Emma Platts BSc (Hons)
Graduate Ecologist
Email: [redacted]
Arbtech Consulting Ltd
[redacted]

Preliminary Ecological Appraisal

Survey site:

Colne Spring Villa, Coursers Road, Colney Heath, AL4 0PB

Client:

Manor Coliving Limited

Survey date:

10th July 2024

Project:

This report is prepared to inform a planning application with St Albans District Council. The proposal is described as:

Development of 9No Ecoliving Cottages

PEA survey methodology and legislation can be found in the Arbtech Supplement: PEA Methodology and Legislation - 2024.

Executive Summary

The following is work you will need to commission to obtain planning permission and to comply with legislation. Further information, along with opportunities for biodiversity enhancement, are outlined in Table 3 & 4 of this report.

Feature	Survey Results Summary	Impact Assessment	Recommendations
Off site habitats	Colney Heath Local Nature Reserve (LNR) is located ~150m west from the site, across a main road. Colney Heath LNR is one of the few remaining acid heathlands in Hertfordshire. The site lies within the zone of influence for Wormley Hoddesdonpark Wood Special Area of Conservation (SAC).	No direct impacts to any designated sites will occur as a result of the proposed development. However, due to the proximity of the site to Colney Heath LNR and the possible presence of non-statutory designations in the vicinity, indirect effects such as pollution or habitat damage could occur during construction.	A Construction Ecological Management Plan (CEMP) may be required, outlining best practice measures to delineate the construction zone and to minimise the possibility of pollution and damage to nearby habitats, including Colney Heath LNR, during construction. The Local Planning Authority (LPA) may be required to undertake a Habitat Regulations Assessment (HRA) to determine whether there could be any effect on nearby European sites as a result of the proposed development.
On site habitats	The site comprises coniferous woodland, amenity grassland, hard standing, a building and a pond. Habitats on site are common and are of ecological value.	The proposed development will result in the loss of ~0.2 hectares of coniferous woodland. This is likely to result in a net loss in biodiversity at the site. In addition, indirect effects as pollution or habitat damage could occur during construction.	The proposed development may require a Biodiversity Net Gain assessment, to calculate the value of habitats on site and ensure the delivery of a minimum of 10% measurable biodiversity net gain. A Construction Ecological Management Plan (CEMP) may be required, outlining best practice measures to delineate the construction zone and to minimise the possibility of pollution and damage to retained habitats on site.
Roosting bats (T4)	T4 is a mature pine *Pinus sp*, measuring 50cm DBH, and hosts	The proposed development will result in the felling of T4. This could result in	A close-up inspection of the PRFs identified from ground-level will be required to determine their

	trunk decay and an associated hole ~3m above ground level, which could support roosting bats.	the destruction of any bat roosts present and could cause disturbance, death or injury to bats.	suitability for bats (i.e. PRF-I or PRF-M). This can be done using a ladder and should be carried out by a class 2 licenced ecologist.
Foraging and commuting bats	The woodland on site provides very good foraging and commuting habitat. The site is well connected to more extensive woodland habitats and could form part of an established commuting route throughout the landscape. The site could also be used by bats dispersing from nearby roosts outside of the site.	The proposed development will result in the loss of ~0.2ha of coniferous woodland. This could reduce the availability of foraging or commuting resources in the locality and could also disrupt dispersal corridors for bats leaving or returning to roosts in the wider area. Construction works and external lighting fixtures on the proposed development could include the use of lighting which could spill onto bat foraging and commuting habitat and could deter bats from using these areas.	Bat activity surveys, comprising walked transects and static monitoring, will be required to determine the usage of the site by foraging and commuting bats as well as to identify the likely presence or absence or any bat roosts in the vicinity. A low impact lighting strategy will be adopted for the site during and post-development, which will be designed to incorporate the measures laid out in the latest (2023) bat lighting guide **Guidance Note 8 Bats and Artificial Lighting[1].**
Great crested newts	The site lies within an amber risk zone for great crested newts, indicating suitability and likelihood of presence. There are no ponds on site. A review of aerial imagery indicates the presence of five ponds within 500m. Three of which are located	The proposed development will result in the loss of ~0.2ha of coniferous woodland within 100m of two potential breeding ponds, if great crested newts are present. When completing the rapid risk assessment published by Natural England (Natural England 2015), the proposed	Environmental DNA (eDNA) surveys will be required of any ponds within 250m of the site (where accessible), comprising the two ponds within the ownership boundary, to determine the presence or absence of great crested newts. An alternative route would be participation within the Natural England District Level Licensing (DLL) scheme.

[1]Bat Conservation Trust/Institute of Lighting Professionals (2023). Guidance Note 8 Bats and Artificial Lighting. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/

	within 100m of the development, within the ownership boundary, and are well connected via woodland and grassland. The site hosts good terrestrial habitat for amphibians.	development produces an “amber” risk score, which states “offence likely”.	

Contents

Introduction and Context

Introduction

The aim of the PEA was to obtain data on existing ecological conditions, and to conduct a preliminary assessment of the likely significance of ecological impacts on the proposed development. No previous ecology reports have been produced for this site by Arbtech Consulting Ltd or, to the author's knowledge, by any other consultancy.

Limitations

Whilst every effort has been made to describe the baseline conditions within the survey area, and evaluate these features, this report is a preliminary assessment and does not provide a complete characterisation of the site. Nor does it represent a full botanical assessment. It assesses the likelihood of protected, notable and important habitats and species being present, based on a site and landscape level habitat value-based risk assessment. This is based upon the ecology, biology and known distribution of species as currently understood.

A biological records data search has not been undertaken. This report should be updated once this has been obtained.

The survey took place in summer, and as such any notable spring ground flora may have been missed.

All limitations have been taken into account during the evaluation of the site and requirement for further surveys and mitigation.

Results, impacts and recommendations

Site Location and Landscape context

Table 1: Site location and Landscape context

Ecological Survey Factor	Conclusion, Impact or Recommendations
Site location	
The site is located at National Grid Reference TL 20620 05372 and has an area of approximately 0.9ha comprising coniferous woodland, hard standing, buildings, bramble scrub, modified grassland and a pond The site is located in a semi-rural setting, ~5700m east from the town of St Albans. It is set within residential grounds and is immediately surrounded by residential infrastructure to the north, grassland, woodland and River Colne to the east, woodland to the south, and Coursers Road to the west, with grasslands beyond this. The wider landscape comprises a mosaic of agricultural fields, grasslands, woodland pockets, parkland, and gravel quarries. Residential and commercial infrastructure is scattered throughout, with three major roads enclosing much of the local landscape, including the A1 motorway, running in a north-south orientation ~1300m east from the site, the M25 motorway, running in an east-west orientation ~2600m south from the site, and the A414 dual carriageway, running in a southwest-northeast orientation ~1420m northwest from the site. The underlying geology comprises Kesgrave sand and gravel, overlain by freely draining slightly acid loamy soils. The area is hydrologically active, with River Colne located within the ownership boundary, running in a north-south orientation ~40m to the east of the development boundary. In addition, a network of flooded gravel pits are present to the west. A site location plan can be found in Appendix 2.	
Locality and Designated Sites	
Summary of Survey Findings	There are seven priority habitats located within 2 km of the site. These comprise good quality semi-improved grassland, floodplain grazing marsh, lowland heathland, chalk river, traditional orchards, deciduous woodland, and ancient woodland. The closest priority habitat comprises deciduous woodland, located within the ownership boundary, ~25m east of the development boundary. The site is well connected to nearby habitats, owing largely to high value habitats associated with the River Colne, including woodland and grasslands, which offer commuting corridors for terrestrial, riparian and aerial fauna. There is 1x statutory site within 2km of the site, Colney Heath Local Nature Reserve (LNR), located ~150m west from the site. Colney Heath LNR is one of the few remaining acid heathlands in Hertfordshire.

	The site lies within the impact risk zone for Redwell Wood Site of Special Scientific Interest (SSSI) and Water End Swallow Holes Site of Special Scientific Interest (SSSI), however the proposed development type is not listed as a possible high risk with regard to this designation. The site lies within the zone of influence for Wormley Hoddesdon park Wood Special Area of Conservation (SAC), located ~10660m east from the site. The presence of non-statutory designated sites within 2km of the site cannot be established without data from Herts Environmental Records Centre. It is possible that habitats surrounding the sites are of designable quality and are therefore considered in a precautionary manner.
Impacts	No direct impacts to any designated sites will occur as a result of the proposed development. However, due to the proximity of the site to Colney Heath LNR and the possible presence of non-statutory designations in the vicinity, indirect effects such as pollution or habitat damage could occur during construction.
Recommendations	A Construction Ecological Management Plan (CEMP) may be required, outlining best practice measures to delineate the construction zone and to minimise the possibility of pollution and damage to nearby habitats, including Colney Heath LNR, during construction. The Local Planning Authority (LPA) may be required to undertake a Habitat Regulations Assessment (HRA) to determine whether there could be any effect on nearby European sites as a result of the proposed development.

Habitats and Flora

The site survey was undertaken by Emma Platts BSc, Graduate Ecologist (Accredited Agent to Natural England Level 2 bat licence number 2018-33540-CLS-CLS)

Table 2: survey weather conditions

Date of survey	Temperature (°C)	Humidity (%)	Cloud Cover (%)	Wind (km/h)	Rain
10/08/2024	77	87	90	13	None

Table 3: Habitats and Flora

Ecological Survey Factor	Conclusion, Impact or Recommendations *This table may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.*
Onsite habitats	
Summary of Survey Findings	<u>Other coniferous woodland, pond (w2c, 41)</u> The site hosts an area of coniferous woodland (Figure 1). A review of historic imagery indicates the woodland is well established, with records suggesting this formed part of a conifer plantation since at least the 1800s. The woodland is not listed as ancient. The woodland hosts one main age class, comprising mature trees. Tree mortality totals ~10% of the woodland, with standing and lying deadwood present and anecdotal conversations on the site indicating numerous trees fall annually. No veteran trees are present. ~20% of the woodland hosts areas of temporary open space, owing to a driveway which runs through the woodland, and clearings from fallen trees. Species are largely non-native, comprising dominant European larch *Larix decidua,* and pine *Pinus sp.,* occasional oak *Quercus robur,* and rare holly *Ilex aquifolium*, elder *Sambucus nigra* and birch *Betula sp.* No invasive species were present in the woodland. In accordance with the Statutory Biodiversity Metric Condition Assessment Matrix, the woodland was assessed to have a poor condition value.

	A small, isolated stretch of bramble *Rubus fruticosus* scrub is present to the west of the woodland. This appears dense, measuring up to 1m in height. The understorey of the woodland otherwise lacks shrubs layers and ground vegetation, with no recognisable NVC plant community present. Minor evidence of compaction is evidence, owing to storage of some machinery, totalling <10% of the woodland. A small number of log piles were present throughout the woodland. A pond is located on the eastern edge of the woodland, to the south of the site (Figure 17). The pond is unlined and is not artificially connected to other waterbodies in the vicinity. The water quality is poor, with high turbidity. No aquatic vegetation was observed, with ruderal species scattered along the banks. The pond is not artificially stocked with fish. In accordance with the Statutory Biodiversity Metric Condition Assessment Matrix, the pond was assessed to have a moderate condition value. The site is enclosed with a combination of timber and chain link fencing, which was noted to be in good condition (Figure 3). <u>Developed land; sealed surface (u1b)</u> A gravel driveway runs through the woodland (Figure 2), with concrete paving slabs surrounding the residential buildings on site. <u>Buildings (u1b5)</u> A car port is located within the site (Figure 5). <u>Modified grassland, allotment (g4, 616)</u> An amenity lawn associated with residential dwellings are present to the east of the site (Figure 6). These are actively managed via regular mowing, resulting in a short sward of ~5cm. No signs of compaction or damage are present, resulting in areas of bare ground totalling <10% of the site. The grassland extends to a larger lawn to the south of the site. Four allotment beds are located to the north of the grassland (Figure 7). These appear to be lightly managed, and were overgrown with ruderal vegetation at the time of visiting.

	The grassland is species poor, with less than 8 vascular plant species present per m2. The assemblage includes abundant perennial ryegrass *Lolium perenne*, occasional Yorkshire fog *Holcus lanatus*, rough meadow grass *Poa trivialis*, daisy *Bellis perennis*, creeping buttercup *Ranunculus repens*, white clover *Trifolium repens*, ribwort plantain *Plantago lanceolata*, frequent self heal *Prunella vulgaris*, and rare common chickweed *Stellaria media* dandelion *Taraxacum officinale*, lesser trefoil *Trifolium dubium*, small flowered geranium *Geranium pusillum*. In accordance with the Statutory Biodiversity Metric Condition Assessment Matrix, the grassland was assessed to have a poor condition value. A habitat map can be found in Appendix 2.
Impacts	The proposed development will result in the loss of ~0.2 hectares of coniferous woodland. This is likely to result in a net loss in biodiversity at the site. In addition, indirect effects as pollution or habitat damage could occur during construction.
Recommendations	The proposed development may require a Biodiversity Net Gain assessment, to calculate the value of habitats on site and ensure the delivery of a minimum of 10% measurable biodiversity net gain. A Construction Ecological Management Plan (CEMP) may be required, outlining best practice measures delineate the construction zone and to minimise the possibility of pollution and habitat damage during construction. This should include: • Remove only the minimum of habitat required to facilitate the development. • Retained trees adjacent to the site will be protected in line with the measures outlined in the British Standard "Trees in Relation to Design, Demolition and Construction to Construction - Recommendations" (BS 5837) (2012). • Appropriate buffering between the development zone and retained habitats • Use of Heras or other appropriate fencing to prevent encroachment by contractors onto retained habitats. • Grasscrete, cell web or any other porous surface treatment facilitating recovery of vegetation is preferred to hard standing. • Protect retained turf and soil resource from destruction and compaction using plastic matting and wooden boarding. • Use of plastic matting, ply, cellweb or a similar appropriate product to protect retained turf.
Invasive/ Non-native species	

Summary of Survey Findings	No non-native invasive or otherwise problematic plants were recorded on site.
Impacts	None.
Recommendations	No further surveys but remain vigilant. When designing the planting scheme for the new garden areas, the planting of any Schedule 9 invasive species, or any other non-native woodland plants likely to escape into any semi natural habitats on site or adjacent must be avoided.

Fauna

Table 4: Fauna

Ecological Survey Factor	**Conclusion, Impact or Recommendations** *This table may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.*
Invertebrates	
Summary of Survey Findings	The woodland, grassland and pond on site will provide habitat for a variety of invertebrates. In particular the deadwood, and multiple log piles within the woodland could host saproxylic invertebrates. However, given the poor species diversity, the site is unlikely to support important species or assemblages.
Impacts	The proposed development will result in the loss of ~0.2 hectares of coniferous woodland. The loss of such habitats is likely to be inconsequential to local invertebrate populations owing to their low value and the presence of more extensive habitat locally.

Recommendations	The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for invertebrates: • Replanting of scrub habitat • Retention of log piles/dead wood • Planting of pollinator friendly grassland species • Installation of insect hotels • Relaxed mowing regime along grassland edges
Roosting bats	
Summary of Survey Findings	A review of MAGIC database found no granted European Protected Species Licenses (EPSL) for bats within 2km of the site. Shenley mine, located ~4000m south from the site, serves as a significant hibernation roost, and is well connected to the site via woodland, with the M25 serving a minor barrier for dispersal. The site was assessed for its suitability to host roosting bats. The buildings on site were not assessed as part of this, as they are not anticipated to be affected by the proposed development. Four trees on site were identified to host roosting features: T1: mature oak *Quercus r*obur, 100cm DBH, decay on eastern aspect ~10m above ground level, significant ivy coverage on main trunk (Figure 8 & 9) T2: mature oak *Quercus robur*, 100cm DBH, upper trunk hosts deadwood, with cracked/missing bark on all aspects. Knothole present on eastern aspect, ~3m above ground level (T10 & 11) T3: mature oak *Quercus robur*, 120cm DBH, multiple dead branches and crevices within ~3m+ above ground level (T12 & 13) T4: mature pine *Pinus sp*, 50cm DBH, decay and associated hole ~3m above ground level. (T13 & 15)
Impacts	<u>T1, T2, T3</u> T1, T2, T3 will be retained as a result of the development and as such no impacts are anticipated on roosting bats as a result of the development. <u>T4</u> The proposed development will result in the felling of T4. This could result in the destruction of any bat roosts present and could cause disturbance, death or injury to bats.
Recommendations	<u>T4</u>

	A close-up inspection of the PRFs identified from ground-level will be required to determine their suitability for bats (i.e. PRF-I or PRF-M). This can be done using a ladder and should be carried out by a class 2 licenced ecologist. The inspection will involve a detailed inspection of all features using a torch and endoscope. Following this inspection, the features will then be re-classified based on their suitability for roosting bats. Depending on the results of the close-up inspection further surveys may be required to determine bat presence/likely-absence or a recommendation to remove the trees under a precautionary working method statement
Foraging and commuting bats	
Summary of Survey Findings	The woodland, grassland and pond on site provides very good foraging and commuting habitat. The site is well connected to more extensive woodland habitats and could form part of an established commuting route throughout the landscape. The site could also be used by bats dispersing from nearby roosts outside of the site.
Impacts	The proposed development will result in the loss of ~0.2ha of coniferous woodland. This could reduce the availability of foraging or commuting resources in the locality and could also disrupt dispersal corridors for bats leaving or returning to roosts in the wider area. In addition, construction works and external lighting fixtures on the proposed development could include the use of lighting which could spill onto bat foraging and commuting habitat and could deter bats from using these areas.
Recommendations	Bat activity surveys, comprising walked transects and static monitoring, will be required to determine the usage of the site by foraging and commuting bats as well as to identify the likely presence or absence or any bat roosts in the vicinity, particularly those of high conservation value including maternity roosts. Due to the value of the habitats present on the site a total of three visits, one per season between spring and autumn or seven visits, one per month between April and October, will be required to gather sufficient information to enable a full assessment to be made. A low impact lighting strategy will be adopted for the site during and post-development, which will be designed to incorporate the measures laid out in the latest (2023) bat lighting guide **Guidance Note 8 Bats and Artificial Lighting**[2]**.**
Birds	
Summary of Survey Findings	The trees and scrub could be used by a variety of nesting birds. No evidence of nesting was identified at the time of visiting.
Impacts	The proposed development could result in the destruction or the disturbance and subsequent abandonment of active bird nests.

[2]Bat Conservation Trust/Institute of Lighting Professionals (2023). Guidance Note 8 Bats and Artificial Lighting. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/

Recommendations	Any vegetation removal should be undertaken outside the period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the vegetation should be undertaken immediately, by a qualified ecologist, prior to the commencement of work. All active nests will need to be retained until the young have fledged. Precautions should be taken with machinery and noise levels when working close to any retained nests so as not to disturb any nearby nesting birds during construction works. At least a 3-5m buffer should be created between any machinery and active nests until the young have fledged. The installation of a minimum of one bird box on each proposed dwelling will provide additional nesting habitat for birds. Bird boxes should be positioned approximately 3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight.
Reptiles	
Summary of Survey Findings	The woodland on sites provide good commuting opportunities for reptiles. The lack of ground vegetation and open understorey limits suitability for shelter and foraging, though the scrub will provide value. The wider landscape hosts more extensive habitat including woodland, grasslands and watercourses. Connectivity to and from the site is limited due to fencing enclosing the site almost entirely, which was noted to be in good condition, however reptiles can commute through gaps in fencing and as such their presence on site cannot be discounted. Any population present within the section of woodland on the site is likely to comprise transient individuals at low density and scattered distribution.
Impacts	The proposed development will result in the loss of ~0.2ha of coniferous woodland. The loss of such habitats is likely to be inconsequential to local reptile populations owing to their low value and the presence of more extensive habitat locally. However, site clearance could result in the death or injury of reptiles, if present.
Recommendations	Owing to the nature of the proposed development and the low potential for impacts to reptiles, further surveys are considered to be disproportionate A precautionary working method will be implemented for widespread reptiles during construction, including the following measures: • Site clearance will be undertaken outside of the reptile hibernation season (November to February) insofar as is possible. • A staged approach will be adopted for vegetation clearance, whereby the vegetation will be strimmed to 15cm and left overnight to allow any reptiles to disperse. The vegetation can then be cleared to ground level and must be maintained at this level for the duration of construction to deter reptiles from the working area.

	• Any brash or log piles will be dismantled by hand and debris and brash will be stored on pallets or removed from the site to prevent reptiles from utilising these areas. • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • Best practice pollution prevention measures will be implemented to minimise impacts to nearby habitats. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • If any reptiles are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance. The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for reptiles: • Retention of brash and log piles • Relaxed mowing regime along site edges
Amphibians	
Summary of Survey Findings	A review of MAGIC database found 3x granted European Protected Species Licenses (EPSL), and 7x class survey license returns for great crested newts within 2km of the site. These are all concentrated in a location ~850m southwest from the site. The site lies within an amber risk zone for great crested newts, indicating suitability and likelihood of presence. One pond is located on the site. A review of aerial imagery indicates the presence of four ponds within 500m. Two of which are located within 100m of the development, within the ownership boundary, and are well connected via woodland and grassland. P1 (Figure 16) is located on the eastern edge of the woodland, to the south of the site. It measures ~400m2. P2 hosts minimal emergent and marginal vegetation, limited to bramble *Rubus fruticosus* and remote sedge *Carex remota.* HSI calculations returned a 'good' score, indicating suitability for great crested newts. P2 (Figure 17) is located ~50m northeast from the site, within a residential garden. It is an ornamental pond which is brick built and artificially lined, hosting no aquatic vegetation and is stocked with a significant population of carp. It is therefore considered unsuitable to host great crested newts and has not been subject to a HSI calculation.

P3 (Figure 18) is located ~50m east of the site, within a wooded pocket, and fed by the nearby River Colne. It measures ~350m2. It hosts minimal emergent and marginal vegetation, comprising a small number of sedges. HSI calculations returned a 'good' score, indicating suitability for great crested newts.
The site hosts good terrestrial habitat for amphibians. The lack of understorey vegetation in the woodland and short sward of the grassland lowers overall suitability, however the log piles and bramble *Rubus fruticosus* scrub could provide refugia.

The presence of commuting and sheltering great crested newts and other common amphibians on site cannot be discounted.

Table 4a: HSI calculation of P1

SI Description	SI Value P1
Geographic location	1
Pond Area	0.8
Pond Permanence	0.5
Water Quality	0.67
Shade	0.5
Waterfowl Effect	1
Fish Presence	1
Pond Density	1
Terrestrial Habitat	0.67
Macrophyte Cover	0.4
HSI Score	**0.71**
HSI Category	**Good**

Table 4a: HSI calculation of P3

SI Description	SI Value P1
Geographic location	1
Pond Area	0.7
Pond Permanence	0.5
Water Quality	0.67
Shade	1
Waterfowl Effect	1
Fish Presence	1
Pond Density	1
Terrestrial Habitat	0.67
Macrophyte Cover	0.4
HSI Score	**0.75**
HSI Category	**Good**

Impacts	The proposed development will result in the loss of ~0.2ha of coniferous woodland within 100m of two potential breeding ponds, if great crested newts are present. When completing the rapid risk assessment published by Natural England (Natural England 2015), the proposed development produces an "amber" risk score, which states "offence likely".
Recommendations	Environmental DNA (eDNA) surveys will be required of any ponds within 250m of the site (where accessible), comprising the two ponds within the ownership boundary, to determine the presence or absence of great crested newts. This will comprise collecting water samples and sending them off for laboratory analysis and such surveys must be undertaken between mid-April and June, in accordance with current survey guidelines (Biggs et al, 2014). An alternative route would be participation within the Natural England District Level Licensing (DLL) scheme. This involves the payment of an agreed financial sum to the DLL scheme provider which will be used for GCN habitat creation in the local area. The DLL could be obtained without any further surveys.
Badger	
Summary of Survey Findings	The woodland and grassland on site offers foraging and commuting opportunities for badgers. The site is relatively flat and open, limiting sett excavation opportunities. No evidence of badgers was found on or within 30m of the site at the time of visiting. The surrounding habitat, in the form of woodland and grasslands, offers more extensive habitat for badgers. Connectivity to and from the site is limited due to fencing enclosing the site almost entirely, which was noted to be in good condition. Any population present is likely to comprise transient individuals at low density and scattered distribution.
Impacts	No works will be undertaken within 30m of a known badger sett. The proposed development will result in the loss of ~0.2ha of coniferous woodland. The loss of such habitats is likely to be inconsequential to local badger populations owing to their low value and the presence of more extensive habitat locally. However, construction activities could result in the death or injury of badgers, if present
Recommendations	Basic precautionary mitigation during works is recommended: • A pre-commencement inspection of the site will be undertaken for any new badger activity within three months of works commencing. • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to habitats which badgers could use.

	• Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • In the unlikely event that a badger sett is identified within 30m, works must cease and advise must be sought from a suitably qualified ecologist. The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for badgers: • Planting of fruiting trees such as damson and elder
Riparian animals	
Summary of Survey Findings	There are no riparian habitats on or adjacent to the site. The River Colne is located ~50m to the east of the development boundary, which hosts known populations of otters and water voles. Water voles are unlikely to travel such a distance inland. The presence of transient otters on site is unlikely but cannot be discounted.
Impacts	The proposed development will not result in the loss of any riparian habitats and no works will be undertaken within 10m of the watercourse. However, due to the presence of the watercourse within close proximity of the site, indirect effects such as pollution could occur during construction. Furthermore, construction activities could result in the death or injury of transient otters, if present.
Recommendations	A precautionary working method will be implemented during construction, including the following measures: • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to the watercourse and any retained habitats which otters or water voles could use. • Best practice pollution prevention measures will be implemented to minimise impacts to the watercourse and any retained habitats that otters or water voles could use. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • In the unlikely event that an otter holt or den, or evidence of water voles, is identified, works must cease and advise must be sought from a suitably qualified ecologist.

Hazel dormouse	
Summary of Survey Findings	The woodland on site lacks a complex structural layer to enable commuting opportunities for hazel dormice. Due to its coniferous nature, the site offers poor foraging opportunities, however the scrub on site may provide some shelter and foraging opportunities. The site is connected to more extensive coniferous plantations which are likely suboptimal for hazel dormice. As such, the presence of hazel dormice on site is considered unlikely but cannot be discounted.
Impacts	The proposed development will result in the loss of ~0.2ha of coniferous woodland. The loss of such habitats is likely to be inconsequential to local dormouse populations owing to their low value. However, site clearance could result in the death or injury of hazel dormice, if present.
Recommendations	A precautionary working method will be implemented during construction, including the following measures: • Scrub clearance will be undertaken outside of the dormouse hibernation season (November to March) insofar as is possible. • In the unlikely event that a dormouse or evidence of dormouse is identified, works must cease and advise must be sought from a suitably qualified ecologist. The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for dormice: • Planting of native fruiting species
Other e.g. hedgehog	
Summary of Survey Findings	The woodland on site offers suitable foraging and commuting opportunities for small terrestrial mammals such as hedgehogs and rabbits. In addition, the scrub on site may provide suitable shelter. Woodland and grassland surrounding the site offer more extensive habitat, and are likely to host established populations. Connectivity to and from the site is limited due to fencing enclosing the site almost entirely, which was noted to be in very good condition, however small mammals can commute through gaps in fencing and as such their presence on site cannot be discounted.
Impacts	The proposed development will result in the loss of ~0.2ha of coniferous woodland and scrub. The loss of such habitats is likely to be inconsequential to local hedgehog populations owing to the presence of more extensive habitat locally. However, construction activities could result in the death or injury of hedgehogs, if present.
Recommendations	A precautionary working method will be implemented during construction, including the following measures: • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape.

	• The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which hedgehogs could use. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • If any hedgehogs are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance. The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for hedgehogs: • Creation of fence gaps (14cm x 14cm) to enable small mammals to travel freely through the site

Appendix 1: Proposed development plan

Appendix 2: Site location plan

Appendix 3: Habitat Survey Plan

Appendix 5: Pond Plan

Appendix 6: Site photographs

Figure 1: coniferous woodland on site

Figure 2: gravel driveway, log piles on site

Figure 3: fencing enclosing the site

Figure 4: bramble scrub

Figure 5: car port

Figure 6: grassland on site

Figure 7: allotment beds

Figure 8: T1

Figure 9: T1 bark decay and cracks

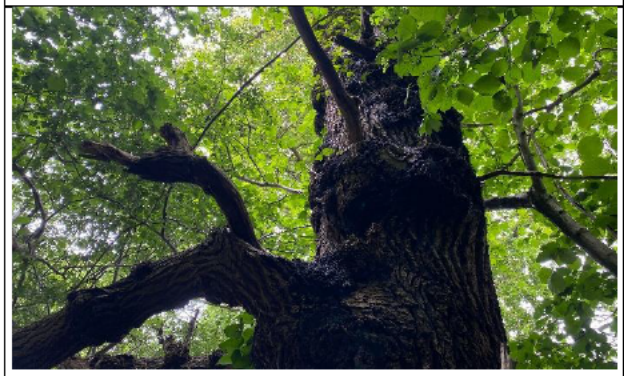

Figure 10: T2

Figure 11: T2 trunk decay

Figure 12: T3

Figure 13: T3 bark decay

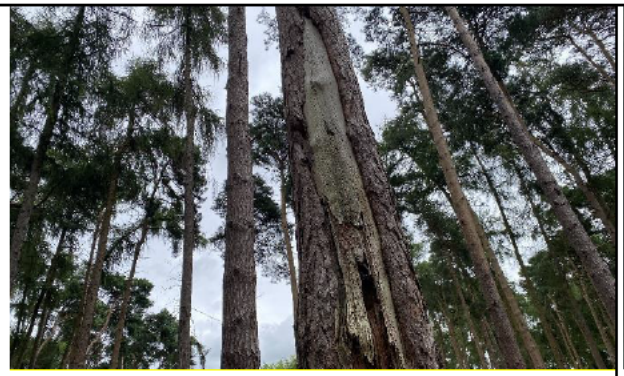

Figure 14: T4

Figure 15: T4 hole

Figure 16: P1

Figure 17: P2

Figure 18: P3

Version control

Status	Issue	Name	Date
Draft	1.0	Emma Platts Bsc (Hons), Graduate Ecologist	29/07/2024
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