Technical Briefing Note

Project: Land West of Yarnton

Technical Briefing Note TN04: Addendum to Chapter 8 of the Environment Statement (ES) – Ecology and Nature Conservation
Application Reference: 21/03522/OUT

Date: 6th December 2022

1. Introduction

1.1. Aspect Ecology has been advising Merton College Oxford, in respect of proposed development at land west of Yarnton, herein referred to as `the site` centred at grid reference SP 471 129, since 2018.

1.2. A planning application was validated on the 14th October 2021 for the erection of up to 540 dwellings (Class C3), up to 9,000sqm GEA of elderly/extra care residential floorspace (Class C2), a Community Home Work Hub (up to 200sqm)(Class E), alongside the creation of two locally equipped areas for play, one NEAP, up to 1.8 hectares of playing pitches and amenity space for the William Fletcher Primary School, two vehicular access points, green infrastructure, areas of public open space, two community woodland areas, a local nature reserve, footpaths, tree planting, restoration of historic hedgerow, and associated works.

1.3. All matters are reserved, save for the principal access points. Informing the application was an Environmental Statement, of which Chapter 8 provides an assessment of the proposals in relation to ecology and nature conservation; this document is an addendum to Chapter 8 and therefore should be read in association with that chapter.

1.4. The addendum has been prepared in light of update survey work that has been undertaken, the preparation of an updated Biodiversity Net Gain assessment, and consultation responses that related to ecology and nature conservation.

1.5. Where updated survey work has been undertaken since the preparation of Chapter 8 of the ES, this is referenced in the `update survey work` section below and referred to herein to provide a more accurate understanding of the current ecological baseline of the site. Where the ecological baseline has not changed, this is stated. The updated Biodiversity Net Gain assessment is detailed within Technical Note TN03, with a summary at section 5.2 of this addendum. In relation to the consultation responses, specific consultees are not generally referenced, although further information is provided to address comments raised.

2. Update Survey Work

2.1. Since the submission of documents to inform planning application 21/03522/OUT, the results of some survey work have started to approach the end of their shelf-life. Accordingly, in addition to a walkover of the site, update and further technical survey work has been undertaken in respect of mobile species last surveyed prior to 2020. The exception being in respect of breeding birds as the site remains essentially the same as recorded in 2019 such that use of the site by breeding birds is considered unlikely to be significantly different. The update survey work includes the following:

- Update reptile survey undertaken September 2021;
- Update bat activity survey undertaken September 2021 to August 2022 ; and
- Update Dormouse survey undertaken September 2021 to July 2022.

2.2. The results from the above survey work are set out in the Ecological Baseline section below; however, in terms of methodology for these surveys, they followed the same approaches as detailed within the Ecological Baseline dated October 2020 at Appendix 16.1 of the ES. Nonetheless, dates and weather conditions for the update surveys are provided below where appropriate.

Foraging/Commuting Bats

2.3. Update Bat activity surveys were undertaken in September 2021, May 2022 and July 2022, the methodology for which followed that undertaken in 2018/2019 and as detailed at paras. 2.3.4 to 2.3.7 of the Ecological Baseline dated October 2020 at Appendix 16.1 of the ES, although survey dates and weather conditions for the update bat activity surveys conducted to date are provided below.

Walked Transect Survey Details

Date	Start & end times & time of sunrise	Transect / location	Equipment used	Weather
21/09/2021	Start time: 18.52 End time: 22.24 Sunset: 19.07	Transects A	Echo Meter EM3 and Bat Box Duet	Dry, 10% cloud, BF1, 15-18°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder 2015-13630-CLS-CLS.				
30/05/2022	Start time: 21.12 End time: 23.50 Sunset: 21.12	Transect A	Anabat Scout	Dry, 70% cloud, BF1, 10-11°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder 2015-13630-CLS-CLS.				
26/07/2022	Start time: 21.03 End time: 23.25 Sunset: 21.03	Transect A	Anabat Scout	Dry, 20% cloud, BF2, 17°C
Comments: The survey was undertaken by 2 surveyors under direction of licence holder 2015-13630-CLS-CLS.				

Automated Survey Details

Survey Date	Weather Conditions			
	Wind (BF)	Temp(c)	Cloud Cover (%)	Precipitation
14/09/2021	1-3	10-21	35	Dry
15/09/2021	1-3	12-15	90	Dry
16/09/2021	1-3	13-22	55	Mainly dry, very light rain for a short period
17/09/2021	2-4	11-20	40	Dry
18/09/2021	1-2	12-22	50	Mainly dry with light rain showers in the evening
19/09/2021	0-2	13-16	80	Light rain
20/09/2021	2-3	12-19	85	Light rain in the morning then dry
30/05/2022	1-2	6-15	90	Dry
31/05/2022	1-2	6-16	50	Light rain in the evening then dry
01/06/2022	1-2	5-18	50	Dry
02/06/2022	1-3	4-21	25	Dry
03/06/2022	2-4	11-21	90	Dry
04/06/2022	3-4	11-20	85	Light rain in the morning then dry
05/06/2022	2-3	10-14	90	Rain overnight
26/07/2022	1-2	14-21	60	Dry
27/07/2022	1-3	10-23	70	Dry
28/07/2022	2-4	15-24	40	Dry
29/07/2022	1-2	12-27	10	Dry
30/07/2022	1-3	14-24	60	Dry
31/07/2022	2-3	19-25	85	Dry
01/08/2022	2-3	16-27	90	Dry

Dormouse Muscardinus avellanarius

2.4. Update Dormouse surveys were undertaken in Autumn (September – November) 2021 and Spring/Summer (April – July) 2022, the methodology for which followed that undertaken in 2018/2019 and as detailed at paras. 2.3.10 to 2.3.12 of the Ecological Baseline dated October 2020 at Appendix 16.1 of the ES.

Reptiles

2.5. Methodology for the update reptile surveys followed the approach detailed at paras. 2.3.13 to 2.3.16 of the Ecological Baseline dated October 2020 at Appendix 16.1 of the ES, although survey dates and weather conditions for the update reptile survey undertaken in September 2021 are provided below.

Reptile Survey Details

Survey Date	Weather Conditions			
	Wind (BF)	Temp (°C)	Cloud Cover (%)	Precipitation
03/09/2021	1-2	15-19	100	Dry
14/09/2021	1-2	15-17	100	Mainly dry, light rain for short period
17/09/2021	2	14-18	40	Dry
21/09/2021	1	11-15	15	Dry
24/09/2021	1	16-23	30	Dry
27/09/2021	2	15-16	10	Dry
30/09/2021	4	15	100	Mainly dry, light rain for short period

3. Ecological Baseline

3.1. Ecological Designations

Statutory Designations

3.1.1. A review of ecological designations is undertaken at section 16.8 of ES Chapter 8, which identifies the nearest statutory designations to be Rushy meadows Site of Special Scientific Interest (SSSI) located 1.1km to the east of the site, and Pixey and Yarnton Meads SSSI located approximately 1.4km to the south of the site. The nearest designation of international importance is Oxford Meadows Special Area of Conservation (SAC) located approximately 1.4km to the south of the site.

Non-statutory Designation

3.1.2. ES Chapter 8 identifies Begbroke Wood Local Wildlife Site (LWS) and Frogwelldown Lane District Wildlife Site (DWS) to be the nearest non-statutory designations to the site, being located adjacent to the site and 0.2km to the south of the site respectively.

3.1.3. Bladon Heath LWS and Cassington to Yarnton Gravel Pits LWS are located approximately 0.4km to the north-west and 0.8km to the south of the site respectively.

3.1.4. No additional new statutory or non-statutory designations are present within the zone of influence for the proposed development at the site.

3.2. Habitats & Ecological Features

3.2.1. The site was originally subject to an extended Phase 1 habitat survey in August 2018, with updates conducted in April 2020 and September 2021, based on standard Phase 1 Habitat Survey methodology[1]. General observations of the habitats present have also been undertaken during update faunal surveys to maintain an up-to-date picture of the site.

3.2.2. Habitats and ecological features considered to be of importance at the site include woodland, hedgerows and veteran trees, whilst other habitats at the site include semi-improved and improved grassland, arable land, young to mature trees, scrub and tall ruderal vegetation, and recolonising ground over hardstanding.

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

3.2.3. No significant changes to the habitats or ecological features at the site have been recorded since April 2020, such that the habitats and ecological features as described and evaluated under `Baseline Conditions` within ES Chapter 8 are considered to remain correct and should be referred to.

3.3. Fauna

3.3.1. Update specific survey work at the site has been undertaken in respect of foraging/commuting bats, Dormouse and reptiles.

Foraging/Commuting Bats

3.3.2. Bat activity surveys undertaken in 2018/19 recorded at least six species of bats in flight, comprising Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *P. pygmaeus*, Noctule *Nyctalus noctula*, Long-eared bat *Plectotus sp*,, Barbastelle *Barbastella barbastellus* and *Myotis sp*. Most activity was attributable to Pipistrelle, although good levels of Noctule were recorded, whilst rarer species were recorded in low numbers. The majority of activity was associated with the hedgerow network through the site, with comparatively less activity along some hedgerows adjacent to the A44. Overall, the species and levels of activity recorded were deemed typical for the habitats present, and the study area was considered to be of value to bats at the District Level.

3.3.3. The manual walked bat survey and automated bat survey work undertaken in September 2021 recorded similar results to those in 2018/2019, with a greater diversity of bat species recorded along the hedgerow network centrally to the site. A greater abundance of bats was recorded along a hedgerow adjacent to the A44, although this is attributed to the number of Noctule registrations with 1226 recorded on a single night on the 18th September 2021: comparison with table 5.5 within the Ecological Baseline at Appendix 16.1 of the ES shows high registrations of Noctules were also recorded in this location in September 2018. However, survey data from 2018/19 shows Noctule are not recorded at these levels throughout the remainder of the survey period indicating registrations of Noctule are expected to be less in other months as update surveys continue. Overall, bat species were recorded in similar abundances as recorded in 2018/2019; this is not surprising given there has been no significant change to the habitats at the site, such that the use of the site by foraging and commuting bats is considered unlikely to have materially altered. The only notable deviations in use of the site by bats in September 2021 related to an absence of records for Long-eared Bats and a very small number of registrations for Nathusius Pipistrelle *Pipistrellus nathusii*.

3.3.4. Regarding Long-eared Bats, only a low number of registrations were sporadically recorded in 2018/19, and similar results have been obtained to date during the 2021/22 survey work.

3.3.5. Nathusius Pipistrelle is a medium sized bat that is considered rare in the UK, although records are increasing[2] and are widespread across the UK[3]. As the bat is a migratory species, the Bat Conservation Trust states `*most bats are encountered in autumn*`, such that the presence of this species within the site in September 2021 is not considered to be of high significance. In addition, given the very low number of registrations, the site is not considered to be of elevated interest for this species. Accordingly, the study area is considered to continue to be of value to bats at the District Level.

[2] Bat Conservation Trust Fact Sheet: Nathusius' Pipistrelle
[3] https://www.mammal.org.uk/species-nathusius-pipistrelle-bat/

3.3.6. Similar results were obtained from the survey work undertaken in 2021/22 as recorded in 2018/19, therefore the use of the site by bats as described within Chapter 8 of the ES and summarised above is considered to still be accurate.

Dormouse

3.3.7. Surveys were undertaken between September and November 2018 and April and July 2019 to establish the presence/absence of Dormouse within the site and adjacent habitats which are referred to within Chapter 8 of the ES as the study area. Survey work followed the methodology set out within best practice guidance[4], whereby nesting tubes are attached to branches of trees and shrubs and checked on a regular basis for signs of use by Dormouse. Further detail on the methodology can be found within the Ecological Baseline at Appendix 16.1 of the ES. The level of survey effort required to satisfy relevant guidance was met; however, no Dormice or evidence to indicate their presence was recorded during the survey work.

3.3.8. Update survey work for this species commenced in September 2021 and concluded in July 2022. No Dormice or evidence to indicate their presence has been recorded at the Site during the update survey work.

3.3.9. Overall, based on the results of the survey work undertaken Dormouse is considered likely to be absent. Accordingly, the evaluation of the site in respect of Dormouse as set out in Chapter 8 of the ES is considered to remain accurate.

Reptiles

3.3.10. Specific survey work to determine the presence of reptiles undertaken in September and early October 2018 recorded a peak count of a single adult Common Lizard during 1 of the 7 survey visits. In addition, an individual Grass Snake was recorded in the west of the site during one of the Dormouse surveys during the summer of 2018, and 2 juvenile Common Lizards were recorded beneath one of the refugia on 14th September 2018. Accordingly, based on the extent of suitable reptile habitat present, the study area was considered to support low populations of Common Lizard and Grass Snake.

3.3.11. Update survey work was undertaken throughout the optimal month of September 2021 and recorded a peak count of a single adult Slow-worm during 1 of the 7 survey visits. The Slow-worm was recorded at the northern boundary of the study area, adjacent to residential gardens. Based on the extent of suitable reptile habitat present, the study area is considered to support a low population of Slow-worm.

3.3.12. Overall, the survey results between 2018 and 2021 indicate the study area supports low populations of Common Lizard, Slow-worm and Grass Snake. Based on the low numbers of reptiles recorded, the site is considered to be of importance at the local level for reptiles and thus the evaluation of the site as set out in Chapter 8 of the ES is continues to remain accurate.

[4] English Nature (2003) '*Surveying dormice using nest tubes: Results and experiences from the South West Dormouse Project'*, English Nature (2006) '*The Dormouse Conservation Handbook*', 2nd Edition;, English Nature Research Report No. 524; and Natural England (2011) '*Interim Natural England Advice Note – Dormouse surveys for mitigation licensing – best practice and common misconceptions'*, WML-537 (12/11)

Other Fauna

3.3.13. Considering no significant change to the habitats and ecological features at the site were recorded during the update walkover survey in 2021, the evaluation of the site in respect of other fauna as set out in the Ecological Baseline dated October 2020 at Appendix 16.1 of the ES is considered to remain accurate.

4. Assessment of Impact

4.1. As summarised above, there has been no significant change to the habitats and ecological features at the site since the previous survey work was undertaken between 2018 and 2020, such that the findings and evaluations within the Ecological Baseline at ES Appendix 16.1 remain accurate, and thus the assessment of impacts set out within ES Chapter 8 is considered to be valid. Nonetheless, in light of comments raised by consultees in respect of designations, farmland birds, other birds, and invertebrates, as well as biodiversity in general, and the results of update survey work being available for bats, Dormouse and reptiles, further consideration of potential impacts on these receptors arising under the proposals is considered below.

4.2. Ecological Designations

Statutory Designations

4.2.1. Cherwell District Council undertook a Habitat Regulations Assessment (HRA) of the Partial Review of the Cherwell Local Plan 2011-2031 (Part 1): Oxford's Unmet Housing Needs Proposed Submission Plan in August 2018 to determine whether likely significant effects to relevant European designations would arise. An addendum HRA was subsequently undertaken following modifications to the Submission Plan in response to the Inspector's preliminary findings from the Examination Hearing in February 2019. The HRA and addendum considered Policy PR9, which relates specifically to the site, and determined adverse effects to Oxford Meadows SAC would not arise; this is discussed in more detail at paras. 16.14.3 and 16.14.4 of Chapter 8 of the ES.

4.2.2. Notwithstanding the above, further concern regarding the sensitivity of the hydrology at Oxford Meadows SAC and other nearby statutory designations has been raised through consultation. A Flood Risk Assessment and Drainage Strategy dated May 2022, prepared by PJA, has been undertaken of the scheme and a site-wide strategy devised that would prevent adverse effects on local hydrology. In particular, the use of interception SUDs and storage components will help to reduce the potential effect of point source pollution incidents from the development. Attenuation areas are also proposed to control surface water runoff rates to the required greenfield rate and to attenuate pollutants prior to discharge into the wider surface water network.

4.2.3. Accordingly, hydrological changes at the SAC, or at other statutory designations, are not anticipated. This conclusion has also been reached by the Environment Agency and Natural England, who within their consultation responses dated 10 January 2022 and 23 December 2021, both concluded they have no objection to the proposals. The two bodies therefore consider the extent of information provided sufficient to determine the application at the outline planning stage, and the drainage strategy embedded within the scheme appropriate to prevent negative changes in local hydrology and thus avoid significant adverse effects on Oxford Meadows SAC and other statutory designations.

Non-statutory Designations

4.2.4. As set out at para. 3.1.2 herein, Begbroke Wood LWS and Frogwelldown Lane DWS are the two nearest non-statutory designations to the site. Comments have been raised in respect of potential harm that may occur to these designations from pollution events during construction and from recreational pressure post-development, and in relation to Begbroke Wood LWS the potential harm to wildlife from cat predation. These issues are addressed within the ES, although are discussed in further detail below.

4.2.5. Potential adverse effects to the hydrology at Cassington to Yarnton Gravel Pits LWS has also been raised. However, as discussed above in respect of statutory designations, the drainage strategy embedded within the scheme is considered sufficient to prevent negative changes in local hydrology and thus would avoid significant adverse effects at the LWS.

4.2.6. **Pollution events during construction**. Potential for harm to non-statutory designations during construction, in the absence of mitigation, is acknowledged at para. 16.13.9 of ES Chapter 8 and states *"there is potential for the designations to be adversely affected from pollution events that may arise, such as dust depositions, and surface water run-off of contaminants or silt*". However, given the proposed area for built development slopes towards to the east away from Begbroke Wood LWS and the majority of Frogwelldown Lane DWS, and on the basis the prevailing wind direction in the UK is westerly (varying between SSW and NW) harm to these designations is considered to be only slight, adverse, and medium-term. However, appropriate safeguards will be employed as part of good practice during construction, such as those listed at paras. 16.15.2 and 16.15.3 of ES Chapter 8, which will minimise potential for pollution events to occur, as well as minimise the level of pollution should an event occur and thus also the likelihood it would adversely affect either of the designations. The safeguarding measures would be detailed within a Construction and Environmental Management Plan which would be secured by condition. Accordingly, pollution events would be avoided, and in the unlikely event they did occur would be mitigated such that adverse effects on the designations would be negligible and non-significant.

4.2.7. **Recreational Pressure**. Begbroke Wood LWS is a privately owned woodland with no public access. Accordingly, the proposals would not result in an increase in recreational pressure on this designation.

4.2.8. Frogwelldown Lane DWS lies to the west and south of the site and incorporates a linear belt of woodland, including Priority Habitat Deciduous Woodland with a public footpath. The footpath is already in use, and whilst the wooded belt widens and narrows, there is outgrowth in places from the wooded belt and a path which guides local walkers. Further use of the footpath has potential to occur as a result of the development; however, new residents would be guided along the same path as existing locals with deviation deterred. Regardless, the proposals include the creation of substantial areas of green open space, incorporating public footpath and informal routes, which `being on their doorstep` is likely to absorb the majority of the recreational pressure arising from new residents. In addition, the new green open space created under the proposals will likely attract existing local residents, drawing some of the recreational use by existing residents away from the DWS. On balance, the proposals are considered unlikely to result in significant degradation of the habitats within the DWS.

4.2.9. In regard to wildlife associated with Frogwelldown Lane, it is expected the creatures habituate to some extent to noise and other such disturbances that would arise from use of

the footpath by existing locals including joggers/runners and dog-walkers, such that a minor overall increase in use is unlikely to significantly adversely affect the wildlife.

4.2.10. Overall, Begbroke Wood LWS will not be subject to an increase in recreational pressure, whilst adverse effects on Frogwelldown Lane DWS are considered unlikely to be significant. Nonetheless, should the LPA deem it appropriate, a notice board could be placed at entrances of Frogwelldown Lane DWS advising on its ecological interest features and showing the location of green open space created under the proposals to assist redirect recreational pressure.

4.2.11. **Predation by cats**. A proportion of the new homes will have cats as pets, and as cats are known to predate on wildlife in Britain there is potential for cats to predate on woodland wildlife, particularly small mammals and birds which together form the majority (93%[5]; small mammals at 69% and birds at 24%) of cat prey items.

4.2.12. No small mammals of conservation concern are associated with Begbroke Wood LWS, Frogwelldown Lane DWS, or the site itself. Under the proposals a net gain in the creation of ~8.3ha of woodland habitat (see para. 4.3.3 below) will increase the extent of suitable habitat for small mammals and thus the carrying capacity for the site. Accordingly, a higher abundance of small mammals can be supported, offsetting the effects of predation by cats such that significant impacts on local small mammal populations would not be anticipated.

4.2.13. In respect of birds, the rate of capture is much less than found with small mammals, only representing 24% of prey items caught by cats. Whilst a number of bird species of conservation concern are associated with the site, the RSPB report the most frequently caught birds are House Sparrows, Blue Tits, Blackbirds and Starlings; birds which are common and widespread and often found in gardens. Indeed, the RSPB state that the bird species which have `*undergone the most serious population declines in the UK…rarely encounter cats*`[6]. Overall, the RSPB concludes that `*It is likely that most of the birds killed by cats would have died anyway from other causes before the next breeding season*` and that `*despite the large numbers of birds killed by cats in gardens, there is no clear scientific evidence that such mortality is causing bird populations to decline*`.

4.2.14. Notwithstanding the above, as set out at para. 16.15.13 of Chapter 8 of the ES `*A dense double-staggered row of thorny shrubs, such as Hawthorn Crataegus monogyna and Blackthorn Prunus spinosa, will be planted on the boundary between Begbroke Wood and the community woodland to deter cats and minimise predation of wildlife within the woodland*`.

4.2.15. Overall, cat ownership in the new development is unlikely to result in the decline in any local small mammal or bird population, whilst the proposed protective shrub planting around the ancient woodland will assist deter cats from this diverse woodland habitat, such that significant adverse effects on Begbroke Wood LWS and Frogwelldown Lane DWS and associated wildlife are not anticipated.

4.2.16. The proposals are therefore considered to accord with relevant provisions of national planning policy, Cherwell District Council Local Plan policy ESD9 and site-specific requirements of policy PR9.

[5] Woods, M. & McDonald, R (2003) Predation of wildlife by domestic cat *Felix catus* in Great Britain
[6] https://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/animal-deterrents/cats-and-garden-birds/are-cats-causing-bird-declines/

4.3. Habitats

4.3.1. As set out above, update survey work undertaken at the site has confirmed the ecological baseline for habitats and ecological features remains unchanged to that surveyed between 2018 and 2020, such that the findings and evaluations, as well as assessment of impacts in respect of habitats within Chapter 8 of the ES remain valid.

4.3.2. Notwithstanding the above, to provide further assurance to consultees in respect of the conclusions of likely significant effects on habitats under the proposals, further information is provided below in relation to the change in extent of habitat types within the site.

4.3.3. The table below shows the net loss/gain in habitat type under the proposals, as well as extent of retained habitats enhanced, and thus the residual effect. The figures in the table below have been taken from measurements set out within Technical Note TN03 Biodiversity Net Gain assessment, although do not include those habitats within private properties such as amenity planting or lawns.

Habitat	Net Loss/Gain (ha/km)	Enhancement (ha)	Residual Effect
Arable Land	-27.66	-	Loss
Grassland	-4.5	19.3499	Benefit
Hedgerows	1.82	-	Benefit
Woodland	8.3618	*	Benefit
Scrub & Tall Ruderal	-0.3111	-	Loss
Veteran Trees	-	*	Neutral - Benefit
young-mature Trees	-	*	Neutral - Benefit
Standing Water (Ponds/SuDs)	2.8081	0.0457	Benefit

* Whilst an enhancement is not shown within the Biodiversity Net Gain Assessment in Technical Note TN03, these retained habitats will benefit from the implementation of a sympathetic management plan based on ecological principles and no longer being subject to agricultural run-off.

4.3.4. As shown in the above table, the only negative residual effect in habitat types at the site relates to arable land and scrub with tall ruderal, neither of which have been identified as Ecological Interest Features at the site (see Ecological Baseline report at Appendix 16.1 of the ES).

4.3.5. Whilst an extensive area of arable land will be lost under the proposals (~27.66 ha), no arable plants of particular interest have been recorded amongst what is an intensively managed monoculture crop. In addition, field margins, which can be diverse, are narrow and not managed for the benefit of biodiversity. Accordingly, wildlife that may be associated with this habitat aside (farmland birds are discussed at paras. 4.4.8 to 4.4.10 under `fauna` below), the arable land's contribution to local biodiversity is very limited, such that its loss is outweighed by the gains in respect of other habitats of relatively greater value to biodiversity, such as floristically diverse grassland and native woodland.

4.3.6. The proposals will also result in the loss of scrub and tall ruderal habitat, although few species were recorded present and those that were present are both common and widespread locally and nationally. Accordingly, the scrub and tall ruderal habitat exhibits limited diversity,

is in poor condition, and thus contributes little to biodiversity at the site. Nonetheless, the woodland habitat when young will provide equivalent habitat to scrub, whilst ruderal species would be expected to recolonise the site post-development.

4.3.7. Overall, the scheme results in the loss of habitats that contribute relatively little to local biodiversity and are more than compensated through the enhancement of retained habitats and creation of new habitats of higher biodiversity value. This is reflected in the Biodiversity Net Gain Assessment for the scheme (see Technical Note TN03: Biodiversity Net Gain Assessment using Defra Biodiversity Metric 3.1 Calculation Tool) which confirms that `Trading Rules` are met i.e. a sufficient extent of higher value habitats, compared to those lost, are created as a result of the development. This conclusion is reinforced further by the achievement of measurable net gains in `habitat units` and `hedgerow units` from the Biodiversity Net Gain assessment.

4.4. Fauna

4.4.1. On the basis there has been no significant change to the habitats at the site since 2020, and the habitats/ecological features are as described within the Ecological Baseline dated October 2020 at Appendix 16.1 of the ES, opportunities for fauna are considered unlikely to have changed and thus the assessment of impacts within Chapter 8 of the ES is considered to remain valid.

4.4.2. Notwithstanding the above, given comments on farmland birds, other birds, and invertebrates were raised during consultation, impacts on these fauna have been re-assessed. This exercise has also been extended to include foraging/commuting bats, dormice and reptiles:, the update survey work undertaken contributes to further understanding the use of the site by these species and thus whether previous assessments remain valid.

Bats

4.4.3. As discussed at paras. 3.3.2 to 3.3.6 of this addendum, there has been no significant change to the habitats at the site, the use of the site by foraging and commuting bats is considered unlikely to have materially altered, and indeed the results of the update survey work undertaken in 2021/22 are congruent with those obtained in 2018/19. Accordingly, the value of the site for roosting/foraging bats as set out in the Ecological Baseline dated October 2020 at ES Appendix 16.1 is considered to be accurate, and thus the assessment of impacts as set out in Chapter 8 of the ES is considered to remain valid.

Dormouse

4.4.4. Dormice were not recorded at the site during survey work undertaken between 2018/19, and no evidence to indicate the presence of Dormouse has been recorded during the update survey work undertaken between September 2021 and July 2022. On this basis, impacts on Dormouse are not anticipated under the proposals and hence can be scoped out of the impact assessment.

4.4.5. Notwithstanding the above, the proposals will result in a net gain of ~8.3ha of woodland planting and ~1.82km of new species-rich hedgerow planting, which will be managed based on ecological principles, providing much enhanced connectivity, foraging, and sheltering opportunities throughout the site for this arboreal species. Accordingly, should Dormouse colonise in the future, the site will be more favourable to this species compared to the existing situation.

Reptiles

4.4.6. As discussed at paras. 3.3.10 to 3.3.12, very low numbers of Common Lizard, Slow-worm and Grass Snake have been recorded at the site indicating low populations are present, such that the site continues to be of importance at the local level for reptiles and thus the evaluation of the site as set out in Chapter 8 of the ES is considered to remain appropriate. On the basis the value of the site for reptiles has not changed, assessment of impacts as set out in Chapter 8 of the ES is considered to remain valid.

Farmland Birds

4.4.7. Survey work undertaken between April and June 2019 recorded 37 species of bird, of which 23 were considered breeding or probably breeding and two possibly breeding. Only 4 farmland bird species identified within the British Trust for Ornithology (BTO) Red List, which lists species of conservation concern, were recorded breeding within the study area (incorporating the site and adjacent farmland) including Yellowhammer *Emberiza citronella*, Song Thrush *Turdus philomelos*, Linnet *Carduelis cannabina* and Skylark *Alauda arvensis*. No territories for Linnet were recorded within or close to the site, whilst territories of Yellowhammer and Song Thrush are all associated with hedgerows which will be retained and buffered from development. Nonetheless, the substantial hedgerow planting which will border meadowland and retained arable land will at the very least compensate for the degradation of breeding habitats from anthropogenic effects, such as noise or lighting, and likely provide additional breeding habitat for these species.

4.4.8. In respect of Skylark, all four territories recorded in the study area were recorded in arable land; three territories are in locations where arable land will be retained and thus the territories maintained. One location of breeding Skylark will be affected by the proposals, although only in respect of the conversion of arable to meadowland which would be subject to a conservation led management regime as per para. 16.15.23 of Chapter 8 of the ES and proposed within the Biodiversity Improvement and Management Plan dated October 2020 and thus remain suitable for breeding Skylark. It is envisaged a proportion of the meadowland will be accessible by the public, albeit with restricted access commensurate to the continued use of the land for agricultural use minimising potential for breeding Skylark to be disturbed by local residents and reducing disturbance to other foraging farmland birds.

4.4.9. Overall, whilst arable land will be lost under the proposals, effects on farmland bird species are anticipated to be neutral to beneficial and non-significant, as set out in table 16.7 of Chapter 8 of the ES.

Other birds

4.4.10. Anecdotal evidence indicates Cuckoo *Cuculus canorus*, a BTO Red List Species, has been recorded at Begbroke Wood. Cuckoo is a well-known brood parasite, whereby the females laying their eggs in the nests of other birds and are associated with a range of habitats including woodland, grassland, farmland, wetlands, and towns and gardens.

4.4.11. Cuckoo was not recorded within the site during the breeding birds survey undertaken in 2019 and Begbroke wood is privately owned, so not publicly accessible, and is set back from the development so disturbance effects from the development would be minimal. Adverse effects on the local Cuckoo population are therefore not anticipated; on the contrary, the proposals will result in an increase in woodland, grassland and wetland habitats, as well as the expansion of the hedgerow network at the site, increasing nesting opportunities for other

birds and thus also opportunities for Cuckoo. On balance, Cuckoos will benefit albeit at a non-significant level under the proposals.

Invertebrates

4.4.12. Anecdotal evidence indicates Silver-washed Fritillary *Argynnis paphia,* has been recorded at the site `*just beginning to return to the woods*`. Silver-washed Fritillary is not of particular conservation concern being considered of `least concern` in terms of UK Conservation Status[7]. Regardless, the presence of the butterfly is limited by the presence of nectar sources (aphid honey-dew in the tree-tops and nectar on Bramble and Thistle) and larval food (Common Dog-violet). Given the woodland, trees and hedgerows are proposed for retention and enhancement, and further woodland, hedgerow and tree planting proposed, opportunities for this butterfly are expected to increase under the proposals.

4.4.13. Other invertebrates are expected to benefit under the proposals through the retention of veteran trees, enhancement of retained grassland to be more floristically diverse, creation of species-rich grassland, increasing presence of woodland and wetland habitat, and the incorporation of planting of known ecological benefit (i.e. RHS Pants for pollinators) within the development footprint along with invertebrate nest boxes. Overall, the proposals are anticipated to be beneficial and non-significant for invertebrates.

Other Fauna

4.4.14. As discussed at para. 3.2.3 of this addendum, there has been no significant change to the habitats at the site, such that the opportunities afforded to other fauna is considered unlikely to have materially altered, such that the evaluation of the site for other fauna as set out in the Ecological Baseline dated October 2020 at ES Appendix 16.1 is considered to be accurate, and thus the assessment of impacts as set out in Chapter 8 of the ES is considered to remain valid.

4.4.15. Overall, the proposals are considered to accord with relevant provisions of national planning policy, Cherwell District Council Local Plan policy ESD10 and site-specific requirements of policy PR9.

5. Mitigation Measures and Biodiversity Net Gains

5.1. Mitigation

5.1.1. No significant changes to the habitats or ecological features at the site have been recorded, such that descriptions within the Ecological Baseline dated October 2020 (See Appendix 16.1 of the ES) are considered to remain accurate. Where changes have occurred, they are considered to be minor such that they do not materially affect the evaluation of habitats or the assessment of opportunities for fauna within the Ecological Baseline. Accordingly, the proposed mitigation measures to safeguard retained habitats and fauna as set out within Chapter 8 of the ES, and shown on 5436/ENH1 herein, are considered to continue to be appropriate. Should the update survey work identify the need to refine the mitigation for one or more faunal species, the revised mitigation measures could be set out within an Ecological Mitigation Strategy which could be secured by condition.

[7] https://butterfly-conservation.org/butterflies/silver-washed-fritillary

5.1.2. Further details on the measures to safeguard Ecological Interest Features during construction will be detailed within a Construction and Environmental Management Plan (CEMP) that can be secured by condition.

5.2. Biodiversity Net Gains

5.2.1. 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 within Chapter 8 of the ES, and detailed within the Biodiversity Improvement Management Plan dated October 2020, are considered to remain appropriate given the results of update survey work. However, further information has been provided herein to provide confidence that the scheme achieves net gains in biodiversity, particularly following the passing into law of the Environment Act 2021 in November 2021, whilst a Biodiversity Net Gain assessment for the proposals is set out in Technical Note TN03: Biodiversity Net Gain Assessment using Defra Biodiversity Metric 3.1 Calculation Tool.

5.2.2. Whilst Chapter 8 of the ES sets out the measures which will result in gains for biodiversity and should be referred to, Plan 5436/ENH1 has been prepared to provide visual representation. Key gains in biodiversity have been reproduced below demonstrating how the proposals will benefit local biodiversity, particularly in respect of fauna which is not represented within the Biodiversity Net Gain assessment (see paras. 5.2.3 to section 5.2.4):

Habitats & Ecological Features

- Enhancement of ~19ha retained grassland habitat to be more floristically diverse.
- Creation of ~8.3ha (net) of woodland habitat, increasing the presence of this habitat type at the site by ~1400%.
- Expansion of existing woodland habitat through planting of woodland adjacent to Begbroke Wood LWS, and increasing connectivity of this habitat across the north of the site.
- Reinstating ~1.82km of new species-rich hedgerow planting.
- Veteran trees and other retained trees will benefit from removal of agricultural run-off and ploughing and will receive sympathetic management.
- Habitats and ecological features to be brought under management based on ecological principles, as proposed within the Biodiversity Improvement and Management Plan dated October 2020.

Fauna

- Reinforced/bolstered boundary vegetation and creation of green corridor though the site providing enhanced connectivity around/through the site for a range of wildlife.
- Increased and enhanced foraging habitat for bats, badgers, birds (including Barn Owl), herptiles and invertebrates.
- Increased and enhanced suitability of the site for European Protected Species Dormice (albeit not present at this time).
- Increased and enhanced shelter and wintering opportunities for the Priority Species Hedgehog.
- Increase and enhanced of shelter and over wintering opportunities for herptiles.

- Enhanced suitability of the site for Grass Snake through the creation of SuDs features.
- Increased permeability of the site and breeding opportunities for amphibians through the introduction of Sustainable Urban Drainage features throughout the development.
- Increase in breeding habitat for farmland birds associated with hedgerows.
- Enhanced breeding habitat for ground nesting farmland birds.
- Increase in alternative roosting and nesting opportunities for bats and birds (including Barn Owl).
- Increase in extent of habitats, with sympathetic management, attractive to invertebrates resulting in increase in species and biomass.

Biodiversity Net Gain Assessment

5.2.3. A Biodiversity Net Gain assessment of the outline scheme was undertaken in September 2020 utilising the Defra v2.0 biodiversity metric calculation tool: the most current national tool promoted by Natural England at the time. The Defra v2.0 biodiversity metric calculation tool demonstrated deliverable net gains for the proposed development of the site achieving a 16.84% net gain in habitat units and 9.42% net gain in hedgerow units. No gain in River Units was achieved as no watercourses would be affected under the proposals. The outputs from the metric were detailed within Technical Note TN01: Biodiversity Impact Assessment Using Defra Biodiversity Metric 2.0 Calculation Tool, which has been submitted to inform the outline planning application.

5.2.4. An updated version of Defra's Biodiversity metric calculation too, version 3.1, was released in April 2022; although Natural England still advocated the use of the v2.0 metric calculation tool stating `*Users of the previous Biodiversity Metric 2.0 should continue to use that metric (unless requested to do otherwise by their client or consenting body) for the duration of the project it is being used for…*`. Nonetheless, consultees have requested the proposals be assessed against a more recent version of the Defra metric calculation tool. Accordingly, the Biodiversity Net Gain assessment has been updated: rational for category selection has been set out within Technical Note TN03, whilst the headline summary of the output is provided below.

Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	36.01
	Hedgerow units	14.65
	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*	13.98%
	Hedgerow units	14.56%
	River units	0.00%
Trading rules Satisfied?		Yes ✓

5.3. As the output above shows, the outline proposals achieve a 13.98% net gain in habitat units and 14.56% net gain in hedgerow units; exceeding the objective of Cherwell District Council to seek 10% net gain from development where possible, as well as the benchmark set in national policy. Nonetheless, whilst the Biodiversity Net Gain Assessment demonstrates that the residential development proposal at Land West of Yarnton could secure a net biodiversity gain for both habitats and hedgerows, the assessment has been prepared on the basis of an initial concept plan and does not preclude alternative schemes coming forward that would result in an alternative score being achieved. In this context, the gains set out in this calculation must not be treated as targets against which any development proposal should be considered against.

6. Conclusions

6.1. Aspect Ecology has been advising Merton College, Oxford, in respect of proposed development at land west of Yarnton, site since 2018, and has provided herein an addendum to Chapter 8 of the ES to provide an update following further survey work and in light of comments on ecology received through consultation.

6.2. A suite of survey work undertaken by Aspect Ecology 2018 to 2020, as well as update survey work for foraging/commuting bats, Dormouse and reptiles in 2021/2022, has been reviewed to understand the current ecological baseline of the site: the results of the survey work between 2018 and 2020 are set out in an Ecological Baseline dated October 2020 within Appendix 16.1 of the ES, whilst the results of update survey work to date are set out herein.

6.3. Update survey work has confirmed the habitats and ecological features remains unchanged to that surveyed between 2018 and 2020, such that the findings and evaluations, as well as assessment of impacts in respect of habitats, within Chapter 8 of the ES remain valid. Similarly, the update survey work undertaken to date serves to reinforce the findings and evaluation of the site in respect of fauna, such that the assessment of impacts within Chapter 8 of the ES remains valid. Accordingly, it is considered the construction/operational phases of the development would not result in any significant adverse effects on biodiversity or contribute to any cumulative /in combination adverse effects arising from developments in the local area.

6.4. Notwithstanding the above, further information has been provided herein to demonstrate how net gains in biodiversity are achieved under the proposals and an update Biodiversity Net Gain assessment for the scheme has been undertaken using the most recent Defra metric (V3.1) calculation tool. Regarding the latter, the metric confirms the scheme results in measurable net gains in `habitat units` and `hedgerow units` in accordance with national and local policy, and exceeds the objective of Cherwell District Council to seek 10% net gain from development where possible.

6.5. In conclusion, as set out in ES Chapter 8, subject to the implementation of appropriate mitigation such as those advised at section 16.15, no significant adverse effects to local biodiversity, either alone or in combination, are expected to arise under the proposals. On the contrary, the proposals will result in net gains for biodiversity. Overall, the proposals are considered to accord with relevant provisions of national planning policy, Cherwell District Council Local Plan polices ESD9, ESD10, and site-specific requirements of policy PR9.

Enclosed: Plan 5436/ENH1: Ecological Enhancement Plan

Plan 5436/ENH1:

Ecological Enhancements

New community woodland will provide a buffer between the retained ancient woodland and built development, whilst also providing an ecotone with a variety of microhabitats attractive to invertebrates, birds and bats.

The substantial gain in woodland habitat will benefit birds, small mammals, Badger, amphibians and invertebrates by providing new foraging and sheltering opportunities.

The retained woodland along Dolton Lane will be selectively thinned to open up clearings and encourage natural regeneration, whilst new native tree planting will be undertaken to increase species diversity in the shrub and canopy layers.

Log/wood piles created within the woodland copses and meadowland will provide new refuge and foraging opportunities for reptiles and amphibians.

Protective shrub planting around the edge of the ancient woodland to deter cats.

New landscape planting will incorporate a proportion of fruit and nut yielding species, providing an additional seasonal foraging resource for birds and Badger.

Woodland creation will provide enhanced connectivity between Begbroke Wood LWS and the wooded belt of Dolton Lane, and further easterly.

Retained and protected veteran trees will benefit from the removal of agricultural run-off and ploughing.

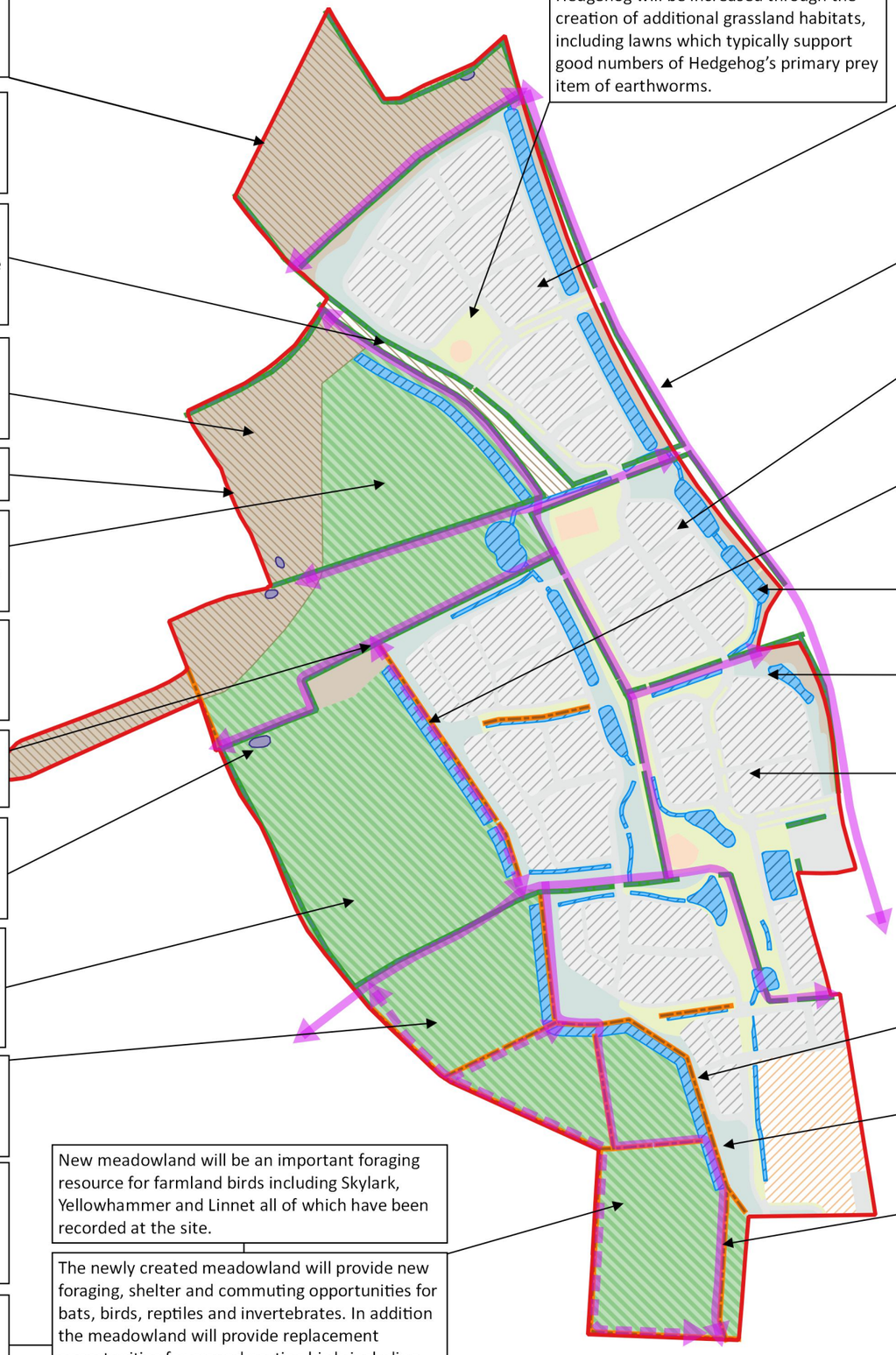
Retained ponds will be enhanced with new aquatic and marginal vegetation which will benefit foraging and breeding amphibians, as well as birds and invertebrates.

Reptiles will benefit directly through the creation of the meadowland and woodland habitats that will be managed sympathetically and provide new and enhanced foraging grounds and places to shelter and over winter.

The provision of new wood/log piles will enhance opportunities for saproxylic organisms which in turn provide important ecosystem services through nutrient recycling and soil creation.

Swathes of species-rich wildflower grassland will be created and subject to a conservation led management regime. Management will be designed to create a varied sward structure attractive to a range of species.

The creation of new meadows in combination with retained and enhanced grassland habitats will provide improved connectivity through the site on a south-north direction.



Foraging potential for the Priority Species Hedgehog will be increased through the creation of additional grassland habitats, including lawns which typically support good numbers of Hedgehog's primary prey item of earthworms.

New meadowland will be an important foraging resource for farmland birds including Skylark, Yellowhammer and Linnet all of which have been recorded at the site.

The newly created meadowland will provide new foraging, shelter and commuting opportunities for bats, birds, reptiles and invertebrates. In addition the meadowland will provide replacement opportunities for ground nesting birds including Skylark Alauda arvensis (Priority Species).

Bat and bird boxes within the new development will provide additional new long-term roosting and nesting opportunities for Priority Species such as House Sparrow Passer domesticus, Swift Apus apus, Notcule Bat Nyctalus noctula and Soprano Pipistrelle Pipistrellus pygmaeus.

Retained hedgerows will benefit from the introduction of ecologically led management to improve structure, condition and increase foraging production on fruiting species, whilst also providing continued corridors to facilitate the movement of wildlife around the development.

Landscape planting will be carefully selected to include species of known ecological benefit i.e. RHS Plants for Pollinators, which will benefit pollinating insects.

A sensitive lighting strategy will be implemented to avoid/minimise light-spill onto retained and newly created habitats, as appropriate, ensuring dark corridors remain to facilitate the movement of bats, badger and other light-sensitive nocturnal fauna around the site.

SuDs features will provide additional valuable water sources for wildlife within the site, including Grass Snake which has been recorded at the site.

SuDs features will increase permeability of the site for amphibians, providing steppingstone habitat that could also be used for breeding.

Bee bricks and insect boxes within the new development will provide additional nesting and hibernating opportunities invertebrates such as solitary bees and ladybirds.

The increased diversity of habitats will attract a greater diversity and biomass of invertebrates, which in turn provide an important prey resource for bats and birds.

New woodland, tree and hedgerow planting will provide additional opportunities for nesting birds including Priority Species Yellowhammer Emberiza citrinella and Linnet Linaria cannabina.

Reinstated historic hedgerows providing enhanced connectivity through the site for a variety of fauna, particularly for bats.

The new hedgerows, woodland and meadowland will be attractive to small mammals which in turn provide an important prey resource for birds such as Barn Owl (Priority Species). New roosting opportunities will also be provide for Barn Owl which is known to be present on-site.

Planting a variety of hedgerow and shrub species with varying flowering periods will provide year-round foraging opportunities for pollinating invertebrates.

Key:

- Site Boundary
- Retained Commuting Corridor for Bats
- Potential Commuting Corridor for Bats
- Public Access Land
- Retained pond
- SuDS
- Community woodland
- Woodland Planting
- Woodland Bridleway
- Retained Hedgerow
- New Hedgerow

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Land at Yarnton	PROJECT
Ecological Enhancements Plan	TITLE
5436/ENH1	DRAWING NO.
E/JP	REV
May 2022	DATE

ecology • landscape planning • arboriculture

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