



**Symmetry Park,
Bicester, Phase 3**

Ecological Appraisal

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**The Environmental Dimension
Partnership Ltd**

On behalf of:
Tritax Big Box Developments

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(edp7480_d011b 28 November 2024 GYo/NDo)

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(edp7480_d010b 28 November 2024 GYo/NDo)

Plan EDP 8: Post Development Habitats Plan

(edp7480_d002c 28 November 2024 PDr/JSn)

Executive Summary

- S1 The Environmental Dimension Partnership Ltd (EDP) was commissioned by Tritax Big Box Developments (TBBD) to undertake a range of baseline ecological investigations in order to inform a planning application for a proposed development at Symmetry Park Bicester, Phase 3 (hereafter referred to as 'the Site').
- S2 The baseline ecological investigations included a desk study, Habitat Assessment, National Vegetation Classification and River Condition Assessment. Detailed (Phase 2) surveys were also completed relating to breeding and wintering birds, roosting and foraging/commuting bats, badger, great crested newt, reptiles and hairstreak butterflies. All surveys were undertaken with reference to best practice guidance.
- S3 EDP's desk and field-based baseline investigations have identified that no statutory or non-statutory designations are present that would be materially affected by the proposed development.
- S4 All habitats on-site are of only limited (Local-level) intrinsic nature conservation value or less, comprising mainly grassland (predominantly other neutral though some small sections of lowland meadow) and tall forbs, bounded by a network of hedgerows with trees, ditch, a small block of woodland and a few agricultural buildings.
- S5 The on-site habitats support only small populations/typical assemblages of a number of protected/Priority Species (of Local-level nature conservation value or less) as follows: breeding and wintering bird assemblages, foraging/commuting bat assemblage, badger (absent though potential exists), reptiles (small population of grass snake and common lizard) and great crested newt.
- S6 EDP considers that none of the ecological features present/likely present constitute an 'in principle' (significant) ecological constraint. However, off-site mitigation will be required to ensure that the development delivers a net gain in biodiversity in line with national planning policy and demonstrated using the Statutory Department for Environment, Food and Rural Affairs (DEFRA) Biodiversity Metric.
- S7 A proportionate and appropriate ecology strategy response for the avoidance and mitigation of predicted impacts and ecological effects is considered in this report. Mitigation measures should include: inherent mitigation incorporated from the outset of the design (i.e. avoidance and habitat retention measures); those sensitive timings and working methods, which should be implemented at the construction stage and described in detail in an Ecological Construction Method Statement (ECMS); those habitat enhancement and creation measures, which should be designed and specified in detail within a Soft Landscaping Scheme/Ecology Management Plan to ensure that the design vision is achieved in the long-term.
- S8 At this stage EDP considers that by virtue of the limited constraint posed by the ecological features on-site, coupled with the scope for habitat enhancement, the scheme is capable of compliance with wildlife legislation and relevant national and local planning policies for the conservation of the natural environment.

Section 1 Introduction

- 1.1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Tritax Big Box Developments (TBBD) (hereafter referred to as ‘the Applicant’). This Appraisal considers the ecological implications of proposed development at Symmetry Park Bicester Phase 3, located to the south-east of Bicester (hereafter referred to as ‘the Site’).
- 1.2 This report has been prepared with reference to the following key guidance:
- Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Preliminary Ecological Appraisal*¹;
 - CIEEM *Guidelines for Ecological Impact Assessment*²;
 - British Standard: *Biodiversity - Code of Practice for Planning and Development*³; and
 - British Standard: *Process for designing and implementing Biodiversity Net Gain*⁴.
- 1.3 EDP is an independent environmental planning consultancy with offices in Cirencester, Cardiff and Cheltenham. The practice provides advice to private and public sector clients throughout the UK in the fields of landscape, ecology, archaeology, cultural heritage, arboriculture, rights of way and masterplanning. Details of the practice can be obtained at our website (www.edp-uk.co.uk).

SITE CONTEXT

- 1.4 The Site is centred approximately at Ordnance Survey Grid Reference (OSGR) SP 60692 20626. The Local Planning Authority (LPA) is Cherwell District Council. The location and extents of the Site are illustrated on the Proposed Site Layout (see **Appendix EDP 1**), and described in the material supporting the planning application, particularly the Design and Access Statement.
- 1.5 The Site measures 7.34 hectares (ha) and is located to the south-east of Bicester, Oxfordshire along the A41, adjacent to the approved Symmetry Park Phase 1 and 2 developments. It comprises grassland fields, bordered by hedgerows and a ditch, with a small group of farm buildings in the north-eastern corner. Other features on-site include a small block of woodland in the south-east, and small areas of tall forbs.. In addition, the Site

¹ CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

² CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2*. Chartered Institute of Ecology and Environmental Management, Winchester.

³ BSI (2013) *Biodiversity - Code of Practice for Planning and Development*. BS 42020:2013. British Standards Institute.

⁴ BSI (2021) *Process for designing and implementing Biodiversity Net Gain. Specification*. BS 8683:2021. British Standards Institute.

boundary includes an access road to the A41 on its western side, through the existing phases of the adjacent Symmetry Park commercial development.

- 1.6 The Site has been largely used for hay production and cattle grazing land. Land use in the surrounding landscape is largely agricultural with occasional areas of employment and residential land. The Site is bounded by the A41 to the south, Symmetry Park Phase 1 and 2 to the west, a scrap metal yard to the east and farmland to the north.

DEVELOPMENT PROPOSALS

- 1.7 In brief, the proposed development comprises the construction of two commercial distribution centres for employment use under Use Class B8, as well as associated infrastructure and landscaping. The Site has been identified as a preferred employment site allocation as part of Chapter 5 of the Bicester Area Strategy of the Local Plan Review 2024.
- 1.8 The proposals are to be the subject of a detailed planning application and Proposed Site Layout is provided as **Appendix EDP 1** to this report.
- 1.9 The ecological sensitivities of the Site have influenced the final layout through an iterative design process. Thus, the masterplan incorporates a degree of 'inherent' mitigation to avoid or reduce the severity of potential ecological impacts.

SCOPE OF THE ASSESSMENT

- 1.10 This Ecological Appraisal describes the current ecological interest within and around the Site, which has been identified through standard desk- and field-based investigations. It then considers the potential ecological impacts and opportunities for ecological enhancement based on the final masterplan (incorporating inherent mitigation) in the context of relevant legislation and planning policy. Finally, this Appraisal identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.
- 1.11 The remainder of this report is structured as follows:
- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the Site (with further details provided within Appendices and on Plans where appropriate);
 - **Section 3** summarises the baseline ecological conditions (with further details also provided within Appendices and on Plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors;
 - **Section 4** describes how the development design has responded to the ecological constraints and any embedded/inherent mitigation, and then considers the potential impacts of the proposals on pertinent ecological features;

- **Section 5** proposes mitigation and enhancement measures for the current and possible future planning stages, in the context of relevant legislation and planning policy, and mechanisms to secure their delivery; and
- **Section 6** summarises the Mitigation and Enhancement Strategy for the Site and provides the overall conclusions of the Appraisal.

Section 2

Baseline Methodology

- 2.1 This section of the Ecological Appraisal summarises the methodologies employed in determining the baseline ecological conditions within and around the Site. This has been undertaken by appropriately qualified ecologists using relevant best practice methodologies wherever possible. Reasons for any departure from best practice methodology are given and normally relate to the timing of EDP's commission and/or the availability of access to parts of the Site or wider study area. Full details of the techniques and process adopted are, where appropriate, provided within Appendices and on Plans to the rear of this report. EDP have been involved in the previous Phases of Symmetry Park, and have therefore built up a detailed local knowledge of the site and surrounds over a number of years.

DESK STUDY

- 2.2 The desk study is an important element of undertaking an initial ecological appraisal of a site proposed for development, which entails the initial collation and review of contextual information, such as designated sites, together with known records of important habitats or species.
- 2.3 The desk study involved collating biodiversity information from the following sources:
- Thames Valley Environmental Records Centre (TVERC);
 - Multi-Agency Geographic Information for the Countryside (MAGIC) website⁵; and
 - National Biodiversity Network (NBN) Atlas website⁶.
- 2.4 The desk study was undertaken in February 2022 and updated in April 2024 and involved obtaining the following information:
- International statutory designations (10km radius around the Site);
 - National statutory designations and non-statutory local sites (2km radius);
 - All other protected and notable⁷ species records (2km radius);
 - The published Local Nature Recovery Strategy (LNRS) where currently available; and

⁵ www.magic.gov.uk.

⁶ www.nbnatlas.org.

⁷ Certain species are listed as Priority Species (also termed Species of Principal Importance), the conservation of which public authorities in England must have due regard to as part of policy or decision making under Section 40 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Other species of conservation note are also included here, where they are listed under other conservation lists (e.g., red data books).

- All other notable⁸ habitat (irreplaceable habitats or Priority Habitats) records (500m radius).
- 2.5 These search areas are considered sufficient to cover the potential zones of influence⁹ of the proposed development in relation to designated sites, habitats and species.
- 2.6 The adopted Cherwell District Local Plan and any relevant Supplementary Planning Documents were also reviewed as part of the desk study to understand local priorities with regard to protection of ecological features/biodiversity.
- 2.7 In addition to the above, previous survey information for the Site, collected by EDP in 2018 as part of applications for Phase 1 and 2 of the Symmetry Park Developments were also reviewed to obtain further contextual information.

CONSULTATION

- 2.8 In addition to the above, the views of the LPA County Ecologist were sought in respect of likely ecological sensitivities pertaining to the Site and necessary survey scope.

BASELINE HABITAT SURVEY

- 2.9 The main habitats within the Site, together with their dominant/characteristic plant species, were identified by undertaking a baseline habitat survey in 2018, with an update on 31 May 2022 and a further Habitat Assessment completed on 07 July 2024. The 2024 survey was undertaken following the guidance for habitat surveys as set out in The Statutory Biodiversity Metric User Guide¹⁰, for which the habitat definitions primarily rely on descriptions set out in the UK Habitat Classification¹¹ and habitat conditions as set out for the Statutory Biodiversity Metric¹².
- 2.10 This method allows for an assessment of the main habitat types present on-site, including those listed as Priority Habitats or Irreplaceable Habitats. This survey was extended so that any evidence (actual or potential) for protected or notable species present on-site was recorded. Any evidence of Schedule 9 invasive non-native species¹³ was also recorded. Plant species lists and their abundance for each habitat type were recorded but only where pertinent to identify the habitat type or condition. It was not the aim of the survey to collate a comprehensive botanical or species inventory of the Site.

⁸ Certain habitats are listed as Priority Habitats (also termed Habitats of Principal Importance), the conservation of which public authorities in England must have due regard to as part of policy or decision making under Section 40 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Irreplaceable habitats are those listed under The *Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024*.

⁹ Zone of Influence - the areas and resources that may be affected by the proposed development.

¹⁰ DEFRA (February 2024) *Statutory Biodiversity Metric User Guide*.

¹¹ UKHab Ltd (July 2023) *UK Habitat Classification Version 2.0* [<https://www.ukhab.org>]

¹² DEFRA (February 2024) *Statutory Biodiversity Metric Technical Annex 1: Condition Assessments*.

¹³ Those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended).

- 2.11 Full details of the habitat survey methodology are provided within **Appendix EDP 2** and the findings detailed on **Plan EDP 1**.

Limitations

- 2.12 Although a full discussion of limitations is provided in **Appendix EDP 2** there were no significant limitations with this survey type.

DETAILED SURVEYS

- 2.13 The scope of further Surveys undertaken within the Site was defined following the initial studies described above and consultation undertaken with the LPA County Ecologist.
- 2.14 The surveys 'scoped in' based upon the findings of the habitat surveys are summarised in turn below, with reference to sources of further detailed information where applicable.

Detailed Botanical Survey

- 2.15 Given the presence of higher value grasslands identified during the baseline habitat survey, a detailed botanical survey (National Vegetation Classification (NVC)) of the on-site grassland was undertaken on 08 July 2022 and updated on 01 June 2024 to provide a more robust assessment of their botanical diversity and condition.
- 2.16 To confirm the habitat type and condition of the grassland habitat the detailed botanical survey included undertaking 5 x 2m² randomly selected quadrats within the four distinct grassland communities identified. Within each quadrat a full species list of higher plants was recorded with their abundance recorded in line with the standard NVC methodology. The species scores were referenced to the plant community tables contained within British Plant Communities Volume 3: Grasslands and Montane Communities. Ed J.S. Rodwell, Cambridge University Press 1992 (1998 edition).
- 2.17 Full details of the botanical survey methodology are provided within **Appendix EDP 2** and the findings detailed on **Plan EDP 1**.

Limitations

- 2.18 Although a full discussion of limitations is provided in **Appendix EDP 2** there were no significant limitations with this survey type.

River Condition Assessment Survey

- 2.19 Given the presence of wet ditch habitats within the Site, a detailed River Condition Assessment was undertaken on 11 October 2024 to provide an assessment of its habitat condition.
- 2.20 Full details of the River Condition Assessment are provided within **Section 3**.

Breeding Bird Survey

- 2.21 The Site contains several habitats which are suitable for nesting birds including grassland, species-rich hedgerows and woodland. A full breeding bird survey was therefore undertaken with reference to standard methodology, entailing a modified Common Bird Census (CBC)¹⁴ approach. This involved the completion of three visits to the Site, undertaken between 25 March 2022 and 30 June 2022, with update surveys completed between 24 April 2024 and 05 June 2024, to coincide with the height of the breeding bird season for lowland Britain.
- 2.22 Full details of the breeding bird survey methodology are provided in **Appendix EDP 3** and the findings detailed on **Plans EDP 2** and **3**.

Limitations

- 2.23 Although a full discussion of limitations is provided in **Appendix EDP 3** there were no significant limitations with this survey type.

Wintering Bird Survey

- 2.24 The Site contains several habitats which are suitable for wintering birds including grassland, hedgerows and woodland and there are designated sites in the vicinity which are likely to support an important wintering bird assemblage. British farmland is an essential habitat for many resident bird species and also for many migrants (Gillings *et al.*, 2008)¹⁵. A wintering farmland bird survey was therefore undertaken to identify whether any notable species populations occur during the winter months.
- 2.25 The survey involved the completion of a single visit to the Site, undertaken in February 2022 to establish whether additional wintering bird surveys would likely be necessary based on the habitats present and the species assemblage.
- 2.26 Full details of the winter bird survey methodology are provided in **Appendix EDP 4**.

Limitations

- 2.27 Although a full discussion of limitations is provided in **Appendix EDP 4** there were no significant limitations with this survey type.

Bat Surveys

- 2.28 During the initial habitat survey, nine trees present within, or immediately adjacent to, the Site were identified as having potential to support roosting bats. The six buildings within the Site were assessed to have negligible potential to support roosting bats. In addition, a number of habitats present within the Site, including grassland, hedgerows and woodland, were identified as being of moderate suitability to support foraging and commuting bats.

¹⁴ Marchant, J. (1983). *Common Bird Census Method*. BTO.

¹⁵ Gillings, S., Wilson, A.M., Conway, G.J., Vickery, J.A. & Fuller, R.J. (2008). *Distribution and abundance of birds and their habitats within the lowland farmland of Britain in winter*. *Bird Study*, 55:1, 8-22.

The following surveys for bats were therefore undertaken, with reference to best practice guidelines¹⁶:

Tree Roost Surveys

- Ground Level Tree Assessment (GLTA), undertaken on 03 May 2022 and updated on 16 July 2024, of all trees on-site to look for features that bats could use for roosting in order to determine the available roosting resource and the need for further survey.

2.29 No aerial inspections have been completed as all trees categorised in the GLTA as Further Assessment Required (FAR) or where a Potential Roost Features (PRF) were present, are considered likely to be retained as part of the Proposed Development.

Buildings/Built Structures/Underground Site Surveys

- Preliminary Roost Assessments (PRA) of all six buildings within the Site were completed to search for evidence of bats and determine the suitability of features to support roosting, undertaken on 03 May 2022 and updated on 16 July 2024.

2.30 Emergence surveys of buildings to confirm presence/likely absence of bats within the on-site buildings were not considered to be required as all buildings were found to be of negligible suitability to support roosting bats.

Bat Activity Surveys

- Nighttime Bat Walkover (NBW) surveys have been completed in May, July and September 2022 and 2024; and
- Automated bat detector surveys have also been conducted seasonally in May, July and September 2022 and 2024, in accordance with the guidelines for a site with moderate suitability for foraging and commuting bats. Locations of the automated detectors and NBW routes are shown on **Plan EDP 4**.

2.31 Full details of the bat survey methodologies are provided in **Appendix EDP 5**.

Limitations

2.32 Although a full discussion of limitations is provided in **Appendix EDP 5** there were no significant limitations with these surveys. Light drizzle occurred during a single survey in 2022, however, conditions were assessed to still be suitable to undertake the survey. Weather conditions for the remaining surveys were optimal.

Badger Survey

2.33 As part of the baseline survey any evidence of badger (*Meles meles*) within the Site was recorded. During the survey, any signs of badger activity such as holes, faeces, latrines, trails, snuffle holes and hairs on fencing or vegetation were recorded. No evidence of badger

¹⁶ Collins, J. (ed.) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.

(*Meles meles*) was identified during the baseline habitat survey, although the Site was found to support suitable foraging habitats for badger.

- 2.34 As no evidence of badger was recorded within the Site, no further surveys were considered to be required.

Great Crested Newt Survey

- 2.35 An initial assessment of the Site's suitability to support great crested newt (*Triturus cristatus*) was undertaken during the baseline habitat survey and with reference to desk study records as described above. No waterbodies were identified within the boundaries of the Site. However, seven waterbodies were identified adjacent and within a 500m radius of the Site, of which three are within 250m.
- 2.36 All waterbodies within 500m of the Site (but not separated from the Site by significant dispersal barriers) to which access was granted, were subject to the following survey types in accordance with relevant best practice guidance:
- Habitat Suitability Index (HSI) Assessment¹⁷; and
 - Conventional presence/absence and population assessment surveys¹⁸.
- 2.37 Waterbodies more than 500m from the Site were not surveyed (with the exception of pond **P1** located 550m south of the Site) as the likelihood of great crested newts dispersing over this distance to the Site is much reduced, and surveys of the nearer waterbodies are sufficient to identify likelihood of presence on-site and assess impacts on the local population.
- 2.38 The ditch and grassland habitats within the Site provide some suitable habitat for amphibian dispersal though opportunities for refuge are limited. A terrestrial survey of the Site was completed in tandem with the reptile survey (discussed further below), with 30 carpet tiles deployed across the Site on 22 May 2024 and checked on five occasions up to 07 August 2024.
- 2.39 Full details of the great crested newt survey methodology are provided in **Appendix EDP 6**. The location of the waterbodies surveyed, and findings of the surveys, are shown on **Plan EDP 5**.

Limitations

- 2.40 A full discussion of limitations is provided in **Appendix EDP 6**. During the surveys, access was refused to **P3** by the landowner. As such, no surveys of the pond were able to be undertaken, and any assessment of great crested newt presence has been based on surrounding waterbodies. During the HSI surveys, **P7** and **P8** were both dry and as such a HSI was not completed. The ponds remained dry throughout the presence/absence surveys and as such great crested newt were assumed to be absent.

¹⁷ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.

¹⁸ English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

Reptile Survey

- 2.41 Areas of grassland, tall forbs and hedgerows present within the Site provide potentially suitable basking, foraging and dispersal habitats for common and widespread reptile species. A detailed refugia-based reptile survey was therefore undertaken to confirm the presence and distribution, or likely absence, of reptiles within the Site with reference to Froglife's guidelines on reptile surveys¹⁹.
- 2.42 A total of 66 artificial refugia were deployed in all suitable habitats across the Site on 25 March 2022. Areas of exceptionally low or negligible suitability for reptiles (for example dense scrub) were excluded from the survey. This equates to 10 refugia per hectare, which is in line with the recommended 5 to 10 refuges per hectare as set out in the guidelines for 'general survey purposes.' Survey visits were undertaken on seven subsequent occasions in suitable weather conditions and involved two techniques:
- Visual encounter surveys – entailing a walked transect across the Site to undertake a visual search for basking animals in suitable habitat or evidence of animals (e.g. sloughed skin); and
 - Checking of the artificial refugia for sheltering or basking animals to establish the presence/likely absence of reptiles.
- 2.43 This ensured that all areas were represented in the survey, and that the survey was not biased towards those reptiles more likely to use refugia, such as slow-worm (*Anguis fragilis*).
- 2.44 These surveys were then repeated in 2024, with 67 reptile mats deployed on 19 April 2024 and subsequently checked for reptile presence on a further seven occasions.
- 2.45 During each survey visit, the following information was recorded: species; number of animals observed; and sex where possible; location (refugia or visual encounter); date; start and finish times; and weather. A summary of the survey dates, times and weather conditions are presented in **Table EDP 2.1** The locations of the artificial refugia and survey findings are shown on **Plan EDP 6**.

Table EDP 2.1: Reptile Survey Visits 2022 and 2024

Visit No.	Date	Start Time	End Time	Wind Speed (Beaufort Scale)		Temperature (°C)		Cloud Cover (%)	
				Min	Max	Min	Max	Min	Max
2022									
1	07.04.2022	09:30	10:15	3	4	9	9.5	5	15
2	12.04.2022	13:00	13:40	2	3	15	16	80	100
3	21.04.2022	12:30	13:45	1	2	16	18	30	40
4	27.04.2022	10:00	10:30	0	1	9	11	100	100

¹⁹ Froglife (1999) *Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10, Froglife, Halesworth.

Visit No.	Date	Start Time	End Time	Wind Speed (Beaufort Scale)		Temperature (°C)		Cloud Cover (%)	
				Min	Max	Min	Max	Min	Max
5	04.05.2022	09:30	10:30	1	3	13	14	90	100
6	17.05.2022	17:00	17:30	2	4	22	23	30	50
7	30.05.2022	11:28	13:00	2	3	13	15	80	90
2024									
1	01.05.2024	10:15	11:00	1	2	14	15	60	80
2	15.05.2024	11:38	12:26	1	3	18	18	50	80
3	17.06.2024	10:00	11:00	2	2	17	18	10	10
4	01.07.2024	15:55	16:00	1	4	17	18	95	100
5	15.07.2024	12:15	13:00	0	1	18	18	100	100
6	22.07.2024	08:50	09:50	0	2	17	18	100	100
7	07.08.2024	08:40	10:30	2	4	16	18	20	50

- 2.46 As recognised across most publications on reptiles, the feasibility of assessing an actual population size is very challenging without comprehensive surveys with a disproportionate number of visits. Due to this, where reptiles were recorded, peak adult counts are used to reflect the estimated population size for each species.

Limitations

- 2.47 No significant limitations occurred during the reptile surveys in 2022 or 2024. On a number of occasions survey timings were altered slightly outside of the optimal periods due to weather conditions such as rain preceding the survey. However, where this occurred, surveys were undertaken during suitable temperature and cloud cover conditions for reptiles. As such, the survey timings were not considered to pose a significant constraint to the findings of these surveys.

Invertebrate Surveys

- 2.48 Given the presence of blackthorn and elm identified during the Extended Phase 1 Habitat Survey, and the presence of hairstreak butterfly (*Theclinae spp.*) recorded during surveys on adjacent land, a detailed terrestrial invertebrate survey of the hedgerows was undertaken on 24 February 2022 to confirm the presence/likely absence of brown, black and white-letter hairstreak eggs.
- 2.49 Full details of the invertebrate survey methodology are provided within **Appendix EDP 8** and the findings detailed on **Plan EDP 7**.

Limitations

- 2.50 Although a full discussion of limitations is provided in **Appendix EDP 8** there were no significant limitations with these surveys.

BIODIVERSITY NET GAIN

- 2.51 The *Biodiversity Gain Requirements (Exemptions) Regulations 2024* exempt certain types of development from meeting the biodiversity gain requirement that would otherwise be imposed as a general condition of planning permission.
- 2.52 The proposed development is not one of the types of developments and therefore, if the application for planning permission is granted, this development will be subject to the biodiversity gain condition as set out in the *Environment Act (2021)*. The condition requires that a Biodiversity Gain Plan, which demonstrates a minimum of 10% BNG, must be submitted to the local planning authority and approved prior to the commencement of the development.
- 2.53 Planning practice guidance on biodiversity net gain²⁰ states that an application for planning permission for a development subject to the biodiversity gain condition must be accompanied by minimum biodiversity gain information. This information, along with an indicative calculation of the scheme's net biodiversity impact using the Statutory Biodiversity Metric, is provided within the Biodiversity Net Gain (BNG) assessment included as **Appendix EDP 7**. The post development habitat plan is provided at **Plan EDP 8**.

ECOLOGICAL SURVEYS SCOPED OUT

- 2.54 **Table EDP 2.2** summarises other survey types which, whilst occasionally required to inform a planning submission for development sites, are not deemed to be necessary/appropriate in this case.

Table EDP 2.2: Ecology Surveys Scoped Out

Survey Type	Reasons for Scoping Out
River Condition Assessments	No watercourses were identified within the Site or surrounding 10m.
Otter and Water Vole Surveys	No suitable watercourses were identified within the Site or in the surrounding area.
Hazel Dormouse Surveys	No records of hazel dormouse were identified within the desk study. Given the scarcity of dormouse in the county and lack of records hazel dormouse surveys were not considered to be required as the species was assumed to be absent from the Site.

²⁰ <https://www.gov.uk/guidance/biodiversity-net-gain>.

Section 3

Baseline Results

- 3.1 This section of the Ecological Appraisal summarises the baseline ecological conditions determined through the course of desk-based and field-based investigations described in **Section 2**. In particular, this section identifies and evaluates those ecological features/receptors that lie within the Site's potential zone of influence and which are pertinent in the context of the proposed development. Further technical details are, where appropriate, provided within Appendices and on Plans to the rear of this report.
- 3.2 Where a particular ecological feature/receptor has been confirmed to be present, or presence is inferred based on habitat suitability, its ecological importance is assessed. The level of ecological importance assigned to each ecological feature is based upon established geographical value systems and the uses the following scale: International and European (highest) > National > Regional > County > District > Local > Negligible (lowest). Any features assessed as being important at a less than Local level though, which have a greater than negligible ecological importance, have been assessed as being of Site level ecological importance

DESIGNATED SITES

- 3.3 Information regarding designated sites was obtained during the desk study. Statutory designations (those receiving legal and planning policy protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

Statutory Designations

- 3.4 Statutory designations represent the most significant ecological receptors. Internationally important statutory designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites (including potential SPAs, possible SACs and proposed Ramsar). These designations are protected under the *Conservation of Habitats and Species Regulations 2017* (as amended) (the *Habitats Regulations*). These designations are referred to as 'habitats sites' in the *National Planning Policy Framework* (NPPF, December 2023) and development which would adversely affect a habitats site (alone or in combination) cannot benefit from the NPPF presumption in favour of sustainable development.
- 3.5 Nationally important statutory designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). NNRs are also SSSIs, both of which are protected under the *Wildlife and Countryside Act 1981* (as amended). The NPPF states that development which would adversely affect a SSSI should not normally be permitted.
- 3.6 Local level statutory designations include Local Nature Reserves (LNRs) and are generally considered to be of importance at the County level or lower. LNRs are designated under the *National Parks and Access to the Countryside Act 1949*, however, protection of LNRs is given via local planning policies and/or by-laws.

- 3.7 Statutory designations are also recognised as key natural assets within the Cherwell District Local Plan 2011 - 2031²¹. Policies ESD9 and ESD10 of the local plan specifically discuss the importance of protection and enhancement of biodiversity and state that:

“Development which would result in damage to or loss of a site of biodiversity or geological value of national importance will not be permitted unless the benefits of the development clearly outweighs the harm...”

- 3.8 No part of the Site is covered by any statutory designations and none exist within 15km of the Site. One nationally important designation was identified within 2km of the Site and a further three were identified within the Sites potential Zone of Influence (ZoI). These sites are summarised in **Table EDP 3.1**.

Table EDP 3.1: Statutory Designations Within the Site's potential Zone of Influence

Designation	Approx. distance from Site	Interest Feature(s)
Nationally Important Statutory Designated Sites (within 5km of the Site)		
Arncott Bridge Meadows Site of Special Scientific Interest (SSSI)	1.7km south	Ridge and furrow hay meadow and pasture with a herb assemblage indicative of ancient un-improved neutral grassland.
Long Herdon Meadow SSSI	3.9km east	Alluvial meadow grassland with a low management routine, resulting in a rich grassland community with rare grasses and herbs. Winter flooding encourages an assemblage of wading birds onto the land.
Stratton Audley Quarries SSSI	3.9km north	Designated for its geological value.
Wendlebury Meads and Mansmoor Closes SSSI	4.7km south-west	Traditionally managed un-improved neutral meadows supporting a complex variety of plant communities that have developed in response to varying management, drainage and soils. A bird assemblage includes breeding snipe (<i>Gallinago gallinago</i>), curlew (<i>Numenius aquatica</i>), golden plover (<i>Pluvialis apricaria</i>) and barn owl (<i>Tyto alba</i>).

Non-statutory Designations

- 3.9 Non-statutory designations are also commonly referred to in planning policies as ‘Local sites’, although in fact these designations are typically considered to be important at a County level. In Oxfordshire, such designations are named LWS. Additional, designated sites which should be considered at this level include Local Nature Reserves (LNR), Woodland Trust Reserves (WTR) and Ancient Semi-natural Woodland (ASNW) where these are not covered by other designations. In addition, some sites are recognised to the county level, in this case Cherwell District Wildlife Sites (CDWS) and areas proposed as Cherwell District

²¹ Cherwell District Council (2015) Cherwell Local Plan 2011 – 2031.

Wildlife Sites (PCDWS). Lastly some sites form integral parts of wider landscape initiatives so are recognised above the single county level, relevant here are Buckinghamshire, Berkshire, and Oxfordshire Wildlife Trust Reserves (BBOWTR). Conservation Target Areas (CTA) are landscape scale designations used to target habitat restoration, rather than having a higher ecological value in their own right. Where a Site boundary falls within or adjacent to a CTA it will need to be considered further.

- 3.10 Within 2km of the Site, there are six LWSs, a single WTR, a single CDWS, a single BBOWTR and a single PCDWS. Details of each site are summarised within **Table EDP 3.2**.

Table EDP 3.2: Non-Statutory Designations Within 2km of the Site

Designation	Approx. distance from Site	Interest Feature(s)
Meadows North West of Blackthorn Hill LWS	Adjacent to the northern boundary	Group of ridge and furrow meadows with dry grassland sward on the ridges and wet grassland sward in the furrows. Fields enclosed with mature hedgerows.
Ray CTA	Adjacent to the northern boundary	Covering the alluvial floodplain of the River Ray. Targeting management restoration and creation of lowland meadow, floodplain grazing marsh, hedgerows and rivers. Also creation of ponds and reedbed.
Gavray Drive Meadows LWS	1.0km north-west	Mosaic of small damp fields with ponds, divided by thick hedges and trees. Likely former hay meadows.
Blackthorn Meadow LWS	1.2km east	Species-rich ridge and furrow meadow.
Island Pond Wood WTR	1.2km north	A small 4ha relatively new woodland planted in 1999 as part of The Woodland Trust's 'Woods on Your Doorstep' (WoYD) scheme. Species mix reflects the low-lying wet conditions. The wood supports a single pond.
Cutter's Brook Meadows LWS	1.3km north	Two un-improved hay meadows on the River Ray Floodplain.
Graven Hill LWS	1.3km west	Ancient/semi-natural woodland with an ancient woodland indicative ground flora.
Field by River Ray LWS	1.6km south-east	Un-improved permanent pasture bounded on the north by the River Ray and is subject to winter flooding.
Field South of Ambrosden CDWS	1.6km south	A remnant lowland meadow with ridge and furrow, mostly species-poor sward is locally richer with broadleaved herbs. Single dried-up pond mostly covered in dense scrub.

Designation	Approx. distance from Site	Interest Feature(s)
Upper Ray Meadows BBOWTR	1.7km south	Group of ridge and furrow lowland meadow. Part of BBOWT's "Upper River Ray Living Landscape" with engineered pools and ditches to encourage wading birds and green hay regeneration to support wildflowers. Meadows are bounded by mature hedgerows.
Bicester Triangle PCDWS	1.8km north-west	Small community woodland surrounding a small area of grassland, woodland and a pond.

3.11 It is understood that the LPA does not currently have an adopted local nature recovery strategy. However, the Site sits within an area identified as a recovery area under the draft Oxfordshire Nature Recovery Network, a landscape scale designation which is a focus for targeting habitat restoration.

HABITATS

3.12 There are several mechanisms by which habitats that lie outside of statutory and non-statutory designations are protected, or by which their importance is recognised at a national level. This includes the following:

- 'Important' hedgerows are protected from removal (out with the planning process) by the *Hedgerows Regulations 1997*;
- Certain habitats are listed as Priority Habitats (also termed Habitats of Principal Importance), the conservation of which public authorities in England must have due regard to as part of policy or decision making under Section 40 of the *Natural Environment and Rural Communities (NERC) Act 2006*. The NPPF states that plans should promote the conservation, restoration and enhancement of Priority Habitats;
- In England, principal amendments to the *Town and Country Planning Act (1990)* including a new Schedule 7A (inserted by the *Environment Act 2021*) introduce a statutory framework for biodiversity net gain. Under the statutory framework, every grant of planning permission (unless otherwise exempt) is deemed to have been granted subject to the general biodiversity gain condition which requires a Biodiversity Gain Plan to be submitted and approved prior to the commencement of development. The Biodiversity Gain Plan must demonstrate a minimum 10% biodiversity net gain measured against the baseline value of the on-site habitats;
- Paragraph 186 of the NPPF includes a presumption against development which results in significant harm to biodiversity (including habitats), or results in the loss of Irreplaceable Habitats²². This paragraph also encourages development to integrate

²² As identified in *The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024*

biodiversity improvements as part of their design especially where this can secure measurable net gains for biodiversity; and

- The importance of protecting habitats, and networks of habitats, is reflected in the Cherwell District Council Local Plan within policy ESD10.

On-site Habitats

- 3.13 The distribution of different habitat types within the Site is illustrated on the baseline habitat plan (**Plan EDP 1**), informed by the Habitat Assessment and NVC surveys. The habitats are further described in **Appendix EDP 2** alongside illustrative photographs and species lists.
- 3.14 A summary and qualitative assessment of the existing habitats is provided in **Table EDP 3.3**. Further details of the habitat condition assessment, with reference to the criteria contained within *The Statutory Biodiversity Metric - Technical Annex 1: Condition Assessment Sheets and Methodology* are provided within **Appendix EDP 7**.

Table EDP 3.3: Summary of Existing Habitats Within the Site

Habitat Type	Condition	Area Size or Length (ha or m)	Baseline Reference*	Distribution and Description	Intrinsic Ecological Importance**
Developed land; sealed surface	N/A	0.65ha	5	Farm buildings and small areas of hardstanding are present within the north-east of the Site. The buildings consist of wood and steel-frame, open barns clad and rooved in single-skin corrugated metal, wooden sheds and an old caravan are also present.	Negligible
Built linear feature	N/A	0.39ha	10	An access road to the A41 on its western side, through the existing phases of the adjacent Symmetry Park commercial development.	Negligible
Modified grassland	Poor	0.13ha	7	Heavily disturbed, species-poor modified grassland is present within the gateways of the fields, with red fescue (<i>Festuca rubra</i>), perennial rye grass (<i>Lolium perenne</i>), and crested dogs tail (<i>Cynosurus cristatus</i>). No NVC approximation available. Area of turf along road side verges of existing development.	Less than local
Modified grassland	Moderate	0.25ha	9	Area of landscaping under existing phases, grassland proposed to be sewn with meadow mixture.	Less than local
Modified grassland	Good	0.67ha	1	Species-poor grassland is present along the southern edge of the southern field, with a good correspondence to MG12a (<i>Festuca arundinaceae</i>) grassland with (<i>Lolium perenne</i> - <i>Holcus lanatus</i>) sub-community. The grassland is dominated by tall fescue (<i>Festuca arundinaceae</i>) with abundant false oat-grass (<i>Arrhenatherum elatius</i>), perennial rye (<i>Lolium perenne</i>) and Yorkshire fog (<i>Holcus lanatus</i>).	Local

Habitat Type	Condition	Area Size or Length (ha or m)	Baseline Reference*	Distribution and Description	Intrinsic Ecological Importance**
Other neutral grassland	Moderate	4.95ha	2	Within the furrows on-site and on areas of the ridges, other neutral grassland is present, with some similarity to MG7b though with sweet vernal-grass, red fescue, crested dog's-tail and meadow buttercup pushing this sward more towards a herb-poor MG6b.	Local
Lowland meadows	Poor	0.21ha	3	More species-rich areas of grassland identified, representing an impoverished MG5a community were present on small, fragmented areas of the ridges within the fields. Crested dogs tail, red fescue and sweet vernal grass were co-dominant, with black knapweed (<i>Centaurea nigra</i>), red clover (<i>Trifolium pratense</i>), white clover (<i>Trifolium repens</i>), meadow vetchling (<i>Lathyrus pratensis</i>), and lady's bedstraw (<i>Galium verum</i>) also recorded.	Local (Priority Habitat)
Tall forbs	Good	0.51ha	6	Tall forb communities are present within the north-eastern corner of the Site and along the hedgerows and included cow parsley (<i>Anthriscus sylvestris</i>), common thistle species (<i>Cirsium spp.</i>), nettle (<i>Urtica dioica</i>), hemlock (<i>Conium maculatum</i>), and hogweed (<i>Heracleum sphondylium</i>).	Less than Local (Site)
Other woodland; broadleaved	Poor	0.12ha	4	A small stand of semi-mature trees is present in the south-eastern corner of the Site with a ground flora dominated by bramble and nettle. Trees present include ash (<i>Fraxinus excelsior</i>), elder (<i>Sambucus nigra</i>) and hawthorn (<i>Crataegus monogyna</i>).	Less than Local (Site)

Habitat Type	Condition	Area Size or Length (ha or m)	Baseline Reference*	Distribution and Description	Intrinsic Ecological Importance**
Species-rich native hedgerow with trees	Moderate	416m	H2 and H3	Hedgerows with trees are present along the southern and eastern boundaries of the Site. The hedgerows are dominated by hawthorn and blackthorn, with occasional oak (<i>Quercus</i> spp), bramble (<i>Rubus fruticosus</i>), ash, and elder. Nightshade (<i>Solanaceae</i> spp.) and hazel (<i>Corylus avellana</i>) were also present within hedgerow 3.	Local (Priority Habitat)
Species-rich native hedgerow with trees	Good	462m	H4	Hedgerows were present along the northern and western boundaries of the Site and were dominated by hawthorn and blackthorn, with occasional oak, ash, and elder.	Local (Priority Habitat)
Species-rich native hedgerow	Moderate	136m	H1	Hedgerows were present along the northern and western boundaries of the Site and were dominated by hawthorn and blackthorn, with occasional oak, ash, and elder.	Local (Priority Habitat)
Ditch	Poor	460m	D1	Flowing north to south along the western Site boundary, with water depth at c.1-2cm at the northern end, deepening to c.30cm deep water at the southern end, with a moderate flow rate. Ditch subject to shading and maintenance as a drainage channel and supporting no vegetation.	Less than Local (Site)

* Baseline reference - cross-reference to Statutory Metric (**Appendix EDP 7**)

**Importance irrespective of any protected, priority or other notable species which may be present

- 3.15 The grassland, hedgerows and woodland on-site are judged to be of Local level importance and/or are Priority Habitats. A single veteran tree is present within the Site as shown on **Plan EDP 1** and assessed further within the Arboricultural Impact Assessment (report reference: edp7480_r007) submitted as part of the planning application. Veteran trees are considered irreplaceable under the Statutory Biodiversity Metric and as such the loss of any veteran trees should be avoided wherever possible – the development proposals retain this tree.
- 3.16 Furthermore, a number of the habitats, including those which are of limited intrinsic importance, also require consideration in relation to their importance in maintaining populations of protected, priority or other notable species. This is discussed further below.
- 3.17 Further details of the existing habitats in respect of the BNG Assessment is provided within **Appendix EDP 7**.

Off-site Notable Habitats

- 3.18 There are several Priority Habitats located within 500m of the Site based on available habitat mapping including:
- Lowland mixed deciduous woodland. There are several pockets of Priority Habitat woodland within 500m of the Site, the closest of which is 75m away. However, this habitat is separated from the Site by the adjacent scrap yard; and
 - Lowland meadows. A parcel of lowland meadow is present within the Meadows North West of Blackthorn Hill LWS, located immediately adjacent to the north-west corner of the Site.

PROTECTED, PRIORITY OR OTHER NOTABLE SPECIES

- 3.19 Certain species receive legal protection in the UK and are commonly known as ‘protected species.’ In reality, the level of protection for different species varies considerably, from protection solely against ‘killing and injury’ to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.
- 3.20 In addition to protected species there are other species/species-groups that do not receive legal protection, but which are notable owing to their conservation status. This includes Priority Species, the conservation of which public authorities in England must have due regard to under the *NERC Act* (2006). The NPPF recognises species as an important component of biodiversity, as does the Cherwell Local Plan, specifically Policy ESD 10.
- 3.21 The likelihood of presence, or confirmed presence, of protected, priority or other notable²³ wildlife species within the Site is summarised below with reference to desk study records, habitat suitability and detailed surveys where relevant. Further details are made available within the appendices and plans where referenced.

²³ Notable species are those which are not legally protected but are formally identified as being of conservation concern.

Breeding Birds

- 3.22 All wild birds, their nests and eggs are protected under the *Wildlife and Countryside Act 1981* (as amended) (WCA). This makes it an offence to:
- Intentionally kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird while it is in use or being built;
 - Take, damage or destroy the egg of any wild bird; or
 - To have in one's possession or control any wild bird (dead or alive) or egg, or any part of a wild bird or egg.
- 3.23 In addition, further protection is afforded to those wild bird species listed on Schedule 1 of the WCA, prohibiting any intentional or reckless disturbance to these species while it is nest building, or at a nest containing eggs or young, or to recklessly disturb the dependent young of such a bird. A number of species are also included as Priority Species.
- 3.24 A large number of records of bird species were retrieved during the desk study, including 40 records of 9 WCA Schedule 1 species, 253 records of Priority Species and species included on the latest Red and Amber lists of *Birds of Conservation Concern*²⁴. The vast majority of records received relate to species that would not normally breed in habitats found within the Site. Records of the species with possible suitable breeding habitats on-site include barn owl (*Tyto alba*), red kite (*Milvus milvus*), bullfinch (*Pyrrhula pyrrhula*), dunnoek (*Prunella modularis*), greenfinch (*Chloris chloris*), lesser spotted woodpecker (*Dryobates minor*), Linnet (*Linaria cannabina*), meadow pipit (*Anthus pratensis*), rook (*Corvus frufilegus*), song thrush (*Turdus philpmelos*), starling (*Sturnus vulgaris*), stock dove (*Columba oenas*), whitethroat (*Curruca communis*), woodpigeon (*Columba palmumbus*), and wren (*Troglodytes troglodytes*).
- 3.25 The full results of the breeding bird survey are provided in **Appendix EDP 3** and illustrated on **Plans EDP 3** and **4**.
- 3.26 In 2022, 13 species were recorded during the surveys, with 15 species recorded in 2024. Of those species recorded, two of these were confirmed breeding (red listed mistle thrush (*Turdus viscivorus*) and amber listed sedge warbler (*Acrocephalus schoenobaenus*)), with nine species recorded as probable breeders, of which four were species of nature conservation importance (a Priority Species and/or being species included on the latest Red lists of *Birds of Conservation Concern*), namely greenfinch (*Chloris chloris*rook), house sparrow (*Passer domesticus*), linnet (*Linaria cannabina*) and song thrush (*Turdus philomelos*).
- 3.27 Overall, the assemblage of breeding bird species recorded on-site is thought to be consistent with the habitats present on-site and the surrounding farmland. The breeding bird assemblage on-site is therefore judged to be of Site level importance.

²⁴ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747.

Wintering Birds

- 3.28 Wintering birds do not receive direct legal protection; however, they may form part of a protected assemblage originating from a statutory designation in the vicinity or significant numbers of Priority Species or other notable species may be present.
- 3.29 The full results of the wintering bird survey are provided in **Appendix EDP 4**. In summary, during the 2022 surveys, a total of 13 bird species were recorded on-site. This includes two WCA Schedule 1 species and a further four species listed on the red or amber lists of birds of conservation concern. Those species of note include:
- Red kite;
 - Redwing (*Turdus iliacus*);
 - Black-headed gull (*Chroicocephalus ridibundus*);
 - House sparrow (*Passer domesticus*);
 - Wood pigeon (*Columba palumbus*); and
 - Wren (*Troglodytes troglodytes*).
- 3.30 Overall, the assemblage of wintering bird species recorded on Site is considered to be largely typical for the size and habitats present on-site. The species present reflect the habitats present on-site, but the Site is not considered to provide important wintering habitat for any of the species identified in the context of the wider landscape. The wintering bird assemblage is considered to be of Site Level Importance.

Bats

- 3.31 All species of British bat are listed as European Protected Species (EPS) on Schedule 2 of the *Conservation of Habitats and Species Regulations 2017* (as amended) (referred to as the 'Habitats Regulations'). This affords strict protection to bats and their roosts, and makes it an offence to:
- Deliberately capture, injure or kill a wild animal of an EPS;
 - Deliberately disturb wild animals of an EPS wherever they are occurring, in particular, any disturbance which is likely to impair their ability to survive, to breed or reproduce, to significantly affect the local distribution or abundance of the species to which they belong, or in the case of hibernating or migratory species, to hibernate or migrate; or
 - Damage or destroy a breeding site or resting place of a wild animal of an EPS.
- 3.32 Additional protection for bats is also afforded under the WCA, making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place. In addition, soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), greater horseshoe bat (*Rhinolophus ferrumequinum*), barbastelle bat (*Barbastella barbastellus*),

Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), and lesser horseshoe bat (*Rhinolophus hipposideros*) are also listed as Priority Species.

- 3.33 The desk study returned 183 records for bats within the 2km search radius around the Site. These records relate to at least 10 different species, including four records of roosts. The closest record of confirmed bat roosting being for three common pipistrelles roosting in a building 1.25km south of the Site.
- 3.34 Three records of Annex II species were returned within 2km of the Site. This included three records of Barbastelle, although no records of roosts for the species were identified.
- 3.35 Seven nearby records relating to European Protected Species Mitigation Licences (EPSML) issued for bats were returned from the data search on MAGIC within 2km of the Site, including licenses for brown long-eared bat, common pipistrelle, soprano pipistrelle and whiskered bat.

Tree Roost Surveys

- 3.36 A total of nine trees were identified during the GLTA as requiring further assessment or having Potential Roost Features (PRF) for bats. Of the trees, two were categorised as having PRF for Individual Bats (PRF-I) and seven were classified as FAR. Following further review of the proposals, all trees are to be retained within the Proposed Development and as such no further surveys were considered to be necessary.

Buildings/Built Structures/Underground Site Surveys

- 3.37 With respect to buildings, a total of six buildings were identified within/adjacent to the Site. All the buildings were found to be of negligible suitability for bats, consisting of open fronted, corrugated metal clad barns which were of negligible suitability, and single skin wooden sheds. Full details are provided within **Appendix EDP 5** with building locations shown on **Plan EDP 1**.

Bat Activity Surveys

- 3.38 Overall, the habitats present within the Site were assessed as having moderate suitability for foraging and commuting bats.
- 3.39 The findings of the NBW and automated detector surveys are provided in detail within **Appendix EDP 5**. Automated detector locations are shown on **Plan EDP 4**.
- 3.40 In summary, the level of bat activity recorded during the NBW surveys was generally low. The 2022 surveys recorded soprano pipistrelle, common pipistrelle and noctule across the survey period, with activity largely associated with the boundary hedgerows. During the 2024 NBW stationary observation periods only a single common pipistrelle was recorded commuting along the western hedgerow 20 minutes after sunset. During the walked section of the NBW, activity levels were generally low to moderate, again consisting of foraging common pipistrelle and soprano pipistrelle with occasional noctule.
- 3.41 Levels of bat activity recorded during the automated detector survey were generally low and dominated by common pipistrelle (89%) followed by noctule (6.4%), soprano pipistrelle (1.8%) and *Myotis* spp. (1.4%). Very low numbers of registrations were also recorded from serotine (0.6%), long-eared (0.3%), Leisler's (0.3%) and barbastelle (0.2%).

- 3.42 The distribution of this activity was fairly evenly distributed across the two detector locations.
- 3.43 Taking into account the diversity of bat species utilising the Site and the extent of their roosting, foraging and commuting activity, the overall bat species assemblage using the Site is considered to be of Local importance.

Badger

- 3.44 Badgers and their setts are protected under the *Protection of Badgers Act 1992*, which makes it an offence (*inter-alia*) to:
- Wilfully kill, injure, take, or cruelly ill-treat a badger; and
 - Damage or interfere with a sett, by doing one of the following things:
 - Damage a badger sett or any part of it;
 - Destroy a badger sett;
 - Obstruct access to, or any entrance of, a badger sett;
 - Cause a dog to enter a badger sett; or
 - Disturb a badger when it is occupying a sett.
- 3.45 The 1992 Act defines a badger sett as “*any structure or place which displays signs indicating current use by a badger*”.
- 3.46 The protection afforded to badgers is primarily due to animal welfare issues and history of persecution rather than concerns over their unfavourable nature conservation status.
- 3.47 Eight records of badger were returned within 2km of the Site. The closest record was of a badger fatality on the A41 approximately 730m east of the Site. Of the records only one was a confirmed sett, located 1.57km north of the Site. The grassland, tall forbs and woodland present within the Site offers suitable habitat opportunities for badger foraging and sett building.
- 3.48 The badger survey identified no evidence of foraging or commuting badger and no signs of badger were recorded during surveys within the Site in 2022 or 2024. Badger are a mobile species and as such could use the Site for foraging and or sett building in the future and as such will be considered as Site level importance.

Great Crested Newts

- 3.49 Great crested newt is an EPS receiving strict protection under the *Habitats Regulations* as summarised above in respect of bats. Additional protection is also afforded to this species under the WCA as summarised above in respect of bats. This species is also listed as a Priority Species.

- 3.50 A total of 257 records of great crested newt were returned within 2km of the Site, the nearest record being circa 0.3km away. However, it should be noted that this record was located within an area now consisting of built development. Twelve nearby records relating to EPSMLs issued for great crested newt were returned from the data search on MAGIC within 2km of the Site. In addition, MAGIC held 67 nearby records of great crested newt from licence returns. Of these records, none were located within the Site, however, a single record of great crested newt from licence returns was identified within 500m of the Site within Symmetry Park Phase 2.
- 3.51 The full results of the great crested newt surveys are detailed in **Appendix EDP 6** and summarised in **Table EDP 3.4**. The locations of the surveyed waterbodies are illustrated on **Plan EDP 5**.

Table EDP 3.4: Great Crested Newt Survey Results

Waterbody Ref. No.	Distance to Site	HSI Result	Population Survey Results (Peak Survey Count ²⁵)
P1	Over 500m from the Site	Below average	2022 survey – peak count of 23 GCN. 2024 surveys – peak count of 25 GCN.
P2	400m south-west	Good	2022 Surveys – No adult GCN or larvae found, but GCN eggs recorded.
P3	100m south	No Access	No access.
P4	330m south-east	Good	2024 surveys – peak count of 42 GCN.
P5	445m south	Poor	2022 Surveys – no GCN recorded.
P6	95m east	Poor	Pond was too dry to bottle trap throughout most of the 2022 season. No GCN found.
P7	Immediately adjacent to the north-western corner	Pond was dry	Pond was dry.
P8	480m south-west	Pond was dry	Pond was dry.

- 3.52 In terms of terrestrial habitats, the Site contains woodland, hedgerows, ditch, tall forbs and grassland which are of high suitability to support great crested newts in the terrestrial phase of their annual life cycle, and which therefore may potentially be used for foraging and dispersal. The water flow rate within the ditch is considered to exceed that tolerated by great crested newt and as such, the value of this habitat is reduced, though the banksides will still provide some suitable opportunities for dispersal. Terrestrial surveys for great crested newt were also carried out within the Site, comprising carpet tiles deployed along the hedgerow boundaries of the Site to provide suitable refugia for great crested newt. These tiles were then checked during the

²⁵ Peak survey count represents the maximum adult count per waterbody per night recorded through torch survey or bottle-trapping.

reptile surveys to identify if terrestrial great crested newt were present. No great crested newt were recorded on the Site.

- 3.53 Based on the survey results above, medium populations of great crested newt are present within the local area. However no great crested newt were recorded within the Site. Great crested newt are considered likely absent from the Site though their presence within the local landscape is considered to be of Local level importance.

Other Amphibian Species

- 3.54 Other legally protected amphibians are rare and have a very restricted distribution²⁶, however common toad (*Bufo bufo*) is a widespread species which is listed as a Priority Species.
- 3.55 Four records of common toad and six records of common frog were identified within 2km of the Site, none of which were recorded on or in close proximity to the Site.
- 3.56 In addition, two records of palmate newt (*Lissotriton helveticus*), and 72 records of smooth newt (*Lissotriton vulgaris*) were recorded within 2km of the Site, the closest of which were of smooth newt recorded 0.55km south of the Site.

Reptiles

- 3.57 All species of common reptile, namely common lizard (*Zootoca vivipara*), slow-worm, grass snake (*Natrix helvetica*) and adder (*Vipera berus*), receive at least limited protection from harm under the WCA, making it an offence to cause intentional killing and injuring of these species. In addition, these species are also listed as Priority Species.
- 3.58 A total of 24 reptile records were returned within 2km of the Site, relating to grass snake, slow-worm and common lizard. The records were all from a site over 1.35km north-west of the Site.
- 3.59 The detailed reptile survey recorded a small population of grass snake and a single common lizard. The survey findings are summarised in **Table EDP 3.5** and illustrated on **Plan EDP 6**.

Table EDP 3.5: Reptile Survey Results

Survey Date	Common Lizard		Slow-worm		Grass Snake	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
07.04.2022	0	0	0	0	0	0
12.04.2022	0	0	0	0	0	0
21.04.2022	0	0	0	0	0	0
27.04.2022	0	0	0	0	0	0
04.05.2022	0	0	0	0	0	0
17.05.2022	0	0	0	0	0	0
30.05.2022	0	0	0	0	0	0
01.05.2024	0	0	0	0	0	0

²⁶ Natterjack toad (*Epidalea calamita*) and Northern pool frog (*Pelophylax lessonae*) are EPS, protected under WCA and priority species.

Survey Date	Common Lizard		Slow-worm		Grass Snake	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
15.05.2024	0	0	0	0	0	0
17.06.2024	0	0	0	0	0	0
01.07.2024	1	0	0	0	0	1
15.07.2024	0	0	0	0	0	1
22.07.2024	0	0	0	0	0	0
07.08.2024	0	0	0	0	0	0
Peak Adult Count	1		0		0	

- 3.60 In terms of habitats the Site contains woodland, hedgerows, and grassland, which are of moderate suitability to support reptiles, and which are therefore likely to be used for foraging and dispersal.
- 3.61 Given their limited density within the Site and relative widespread distribution across the County, the populations of common lizard and grass snake within the Site are judged to be of Less than Local (Site) importance.

Invertebrates

- 3.62 The desk study identified 208 records of protected or notable invertebrates. These include records of black hairstreak (*Satyrrium pruni*), brown hairstreak, marsh fritillary (*Euphydryas aurinia*), large heath (*Coenonympha tullia*), and white-letter hairstreak (*Satyrus w-album*).
- 3.63 During surveys of an adjacent Site as part of the Symmetry Phase 2 development, brown hairstreak eggs were found. As such, a hairstreak egg search was undertaken on 24 February 2022 to identify the presence/likely absence of brown, black and white-letter hairstreak eggs. An updated hairstreak egg search is currently programmed for winter 2024 to ensure up to date results are available though, presence has been confirmed.
- 3.64 During the survey, brown hairstreak eggs were found on all four of the boundary hedgerows.
- 3.65 Black, brown and white-letter hairstreak are UK Priority Species and are protected under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended), which protects these species from intentional killing, injury or taking, and protects any structure or place which the species uses for shelter or protection.
- 3.66 Based on the above, the invertebrate assemblage present within the Site is judged to be of Local importance.

Rare/Scarce Plant Species

- 3.67 A total of 102 records of rare/scarce plants were returned within 2km of the Site. Of these records none were recorded within the Site. Although lesser spearwort (*Ranunculus flammula*)

a species listed as rare was recorded within a field 0.18km north of the Site. Of the species none were recorded within the Site during the NVC survey.

SUMMARY OF ECOLOGICAL FEATURES

- 3.68 The ecological features/receptors pertinent to the development proposals, based on the survey findings described above, are set out in **Table EDP 3.6**.

Table EDP 3.6: Summary of Ecological Features

Feature	Key Attributes	Ecological Importance
Statutory Designated Sites		
Arncott Bridge Meadows Site of Special Scientific Interest (SSSI)	1.7km south - Ridge and furrow hay meadow.	National
Long Herdon Meadow SSSI	3.9km east - Alluvial meadow grassland with rare grasses and herbs.	National
Stratton Audley Quarries SSSI	3.9km north - Designated for its geological value.	National
Wendlebury Meads and Mansmoor Closes SSSI	4.7km south-west - Un-improved neutral meadows supporting a valuable breeding bird assemblage.	National
Non-statutory Designated Sites		
Meadows North West of Blackthorn Hill LWS	Adjacent to the northern boundary. Group of ridge and furrow meadows with dry grassland sward on the ridges and wet grassland sward in the furrows. Fields enclosed with mature hedgerows.	Local
Gavray Drive Meadows LWS	1.0km north-west - Mosaic of small damp fields with ponds.	Local
Blackthorn Meadow LWS	1.2km east - Species-rich ridge and furrow meadow.	Local
Island Pond Wood WTR	1.2km north - Plantation woodland (planted in 1999).	Local
Cutter's Brook Meadows LWS	1.3km north - Unimproved hay meadows on the River Ray Floodplain.	Local
Graven Hill LWS	1.3km west - Ancient/semi-natural woodland with an ancient woodland indicative ground flora.	Local
Field by River Ray LWS	1.6km south-east - Un-improved permanent pasture bounded on the north by the River Ray.	Local
Field South of Ambrosden CDWS	1.6km south - Remnant lowland meadow with ridge and furrow.	Local
Upper Ray Meadows BBOWTR	1.7km south - Ridge and furrow lowland meadow.	Local
Bicester Triangle PCHDW	1.8km north-west - small community woodland and pond.	Local

Feature	Key Attributes	Ecological Importance
Off-site Habitats		
Lowland mixed deciduous woodland	Lowland mixed deciduous woodland has been recorded within 500m of the Site, with the closest parcel approximately 75m from the Site.	Local
Lowland meadows	Lowland meadow has been recorded within a LWS immediately adjacent to the north-west corner of the Site.	Local
On-site Habitats		
Developed land; sealed surface and built linear features	Farm buildings and small areas of hardstanding are present within the north-east of the Site. The buildings consist of open barns of corrugated metal, and wooden sheds. Access road through existing phase of development.	Negligible
Modified grassland	Heavily disturbed poor condition modified grassland present within the field entrances/gates. Species-poor grassland also present along the southern edge of the southern field in good condition. Grassland created as part of the existing phase of development.	Site
Other neutral grassland	Present along the furrows and large areas of the ridges within the fields; assessed to be in moderate condition.	Local
Lowland meadows	Small discrete areas of species-rich grassland present on small areas of the ridges within the fields. Grassland in poor condition.	Local (Priority Habitat)
Tall forbs	Present in the north-eastern corner of the Site and along the hedgerows. The habitat was assessed to be in good condition.	Site
Other woodland; broadleaved	A small stand in the south-eastern corner of the Site. The woodland is in poor condition.	Local
Species-rich native hedgerow with trees	Species-rich native hedgerow with trees present along the southern and eastern boundaries of the Site, in moderate condition.	Local (Priority Habitat)
Species-rich native hedgerow with trees	Delineating the western boundary of the Site and in good condition.	Local (Priority Habitat)
Species-rich native hedgerow	Delineating the northern boundary of the Site and in moderate condition.	Local (Priority Habitat)
Ditch	Delineating western Site boundary, in poor condition	Site
Species		
Breeding birds	Only 13 species recorded in 2022 and 15 species in 2024, of which only two species confirmed breeding and nine species as probable breeders.	Site

Feature	Key Attributes	Ecological Importance
Wintering birds	Based on the habitats present and wintering birds recorded, the Site was not considered to provide important wintering habitat for the species recorded in the context of the wider landscape.	Site
Roosting bats	Two trees with PRF-I and seven as FAR. The trees are currently scheduled for retention as part of the Proposed Development and as such no further surveys were undertaken.	Local
Foraging and commuting bats	Limited assemblage of bats foraging within the Site dominated by common and widespread species.	Local
Badger	No signs of badger or badger setts were recorded during the field surveys. However, the Site may provide suitable habitat for foraging and commuting badger.	Site
Hedgehog	The Site may provide suitable foraging and breeding habitats for hedgehog within the hedgerow, grassland and tall forbs habitats. No evidence of hedgehog was recorded during the other surveys undertaken on Site.	Site
Great crested newt	Suitable terrestrial habitat for great crested newt present within the Site though with no aquatic features. Terrestrial surveys within the Site did not record presence of great crested newt and as such considered to be absent. Medium population of great crested newts present in ponds over 250m south of the Site.	Local
Other amphibians	No other amphibians were recorded during surveys undertaken on-site and no waterbodies are present within the Site. However, the dry ponds to the north and east of the Site may support common and widespread amphibians such as common toad and common frog, which may utilise the terrestrial habitat present within the Site.	Less than Local
Reptiles	Small populations of grass snake and common lizard recorded within the Site	Site
Invertebrates	Brown hairstreak eggs recorded on-site during 2022 surveys in all of the boundary hedgerows.	Local
Plant species	No notable or protected plant species have been recorded within the Site.	Less than Local

Section 4

Impact Assessment

- 4.1 This section of the Ecological Appraisal first considers any avoidance/mitigation which is embedded within development design, as represented by the Proposed Site Layout provided as **Appendix EDP 1**. It then considers the likely impacts of the development proposals on the pertinent ecological features identified in **Section 3** in the absence of additional mitigation.

EMBEDDED MITIGATION

- 4.2 Paragraph 186 of the NPPF, requires that “*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*”. This sets out an ecological mitigation hierarchy that has been followed through the impact assessment and mitigation/compensation recommendations.
- 4.3 EDP has provided input throughout the iterative design process so the development layout, reflects some important measures to avoid, mitigate or compensate for ecological impacts as well as other measures designed to provide long-term ecological enhancements. This embedded mitigation comprises the following:
- Retention of valuable hedgerow, tree and woodland habitats known to support protected/notable species, with loss of habitat kept to an essential minimum;
 - Retention and buffering of ditch on the western Site boundary, with only one small extent of bridging associated with installation of the access road;
 - Inclusion of wide green buffers to retained hedgerows on the northern, eastern and southern Site boundaries where the creation and enhancement of ecologically valuable habitat is proposed; and
 - Inclusion of SuDS to maintain run-off rates and to maintain or improve the quality of surface water discharge.

IMPACTS ON DESIGNATED SITES

Statutory Designations

- 4.4 As described in **Section 3**, there are four statutory designations of national importance within the potential zone of influence of the Site. The potential impacts on these designations, in the absence of additional mitigation, are discussed below.

National Designations

- 4.5 The Site falls outside of Natural England’s Impact Risk Zones (IRZ) for a development of this type and size for all four of the SSSI identified.

- 4.6 Owing to the degree of spatial separation from these designated sites, and the lack of any direct habitat linkage/pathway or hydrological link, it is considered that the proposed development would have no significant direct or indirect adverse impacts upon the special interest features of the identified SSSI. The statutory designated sites identified above will, therefore, not be considered further.

Non-statutory Designations

- 4.7 As described in **Section 3**, there are ten non-statutory designations within the potential zone of influence of the Site. However, given the low impact nature of the development proposals and their spatial separation from these non-statutory sites, it is not considered that majority of these sites will be at risk of significant adverse effects as a result of the proposed development.
- 4.8 The Meadows North West of Blackthorn Hill LWS is located adjacent to the northern Site boundary and as such indirect adverse effects could occur during construction and operation as a result of pollution incidents.

IMPACTS ON HABITATS

On-site Habitats

- 4.9 As described above with respect to embedded mitigation, the development design follows the mitigation hierarchy. In addition, it also follows the Biodiversity Gain Hierarchy as set out in the *Town and Country Planning (Development Management Procedure) (England) Order 2015*. The scheme has sought to retain the most important habitats within the proposed layout including the network of hedgerows and associated ditch, mature trees and woodland, which are considered Priority Habitats.
- 4.10 Loss of the small areas of lowland meadow will be incurred by the development, an impact which is unavoidable given the nature of the development. As discussed further at **Appendix EDP 2** and illustrated at **Plan EDP 1** the lowland meadow present within the Site is limited in its extent and present as small discrete patches on the tops of ridges within the wider field. The NVC surveys in 2022 and 2024 have confirmed that this habitat does not support a consistently high proportion of characteristic indicator species and as such is considered to be in poor condition. Given these factors it is deemed that translocation of the habitat would be inappropriate, particularly given the difficulty of providing a ridge-top receptor site. Further, removal of hay from the lowland meadow for green-hay seeding within a receptor site is also not considered achievable given the isolated patches of this habitat present within the wider grassland. On this basis the habitat would be lost however, as discussed further below, this habitat would be re-created off-site, in line with BNG trading rules.
- 4.11 The proposed main access on the western boundary will result in the loss of a small section of hedgerow, and a small section of ditch will also need to be culverted. The emergency access will also require a small section of hedgerow removal on the eastern Site boundary. Both sections of habitat loss have been kept to an essential minimum.
- 4.12 Where these effects cannot be avoided, mitigation, and then enhancements, have been provided within the Site (as described within **Section 5**). Where on-site habitat creation and

enhancement is not possible to entirely mitigate the impact of development, off-site solutions will be sought.

- 4.13 A preliminary assessment of the predicted habitat losses/gains as a result of the proposed development has been undertaken using the Statutory Biodiversity Metric. This assessment considers all habitats proposed to be lost, retained, enhanced, or created through the proposed development. This assessment has been based on the detailed landscape design and management is outlined within the Landscape and Ecology Management Plan (LEMP).
- 4.14 A full account of the habitat impacts as result of the proposed development is provided in the indicative BNG Assessment provided in **Appendix EDP 7. Table EDP 4.1** provides a summary of the net impacts on habitats.

Table EDP 4.1: Indicative Net Impact on Habitats

	Habitat Units	Hedgerow Units	Watercourse Units
Total Net Unit Change	-38.33	2.58	0.60
Total Net % Change	-76.40%	17.93%	32.54%
Trading Rules Satisfied	No	Yes	Yes

- 4.15 Based on the indicative Biodiversity Metric calculations described above the net impact on habitats is predicted to be negative. The proposed hedgerow creation will result in a net gain within the Site and the trading rules have been satisfied. The net impact on the watercourse (ditch) is considered to be positive, with trading rules satisfied.
- 4.16 In light of the likely on-site impact, the potential need was identified for additional habitat creation and enhancement off-site to achieve the required net gain in biodiversity. This is discussed further within **Appendix EDP 7**.
- 4.17 Furthermore, in the absence of further mitigation measures, there is a risk of the following:
- Damage, deterioration and pollution of retained habitats from adjacent construction activities; and
 - Not achieving target condition for retained and new habitats due to inappropriate management.

Off-site Habitats

- 4.18 Given its proximity, the lowland meadow grassland located adjacent to the northern Site boundary will be at risk of both direct and indirect degradation during construction.
- 4.19 Direct impacts during construction have been mitigated during the design process through provision of a wide green buffer to the northern Site boundary. However, in the absence of further mitigation measures, there is a risk of potential damage as a result of pollution incidents during construction.

IMPACTS ON PROTECTED, PRIORITY OR OTHER NOTABLE SPECIES

Breeding Birds

- 4.20 Higher value hedgerow, tree and woodland habitats have been retained where possible within the Site, however, some suitable habitats will be lost during construction. In the absence of further mitigation measures, there is a risk of the following:
- Construction - direct harm and disturbance of nesting birds during vegetation removal; and
 - Construction and operation - reduction in suitable roost features.

Bats

Impacts on Roosting Bats

- 4.21 Trees identified with potential to support roosting are to be retained within the development.
- 4.22 The on-site buildings that have been identified as having negligible value for roosting bats will be lost in their entirety.

Impacts on Foraging/Commuting Bats

- 4.23 The Site provides habitat of moderate value for foraging bats and the development design has sought to retain and buffer those areas of higher value habitat wherever possible. However, in the absence of further mitigation measures, there is a risk of the following:
- Construction – temporary loss of suitable foraging habitat; and
 - Construction and operation – potential increase in light and noise pollution at/near to suitable foraging habitats.

Badgers

- 4.24 The Site supports sub-optimal opportunities for badger though there remains potential for sett construction within the Site and also within habitat adjacent to the Site. In the absence of further mitigation measures, there is a risk of the following:
- Construction - disturbance of a badger sett during excavation; and
 - Construction and operation – disturbance of badger through an increase in noise and light pollution.

Other Mammals

- 4.25 Vegetation clearance/construction could result in harm to hedgehogs, which may be utilising the Site for foraging, dispersal, refuge, and hibernation.
- 4.26 Dispersal and foraging of hedgehogs will not be impacted as a result of the proposed development, given the ecological buffers present around the edge of the development footprint, which will maintain connectivity across the Site for terrestrial mammals.

Great Crested Newts

4.27 Higher value hedgerow and ditch habitats have been retained where possible within the Site; however, some suitable habitats will be lost during construction. In the absence of further mitigation measures, there is a risk of the following:

- Construction - direct harm and disturbance of great crested newt during vegetation removal.

Reptiles

4.28 Higher value hedgerow and scrub habitats have been retained where possible within the Site however, some suitable habitats will be lost during construction. In the absence of further mitigation measures, there is a risk of the following:

- Construction - direct harm and disturbance of reptiles during vegetation removal.

Invertebrates

4.29 The hedgerow habitats have been identified as providing suitable egg laying habitat for brown hairstreak butterfly. Hedgerow habitats have been retained where possible within the Site however, some suitable habitats will be lost during construction. In the absence of further mitigation measures, there is a risk of the following:

- Construction - direct loss of suitable egg laying habitat during vegetation removal.

Section 5

Mitigation and Enhancement Strategy

- 5.1 This section of the Ecological Appraisal considers the impacts set out in **Section 4** and puts forward additional measures to firstly avoid any ecological impact, and if this is not possible then to minimise the likely impacts of the proposed development to insignificant levels, to comply with relevant planning policy and avoid any infringement of relevant legislation.
- 5.2 This section also sets out proposed ecological enhancements for the Site, in line with the wording within the NPPF and local Policy ESD 10 of the Cherwell Local Plan 2011-2031 (adopted 20 July 2015), requiring developments to contribute to and enhance the natural and local environment.

DESIGNATED SITES

Non-statutory Designations

- 5.3 As described in **Section 3**, there are ten non-statutory designations within the potential zone of influence of the Site though only Meadows North-west of Blackthorn Hill LWS is considered to be at risk of adverse effects as a result of the Proposed Development. This is discussed further below.

Meadows North-west of Blackthorn Hill LWS

- 5.4 Given its proximity to the Site and the habitats associated with it, the Meadows North-west of Blackthorn Hill LWS is at risk of adverse indirect effects as a result of pollution events within the Site during construction. Impacts could arise from hydrological pollution and also from increased dust. Measures outlined in standard pollution prevention guidance to mitigate the impact of these pollution sources will be adopted during construction.
- 5.5 A Construction and Environmental Management Plan (CEMP) will be prepared and submitted as part of a pre-commencement Reserved Matters application which will detail the required mitigation and management practices to be put in place during construction to prevent adverse effects on the Meadows North-west of Blackthorn Hill LWS and surrounding habitats. Drainage and watercourse control measures to manage the quality of surface water run-off during the construction stage would include:
- All construction works would be designed in accordance with the latest relevant Environment Agency guidelines;
 - Method statements would be produced to ensure compliance with *Pollution Prevention Guidance* (PPG) prior to the commencement of construction works to ensure that surface run-off quality is managed during the construction process;
 - Construction works should be programmed as far as is practicable to minimise soil handling and temporary soil storage;

- The refuelling of plant, storage of fuels and chemicals and overnight storage of mobile plant would be within the designated contractors compound areas. The compounds would contain appropriate facilities for the storage of fuels and chemicals i.e. bunded and locked storage containers, and would also be equipped with spill kits;
- All works will be completed in accordance with the Environment Agency documents, PPG 6 Working at Construction and Demolition sites and PPG Pollution Incident Response Planning together with current best practice measures for the management of construction activities; and
- Silt/Sediment Management erected as required to collect any silt laden run-off, which will be inspected and cleared on a monthly basis to ensure that they are working as designed.

- 5.6 During operation there is potential for construction to change the hydrological regime of the Meadows North-west of Blackthorn Hill LWS. The magnitude of this impact would likely be minor given the nature of the LWS however, the proposed development has been designed with due consideration for water conservation and drainage in general. A Sustainable Drainage System has been included within the Illustrative Masterplan which will be designed to mitigate any impacts on the run-off rates from the Site.
- 5.7 Subject to the implementation of the measures summarised above, impacts on non-statutory designations will be avoided or reduced to insignificant levels, such that the development can be delivered in accordance with relevant planning policy.

HABITATS

- 5.8 Measures will be required to protect the retained habitats described in **Section 4** from damage and disturbance during the construction phase. This can be achieved through a combination of the following:
- Tree protection measures (for woodland, trees and hedgerows), to be detailed within an Arboricultural Method Statement (AMS);
 - Additional physical protection for wider habitats such as grasslands and water courses, to be detailed within an Ecological Construction Method Statement (ECMS) or an equivalent document. The ECMS will define Ecological Protection Zones (EPZs), in which construction activities will be excluded or carefully controlled in order to avoid or minimise harm to habitats; and
 - General environmental protection measures, including control of dust and other pollutants, to be detailed in a Construction Environmental Management Plan (CEMP).
- 5.9 The AMS, ECMS and CEMP are standard documents which are capable of being secured by planning conditions.
- 5.10 In addition to ensuring the adequate protection of retained habitats the proposed development incorporates a range of new habitats. The Proposed Site Layout enclosed as **Appendix EDP 1** provides details of areas of new habitats of ecological value within the public open space. These will provide opportunities for the creation (primarily) of the following habitats:

- New native tree and hedgerow planting;
 - A water attenuation feature planted with a wetland meadow seed mix and marginal planting mix;
 - Areas of higher value species-rich meadow grassland;
 - Areas of harder wearing amenity grassland; and
 - Extensive areas of scrub and woodland on the boundary bunding.
- 5.11 The biodiversity value of all newly created and enhanced habitats and their contribution to BNG is set out within the Biodiversity Net Gain Assessment provided in **Appendix EDP 7**.
- 5.12 Detailed specifications for new planting and other habitat creation are provided with the detailed Soft Landscaping Scheme. In addition, measures to restore and enhance existing habitats, to ensure successful establishment of new habitats, and to maintain the value of all ecological features in the long-term will be delivered through the Landscape and Ecology Management Plan (LEMP).
- 5.13 As the proposed development relies on significant on-site enhancements, part of the requirement for the Biodiversity Gain Plan (through the pre-commencement planning condition) is to secure these habitats and their management. To provide details of this, a Habitat Management and Monitoring Plan (HMMP) will be provided alongside the Biodiversity Gain Plan.
- 5.14 Subject to the implementation of the measures summarised above, impacts on retained habitats will be avoided and the net gains in biodiversity predicted within the BNG Assessment (see **Appendix EDP 7**) will be achieved in accordance with relevant planning policy.

PROTECTED, PRIORITY AND OTHER NOTABLE SPECIES

Wintering and Breeding Birds

- 5.15 The habitat protection measures described above will avoid harm to birds present within retained habitats. However, removal of hedgerow and buildings which are capable of supporting birds will be required to facilitate the development. Any removal of these habitats/structures should be undertaken between September and February inclusive to avoid the bird breeding season. Any habitat removed outside of this period should be inspected by a suitably experienced ecologist prior to removal. These measures can be delivered through the ECMS.
- 5.16 The proposed enhancement of the existing hedgerows; planting of new trees, scrub and hedgerows; the development of more species-rich and structurally diverse grassland, and creation of new wet grassland in the SuDS basins will together enhance opportunities for foraging and nesting birds post-development.
- 5.17 Further enhancement of bird nesting opportunities can be achieved through installation of bird boxes/bricks on retained trees. These measures can be delivered through the LEMP.

Bats

Roosting Bats

- 5.18 Trees with bat roosting potential will be retained within the Site and protected during construction. Protection will be afforded through the EPZ detailed above in relation to habitats and secured through the ECMS. If any trees with bat roosting potential are to be impacted, they will be subject to aerial/climbing or emergence surveys to establish if they support roosting bats. The survey methodology will be conducted in line with best practice guidance for such surveys. Should a roost/roosts be confirmed then bat exclusion and felling will take place under a Natural England licence and under supervision of a licenced bat worker. Replacement bat roosts will also be provided in the form of bat boxes attached to retained mature trees. The precise mitigation details will be subject to agreement through the licensing process.
- 5.19 More generally, with respect to those trees proposed for retention (particularly in relation to those confirmed as having bat roost potential), should any future tree works, such as limb felling, crown reduction, or felling be required, either as a result of poor tree health or due to public health and safety concerns, then such tree(s) should be subject to update bat tree assessments by a bat licensed ecologist prior to works commencing, with the advice of the bat licenced ecologist followed.
- 5.20 All measures described above would be detailed in the ECMS and provided to the relevant on-site contractors ahead of works commencing.
- 5.21 Bat roosting opportunities within the completed development will be enhanced through the inclusion of artificial bat roost features mounted on suitable retained trees. Bat roost features will target a range of species and roost types. These measures can be delivered through the LEMP.

Foraging/Commuting Bats

- 5.22 The development design has sought to retain and enhance habitats of higher value for foraging bats wherever possible, including the hedgerows and trees. These features will be protected during construction through the adoption of an EPZ, as detailed above and secured through an ECMS.
- 5.23 Higher value foraging habitats for bats have also been included within the Proposed Site Layout, including scrub and woodland covered bunds, new native hedgerow, tree and wildflower grassland planting, as well as wet grassland and marginal vegetation planting within the water attenuation feature. Appropriate creation, management and maintenance of these habitats for their biodiversity value can be secured through the LEMP.
- 5.24 During construction, any illuminated Site compounds will be sited as far away as possible from the retained features of ecological interest described in this document, namely the woodland, mature trees and hedgerows.
- 5.25 Where appropriate and if required, the timings that lights are on could be controlled to dim or turn off certain lights around dusk and dawn hours, to allow some dark periods for bats and other wildlife.

- 5.26 In terms of foraging bats, the permanent loss of small areas of foraging habitat to the development during construction cannot be directly mitigated. However, in the context of retained habitat on the Site boundaries and within the Site (as well as foraging resources available nearby), EDP considers that during construction it is unlikely that there will be a significant effect on foraging/commuting bats.
- 5.27 In addition to the above, a sensitive lighting scheme should be devised at the detailed design/Reserved Matters stage, which minimises light spill from street lighting onto retained/new bat foraging habitat adjacent to the development area. Such a lighting scheme can be secured by planning condition.

Badgers

- 5.28 Badger are currently absent; however, should active badger setts be identified within 30m of development activities then a Natural England badger licence may be sought if impacts to the sett are predicted and unable to be avoided.
- 5.29 Intrinsic mitigation for the proposed development has retained the vegetated boundary habitats around the development footprint including the woodland, as well as retaining a corridor of open space along the northern, eastern and southern Site boundaries. These features will be protected during construction through the adoption of an EPZ, as detailed above and secured through an ECMS.
- 5.30 During construction any excavations will be sealed flush at ground level or formed with gently sloping sides, to help any trapped badger (or other animals) to escape. Alternatively, excavations must be visually checked in the morning by the Construction Contractor prior to being filled in, to ensure badger (or other animals) are absent. Should any badger or other protected species be present/suspected present, then work must cease at that location immediately (where safe to do so) and a suitably experienced ecologist contacted immediately for advice on how to proceed.
- 5.31 Training ('toolbox talks') and information about badger will be provided to all relevant construction personnel involved in the construction. The toolbox talks will ensure full understanding of the identification and legal protection of badger.
- 5.32 Construction mitigation measures will be detailed within an ECMS, secured via planning condition.
- 5.33 Intrinsic mitigation for the proposed development has retained and strengthened the vegetated boundary habitats around the development footprint, as well as retaining corridors of open space on the southern Site boundary. This will retain dispersal and foraging opportunities for badger within the Site. Appropriate creation, management and maintenance of these habitats for their biodiversity value can be secured through the LEMP.

Other Mammals

- 5.34 The best practice working methods of vegetation clearance outlined to safeguard reptiles and best practice working methods of badgers, will provide protection against accidental harm and

will also reduce the likelihood of impacts on hedgehogs and other mammals that might use the Site.

- 5.35 As hedgehogs hibernate within piles of dead vegetation, removal of any such material should be completed outside of November to February inclusive. During the construction phase, it is also recommended that materials should not be stored near areas of retained habitat or should be hand-searched prior to removal.

Great Crested Newts and Other Amphibians

- 5.36 Two short sections of hedgerow will be removed to facilitate access into the Site. Great crested newt are considered to be likely absent from the Site, however the hedgerow will provide some suitability for amphibian dispersal and so a precautionary method of work will need to be adopted for this, and any other above ground vegetation removal. Clearance should take place when amphibians are active and between March and October when temperatures are generally mild. As a precaution, this should be a phased clearance under the supervision of a suitably qualified ecologist to ensure no amphibians are present or to ensure any active individuals can be safely displaced without harm.
- 5.37 Details of the precautionary clearance measures detailed will mitigate the risk to great crested newts and other amphibian species which may be utilising the Site. This can be detailed within a CEMP prepared for the Site, and will include controls over timing of Site clearance, ecological supervision, and the use of a sensitive (phased) vegetation clearance methodology.
- 5.38 If great crested newts are identified at any point all works will cease and a Natural England licence will be obtained before works continue.
- 5.39 Inherent mitigation in the design layout includes the retention and buffering of favourable habitats including the hedgerows, which amphibians could access in the long-term, should they be present in the locality. Furthermore, on-site aquatic provision through the creation of the SuDS features will increase the pond network and availability of breeding habitat in the locality and potentially increase the species range. The provision of scrub and woodland around the development will serve to enhance the Site's overall suitability for long-term use by amphibians, including great crested newts. These measures/specifications can be delivered through a LEMP.
- 5.40 At least one amphibian/reptile hibernaculum should be incorporated into areas of open green space along the eastern Site boundary, comprising a mixture of log wood, brick rubble and vegetation dug into the ground and topped with soil and turf. Details and location of the hibernaculum should be agreed, and measures/specifications can be delivered through the LEMP.

Reptiles

- 5.41 Prior to commencement of on-site clearance, any potentially suitable refugia for wildlife located within the construction footprint will be carefully dismantled using hand tools, hand-held machinery or untracked, light machinery so as to facilitate dispersal of any wildlife potentially present.

- 5.42 Suitable habitats present within the Site include hedgerow, tall forbs and woodland. Where removal of these habitats is required, a phased clearance would be completed with an initial cut using hand-held machinery, reducing vegetation height down to a minimum of 175mm, with clearance commencing from the centre of the work area and directed towards adjacent retained habitat. A second cut of the proposed footprint areas will be undertaken immediately thereafter, with vegetation cut to ground level and no greater than 30mm in height.
- 5.43 All arisings will be removed from the construction footprint and vegetation will be maintained thereafter at a height of no greater than 20mm, through regular mowing or strimming, to discourage wildlife from returning.
- 5.44 In the event any protected or notable species are identified during Site clearance, advice will be sought from the Ecological Clerk of Works (ECoW) before recommencing.
- 5.45 Details of the precautionary clearance measures detailed will mitigate the risk to the small populations of reptiles utilising the Site. This can be detailed within a CEMP prepared for the Site, and will include controls over timing of Site clearance, ecological supervision, and the use of a sensitive (phased) vegetation clearance methodology.
- 5.46 At least one amphibian/reptile hibernaculum should be incorporated into areas of open green space along the eastern Site boundary, comprising a mixture of log wood, brick rubble and vegetation dug into the ground and topped with soil and turf. Details and location of the hibernaculum should be agreed, and measures/specifications can be delivered through the LEMP.
- 5.47 Intrinsic mitigation for the proposed development has retained and strengthened the vegetated boundary habitats around the development footprint, as well as retaining corridors of open space on the northern, eastern and southern Site boundaries. Higher value foraging habitats for reptiles have also been included within the Proposed Site Layout for the Site, including new native hedgerow, scrub, woodland and wildflower grassland planting, as well as wet grassland and marginal vegetation planting within the water attenuation feature. Appropriate creation, management and maintenance of these habitats for their biodiversity value can be secured through the LEMP.

Invertebrates

- 5.48 Brown hairstreak butterfly eggs or larvae will be present within blackthorn vegetation throughout the majority of the year. As such removal of suitable vegetation, likely confined to the hedgerow habitats, will need to consider the presence of this species at all times of the year.
- 5.49 Prior to works commencing a suitably trained ecologist will inspect the blackthorn trees which are to be removed to identify any hairstreak eggs. Where eggs are found the vegetation will be marked using hazard tape to make future identification easier. These sections of vegetation should be retained in situ wherever possible, with works conducted around them. Where this method is not feasible the vegetation will be cut carefully to 150mm from the ground and moved to an area of similar blackthorn habitat unaffected by the works. The cut stems will be tied securely to the live vegetation to ensure that it remains undisturbed by wind. The hazard tape will be retained to highlight the location of the translocated stems. This area of vegetation will

need to remain undisturbed until the eggs hatch at the end of May. The dead stems can be removed in June or left in situ to decompose naturally.

- 5.50 Details of the precautionary clearance measures detailed will mitigate the loss of brown hairstreak butterfly eggs or larvae. This can be detailed within a CEMP prepared for the Site, and will include controls over timing of Site clearance, ecological supervision, and the use of a sensitive (phased) vegetation clearance methodology.

Section 6

Summary and Conclusions

6.1 **Table EDP 6.1** provides an overview of Mitigation and Enhancement Strategy described in **Section 5**.

Table EDP 6.1: Summary of Proposed Mitigation and Enhancement

Mitigation Type	Key Principles	Mechanism(s) to Secure Delivery
Avoid by Design	Retention of habitats with appropriate development buffers: <ul style="list-style-type: none"> Off-site lowland meadow; Mature trees; Hedgerows; and Grasslands. 	Habitat retention embedded in Proposed Site Layout, which will be an 'approved plan' to which future detailed designs must align.
Avoid or Minimise Construction Impacts	Sensitive methods of operation during enabling and construction works: <ul style="list-style-type: none"> Control of working hours; Minimise noise and vibration; Air quality measures/dust suppression; Surface water management; Storage of fuels/chemicals; and Sensitive lighting. 	A CEMP secured via pre-commencement planning condition.
	Protection of retained habitats <ul style="list-style-type: none"> Fencing and signage to create development exclusion zones. 	AMS and ECMS secured via pre-commencement planning condition.
	Methods to avoid harming individuals or interfering with breeding of protected species prior to/during habitat destruction: <ul style="list-style-type: none"> Pre-commencement checks/surveys; Avoidance of trapping animals in excavations; Timings to avoid sensitive periods/breeding seasons; Phased vegetation clearance; Maintaining dispersal routes; Destructive searches; and Supervision by ECoW. 	ECMS secured via pre-commencement planning condition. Should any Natural England licence be required then detailed Method Statements, approved as part of the licence process, for each of the relevant protected species would also be followed.

Mitigation Type	Key Principles	Mechanism(s) to Secure Delivery
Mitigate or Compensate for Habitat Loss and Deliver Net Gains	<p>Habitat enhancement:</p> <ul style="list-style-type: none"> Hedgerows. <p>Habitat creation:</p> <ul style="list-style-type: none"> Native tree and hedgerow planting; A water attenuation feature planted with a wetland meadow seed mix and marginal planting mix; Species-rich grasslands; Areas of harder wearing amenity grassland; and Wide belts of scrub and woodland planting on bunds. 	Space for new habitat embedded in Illustrative Masterplan, which will be an 'approved plan' to which detailed designs must align. LEMP to be secured by planning condition.
	<p>Habitat features to be provided in suitable locations:</p> <ul style="list-style-type: none"> Bird roost features; Bat roost features; and Artificial refugia. 	LEMP to be secured by planning condition.
	Lighting strategy to avoid disturbance of nocturnal species, in particular foraging/commuting bats.	Detailed lighting design to be secured by planning condition.
Maintenance, Monitoring and Management Post-construction	<p>Habitat-specific, namely measures to:</p> <ul style="list-style-type: none"> Enhance retained habitat, and to ensure new habitat becomes established, to achieve target condition; and Monitor and maintain habitats in good ecological condition once enhanced/established. 	LEMP to be secured by planning condition.
	<p>Species-specific, namely measures to:</p> <ul style="list-style-type: none"> Maintain habitat features (boxes, etc.) in good condition or replace as necessary. 	LEMP to be secured by planning condition. Where licences are required monitoring proposals agreed as part of NE licence application(s) will be completed.

6.2 EDP concludes that, in light of the embedded mitigation and subject to the full implementation of the additional measures summarised above, the proposed development is capable of compliance with relevant planning policy and legislation and can deliver net benefits for wildlife and biodiversity.

Appendix EDP 1
Site Location Planning Boundaries
4036-X3-100 PL02



pHp architects

COMMERCIAL DEVELOPMENT
LAND ADJACENT TO SYMMETRY PARK
BICESTER - PHASE 3

PHASE 3 - SITE LOCATION PLANNING BOUNDARIES

The Old Rectory Rectory Lane Milton Malson N O R T H A M P T O N N N 7 3 A Q t: +44 (0)1604 858916 f: +44 (0)1604 859123 www.peter-haddon.com		Issue Purpose: Drawn by: WE Checked by: RM Scale @ A1: 1:2000 Date: MAY 2024 CAD ref: 4036-X3-001 Copyright reserved. Dimensions to be checked on site. Discrepancies to be reported before proceeding.	
19.11.24. RM. 22.10.24. RM. 16.08.24. WE. 03.07.24. WE. Date/Checked		pHp architects PLANNING	
4036-X3-100		PL02	

Appendix EDP 2

Habitat Survey

METHODOLOGY

Habitat Survey

- A2.1 The main habitats within the Site, together with their dominant/characteristic plant species, were identified by undertaking habitat surveys on 21 May 2018 and 31 May 2022 following Phase 1 survey techniques²⁷. An update survey was completed on 07 July 2024 and undertaken following the guidance for habitat surveys as set out in *The Statutory Biodiversity Metric User Guide* (DEFRA, November 2023), for which the habitat definitions primarily rely on descriptions set out in the UK Habitat Classification¹¹ and habitat conditions as set out for the Statutory Biodiversity Metric¹².
- A2.2 This method allows for an assessment of the main habitat types present on-site, including those listed as Priority Habitats or Irreplaceable Habitats. Plant species lists and their abundance for each habitat type were recorded but only where pertinent to identify the habitat type or condition. It was not the aim of the survey to collate a comprehensive botanical or species inventory of the Site.
- A2.3 To determine if a hedgerow is species-rich, the middle 30m of all hedgerows up to 100m in length were surveyed, whilst the central 30m of each half of hedgerows up to 200m in length were surveyed. For hedgerows exceeding 200m in length, the central 30m section from each third of the hedgerow was surveyed. This technique is not formally set out within the *Statutory Biodiversity Metric User Guide* or the *UK Habitat Classification User Manual* but is taken from *The Hedgerow Regulations 1997* for determining species richness.
- A2.4 The habitat survey was undertaken by suitably experienced surveyors during suitable weather conditions and optimal survey months.

Limitations

- A2.5 There were no significant limitations to the UK Habitat Survey.

Detailed Botanical Survey

- A2.6 A subsequent detailed botanical survey of the grassland habitats was completed by a suitably experienced surveyor on 08 July 2022 during which weather conditions were optimal, with dry and still conditions. This survey was then repeated on 01 July 2024 to update the findings of the previous survey. The areas that were subject to further botanical survey are shown on **Plan EDP 1**.
- A2.7 A walkover of the Site was undertaken prior to the detailed survey being undertaken to determine what likely NVC communities/sub-communities were present. It was found that very similar swards were present throughout all three fields and that the presence of a particular

²⁷ Joint Nature Conservation Council (2004) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication).

community/sub-community reflected the site's topography, in particular the ridge and furrow earthworks.

- A2.8 To confirm the habitat type and condition of the grassland habitats the detailed botanical survey included undertaking 5 x 2m² randomly selected quadrats over each of the main communities. Within each quadrat a full species list of higher plants was recorded with their abundance recorded as a DOMIN Scale. The quadrats were scored in accordance with standard NVC methodology. The species scores were referenced to the plant community tables contained within *British Plant Communities Volume 3: Grasslands and Montane Communities*, Ed J.S. Rodwell, Cambridge University Press 1992 (1998 edition).

Limitations

- A2.9 There were no limitations to the NVC survey undertaken of the Site in 2022 or 2024.
- A2.10 The quadrat data from the identified communities was generally an acceptable match to those communities and sub-communities described within *British Plant Communities Volume 3*, however, the community within the furrows, and identified here as MG1a, is not completely satisfactory as the community here also shows some similarity to an MG9a community.

RESULTS

- A2.11 The principal habitats within the Site together with their dominant/characteristic plant species identified during the surveys are discussed in turn below. The type, distribution and species composition of the habitats present is discussed below. Information on habitat condition, as required for completion of the Biodiversity Metric, is included within **Appendix EDP 7**.
- A2.12 The following should be read in conjunction with **Plan EDP 1** and illustrative photographs provided where appropriate.

Other Neutral Grassland

- A2.13 The majority of the grassland within the Site is recorded as other neutral grassland. This habitat is present within the furrows on-site and on species-poor areas of the ridges. Species present included abundant cocksfoot, Yorkshire fog, and tall fescue, as well as frequent false oat grass. The sward within the furrows was identified to be MG1a (*Arrhenatherum elatius*) grassland (*Festuca rubra*) sub-community. However, there were also similarities to the MG9b (*Holcus (lanatus-Deschampsia cespitosa)* grassland (*Arrhenatherum elatius*) sub-community. The sward across the Site during the surveys was relatively long, frequently at between 30-50cm. The Site is subject to an annual hay cut and subsequent grazing.
- A2.14 Areas of more species-rich other neutral grassland were also present on some of the ridges. The species present included a co-dominance of crested dog's-tail, red fescue and sweet vernal-grass. Slightly coarser grasses were also more prominent than elsewhere, with perennial rye grass present. Red clover and white clover were also present, along with meadow vetchling and lady's bedstraw but in low quantities. Black knapweed (*Centaurea nigra*) was rare within these areas.

A2.15 The other neutral grassland within the Site was assessed to be in moderate condition under the Statutory Metric Condition Assessment criteria due to the species-richness of the sward.

A2.16 The more species-rich other neutral grassland swards were identified to have a good resemblance to the MG6b (*Lolium perenne*-*Cynosurus cristatus*) grassland (*Anthoxanthum odoratum*) sub-community. Although there was some resemblance to the MG7b (*Lolium perenne*) leys and related grasslands (*Lolium perenne*-*Poa trivialis*) leys the abundance of perennial rye-grass (*Lolium perenne*) was too low for the sward to be considered MG7b.



Image EDP A2.1: Looking south over grassland within the Site.

A2.17 Given the comparatively species-poor composition of the other neutral grassland sward across these areas, and the common nature of this habitat within the local area, other neutral grassland is judged to be of Local level importance. This habitat is not a Priority Habitat nor an Irreplaceable Habitat.

Modified Grassland

A2.18 Modified grassland was present within the southern edge of the southernmost field with a sward height largely between 30-50cm in length. The grassland was dominated by tall fescue with abundant false oat grass and Yorkshire fog. Creeping cinquefoil (*Potentilla reptans*), meadow vetchling, and common ragwort were also common within this habitat. The grassland was identified as the MG12a (*Festuca arundinacea*) grassland (*Lolium perenne*-*Holcus lanatus*) sub-community. Given the species-present and the management of the grassland, this area was assessed to be in good condition under the Statutory Metric Condition Assessments.

- A2.19 Heavily disturbed modified grassland was also present in the gateways within the Site. Species present are similar to those within the rest of the Site including cocksfoot, Yorkshire fog, tall fescue and perennial rye grass. However, these areas were shorter in sward length, with damage present from access through the gateways. Given the species-poor nature of these habitats and levels of disturbance and damage, these habitats were assessed to be in poor condition.
- A2.20 To the west are areas of grassland created as part of Symmetry Park Phase 2, this includes road verges laid with turf, as well as an area sown with a meadow mixture.
- A2.21 Due to the relatively species-poor composition of the grassland sward across these areas and the prevalence of grassland across the local landscape, the habitat was judged to be of Less than Local (Site) level importance.

Lowland Meadows

- A2.22 Species-rich lowland meadow habitats were identified in small areas of the ridges within the Site, covering approximately 5% of the total Site area. The lowland meadow habitats appeared to form an arc across the Site, likely reflecting the underlying hydrological and geological conditions. Crested dogs-tail, red-fescue and sweet vernal-grass were co-dominant across this area. Grasses were more prominent than herbs, although black knapweed was characteristic of the herb-rich areas of ridge. Red clover, white clover, meadow vetchling and lady's bedstraw were also present.
- A2.23 These herb-rich areas of ridge had a good resemblance to the MG5a (*Cynosurus cristatus* - *Centaurea nigra*) grassland (*Lathyrus pratensis*) sub-community. The relatively strong showing of red fescue and the relatively high frequency of black knapweed distinguish this community from the otherwise quite similar MG6b (*Lolium perenne*-*Cynosurus cristatus*) grassland (*Anthoxanthum odorat*).
- A2.24 The areas of lowland meadow grassland meet criteria 1 and 3 of the UKHabs definition though does not meet criteria 2. The grassland has four or more indicator species but does not have a consistently high proportion of characteristic indicator species present, and also includes a number of negative indicators. As a result, the grassland is not considered to represent a good example of lowland meadow.
- A2.25 The grassland within these areas was assessed to be Lowland Meadow of poor condition.
- A2.26 Lowland Meadow is a priority habitat and is categorised as very high distinctiveness under the Statutory Metric. However, given the small, isolated nature of the lowland meadow patches of grassland, and the presence of lowland meadow in the wider landscape, this habitat was assessed to be of only Local level importance.

Tall Forbs

- A2.27 Tall forb communities were present within the north-eastern corner of the Site surrounding the buildings and along the boundary hedgerows. Species present included cow parsley, common thistle species, nettle, hemlock and hogweed. While a formal NVC survey of this area was not undertaken, the habitat was similar to OV24 (*Urtica dioica*-*Galium aparine*) community. Given

the species-richness and variation in sward height, the habitat was assessed to be in good condition. Due to the small area of the habitat, and the prevalence of the habitat across the wider landscape, the habitat was assessed to be of Less than Local importance.



Image EDP A2.2: Looking north over tall forbs along the western Site boundary.

Other Woodland; Broadleaved

- A2.28 A small stand of semi-mature trees was present in the south-eastern corner of the Site with a ground flora dominated by bramble and nettle. Trees present included ash, elder and hawthorn. The woodland was assessed to be in poor condition under the Statutory Biodiversity Metric condition assessment criteria due to the lack of ground flora, minimal variation in vertical structure and lack of deadwood.



Image EDP A2.3: Limited extent of woodland in the south-western corner of the Site.

A2.29 While broadleaved woodland is a priority habitat, given the poor condition of the habitat, small area and lack of connectivity to other woodland parcels, the woodland was judged to be of only Site level importance.

Species-rich Native Hedgerow with Trees

A2.30 Hedgerows with trees were present along the southern and eastern boundaries of the Site. The hedgerows were dominated by hawthorn and blackthorn, with occasional oak, bramble, ash, and elder. Nightshade and hazel were also present within **H3**. The hedgerows were largely unmanaged, with the eastern hedgerow (**H2**) tall and outgrown. **H4** along the western boundary of the Site was assessed to be in good condition, as a wider area of perennial vegetation and undisturbed ground was present along the majority of the hedgerow length.

- A2.31 The hedgerows were assessed to be of moderate condition, but did not reach good condition due to the level of ground disturbance and damage. Species-rich hedgerows are a priority habitat. Given the connectivity which the hedgerows provide and the potential to support protected species, the hedgerows were assessed to be of Local level importance.

Species-rich Native Hedgerow



Image EDP A2.4: Hedgerow along the western Site boundary.

- A2.32 Hedgerows were present along the northern and western boundaries of the Site and were dominated by hawthorn and blackthorn, with occasional oak, ash, and elder. The hedgerows were largely unmanaged, although it is assumed that they are flailed by the landowner on occasion. **H1** along the northern boundary of the Site was assessed to be of moderate condition, failing to meet good condition due to the damage and disturbance at ground level along the hedgerow.
- A2.33 As species-rich native hedgerows are a priority habitat, and the connectivity provided to off-site habitats by the hedgerows, this habitat was assessed to be of Local level importance.

Ditch

- A2.34 Arable drainage ditch running north to south along the western Site boundary, subject to regular maintenance to ensure continued functionality. The ditch is wettest at its southern extent, with c.30cm water depth, becoming more shallow as it extends further north, with c.1-2cm water at its northern extent. The flow within the ditch is typically moderate, flowing south past the Site before being culverted at the A41. Bankside ruderal, scrub and hedgerow habitats shade the watercourse, resulting in an absence of aquatic/submergent vegetation.



Image EDP A2.5: Looking south along ditch on western Site boundary

Developed Land; Sealed Surface

- A2.35 Farm buildings and small areas of hardstanding were present within the north-eastern corner of the Site. The buildings consisted of two open barns of corrugated metal, and wooden sheds/storage buildings.
- A2.36 To the west is an existing access road built under Symmetry Park Phase 2.
- A2.37 Given the lack of suitability to support protected species other than nesting birds, these habitats were assessed to be of negligible importance.

Appendix EDP 3
Breeding Bird Survey

METHODOLOGY

A3.1 Survey visits were spread evenly between late March and early July to cover the main bird breeding season. Visits were timed to ensure they were completed prior to 11:00am to cover the peak activity period. The dates and timings of the three breeding bird survey visits, and the weather conditions encountered, are summarised in **Table EDP A3.1**.

Table EDP A3.1: Breeding Bird Survey Visit Details

Visit Number	Date	Timing of Survey	Wind Speed (Beaufort Scale)	Cloud Cover (%)	Precipitation
2022 - 1	25.03.2022	05:50 - 07:20	1 - 2	0%	0
2022 - 2	27.05.2022	04:45 - 06:15	1	20% - 40%	0
2022 - 3	30.06.2022	04:30 - 06:00	1-2	80% - 100%	0
2024 - 1	24.04.2024	05:35 - 07:25	3	100% - 95%	0
2024 - 2	17.05.2024	05:15 - 07:30	1	10% - 5%	0
2024 - 3	18.06.2024	05:05 - 07:20	3	50% - 5%	0

A3.2 During each visit the Site was walked at a slow pace to enable all birds detected to be identified and located. Frequent stops were made to scan suitable habitats and to listen for singing and calling birds. All areas of suitable breeding habitat within the Site boundary and immediately adjacent areas were approached to within 50m.

A3.3 During the survey the location and activity of each bird detected (including those seen or heard) was recorded and mapped using standard two-letter British Trust for Ornithology (BTO) species codes. The breeding status of each bird species identified at the Site was determined according to the nature and frequency of the behavioural elements recorded, as set out in **Table EDP A3.2**.

Table EDP A3.2: Field evidence Used to Determine Bird Breeding Status

Breeding Status	Examples of Behaviour Exhibited
Confirmed	<ul style="list-style-type: none"> • Distraction display; • Nest building; • Nest with eggs; • Nest with young; • Used nest; • Recently fledged young; and • Adult carrying faecal sac/food.
Probable	<ul style="list-style-type: none"> • Pair observed in suitable nesting habitat in breeding season; • Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two different occasions, a week or more apart at the same place; • Courtship and display; • Visiting a probable nest site; • Agitated behaviour or anxiety calls from adults; • Brood patch on adult examined in the hand; and • Nest building or excavating nest-hole.
Possible	<ul style="list-style-type: none"> • Species observed in breeding season in possible nesting habitat; • Male in song; and • Adult giving alarm call.
Non-breeder	<ul style="list-style-type: none"> • Feeding birds only; • Birds flying over only; and • Lack of suitable breeding habitat.

A3.4 To inform the assessment in this report, the numbers of potential territories identified, the abundance of species at the County and National level, the quality of the habitat present and the geographical range of the birds concerned have been considered, based on national and regional accounts.

A3.5 The conservation status of each species of bird was also taken into account and the following lists were considered:

- Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended) – affords greater protection to certain breeding species that are considered appropriately at risk nationally and are listed additional legal protection accordingly;
- Priority Species; and

- *Birds of Conservation Concern*²⁸ - under this approach UK bird populations are assessed, using quantitative criteria, to determine the population status of each species and then placed on one of three lists; Red, Amber or Green.

Limitations

- A3.6 As with all breeding bird surveys following this technique, the process is open to some subjectivity in interpretation except where active nests are located. Therefore, recorded locations indicate the 'centre' of a territory and not necessarily the breeding location.
- A3.7 Following best practice, the survey visits were timed to coincide with the period of peak activity for birds, most particularly passerine songbird species. They were also undertaken during suitable weather conditions, i.e. days/periods with strong winds and heavy or persistent rain were generally avoided. The results are therefore not significantly limited by seasonal or climatic factors.

RESULTS

- A3.8 A total of 13 species were recorded during the surveys in 2022, with 15 species recorded in 2024 of which the Birds of Conservation Concern breeding status was analysed. In 2024, two of these species were confirmed breeding, namely red listed mistle thrush and amber listed sedge warbler. Nine species were recorded as probable breeders, of which four were species of nature conservation importance, namely being a Priority Species and/or being species included on the latest Red lists of Birds of Conservation Concern. Full details of each notable species recorded as likely breeding on-site, including their breeding status on-site and their conservation status, are provided in **Table EDP A3.3**.
- A3.9 The abundance and diversity of bird species recorded on-site was consistent with the extent and diversity of nesting habitats present. The majority of species recorded were associated within the hedgerows on-site. The limited extent, of other suitable habitats such as wetland and woodland, limits the ability of the Site to support large breeding populations of habitat specialist species other than farmland species. For this reason, and the prevalence of farmland, locally breeding bird assemblage is judged to be of no greater than Site level ecological importance.

²⁸ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747.

Table EDP A3.3: Breeding Birds of Conservation Importance (Schedule 1; Priority Species and other notable species) recorded as likely breeding on-site and or within the Study Area 2022 and 2024.

Species	UK Status	On-site Status 2022	On-site Status 2024	Estimated No. Breeding Pairs 2024	Survey Observations
Cuckoo (<i>Cuculus canorus</i>)	Priority Red listed	Not recorded	Possible breeder	1	Recorded along the north-western hedgerow and just off-site in the north during one survey singing.
Dunnoek (<i>Prunella modularis</i>)	Priority Amber List	Probable breeder.	Probable breeder	5-6	Recorded across the Site.
Greenfinch (<i>Chloris chloris</i>)	Red List	Probable breeder.	Probable breeder	1-2	Recorded around north-east corner of the Site on two occasions in the same area. With a slight decline in numbers compared to 2022.
House Martin (<i>Delichon urbicum</i>)	Red Listed	Possible breeder	Not recorded	0-1	Recorded around the building in the north-east corner.
House sparrow (<i>Passer domesticus</i>)	Priority Red listed	Probable breeder.	Probable breeder.	2-3	Recorded along the north-eastern boundary hedgerow and the buildings adjacent to the eastern boundary in both years.
Kestrel (<i>Falco tinnunculus</i>)	Amber list	Possible breeder	Not recorded	0-1	Recorded in 2022 in suitable breeding habitat.
Linnet (<i>Linaria cannabina</i>)	Priority Red List	Possible breeder	Probable breeder.	3-4	Mostly recorded in the northern hedgerow boundary on two separate occasions.
Mallard (<i>Anas platyrhynchos</i>)		Not recorded	Non breeder	0	Recorded in 2024, but not likely to be breeding on-site with unsuitable habitats available.

Species	UK Status	On-site Status 2022	On-site Status 2024	Estimated No. Breeding Pairs 2024	Survey Observations
Mistle thrush (<i>Turdus viscivorus</i>)	Red List	Not recorded	Confirmed breeder	1	Not recorded during 2022 surveys, recorded with recently fledged young in 2024 in the central eastern hedgerow.
Red Kite (<i>Milvus milvus</i>)	Schedule 1	Non breeder	Not recorded	0	Recorded during a single survey in 2022 and not recorded again on-site.
Rook (<i>Corvus frugilegus</i>)	Amber list	Not recorded	Possible breeder	1	Recorded during a single survey in 2024 in the trees in the southern boundary in suitable breeding habitat.
Sedge warbler (<i>Acrocephalus schoenobaenus</i>)	Amber List	Not recorded	Confirmed breeder	1	Not recorded in 2022. In 2024 recorded in the northern central hedgerow carrying food.
Skylark (<i>Alauda arvensis</i>)	Priority Red List	Non breeder	Not Recorded	1 off-site	Not recorded in 2024, recorded in neighbouring fields singing in 2022.
Stock Dove (<i>Columba oenas</i>)	Amber list	Not recorded	Probable breeder	3-4	Recorded around the buildings in the north of the Site on three occasions.
Song thrush (<i>Turdus philomelos</i>)	Priority Species Red List	Probable breeder	Probable breeder	5-6	Recorded throughout the Site within the hedgerow boundaries.
Starling (<i>Sturnus vulgaris</i>)	Priority	Not recorded	Possible breeder	2-3	Possibly breeding within trees on-site or off-site in buildings to the east, seen with juveniles.
Whitethroat (<i>Sylvia communis</i>)	Amber List	Probable breeder	Probable breeder	2-3	Recorded in hedgerows across the Site during both 2022 and 2024 surveys.

Species	UK Status	On-site Status 2022	On-site Status 2024	Estimated No. Breeding Pairs 2024	Survey Observations
Woodpigeon (<i>Columba palumbus</i>)	Amber List	Probable breeder.	Probable breeder	11-12	Recorded throughout the Site within hedgerows.
Wren (<i>Troglodytes troglodytes</i>)	Amber List	Probable breeder.	Probable breeder	15-16	Recorded throughout the Site within hedgerows.
Yellowhammer (<i>Emberiza citronella</i>)	Red List	Possible breeder	Not recorded	1-2	Recorded in the northern hedgerow in 2022.

A3.10 The species within **Table EDP A3.4** are those not included on any list of conservation concern (Schedule 1, Priority Species or Birds of Conservation Concern) recorded incidentally during the visit with their breeding status not recorded.

Table EDP A3.4: Breeding Bird Survey Results, Non-notable Species 2022 and 2024

Common Name	Scientific Name	2022	2024
Barn Swallow	<i>Hirundo rustica</i>	Recorded	Recorded
Blackbird	<i>Turdus merula</i>	Recorded	Recorded
Blackcap	<i>Sylvia atricapilla</i>	Recorded	Recorded
Blue tit	<i>Cyanistes caeruleus</i>	Recorded	Recorded
Buzzard	<i>Buteo buteo</i>	Recorded	Not Recorded
Carrion crow	<i>Corvus corone</i>	Recorded	Recorded
Chaffinch	<i>Fringilla coelebs</i>	Recorded	Recorded
Chiff chaff	<i>Phylloscopus collybita</i>	Recorded	Recorded
Coal tit	<i>Periparus ater</i>	Not Recorded	Recorded
Collared dove	<i>Streptopelia decaocto</i>	Not recorded	Recorded
Goldfinch	<i>Carduelis carduelis</i>	Recorded	Recorded
Great spotted woodpecker	<i>Dendrocopos major</i>	Not Recorded	recorded
Great tit	<i>Parus major</i>	Recorded	Recorded
Green woodpecker	<i>Picus viridis</i>	Recorded	Recorded
Jackdaw	<i>Corvus monedula</i>	Recorded	Recorded
Lesser whitethroat	<i>Curucca curucca</i>	Not Recorded	Recorded
Long tailed tit	<i>Aegithalos caudatus</i>	Recorded	recorded
Magpie	<i>Pica pica</i>	Recorded	Recorded
Pheasant	<i>Phasianus colchicus</i>	Not recorded	Recorded
Peacock	<i>Pavo Cristatus</i>	Recorded	Recorded
WPied wagtail	<i>Motacilla alba</i>	Not Recorded	Recorded
Raven	<i>Corvus corax</i>	Not recorded	Recorded
Robin	<i>Erithacus rubecula</i>	Recorded	Recorded

Appendix EDP 4

Winter Bird Survey

METHODOLOGY

- A4.1 Surveys were conducted by experienced surveyors and involved the completion of a single pilot wintering bird survey visit to the Site, undertaken in February 2022 to identify the potentially suitable habitats present and any wintering birds on the Site. The surveys were conducted over a single pre-defined transect route designed to take surveyors to within a minimum of 75m of the suitable habitats for the target species. However, there was some variation to these, at the discretion of the surveyor, according to the nature of the habitat present and the influence this had on bird detectability (e.g., height of crop/grassland). Surveyors used binoculars and telescopes. The surveyor recorded any target species encountered, along with any notable behaviour.
- A4.2 The survey visit was carried out by an experienced surveyor to allow full coverage of the Site in a single day. It is considered that this level of survey provided a suitable initial assessment of the suitability of the Site to support wintering birds.
- A4.3 The date and timing of the survey visit and the weather conditions encountered, are summarised in **Table EDP A4.1**.

Table EDP A4.1: Winter Bird Survey Visit Details

Visit Number	Date	Timing of Survey	Wind Speed (Beaufort Scale)	Cloud Cover (%)	Precipitation /Visibility
1	24.02.2022	10:15 – 11:15	4	50%	0 (rained heavily overnight prior to the survey).

- A4.4 The first and last hours of daylight were not surveyed to avoid counting when birds are moving between foraging and roosting habitats. Registrations of target bird species were recorded and assigned to the location where they were first detected (if flushed). Flying birds were only recorded if they were clearly associated with the Site (e.g. just flushed or about to land).
- A4.5 To inform the assessment in this report, the abundance of species on-site, the abundance of species at the County and National level, the quality of the habitat present and the geographical range of the birds concerned have been considered, based on national and regional accounts.
- A4.6 The conservation status of each species of bird was also taken into account and the following lists were considered:
- Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended) – affords greater protection to certain breeding species that are considered appropriately at risk nationally and are listed additional legal protection accordingly;

- Qualifying species lists for proximate designated sites;
- Priority Species; and
- Birds of Conservation Concern²⁹ - under this approach UK bird populations are assessed, using quantitative criteria, to determine the population status of each species and then placed on one of three lists; Red, Amber or Green.

Limitations

- A4.7 The survey visit was completed on calm days with good visibility and avoiding periods of heavy rain. It is therefore considered that the results provide a representative overview of the wintering bird interest at the Site and have not been limited by seasonal or climatic factors.
- A4.8 A single pilot visit was undertaken to identify wintering bird species present and the use of the Site by wintering birds. As the survey was undertaken in a single visit, it is unlikely that the survey will have recorded all of the species which may use the Site.
- A4.9 It should be noted that for a large number of species, including thrushes, sparrows, finches and buntings in most field types, the overall majority (i.e. >90%) can be recorded using a 'perimeter count'. However, where detectability may be an issue, comparisons of bird densities or total numbers between fields will not be possible purely from using perimeter counts as the field characteristics, and hence detectability, vary between field parcels.
- A4.10 The survey methodology therefore involved, where access allowed, walking to within a maximum distance of 75m of all suitable habitats for the target wintering bird species. However, with regard to the effect of vegetation density and height on the ability to record birds, the survey method relies on the judgement of an experienced surveyor to assess when a count is complete. As such, in fields with more ground cover, a greater frequency of transects across open areas (and hence reduced maximum distance) is required.
- A4.11 'Double counting' could also affect results, particularly with the whole-area search approach where birds could be flushed from one field to another. With reference to Wilson *et al.* (1996)³⁰, although this source of error cannot be eliminated, it can be minimised by taking account of birds flushed to fields yet to be counted (namely through the detailed recording of bird movements on Site plans).

²⁹ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747.

³⁰ Wilson, J.D., Taylor, R. & Muirhead, L.B. (1996) *Field use by farmland birds in winter: an analysis of field type preferences using re-sampling methods*. Bird Study, 43, 320-332.

RESULTS

A4.12 A total of six bird species of nature conservation importance were recorded during the course of the winter bird survey (see **Table EDP A4.2**), with a further seven species not of conservation importance recorded incidentally (see **Table EDP A4.3**).

A4.13 Overall, the assemblage of wintering bird species recorded on-site is considered to be largely typical for the size and habitats present on-site. The species present reflect the habitats present on-site, but the Site is not considered to provide important wintering habitat for any of the species identified in the context of the wider landscape. The wintering bird assemblage is considered to be of Site level importance.

Table EDP A4.2: Winter Bird Survey Results, Notable Species Only

Common Name	Scientific Name	UK Status	Distribution On-site
Red kite	<i>Milvus milvus</i>	WCA Sch 1	Single bird flying over Site.
Redwing	<i>Turdus iliacus</i>	WCA Sch 1	Single bird identified on the northern Site boundary.
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Red list	Flock of 12 flying over the Site.
House sparrow	<i>Passer domesticus</i>	Red list	Two birds using the hedgerow on the eastern Site boundary.
Wood pigeon	<i>Columba palumbus</i>	Amber list	Two birds associated with the hedgerow on the western Site boundary.
Wren	<i>Troglodytes troglodytes</i>	Amber list	Single bird on the western Site boundary.

Table EDP A4.3: Winter Bird Survey Results 2022, Non-notable Species

Common Name	Scientific Name
Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Carrion crow	<i>Corvus corone</i>
Goldfinch	<i>Carduelis carduelis</i>
Great tit	<i>Parus major</i>
Jackdaw	<i>Corvus monedula</i>
Robin	<i>Erithacus rubecula</i>

Appendix EDP 5

Bat Surveys

METHODOLOGY

- A5.1 The scope of bat surveys undertaken at the Site was determined following completion of the baseline habitat survey and review of relevant desk study findings and with reference to good practice guidelines published by the Bat Conservation Trust³¹.

Tree Roost Surveys

Ground Level Tree Assessment

- A5.2 Owing to the presence of suitably mature trees within or adjacent to the Site, a Ground Level Tree Assessment (GLTA) of these trees was undertaken to record any external evidence of roosting bats or any features capable of supporting roosting bats that can be seen from the ground.
- A5.3 The survey was completed on 03 May 2022 and updated on 16 July 2024 by a suitably experienced ecologist in accordance with the good practice guidelines published at the time of each survey. The trees were searched as thoroughly as possible from ground level with all elevations covered where these could be accessed.
- A5.4 Suitable features for roosting bats (PRFs) recorded (where present) include features formed by disease, decay, damage and association as listed within the guidelines published by the Bat Conservation Trust and detailed within the '*Bat Roosts in Trees*' book³². In addition, bat, bird and dormouse boxes are also considered to provide potentially suitable roosting opportunities.
- A5.5 Signs of roosting bat presence recorded (where present) include seeing a bat within a PRF, or finding bat droppings within, around or beneath a PRF. Other signs which could indicate a roost include smoothing of the entrance to a PRF, staining around or beneath a feature, audible squeaking from the roost at dusk or during warm weather, and large/regularly used roosts may produce a distinctive odour.
- A5.6 The roost suitability of each tree was categorised as either:
- None – Either no PRFs in the tree or highly unlikely to be any;
 - FAR – Tree is of a size, age or condition that is likely to have PRFs, further assessment is therefore required to establish if PRFs are present in the tree;
 - PRF – Tree supports at least one PRF which is visible from the ground; and
 - Confirmed roost – Signs of roosting bat presence were found within or around a PRF.

³¹ Collins, J. (ed.) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.

³² Andrews, H (2018). *Bat Roosts in Trees. A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Pelagic Publishing, Exeter.

- A5.7 For those trees categorised as having a 'PRF', an estimate was made as to whether each PRF visible from the ground was likely to be suitable for individual bats (PRF-I) or multiple bats (PRF-M). It should be noted that this categorisation from ground level is an estimate only, as it is often not possible to establish the internal extent of a tree feature from ground level.

Limitations

- A5.8 As with any ground level assessments of trees, certain features may not be visible or fully visible from the ground. Assessment of trees can be undertaken at any time of year, but is best undertaken in winter/early spring (December-March) when visibility into the crown of the tree is improved due to the absence of leaves. However, the assessments undertaken in May 2022 and July 2024 were considered to have been able to undertake a full assessment of the suitability of the trees, and the timing of the survey was not considered to be a limitation.
- A5.9 It should be noted that this type of assessment is based on features visible from ground level and is not considered to be a definitive bat roosting survey. However, as none of the trees identified to have PRFs are understood to be lost as part of the Proposed Development, no further surveys were considered to be necessary.

Buildings/Built Structures/Underground Site Surveys

Preliminary Roost Assessment

- A5.10 Owing to the presence of potentially suitable buildings within or adjacent to the Site, a Preliminary Roost Assessment (PRA) of these buildings was undertaken to record any evidence of roosting bats or any features capable of supporting roosting bats.
- A5.11 The survey was completed on 03 May 2022 and updated on 16 July 2024 by a suitably experienced ecologist in accordance with the good practice guidelines referred to above. All external features considered potentially suitable for bats were assessed using a high-powered torch and binoculars, from all aspects, where access allowed. An internal inspection of the buildings (including any roof voids and basements) was not undertaken as structural and asbestos surveys of the building were not available, and access to the internals of the buildings was not considered to be safe.
- A5.12 Suitable features for roosting bats recorded (where present) include the following:
- Cracks/crevices in stone/brickwork/timber;
 - Missing/broken/raised roof/ridge/hanging tiles;
 - Loose/lifted lead flashing/bitumen felt;
 - Loft voids (particularly if relatively undisturbed, potential bat access points present, clear flight space with simple truss formation, roof lining and insulation present);
 - Gaps between lintels above doors and windows;
 - Gaps in soffits, barge boards or fascias; and
 - Cavity walls with potential bat access.

A5.13 Signs of roosting bat presence recorded (where present) include the following:

- Bat(s) roosting *in situ*;
- Bat droppings or urine splashes within or beneath a feature/access point;
- Feeding remains (e.g. insect wings and beetle wing cases);
- Oily marks, smoothly worn surfaces or staining around a feature/access point;
- Audible squeaking from the roost; and
- Large/regularly used roosts may produce a distinctive odour.

A5.14 Based upon the evidence/features identified, each building was assigned to one of the following categories:

- Known or confirmed roost – Evidence of bat use found, European Protected Species (EPS) licence may be required for modifications, and will be required for demolition, to be completed lawfully;
- High suitability – Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat;
- Moderate suitability - Structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only);
- Low suitability - Structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. These roost sites do not provide enough space, shelter, protection, appropriate conditions and suitable surrounding habitat to be used on a regular basis or by larger numbers of bats;
- Negligible suitability - No obvious features to support roosting bats, although some apparently unsuitable features present; and
- None – No features on-site likely to be used by roosting bats at any time of year.

A5.15 During the PRA, an initial assessment of potential for winter roosting (hibernation) within each building was also undertaken, based on the presence of suitable features, accessibility for bats, surrounding habitat and the temperature and humidity conditions likely to be present within the building over the winter period.

Limitations

A5.16 Preliminary roost assessments of buildings can be undertaken at any time of year and these assessments were therefore not limited by seasonal or climatic factors.

A5.17 Internal access to the buildings was not possible due to health and safety constraints. However, given the open-fronted nature of the buildings an initial assessment of the buildings' suitability

was possible from the outside, and this is not considered to pose a significant limitation to the findings of this survey.

Bat Activity Surveys

A5.18 During the baseline habitat surveys in 2018 and 2022 an initial assessment was undertaken of suitability of the habitats within and immediately adjacent to the Site for foraging and commuting bats. In accordance with the good practice guidelines referred to above, the Site was assigned to one of the following categories:

- High suitability – Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts;
- Moderate suitability – Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water;
- Low suitability – Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub;
- Negligible suitability – No obvious habitat features on-site likely to be used by commuting or foraging bats; and
- None – No habitat features on-site likely to be used by any commuting or foraging bats at any time of year.

A5.19 Having determined that the overall suitability of the Site is of Moderate suitability a proportionate level of survey effort was expended in terms of the number and frequency of NBW surveys and automated detector surveys. These are described in further detail below.

Nighttime Bat Walkover Surveys

A5.20 NBW surveys were undertaken across the Site with the objective of identifying important roosting and commuting behaviour as well as foraging areas used by bats. A total of three NBW surveys were undertaken over the course of the active bat season in 2022 and repeated in 2024.

A5.21 Details of the date, timing, and weather conditions during each of the NBW surveys are given in **Table EDP A5.1**. All visits were completed in weather conditions that were generally suitable for such surveys.

Table EDP A5.1: Date, Timing and Weather Conditions during NBW Surveys

Survey Date	Sunset Time	Start - Finish Times	Weather Conditions at sunset			
			Temp (°c)	Cloud Cover (%)	Wind (Beaufort Scale)	Precipitation
17.05.2022	20:50	20:50 – 22:50	17	70	0	None
11.07.2022	21:24	21:24 – 23:34	24	30	1	None
21.09.2022	19:04	19:04 – 21:04	16	100	1	Light drizzle
28.05.2024	21:10	21:28 – 23:28	15	100	2-3	None
31.07.2024	20:55	20:55 – 22:55	23	95	2	None
18.09.2024	19:11	19:11 – 21:11	15	0	3-4	0

A5.22 The 2022 surveys were undertaken in line with the most recent bat survey guidance at the time of survey (Collins, 2016). As such, the surveys were undertaken as walked transects without stationary observation points.

A5.23 The 2024 surveys were undertaken as Nighttime Bat Walkover (NBW) surveys in line with the most recent survey guidelines (Collins, 2023), and as such utilised stationary observation points at the beginning of the surveys. During the NBW surveys, the same stationary observation points were surveyed across all NBW surveys. Three locations were selected for observation points across the 2024 surveys, including along a potential flightline on the western hedgerow for survey 1, adjacent to a veteran tree in the northern corner of the Site for survey 2 and adjacent to the on-site buildings for survey 3. All observation points were in a position with good visibility across the Site in order to observe potential flightlines. Following the stationary part of the NBW survey, a single transect route was walked within the Site, with the route designed to provide coverage of all habitats within the Site. The transect route is illustrated on **Plan EDP 4**. The NBW surveys were carried out by experienced bat surveyors and an assistant, with the stationary part of the NBW survey starting at sunset and continuing for a minimum of 30 minutes, followed by a walked transect part of the survey, carried out until two-three hours after sunset. The walked part of the NBW survey was carried out at a slow and steady pace and where appropriate surveyors stopped temporarily or took detours from the route to observe bat behaviour.

A5.24 All bat calls were recorded, time-stamped and location tagged using Elekon Batlogger M bat detectors, and any observed behaviour described on survey forms, in order to characterise the value of the Site and its component habitats for foraging and commuting bats.

A5.25 Bats were identified on the basis of their characteristic echolocation calls, which analysed using computer sonogram analysis BatExplorer to confirm species identification. Species of Myotis bat and long-eared bat are difficult to tell apart solely from their echolocation calls and were therefore grouped as such.

Limitations

A5.26 There were no significant limitations to the transect surveys or NBW surveys undertaken at the Site. Light drizzle occurred during a single survey in 2022, however, conditions were assessed to still be suitable to undertake the survey. Weather conditions for the remaining surveys were optimal.

Automated Detector Surveys

A5.27 Bat activity within the Site was also sampled using Anabat Express detectors (hereafter referred to as ‘automated detectors’), which are deployed in fixed locations to automatically trigger and record bat echolocation calls over multiple nights at a time. In this case, automated detectors were deployed at two locations within the Site during each survey, as shown on **Plan EDP 4**, covering all habitat types within the Site and concentrating on locations of known/anticipated higher impacts. The automated detectors were fixed in secure locations, with an external microphone attached circa 1-2m above ground, where possible, and the microphone directed away from the tree/branch to maximise detection sensitivity. In total three surveys were completed over the course of the active bat season in 2022 and 2024 each comprising sampling by automated detectors for at least five consecutive nights. These surveys were then repeated in 2024. Details of dates, sampling locations and weather conditions during each of the surveys are given in **Table EDP A5.2**.

Table EDP A5.2: Automated Detector Survey Details

Sampling Period Dates	Location		Microphone		Weather (max, min temp/ rainfall/ max, min wind speed)
	Reference Number	OS Grid Reference	Height	Direction	
17.05.2022 – 23.05.2022	Location 1	SP 60771 20822	1.2	SW	Maximum temperature during the survey period 25 °C, minimum temperature 6 °C. No significant overnight rainfall or high winds.
	Location 2	SP 60665 20483	1.5	NE	
11.07.2022 – 18.07.2022	Location 1	SP 60665 20483	2	S	Maximum temperature during the survey period 28 °C, minimum temperature 7 °C. No significant overnight rainfall or high winds.
	Location 2	SP 60772 20820	2	NE	
22.09.2022 – 27.09.2022	Location 1	SP 60771 20822	2	S	Maximum temperature during the survey period 19 °C, minimum temperature 3 °C. No significant overnight rainfall or high winds.
	Location 2	SP 60665 20483	1.5	NE	
22.05.2024 – 28.05.2024	Location 1	SP 60771 20822	1.7	S	

Sampling Period Dates	Location		Microphone		Weather (max, min temp/ rainfall/ max, min wind speed)
	Reference Number	OS Grid Reference	Height	Direction	
	Location 2	SP 60665 20483	1.5	N	Maximum temperature during the survey period 20 °C, minimum temperature 6 °C. Some overnight light rainfall during the survey period. No significant high winds.
21.07.2024 – 28.07.2024	Location 1	SP 60772 20820	1.5	SW	Maximum temperature during the survey period 25 °C, minimum temperature 8 °C. No significant overnight rainfall or high winds.
	Location 2	SP 60666 20483	1.6	NE	
18.09.24 – 23.09.24	Location 1	SP 60791 20814	2.1	S	Maximum temperature during the survey period 23 °C, minimum temperature 13 °C. Some overnight rainfall during the survey period. No significant high winds.
	Location 2	SP 60659 20490	1.9	N	

A5.28 The sound files recorded by the automated detectors were filtered for each of the UK's bat species/species groups using Analook W software's filter function. The parameters for the species filters are based on those proposed by Chris Corben and Kim Livengood³³ and have been fine-tuned using known call parameters for each of the species. Except for common and soprano pipistrelles, for which the filters are more accurate, all files passing the various filters plus approximately 10% of files that did not pass any species filters (noise files) were checked manually using sonogram analysis in accordance with published guides to confirm the species identification of each bat call.

Limitations

A5.29 The identification of calls and species using Analook software is dependent upon the quality of the recording made which can be influenced by the following factors, which may limit levels of activity and species recorded:

- Weather conditions - rainfall and wind;
- Distance of bat from the detector's microphone;
- Presence of obstructions through which the noise must pass i.e., trees/leaves; and
- Proximity of other noise sources such as roads.

³³ Taken from Analook W training course and workshop, September 2013.

- A5.30 Occasional rainfall was recorded during the survey periods. However, no significant continuous rainfall occurred which was considered to have impacted large portions of the data collection. In addition, whilst temperatures dropped below optimal conditions on occasion (particularly on 24 September 2022), temperatures remained broadly in the optimal range. As such, the weather conditions were not considered to have been a significant limitation to the findings of these surveys.
- A5.31 During the July 2024 surveys, the microphone at Location 1 became dislodged. Limited data was recorded however, given the repeated years of data collection, and the use of transect surveys, the failure of the microphone on this single occasion is not considered to be a significant limitation to the assessment of bat activity at the Site.

RESULTS

Tree Roost Surveys

Ground Level Tree Assessment

- A5.32 The GLTA identified a total of nine trees with suitable features for bat roosting (PRF). Of these, none are understood to be affected by the development proposals, and therefore further aerial inspection was not considered to be required. Of the trees, two were categorised as having PRF-I and seven were classified as FAR. Further details on each of these trees are provided in **Table EDP A5.3** and their locations are shown on **Plan EDP 1**.
- A5.33 All other trees were found to be of no suitability for roosting bats and have not been mapped/described.

Table EDP A5.3: Details of Trees with Bat Roost Suitability Following Initial Ground Level Inspection

Tree/ Group Ref. No.	Tree Species	Potential Roost Features and their Suitability	Roosting Suitability of Tree (where applicable)
T1	Oak sp.	Multiple broken branches with linear cracks and crevices at between 6m and 8m in height. Main trunk split at the top with cracks downwards. Only visible from the eastern aspect, precautionarily assessed as moderate.	Moderate PRF - I
T2	Willow sp.	Hollow trunk at the base at around 1m in height but no visible cracks leading anywhere.	Low FAR
T3	Oak sp.	No obvious features, dense ivy growth but no clear features visible. FAR based on size and ivy coverage.	Negligible FAR
T4	Oak sp.	Multiple broken branches on all aspects with crevices but unclear if they extend anywhere. Some heavy ivy growth. Only accessible from the north aspect.	Low FAR
T5	Oak sp.	Only viewed from the north aspect. No potential features but mature tree with limited access so precautionarily rated as low.	Low FAR
T6	Ash	Hollow trunk but the feature did not appear to extend any further into the tree.	Negligible FAR
T7	Ash	Trunk tear-out on the west aspect at 2.5m, but unclear if it extends anywhere. Hollow trunk also present from around 1m in height, which may extend upwards.	Moderate PRF - I
T8	Oak sp.	Heavy ivy growth. No features identified but precautionarily assessed as low due to the maturity and ivy cover.	Low FAR
T9	Oak sp.	Heavy ivy growth. No features identified but precautionarily assessed as low due to the maturity and ivy cover.	Low FAR




Buildings/Built Structures/Underground Site Surveys




Preliminary Roost Assessment

A5.34 The preliminary roost assessment/inspection of buildings identified a total of six buildings within the Site. However, none of the buildings had suitable features for bat roosting and all were classified as negligible suitability.

A5.35 Further details on each of the buildings inspected are provided in **Table EDP A5.4** and their locations are shown on **Plan EDP 1**.

Table EDP A5.4: Preliminary Bat Roost Assessment of Buildings

Building Ref. No.	Photograph	Description and Potential Roost Features	Overall Roosting Suitability
B1		Steel frame agricultural barn with corrugated roof and corrugated metal and breeze-block wall. Open fronted.	Negligible
B2		Steel frame agricultural barn with corrugated roof and corrugated metal and breeze-block wall. Open fronted.	Negligible
B3		Single storey shed with single skin wooden slat walls and corrugated metal roofing with timber frame. Sections of wall and roof have collapsed.	Negligible

Building Ref. No.	Photograph	Description and Potential Roost Features	Overall Roosting Suitability
B4		Steel frame agricultural barn with corrugated roof and corrugated metal and breeze-block wall. Open fronted.	Negligible
B5		Small wooden shed. Single skin wooden slat walls and corrugated metal roofing with timber frame.	Negligible
B6		Small wooden shed. Single skin wooden slat walls and corrugated metal roofing with timber frame.	Negligible

Bat Activity Surveys

Nighttime Bat Walkover

- A5.36 As noted above in relation to the scope/design of the bat activity surveys, the initial habitat assessment of the Site found the Site to be of moderate suitability for foraging and commuting bats. This is due to the grassland and tall forbs providing foraging habitats, and the hedgerows along the boundaries providing potential flightlines and connectivity to the wider landscape. The Site is largely unlit; however, there is a low level of lighting and noise disturbance from the adjacent busy road and warehouses.
- A5.37 Activity levels during the 2022 surveys were low to moderate, with soprano pipistrelle, common pipistrelle and noctule recorded across the survey period. Activity largely consisted of common pipistrelle and soprano pipistrelle foraging along the hedgerows on the boundaries. Noctule have also been recorded commuting over the Site.
- A5.38 During the 2024 surveys, very low levels of activity were recorded during the stationary observation section of the NBW, with only a single common pipistrelle recorded commuting

along the western hedgerow 20 minutes after sunset. During the walked section of the NBW, activity levels were generally low to moderate, again consisting of foraging common pipistrelle and soprano pipistrelle.

- A5.39 The peak count of bat registrations was recorded on 21 September 2022, with 21 passes recorded, dominated by foraging common pipistrelle. However, the remaining five transect surveys identified a lower peak count of 11 bat registrations, which seems to be more typical for the Site, with low levels of activity fairly evenly spread across all of the boundary hedgerows. As laps were walked it is also considered that the surveys recorded an element of double counting.

Automated Detector Surveys

- A5.40 As the Site was found to be of moderate suitability for foraging and commuting bats, two automated detectors were left out on three occasions for a minimum of five nights across the bat active season in both 2022 and 2024.
- A5.41 A total of eight bat species/species groups (*Myotis* and long-eared bat species were not identified to species level), were confirmed to be present foraging and/or commuting within the Site during the automated detector surveys. The vast majority of recorded bat calls were of common pipistrelle with noctule, soprano pipistrelle and *Myotis spp.* also recorded regularly. Serotine, long eared spp. Leisler's and barbastelle made up a small minority of the total.
- A5.42 Levels of bat activity recorded during the automated surveys were generally low, though some survey nights recorded higher numbers of bat passes. This includes relatively higher levels of bat activity recorded in May 2024, rising from an average of 642 bat registrations up to 2033 registrations across the two detectors. The distribution of activity was generally evenly spread between the two detector locations, similar to the findings of the transect surveys. Overall, the importance of the bat assemblage recorded within the Site is of Local importance.
- A5.43 The results of the automated detector surveys are provided, in detailed and summary form, within **Tables EDP A5.5 to A5.10**. These results are also described below for the assemblage as whole and on a species-by-species basis. The species accounts also draw upon information collated during the desk study.

Species/Species Groups Recorded

Common and Soprano Pipistrelle

- A5.44 Common and soprano pipistrelle bats are common and widespread across the UK, representing the most and second most abundant species in the UK respectively and locally within Oxfordshire³⁴.
- A5.45 Common pipistrelle has been the species recorded most frequently across the automated detector and nighttime bat walkover surveys, making up 75% of all bat registrations, with soprano pipistrelle recorded third most frequently making up 5.7% of the total of all registrations across the survey periods.

³⁴ <https://www.oxfordshirebats.org/oxfordshire-bats.php>.

A5.46 Common and soprano pipistrelle were recorded at both deployment locations, with the spread of activity between the two locations being fairly even across the two survey periods.

A5.47 Common pipistrelle activity peaked notably in May 2024, with significantly higher numbers of registrations being recorded at both locations, with a peak count of 711 registrations at Location 2 on 26 May 2024. Given that higher numbers of registrations only occurred during one survey month it is considered unlikely that this represents a significant increase in the number of bats, more likely representing a small number of bats foraging repeatedly within the Site.

A5.48 Due to the modest number of recordings overall, the common and soprano pipistrelle assemblage is considered to be of up to Local value.

Noctule, Leisler and Serotine

A5.49 Noctule, Leisler's and Serotine are uncommon though widespread across the UK and Oxfordshire.

A5.50 Of the three species only noctule were recorded during the nighttime bat walkover surveys, albeit in low numbers. During the automated detector surveys a total of 976 noctule registrations have been made, accounting for 13.3% of the overall total, the second most frequently recorded species within the Site. Generally low numbers of noctule registrations were recorded within the Site across the survey period though 210 registrations were recorded at Location 1 on 24 September 2022. It is considered likely that the woodland and mature trees along the Site boundaries will provide some suitable foraging habitat for this species though given that low numbers of registrations were more frequently recorded it is not considered likely that the Site provides a key foraging habitat for this species within the local landscape.

A5.51 Serotine accounted for only 1.2% of the registrations overall, with 85 passes recorded across the two survey periods. Serotine were recorded at both locations, with slightly higher numbers of recordings at Location 1 to the north though this is unlikely to be significant. A peak count of 16 registrations across five survey nights was recorded, with typical recordings for a survey night being in low single figures. The results suggest that very low numbers of this species are foraging/commuting within the Site.

A5.52 Leisler were only recorded in September 2022 and May and July 2024. As with serotine, typical recordings for a survey night were in low single figures, with a peak count of eight registrations over five survey nights. The results suggest that very low numbers of this species are foraging/commuting within the Site. The inconsistent levels of recordings across the deployment periods suggests that the Site does not provide a key foraging or commuting resource for this species in the context of the wider landscape.

A5.53 The data indicates that Noctule are foraging within the Site on a regular basis, albeit likely in fairly low numbers.

A5.54 Leisler's and Serotine combined make up just 1.6% of the total registrations. Given the low levels of activity recorded for these two species, the Site is considered unlikely to form part of their core foraging and commuting habitat. Recordings are likely to represent bats commuting towards more favoured foraging habitats off-site and occasional opportunist foraging.

A5.55 The assemblage identified for all three species is considered to be up to Local value.

Myotis Sp.

A5.56 *Myotis* bat species occur throughout most of the UK, with their populations considered to be either stable or increasing, with the exception of Bechstein's bat (*Myotis bechsteinii*), which is listed in Annex II of the *EC Habitats Directive*, and considerably rarer. In Oxfordshire, Daubenton's and Natterer's bats are considered widespread. Brandt's and whiskered bats are uncommon. Bechstein's are considered to be very rare, with only a few records from the north of the county.

A5.57 Bechstein's bats are primarily associated with deciduous semi-natural or ancient woodland, ideally of over 25ha in extent. The very small extent of woodland within the Site is not considered to provide suitable habitat to support Bechstein's and, given that Bechstein's are recorded as very rare within the county, the *Myotis* recordings from this Site are unlikely to be attributed to this species.

A5.58 *Myotis* sp. were recorded regularly though with only low numbers of registrations per survey night. In total, only 232 registrations were recorded across two detectors and six recording periods, making up 3.2% of the bat activity recorded overall.

A5.59 The *Myotis* assemblage is considered to be of up to Local Level ecological importance.

Long-eared Bat

A5.60 Brown long-eared bats are considered to be widespread and common across the UK and Oxfordshire, with national populations considered stable. In contrast, populations of grey long-eared bats (*Plecotus austriacus*) are largely limited to the south coast of England, and there are no confirmed records of this species in Oxfordshire. Given this, the long-eared bats recorded are most likely to be brown long-eared.

A5.61 Long-eared bats were not recorded during the nighttime bat walkover surveys though they were recorded during the automated detector surveys, with 40 registrations making up just 0.5% of the bat activity recorded. They were recorded in low numbers across all five automated detector locations in both the spring and summer survey period.

A5.62 Brown long-eared bats are locally common and, given the low levels of activity recorded within the Site, is not considered to be of significant value to this species for foraging and commuting. As such, the long-eared assemblage is considered to be of Site value only.

Barbastelle

A5.63 Barbastelle bat is listed in Annex II of the *EC Habitats Directive* and is considered widespread across England and Wales as well as Oxfordshire.

A5.64 Barbastelles were not recorded during the nighttime bat walkover surveys. During the automated detector surveys barbastelle registrations were recorded in very low numbers on occasional survey nights and at occasional locations, making up 0.4% of the registrations overall.

A5.65 Barbastelle typically roost within woodland and forage along dark woodland edges. The treelined boundaries are considered likely to provide some foraging habitat for this species though the Site is fairly disconnected from significant blocks of woodland in the local landscape. Given the low number of echolocation calls recorded during the automated detector deployment, it is considered that only a few individual(s) of the species were using the Site for commuting towards the wider landscape.

A5.66 The barbastelle population using the Site is considered to be of no more than Local level Importance.

Automated Detector Data Tables

Table EDP A5.5: Automated Detector Survey Results May 2022

Location	Bat Species	Detector Deployment Dates					Total
		18.05.2022	19.05.2022	20.05.2022	21.05.2022	22.05.2022	
1	Comon pipistrelle	214	16	4	21	35	290
	Noctule	0	0	0	0	2	2
	<i>Myotis spp.</i>	1	0	0	0	0	1
	Soprano pipistrelle	0	1	0	0	0	1
	Total	215	17	4	21	37	294
2	Noctule	0	8	3	5	108	124
	Comon pipistrelle	2	31	24	23	39	119
	<i>Myotis spp.</i>	0	2	1	2	4	9
	Barbastelle	0	0	3	0	0	3
	Serotine	0	0	0	0	2	2
	Long eared bat	0	0	0	1	1	2
	Total	2	41	31	31	154	259

Table EDP A5.6: Automated Detector Survey Results July 2022

Location	Bat Species	Detector Deployment Dates					Total
		11.07.2022	12.07.2022	13.07.2022	14.07.2022	15.07.2022	
1	Comon pipistrelle	56	47	155	41	32	331
	Soprano pipistrelle	2	5		5	9	21
	Serotine	5	3	5	1	2	16
	Noctule		8	5	1	1	15
	<i>Myotis spp.</i>	2	0	2	0	4	8
	Barbastelle	0	1	1	0	0	2
	Total	65	64	168	48	48	393
2	Comon pipistrelle	13	34	22	38	86	193
	Noctule	7	13	5	4	2	31
	<i>Myotis spp.</i>	0	2	0	1	0	3
	Soprano pipistrelle	0	1	0	0	1	2
	Total	20	50	27	43	89	229

Table EDP A5.7: Automated Detector Survey Results September 2022

Location	Bat Species	Detector Deployment Dates					Total
		22.09.2022	23.09.2022	24.09.2022	25.09.2022	26.09.2022	
1	Comon pipistrelle	325	95	475	38	2	935
	Noctule	28	108	210	124	149	619
	<i>Myotis spp.</i>	8	9	14	5	4	40
	Serotine	3	4	2	0	3	12
	Soprano pipistrelle	2	0	5	1	0	8
	Leisler's	0	3	1	2	2	8
	Barbastelle	1	0	1	1	0	3
	Long-eared	0	0	1	0	0	1
	Total	367	219	709	171	160	1626

Location	Bat Species	Detector Deployment Dates					Total
		22.09.2022	23.09.2022	24.09.2022	25.09.2022	26.09.2022	
2	Comon pipistrelle	63	9	10	38	0	120
	Myotis spp.	20	8	17	15	2	62
	Noctule	29	3	4	20	4	60
	Long-eared	9	4	5	8	3	29
	Serotine	7	4	5	9	0	25
	Barbastelle	6	2	0	5	0	13
	Leisler's	3	0	2	2	0	7
	Soprano pipistrelle	2	2	0	0	0	4
	Total	139	32	43	97	9	320

Table EDP A5.8: Automated Detector Survey Results May 2024

Location	Bat Species	Detector Deployment Dates					Total
		22.05.2024	23.05.2024	24.05.2024	25.05.2024	26.05.2024	
1	Common pipistrelle	35	23	323	413	15	809
	Soprano pipistrelle	0	1	17	7		25
	Noctule	4	1	2	0	0	7
	Leisler's	3	0	0	0	0	3
	Myotis spp.	0	0	0	2	0	2
	Serotine	2	0	0	0	0	2
	Total	44	25	342	422	15	848
2	Common pipistrelle	217	157	9	30	711	1124
	Myotis spp.	4	5	4	2	6	21
	Soprano pipistrelle	1	1	3	9	1	15
	Noctule	3	3	1	2	0	9
	Long-eared	2	2	2	1	0	7
	Leisler's	1	0	0	2	1	4

Location	Bat Species	Detector Deployment Dates					Total
		22.05.2024	23.05.2024	24.05.2024	25.05.2024	26.05.2024	
	Serotine	0	0	0	2	2	4
	Barbastelle	0	0	0	0	1	1
	Total	228	168	19	48	722	1185

Table EDP A5.9: Automated Detector Survey Results July 2024

Location	Bat Species	Detector Deployment Dates					Total
		22.07.2024	23.07.2024	24.07.2024	25.07.2024	26.07.2024	
1	Common pipistrelle	8	3	1	2	3	17
	Total	8	3	1	2	3	17
2	Common pipistrelle	14	27	485	100	15	641
	Noctule	10	2	16	13	24	65
	<i>Myotis spp.</i>	1	4	2	1	4	12
	Soprano pipistrelle	3	1	1	0	3	8
	Leisler's	0	0	2	4	0	6
	Long-eared	2	0	1	0	0	3
	Barbastelle	0	0	0	0	1	1
	Total	30	34	507	118	47	736

Table EDP A5.10: Automated Detector Survey Results September 2024

Location	Bat Species	Detector Deployment Dates					Total
		18.09.2024	19.09.2024	20.09.2024	21.09.2024	22.09.2024	
1	Common pipistrelle	3	0	0	10	6	19
	Serotine	0	1	2	10	6	19
	<i>Myotis spp.</i>	0	0	2	7	4	13
	Noctule	0	2	2	5	3	12

Location	Bat Species	Detector Deployment Dates					Total
		18.09.2024	19.09.2024	20.09.2024	21.09.2024	22.09.2024	
	Soprano pipistrelle	0	2	0	2	1	5
	Barbastelle	0	0	2	2	0	4
	Total	3	5	8	36	20	72
2	Common pipistrelle	157	184	195	264	119	919
	Soprano pipistrelle	272	32	11	9	7	331
	Myotis spp.	12	7	18	21	3	61
	Noctule	5	1	3	8	14	31
	Serotine		1	2	2		5
	Total	446	225	229	304	143	1347

Table EDP A5.11: Monthly Summary of Automated Detector Surveys

Survey Month	Species	Number of Passes	% of Month Total
May 2022	Common Pipistrelle	408	74%
	Noctule	127	23%
	<i>Myotis spp.</i>	10	1.8%
	Barbastelle	3	0.5%
	Serotine	2	0.4%
	Soprano pipistrelle	1	0.2%
	Total	551	
July 2022	Common Pipistrelle	524	84%
	Noctule	46	7.4%
	Soprano pipistrelle	23	3.7%
	Serotine	16	2.6%
	<i>Myotis spp.</i>	11	1.8%
	Barbastelle	2	0.3%
	Total	622	
September 2022	Comon pipistrelle	1055	54.2%
	Noctule	679	34.9%
	Myotis spp.	102	5.2%
	Serotine	37	1.9%
	Long-eared	30	1.5%
	Barbastelle	16	0.8%

Survey Month	Species	Number of Passes	% of Month Total
	Leisler's	15	0.8%
	Soprano pipistrelle	12	0.6%
	Total	1946	
May 2024	Common Pipistrelle	1933	95%
	Soprano pipistrelle	40	1.9%
	<i>Myotis spp.</i>	23	1.1%
	Noctule	16	0.8%
	Long-eared	7	0.3%
	Leisler's	7	0.3%
	Serotine	6	0.3%
	Barbastelle	1	0.05%
	Total	2033	
July 2024	Common Pipistrelle	658	87%
	Noctule	65	8%
	<i>Myotis spp.</i>	12	1.6%
	Soprano pipistrelle	8	1.1%
	Leisler's	6	0.8%
	Long-eared	3	0.4%
	Barbastelle	1	0.1%
	Total	753	
September 2024	Common Pipistrelle	938	66.1%
	Soprano Pipistrelle	336	23.7%
	<i>Myotis spp.</i>	74	5.2%
	Noctule	43	3.0%
	Serotine	24	1.7%
	Barbastelle	4	0.3%
	Total	1419	

Evaluation of Overall Bat Assemblage

A5.67 The diversity of bat species recorded during the course of manual transect and automated detector surveys is considered to be relatively typical of an urban edge farmland site in southern England, with common and widespread generalist species such as common pipistrelle and soprano pipistrelle accounting for the vast majority of foraging and commuting activity. The trees, grassland and hedgerows will provide foraging resources and dispersal opportunities within the local landscape. The majority of the on-site habitats are considered typical of the wider surroundings based on their quality/extent.

A5.68 The assemblage and abundance of bats is considered to be fairly typical of this landscape. Based on this the foraging/commuting bat population present within the Site is considered to be of Local level ecological importance.

Appendix EDP 6
Great Crested Newt Survey

METHODOLOGY

HSI Assessment of Waterbodies

A6.1 A Habitat Suitability Index (HSI) assessment is a standardised method³⁵ which uses a range of criteria, such as water quality, fish/waterfowl presence and surrounding terrestrial habitat quality, to derive a suitability score or ‘index’. Waterbodies with high scores are more likely to support great crested newt compared to those with lower scores. HSI scores and the associated suitability categories for great crested newts are set out within **Table EDP A6.1**.

Table EDP A6.1: HSI Scores and Waterbody Suitability Categories

HSI Score	Suitability of Waterbody to Support Great Crested Newts
<0.5	Poor suitability
0.5–0.59	Below average suitability
0.6–0.69	Average suitability
0.7–0.79	Good suitability
>0.8	Excellent suitability

A6.2 A HSI assessment was undertaken of all waterbodies on-site, and those within 500m of the Site to which access was granted. With reference to **Plan EDP 5**, the waterbodies identified included eight ponds **P1-P8**. The assessment was undertaken by a suitably experienced ecologist on 14 April 2022 and updated on 26 April 2024.

Limitations

- A6.3 Access was refused to **P3** by the landowner, and as such it was not possible to carry out a HSI of the pond.
- A6.4 Pond **P6** is dry/no longer exists and pond **P7** represents a wider section of ditch which was dry at the time of survey. Pond **P8** also dried during spring 2022.

Environmental DNA Sampling of Waterbodies

A6.5 Environmental DNA (eDNA) is DNA that is collected from the environment in which an organism lives. In aquatic environments, animals including amphibians shed cellular material into the water via their saliva, urine, faeces, skin cells, etc. This eDNA may persist for several weeks, and can be collected through a water sample, and analysed to determine if the target species of interest is/has been present in the waterbody. eDNA sampling of waterbodies between 15 April and 30 June (inclusive) gives a highly reliable indication of the presence or likely absence of great crested newt.

³⁵ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.

- A6.6 Due to access constraints eDNA sampling was not undertaken of the waterbodies during the 2022 or 2024 surveys. As such, a full presence/likely absence survey was undertaken. However, survey data from previous eDNA surveys undertaken in 2021 as part of a separate project were available, which confirmed GCN presence in **P3** and **P5**.

Population Survey

- A6.7 The standard presence/absence (and population assessment) survey procedure is described in the best practice guidelines published by English Nature³⁶ (now Natural England). This involves a minimum of four survey visits to each waterbody to confirm the presence/likely absence of great crested newts, between mid-March and mid-June, with a minimum of two between mid-April and mid-May to coincide with the typical peak breeding season. If evidence is found of great crested newts during any of these four visits, then a further two survey visits are required to allow for an estimate of population size; six surveys in total, three of which must be between the mid-April and mid-May period.
- A6.8 A survey was undertaken by a licensed ecologist, with reference to the guidelines described above, of all waterbodies on-site, and those within c.500m of the Site to which access was granted. With reference to **Plan EDP 5**, the waterbodies surveyed included **P1**, **P2**, **P4** and **P5**.
- A6.9 In accordance with the guidelines, the following three preferred survey techniques were employed to determine the presence/absence and relative abundance of great crested newts within the surveyed waterbodies:
- Torching – This involves searching waterbodies by torchlight between dusk and midnight and is an effective means of detecting adult newts. Each surveyor used a 1,000,000 candle power torch during this part of the survey;
 - Bottle Trapping – This involves the use of funnel traps (made from 2-litre plastic bottles) that are inserted into the water along the margin of the waterbodies during the evening and checked the following morning. Access permitting, the traps are spaced at roughly 2m intervals around the margins of the waterbodies; and
 - Egg Searching – A search of any suitable aquatic vegetation to check for great crested newt eggs.
- A6.10 Netting- where one of the above techniques was not possible, then netting was undertaken where it was safe (to both the surveyor and any aquatic wildlife) to do so. Netting was undertaken at night using a long-handled net to sample the areas around the waterbodies' edges.
- A6.11 Details of each survey visit, including waterbody conditions and number of bottle traps used, are provided in **Tables EDP A6.2** and **A6.3**.

³⁶ English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

Table EDP A6.2: Great Crested Newt Population Survey Visit Details 2022

Visit No.	Date	Weather	Waterbody	No. Bottle Traps	Vegetation Cover*	Turbidity*
1	06.04.2022	Overnight air temp minimum 6°C. No rain and light wind.	P1	20	0	2
			P2	15	1	1
			P5	12	1	3
			P8	10	3	1
2	13.04.2022	Overnight air temp minimum 13°C. No rain and light wind.	P1	20		2
			P2	15	5	2
			P5	13	1	4
			P8	0 (too shallow)	4	1
3	26.04.2022	Overnight air temp minimum 10°C. No rain and light wind.	P1	20	0	3
			P2	12	5	2
			P5	10	1	2
			P8	0 (dry)	N/A	N/A
4	03.05.2022	Overnight air temp minimum 10°C. No rain and light wind.	P1	20	0	3
			P2	10	1	2
			P5	15	1	2
			P8	0 (too shallow)	4	2
5	26.05.2022	Overnight air temp minimum 11°C. No rain and light wind.	P1	17	0	1
			P2	10	2	0
			P5	10	2	0
			P8	0 (dry)	N/A	N/A
6	06.06.2022	Overnight air temp minimum 9°C. No rain and light wind.	P1	20	1	1
			P2	12	3	1
			P5	10	2	2
			P8	0 (dry)	4	2

*Scale of 0-5, where 0 = no vegetation obscuring survey and 5 = water completely obscured

** Scale of 0-5, where 0 = completely clear and 5 = very turbid

Table EDP A6.3: Great Crested Newt Population Survey Visit Details 2024

Visit No.	Date	Weather	Waterbody	No. Bottle Traps	Vegetation Cover*	Turbidity**
1	26.04.2024	Overnight air temp minimum 8°C. No rain and light wind.	P1	20	80%	2 – 3
			P4	30	40%	1
2	03.05.2024	Overnight air temp minimum 9°C. No rain and light wind.	P1	20	90%	3
			P4	30	40%	2
3	11.05.2024	Overnight air temp minimum 16°C. No rain and light wind.	P1	20	90%	1
			P4	30	40%	2
4	17.05.2024	Overnight air temp minimum 15°C. No rain and light wind.	P1	20	95%	1
			P4	30	50%	2
5	25.05.2024	Overnight air temp minimum 13°C. No rain and light wind.	P1	20	95%	1
			P4	30	50%	2
6	31.05.2024	Overnight air temp minimum 12°C. No rain and light wind.	P1	20	90%	1
			P4	30	55%	2

*Scale of 0-5, where 0 = no vegetation obscuring survey and 5 = water completely obscured

** Scale of 0-5, where 0 = completely clear and 5 = very turbid

A6.12 The population is estimated by taking the highest count ('peak count') of adults from one survey event and using this count to classify the population as either small, medium or high in accordance with the following criteria:

- Small population: peak count up to 10;

- Medium population: peak count between 11-100; and
- High population: peak count greater than 100.

Limitations

- A6.13 Due to refused access, surveys of **P3** were not possible at any point during the 2022 or 2024 survey periods. Access was only granted to ponds **P1** and **P4** in 2024. As such, populations assessments have been based on the surrounding ponds.
- A6.14 Ponds **P4** was recorded as dry in 2022 and pond **P8** dried throughout the duration of the surveys.

Terrestrial Survey

- A6.15 The areas of grassland and hedgerows present within the Site provide potentially suitable dispersal habitats for great crested newt and as such a terrestrial survey of the Site was completed in tandem with the reptile survey in 2024.
- A6.16 A total of 30 artificial refugia (carpet tiles) were deployed in all suitable habitats across the Site on 22 May 2024 and checked for sheltering great crested newton five occasions up to 07 August 2024.
- A6.17 During each survey visit, the following information was recorded: species, number of animals observed, and sex, where possible, location (refugia or visual encounter), date, start and finish times, and weather. The surveys were completed in tandem with the reptile surveys in 2024 and as such details of the weather conditions and survey timings are the same as those provided within **Table EDP 2.1**.

RESULTS

- A6.18 The results of the surveys of waterbodies are set out in **Table EDP A6.4** and the Peak Count Calculations are set out in **Table EDP A6.5**. In summary, adult great crested newt were recorded in **P1** (with a peak count of 25 GCN) and **P4** (with a peak count of 42 GCN). In addition, great crested newt eggs were found in **P4**. While no adult great crested newt were recorded in **P2**, GCN eggs were recorded during the 2022 surveys. No adult, larvae or eggs of great crested newt were found in **P5** or **P8**.
- A6.19 The Site contains woodland, hedgerows, tall forbs and grassland, which are of moderate suitability to support great crested newts in the terrestrial phase of their annual life cycle. It is therefore possible that they would be present foraging and/or dispersing. However, during 2024 terrestrial surveys of the Site, no great crested newt were found underneath the artificial refugia.

Evaluation of Population


- A6.20 No aquatic habitat for great crested newt is present within the Site. However, potentially suitable terrestrial habitat is present.

- A6.21 Moderate populations of great crested newt were recorded present within **P1** and **P4**, a breeding population was identified in **P2** (although no adult GCN were found during the surveys), and a historic eDNA record previously confirmed GCN presence in **P3** and **P5**.
- A6.22 All of the waterbodies surveyed are separated from the Site by the A41, a major road with semi-dropped kerbs and regular gully-pots which is considered to form a significant dispersal barrier to newts moving north. No ponds are present within the Site as **P7** was dry throughout the entirety of the 2022 and 2024 survey periods, and **P6** is considered to be absent.
- A6.23 Given the dispersal barriers present between the Site and the known great crested newt populations, and the lack of terrestrial newts found during terrestrial refugia surveys, great crested newt are considered likely absent from the Site.


Other Amphibians Recorded


- A6.24 Smooth newt were recorded in ponds **P1**, **P4** and **P5**. Small numbers of individual toads and frogs were recorded in the ponds during the great crested newt surveys. However, no other amphibians were recorded during the surveys undertaken on the Site.

Table EDP A6.4: Great Crested Newt Survey Results 2022 and 2024

Water body	Photograph	Description	HSI	Population Survey	
				Peak Adult Count ³⁷ (Visit No.)	Eggs (Y/N)
P1		Over 500m from the Site. Limited bankside vegetation and shade resulting in no submergent vegetation. Located within scrub at the edge of a rough semi-improved grassland field.	Below Average	2022 survey – peak count of 23 GCN. 2024 surveys – peak count of 25 GCN.	N

³⁷ Peak survey count represents the maximum adult count per waterbody per night recorded through torch survey or bottle-trapping.

Water body	Photograph	Description	HSI	Population Survey	
				Peak Adult Count ³⁷ (Visit No.)	Eggs (Y/N)
P2		400m south-west. Moderate sized field pond bordered by semi-improved grassland, rushes and scrub. No trees or shading around the pond. Some oil present on the surface of the pond but good invertebrate range in the water including diving beetles and dragonfly larvae.	Good	2022 Surveys – No adult GCN or larvae found, but GCN eggs recorded. 2024 – not surveyed.	Y
P3	100m south of the Site. No Access during 2022 or 2024 surveys. Positive in 2021 eDNA surveys.				
P4	No photograph available	330m south-east of the Site. Bullrush (<i>Typha latifolia</i>), common reed (<i>Phragmites australis</i>) and hemlock water dropwort (<i>Oenanthe crocata</i>) present within the pond.	Good	2022 – not surveyed. 2024 surveys – peak count of 42 GCN.	N

Water body	Photograph	Description	HSI	Population Survey	
				Peak Adult Count ³⁷ (Visit No.)	Eggs (Y/N)
P5		445m south of the Site. Pond located at the edge of a semi-improved grassland field. Small willow tree on pond edge. Floating sweet grass (<i>Glyceria fluitans</i>) present within the water. Evidence of some drying out around the edges. Lots of oil on the surface of the water and algae on all vegetation under the water. Some aquatic vegetation but largely submerged grasses. Hedgerow present to the south with a cycle path and road adjacent.	Poor	2021 eDNA – positive. 2022 surveys – no GCN recorded. 2024 – not surveyed.	N
P6	No photograph available	95m east of the Site.	Pond was dry	N/A - Pond was dry.	N/A Pond was dry
P7	No photograph available	Section of hedgerow where water could pool, located immediately adjacent to the north-western corner of the Site. Dry during the HSI and further surveys.	Pond was dry	N/A - Pond was dry 2022 and 2024.	N/A Pond was dry


Water body	Photograph	Description	HSI	Population Survey	
				Peak Adult Count ³⁷ (Visit No.)	Eggs (Y/N)
P8		480m south-west of the Site. Mostly dried out during the survey. Some wetland plants but largely bare ground. Road to north and arable field to the south. Some deadwood on the ground within the scrub.	Poor	0 – pond dried out halfway through 2022 survey season. 2024 – not surveyed (appeared dry from roadside).	N

Table EDP A6.5: Great Crested Newt Survey Peak Total Site Count Calculation

Visit No.	Waterbody Peak Adult Count ³⁸ (overall peak count in bold)				
	P1	P2	P4	P5	P6
2022					
1	12	0	-	0	0
2	23	0	-	0	0
3	18	0	-	0	Dry
4	16	0	-	0	0
5	2	0	-	0	Dry
6	8	0	-	0	Dry
2024					
1	25	-	14	-	-
2	17	-	25	-	-
3	25	-	42	-	-
4	10	-	13	-	-
5	15	-	20	-	-
6	15	-	5	-	-
Waterbody Peak Count	25	0	42	0	0

³⁸ Peak visit count represents the maximum adult count per waterbody recorded through torch survey or bottle-trapping.

Appendix EDP 7

Biodiversity Net Gain Assessment

METHODOLOGY

- A7.1 The Biodiversity Net Gain (BNG) assessment has been undertaken to objectively measure the net biodiversity impacts of the proposed development and to assess the scheme's ability to deliver net biodiversity gain. The BNG assessment has been undertaken using the *Statutory Biodiversity Metric* published by the Department for the Environment Farming and Rural Affairs (DEFRA) on 29 November 2023 (last updated 12 February 2024). The assessment has been undertaken by an ecological consultant suitably experienced in these types of assessment, and with reference to the *Statutory Biodiversity Metric User Guide*³⁹ and current best practice guidance⁴⁰.
- A7.2 The biodiversity metric tool uses habitat as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity potential. There are three different types of biodiversity unit which can be measured in the biodiversity metric tool, namely habitat units; hedgerow units and watercourse units.
- A7.3 Factors such as distinctiveness, size, condition, and strategic significance, affect the unit score, and in the case of newly created or enhanced habitats the risk (time and difficulty) to reach target habitat condition affects the resulting score. The final Oxford Local Nature Recovery Network (LNRN) has not been published. However, a draft LNRN map is available and has been used to assign strategic significance in the biodiversity metric.
- A7.4 The total number of 'biodiversity units' pre- and post-development are calculated in the biodiversity metric tool and used to calculate the total net change as a result of the proposed development.
- A7.5 The biodiversity metric tool only considers direct impacts on biodiversity through impacts on their supporting habitats. Indirect impacts are not included. The metric does take account of habitat creation or enhancement delivered as part of a development for other schemes, such as:
- To comply with statutory obligations or policies (such as green infrastructure, sustainable drainage, or nutrient mitigation);
 - As mitigation or compensation for protected sites and species (for example EPSML or suitable alternative natural green space (SANG)); or
 - River basin management plan (RBMP) mitigation and enhancement.

³⁹ DEFRA. *The Statutory Biodiversity Metric User Guide*. February 2024.

⁴⁰ *Biodiversity Net Gain: Good practice principles for development* © CIEEM, CIRIA, IEMA, 2016. <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>.

- A7.6 However, rules apply as to how much of this habitat creation or enhancement can be counted towards a development's BNG contribution⁴¹.
- A7.7 The provision of specific habitat features such as nesting and roosting sites (e.g. bird and bat boxes), basking sites (e.g. log piles) and hibernation sites (e.g. hibernaculum) are not counted in the biodiversity metric tool.
- A7.8 The application to be made is for detailed planning permission, with full details of landscaping and layout provided. A final biodiversity metric calculation will be prepared alongside the Biodiversity Gain Plan and submitted to the LPA to discharge the general biodiversity gain condition applied to the planning permission if granted.
- A7.9 The following sections break down the various components of the BNG Assessment to provide further clarity on how individual elements have been entered into the Metric. The following should be read in conjunction with the Statutory Biodiversity Metric (Report reference: edp7480_r001), a copy of which has been submitted to the LPA alongside the planning application and is available on request.

On-site Baseline

- A7.10 The pre-development (baseline) biodiversity value of the Site was calculated using the information derived from the baseline habitat surveys completed on 03 May 2022 and 16 July 2024, as well as the NVC surveys completed on 08 July 2022 and 01 June 2024, as described within **Appendix EDP 2**.
- A7.11 In this case Habitat Units, Hedgerow and Watercourse Units were present.. QGIS software (using Natural England's QGIS Template) was used to accurately measure the area/length of existing habitats. The measured habitat areas/lengths were entered into the Metric as illustrated on **Plan EDP 1**. The detailed condition assessments of the baseline habitats are set out within **Table EDP A7.2** at the rear of this Appendix.

On-site Post-intervention

- A7.12 The anticipated post-development biodiversity value of the Site has been calculated based on the Proposed Site Layout (as provided within **Appendix EDP 1**), detailed landscape design and proposed management strategy.
- A7.13 A final version of the Metric will be undertaken and submitted with the Biodiversity Gain Plan (pre-commencement). The predicted post-development habitats were entered into the indicative Biodiversity Metric as illustrated on **Plan EDP 8**. Further details regarding the predicted habitats are set out below.

Off-site Baseline and Post-Intervention

- A7.14 Off-site habitat will be secured either through a recognised habitat bank or through habitat creation within the Applicants land holdings. Further details of the proposed offsetting scheme

⁴¹ <https://www.gov.uk/guidance/what-you-can-count-towards-a-developments-biodiversity-net-gain-bng>.

will be provided when discharging the relevant condition prior to commencement of development.

RESULTS

On-site Baseline

A7.15 The habitats present on-site are summarised in **Table EDP 3.3** within the main report. A full description of the baseline habitats is included in **Appendix EDP 2**. Justification for their conditions is shown in **Tables EDP A7.2 – A7.3** at the rear of this Appendix.

Irreplaceable Habitats

A7.16 A single veteran tree is present within the Site as shown on **Plan EDP 1**. Veteran trees are considered an irreplaceable habitat under the Statutory Metric. This will be retained as part of the development proposals.

Habitat Degradation

A7.17 No unauthorised activities have been carried out on-site prior to the baseline habitat survey completed on 16 July 2024 which have resulted in the deliberate loss or degradation of on-site biodiversity value. The relevant date used to calculate the on-site pre-development value is therefore taken as 16 July 2024.

On-site Post-intervention

A7.18 Full details of the newly created and enhanced habitats will be provided as part of the Biodiversity Gain Plan (and accompanying HMMP) that will be produced as part of the standard pre-commencement condition. However, the following habitats have been made:

- The earth bund around the north, south and east of the Site will support mixed native scrub planting in moderate condition, with a management strategy designed to encourage a range of age classes including seedlings, saplings, young shrubs and mature shrubs. The mixed scrub will not likely meet good condition as there may not be glades/rides and may be missing multiple age-classes;
- The entirety of the developed land will comprise developed land; sealed surface;
- The area between the earth bund and the developed land will support areas of species-rich meadow grass (EM1 general purpose meadow mix). The grassland habitat will be created and maintained in moderate condition;
- Areas of the Site will support harder-wearing amenity grasslands within formal spaces. These comprise Rowlan mix or similar within amenity areas which will likely be subject to greater levels of disturbance and have been identified as Modified grassland in poor condition. Other areas of formal planting include verges which will be sown with a flowering lawn mixture (EL1 or similar) and which have been identified as Modified grassland in moderate condition;

- A SuDS feature to be created in the south-western corner of the Site has been classified as a sustainable drainage system under the metric, created and maintained in a moderate condition. The SuDS planting will include aquatic marginal mix and wildflower grassland seeded with EP1 Pond edge mix; however, it has been assumed that the SuDS feature will not achieve good condition as the vegetation present may not consist predominantly of wetland plants;
- The ditch running along the western Site boundary will be enhanced to moderate condition along its southern half. This southern section is considered most likely to retain water for at least four months of the year and as such, can support an assemblage of aquatic emergent, submergent and floating-leaved plants; and
- Thirty small moderate condition trees are currently proposed to be planted in the open grassland space within the Site.

A7.19 The target condition for newly created or enhanced habitats is provided within **Tables EDP A7.2 – A7.3** at the rear of this Appendix, along with justification for the target condition.

NET BIODIVERSITY IMPACT

A7.20 The predicted overall net change in biodiversity units, taking into account all proposed habitat retention, enhancement and creation on-site, is summarised in **Table EDP A7.1**.

Table EDP A7.1: Biodiversity Metric 4.0 Headline Results

	Habitat Units	Hedgerow Units	Watercourse Units
On-site Baseline	50.16	14.40	1.84
On-site Post-intervention	11.84	16.98	2.44
On-site Net Unit Change	-38.33	2.58	0.60
On-site Net % Change	-76.40%	17.93%	32.54%
Trading Rules Satisfied	No	Yes	Yes

A7.21 The Metric has demonstrated a significant net loss in habitat units and as such, the Applicant intends to commit to delivering a net gain in biodiversity via an off-site solution to create/enhance habitats to generate the unit shortfall. The offsetting scheme will be set out within the Biodiversity Gain Plan which will be submitted to and approved by the Local Planning Authority pre-commencement as per the general biodiversity gain condition under the granted Planning Permission. A net gain in hedgerow units has been identified, the trading rules have been satisfied.. A net gain in watercourse units exceeding 10% will be delivered and as such, no additional off-site enhancements will be required.

HABITAT CONDITION ASSESSMENT TABLES

Baseline Habitats

Table EDP A7.2: Condition Assessment for On-site Baseline Habitats

Baseline Habitat	Assessment Criteria Passed	Condition Assessment Result	Condition Assessment Score
Modified Grassland	South of field parcel NVC MG12a. Passes condition assessment A, B, C, D, E, F and G.	Passes all seven criteria.	Good
Other neutral grassland	Furrows NVC MG1a and MG9a. Passes condition assessment A, C, E and F. Fails B and D.	Passes four criteria. Fails two criteria.	Moderate
Lowland meadows	Ridges NVC MG5a and MG6b. Passes condition criteria C, E and F. Fails A, B and D.	Passes three criteria. Fails three criteria.	Poor
Other woodland; broadleaved	Small wooded area in south-east. Comprised of saplings and small trees on a nettle and bramble ground flora.	Scores 24/39.	Poor
Developed land; sealed surface	N/A	N/A	N/A – Other
Tall forbs	Passes condition assessment criteria A, B and C.	Passes three relevant criteria.	Good
Modified grassland	Disturbed ground in gateways and road verge. Passes condition assessment C, F and G. Fails A, B, D and E.	Passes three criteria. Fails three criteria.	Poor
Modified grassland	Created grassland in existing development. Passes condition assessment A, C, D, F and G. Fails B and E	Passes five criteria. Fails two criteria.	Moderate
Rural tree	Veteran tree T14 within Arboricultural Assessment.	Passes all six criteria.	Good
Species-rich native hedgerow	Hedgerow H1 Passes A1, A2, B1, B2, D1, D2	Passes six criteria. Fails two criteria.	Moderate

Baseline Habitat	Assessment Criteria Passed	Condition Assessment Result	Condition Assessment Score
Species-rich native hedgerow with trees	Hedgerow H2 Passes A1, A2, B1, B2, C2, D1, E2.	Passes seven criteria. Fails three criteria.	Moderate
Species-rich native hedgerow with trees	Hedgerow H3 Passes A1, A2, B1, B2, C2, D1, E2	Passes seven criteria. Fails three criteria.	Moderate
Species-rich native hedgerow with trees	Hedgerow H4 Passes A1, A2, B1, B2, C2, D1, E1 E2	Passes eight criteria. Fails two criteria.	Good
Ditch	Ditch D1. Passes A, C, F, G and H.	Passes five criteria. Fails three criteria.	Poor

Habitat Creation

Table EDP A7.3: Condition Assessment for Indicative Habitat Creations On-site

Baseline Habitat	Assessment Criteria Passed	Condition Assessment Result	Condition Assessment Score
Developed land; sealed surface	N/A	N/A	N/A - Other
Built linear features	N/A	N/A	N/A - Other
Sustainable drainage system	Assumed to fail criteria E2.	Passes four of five criteria. Fails E2.	Moderate
Modified grassland	Amenity grassland between development and earth bund. Assumes flowering lawn mix. Managed to pass condition assessment A, C, E, F and G. Likely to fail B and D.	Passes four criteria. Fails two criteria.	Moderate
Other neutral grassland	Wildflower grassland, assumed to fail essential criteria F.	Passes five of six criteria. Fails essential criteria for good condition.	Moderate
Mixed scrub	Proposed earth bund. Managed to pass condition assessment criteria A,C, D. Likely to fail B and E.	Passes three criteria. Fails two criteria.	Moderate

Urban tree	Thirty trees in open space – Pass condition assessment A (unless non-native), B, D, F. Likely fail C and E.	Passes three or four criteria. Fails two criteria.	Moderate
Modified grassland	Amenity grassland within development. Managed to pass condition assessment C, E, F and G. Likely to fail A, B and D.	Passes four criteria. Fails three criteria including essential criterion A.	Poor
Bioswale	Assumed to fail criteria E2.	Passes four of five criteria. Fails E2.	Moderate
Introduced Shrub	N/A	N/A	N/A
Native hedgerow	Passes A1, A2, B1, B2, D1, D2	Passes six criteria. Fails C1 and C2.	Moderate

Habitat Enhancement

Table EDP A7.4: Condition Assessment for Indicative Habitat Enhancements On-site

Baseline Habitat Enhanced	Baseline Assessment Criteria Passed	Additional Assessment Criteria Passed	Resulting Condition Assessment Score
Species-rich native hedgerow	Hedgerow H1 Passes A1, A2, B1, B2, D1, D2	Enhanced to species-rich native hedgerow with trees. Passes additional criteria C1, C2 and E2.	Moderate
Species-rich native hedgerow with trees	Hedgerow H2 "Passes A1, A2, B1, B2, C2, D1, E2	Passes additional criteria C1, D2, E1 and E2.	Good
Species-rich native hedgerow with trees	Hedgerow H3 Passes A1, A2, B1, B2, C2, D1, E2	Passes additional criteria C1, D2, E1 and E2.	Good
Ditch	Ditch D1 Passes A, C, F, G and H	Passes additional criteria B and E.	Moderate

Appendix EDP 8

Lepidoptera Survey

LEGISLATION

- A8.1 Black, brown and white-letter hairstreak are UK Priority Species and are protected under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended), which protects these species from intentional killing, injury or taking, and protects any structure or place which the species uses for shelter or protection.

METHODOLOGY

- A8.2 The presence of blackthorn and elm within the on-site hedgerows provides potential for the Site to support a range of notable Lepidoptera including, brown, black and white-letter hairstreak.
- A8.3 To confirm the presence, or likely absence, of hairstreak butterflies from the Site an egg search was completed on 24 February 2022. An updated hairstreak egg search is currently programmed for winter 2024 to ensure up to date results are available, though presence has been confirmed.
- A8.4 During the survey all blackthorn and elm was searched by hand to identify eggs laid on the branches.

White-letter Hairstreak

- A8.5 White-letter hairstreak butterflies lay their eggs on elm trees and as such the survey covered all of the elm present within the hedgerow network. The surveyor walked to southern or eastern side of each hedgerow, pulling down the more robust growth at the top of the hedgerow and inspecting the branch for eggs.
- A8.6 The white-letter eggs are typically located on:
- The underside of the girdle scar, where the most recent growth meets the older wood (often on older side-shoots rather than the leading stem);
 - At the base of side shoots;
 - On old leaf scars; and/or
 - At the base of buds.

Brown and Black Hairstreak

- A8.7 Both brown and black hairstreak butterflies target blackthorn to lay their eggs on, however, brown hairstreak females typically have a preference for laying on the young suckers and new growth on lower branches while black hairstreak eggs are more often found on the broader stems near the top of the hedgerows and also on growth located deeper into the hedge.

- A8.8 As with the white-letter surveys, the surveyor targeted the sunnier southern or eastern sides of the hedgerow, searching the new young growth and suckers as well as pulling down the more mature growth at the top of the hedgerow.

Limitations

- A8.9 All of the on-site hedgerows are subject to a cycle of annual flailing which strips the young growth off each hedgerow each winter thereby removing the habitat and destroying the eggs. Furthermore, the mowing of the grassland removes the suckering blackthorn growing along the edge of the hedge adding to the loss of young growth. The survey in February 2022 was conducted following the annual flail, however, as hairstreak eggs were recorded this survey is still considered to be valid.

RESULTS

- A8.10 A total of four hedgerows were surveyed during which brown-hairstreak butterfly eggs were identified on all four of the hedgerows, namely hedgerows **H1**, **H2**, **H3** and **H4** (see **Plan EDP 7**) and with 12 eggs found in total.

Evaluation of Results

- A8.11 Based on the findings summarised above, a Locally valuable population of breeding brown-hairstreak butterflies are considered to be present within the Site.

Plans

Plan EDP 1: Habitat Assessment

(edp7480_d001d 28 November 2024 DJo/NDo)

Plan EDP 2: Breeding Bird Survey 2022

(edp7480_d019b 28 November 2024 PDr/NDo)

Plan EDP 3: Breeding Bird Survey 2024

(edp7480_d020b 28 November 2024 PDr/NDo)

Plan EDP 4: Bat Survey

(edp7480_d009b 28 November 2024 GYo/NDo)

Plan EDP 5: Great Crested Newt Survey

(edp7480_d012b 28 November 2024 GYo/NDo)

Plan EDP 6: Reptile Survey

(edp7480_d011b 28 November 2024 GYo/NDo)

Plan EDP 7: Hairstreak Survey

(edp7480_d010b 28 November 2024 GYo/NDo)

Plan EDP 8: Post Development Habitats Plan

(edp7480_d002c 28 November 2024 PDr/JSn)