

Growing Baldock

Environmental Statement Addendum
Volume 2: Figures & Appendices

Chapter 11: Ecology

Appendix 11.1 Ecological Mitigation Plan



LAND TO THE EAST AND SOUTH OF BALDOCK

Ecological Mitigation Plan

BMD.21.0045.RPE/MP.809.B.Ecological Mitigation Plan

DATE: January 2026



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ECOLOGICAL MITIGATION PLAN ***Land to the east and south of Baldock***

January 2026

BMD.21.0045.RPE/MP.809.B.Ecological Mitigation Plan

DOCUMENT HISTORY

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A	PLANNING	JW	JP	JP	08.09.2025
B	PLANNING	JW	JP	JP	23.01.2026

Declaration of compliance with professional code of ethics or conduct

The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bonafide opinions.

All reasonable efforts have been made to comply with current legislation and best practice, including BS 42020:2013, the Environment Act 2021 (Schedule 7A: Biodiversity Gain), the National Planning Policy Framework (2025), CIEEM EcIA Guidelines (2018, updated 2022), and relevant Natural England guidance.

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EXECUTIVE SUMMARY

Client Urban&Civic plc
Consultant Bradley Murphy Design Ltd.

SITE

Location..... Land to the east and south of Baldock, Hertfordshire
National Grid Reference... Approx. centre: TL 25319 34539
Over-view The Site is approximately 220 ha in total however is largely dissected by a railway running east west through the middle of the Site effectively creating a northern and southern portion of the Site. Two small sections of the railway, however, fall within the northern section of the Site, partially connecting it to the southern area at two locations. The northern area comprises approximately 144 ha. The southern area comprises approximately 76 ha. The northern area of the Site is composed of land parcels to the north and south of Bygrave Road/Ashwell Road in Baldock, Hertfordshire, centred at Ordnance Survey National Grid Reference TL 25369 34942. The northern section is bound to the south by the railway, with two small sections of the railway line falling within the Site boundary. It comprises a combination of arable fields and grazed pasture, with a mixture of residential and farm buildings located along Bygrave Road. North and east of the Site is dominated by farmland, with the town of Baldock located to the south-west. To the west, beyond North Road, is Ivel Springs LNR, Blackhorse Farm Meadow LWS and Ivel Springs, Norton Road LWS. The southern section of the Site is located to the east of the town of Baldock in Hertfordshire and is centred at Ordnance Survey National Grid Reference TL 25643 33923. The Site comprises arable fields with occasional boundary hedgerows, with a mixture of residential and farm buildings. It is largely bound by a railway line to the north, the A505 to the south and east with the residential areas of Clothall Common and Baldock to the west.
Landscape context The Site is situated on the eastern extent of the town of Baldock. As such, the Site sits within a transitional landscape, with an agricultural field matrix to the north, and an urbanised area characterised by residential developments with occasional industrial use to the south and southwest.

DEVELOPMENT & PLANNING BACKGROUND

Proposed works..... Outline planning application with all matters reserved except for means of highway access into the development from the A505/Royston Road, North Road and Clothall Road ;, for up to 3,200 homes, up to 16ha of employment, waste and leisure infrastructure, a mixed use local centre, up to 1 secondary school, up to 2 x primary schools, up to 1 SEND school, health hub, green infrastructure (including parks, formal sports provision, play, habitat areas, informal open space and structural planting), internal street network, access junctions and railway crossing, public transport infrastructure, pedestrian/cycle network (including PRow diversions, active travel routes, mobility hubs and crossing of the railway), utilities and drainage infrastructure (including diversions of existing and provision of new infrastructure, pumping stations, sustainable drainage, primary substations, rising main/strategic sewer and renewable energy infrastructure), ground remodelling/earthworks and any necessary demolitions.
Planning stage..... This EMP has been prepared to support the Outline Planning Application for Land to the east and South of Baldock

ECOLOGICAL BACKGROUND

General..... An ecological appraisal was undertaken at the site in 2015 (Ecus, 2016). WYG carried out a suite of breeding bird surveys in 2017 (WYG, 2017a). Subsequently, an ES was prepared and an outline planning permission submitted in January 2018. However, the application was subsequently withdrawn.
In 2019 the ecological appraisal was updated along with a series of species-specific assessments including corn bunting and reptile reports which were produced between 2019-2020. No other ecological assessments are known to have been undertaken in the study area.
Most recent baseline An ecological assessment of the Site was undertaken by BMD during March-July 2022 that refined the scope of Phase 2 surveys required to inform the outline planning application. Various surveys have been undertaken to support the outline application up until 2025.

ECOLOGICAL MITIGATION PLAN

Objectives.....	1. To provide an updated ecological baseline of habitats and species occurring on Site and likely to be affected by development in the Site 2. To inform detailed designs and any necessary mitigation to be implemented during construction. 3. To provide specialist advice and make appropriate recommendations to ensure compliance with wildlife law and recognised best practice. 4. To provide an overview as well as detailed prescriptions on how proposed habitats and wildlife installations will be created and managed following the development. 5. To provide an annual works schedule alongside future monitoring plans over a 30-year time frame.
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RECOMMENDATIONS

The following Ecological Features must be considered in the detailed design and during the implementation phase of the Site to ensure favourable and enhanced conservation status during and post development:

- Badger;
- Bats (including commuting and foraging corridors and roosting opportunities);
- Breeding birds (including farmland and scrub-associated species);
- Wintering birds;
- Reptiles;
- Notable invertebrates, including species associated with species-rich and calcareous grassland (e.g. small blue butterfly);
- Notable plant species, including legally protected flora (e.g. lizard orchid) and other species of conservation interest;
- Brown hare and other notable mammals utilising open grassland and green corridor habitats; and
- Habitats of principal importance, including species-rich grassland, semi-improved neutral grassland, arable margins supporting notable flora, woodland edges, hedgerows and Local Wildlife Sites.

Key habitats for retention, enhancement and creation are semi-natural grasslands, waterbodies, and woodland blocks.

There is opportunity within the Site to provide future habitat for reptiles, bats, birds, amphibians and invertebrates.

CROSS-DISCIPLINE APPLICABILITY

This document is relevant to the following design team disciplines:

- Arboriculture;
 - Architects;
 - Drainage engineers;
 - Highways;
 - Landscape architects; and
 - Lighting designers.
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1. INTRODUCTION

1.1 Background information

1.1.1 This interim Ecological Mitigation Plan (EMP) has been prepared on behalf of Urban&Civic Plc to support the Outline Planning Application (OPA) for the land to the north and east of Baldock, (hereafter referred to as 'the Site'), as part of the adopted North Hertfordshire Local Plan 2011-2031 and Baldock Neighbourhood Plan (June 2021) for a proposed mixed use development.

1.1.2 The following information will be submitted as part of the outline planning application and is assisting within the OPA process and thus forms the foundations of this EMP:

- BMD.21.0045.RPE/P1.801.A.Ecology – Preliminary Ecological Appraisal (BMD, 2025)
- BMD.21.0045.RPE-P2.804.A.Eco Assessment – Phase 2 (BMD, 2025)
- BMD.21.0045.RPE-TN.806.EcoHeadlines
- BMD.21.0045.RPE-P2.808.Nocturnal Bats (BMD, 2025)
- BMD.21.0045.RPE-TN.807.A.Verification Assessment – Verification of Habitat Condition and Botanical Interest (BMD, 2025)
- BMD.21.0045.RPE-TN.810.A.Corn Bunting Mitigation Sites – Assessment of Corn Bunting Mitigation Sites (BMD, 2025)
- BMD.21.0045.RPE.MP.809.EMP – Ecological Management Plan (EMP) (BMD, 2024)
- BMD.21.0045.RPE-P2.814.Eco Assessment – Phase 2: Further Ecological Assessment (BMD, 2025)
- BMD.21.0045.RPE-TN.807.Verification Assessment (original) – Habitat Condition Verification (BMD, 2023)

1.1.3 The objectives of the EMP are to:

- Summarise the ecological baseline of the zone of influence associated with the development of the Site;
- Identify areas, if any, where the baseline data needs updating;
- Identify ecological features that must be considered during the detailed design phase and construction of the Site; and
- Ensure compliance with the ecological vision of the site as set out in the ecological and landscape documents listed above.
- Set out high-level principles for the long-term management and monitoring of habitats across the Site, including aims to maintain and enhance biodiversity value in line with planning commitments and ecological design objectives.

1.2 Proposed Works

1.2.1 Outline planning application with all matters reserved except for means of highway access into the development from the A505/Royston Road, North Road and Clothall Road :, for up to 3,200 homes, up to 16ha of employment, waste and leisure infrastructure, a mixed use local centre, up to 1 secondary school, up to 2 x primary schools, up to 1 SEND school, health hub, green

infrastructure (including parks, formal sports provision, play, habitat areas, informal open space and structural planting), internal street network, access junctions and railway crossing, public transport infrastructure, pedestrian/cycle network (including PRow diversions, active travel routes, mobility hubs and crossing of the railway), utilities and drainage infrastructure (including diversions of existing and provision of new infrastructure, pumping stations, sustainable drainage, primary substations, rising main/strategic sewer and renewable energy infrastructure), ground remodelling/earthworks and any necessary demolitions.

- 1.2.2 There are also three options regarding the land use at BA3.
- 1.2.3 Option 1 – Knights Templar expansion and relocation to BA3: Relocation and expansion (up to 12FE) of Knights Templar school to BA3. BA3 to accommodate SEND school and secondary school
- 1.2.4 Option 2 – Knights Templar expansion: Expansion of Knights Templar on existing site (up to 10FE). BA3 to accommodate SEND school and residential (c. 250 units)
- 1.2.5 Option 3 – Additional secondary school on BA3: Provision of additional secondary school (up to 5FE) on BA3 . BA3 to accommodate SEND school, secondary school and residential (c.90 units)

1.3 Client Commitment to Achieving Net Biodiversity Gain

- 1.3.1 As of 12 February 2024, Biodiversity Net Gain (BNG) became a legal requirement under Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021) for most planning applications in England. This mandates a minimum 10% measurable gain in biodiversity value using the Statutory Biodiversity Metric, with net gain to be secured for a minimum of 30 years. Local Nature Recovery Strategies (LNRS) are now in the process of being adopted across all upper-tier local authorities and are intended to guide the strategic delivery of nature recovery across England. The Green Infrastructure Framework, released by Natural England in 2023, continues to provide best-practice guidance and complements these statutory mechanisms as part of the wider implementation of the Government's 25-Year Environment Plan.
- 1.3.2 The principles of BNG for the Site as applied through the mitigation hierarchy are:
 - Protect, restore, enhance and create an interconnected biodiverse habitat mosaic which embraces Baldock's landscape, ecological and historical assets and connects existing isolated fragmented habitats to the wider network;
 - To safeguard, buffer and improve LNR connectivity within the wider green infrastructure network, buffering and protecting existing LNR features and providing alternative greenspace to reduce recreational pressures on these open spaces; and
 - Create uninterrupted access to nature with nature on your doorstep to benefit people expanding the wild network.
- 1.3.3 Urban & Civic are committed to this vision and ensuring net biodiversity gain is achieved as part of developing the Site. The early-stage master planning process has been committed to retaining existing areas of ecological value and enhancing others, focusing on grassland. The concepts and vision detailed in the Baldock Green Infrastructure Audit (ref: BMD.21.0045.RP.003) will be followed for the development of the Site.

Hertfordshire Local Nature Recovery Strategy (LNRS)

- 1.3.4 The draft Local Nature Recovery Strategy for Hertfordshire has been completed and is out for public consultation until September 2025, alongside a LNRS mapping viewer which identifies strategic priorities for nature across the county including priority habitats, core LNRS focus areas, species with targeted actions and public greenspace.
- 1.3.5 The draft LNRS has been reviewed in relation to the proposed development at the Site and is referenced to throughout this report to ensure post-development biodiversity enhancements align with strategic priorities highlighted within and adjacent to the Site by the LNRS.

1.4 Site Context

Historic Context

- 1.4.1 Readily available historic aerial imagery and maps indicate that the Site has largely remained in its current state of arable land with the surrounding landscape largely being used for agricultural purposes since at least the late 18th century. The surrounding landscape has also remained largely unchanged from its 19th century landscape character, with the exception of localised urban expansion of inhabited areas surrounding the Site; most notably the town of Baldock and city of Letchworth to the southwest, the town of Stotfold to the northwest. The surrounding habitats have also seen changes with the removal of woodland parcels for further agricultural land occurring throughout the 19th century.

Present Context

- 1.4.2 The Site is approximately 220 ha in total however is largely dissected by a railway running east west through the middle of the Site effectively creating a northern and southern portion of the Site. The northern area comprises approximately 144 ha. The southern area comprises approximately 76 ha.
- 1.4.3 The northern area of the Site is located within the north of Hertfordshire, approximately 7.6 km north of the borough of Stevenage, at the north-eastern extent of the market town of Baldock. The Site is dissected by the Cambridge Train Line which splits the Site into a northern and southern area. Two small sections of the railway line, however, fall within the northern section of the Site, partially connecting to the southern area of the Site.
- 1.4.4 The train line running through the centre of the Site borders the northern area of the Site to the south, with two small sections of the railway line falling within the northern section of the Site; North Road to the west and chiefly agricultural land to the north and east. Several residential avenues, pathways, gardens and homes are also present within the vicinity of the Site boundaries, particularly along the southwest border of the Site.
- 1.4.5 The Bygrave Road runs southwest-northeast within the centre of the northern area of the Site, dividing arable farmland. Multiple footpaths run within the north Site's boundaries, connecting to North Road, Bygrave Road and multiple residential pathways. There are also some urban features within the Site, such as the roundabout connecting the B656 and A505 to the northeast of the Site. The surrounding landscape, with the exception of the town of Baldock to the

southwest, has a commensurate character to that within the Site: agricultural land, chiefly arable, interspersed by residential pockets, roads and hedgerows. The residential areas surrounding the Site are all primarily associated to the town of Baldock situated to the southwest of the Site and the village of Bygrave approximately 1 km northeast of the Site.

- 1.4.6 In the southern area of the Site the A505 (Royston Road) borders the Site from the south to the northeast; the Cambridge Train Line to the north; Wallington Road to the west and the Ashville Trading estate at the northwest border—several residential avenues, gardens and homes are also present within the vicinity of the Site boundaries.
- 1.4.7 The A507 (Clothall Road) runs southwest-southeast along the southern section of the Site, dividing arable farmland within the Site. Multiple footpaths run within the southern areas boundaries, connecting to the B656, Wallington Road and multiple residential areas. There are also some urban features within the Site, such as the roundabout connecting the B656 and A505 to the northeast of the southern area. The surrounding landscape, with the exception of the town of Baldock to the southwest, has a commensurate character to that within the Site: agricultural land, chiefly arable, interspersed by residential pockets, roads and hedgerows. The residential areas surrounding the Site are all primarily associated to the town of Baldock situated to the southwest of the Site and the village of Bygrave approximately 1.3km northeast of the Site.
- 1.4.8 Considering the outlined above contextual features regarding the Site and its surrounding landscape, while there is some overland connectivity of the Site to its adjacent habitats, particularly from the north, the presence of multiple dispersal barriers within the vicinity, including highways and rail lines, is deemed to leave dispersal capacity of terrestrial fauna to/from the Site as moderate. It is further estimated that more mobile species, such as bats, birds, and insects, would be more readily able to commute to the Site from surrounding habitats.

Ecological Context

- 1.4.9 An ecological appraisal was undertaken at the Site in 2015 (Ecus, 2016), which included a badger survey, great crested newt assessment and reptile survey. The principal habitats recorded were arable, improved grassland, hedgerows, scattered trees, scrub, semi-improved grassland, tall ruderal, amenity grassland, buildings and hardstanding. The survey identified the potential for the following protected species/species groups: great crested newt, badger, bats, breeding birds and common reptiles.
- 1.4.10 WYG carried out a suite of breeding bird surveys in 2017 (WYG, 2017a, 2017b). The Site was found to support a population of corn bunting considered to be of County importance. Other farmland birds were also recorded and this assemblage was also considered to be of County level importance. Subsequently, an Environmental Statement (ES) was prepared, and an outline planning permission submitted in January 2018. However, the application was subsequently withdrawn.
- 1.4.11 In 2019 the ecological appraisal was updated along with a series of species-specific assessments including corn bunting and reptile reports which were produced between 2019-2020. These reports are as follows:
- Baldock North - Updated Ecological Appraisal (2019a);

- Baldock Southeast - Updated Ecological Appraisal (2019b);
- Baldock Reptile Survey Report (2019c);
- Baldock Southeast - Bat Activity Report (2020a);
- Baldock North – Bat Activity Report (2020b); and
- Baldock North and Southeast - Corn Bunting Report (2020c);
- Baldock Mitigation Sites – 2019 Corn Bunting Survey Report (2020d).

1.4.12 This report is underpinned by an extensive evidence base, drawing upon ecological survey work undertaken between 2015 and 2025. This includes baseline habitat and botanical surveys, protected species surveys (covering bats, breeding and wintering birds, and reptiles), designated site assessments, ecological verification studies, and strategic mitigation planning. The most recent update to the ecological baseline was undertaken in May 2024 through a formal Verification Assessment walkover.

1.4.13 The following reports have informed this report:

- BMD.21.0045.RPE/P1.801.A.Ecology – Preliminary Ecological Appraisal (BMD, 2025)
- BMD.21.0045.RPE-P2.804.A.Eco Assessment – Phase 2 (BMD, 2025)
- BMD.21.0045.RPE-TN.806.EcoHeadlines
- BMD.21.0045.RPE-P2.808.Nocturnal Bats (BMD, 2025)
- BMD.21.0045.RPE-TN.807.A.Verification Assessment – Verification of Habitat Condition and Botanical Interest (BMD, 2025)
- BMD.21.0045.RPE-TN.810.A.Corn Bunting Mitigation Sites – Assessment of Corn Bunting Mitigation Sites (BMD, 2025)
- BMD.21.0045.RPE.MP.809.EMP – Ecological Management Plan (EMP) (BMD, 2024)
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- BMD.21.0045.RPE-TN.807.Verification Assessment (original) – Habitat Condition Verification (BMD, 2023)

1.5 Compliance with Guidance, Policy and Legislation

1.5.1 An overview of national planning policy and wildlife legislation relating to the ecological features relevant to the Site is provided in Appendix A. The protocols, evaluations and recommendations contained within this report were made in accordance with these policies and legislation and with reference to BS42020:2013: Biodiversity – Code of Practice for Planning and Development.

Local Policy

Hertfordshire Local Nature Recovery Strategy (LNRS)

1.5.2 The draft Local Nature Recovery Strategy for Hertfordshire has been completed and is out for public consultation until September 2025, alongside a LNRS mapping viewer which identifies strategic priorities for nature across the county including priority habitats, core LNRS focus areas, species with targeted actions and public greenspace.

- 1.5.3 The draft LNRS has been reviewed in relation to the proposed development at the Site and is referenced to throughout this report to ensure post-development biodiversity enhancements align with strategic priorities highlighted within and adjacent to the Site by the LNRS.

North Hertfordshire Local Plan (2011–2031)

- 1.5.4 The Site lies within the administrative boundary of North Hertfordshire District Council, and the adopted North Hertfordshire Local Plan 2011–2031 (adopted in November 2022) forms the primary local policy framework. Key policies relevant to ecology include:
- 1.5.5 Policy NE1 – Landscape: Seeks to conserve and enhance the character of the district's varied landscapes, particularly in areas of high sensitivity. Development proposals must demonstrate respect for local landscape character, including natural features and habitats.
- 1.5.6 Policy NE2 – Green Infrastructure: Requires the protection and enhancement of existing green infrastructure assets and the provision of new green infrastructure in line with the district's Green Infrastructure Strategy. Proposals should support ecological connectivity and multifunctionality.
- 1.5.7 Policy NE3 – Biodiversity: Requires development proposals to protect, enhance and manage biodiversity, including through measurable net gain. Proposals must conserve existing ecological assets and deliver enhancements in accordance with the mitigation hierarchy. The policy also supports the use of up-to-date ecological information and monitoring.
- 1.5.8 Policy NE4 – Protecting Public Rights of Way: Encourages development to maintain or enhance the local footpath network, which can support wildlife corridors and public access to nature.

2. ECOLOGICAL BASELINE

2.1 Summary of Most Recent Baseline

2.1.1 Table 2.1 provides a summary of conclusions drawn from the most recent ecological surveys of relevance to the Site.

Table 2.1 Conclusions of most recent ecological assessments: 2025

Assessment	Conclusions of relevance to Key Phase 3
Badger	Two disused outlier badger setts were recorded within the Site boundary (2024 survey), with no signs of active use (e.g. fresh spoil or bedding). Low levels of foraging (snuffle holes, tracks) were observed along hedgerows and field edges. No main or annex setts were found on-site or adjacent land. The Site does not lie within a known territory and offers only marginal habitat value. Site-level importance. Pre-construction checks required if works occur within 30 m of known sett locations.
Bat – Activity	Activity surveys (2022 & 2024) recorded seven species: common pipistrelle, soprano pipistrelle, noctule, Leisler's, brown long-eared, Myotis sp., and barbastelle. Activity was concentrated along hedgerows and field margins; field interiors showed negligible use. Over 80% of static detector recordings were pipistrelles. A single barbastelle pass (July 2024) likely reflects a transient individual. Site supports low-moderate use by generalist species. Assessed as Site-level importance.
Bat – Roosts	No confirmed roosts were found during roost inspections and emergence surveys (2022–2024). Several buildings and trees (e.g. along Hedgerows 3, 8, 13, 14, 15) had suitability (e.g. lifted tiles, crevices, knot holes), particularly for crevice-roosting species. Most are proposed to be retained. No further surveys required unless works affect these features. Site assessed as Site-level importance for roosting bats.
Breeding Birds	Surveys in 2024 confirmed 17 territory-holding species. Red-listed species include corn bunting (confirmed breeding), skylark, linnet, yellowhammer, and song thrush. Amber-listed species included dunnoek, whitethroat, and blackcap. Corn bunting was found in both northern and southern zones, confirming continued use of the Site. Corn bunting population assessed as of County-level importance; wider assemblage of farmland and edge species assessed as District-level importance.
Brown Hare	Brown hare was observed during multiple field surveys (2022–2024), particularly within open arable compartments in central and eastern parts of the Site. No leverets or forms were seen. Habitat provides foraging and partial cover, consistent with typical farmland use. No indication of unusually high density. Site assessed as of Local-level importance for brown hare.
Invertebrates	A targeted survey by the Herts Invertebrate Project (May 2023) at Spital Hill recorded a breeding population of small blue (<i>Cupido minimus</i>), an S41 species, likely associated with kidney vetch in calcareous grassland. Additional records included <i>Tychius schneideri</i> (weevil), <i>Megalonotus antennatus</i> (ground bug), <i>Argenna subnigra</i> (spider), and <i>sandrunner shieldbug</i> . Common pollinators were also observed. SE compartment has highest diversity. Site assessed as of Local-level importance.
Desk Study / Designated Sites	No statutory sites within the redline boundary. Adjacent sites include Ivel Springs LNR (NW boundary) and Weston Hills LNR (SE), both of District-level importance. Bygrave Road LWS (within Site) supports ruderal and grassland habitats of Local importance. No Priority Habitats are present or affected. Site is not hydrologically connected to statutory sites. Influence on LNRs limited to potential edge effects and connectivity.

Assessment	Conclusions of relevance to Key Phase 3
Reptiles	Presence/absence surveys (2022 & 2024) confirmed a low-density population of common lizard and slow worm. Reptiles were restricted to the south-eastern compartment in areas of rough semi-improved grassland and tall ruderal vegetation. Central and northern arable areas are unsuitable due to intensive management and low structure. No other reptile species recorded. Assessed as of Local-level importance.
Habitats (Phase 1 & UKHab)	Site includes a mosaic of arable land (dominant), modified grassland (g4), species-rich neutral grassland (g3c), hedgerows (30+), broadleaved woodland (w1g), scattered trees, scrub, and ruderal margins. One hedgerow (H28) qualifies as 'Important' under the Hedgerows Regulations 1997. Modified grassland and arable areas are of Site-level value.
Protected Plants	A single lizard orchid (<i>Himantoglossum hircinum</i>), a Schedule 8 and S41 species, was recorded in rough grassland in the SE compartment during 2024 botanical surveys. No wider notable plant assemblage found. Habitat is semi-improved neutral to calcareous grassland with some floristic interest. Assessed as of Local-level importance for protected flora.
Wintering Birds	The 2023 wintering bird survey has demonstrated that the Site continues to support corn bunting throughout the year and the wintering population is of County importance. Without appropriate mitigation the proposed development of the Site will adversely affect the wintering population of corn bunting at a County level.

2.2 Further Surveys

- 2.2.1 This EMP is based on up-to-date survey information. Further surveys may be required for certain species groups to ensure updated survey information is available for subsequent stages of the development process.
- 2.2.2 Further bespoke surveys relevant to bat mitigation licences may be required depending on the age of the data and corresponding requirement of the licence with regard to age of datasets.

3. LEGAL CONSIDERATIONS

3.1 Badgers

- 3.1.1 Badgers are protected under UK law (the Protection of Badgers Act 1992). Under this legislation it is illegal to intentionally or recklessly damage or destroy a badger sett, or obstruct access to it, and/or to disturb a badger when it is occupying a sett.
- 3.1.2 Disused badger setts have previously been recorded on Site. Currently, none are considered to be active.
- 3.1.3 There is extensive commuting and foraging habitat for badger particularly in the north of the Site. These habitats included: grassland field margins, hedgerows, scattered scrub and a woodland block. The Site has several open boundaries into adjacent badger-suitable landscapes. As such, it is estimated that badgers are readily able to commute to/from the Site from adjacent habitats.
- 3.1.4 As no badger setts are currently recorded within the Site, it is considered that no further assessments are required and a licence from Natural England is unlikely to be required based on baseline information collated to date.

3.2 Bats

- 3.2.1 Bats are protected under European (Conservation of Habitats and Species Regulations 2017 – Schedule 2) and UK (Wildlife and Countryside Act 1981 (as amended): Schedule 5, Section (9)(4b, 4c) and (5)) wildlife legislation. Some species are listed as species of principal importance for biodiversity conservation in England under the Natural Environment and Rural Communities Act 2006 (Section 40, listed in accordance with Section 41). A licence is required to disturb, damage or destroy a bat roost site.
- 3.2.2 There are no bat roosts within the Site as of 2023:
- 3.2.3 Consequently a licence application is currently unlikely to be required for removal of buildings and trees within the Site. Further survey will be required at subsequent stages in the development process to ensure baseline data remains updated and to ensure no change in bat roosting status.

3.3 Nesting Birds

- 3.3.1 All birds are protected from harm while building a nest or using a nest. The nesting season is typically taken to be March to August inclusive, however, some species will nest all year round, such as barn owl and pigeon.
- 3.3.2 The key habitats where nesting birds (including ground nesting species) may be encountered are buildings, scrub/trees, arable fields and open grassland.
- 3.3.3 Mitigation will need to be developed during site clearance and construction stages:
- There will be seasonal restrictions to works; and

- Works will be required to stop if a nest is found during enabling works/construction phases and will only recommence once the birds have naturally left the nest. In these cases, an appropriate cordon will be put in place by the Ecological Clerk of Works.

3.4 Protected Plants

3.4.1 A single lizard orchid was identified within Clothall Common. This is not directly impacted by the proposed works and will be a retained habitat area. Lizard orchids are protected from damage/uprooting etc under Schedule 8 of the Wildlife and Countryside Act 1981.

3.4.2 Mitigation will need to be developed; key constraints are:

- An appropriate buffer will be established if there are any minor works within close proximity to the plant;
- Any works nearby to be supervised by the Ecological Clerk of Works; and,
- Long-term designs to include enhancement of clothall common to retain the Schedule 8 species.

3.5 Reptiles

3.5.1 All reptiles are protected from harm.

3.5.2 The key habitats where reptiles may be encountered are the areas of rough grass/scrub and woodland edge as identified by the updated reptile transects. These habitats are largely retained throughout the development as part of the Green Infrastructure strategy.

3.5.3 Mitigation will need to be developed; key constraints are:

- There will be seasonal restrictions to works; and
- Depending on the extent of reptile habitat loss, areas may be subject to either a trapping and translocation scheme or displacement to adjacent retained areas under Ecological Clerk of Works supervision. This will involve either:
 - Translocation - The reptiles will be moved to areas of retained habitat which will be fenced off from the construction zone and improved for reptiles through the building of hibernacula. Individual reptiles will be trapped in the construction zone and moved onto the retained land over a period of at least 30 days (stopping where no more reptiles are caught for five days). This period will only take place between March and October.
 - Displacement - Dependant of timing of works but likely to involve the following supervised by a suitably qualified ecologist: Check for presence of mobile fauna. Any animals present to be removed or encouraged to move to a place of safety following best practice at the time. Vegetation to be cut to a height of 150 mm, in a continuous direction allowing any fauna to disperse. All cut material to be removed immediately off-site/to an area that will not be affected by the proposed works. Check for potential refugia sites and dismantle with care and in a controlled manner. This typically needs to be completed using handheld tools.
- Large areas of retained woodland and grassland edges are maintained within the design and it is considered that reptiles will continue to use these areas.

- Retained areas will be subject to enhancements to benefit reptiles include provision of managed grassland/scrub edge habitats, provision of log piles and other hibernacula features.

4. IMPLEMENTING ECOLOGICAL MITIGATION & MANAGEMENT STRATEGY:

4.1 Designated Sites

4.1.1 No statutory designated sites of nature conservation importance will be directly affected by the development of the Site. However, the Site lies within 2 km of two statutory designated sites of nature conservation importance:

- Weston Hill Local Nature Reserve (LNR) & Local Wildlife Site (LWS). Borders the Site at the south east boundary. This site is designated for its calcareous grassland habitat, beech and ash woodland and wildflower grassland that are managed for conservation purposes. Numerous notable and protected species are present within the site such as slow worms, yellow meadow ants and turtle doves; and
- Ivel Springs LNR & LWS. Borders the Site at the northwest boundary. This site is designated for its mosaic of habitats including wildflower meadows, glades, chalk grassland, wetland and springs that are a key source for the river Ivel.

4.1.2 No statutory designated sites of nature conservation fall within the impact risk zone of the proposed development.

4.1.3 To avoid impacting the adjacent Weston Hills LNR & LWS, the location of the statutory designated site will be included in the relevant CEMP to make sure relevant personnel are aware of its extent and a suitable no-working buffer placed around the Site.

4.1.4 There will be the need to use and store potentially harmful chemicals in the construction phase (e.g. fuels), impact through pollution will be avoided through adherence to the CEMP, which will include measures for adequately storing chemicals and utilising spill kits to minimise any runoff into the soil.

4.1.5 There are ten non-statutory designated site of nature conservation importance within/within close proximity to the Site:

- Bygrave Road Verge LWS;
- Blackhorse Farm Meadow LWS;
- River Ivel, Nortonbury LWS;
- Wallington Road Verge by Clothall Common LWS;
- Blackhorse Farm Storm Drain LWS;
- Newfield Hill, Weston Hills LWS;
- Icknield Way Railway Bank LWS;
- St Margaret's Churchyard, Bygrave LWS;
- Radwell Meadows Northwestern Field LWS; and
- Ashanger Hill Green Lane LWS

4.1.6 The majority of the LWS are sufficiently removed and thus will be protected from direct impacts. Indirect impacts will also be adhered to as general best practice as detailed below:

- The former Pollution Prevention Guidelines (PPG) have been withdrawn while they are being reviewed and updated. Until such time as new guidance becomes available, standard industry best practice in relation to construction sites and dust production/water pollution must be adhered. Further guidance is to be documented in a Construction Environmental Management Plan (CEMP). Measures to include:
- Dust damping measures.

4.1.7 Works between sunset and sunrise:

- To be avoided; and
- If works cannot be avoided then there is to be no significant increase in external light and noise over and above what is anticipated in the area post construction.

4.1.8 Bygrave Road LWS is situated within the Site boundary and although incorporated into a 'green lane' may be subject to temporary works. Large areas of the LWSs will remain unaffected by the works but protection measures will be required as set out below. Prior to any construction occurring within small areas, turf and topsoil from the Bygrave Road Verge Local Wildlife Site will be removed and retained separately from the subsoil and other material. As soon as practical this soil will be relocated in appropriate areas adjacent to or near to the retained grassland areas.

4.1.9 Best-practice pollution-prevention guidelines will be required to protect the LWS from pollution as a result of construction/operational phases of development proposals.

4.1.10 General habitat and environmental protection measures will be adhered to as set out in this mitigation section to ensure no indirect impacts to nearby nature conservation sites.

4.2 Retained Habitats

4.2.1 The majority of hedgerows on Site would qualify as priority habitats, however other there are no other terrestrial priority or notable habitats within the boundary of the Site. However, several priority and notable habitats lie adjacent to or within close proximity of the Site. Additionally, several areas of high value habitat are situated within the Site, these included but are not limited to blocks of neutral grassland, scrub, broad-leaved woodland and hedgerows.

4.2.2 Of particular note is neutral grassland within the Site. Where habitat is retained there is likely to be some areas used for construction laydown and access around the proposed development. The relevant CEMP will consider these and include methods to avoid erosion, for example setting up designated walk-ways with coverings to minimise wear on the grass and providing measures for adequately storing chemicals and utilising spill kits to minimise any runoff into the soil which would otherwise pollute grassland. As mitigation will be included in the CEMP it is considered that the grassland will rapidly recover and there will be no significant impact on the retained grassland areas.

4.2.3 Where feasible in areas of elevated botanical value that may be impacted, prior to construction occurring, the turf and topsoil will be removed and retained separately from the subsoil and other material. As soon as practical this soil will be dispersed throughout the newly proposed areas of natural and semi-natural greenspace. This turf and topsoil will have species which are adapted to the local conditions within it. These should rapidly colonise the new open space and expand

the coverage of this grassland type. As the topsoil is limited to that obtained during construction, the rest of the grassland will be seeded with a suitable grassland seed mix containing native species, ideally of local provenance.

- 4.2.4 When cutting is required, the vegetation will be removed in late autumn after seeds have set. No more than a third of the total habitat will be cut in any one year, to allow animals to move elsewhere and retain a food source and places to find cover. The grassland will be managed to avoid the colonisation by tall ruderal and/or scrub habitats. Scrub and tree saplings will be removed and the material used to create reptile and invertebrate refugia; some tall ruderal plants will form part of the grassland mix, but these species will be cut back where they begin to dominate.
- 4.2.5 Beyond the boundaries of the Site all adjacent priority and notable habitats will be protected through appropriate buffer strips implemented once the development of the Site begins. The high value habitats onsite will, where possible, be retained. All retained habitat is to be appropriately fenced or adequately buffered throughout the construction period of the development.
- 4.2.6 A tree and hedgerow protection plan would also be produced in accordance with arboricultural best practice for any retained trees and hedgerows informed by detailed arboricultural assessments.

4.3 Created Habitats

- 4.3.1 The Baldock Green Infrastructure Audit (ref: BMD.21.0045.RP.003) states that new habitat creation must provide connectivity across the wider Site and that each development phase will contribute to the cumulative delivery of this part of the vision. Habitat creation design is to be specific to each phase, taking account of the relevant flora, fauna and habitat mitigation requirements. Creation falls within the following main types:
- Hedgerows;
 - Grasslands;
 - Scrub;
 - Woodland;
 - Tree planting;
 - Traditional orchids;
 - Wetland features; and
 - Urban habitats.
- 4.3.2 Within the design there are strategic biodiversity areas which will encompass the above habitat typologies. These areas include:
- Bygrave Common;
 - Winterbourne corridor;
 - Spital Hill; and
 - Walls field.

4.3.3 More information on the location of these areas can be found in the Strategic Masterplan Document.

4.3.4 Bird and bat boxes are to be attached or incorporated into new houses and other buildings within the urban habitats.

4.4 Species

Amphibians and aquatic invertebrates

4.4.1 Newly created ponds, and where appropriate SuDS, will be created with amphibians and invertebrates in mind. The preferred design of margins is with an integral sand or mud substrate margin of several metres breadth and be gradually shelving to allow for easy access and emergence by amphibians. The margins should be allowed to colonise naturally by native plant species or be planted up with locally prevalent and where possible locally sourced native wetland material. Native emergent and floating vegetation should be encouraged and will be important for the establishment of viable breeding populations of dragonflies and damselflies. These species amongst others, require stems on which to emerge from the water as adults. It is imperative that no fish are introduced into the pools. The final designs will be determined, in liaison with other disciplines, notably the landscape architect and hydrologists/civil engineers, at the detailed planning stage to ensure cross-disciplinary objectives are met.

4.4.2 Unless there are other over-riding factors, ponds should not be 'topped-up' in summer; drops in water level over summer are beneficial to a number of invertebrate species, such as shore bugs, rove beetles, *dolichopodid* flies and ground beetles.

4.4.3 Intentional scraped areas, sufficiently deep for seasonally flooding, in the vicinity of the ponds should be considered at the detailed design stage. Such seasonal inundations attract their own specific invertebrate communities.

4.4.4 The terrestrial phase of amphibians is also to be taken into consideration, e.g. provision of refuge and hibernacula sites that are connected to open water.

4.4.5 Habitat areas which are known to support assemblages of invertebrates within the Site are to be wholly retained and enhanced.

4.4.6 However, where feasible, the topsoil from any botanical diverse areas within the construction zone will be taken and re-laid in the areas of natural & semi-natural open space. This will encourage faster recolonisation of green spaces as the plants are already adapted to local conditions and will have other individuals of the same species nearby for pollination. Where the green spaces regrow quicker, these will more rapidly provide a food source for invertebrates, maintaining their populations during the later construction phase, and allowing them to quickly take advantage of the new open spaces. With the mitigation outlined above there will be a significant positive impact for local populations of invertebrates as a result of the development.

Badgers and other land-based mammals

- 4.4.7 Appropriate mitigation shall be detailed in the relevant Construction Ecological Management Plan (CEMP) at each detailed phase to ensure that no harm comes to badgers or other mammals, such as deer, hedgehog, foxes, rabbits and hares during enabling works and construction phases of the development.
- 4.4.8 To avoid impacting badgers during construction, a badger walkover will should be undertaken prior to construction commencing. This will be done at least 3-4 months beforehand to allow time for any mitigation measures to be put in place, as required. If any badger setts are subsequently found these will be closed under licence, with replacement setts created dependant on the size and location of the sett.
- 4.4.9 If badger setts are recorded within retained habitat area, appropriate method statements and/or licences may be required to work close to the retained sett, to be determined at the detailed stage and under advice of the Ecological Clerk of Works.
- 4.4.10 Hedgehog highways are to be created throughout the built environment within the Site; further details will be provided as part of forthcoming reserved matters applications.
- 4.4.11 Fruit tree species should be included as part of woodland mixes planted in wildlife focused areas (i.e. away from dense built-form) as they provide a number of resources for hedgehogs and other fauna.
- 4.4.12 Furthermore, the relevant CEMP will take account of badgers and other mammals, setting speed limits on site, and covering trenches/providing escape routes for animals, to avoid killing/injury by vehicle strike or trapping in pits.

Small blue butterfly (*Cupido minimus*)

- 4.4.13 Recent ecological assessment has confirmed the presence of small blue butterfly within the wider Site context, associated with areas of calcareous and species-rich grassland supporting the larval foodplant (kidney vetch). Although the Proposed Development will result in land use change across parts of the Site, the design and long-term management strategy seeks to retain, enhance and create grassland habitats capable of supporting invertebrate assemblages of local conservation importance. Where suitable ground conditions and management compatibility allow, areas of open grassland will be managed to maintain a short, species-rich sward with targeted promotion of larval foodplants and nectar sources. This will include appropriate cutting regimes, avoidance of nutrient enrichment, and control of scrub encroachment. These measures are intended to secure the continued ecological function of retained habitats and provide opportunities for habitat enhancement for invertebrates, including small blue butterfly, in accordance with best practice and Biodiversity Net Gain principles.

Lizard orchid (*Himantoglossum hircinum*)

- 4.4.14 Lizard orchid is recorded within the Site and is recognised as a notable species of conservation interest. The Proposed Development adopts a precautionary approach to the protection of this species, with known locations safeguarded during construction through appropriate demarcation,

exclusion zones and ecological supervision where required. In the longer term, habitat management prescriptions will prioritise the maintenance of open, species-rich grassland conditions suitable for orchid persistence, including control of competitive vegetation, prevention of scrub encroachment and avoidance of activities that would lead to soil compaction or nutrient enrichment. These measures will ensure that the conservation status of lizard orchid populations is maintained and, where practicable, enhanced as part of the Site-wide ecological management framework.

Brown hare (*Lepus europaeus*)

- 4.4.15 Brown hare is present within the Site, reflecting the existing open farmland and grassland mosaic. Although the Proposed Development will alter land use patterns, the masterplanning and green infrastructure framework retains and creates extensive areas of open grassland, parkland and green corridors that will continue to provide suitable foraging and movement habitat. Management of these areas will seek to maintain structural heterogeneity, including variation in sward height and provision of refuge areas, while avoiding excessive disturbance. The approach does not rely on bespoke species-specific mitigation but ensures that habitat design and management are compatible with the continued use of the Site by brown hare in the long term.

Bats

- 4.4.16 Following construction there will be an increase in availability of diverse green space, including tree lines and open parkland instead of open arable land. These habitats can greatly increase the value of the area for bats providing both a source of food and linear features to commute along. The proposed development will therefore provide a permanent significant positive impact for commuting and foraging bats.
- 4.4.17 No bat licences are anticipated to be required for any demolition at this stage. However, buildings and trees will be reassessed prior to future works. If any roost are subsequently recorded, a no-work buffer around buildings and trees will be provided, having a greater distance the greater the disturbance caused (e.g. further for piling than for vegetation clearance). If this is not possible, the works near these buildings will take place outside the bats roosting season (May-September). A European protected species licence would be required for demolition of any building/removal of any tree that support roosting bats.
- 4.4.18 As a minimum the following mitigation is to be implemented for bats:
- Lighting is to be kept to the minimum required for safety and highway requirements. Lighting to follow current best practice as published by the Institution of Lighting Professionals/Bat Conservation Trust (ILP/BCT) (2023).
 - Dark corridors are to be maintained in areas where biodiversity is the focus. This is of particular importance in the areas surrounding the grassland areas and along boundaries of the Site
 - Inclusion of built-in bat roosting features within the new buildings. Table 4.1 provides a summary of roosting features used by the bats associated with the Site. Roosting features should target the species included in Table 4.1 as well as providing opportunity for other species that are also associated with urban edge environments e.g. brown long-eared bat.

- Bat boxes should be focused around areas in newly created habitats adjacent to existing tree features or within existing hedgerows within the Site.
- All bat roost features, whether natural, in-built or boxes, are not to be lit and IPL/BCT guidance to be adhered to.

- 4.4.19 As part of the design scheme, the majority of hedgerows will be retained. There are green links, including hedgerows and tree lines, which can be used by bats as navigational aids commuting throughout the Site, as well as green space in the north of the site which will support bats invertebrate prey and provide foraging opportunities.
- 4.4.20 The impacts of lighting have been mitigated in the design by providing a buffer around the hedgerows and implementing lighting control measures in the relevant CEMP to avoid lighting these features.
- 4.4.21 As the hedgerows are protected and the lighting of them can be avoided it is considered that there will be no significant impact on foraging and commuting bats during the construction phase.

Table 4.1 Summary of roosting locations used by the different bat species that occur on the Site (adapted from Collins, 2016)

Bat species	Summer roosts				Winter roosts			
	Trees	House/buildings	Barn-type buildings	Bat boxes	Caves/mines	Buildings	Walls/cavity	Trees
Brown-long-eared								
Babastelle								
Common/soprano pipistrelle								
Leisler's								
Noctule								
Nathusius' pipistrelle								
Serotine								
Notes		Primary locations						
		Secondary locations, i.e. only sometimes found in such locations						

Birds

- 4.4.22 Relevant CEMPs will detail the necessary mitigation required to protect nesting birds during the construction phase(s) of the Site.
- 4.4.23 Some mitigation for the loss of some of the corn bunting territories present in the arable fields will be provided through the provision of areas of rough calcareous grassland with scattered trees and scrub within the final scheme design associated with peripheries of the Site. The inclusion of poles or fences should also be considered to provide song posts for corn buntings as new habitats develop. Uncultivated grassland should support a higher insect biomass than arable crops which would benefit provisioning adults.

- 4.4.24 On-site mitigation measures are unlikely to be able to fully mitigate the loss of extensive areas of arable land within the Site. As well as on-site mitigation measures, off-site habitat enhancement will be provided. Given the sedentary nature of corn buntings such measures should look to identify suitable areas close to the Site to maintain the local population. Ringing data would suggest that mitigation areas within c5km of the Site are sufficiently close to be reached by corn buntings. Further assessment of suitable mitigation areas has been undertaken during 2022/2023 with the following sites considered appropriate for corn bunting mitigation:
- Potential park;
 - Ashwell End; and
 - Hinxworth
- 4.4.25 Further details of these mitigation sites are provided in more detail in BMD.21.0045.RPE/TN.810.A
- 4.4.26 Final details/agreements would be developed during the detailed planning stages;
- The loss of arable land is likely to impact the small populations of skylark and yellowhammer currently breeding within the Site. Some birds are likely to be displaced to similar habitats in close proximity to the Site and negative impacts are likely to be localised. The provision of scrub and rough grassland habitats within the final design is likely to provide effective mitigation for the impacts on many of the other breeding species present on Site. The habitats along the green corridors as well as existing high value grassland should be retained where feasible as they offer a range of diverse habitats for breeding birds.
 - Habitat enhancement in the form of the creation of SuDS would provide additional habitat for species such as reed bunting. These habitats also provide valuable foraging resources for species such as house sparrow that feed their young on invertebrates.
 - The provision of scrub and rough grassland habitats within the final design is likely to provide effective mitigation for the impacts on many of the other breeding species present on Site. The habitats along the green corridors as well as existing high value grassland should be retained where feasible as they offer a range of diverse habitats for breeding birds.
 - The scheme design will be retaining existing semi-natural habitats such as the neutral grassland present within the Site. The provision of additional planting and SuDS in these areas would enhance those habitats already present. Older trees within the Site will be managed as they enter senescence as they will provide valuable foraging and nesting sites for many bird species.
 - The scheme will provide areas of rough grassland and native scrub planting, particularly along the northern boundary where the development will adjoin arable land. This will ensure suitable nesting and foraging habitat is available for species such as song thrush, yellowhammer and corn bunting.
- 4.4.27 Ultimately, the design of the Site will incorporate the following features for biodiversity:
- Enhancement of nearby farmland increasing the local landscape's carrying capacity of corn buntings and other farmland birds, through widening field margins, building fences (for protection and provision of song posts), managing hedgerows and continuing/introducing

rotational grazing by livestock. This mitigation will offset impacts on populations of county (corn buntings) and district (other farmland birds) importance;

- Retention of existing hedgerows, creating a minimum 2m buffers of vegetation between them and the development. This will prevent an impact on the populations commuting and foraging bats as well as reducing the likelihood that nesting birds will be affected; and
- Creation and enhancement of extensive natural and semi-natural open space, within a wider open space (including playing fields, parks and gardens) provision. This provides a network of green corridors through the Site (replacing disconnected and gappy hedgerows), as well as an expanse of greenspace to the north of the Site.

4.4.28 Furthermore within the Site, there is provision for enhanced nesting opportunities. The following provides guidance to bird boxes and built-in features appropriate to the Site:

- Hole nesting/urban birds: Built-in nesting features into the buildings should include those suitable for:
 - Swifts;
 - House martin;
 - House sparrow;
 - Starling; and
 - Tits.
- Semi-natural/urban fringe habitat birds: Boxes appropriate for the following species should be considered in semi-natural habitats and urban fringe habitats with trees, e.g. retained habitats and northern edge:
 - Robin;
 - Tits; and
 - Wagtails.

4.4.29 Where possible aggregate, brown and green roofs and green/living architectural features should also be investigated for their viability within the Site, such features provide foraging areas for passerines.

Reptiles

4.4.30 Key areas of importance to reptiles within the Site, including the scrub edges associated with Weston Hills LNR, Clothall Common, Bygrave Road LWS, and areas of rough grassland which are to be retained and enhanced, with provisions for sheltered movement corridors to be considered linking these habitats with the wider landscape.

4.4.31 Additional enhancements that target reptiles to be installed where feasible to do so. These enhancements to include: species-rich grassland with a varied structure, refugia and hibernacula. These should be positioned in at least partial sun and not in deep shade, frost pockets or where they may become waterlogged. They should also be positioned in areas where they will not be constantly disturbed by walkers, dogs or cats. While they may not be in optimal positions from a wildlife perspective it can be beneficial to include such features in public space or associated with schools to serve as an educational focal point.

Domestic Cat Predation

- 4.4.32 Domestic cat predation is recognised as an inherent risk associated with residential development and may affect birds, reptiles and other small vertebrates within publicly accessible green infrastructure. While cat ownership cannot be controlled through the planning process, the Scheme will incorporate design and management measures intended to reduce predation risk where practicable. This will include the siting of sensitive ecological features (e.g. reptile hibernacula and key refugia) away from areas of highest residential activity and primary dog-walking routes, and the use of habitat design that provides refuge structure within robust, semi-natural greenspaces. Phase-specific HMPs will refine these measures in accordance with the detailed layout and will ensure that mitigation remains proportionate and deliverable.

4.5 Habitat management

- 4.5.1 Table 4.2 details the principles of habitat management by species of relevance to the Site.

Table 4.2 Principles of habitat management by species (notable and protected species) of relevance to Site

Species	Habitat(s)	Location	Objective(s)	Management
Badger	Deciduous woodland block, hedgerows, grassland, areas of scrub, the railway verge and adjacent habitats	Suitable habitat remains for potential new setts. Commuting and foraging habitat remains throughout the Site, predominantly around the field boundaries.	To maintain and enhance badger suitable habitat within the Site, with focus on preserving existing commuting corridors to adjacent foraging resources.	If any new setts are recorded - appropriate buffering of active setts during all works, and limitation of noise disturbance within the vicinity of badgers and their setts.
Bat/Invertebrate	Woodland, woodland edges, and scattered trees	Throughout the Site	To provide a strong and diverse invertebrate population, including night flying / bat food source species	Restricted lighting to avoid disturbance of bat movement and foraging
				Woodland management to encourage structural and species diversity, including ground flora, standing and fallen dead wood and edge habitat and features
	Scrub (scattered & continuous), grassland, hedgerows	Throughout the Site	To provide strong, continuous commuting and foraging routes for bats with good invertebrate food species for bats	Restricted lighting to avoid disturbance of bat movement and foraging
				Rotational cutting to ensure a diversity of growth / structure remains present at all times. Installation of a terrestrial habitat features in the Site. Potentially including: hibernacula, log piles, and sheltered movement corridors. (A sheltered movement corridor is essentially a designed or managed strip of habitat that enables species (especially bats, amphibians, reptiles, small mammals, and invertebrates) to move safely across a site while being protected from light, wind, predators, and disturbance.)
Birds	Woodland and scrub	Throughout the Site	To provide range of woodland and scrub habitats to support a variety of bird species.	Woodland management to encourage structural and species diversity, including standing dead wood and edge habitat and features.
	Grassland areas	Throughout the Site	To provide a range of managed grassland habitats that continue to provide nesting sites for farmland species in appropriate locations	Rotational cutting of grassland to provide a diversity of sward heights at all times.

				Restricted public access in key areas for ground nesting species.
Plant/Reptile	Woodland and scrub	Throughout the Site	To provide a diversity of structure and natural light levels to support notable plant species and the development of diverse flora.	Woodland and scrub management to encourage structural diversity, and edge habitat and features.
			To provide refuge and hibernation locations for reptiles.	Woodland and scrub management to provide standing and fallen dead wood and edge habitat and features.
				Provision of log / habitat piles
	Grassland meadows	Bygrave road LWS, Clothall Common, areas of neutral grassland	To provide basking and foraging areas with good invertebrate food resource for reptiles.	Rotational cutting of grassland to provide a diversity of sward heights at all times.
			To prevent harm to individuals of protected reptile species.	Trapping and translocation and/or displacement to be implemented in high-risk areas, e.g. in habitats adjacent to onsite ancient woodland blocks.
				Cutting of grassland only during conditions when reptiles are active and able to move away from machinery (air temperatures above 8°C).
				Directional cutting of grassland to encourage movement of reptiles into adjacent suitable habitat and avoid trapping reptiles in the path of machinery.
			To provide a diverse and strong invertebrate food resource for reptiles	Cutting of grassland to encourage increasing species diversity e.g. 1-4 cuts per year with timing to allow seeding of most species to occur before first cut.
			Reduce risk of cat predation	Reptile hibernacula/refugia to be located away from areas of highest residential activity and, where feasible, at a distance from dwellings and primary dog-walking routes to reduce disturbance and predation risk (including domestic cats). Where hibernacula are included within publicly accessible space for education, they will be designed to remain robust and be buffered by planting/low barriers as appropriate.
Small blue butterfly (<i>Cupido minimus</i>) / notable invertebrates	Calcareous / species-rich grassland mosaic; open grassland with kidney vetch; short	Land east of Clothall Common and other retained/calcareous grassland areas	To maintain (and where practicable enhance) habitat conditions that support small blue butterfly and wider invertebrate assemblages associated with calcareous grassland.	Maintain a structurally suitable sward through a low-nutrient, species-rich grassland management regime (e.g. timed cut and remove, with cut frequency adjusted to maintain kidney vetch and nectar availability). Avoid nutrient enrichment, topsoil import, and herbicide use

	sward and nectar resources	where kidney vetch is present/created		other than targeted invasive control. Implement scrub control where required to prevent shading/encroachment. Any enhancement planting/seed mixes to be specified at Reserved Matters stage to reflect local calcareous grassland objectives.
Brown hare (<i>Lepus europaeus</i>)	Open grassland, parkland, informal open space, arable margin / buffer strips, green corridors	Across the wider Site, particularly larger open compartments and green corridors	To retain functional open habitat and permeability for brown hare across the Site and avoid unnecessary fragmentation of open grassland networks.	Maintain a mosaic of open habitat with structural variation (short and taller sward patches) within larger greenspaces and corridor edges. Avoid excessive subdivision of open areas with close-board fencing; incorporate permeability measures where boundaries are required. During maintenance, retain refuge strips and avoid whole-area cutting simultaneously. Where practicable, maintain and manage field margin-style strips within appropriate open spaces to provide cover and foraging continuity.
Notable arable flora assemblage (including rare arable plants)	Disturbed arable margins / open mosaic / early successional open ground	Where opportunities arise within retained margins, temporary/disturbed areas or appropriate "meanwhile" land uses, subject to masterplan feasibility	To maintain opportunities for notable arable plants to persist where compatible with the evolving masterplan and phasing strategy, without prejudicing deliverability of the Scheme.	Where feasible and compatible with land use and phasing, identify and manage retained arable margins / open ground parcels through periodic disturbance, avoidance of fertiliser and broad-spectrum herbicide use, and prevention of compaction/soil sealing. The extent and location of any such measures will be confirmed at Reserved Matters / phase HMP stage, informed by updated survey and design constraints.

5. HABITAT MANAGEMENT PLAN AIMS AND OBJECTIVES

- 5.1.1 The aim of this Habitat Management Plan (HMP) section of the report is to provide an overview of how habitats will be created and managed following the completion of the Proposed Development. It also sets out the installation of ecological features, implementation of landscape features, and monitoring proposals for habitats and certain species present on Site.
- 5.1.2 Given that this Outline Planning Application (OPA) establishes the strategic framework for the Site rather than detailed design, the prescriptions set out in this section are based on a principles-led approach. At this stage, the specific locations, extents, and planting specifications for each habitat type are not fixed and will be refined as individual phases progress to Reserved Matters. Accordingly, detailed Habitat Management Plans (HMPs) will be prepared for each Key Phase once the landscape planting proposals and habitat creation measures are confirmed. These phase-specific HMPs will build upon the principles outlined here, tailoring management objectives, methods, and monitoring requirements to the precise habitats delivered within that phase. The HMPs will be reviewed, updated, and agreed with the relevant approving body at each stage to ensure they reflect the as-built landscape, respond to emerging ecological opportunities, and remain aligned with the overarching vision for the Site's green infrastructure and biodiversity enhancement.
- 5.1.3 The Site affords significant opportunities for habitat creation and enhancement, with areas of managed grassland of low ecological value amenable to treatments such as the creation of a wildflower meadow, native hedgerows and shrub/thicket. The landscape proposals have been informed using biodiversity metrics such that changes made to habitats at the Site result in a measurable 'biodiversity net gain'.
- 5.1.4 The proposals for landscape creation have also been informed by a range of baseline ecology studies. Informed by the ecological baseline, a range of wildlife installations, including bird boxes, bat boxes, hibernacula for herptiles and features for invertebrates are included within the scheme design, to ensure the favourable conservation status of Biodiversity Action Plan (BAP) and Local Biodiversity Action Plan (LBAP) species are maintained on the Site, post development.

5.1 Relevant British Standards

BS 3998: Tree Work - Recommendations

BS 5837: Trees in relation to design, demolition and construction

BS 7370-1: Grounds maintenance. Recommendations for establishing and managing grounds

BS 7370-4: Grounds maintenance. Recommendations for maintenance of soft landscape

BS 7370-5: Grounds maintenance. Recommendations for the maintenance of water areas

BS 8516: Recommendations for tree safety inspection

BS 8545: Trees from nursery to independence in the landscape

5.2 General Key Management Objectives

- 5.2.1 Whilst the creation of optimum planting conditions combined with high standards of implementation are essential to give properly specified plant material the best start in life, the

establishment and future success of the landscape will be dictated by the quality and frequency of the subsequent maintenance and management it receives.

5.2.2 The following key objectives for maintenance and management have been informed directly by best practice guidance to ensure a robust regime will be adopted for the site both during the establishment period and thereafter.

5.2.3 Key objectives for maintenance and management include:

- To facilitate an efficient and sustainable landscape management and maintenance regime through the lifetime of the development; that avoids intensive long term maintenance requirements by working with natural systems.
- To balance the objectives of ecology, hydrology and amenity functions.
- To provide a safe, high quality external environment for all site users.
- To ensure that the landscape develops in a manner commensurate with the original design intentions and in line with stated vision descriptions within this document.
- To ensure the successful establishment and continued growth through to maturity of the trees and other planting identified on the detailed planting plans to deliver the landscape proposals shown on the general arrangement plans.
- To secure a long term future for the new trees, shrublands and grasslands with particular emphasis upon achieving visual amenity and fulfilment of its ecological potential.
- To manage the landscape in a manner which ensures the safety of site users, such as maintaining visibility splays, maintain good surveillance, removal of dead, dying or diseased trees and plants.
- To be flexible and adaptable to changing needs of the landscape through its establishment and long term management and
- To ensure suitable habitat and connective corridors (either continuous or 'stepping-stones') across the site to allow natural dispersal and exchange of wildlife, both flora and fauna.

6. LANDSCAPE AND ECOLOGY FEATURES OVERVIEW

6.1 Landscape Features

- 6.1.1 Throughout the master planning process, biodiversity has been a significant driver with regards to retention of key areas and species safeguarding to ensure that biodiversity net gain and the protection of key protected species (for example, nesting birds) is achieved.
- 6.1.2 The Proposed Development consists of significant landscaping elements which are detailed in
- 6.1.3 Soft landscaping will include:
- Retained habitats of elevated ecological value (which will continue to be enhanced bespoke and sensitive management prescriptions)
 - Areas of habitat that are created on existing low ecological value habitats (such as the conversion of improved grassland to meadow grassland, shrub and thicket); and
 - Habitat that will be created following completion of the construction phase.
- 6.1.4 The following key habitat features will be created/enhanced and subject to ongoing management methods:
- Traditional orchards
 - Allotment & community gardens (productive landscape)
 - Amenity grassland
 - Introduced shrub
 - Species rich wildflower grassland inc. scattered trees
 - Broadleaved woodland
 - Scrub
 - Marshy grassland (SuDS)
 - Aquatic planting (SuDS)
 - Species rich wildflower grassland
 - Retained grassland/scrub
 - Open water
 - Individual trees;
 - Hedgerows;

7. Wildlife Installations

7.1 Introduction

- 7.1.1 Several ecological enhancement features such as bat and bird boxes, and wildlife installations specifically designed for species recorded on Site, have been integrated into the design of the Proposed Development.
- 7.1.2 The specification detail of these features along with proposed monitoring and maintenance procedures are detailed below.
- 7.1.3 Approximate locations are shown on the Soft Landscaping Proposals (22-293- L05). Final locations are to be agreed with the Project Ecologist.
- 7.1.4 In summary, the following ecological enhancement features will be installed on Site:
- A variety of bird boxes;
 - Bat boxes (tree mounted);
 - Habitat/log piles; and
 - Invertebrate features;

7.2 Bird Boxes

Benefits of Bird Boxes

- 7.2.1 Bird boxes (nesting boxes) play a crucial role in avian conservation, particularly in habitats fragmented by urbanisation and intensive agriculture. These artificial nesting sites provide essential shelter and breeding spaces for various bird species that may struggle to find suitable natural cavities. Enhancing local biodiversity, bird boxes support species such as the Blue Tit (*Cyanistes caeruleus*), Great Tit (*Parus major*), House Sparrow (*Passer domesticus*), and Starling (*Sturnus vulgaris*). Moreover, birds contribute to pest control by feeding on insects, thereby reducing the reliance on chemical pesticides and promoting a healthier ecosystem.
- 7.2.2 From an educational and recreational perspective, bird boxes offer opportunities for ecological studies and birdwatching, fostering a deeper understanding of avian life cycles and behaviours. They also enhance the aesthetic value of green spaces, providing dynamic natural elements that enrich the environment.

Implementation of Bird Boxes

Selection of Bird Boxes

- 7.2.3 Selecting the appropriate bird box design is critical to meet the specific requirements of target bird species. The following bird boxes have been selected for the scheme:
- Schwegler 1B Nest Box (26 mm or 32 mm)
 - Wildlife World Robin Nest Box

- 7.2.4 Material selection should prioritise untreated wood or wood-concrete mixtures to ensure durability and avoid exposure to harmful chemicals.

Installation Guidelines

- 7.2.5 Install bird boxes at an appropriate height and location to maximise their effectiveness:
- **Height:** Generally, place boxes 2 to 4 meters above the ground. Robins and Wrens can be accommodated at lower heights (1 to 2 meters).
 - **Location:** Choose sturdy trees that offer natural cover, providing shelter from predators and harsh weather conditions.

Orientation and Monitoring Practices

- 7.2.6 The following should be applied for installation:
- **Orientation:** Correct orientation is essential to protect birds from harsh environmental conditions:
 - **Direction:** Face bird boxes east to southeast to avoid prevailing winds from the west and intense sunlight from the south. This orientation helps regulate the microclimate within the box, maintaining an optimal temperature and humidity level for nesting birds.
 - **Shelter:** Place boxes in shaded areas to minimise direct sunlight exposure and prevent overheating.

Monitoring and Maintenance

- 7.2.7 Regular monitoring and maintenance are critical to ensure the longevity and usability of bird boxes:
- **Inspection:** Conduct routine inspections for structural integrity and signs of damage. Repair or replace boxes as needed.
 - **Cleaning:** Clean out old nests and debris in autumn after the breeding season to prevent parasite infestations and disease.
 - **Security:** Ensure boxes are securely attached to trees to withstand strong winds and prevent dislodgment.

7.3 Bat Boxes

Benefits of Bat Boxes

- 7.3.1 Bat boxes serve as critical conservation tools, providing artificial roosting sites for bats in areas where natural habitats have been diminished by urbanisation and deforestation. These structures support various bat species, such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Brown Long-eared Bat (*Plecotus auritus*), which play essential roles in ecosystems as nocturnal pollinators and insectivores. By consuming large quantities of insects, bats help control pest populations, reducing the need for chemical pesticides and promoting ecological balance.

- 7.3.2 From an ecological education perspective, bat boxes offer valuable opportunities to study bat behaviour, roosting patterns, and their role in the ecosystem. Additionally, they enhance biodiversity and contribute to the overall health of the environment.

Implementation of Bat Boxes

- 7.3.3 Choosing the appropriate bat box design is crucial for attracting and supporting different bat species. The following bat box have been selected for the scheme:

- Schwegler 2F Bat Box

- 7.3.4 The Schwegler 2F Bat Box is an excellent choice for attracting and supporting common bat species such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Brown Long-eared Bat (*Plecotus auritus*).

- 7.3.5 Material selection should focus on untreated wood or wood-concrete mixtures to ensure durability and avoid exposure to harmful chemicals.

Installation Guidelines

- 7.3.6 Proper installation height and location are critical to maximizing the effectiveness of bat boxes:
- **Height:** Install bat boxes at a height of 4 to 6 meters above the ground to protect them from predators and disturbances, while allowing enough clearance for bats to take off and land easily.
 - **Orientation:** According to guidance from the Bat Conservation Trust (Collins, 2023), bat boxes should ideally be installed facing east, southeast, or south. These orientations allow the boxes to receive morning sunlight, which helps maintain a warm roosting environment. However, in hotter climates or locations with intense afternoon sun, east or southeast-facing boxes are preferred to avoid overheating. Avoid north-facing orientations, as they receive less sunlight and can remain too cold for bat activity.
 - **Location:** Ensure there are no obstructions below the box to allow for unobstructed flight paths. The box should be placed in areas with nearby linear features such as hedgerows, woodland edges, or water bodies, which provide flight corridors and access to foraging areas.

Orientation and Monitoring Practices

- 7.3.7 Correct orientation of bat boxes is essential for providing a suitable microclimate for roosting bats:
- **Direction:** Face bat boxes south to southeast to maximise sun exposure, ensuring the boxes remain warm and dry. This orientation is crucial for creating a thermally stable environment, which is important for bat roosting.
 - **Shelter:** Position boxes in areas sheltered from strong winds and rain, ideally on sturdy trees or buildings that receive direct sunlight for several hours each day.

Monitoring and Maintenance

- 7.3.8 Regular monitoring and maintenance are essential to ensure the long-term success of bat boxes:

- **Inspection:** Conduct routine inspections to check for structural integrity and any signs of damage or wear. Repair or replace boxes as necessary.
- **Cleaning:** While bat boxes typically require less cleaning than bird boxes, inspect for wasp nests or other obstructions annually, ideally during winter when bats are less likely to be present.
- **Security:** Ensure bat boxes are securely attached to trees or buildings to withstand strong winds and prevent dislodgment.
- **Licenses and Timing:** Monitoring and maintenance activities should be conducted at specific times of the year to minimise disturbance to the bats. In the UK, bats are a protected species, and handling or disturbing them often requires a license. Therefore, inspections and any necessary maintenance should be coordinated with licensed bat workers.

7.4 Habitat and Log Piles

Benefits of Log Piles/Habitat Piles

- 7.4.1 Log piles, also known as habitat piles, offer significant ecological benefits by providing essential habitats for a wide variety of wildlife. They serve as shelter and breeding grounds for numerous species, including amphibians like frogs and newts, reptiles such as slow worms and grass snakes, invertebrates like beetles and woodlice, and even small mammals and birds. By decomposing over time, log piles contribute to soil health and nutrient cycling, supporting the broader ecosystem. Additionally, they enhance biodiversity by creating microhabitats that support a range of species, from decomposers to predators.

Implementation of Log Piles/Habitat Piles

- 7.4.2 Choosing the right materials is crucial for constructing effective log piles:
- **Types of Wood:** Use a mix of hardwoods (e.g., oak, beech) and softwoods (e.g., pine, spruce). Hardwoods decompose more slowly, providing long-term habitat, while softwoods break down quicker, offering immediate benefits. These can be used from removed trees on site.
 - **Size of Logs:** Incorporate a variety of log sizes, from large branches to small twigs, to create diverse habitats for different species.
 - **Condition:** Use untreated, unprocessed wood to avoid chemicals that could harm wildlife.

Construction Guidelines

- 7.4.3 Proper construction techniques maximise the ecological value of log piles:
- **Location:** Choose a partially shaded, quiet area to mimic natural forest conditions. Ensure the site has some protection from extreme weather but still receives some sunlight.
 - **Base Layer:** Start with a base layer of larger logs to provide stability and create spaces for larger animals to shelter.

- **Layering:** Add layers of progressively smaller branches and twigs, creating a dense, complex structure. Include leaf litter, bark, and other natural materials to enhance habitat diversity.
- **Height and Width:** Aim for a pile that is at least 1 meter high and wide, but larger piles will support more species and decompose more slowly.

Orientation and Monitoring Practices

7.4.4 Orientation

7.4.5 Effective orientation ensures log piles provide optimal conditions for wildlife:

- **Sunlight Exposure:** Place the pile where it will receive dappled sunlight. Too much sun can dry out the logs, while too little can slow decomposition.
- **Moisture:** Position the pile in an area that retains some moisture but is not prone to waterlogging. Moist conditions help support decomposers and amphibians.
- **Wind Protection:** Ensure the pile is sheltered from strong winds to maintain humidity and prevent drying out.

Monitoring and Maintenance

7.4.6 Regular monitoring and maintenance help sustain the ecological value of log piles:

- **Inspection:** Periodically inspect the pile for structural stability and any signs of disturbance. Ensure the pile remains intact and add new material as it decomposes.
- **Enhancement:** Occasionally add fresh logs and branches to maintain habitat quality and provide continuous resources for wildlife.
- **Timing:** Conduct maintenance activities during late autumn or winter when many species are less active. Avoid disturbing the pile during the breeding season (spring and summer).

7.5 Invertebrate features

Benefits of Invertebrate Features

7.5.1 Invertebrate features, such as bug hotels, bee houses, and leaf litter piles, play a crucial role in supporting diverse invertebrate populations. These structures provide essential habitats for insects and other invertebrates, which are key components of the ecosystem. Invertebrates, including pollinators like bees and butterflies, decomposers like beetles and worms, and predators like ladybirds and spiders, contribute to plant pollination, nutrient cycling, and pest control. Enhancing habitats for invertebrates helps maintain ecological balance and supports the overall health of the environment.

Implementation of Invertebrate Features

7.5.2 Choosing the right materials is essential for creating effective invertebrate habitats:

- **Natural Materials:** Use untreated wood, bamboo, straw, pine cones, leaf litter, and bark. These materials provide the necessary microhabitats for different invertebrates.

- **Variety:** Incorporate a range of materials to cater to various species' needs. For example, drilled logs for solitary bees, straw and hay for beetles, and leaf litter for decomposers.

Construction Guidelines

7.5.3 Proper construction techniques maximise the ecological value of invertebrate features:

- **Bug Hotels:**
 - **Structure:** Create a framework using untreated wood pallets or wooden crates. Fill the sections with various materials such as bamboo canes, bricks with holes, rolled-up corrugated cardboard, and pine cones.
 - **Size:** Aim for a structure at least 50 cm high and wide, but larger structures will support more species.
- **Leaf Litter Piles:**
 - **Location:** Create piles in shady, undisturbed areas. Leaf litter provides habitat and food for many decomposers and shelter for ground-dwelling invertebrates.
 - **Maintenance:** Replenish leaf litter annually to maintain habitat quality.

Orientation and Monitoring Practices

7.5.4 Effective orientation ensures invertebrate features provide optimal conditions:

- **Sunlight Exposure:** Place features like bee houses in sunny locations, facing south or southeast to maximise warmth. Bug hotels can be in partially shaded areas to cater to a variety of species.
- **Moisture:** Ensure leaf litter piles and parts of bug hotels are in areas that retain some moisture without becoming waterlogged, supporting decomposers and moisture-loving invertebrates.
- **Wind Protection:** Position invertebrate features in sheltered spots to protect them from strong winds and maintain humidity levels.

Monitoring and Maintenance

7.5.5 Regular monitoring and maintenance are essential to sustain the ecological value of invertebrate features:

- **Inspection:** Periodically inspect structures for stability and signs of use by invertebrates. Check for any damage or weathering and repair as needed.
- **Cleaning and Replacement:** For bee houses, clean out used or damaged materials annually during winter when bees are not active. Replace worn-out materials in bug hotels to maintain habitat quality.
- **Enhancement:** Add new materials periodically to refresh habitats and provide continuous resources for invertebrates.

Monitoring and Maintenance

7.5.6 Table 7.1 details the monitoring and maintenance required for each wildlife installation.

Table 7.1 Monitoring and Maintenance for Wildlife Installation

Feature	Task	Frequency	Timing	Notes
Bird Boxes	Inspection	Twice a year	Spring, Autumn	Check for damage. Avoid disturbing during nesting season (Mar-Aug).
	Cleaning	Annually	Autumn	Remove old nests after breeding season to prevent parasites.
	Maintenance	As needed	Throughout year	Repair immediately to ensure usability. Avoid during nesting season.
	Monitoring	Regularly	Throughout year	Observe usage without disturbance, especially during breeding (Mar-Aug).
Bat Boxes	Inspection	Twice a year	Spring, Autumn	Check for damage. Avoid inspections during roosting (May-Sep) and maternity season.
	Cleaning	Annually	Winter	Minimal cleaning; remove obstructions. Conduct when bats are less likely present.
	Maintenance	As needed	Throughout year	Repair as needed. Avoid disturbing roosting bats. Licenses required for handling bats.
	Monitoring	Annually	Winter	Coordinate with licensed bat workers; avoid disturbance. Licenses required.
Log Piles	Inspection	Twice a year	Spring, Autumn	Ensure stability; add new materials if decomposed significantly.
	Maintenance	Annually	Autumn	Add new logs and branches as needed.
	Monitoring	Regularly	Throughout year	Observe usage and ensure structure remains intact.
Invertebrate Features	Inspection	Twice a year	Spring, Autumn	Check stability and signs of use in bug hotels.
	Maintenance	Annually	Winter	Replace worn materials in bug hotels; clean bee houses.
	Monitoring	Regularly	Throughout year	Observe invertebrate activity and usage.

8. GENERAL MEASURES AND ESTABLISHMENT PRINCIPLES

8.1 General Measures

- 8.1.1 Annual checks of the planted areas should be carried out to monitor their overall condition. Checks should be carried out by a suitably qualified individual and should occur between May and August when plants are easiest to identify. The vegetation's current condition will be checked against landscape plans and associated species lists to monitor any failed planting areas. These will be replaced by equivalent species and in consultation with landscape specialists. Sizes of replacement planting stock will match planting sizes of Year 1. Annual checks should also include the monitoring of wetland features to monitor their condition, including vegetation abundance and presence of invasive species.
- 8.1.2 If species composition of planted areas throughout the Site become dominated by one or very few species, consultation with landscape specialists will be sought to provide appropriate advice on re-planting to increase species diversity.
- 8.1.3 General checks will also occur for non-native, invasive flora, particularly species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), that may naturally establish within the Site. If invasive species are present, they will be removed in line with good practice and through a qualified contractor. Schedule 9 species have a legal requirement to be adequately controlled and removed.

8.2 General Establishment Principles

- 8.2.1 The following establishing maintenance principles apply to all planted areas:
- Generally planting should be carried out in accordance with the following British Standards:
 - BS 4043:1989 'Recommendation for Transplanting Root Balled Trees'
 - BS 4428:1989 'Code of Practice for General Landscape Operations'
 - BS 8545:2014 'Trees from nursery to independence in the landscape. Recommendations'
 - Times of Year for Planting:
 - Seeding: mid March to the end of April or late August to mid October.
 - Root balled/Bare root deciduous trees and Shrubs: late November to late March.
 - Root balled conifers and evergreens: September - November or March - May.
 - Turf, container grown shrubs and trees (including spring ringed): At any time if ground and weather conditions are favourable. Ensure that adequate watering, drainage and weed control is provided. Do not plant into frozen ground.
 - Waterlogging shall be avoided through proper ground preparation and tree pit excavation.
 - Do not use peat or products containing peat.
 - Watering: subject to legislation, all plants will be watered adequately to maintain healthy growth.

- Firming-up: any plants which become loosened, lifted, or out of the ground are to be set upright and re-firmed by treading.
- Pest and Disease Control: plants will be kept free of pests and disease through necessary control measures. These include rabbit and rodent control as required, as well as the reinstatement of any damage. Gassing of rabbits is not permitted due to the potential impact on reptiles.
- Plant Supports and Protection: canes, tree, shrub guards, tree ties, and rabbit fencing shall be checked, and when necessary, adjusted, replaced, or removed. After removal, the ground holes shall be filled with topsoil and reinstated. It is generally expected that most of the plant supports and protection will be removed during the Year 3 to 5 period, post-establishment.
- General Pruning: straggling stems, overgrown shoots, dead, misshapen or broken branches shall be removed from trees and shrubs by pruning back with a clean smooth cut to the main stem, or a sound and living outward growing lateral. Specific plant species shall be pruned, in accordance with good horticultural practice.
- Fertiliser: in any areas where establishment growth is poor, trees and shrubs established for less than three years will be treated annually in February with slow releaser fertiliser (e.g. Enmag). This will be evenly incorporated into the soil surface, over the rooting of each plant, in accordance with the manufacturer's instructions. In other planted areas, fertiliser application may only be required to prevent/rectify nutrient deficiencies if they arise and will be minimised.
- Removal of Litter: all litter will be removed from planted, grassed and hard surface areas of the Site on a regular basis.
- Leaf Fall: leaves and other plant debris shall be regularly cleared off adjacent areas of hard surface, paths and grass.
- Fencing: all is to be regularly checked and maintained in good condition, carrying out repairs when necessary.

9. MANAGEMENT PRESCRIPTIONS

9.1 Habitat Creation and Management

9.1.1 To ensure that the habitats enhanced, created, and retained reach their target distinctiveness and condition for the biodiversity metric, bespoke management prescriptions have been proposed for each habitat type. The habitat types and their objective condition within the Site are summarised as:

9.1.2 Traditional orchards

- Maintain and enhance tree health, diversity, and structure through appropriate pruning, pest control, and understorey management.
- Promote a species-rich sward beneath orchard trees to provide foraging opportunities for pollinators and invertebrates.
- Retain standing and fallen deadwood where safe to do so, enhancing microhabitats for saproxylic species.

9.1.3 Allotment & community gardens (productive landscape)

- Manage plots to promote sustainable, low-pesticide growing practices that enhance biodiversity.
- Incorporate wildlife-friendly features such as nectar-rich borders, compost heaps, and water butts.
- Rotate crops and maintain soil health to support long-term productivity and ecological value.

9.1.4 Amenity grassland

- Maintain a resilient, well-structured sward capable of withstanding public access and amenity use.
- Integrate small areas of relaxed mowing where feasible to encourage wildflower colonisation and nectar provision.
- Avoid over-application of fertilisers to reduce nutrient loading and favour more diverse sward composition.

9.1.5 Amenity grassland for sport

- Maintain a uniform, hard-wearing sward to support sports use while integrating ecological enhancements where possible (e.g. seasonal margins of longer grass or wildflowers).
- Ensure appropriate irrigation and aeration to maintain turf health without excessive chemical inputs.

9.1.6 Introduced shrub

- Maintain structural diversity and species composition to ensure year-round foraging and shelter for birds and invertebrates.
- Prune rotationally to avoid wholesale loss of cover in any one season.
- Replace failed plants promptly with suitable native or wildlife-friendly species.

9.1.7 Species-rich wildflower grassland inc. scattered trees

- Manage by annual late-summer cut and removal of arisings to maintain low nutrient status.
- Maintain scattered trees in good condition, ensuring deadwood features remain where safe.
- Monitor botanical composition to ensure target species are retained and invasive species are absent.

9.1.8 Broadleaved woodland

- Promote a diverse age and species structure through selective thinning, coppicing, and enrichment planting.
- Maintain open glades and rides to increase structural diversity and support woodland edge species.
- Control invasive species and maintain deadwood habitats for fungi and invertebrates.

9.1.9 Scrub

- Manage on a rotational basis to maintain a mosaic of ages and structures, supporting nesting birds, reptiles, and invertebrates.
- Prevent encroachment into species-rich grassland and other high-value habitats.

9.1.10 Marshy grassland (SuDS)

- Maintain a varied sward height and structure to support invertebrates and amphibians.
- Manage water levels to sustain wet grassland conditions year-round.
- Remove encroaching scrub or invasive species such as Himalayan balsam.
- Aquatic planting (SuDS)
- Maintain diverse emergent and marginal vegetation to support invertebrates, amphibians, and waterfowl.
- Prevent dominance of aggressive species such as reedmace to retain habitat diversity.
- Manage litter and debris to maintain water quality.

9.1.11 Species-rich wildflower grassland

- Implement low-intensity management (one to two cuts per year, with arisings removed) to maintain floristic diversity and a structurally varied sward that supports invertebrate assemblages and associated foraging species.
- Avoid nutrient enrichment, soil compaction and herbicide use (except for targeted invasive control), and prevent scrub encroachment to maintain open grassland conditions.
- Management will be timed, where practicable, to allow flowering and seeding of key species and to retain larval foodplants and nectar resources, thereby supporting notable invertebrates (including small blue butterfly where kidney vetch is present), reptiles and farmland bird foraging.

9.1.12 Grassland east of Clothall Common

- 9.1.13 Areas of grassland east of Clothall Common are recognised as being of ecological value and susceptible to degradation through scrub encroachment. To maintain the condition and functional value of these habitats, management will include a defined programme of scrub control and grassland management (e.g. cut and remove, and/or grazing where feasible) to sustain open sward conditions and prevent progressive shading and loss of floristic diversity.
- 9.1.14 This management will also be informed by species requirements, including the maintenance of short, open grassland for notable plants (such as lizard orchid), the retention of structurally diverse sward for reptiles and invertebrates, and the provision of open foraging habitat for species such as brown hare. The precise method, frequency and extent of management will be confirmed through the phase-specific Habitat Management Plans (HMPs) once detailed access routes, public use patterns and habitat extents are finalised, with an adaptive management approach applied in response to monitoring outcomes.
- 9.1.15 Retained grassland and scrub
- Maintain as a transitional mosaic to support a wide range of species, managing succession to avoid loss of open habitats unless woodland or scrub development is a defined target condition.
 - Enhance floristic diversity through plug planting or seeding of appropriate native species where necessary to strengthen ecological function.
 - Management will ensure that retained grassland and scrub provide complementary habitat for protected and notable species, including the provision of open basking and foraging areas for reptiles, structurally varied edge habitat for invertebrates and bats, and connectivity for wider-ranging species such as brown hare. Where habitat features such as log piles or hibernacula are introduced, these will be located away from areas of highest residential activity and disturbance to maximise their long-term ecological effectiveness.
- 9.1.16 Open water
- Maintain water quality through control of nutrient inputs and prevention of algal blooms.
 - Retain marginal vegetation while preventing excessive shading from overhanging trees.
 - Manage for structural diversity in aquatic vegetation to support fish, amphibians, and invertebrates.
- 9.1.17 Table 9.1 below summarises habitat creation and management prescriptions by habitat type, along with creation methods (where applicable) and management methods. More details can be found in Baldock Green Infrastructure Strategy.
- 9.1.18 The overarching aim of this EMP section is to provide a framework that will ensure the continuing successful management of the Site through which landscape and ecological elements can be maintained and developed to contribute to the quality of the area, and to ensure that the original concept and design intent is realised. Once implemented, this plan will help to maximise the overall quality and appearance of the development, its amenity and ecological value and its enjoyment by occupiers.

Table 9.1 Habitat creation and management prescriptions for each habitat type

Habitat Type	Objective	Vision	Management Methods (key tasks)	Success criteria – BNG condition indicators (target condition & pass metrics)	Monitoring methods & frequency (Years 1–30)
Traditional orchards	Maintain orchard structure and understorey biodiversity.	Heritage/standard fruit trees in species-rich sward with deadwood microhabitat.	Rotational pruning (winter), formative on young trees; retain standing/fallen deadwood where safe; mow understorey July/Aug with arisings removed; spot-treat invasives; replace failures with like-for-like heritage stock.	Target: Moderate condition (SBM Orchard). Essential criteria include: ≥95% trees free from human/animal damage; ≤10% poaching around bases; understorey matches medium/high distinctiveness grassland; invasive non-natives absent/≤10% cover. Additional site targets: ≥10 native forb spp/m² by Y3; deadwood present in ≥15% of orchard ground; ≥80% tree survival at Y5 rising to ≥90% at Y10. (SBM condition sheets / examples) (GOV.UK, Cemex)	Tree and ground-flora condition survey (SBM form) annually Y1–Y5; every 5 years thereafter (Y10/15/20/25/30). Include photo-points, crown health, damage, poaching, understorey quadrats.
Allotment & community gardens	Integrate productive use with biodiversity uplift.	Active plots with nectar borders, varied structure, low-input management.	Managed composting; 3-year crop rotation; no/low pesticides; 1–2 m pollinator borders; water butts; invasive control; winter green manures.	Target: “Moderate” analogue via JP058: ≥75% plots in active cultivation by Y3; borders support ≥6 native nectar species/10 m; pollinator transects show ≥3 key guilds in ≥3 seasons; soil organic matter ↑ ≥1% by Y5; invasive non-natives absent (visual). (Use HMMP/JP058 justification and record against consistent metrics) (Natural England)	
Amenity grassland	Durable sward with some biodiversity via relaxed mowing cells.	Close-mown matrix with relaxed margins/cells.	Mow main sward per use; set aside relaxed zones May–Aug; remove arisings; minimise fertiliser; aeration in compaction zones.	Target: Moderate condition (Modified/Amenity grassland): ≥6–8 vascular spp/m² with ≥2 forbs in relaxed cells by Y3; closed sward ≥95% cover; bare ground ≤5% (outside desire lines); invasives absent; scrub/bracken each ≤5%. (Metric technical supplement thresholds) (North Somerset Council)	Annual botanical quadrats (Jul–Aug) and sward condition audit; compaction/aeration check spring/autumn Y1–Y5; then every 3 years.
Amenity grassland for sport	Maintain safe sports surface + deliver ecological margins.	Uniform, safe pitch with wildflower margins/bunds.	Sports turf regime (mow, aerate, overseed); establish 1–3 m wildflower margins;	Pitch: turf quality standard met; bare patches >0.1 m² = 0. Margins (Target: Moderate grassland): ≥30% wildflower	Amenity grassland for sport (treat playing surface as modified grassland; biodiversity delivered in margins)

Habitat Type	Objective	Vision	Management Methods (key tasks)	Success criteria – BNG condition indicators (target condition & pass metrics)	Monitoring methods & frequency (Years 1–30)
			arisings removed; no herbicide overspray into margins.	cover by Y3; ≥ 8 vascular spp/m ² with ≥ 2 forbs; scrub $\leq 5\%$; invasives absent.	
Introduced shrub	Year-round structure / nectar with native bias.	Layered shrub beds (ground/mid/canopy), seasonal nectar/fruit.	Rotational pruning ($\leq 30\%$ any compartment in 1 year); mulch 75 mm; replace failures; $\geq 60\%$ native or wildlife-friendly species; deadwood habitat piles in discrete areas.	Target (JP058): $\geq 90\%$ survival by Y3; three structural tiers present by Y5 (ground/mid/canopy); ≥ 6 nectar sources flowering across ≥ 3 seasons per 100 m ² ; invasives absent; litter = 0; winter berry resource present (≥ 2 spp). (Natural England)	Annual structural/health survey Y1–Y5; every 3 years thereafter; winter berry count (Dec/Jan) Y1–Y5 then Y10/20/30.
Species-rich wildflower grassland inc. scattered trees.	Deliver high-diversity meadow with structural trees.	Meadow matrix with maturing standards.	Sow suitable neutral/calcareous mix; late-summer hay cut; remove arisings; scrub control; tree staking/guards; formative pruning Y1–Y3.	Grassland Target: Good condition (Other neutral grassland): ≥ 10 vascular spp/m ² incl. characteristic forbs; bare ground 1–5%; bracken $< 20\%$; scrub $< 5\%$; invasives absent. Trees: $\geq 80\%$ establishment by Y5; no major pests; crown form acceptable.	Annual botanical quadrats & meadow condition Y1–Y5; then every 3 years. Trees: annual Y1–Y5, then every 5 years (form, health, failures).
Broadleaved woodland (new/young or enhanced)	Build resilient, multi-layered native woodland.	Canopy, understorey and ground flora with deadwood.	Enrichment planting; selective thinning from Y5+; ride/glade management; invasive control; deadwood retention.	Target: Moderate woodland condition — meet SBM woodland score threshold (e.g., pass $\geq$ the required number of criteria incl. essential where specified: age/size distribution; vertical structure; deadwood presence; native spp composition; regeneration; impacts low).	Structured woodland condition survey Y5, Y10, Y15, Y20, Y25, Y30 (record all SBM criteria, photo-points, deadwood volume, regeneration plots).
Scrub (Thicket / Mixed scrub)	Maintain diverse scrub mosaic as wildlife resource.	Dense blocks with variable age & edge scallops.	Rotational cutting (5–10 yr cycle), ≤ 25 –33% area in any year; retain deadwood; prevent wholesale encroachment into meadows; invasive control.	Target: Moderate scrub condition (SBM Mixed Scrub): native dominance $\geq 90\%$; ≥ 2 height classes; browsing/physical damage low; non-native/invasives absent; pass $\geq$ required criteria incl. essential A.	Annual scrub structure/extent mapping Y1–Y5; then every 3–5 years to Y30 (record height classes, cover %, invasive cover, edge quality).
Marshy grassland (SuDS) (treat as wet neutral/other grassland)	Sustain wet-grassland community & hydrologic regime.	Moist sward with rush/sedge indicators in swales/basin benches.	Manage water levels (inlet/outlet maintenance); late summer cut on rotation; remove arisings; invasive removal (e.g., balsam).	Target: Moderate–Good grassland (wet): wetland indicators (rushes/sedges/forbs) $\geq 50\%$ constancy on benches; bare ground 1–10% (micro-features); scrub $\leq 5\%$; invasives absent; hydrology stable (no prolonged anoxia of target sward).	Marshy grassland (SuDS) (treat as wet neutral/other grassland where appropriate)

Habitat Type	Objective	Vision	Management Methods (key tasks)	Success criteria – BNG condition indicators (target condition & pass metrics)	Monitoring methods & frequency (Years 1–30)
where appropriate)				(apply Other neutral grassland criteria, adapted to wet).	
Aquatic planting (SuDS – marginal/emergent)	Deliver diverse marginal/emergent zones & good water quality.	Zoned emergent shelves with varied structure.	Plant native emergent/marginal communities; manage reed/mace dominance; litter/debris removal; maintain benches.	Target: Moderate–Good pond condition – pass core criteria A–I for non-woodland ponds: A good water quality (clear); ≥10 m semi-natural buffer (moderate+ distinctiveness) around margins; surface algae/duckweed <10%; no listed invasive spp; emergent/submerged/floating plants cover ≥50% of ≤3 m depth area; shading <50% surface; natural hydrology.	Biannual (spring & autumn) macrophyte and water quality survey Y1–Y5; then annual to Y30. Record % cover by stratum, buffer integrity, invasives, turbidity/Secchi.
Species-rich wildflower grassland (stand-alone meadow)	Achieve Good grassland condition.	High-diversity meadow supporting pollinators.	Hay cut Aug/Sept; remove arisings; spot-treat ruderals; control scrub; occasional aftermath graze if possible.	Target: Good (Other neutral grassland): ≥10 vascular spp/m² incl. characteristic forbs; floral cover across ≥80% by Y3; bare ground 1–5%; bracken <20%; scrub <5%; invasives absent; soil nutrients trending down.	Annual botanical condition (quadrat & DAFOR) Y1–Y5; then every 3 years to Y30; pollinator belt transects 1x/season Y1–Y3 then every 3 years.
Open water (ponds/basins/lakes) (non-priority ponds unless designated)	Maintain water quality & habitat structure.	Clear waterbody with diverse macrophytes and strong buffer.	Nutrient pathway control; manage shade; desilt ≤25% basin in any one year; maintain buffer.	Target: Moderate–Good (Ponds/Lakes) – pass core criteria: clear water; ≥10 m semi-natural buffer; algae/duckweed <10%; no listed invasives; emergent/submerged/floating plants cover ≥50% of ≤3 m depth; shading <50%; natural hydrology; fish absent unless designed.	Biannual (spring/autumn) water quality (Secchi/turbidity, if applicable nutrients), macrophyte cover, buffer integrity Y1–Y5; then annual to Y30.
Planted Trees (individual street & parkland trees)	Establish and maintain healthy, long-lived trees that deliver canopy cover, microhabitat value and net gain units.	A resilient avenue/parkland structure of predominantly native or wildlife-beneficial trees with appropriate rooting volume, minimal pruning, and	• Establishment (Y0–Y3): pit decompaction or structural soil; minimum rooting volume per tree sized to ultimate canopy (as per design); double stakes/ties; watering regime (Y1: 2x/week May–Sep; Y2: weekly; Y3: drought-only); 75 mm mulch ring	Target condition path (SBM – Individual trees A–F): By Year 5 – Moderate (pass ≥3–4 of 6 criteria): A (Native spp.) ≥70% of planted cohort native (or wildlife-beneficial where site constraints preclude native); B (Canopy continuity) auto-pass for individual trees; D (Little/no adverse impact): no regular pruning regime; each tree retains >75% expected canopy for age/height; F	Arboricultural condition check: Annual Y1–Y5 (health, canopy retention vs age, pruning, damage, oversail vegetation present); then every 5 years to Y30 (include DBH/crown spread, photo-points). Summer ground-layer audit under the canopy: annual Y1–Y5, then every 3 years to confirm oversail vegetation ≥20% and invasive-free. Risk/safety survey by Arb: biennial or after severe weather. OPM (oaks): check annually May–Aug.

Habitat Type	Objective	Vision	Management Methods (key tasks)	Success criteria – BNG condition indicators (target condition & pass metrics)	Monitoring methods & frequency (Years 1–30)
		biodiverse ground beneath the canopy.	maintained; keep 0.5–1 m radius weed-free; formative pruning winter Y1–Y3 only; protect from strimmer damage. • Long-term: remove stakes/ties by end of Y3; no routine crown reduction (retain >75% expected canopy for age/height); maintain permeable surfaces and de-compact if needed; replace failures like-for-like within next planting season; manage lighting (edge spill ≤1 lux to adjacent sensitive habitats). • Understorey: establish living ground beneath crown (amenity flower-rich or meadow sward) across ≥70% of area that the canopy will oversail at Y5+. • Biosecurity: inspect for pests/disease; for oaks, OPM checks per FC guidance; remove invasives in pit/bed promptly.	(Oversail): >20% of canopy area oversails vegetation beneath (deliver via designed ground layer under crown). C (Mature) not expected until later; E (Natural niches) not expected in youth. By Year 25–30 – Good (pass ≥5 of 6): A, B, D, F as above plus C (Mature) achieved (size/age class per species), and/or E evidenced (cavities, ivy, deadwood, loose bark) in ≥20% of the cohort or via retained veterans within the same parcel. Additional quantitative QA: establishment survival ≥90% at end of Y1, ≥85% at Y3, ≥80% at Y5; crown dieback ≤10% at Y5; stem/DBH growth consistent with species norms; zero strimmer/vehicle damage; invasives absent.	

10. LONG TERM MAINTENANCE AND MONITORING

10.1 Maintenance and Monitoring

- 10.1.1 Following the completion of the Proposed Development, a programme of monitoring will be undertaken.
- 10.1.2 Habitat creation, habitat enhancement and wildlife feature installation will be undertaken in the first appropriate season following the receipt of planning permission. This will be no later than within 6 months of the development commencing. Habitat creation in areas cleared during the construction phase will be completed within 6 months of completion of development activities.
- 10.1.3 Management will continue for 30 years.
- 10.1.4 Monitoring and reporting will be completed on year 1, 2, 5, 10, 20 and 30 to assess the success of habitat creation/management meeting the set objectives. This will also include biodiversity reconciliation calculations at each stage (where required) to ensure the development achieves biodiversity net gain and delivers appropriate long-term habitat management on Site.
- 10.1.5 This Long-Term Maintenance and Monitoring section sets out a high-level, principles-led framework for the whole Site. Detailed, phase-specific Habitat Management Plans (HMPs) will be prepared and submitted at Reserved Matters/Key Phase stage as the landscape design, habitat extents, and specifications are fixed. Each phase HMP will adopt the principles set out here, define habitat-specific success criteria and monitoring methods tied to the Statutory Biodiversity Metric, and include an adaptive management protocol. Phase HMPs will be reviewed on a rolling five-year cycle over the 30-year management period (Years 5, 10, 15, 20, 25 and 30), with interim updates as required to respond to monitoring outcomes, unforeseen constraints, or regulatory advice, ensuring objectives are met and Net Gain delivery is maintained.

10.2 Responsible Organisations

- 10.2.1 Urban & Civic Ltd. shall be responsible for managing the landscape and ecology matters around the Site and their land. This shall be carried out under the expert guidance of BMD Ltd.
- 10.2.2 Funding for the upkeep and implementation of the HMP will be provided by Urban & Civic Ltd. as part of its grounds maintenance programme.
- 10.2.3 In the event that any areas of public open space or green infrastructure are formally adopted by the Local Authority or another public body in the future, the responsibility for management and implementation of the relevant aspects of this Habitat Management Plan will transfer to the adopting organisation. In such circumstances, the adopting organisation will be required to continue delivery in accordance with the principles and prescriptions set out within this EMP and any associated phase-specific Habitat Management Plans (HMPs). Handover arrangements, including transfer of maintenance specifications, monitoring responsibilities, and funding mechanisms, will be agreed with the Local Authority at the appropriate stage to ensure continuity of ecological management and compliance with biodiversity net gain commitments.

10.3 Remedial measures

- 10.3.1 The monitoring programme may identify issues which require remedial measures and alterations to the management prescriptions detailed in this document.
- 10.3.2 Remedial measures are will be subject to a review by an appropriately qualified individual to confirm management prescriptions remain appropriate.

11. GLOSSARY

11.1 Scientific Terms and Acronyms

Badger sett An underground complex of tunnels utilised by badger as a den and accessed by one or more entrances at ground surface level

BoCC Birds of Conservation Concern, the UK Red-list for birds, produced by the British Trust for Ornithology and last updated in December 2021.

BTO British Trust for Ornithology

CBC Common Bird Census

CIEEM Chartered Institute of Ecology and Environmental Management; the professional organisation and provider of professional codes of conduct for ecological consultancy.

Defunct hedgerow A hedgerow which is not stock proof without the need for fencing.

EPS European Protected Species For the purposes of this report EPS are species that require particular licences to allow certain works to go ahead. Species falling within the following situations are not considered as EPS within this report:

- Birds listed on Appendix 2 of the Bern Convention (European legislation). The protection requirements of this Appendix are fully integrated in UK law, notably through the Wildlife and Countryside Act 1981 (as amended).
- Birds listed on Annex 1 of the Birds Directive (European legislation). The protection of such species survival and reproduction within their geographic distribution is ensured through special conservation measures in relation to their habitats. Such measures are implemented through the establishment of Special Protection Areas. Therefore, any implications are considered at regional habitat and country level rather than individual bird/species level.

HERC Hertfordshire Environmental Record Centre.

Important Hedgerow Any hedgerow which has existed for 30 years or more and satisfies a number of criteria listed within Part II of Schedule 1 to the Hedgerow Regulations 1997. For the purposes of this report, only wildlife and landscape criteria are considered; archaeological and historical criteria are not assessed.

Intact hedgerow A hedgerow which is stock proof with the need for fencing.

LBAP Local Biodiversity Action Plan.

Level of protection – ‘EU’ Protected under the Conservation of Habitats and Species Regulations (2017).

Level of protection – ‘UK’ Protected under the Wildlife and Countryside Act 1981 (as amended).

NIA Nature Improvement Areas.

Non-native invasive species For the purposes of this report: species listed on Schedule 9 of the wildlife and Countryside Act 1981 (as amended).

Notable species A species which is listed as a UK Priority Species, carries an unfavourable conservation status (e.g. scarce, rare, threatened, Red-listed), is invasive or is otherwise worthy of note from an ecological perspective.

Protected species A species protected under specific UK or European legislation, including Habitats Directive, Wildlife and Countryside Act.

SSSI Site of Species Scientific Interest. Statutory designation of biological or geological importance

UK Priority Habitat and species A habitat or species identified as a priority for conservation in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006). Section 40 of the Act places a duty on public authorities to have regard for the conservation objectives of these habitats and species. (Also known as Section 41 (S41) habitats/species).

11.2 Bird Specific Terminology and Terms

BoCC Red list

- 11.2.1 Species that are globally threatened (Critically endangered, endangered and vulnerable but not near threatened) using IUCN guidelines, as assessed by Birdlife International in 2021.
- 11.2.2 Historic decline: Historic decline in breeding populations. Species judged to have declined severely between 1800 and 1995 from an assessment conducted by Gibbens *et al.* (1996) and which have not recovered subsequently.
- 11.2.3 Breeding population decline: Severe decline in UK breeding population size, either a decline of over 50% over 25 years or the longer-term defined as the period since the first BoCC review (1969).
- 11.2.4 Non-breeding population decline: Severe decline in UK non-breeding population of over 50% over a 25-year period or over a longer-term defined as the period since the first BoCC review (1969). Non-breeding trends were only assessed if a species has substantially independent breeding and non-breeding populations, otherwise only breeding populations were assessed.
- 11.2.5 Breeding range decline: Species that have experienced a severe decline in the UK range between the breeding bird atlases in 1988-1991 and 2007-2011 or 1968-1971 and 2007-2011 as measured by the calculated change in the number of occupied 10 km squares.
- 11.2.6 Non-breeding range decline: Severe decline in UK range (more than 50%) between the wintering bird atlases in 1981-1984 and 2007-2011 as measured by the calculated change in the number of occupied 10 km squares.

BoCC Amber list

- 11.2.7 The European Red List of Birds (ERLoB) was published in 2021 by Birdlife International. It covers IUCN Red list assessments of regional extinction risk with no consideration of the wider suite of measures (species rarity, localization, moderate decline and depletion) included in SPEC assessments. Any species on the European Red list (Critically endangered, endangered, vulnerable) is included on the Amber list.
- 11.2.8 Historic decline – recovery: Species Red listed for historic decline in a previous review but with a substantial recent recovery (at least 100% in the last 25 years or the longer-term period). Longer-term is defined as the period since the first BoCC review (1969).
- 11.2.9 Breeding population decline: Species experiencing a moderate decline in UK breeding population (more than 25% but less than 50%) over 25 years of the longer-term period. Longer-term is defined as the period since the first BoCC review (1969).
- 11.2.10 Non-breeding population decline: Moderate decline in UK non-breeding populations (more than 25% but less than 50%) over a 25-year period or over longer-term defined as the period since the first BoCC review (1969). Non-breeding trends were only assessed if a species has substantially independent breeding and non-breeding populations, otherwise only breeding population was assessed.
- 11.2.11 Breeding range decline: Species that have experienced a moderate decline (more than 25% but less than 50%) in the UK range between the breeding bird atlases in 1988-1991 and 2007-2011 or 1968-1971 and 2007-2011 as measured by the calculated change in the number of occupied 10 km squares.
- 11.2.12 Non-breeding range decline: Moderate decline in UK range (more than 25% but less than 50%) between the wintering bird atlases in 1981-1984 and 2007-2011 as measured by the calculated change in the number of occupied 10 km squares.
- 11.2.13 Breeding and non-breeding rarity: Species with a UK breeding population of fewer than 300 pairs or with a UK non-breeding population of less than 900 individuals.
- 11.2.14 Breeding and non-breeding localization: Localized breeding or non-breeding population with at least 50% of UK population found in 10 or fewer sites. Sites were defined as either Special Protection Areas or Important Bird Areas. Rare breeding and non-breeding species were not assessed against this criterion as the small population size predisposes them to be restricted to a small number of sites.
- 11.2.15 Breeding or wintering population of International importance: Species with at least 20% of European breeding or non-breeding population found in the UK.

11.3 Scientific Names

- 11.3.1 Scientific names of species mentioned in this report are outlined in Table 11.1.

Table 11.1 Scientific names of species mentioned within this report

English Name	Scientific Name
Mammals	
Badger	<i>Meles meles</i>
Bat	<i>Chiroptera (order)</i>
Brown Hare	<i>Lepus europaeus</i>
Brown-long-eared	<i>Plecotus auritus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Deer	<i>Cervidae (family)</i>
Fox	<i>Vulpes vulpes</i>
Hedgehog	<i>Erinaceus europaeus</i>
Leisler's Bat	<i>Nyctalus leisleri</i>
Myotis sp.	<i>Myotis (genus)</i>
Nathusius' Pipistrelle	<i>Pipistrellus nathusii</i>
Noctule	<i>Nyctalus noctula</i>
Nyctalus sp.	<i>Nyctalus (genus)</i>
Plecotus sp.	<i>Plecotus (genus)</i>
Serotine	<i>Eptesicus serotinus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Birds	
Corn Bunting	<i>Emberiza calandra</i>
Grey Partridge	<i>Perdix perdix</i>
House Martin	<i>Delichon urbicum</i>
House Sparrow	<i>Passer domesticus</i>
Linnet	<i>Linaria cannabina</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Robin	<i>Erithacus rubecula</i>
Skylark	<i>Alauda arvensis</i>
Song Thrush	<i>Turdus philomelos</i>
Starling	<i>Sturnus vulgaris</i>
Swift	<i>Apus apus</i>
Tits	<i>Paridae (family)</i>
Turtle Doves	<i>Streptopelia turtur</i>
Wagtails	<i>Motacilla (genus)</i>
Yellowhammer	<i>Emberiza citrinella</i>
Plants	
Lady's Bedstraw	<i>Galium verum</i>
Lizard Orchid	<i>Himantoglossum hircinum</i>
Great pignut	<i>Bunium bulbocastanum</i>
Reptiles & Amphibians	
Common lizard	<i>Zootoca vivipara</i>
Common toad	<i>Bufo bufo</i>
Great crested newt	<i>Triturus cristatus</i>
Slow worm	<i>Anguis fragilis</i>
Invertebrates	
<i>Argenna subnigra</i>	<i>Argenna subnigra</i>
Dolichopodid Flies	<i>Dolichopodidae (family)</i>
<i>Megalonotus Antennatus</i>	<i>Megalonotus antennatus</i>
Rove Beetles	<i>Staphylinidae (family)</i>
Sandrunner Shieldbug	<i>Galgupha schneideri</i>
Shore Bugs	<i>Saldidae (family)</i>
Weevil sp.	<i>Curculionoidea</i>
Yellow Meadow Ants	<i>Lasius flavus</i>

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APPENDICES

A. POLICY, LEGISLATION AND GUIDANCE

A.1.1 Tables A1.1 and A1.2 provide a summary of wildlife legislation and policy of relevance to development at the Site. Detailed descriptions of the legislation and national policy of relevance to ecology during the planning process are provided in a separate document produced by BMD which is available on request.

Table A1.1 Overview of species/species groups relevant to the current proposals and associated legislation and policy

Species/Species group	European	UK ¹	Priority species ²
Amphibians	See great crested newt	Various	Various, Incl. common toad
Badger		✓	
Bats (all species)	✓	Full	Species dependent
Birds		Full	Species dependent
Great crested newt	✓	Full	✓
Invasive species	✓	✓	Various, incl. multiple on Site
Invertebrates	Various	Various	Various
Mammals (general)		Species-dependent	Various, Incl. brown hare
Plants	Various	Species-dependent	Various
Reptiles (excluding sand lizard and smooth snake)		Partial – incl. killing and injury	✓
Notes ¹ Principally the Wildlife and Countryside Act: Full = full protection, either from the Wildlife and Countryside Act 1981 (as amended) alone or in combination between this act and European legislation; partial = partially protected. ✓ = covered by other specific legislation. ² Includes over 900 species listed in accordance with section 41 of the NERC Act (2006). Species known or most likely to utilise the Site are indicated where appropriate.			

Table A1.2 Relevant species legislation for development at the Site

Species / group	Legislation see notes												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Amphibians									✓				
Badger	✓					✓							✓
Bats (all species)				✓		✓		✓	✓				✓
Birds (nesting)		✓	✓						✓				
Fish									✓				
Invasive species							✓			✓	✓	✓	
Invertebrates									✓				
Hedgehog						✓			✓				✓
Brown hare						✓			✓				✓
Plants									✓				
Reptiles					✓				✓				
Notes ¹ Protection of Badgers Act 1992 ² Wildlife and Countryside Act, 1981 (as amended) – Part 1 ³ Wildlife and Countryside Act, 1981 (as amended) – Schedule 1 (some species a number of which were recorded within the Site) ⁴ Wildlife and Countryside Act, 1981 (as amended) – Schedule 5, Section 9 (4b, 4c) and (5) ⁵ Wildlife and Countryside Act, 1981 (as amended) – Schedule 5, Section 9 (1, in respect of killing and injuring) and (5) ⁶ Wildlife and Countryside Act, 1981 (as amended) – Schedule 6, Section 11													

Species / group	Legislation see notes												
	1	2	3	4	5	6	7	8	9	10	11	12	13
⁷ Wildlife and Countryside Act, 1981 (as amended) – Schedule 9, Section 14 ⁸ Conservation of Habitats and Species Regulations 2017 – Schedule 2 (European protected species) ⁹ Natural England and Rural Communities Act (2006) – Various species listed in accordance with Section 41 ¹⁰ Invasive Species regulations: EU Regulation (1143/2014) on invasive alien (non-native) species ¹¹ Anti-social Behaviour, Crime and Policing Act 2014 ¹² Environmental Protection Act 1990 ¹³ Wild Mammals (Protection) Act 1996													

A.1.2 Key planning policies / documents are:

- Environment Act 2021;
- Schedule 7A of the Town and Country Planning Act (1990);
- The National Planning Policy Framework (2025); and
- The Natural Environment and Rural Communities (NERC) Act (2006).

B. BASELINE SURVEY RESULTS

B.1 Desk study data

B.1.1 A data search on *MAG/C* and other web-based data sources was completed on 15th April 2022. A summary of features checked is provided in Tables B1.1. to B1.5.

B.1.2 A review of the Woodland Trust Ancient Tree Inventory (Woodland Trust, 2021) as of 15/04/2022 highlighted no known ancient, veteran or notable trees on the Site or within 1 km.

Table B1.1 Statutory nature conservation sites within 2 km of the Site (extending to 5 km for European designated sites)

Site designation	Number of sites				
	Total	On Site	0-1 km	1-2 km	2-5 km
AONB	0	0	0	0	0
LNR	4	0	2	0	2
NNR	0	0	0	0	0
National Park	0	0	0	0	0
Ramsar	0	0	0	0	0
SSSI	0	0	0	0	0
SAC	0	0	0	0	0
SPA	0	0	0	0	0
Impact Risk Zone	No				

Table B1.2 Priority (and notable) habitats within 1 km of the Site

Broad category	Priority Habitat Inventory	Other habitats	On Site	0-1 km
Coastal	Saltmarsh		0	0
	Sand Dunes		0	0
	Vegetated Shingle		0	0
	Maritime Cliffs and Slopes		0	0
	Mudflats		0	0
	Saline Lagoons		0	0
Grassland	Calaminarian Grassland		0	0
	Coastal and Floodplain Grazing Marsh		0	0
		Good quality semi-improved grassland (non-priority)	0	3 blocks of 6 parcels
	Lowland Calcareous Grassland		0	4 parcels
	Lowland Dry Acid Grassland		0	0
	Lowland Meadows		0	5 blocks of 8 parcels
	Purple Moor Grass and Rush Pasture		0	0
	Upland Calcareous Grassland		0	0
	Upland Hay Meadows		0	0

Broad category	Priority Habitat Inventory	Other habitats	On Site	0-1 km
Heath	Lowland Heathland		0	0
	Mountain Heaths and Willow Scrub		0	0
	Upland Heathland		0	0
Limestone pavements	Limestone Pavements		0	0
Marine	Intertidal Substrate Foreshore		0	0
Wetland	Blanket Bog		0	0
	Lowland Fens		0	0
	Lowland Raised Bog		0	0
	Reedbeds		0	0
	Upland Flushes, Fens and Swamps		0	0
Woodland		Ancient: Semi-natural	0	3 parcels
		Ancient: Replanted	0	1 parcel
	Deciduous Woodland		0	20 blocks of 46 parcels
		National Inventory of Woodland & Trees ¹	0	20 parcels
	Traditional Orchards		0	2 blocks of 4 parcels
	Wood pasture and Parkland BAP Priority Habitat		0	0
Trees ²		Ancient, veteran or notable trees	0	0
Other		Fragmented heath (Non-Priority)	0	0
		Grass Moorland (Non-Priority)	0	0
		No main habitat but additional habitat exists	0	0
	Open Mosaic Habitat		0	0
Notes 1. Not notable habitats but provide information to guide mitigation 2. Woodland Trust Ancient Tree Inventory				

Table B1.3 European Protected Species license applications within 1 km and 5 km (bats) of the Site. NB excluding GCN, see Table B1.4.

Protected species licence applications	Number of applications				
	Total	On Site	0-1 km	1-2 km	2-5 km
Bat	10		✓		✓
Species covered by the bat licences					
Alcathoe bat					
Barbastelle					
Bechstein's bat					
Brandt's bat					
Brown long-eared bat	9		✓		✓
Common pipistrelle	6		✓		✓
Daubenton's bat					
Greater horseshoe bat					

Protected species licence applications	Number of applications				
	Total	On Site	0-1 km	1-2 km	2-5 km
Grey long-eared bat					
Leisler's bat					
Lesser horseshoe bat					
Nathusius pipistrelle					
Natterer's bat					
Noctule					
Pipistrelle sp.					
Serotine					
Soprano pipistrelle	2				✓
Whiskered bat					
Notes 1. As depicted on <i>MAGIC</i>					

Table B1.4 Great crested newt data within 1 km of the Site

Data source	Number of records		
	Total	On Site	0-1 km
NE Class licence database ¹	0	0	0
NE country-wide survey data ¹	0	0	0
Development licenses ¹	0	0	0
Notes 1. As depicted on <i>MAGIC</i>			

Table B1.5 Notable fauna in relation to the Site

Species	On Site	0-1 km
Farmland bird assemblages¹		
Arable (max number of species)	5	6
Grassland (max number of species)	3	3
Black grouse		
Cirl bunting		
Corn bunting	✓	✓
Curlew		
Grey partridge	✓	✓
Lapwing	✓	✓
Redshank	✓	✓
Snipe		
Stone curlew	✓	✓
Tree sparrow	✓	✓
Turtle dove	✓	✓
Twite		
Yellow wagtail	✓	✓
Mammals		
European hedgehog ²	1	56
Notes As depicted on <i>MAGIC</i> Aa depicted on the Big Hedgehog Map (PTES, 2021)		

Priority Habitats

B.1.3 The following UK Priority Habitats occur (as depicted on MAGIC) within 1 km of the Site:

Good quality semi-improved grassland: 3 blocks of 6 parcels, the closest of which lies approximately 10 m from the Site across North Road to the northwest of the Site.

Lowland calcareous grassland: 4 parcels, the closest of which lies adjacent the Site to the to the south associated with Weston Hills LNR.

Lowland meadow: 5 blocks of 8 parcels, the closest of which is located approximately 100 m northwest of the Site associated with landscape around the River Ivel corridor.

Traditional orchard: 2 blocks of 4 parcels, the closest of which is located approximately 280 m southwest of the Site.

Deciduous woodland: 20 blocks of 46 parcels, the closest of which is located adjacent the Site at the southern boundary to Weston Hills LNR.

No main habitat but additional habitats present: 1 parcel which is located approximately 380 m northwest of the Site.

Notable Habitats (including irreplaceable habitat and Priority habitat)

B.1.4 The following UK Notable Habitats occur (as depicted on MAGIC) within 1 km of the Site:

Semi-natural ancient woodland: 3 parcels associated with Weston Hills LNR, these parcels are located approximately 640 m southeast of the Site.

Replanted ancient woodland: 1 parcel associated with Weston Hills LNR, this parcel is located approximately 980 m southeast of the Site.

B.1.5 A review of the Woodland Trust Ancient Tree Inventory (Woodland Trust, 2022) as of 15/04/2022 highlighted no known ancient, veteran or notable trees on the Site or within 1 km.

National Habitat Networks Map

B.1.6 The following UK National Habitat Networks occur (as depicted on MAGIC) within the Site:

Fragmentation Action Zone: A small area of grassland within the Site to the far west associated with the LWS within Enhancement Zone 1 that connects existing patches of primary and associated habitats which are currently highly fragmented and where fragmentation could be reduced by habitat creation.

Network Expansion Zone: An area of grassland and arable to the south of the Site lies within the expansion zone. These are areas of land beyond the Network Enhancement Zones with potential for expanding, linking/joining networks across the landscape.

Network Enhancement Zone 1: A small area of grassland to the south of the Site lies within Enhancement Zone 1. These are areas of land connecting existing patches of primary and associated habitats which is likely to be suitable for creation of the primary habitat.

Network Enhancement Zone 2: An area west of the Site associated with the Fragmentation Action Zone is within Enhancement Zone 2. These are areas of land connecting existing patches of primary and associated habitats which is less likely to be suitable for creation of the primary habitat 2 areas.

Hertfordshire Ecological Networks Map

- B.1.7 There are areas of habitat within the Site that occur within the Hertfordshire Ecological Networks Map:

Existing S41 NERC Act Habitat: A number of small areas of existing S41 NERC habitats occur on Site. These include areas of chalk grassland within Clothall Common and Ivel Springs.

Existing Habitat not currently qualifying under S41 NERC Act: A number of small areas of existing habitats not currently qualifying under S41 NERC occur on Site. These include areas of calcareous and neutral grassland within Clothall Common and Ivel Springs.

No Habitats Mapped (high priority for habitat creation): Small areas of this category are shown within the Site. These are extensions of existing S41 NERC habitats, including target areas of chalk grassland.

No Habitats Mapped (medium priority for habitat creation): The majority of the Site falls under this category dominated by arable land, residential, grassland and current development.

No Habitats Mapped (lower priority for habitat creation): A small area of the Site within the north falls under this category. Habitats within this area are primarily arable.

LNR GREENSPACE ACTION PLANS

- B.1.8 Greenspace action plans (2020-2025) exist for both statutory designated sites of nature conservation importance within 2km of the Site. Both sites are summarised below, however a more detailed evaluation can be found in BMD.21.0045.RPE-TN.806.EcoHeadlines.

Ivel Springs Greenspace Action Plan

- B.1.9 Ivel Springs LNR is situated to the north western boundary of the Site. Ivel Springs Local Nature Reserve is a 15 hectare open space just north of Baldock which is owned by North Herts Council and managed in partnership with the Countryside and Rights of Way Service (CRoW) and Friends of Baldock Green Spaces (FoBGS).
- B.1.10 The site was designated a Local Wildlife Site in 2007 and over time a diverse mosaic of habitats has developed, including wildflower meadows, hedgerows, reedbeds, wetlands and woodland. Chalk springs on the site give rise to the River Ivel which flows north into Bedfordshire to join the Great Ouse River.
- B.1.11 The meadow contains a wide range of wildflowers including common knapweed, cowslip, yellow rattle and common birds-foot trefoil, along with more unusual species such as pyramidal orchid and common broomrape. The woodland contains a variety of tree species including alder and a range of willow trees, as well as a number of fruit trees. The mosaic of habitats hosts a broad range of bird species, and evidence of water vole has been recorded in the wetland areas.

Weston Hills Greenspace Action Plan

- B.1.12 Weston Hills is a mixture of broadleaved woodland, ancient species-rich grassland and scrub-grassland mosaic, covering a north-west facing chalk slope overlooking the western edge of Baldock, North Hertfordshire. The 17 hectare site is listed as both a Local Nature Reserve (LNR) and a Local Wildlife Site (LWS) in recognition of its importance for biodiversity.

- B.1.13 Weston Hills supports ancient chalk grassland, with a diverse plant community which is important for invertebrates including butterflies. Other habitats noted in the LWS citation are secondary chalk grassland, beech plantation transitioning to secondary woodland, and open and closed scrub.

Protected Species

Bats:

- B.1.14 The Site does not lie within 5 km of a statutory designated site of nature conservation importance designated for bats.
- B.1.15 A search on MAGIC returned ten bat development licence applications within 5 km of the Site. The details of these applications are listed below in Table B1.6.

Table B1.6 Development bat license applications within 5 km of the Site identified during the data search

Species	Date	Proximity (distance/direction) & connectivity to Site	Licensed activity
Brown long-eared and soprano pipistrelle bat	01/03/2016-31/03/2021	~ 4 km southeast Some connectivity to the Site via arable landscape, woodland parcels/edges and hedgerows.	Destruction of a resting place
Brown long-eared and soprano pipistrelle bat	19/04/2016-31/03/2021	~ 4 km southeast Some connectivity to the Site via arable landscape, woodland parcels/edges and hedgerows.	Destruction of a resting place
Common pipistrelle	18/03/2014-30/09/2016	~ 600 m west Good connectivity to the Site via arable landscape, residential pathways and urban features.	Damage to a resting place Destruction of a resting place
Brown long eared bat	04/12/2012-30/09/2015	~5 km southeast Some connectivity to the Site via arable landscape, woodland parcels/edges and hedgerows.	Destruction of a resting place
Brown long eared and common pipistrelle bat	23/04/2013-30/08/2014	~3.6 km south Some connectivity to the Site via residential pathways, arable landscape and woodland parcels/edges.	Destruction of a resting place
Brown long eared and common pipistrelle bat	24/11/2017-31/01/2022	~3.6 km south Some connectivity to the Site via residential pathways, arable landscape and woodland parcels/edges.	Destruction of a resting place
Brown long eared and common pipistrelle bat	17/01/2017-17/01/2017	~3.6 km south Some connectivity to the Site via residential pathways, arable landscape and woodland parcels/edges.	Destruction of a resting place
Brown long eared and common pipistrelle bat	19/09/2011-31/12/2012	~ 840 m west	Destruction of a resting place

Species	Date	Proximity (distance/direction) & connectivity to Site	Licenced activity
		Good connectivity to the Site via arable landscape, residential pathways and urban features.	
Brown long eared bat	07/04/2016-30/04/2021	~3.5 km northwest Some connectivity to the Site via watercourses, woodland parcels and arable landscape.	Destruction of a resting place
Brown long eared and common pipistrelle bat	08/05/2014-30/08/2014	~3.6 km south Some connectivity to the Site via residential pathways, arable landscape and woodland parcels/edges.	Destruction of a resting place

Great Crested Newt:

- B.1.16 No waterbodies are present within the Site other than dry ditch courses. However, a number of waterbodies are present within 500 m of the Site, this includes: an agricultural drain that runs along the western boundary of the Site; the River Ivel watercourse that runs south-northwest adjacent North Road approximately 60 m northwest of the Site. However, considering that these are not standing water, it is considered that generally the site lacks suitable breeding habitat for great crested newt.
- B.1.17 A review of *MAGIC* returned no great crested newt licence returns within 1 km of the Site.
- B.1.18 No European protected species applications for great crested newt were granted within 1 km of the Site.

Other Protected Species:

- B.1.19 No other European Protected Species development licence applications were identified within 1 km of the Site, as depicted on *MAGIC*.
- B.1.20 Table B1.7 summarises the protected species records, by the Hertfordshire Ecological Records Centre (HERC), returned 25/03/2022, that occur within 1 km (2 km for bats) of the Site within the last 10 years.

Table B1.7 Protected species recorded within 1 km (2 km for bats) of the Site (as provided by HERC, 25/03/22)

Species	Level of protection ¹	Summary of records ²		
		N ^o , distribution & connectivity	Distance, direction & date	
			Nearest	Most recent
Amphibians & Reptiles				
Common lizard	UK (En)	2 records, both with good connectivity to the Site via grassland, woodland edges and scrub.	Adjacent to the Site, within the centre, along Royston Road -/07/2014	Adjacent to the Site, within the centre, along Royston Road -/07/2014

Species	Level of protection ¹	Summary of records ²		
		N- ^o , distribution & connectivity	Distance, direction & date	
			Nearest	Most recent
Slow-worm	UK (En)	2 records with good connectivity to the Site via grassland, scrubland and woodland parcels.	~50 m south (associated with Weston Hills) /04/2012	~50 m south (associated with Weston Hills) /04/2012
Bats				
Bat species	EU & UK (En.)	3 records, all with good connectivity to the Site via residential pathways, woodland parcels, arable landscape and hedgerows.	~610 m west -/-/2015	~610 m west -/-/2015
Brown long-eared bat	EU & UK (En.)	4 records, all with some connectivity to the Site via urban pathways, hedgerows, woodland and the River Ivel.	~450 m west 24/01/2018	~450 m west 24/01/2018
Common pipistrelle	EU & UK (En.)	4 records, all with good connectivity to the Site via urban/residential pathways, river corridors, woodland and hedgerows.	~290 m southwest 03/08/2018	~290 m southwest 03/08/2018
Long-eared bat species	EU & UK (En.)	1 record with some connectivity to the Site via urban/residential pathways, river corridors, woodland and hedgerows.	~1.8 km southeast 12/06/2017	~1.8 km southeast 12/06/2017
Myotis species	EU & UK (En.)	1 record with some connectivity to the Site via hedgerows, woodland parcels and arable landscape.	~1.9 km southeast 12/06/2017	~1.9 km southeast 12/06/2017
Noctule bat	EU & UK (En.)	1 record with some connectivity to the Site via urban/residential pathways, river corridors, woodland and hedgerows.	~2 km west 11/06/2015	~2 km west 11/06/2015
Pipistrelle bat species	EU & UK (En.)	3 records in 2 locations, all of which have some connectivity to the Site via arable landscape, woodland parcels, residential/urban features and hedgerows.	~1.4 km northwest 10/10/2017	~2 km southeast 30/04/2021
Serotine	EU & UK (En.)	2 records with some connectivity to the Site via hedgerows, woodland parcels and watercourses.	~1.4 km northwest 10/10/2017	~1.4 km northwest 10/10/2017
Soprano pipistrelle	EU & UK (En.)	1 record with some connectivity to the Site via watercourses, arable landscape, woodland parcels, residential/urban features and hedgerows.	~2 km west 11/06/2015	~2 km west 11/06/2015
Birds				
Black redstart	UK (En.)	2 records, both with some connectivity to the Site via residential/urban features and arable landscape.	~620 m east 01/04/2013	~620 m east 01/04/2013

Species	Level of protection ¹	Summary of records ²		
		N- ^a , distribution & connectivity	Distance, direction & date	
			Nearest	Most recent
Brambling	UK	1 record with good connectivity to the Site via residential/urban features, arable landscape and hedgerows.	~610 m west 28/03/2018	~610 m west 28/03/2018
Firecrest	UK (En.)	1 record with good connectivity to the Site via woodland parcels, edges and hedgerows.	~620 m south 15/05/2016	~620 m south 15/05/2016
Fieldfare	UK	50 records in 9 locations, with the vast majority having good connectivity to the Site via arable landscape, grassland, field margins and hedgerows.	Onsite (along the western boundary adjacent Clothall Common) 01/12/2018	~950 m east 28/12/2018
Hen harrier	UK (En)	3 records in 2 locations, all with good connectivity to the Site via arable landscape, grassland and woodland.	~60 m east 07/07/2015	~60 m east 07/07/2015
Hobby	UK (En)	12 records in 5 locations, with the vast majority having good connectivity to the Site via arable landscape, grassland and woodland.	~400 m southwest 20/09/2014	~1 km northwest 09/05/2016
Merlin	UK (En)	6 records in 4 locations, all of which have good connectivity to the Site via arable landscape, grassland, field margins and hedgerows.	~920 m east 23/09/2018	~920 m east 23/09/2018
Montagu's harrier	UK (En)	7 records in 3 locations, all of which have good connectivity to the Site via grassland and arable landscape.	~60 m east 06/07/2015	~1 km southwest 07/07/2015
Peregrine falcon	EU & UK (En.)	7 records in 2 locations, all of which have good connectivity to the Site via grassland, urban features and arable landscape.	~390 m west 24/01/2015	~390 m west 24/01/2015
Quail	UK (En)	3 records in 2 locations, all of which have good connectivity to the Site via grassland and arable landscape.	~730 m northeast 15/07/2014	~1 km southwest 05/07/2017
Red kite	UK (En)	70 records in 9 locations, the majority of which have good connectivity to the Site via arable landscape, grassland, field margins and hedgerows.	Onsite (along the western boundary adjacent Clothall Common) 22/09/2018	Onsite (along the western boundary adjacent Clothall Common) 22/09/2018
Redwing	UK (En)	28 records in 6 locations, the majority of which have good connectivity to the Site via arable landscape, grassland, field margins and hedgerows.	Onsite (along the western boundary adjacent Clothall Common) 01/12/2018	Onsite (along the western boundary adjacent Clothall Common) 01/12/2018
Barn owl	UK (En)	18 records in 4 locations, the majority of which have good	~430 m east 14/02/2017	~960 m northeast

Species	Level of protection ¹	Summary of records ²		
		N- ^o , distribution & connectivity	Distance, direction & date	
			Nearest	Most recent
		connectivity to the Site via arable landscape, grassland, field margins and hedgerows.		11/03/2017
Western marsh harrier	UK (En)	1 records with slight connectivity to the Site via grassland and watercourses.	~490 m west 17/08/2015	~1 km southwest 05/07/2017
Mammals				
Eurasian badger	UK (En.)	12 records in 13 locations, with the vast majority having good connectivity to the Site via hedgerows, arable field parcels and grassland.	Onsite (within north-western hedgerow adjacent North Road) 31/03/2015	~400 m west 23/03/2020
European water vole	UK (En)	1 record associated with the River Ivel, this record has some connectivity to the Site via watercourses.	~230 m west -/2014	~230 m west -/2014
Polecat	UK (En)	1 record with direct connectivity within the hedgerow and arable landscape within the centre of the Site north of Bygrave Road.	Onsite (within the centre of the Site north of Bygrave Road) 02/03/2015	Onsite (within the centre of the Site north of Bygrave Road) 02/03/2015
Notes 1. EU – European; UK – UK; (En) – also a notable species in England, e.g. UK Priority/S41 species. Refer to Glossary for details and definitions. 2. As provided by Hertfordshire Biological Records Centre.				

Notable Species (including Priority species)

- B.1.21 There are five arable bird assemblages with a maximum of five species, as depicted by *MAGIC*, overlapping the Site's boundaries. Three additional arable bird assemblages with a maximum of six species are present within 1 km of the Site. Furthermore, two grassland bird assemblages with a maximum of three species overlapping the Site's boundaries. Species that have shown to form assemblages within 1 km of the Site include corn bunting, grey partridge, lapwing, redshank, stone curlew, tree sparrow, turtle dove and yellow wagtail. All of these species overlapped with the Site boundaries itself. Therefore, there is potential that such species may occur on or use the Site if suitable habitat is present.
- B.1.22 Corn bunting, grey partridge, lapwing, tree sparrow, turtle dove and yellow wagtail are also noted as Priority species (s41) in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006).
- B.1.23 There are a total of fifty-seven hedgehog records present within 1 km of the Site as depicted on the Big Hedgehog Map (PTES, 2022) as of the 15/04/2022. The closest of these records borders the Site itself near to the centre along Royston Road, while the vast majority of additional records are located southwest of the Site with strong connectivity via residential gardens and hedgerows.

BMD

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