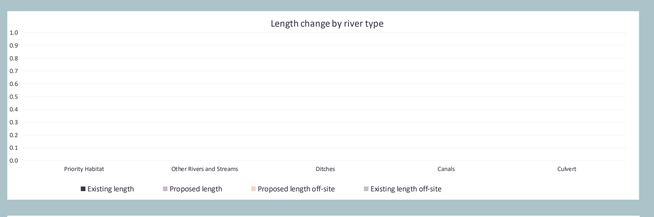
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	

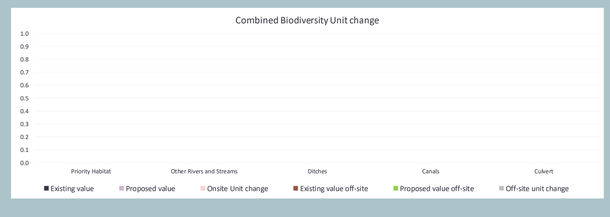


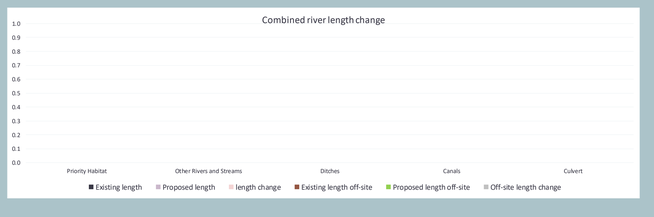












Stratfield Farm, Kidlington

A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows

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	Habitats and areas			Distinctiveness		Condition		Strategic significance				Ecological baseline	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comments	
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier	Suggested action to address habitat losses	Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost		Assessor comments	Reviewer comments
1	Cropland	Cereal crops	3.96	Low	2	N/A - Agricultural	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	7.92			0.00	0.00	3.96	7.92		Arable	
2	Grassland	Modified grassland	1.22	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	2.44			0.00	0.00	1.22	2.44		Arable Field Margins	
3	Grassland	Other neutral grassland	2.81	Medium	4	Moderate	2	Within area formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required	25.85		2.19	0.00	20.15	0.62	5.70		Semi-improved grassland	
4	Urban	Vegetated garden	0.3	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	0.60	0.3		0.60	0.00	0.00	0.00		Garden areas associated with existing farmbouse	
5	Sparsely vegetated land	Ruderal/Ephemeral	0.02	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	0.04			0.00	0.00	0.02	0.04		Tall ruderal vegetation	
6	Heathland and shrub	Mixed scrub	0.58	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	4.64	0.58		4.64	0.00	0.00	0.00		Scrub	
7	Grassland	Traditional orchards	0.16	High	6	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required	0.96		0.16	0.00	0.96	0.00	0.00		Orchard (central)	
8	Grassland	Traditional orchards	0.16	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required	1.92	0.14		1.68	0.00	0.02	0.24		Orchard (southern)	
9	Lakes	Ponds (Non- Priority Habitat)	0.06	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.24		0.06	0.00	0.24	0.00	0.00		Ponds	
10	Urban	Developed land; sealed surface	0.09	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.07		0.00	0.00	0.02	0.00		Buildings	
11	Urban	Developed land; sealed surface	0.1	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.03		0.00	0.00	0.07	0.00		Hardstanding	
12	Woodland and forest	Other woodland; mixed	0.94	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	7.52	0.93		7.44	0.00	0.01	0.08		Woodland	
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Stratfield Farm, Kidlington

A-2 Site Habitat Creation

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Post development/ post intervention habitats																											
			Distinctiveness		Condition		Strategic significance			Temporal multiplier					Difficulty multipliers						Habitat units delivered	Comments	
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
Urban	Developed land; sealed surface	2.9	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0			Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.817	0.00	Buildings and Roads (assumed 70% development areas - TBC at detailed design stage)	
Urban	Vegetated garden	1.24	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1			Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	2.39	Residential Gardens (assumed 30% development areas - TBC at detailed design stage)	
Grassland	Other neutral grassland	1.26	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10			Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	10.99	Informal open space	
Grassland	Other neutral grassland	0.22	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5			Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	1.47	Attenuation basin	
Heathland and shrub	Mixed scrub	0.09	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10			Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	0.76	New native scrub	
Grassland	Modified grassland	0.18	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1			Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.35	Formal open space	
Grassland	Traditional orchards	0.04	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	20			Standard time to target condition applied	20	0.490	Low	Standard difficulty applied	Low	1	0.24		
	Total area	5.93																		Total Units	16.79		

Stratfield Farm, Eddington

A-3 Site Habitat Enhancement

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	Baseline habitats									Proposed Habitat (Pre-Populated but can be overridden)		Change in distinctiveness and condition		Post development/ post intervention habitats																Habitat units delivered	Comments	
																	Strategic significance			Temporal risk multiplier					Difficulty risk multipliers						
Baseline ref.	Baseline habitat	Total habitat area	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed Broad Habitat	Proposed habitat	Distinctiveness change	Condition change	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of enhancement	Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied		Assessor comments	Reviewer comments
1	Grassland - Other neutral grassland	1.81	Medium	4	Moderate	2	High strategic significance	1.15	20.81	Same habitat type or better required	Grassland	Other neutral grassland	Medium - Medium	Moderate - Good	3.18	Medium	4	Good	3	Within area formally identified in local strategy	High strategic significance	1.15	10			Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	0.67	27.20		
3	Grassland - Traditional orchards	0.16	High	6	Poor	1	Low strategic significance	1	0.96	Same habitat required	Grassland	Traditional orchards	High - High	Poor - Moderate	0.16	High	6	Moderate	2	Area/compensation not in local strategy/ or local strategy	Low strategic significance	1	10			Standard time to target condition applied	10	0.700	Medium	Standard difficulty applied	Medium	0.67	1.34		
4	Lakes - Ponds (Non- Priority Habitat)	0.06	Medium	4	Poor	1	Low strategic significance	1	0.24	Same habitat required or a higher distinctiveness habitat	Lakes	Ponds (Non- Priority Habitat)	Medium - Medium	Poor - Moderate	0.06	Medium	4	Moderate	2	Area/compensation not in local strategy/ or local strategy	Low strategic significance	1	4			Standard time to target condition applied	4	0.867	Medium	Standard difficulty applied	Medium	0.67	0.39		
															3.41																	29.93		

B-1 Site Hedge Baseline

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	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance				Ecological baseline	Retention category biodiversity value						Comments	
Baseline ref	Hedge number	Hedgerow type	Length KM	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Suggested action to address habitat losses	Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
1	H1	Native Hedgerow	0.08	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.48	0.06		0.36	0.00	0.02	0.12		
2	H2	Native Hedgerow	0.16	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.96	0.16		0.96	0.00	0.00	0.00		
3	H3	Native Hedgerow with trees	0.34	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	4.08	0.34		4.08	0.00	0.00	0.00		
4	H4	Native Hedgerow	0.06	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.36	0.06		0.36	0.00	0.00	0.00		
5	H5	Native Hedgerow	0.22	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.32	0.2		1.20	0.00	0.02	0.12		
6	H6	Native Hedgerow with trees	0.05	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.60	0.05		0.60	0.00	0.00	0.00		
7	H7	Native Hedgerow with trees	0.05	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.60	0.05		0.60	0.00	0.00	0.00		
8	H8	Native Hedgerow with trees	0.16	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.92	0.14		1.68	0.00	0.02	0.24		
9	H9	Native Hedgerow with trees	0.17	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.04	0.17		2.04	0.00	0.00	0.00		
10	H10	Native Hedgerow with trees	0.17	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.04	0.17		2.04	0.00	0.00	0.00		
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			1.46									14.40	1.40	0.00	13.92	0.00	0.06	0.48		

B-2 Site Hedge Creation

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		Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance			Temporal multiplier					Difficulty risk multipliers				Hedge units delivered	Comments	
Baseline ref	New hedge number	Habitat type	Length km	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
1		Native Species Rich Hedgerow with trees	0.24	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10			Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	2.02		
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