ECOLOGICAL APPRAISAL REPORT:

152 High Street, Old Woking GU22 9JH

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EXECUTIVE SUMMARY

Proposed development

- Development proposals involve the building of a new dwelling at the northern end of the plot and landscaping of the remaining area of the plot.

Impacts

- The habitats contained within the site are largely of low ecological value.
- The proposals have the potential to impact foraging bats.
- The proposed development has the potential to impact breeding birds.
- The proposals have the potential to impact upon reptile species.

Further recommended surveys

- No further surveys are required.

Proposed mitigation

- Mitigation to reduce the impacts of artificial lighting upon foraging bats is detailed and additional mitigation measures will be provided upon completion of bat surveys.
- Mitigation to reduce impacts upon breeding birds is detailed.
- Mitigation to reduce impacts upon commuting and foraging mammals is detailed and further details should be provided as part of a working method statement.
- Mitigation proposed for widespread reptile species as an alternative to presence / absence surveys.

Enhancements

- It is suggested that the integration of bat roosting features are incorporated into the new building, to enhance the site for bats.
- Native species planting is recommended within the landscaping plan for the site.
- It is suggested that additional roosting opportunities for nesting birds is provided within the redevelopment scheme.
- Measures to enhance the site for invertebrates are suggested.
- Mitigation measures and enhancements should form part of Biodiversity Enhancements and Mitigation Plan, to be secured by a planning condition.

Conclusions

- The survey has identified a number of potential ecological constraints but with appropriate mitigation there will be no residual impacts.
- The enhancement measures advised will increase the net biodiversity on site.

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1.0 INTRODUCTION

1.1 Wychwood Environmental Ltd was instructed by Concept Developments to undertake a Preliminary Ecological Assessment to highlight the possible presence of protected species (e.g. bats, badgers, great crested newts, reptiles, and breeding birds) and/or habitat(s) of ecological/conservation value on the proposed development site at: 152 High Street, Old Woking GU22 9JH.

1.2 Surveys are necessary to collect information on habitats/protected species to provide necessary guidance and mitigation advice, to ensure that no valuable habitats/protected species are adversely affected by the proposed development.

1.3 The survey was completed to inform the Local Planning Authority (LPA) of any material impacts resulting from the proposed development and to ensure compliance with the requirements of the Natural Environment and Rural Communities (NERC) Act (2006) (Section 40) and the Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their impact within the Planning System (ODPM 06/2005, Defra 01/2005). The legislation relating to protected species is detailed in Annex 1.

1.4 Development proposals include the building of a dwelling at the northern end of the plot and landscaping of the remaining area of the plot. The location of the site is shown in Figures 1-4 (Annex 2). Full details of the proposed development are provided in the planning submission.

1.5 Section two of this report describes the methodologies used for survey work. Section three provides the results of these surveys, sections four and five provide discussion and implications for development, with further surveys and mitigation covered in section six and enhancement recommendations are made in section seven.

2.0 METHODOLOGY

Habitat Survey

2.1 A Preliminary Ecological Assessment (PEA) of the site was undertaken, following standard extended Phase 1 habitat survey protocols (IEA, 1995), by Andrew Perkin PhD on 17th January 2023. This involved systematically walking over the site and classifying each parcel of land based on vegetation, into one of approximately 90 habitat types (JNCC, 2010).

2.2 A search for any invasive non-native species, as listed under Schedule 9 of the Wildlife and Countryside Act 1981, as amended,[1] such as Japanese knotweed (*Fallopia japonica*) was also carried out.

2.3 Any habitats or features of interest and any sightings, signs or evidence of protected or notable fauna or any potential habitats suitable for such species, were assessed as detailed below:

- The suitability of habitats was assessed for amphibians (including great crested newts, *Triturus cristatus*)[2];
- The suitability of habitats was assessed[3] for badgers (*Meles meles*) and any evidence including setts, dung pits/ latrines, badger paths, hairs, bedding, footprints and scratching of trees/ shrubs was noted;
- The suitability of the habitats was assessed for dormice (*Muscardinus avellanarius*);
- The suitability of the habitats was assessed for hedgehog (*Erinaceus europaeus*);
- Buildings with features potentially suitable for roosting bats were assessed following best practice guidelines as outlined by the survey techniques published by the Bat Conservation Trust (BCT)[4] and Mitchell-Jones and McLeish (2004) [5]. Trees within the development area were also assessed for their potential to support roosting bats (following BCT protocols).

[1] http://archive.defra.gov.uk/wildlife-pets/wildlife/management/non-native/documents/schedule9-list.pdf
[2] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155.
[3] Badger survey followed guidelines recommended in Harris *et al*. (1989).
[4] Collins J (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn) (published by Bat Conservation Trust, London).
[5] Mitchell-Jones A J (2004). *Bat mitigation guidelines.* English Nature.

- Landscape features such as hedgerows, trees and shrubs were also assessed for their potential suitability for bat foraging and commuting;
- The suitability of habitats was assessed for nesting birds.
- The suitability of habitats was assessed for reptiles.

2.4 The site was not assessed for water voles (*Arvicola amphibius*) and otters (*Lutra lutra*) due to its location and the lack of suitable habitat present on site.

Desk Study

2.5 The Internet database MAGIC (Multi-Agency Geographic Information for the Countryside) was searched for any areas with statutory designations within a 2km radius of the site.

Survey Limitations

2.6 An initial site assessment such as this is only able to act like a 'snapshot' to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey but may be evident at other times of the year. For this reason, habitats were assessed for their potential to support some species, even where no direct evidence (such as droppings) has been found. Whilst there was frost on the ground at the time of the survey, and most of the tall ruderal bramble thicket had recently been cleared, due to the size of the size and limited habitats present, it did not hamper the overall assessment of the site.

Baseline Evaluation Criteria

2.7 Based on the desk study and field survey results, an ecological evaluation of the site was undertaken using a combination of evaluation criteria for habitats and species, following the general framework provided by CIEEM[6] (Table 1).

2.8 Where relevant the evaluation was made with reference to the statutory protection afforded to species and habitats. Legal protection does not always correspond to conservation value. Some species (e.g. badgers) are protected for reasons of animal welfare rather than conservation. Others are of national conservation value but are not protected by law (e.g. some Red Data Book species and UK BAP species).

[6] CIEEM (2017). Guidelines for Preliminary Ecological Appraisal (PEA).

Table 1. Ecological value criteria used in the ecological evaluation, as outlined by CIEEM.

Ecological Value	**Description and Examples**
High	Habitats or features that have high importance for nature conservation, such as statutory designated nature conservation sites of international or national importance or sites maintaining viable populations of species of international or national importance (e.g. Red Data Book species, European protected species).
Medium	Sites designated at a county or district level, e.g. Local Wildlife Site (LWS), ancient woodland site, ecologically 'important' hedgerows or ecological features that are notable within the context of a region, county or district (e.g. a viable area of a Priority Habitat on the county BAP or a site that supports a viable population of a county BAP species).
Low	Sites of nature conservation value within the context of a parish or neighbourhood, low-grade common habitats, such as arable fields and improved grasslands and sites supporting common, widespread species.

3.0 RESULTS

Site Location Description

3.1 The application site consists of an unbuilt plot of land off the High Street, Old Woking (Figures 1 - 3, Annex 2). The site is located within an urban location, approximately at the south east edge of Old Woking, in the south eastern part of Woking Town (Figures 1 & 2, Annex 2). The site is bordered by small to medium sized residential properties with small gardens (Figure 2, Annex 2). The wider landscape supports areas suburban development, agricultural fields kept for arable and grazing, deciduous woodland, riverine woodland with scattered houses. The River Wey flows past 20 metres from the southern border.

Designated Sites

3.2 A MAGIC (www.magic.gov.uk) study reveals that there are two statutory designated sites within 2km of the application site (Figure 3, Annex 2). The closest is Papercourt Site of Special Scientific Interest (SSSI) lying 900m east of the site. Papercourt is dominated by wetland habitats associated with the River Wey, which were once widespread in the low-lying river valleys of south-east England and are now very restricted in area. Much unimproved grassland and marshland has been drained and converted to arable or reseeded farmland, or developed for housing or industry. That which remains is often threatened by water pollution and further development. This site consists of a complex of wetland habitats including unimproved meadows, marshes, streams and flooded gravel pits. These support a number of local plants and a wide variety of breeding and wintering birds. Lying 670m to the north of the site is White Rose Lane Local Nature Reserve (LNR) which contains damp alder woodland beside the Hoe Stream. Wildlife observed within the site includes owls, bats, deer, frogs and various species of rare fungi.

3.3 The MAGIC (www.magic.gov.uk) study also reveals that are five licensed sites within 2km of the site that are licensed for bat species including: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus,* and brown long-eared bat *Plecotus auritus,* between 2009 and 2023. The closest site being approximately 1.4km to the east of the site concerning common pipistrelle and brown long-eared bats (see Figure 4, Annex 2).

3.4 For non-statutory sites within 2km a MAGIC (www.magic.gov.uk) study revealed that there are three small patches of ancient woodland to the south of the site the closest being 1.5km away to the south west (Figure 3).

3.5 The MAGIC (www.magic.gov.uk) study reveals that are no records for Greater Crested Newts within 2km of the site.

Habitat survey

3.6 The habitats recorded on the site are shown in Photos 1-6 (Annex 2) and Figure 5 (Annex 2). Habitats that would potentially be impacted by the proposed development consist of the following:

- Hard standing
- Tall ruderal - bramble thicket
- Trees

3.7 The application site consists of an unbuilt plot of land with an area of hardstanding at the norther end, the rest is covered with tall ruderal bramble thicket and three self-seeded sycamore trees. (Annex 2, Photos 1-6, Figure 5). The plot is fenced in with wooden panel fencing. There is small area (5 x 4m) in the south of which is fenced off with wooden panel fencing that is also covered in tall ruderal bramble thicket.

Hard standing

3.8 There is an area of hard standing covering the northern third of the plot (Annex 2, Photo 1-2 Figure 5).

Tall ruderal

3.9 The southern 2/3 of the plot is covered in tall ruderal (Annex 2, Photo 2-6 Figure 5). This had recently been cleared and mostly comprised of bramble *Rubus sp.* Ivy *Hedera sp.,* and nettles *Urtica dioica*.

Trees

3.10 There are three sycamore trees *Acer pseudoplatanus* (Annex 2, Photo 2, 5 & 6) that have mostly likely self-seeded in the plot. One sycamore tree has ivy which provides (Annex 2, Photo 5, TN-1) low potential to occasionally host roosting bats and breeding birds in the summer. The other sycamore trees have negligible potential to support roosting bats. The ash trees Fraxinus excelsior at the southern end of the site were assessed to have negligible potential to support roosting bats.

3.11 Overall, the site habitat is considered to be of low ecological value. However, the tall ruderal bramble thicket habitat within the site maybe of moderate value to locally commuting and foraging birds, mammals and reptiles.

Protected Species Survey

Bats

3.12 The site has potential to support foraging and commuting bats throughout the site. The mature sycamore trees (Figure 5, TN-1) in the plot have features that has **low** potential for roosting bats on a temporary basis in the summer months. The scrub habitats within the site provide the best commuting opportunities for bats.

3.13 Taking into account the features present as well as the location of the site on the edge of good foraging and commuting habitat, the plot was assessed as having low to negligible potential for roosting bats. If it becomes necessary to undertake any works to the mature sycamore tree (Figure 5, TN-1), then this tree will need to be subjected to a careful soft cut (following BCT protocols).

Amphibians and Reptiles

3.14 The recently cleared tall ruderal bramble thicket provided and rubble pile provides some heterogenous habitat with low potential for amphibians and is suitable for common species of reptiles including slow worms (*Anguis fragilis*) and grass snakes (*Natrix natrix)*. The proximity to and the potential connectivity with the River Wey riparian habitats means some common species of reptiles and terrestrial forms of amphibians may enter the plot at times. As such the site was assessed as having **low potential** to support low numbers of common reptiles.

Nesting birds

3.15 The tall ruderal, and the mature sycamore tree offer potential nesting habitats for a number of common garden/woodland bird species during the spring/summer months.

Dormice

3.16 There is no potential for dormice as the habitat is not suitable and there are no records from within 2km. Overall, the site is assessed as having a negligible potential to support dormice.

Other Mammals

3.17 The site has some potential to be used by foraging and commuting hedgehogs, badgers and foxes from the park if they can gain access. No known evidence of any other mammals was found during the site survey.

Invasive species

3.18 No invasive species were recorded.

4.0 ECOLOGICAL EVALUATION

Designated Nature Conservation Sites

4.1 The nature of the development and the location of the application site would suggest that there would most likely be limited potential impact to the protected areas over 1.5km from the site during the construction phase.

Habitats

4.2 The site supports the following predominant habitats: hard standing, trees, and tall ruderal. The site supports no Biodiversity Action Plan habitats. The site could be considered to predominantly support habitats of **low** ecological value.

Protected Species

Flora

4.3 None of the species recorded during the survey are specifically protected by the Wildlife and Countryside Act 1981 (as amended) or considered nationally or locally rare (see Preston et al., 2002[7]). Also, none of the species recorded are listed as Species of Principal Biological Importance on Section 41 of the NERC Act 2006 or as Priority Species on the national BAP (UK BAP, 2007[8]).

4.4 Mitigation and enhancements for trees, general flora and legally controlled species are recommended in Sections 6 and 7.

Fauna

4.5 The trees on site and the tall ruderal on site could be considered potentially suitable for supporting nesting birds during the spring/summer.

4.6 One sycamore tree has low potential to support roosting bats, but does not require further surveys, under current BCT guidance.

[7] Preston, C.D., Telfer, M.G., Arnold, H.R., Carey, P.D., Cooper, J.M., Dines, T.D., Pearman, D.A., Roy, D.B. & Smart, S.M. 2002. *The changing flora of the UK*. Department for Environment, Food and Rural Affairs, London.
[8] UKBAP (2007) Report on the Species and Habitat Review: Report by the Biodiversity Reporting and Information Group (BRIG) to the UK Standing Committee, June 2007

4.7 The site has low potential to support small numbers of widespread species of reptiles and terrestrial phases of amphibians. The habitat on site was suboptimal for the larval stages of amphibians including great crested newts.

4.8 The site could be used by used by foxes and hedgehogs commuting from neighbouring plots to the south, a fox path was found.

4.9 The site does not support habitats which could be used by dormice.

Invasive species

4.10 No invasive species were identified during the walkover survey.

5.0 RECOMMENDATIONS

5.1 Wherever possible, negative ecological impacts should be avoided. If this is unavoidable then mitigation and compensation measures will be proposed for adverse ecological effects. In addition, it is best practice to seek positive biodiversity benefits through enhancement measures, in particular with regard to Priority Habitats and Species listed on the national and local Biodiversity Action Plans and the NERC Act 2006.

5.2 CIEEM (2017)[9] endorses the following principle, recommended by the Royal Town Planning Institute (2019)[10] for optimising the biodiversity outcomes of planning decisions.

5.3 New benefits: seek to provide net benefits for biodiversity over and above requirements for mitigation and compensation.

5.4 The provision of compensation/enhancements helps local planning authorities in meeting requirements as stipulated under the National Planning Policy Framework[11], which states that sustainable development should seek to achieve net gains in biodiversity for nature.

[9] *CIEEM (2017) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.
[10] https://www.rtpi.org.uk/practice/2019/november/biodiversity-in-planning/
[11] National Planning Policy Framework. (2021) Department of Communities and Local Government.

6.0 MITIGATION & FURTHER SURVEY

Habitat

6.1 No further habitat surveys are required. Best practice should be followed (i.e. S5837:2012 Trees in Relation to design, demolition and construction – Recommendations) to ensure individual trees, including those adjacent to the site, that are to be retained are not adversely affected. Any trees over 100 mm trunk diameter, and/ or of significant ecological value, should be protected by barriers. Minimum distance between tree trunk and barriers must be either the distance of branch spread or half tree height, whichever is the greater. In all cases trees must be protected from direct impact and from severance or asphyxiation of the roots.

6.2 Any planting within the site as part of the proposed development should use native tree and hedgerow species that will enhance the biodiversity of the site. The existing hedgerows should be retained where possible within the design. Where any hedgerows cannot be retained within the design, new hedgerow planting using a species rich native mix of species, should be included within the landscaping proposals. See Annex 4 for details of planting that will enhance the site for foraging bats and other wildlife.

Bats

6.3 The habitats are considered to offer **negligible** potential to support roosting bats, except the mature sycamore tree in the south of the plot which has **low** potential for roosting bats in the ivy on an occasional basis. No further emergence/re-entry surveys are required. If this tree is due to be removed, it should be 'soft' felled and left in-situ for 24hrs. Wood should ideally be retained onsite as habitat piles.

6.4 Given the potential for foraging and commuting bats across the site, artificial lighting should be managed in a way whereby it will not impact upon foraging bats within the area. Annex 3 details the Bat Conservation Trust guidelines on lighting mitigation. External lighting should for the proposed new development should be positioned low to the ground, with downward facing baffles and set on timers or motion sensors. Warm white LED lights have the least impact upon bats. Further details on lighting mitigation measures will be provided upon completion of the recommended activity surveys at the site.

6.5 On account of bats likely to be active and roosting in the local area, additional bat roosting habitat could be incorporated into the proposed new residential development. The roofs of the new builds should seek to use bitumen felt (Type 1F) for the lining of the new roof and avoid Breathable Roofing Membrane (BRM). This is because of research showing that bats can get tangled in the BRM fibres, often resulting in death)[12,13]. The use of bitumen still complies with building regulations[14].

Breeding birds

6.6 The small area of tall ruderal on site potentially supports several nesting bird species. The larger area of tall ruderal bramble thicket has recently been cleared already. It is therefore recommended that removal of suitable nesting habitat occurs outside the bird nesting season, which is generally accepted to extend from March - August inclusive (although dates vary by species and are subject to prevailing weather conditions). If this is not possible the area to be removed should be inspected for evidence of nesting activity by a suitably experienced ecologist no more than 24 hours in advance of clearance. If this identifies any nesting activity the habitat feature should be left undisturbed until nesting ceases. If any vegetation removal is undertaken on site during the bird-nesting season, all resultant brash should be immediately removed from the site to prevent birds from nesting in it. Given the potential for other protected species, such as reptiles to be disturbed by habitat removal, habitat clearance must only be carried out once all protected species surveys have been completed to ensure that the timing of works minimises the impact to all protected species.

Reptiles and amphibians

6.7 The tall ruderal vegetation and the concrete rubble pile on site contains habitat with low potential for reptiles foraging and commuting reptile species. As these areas of habitat are likely to be impacted by the proposed development then either suitable alternative habitat must be retained or a reptile presence /likely absence survey will be required. It is likely the any reptiles present will move into the adjacent parkland. Any vegetation (to be cleared) should be cut and kept short (<150mm) ahead of clearing, after this, the destructive search should clear habitat towards the retained area, and any debris removed from site immediately.

[12] http://www.batsandbrms.co.uk/
[13] Waring et al (2013) Double Jeopardy: The Potential for Problems when Bats Interact with Breathable Roofing Membranes in the United Kingdom. Architecture & Environment, **1**(1): 1-13.
[14] http://www.batsandbrms.co.uk/background.php

Any suitable remaining habitats should be fenced off and protected during the remaining of the construction phase to mitigate any harm to reptile species. If a suitable mitigation area cannot be retained, then a reptile presence/likely absence survey should be undertaken between March-September under suitable weather conditions.

6.8 Due to the lack of ponds being present on site or close to the site, and no local records from within 2km of the site, no impacts on this species are predicted. Further to this, no EPSM licenses have been granted with 2km, so no further surveys are required for great crested newts.

Dormice

6.9 Due to the lack of habitat being present on site for hazel dormice, and no local records from within 2km of the site and no EPSM licenses being granted no further surveys are required.

Other Mammals

6.10 The site has potential to support commuting mammals such as hedgehogs, and foxes. It is recommended that any log and brash piles are dismantled by hand to ensure that no hedgehogs are harmed during site clearance. It is also recommended that during construction all deep trenches and excavations are covered overnight to prevent any animals falling in and not being able to get out. It is further recommended that the boundary treatment of the site allows access for local wildlife to continue to move across the site.

6.11 The mitigation measures should form part of a Biodiversity Enhancements and Mitigation Plan (BEMP), to be secured by an appropriate planning condition. This should ensure compliance with local and national policies (e.g. as per Schedule 14 part 2 of the Environment Act 2021[15] which allows for such matters to be addressed via pre-commencement condition.

[15] https://www.legislation.gov.uk/ukpga/2021/30/schedule/14/enacted

7.0 ENHANCEMENTS

7.1 In line with local and national policy (NPPF 2021[16]), the new development should seek to provide biodiversity enhancements. These biodiversity enhancements should be at a minimum of a 10% net gain following the legislation outlined The Environment Act 2021. The following suggestions would enhance the site for wildlife:

Shrub/Tree Planting

7.2 To compensate for any loss of existing vegetation it is recommend that new native hedgerows and trees (of local provenance) are planted along plot/site boundaries, where possible. A list of native and non-native species that are beneficial to pollinating insects, produced by the Royal Horticultural Society, is provided in Appendix 3.

7.3 Any landscaping plan should take account of this guidance. Furthermore, planned areas of amenity grass could be replaced with a species rich turf e.g. Wildflower Native Enriched Turf or Species Rich Lawn Turf to enhance diversity (which will in turn attract insects, birds and bats)[17].

7.4 The landscaping scheme will include landscape buffers along the boundaries of the site. These buffer zones can be planted with native and wildlife friendly species and can include scrub grading into grassland or wildflower meadow species.

Refuges

7.5 Refuges consisting of vegetation or debris piles should be provided at the borders of the site to increase sheltering opportunities for various species, including amphibians, hedgehogs and invertebrates such as stag beetles. Such refuges could be constructed from woody material felled during the development. This should be retained on site where possible. These refugia can be included within the recommended landscape buffers around the boundaries of the site.

[16] https://www.gov.uk/government/publications/national-planning-policy-framework--2
[17] http://www.wildflowerturf.co.uk/Products/species-rich-lawn-turf.aspx

Bird Boxes

7.6 Several nest boxes for different species of bird (sparrow, tits, robins, thrushes and wrens) should be erected around the site in areas of good cover and out of the reach of domestic cats. These can be placed in areas of dense cover or integrated on the walls of the new dwelling where they border areas of vegetation. Integrated boxes should also be considered and designed into a number of the new dwellings[18][19].

Invertebrates

7.7 The inclusion of 'bee bricks'[20] should be considered for the new dwelling. Retention of dead wood via debris piles or stag beetle log 'pyramids' is beneficial for many invertebrates.

Bats

7.8 A guide to bat friendly gardening is provided in Annex 4. Consideration of inclusion of bat 'bricks' into the new developments or associated structures should also be considered. Alternatively, standalone pole mounted bat 'houses' could be incorporated into the boundaries. Full details for bats will be set out, following the recommended further surveys.

Reptiles

7.9 The hedgerows and tall ruderal identified have low potential to be used by common reptiles and amphibians such as slow worms and lizards present in the immediate area. Given the widespread distribution of reptiles and amphibians such as slow worms and grass snakes and the presence of suitable habitat it is likely that they are using the site (in low numbers). No formal surveys are required (on the basis that suitable habitat is retained) unless requested by the local authority. Instead, it is recommended that reasonable avoidance measures (RAMs) and habitat mitigation measures be included within the site Biodiversity Enhancements and Mitigation Plan (BEMP). Measures should include:

- Toolbox talks to raise awareness prior to any clearance and during construction;
- Works likely to disturb hibernating reptiles and amphibians should be timed outside of November to March inclusive;

[18] http://www.birdbrickhouses.co.uk/brick-nesting-boxes/integrated-bird-box/
[19] https://www.wildcare.co.uk/wildlife-nest-boxes/bird-boxes/building-integrated-bird-boxes.html
[20] https://greenandbluebuild.co.uk

- Piles of deadwood, log piles, compost heaps, brash, scrub, hedge should be checked by hand immediately prior to being cut/moved;
- Hazards such as open holes, pits, ditches and drains should be covered at night or fitted with ramps (at a reasonable angle) to allow animals to escape;
- Site should have a zero-litter policy to prevent animals becoming trapped in litter;
- If any reptiles and amphibians are found they should be moved outside the working area to suitable alternative habitat within the wider plot. Wychwood Environmental can be contacted for advice and guidance.

7.10 The biodiversity enhancements should be informed by all ecological surveys and should form part of a Biodiversity Enhancements and Mitigation Plan (BEMP), to be secured by an appropriate planning condition. This should ensure compliance with local and national policies (as per the provisions of the Environment Act 2021).

8.0 CONCLUSION

8.1 The survey of the site has highlighted a small number of potential ecological constraints but no further surveys are required. If the mitigation measures outlined are taken into account pre-development and during site clearance and construction, then disturbance to breeding bird habitats and reptiles should be avoided.

8.2 The existing assessment will be used to inform a Biodiversity Enhancements and Mitigation Plan, which would result in a net gain of biodiversity across the site.

8.3 No additional protected species surveys are required, but if works do not progress until the next active survey season (May-Sept) a site walkover is recommended to ensure the results of all surveys remain valid.

9.0 REFERENCES

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

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Mitchell-Jones, J. (2004) Bat Mitigation Guidelines. Natural England.

Mitchell-Jones, A.J. and Mc Leish, A.P. (2004) Bat Workers Manual. JNCC

Annex 1 – Protected Species Legislation.

Plants
All wild plants are protected against unauthorised removal or uprooting under Section 13 of the Wildlife and Countryside Act 1981 (as amended). Plants listed on Schedule 8 of the Act (e.g. triangular club rush and Deptford Pink) are afforded additional protection against picking, uprooting, destruction and sale. Bluebell is protected against sale only.

Amphibians (Common Species)
Common amphibian species (i.e. common frog, common toad, smooth newt and palmate newt) are afforded partial legal protection under UK legislation, i.e. Schedule 5, Section 9 (5) of the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. This legislation prohibits:

- sale
- transportation
- advertising for sale

Badgers
Badger is a widespread and generally common species. However, they are legally protected under The Protection of Badgers Act 1992, which is based primarily on the need to protect badgers from baiting and deliberate harm or injury. Under this legislation it is illegal to:

- Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so
- Possess any dead badger or any part of, or anything derived from, a dead badger
- Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, causing a dog to enter a sett, or obstructing access to it

A badger sett is defined in the legislation as "*any structure or place, which displays signs indicating current use by a badger*".

Bats
All bat species are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way Act 2000 and The Conservation of Habitats and Species Regulations 2017. Together, this legislation makes it illegal to:

- Intentionally or deliberately take, kill or injure a bat
- Damage, destroy or obstruct access to bat roosts
- Deliberately disturb bats

A bat roost is defined in the legislation as *"any structure or place which a bat uses for shelter or protection". Roosts are protected whether or not bats are present at the time.* If a development activity is likely to result in disturbance or killing of a bat, damage to its habitat or any of the other activities listed above, then a licence will usually be required from Natural England.

Birds

The bird breeding season generally lasts from early March to September for most species. All birds are protected under the Wildlife and Countryside Act (1981) (as amended) and the Countryside & Rights of Way Act 2000. This legislation makes it illegal, both intentionally and recklessly to:

- Kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while it is being built or in use;
- Take or destroy the eggs of any wild bird; and
- Possess or control any wild bird or egg unless obtained legally.

Birds listed under Schedule 1 of the Wildlife and Countryside Act (1981) (as amended) (e.g. barn owl and kingfisher) are afforded additional protection, which includes makes it an offence to disturb a bird while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Great crested newts

Great crested newts and their habitat are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way Act 2000 and The Conservation of Habitats and Species Regulations 2017. This makes it is an offence to kill, injure or disturb great crested newts and to destroy any place used for rest or shelter by a newt. The great crested newt is also listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. If a development activity is likely to result in disturbance or killing of a great crested newt, damage to its habitat etc, then a licence will usually be required from Natural England.

Reptiles

There are six native species of reptiles in the UK, including the slow-worm (*Anguis fragilis*), viviparous lizard (*Zootoca vivipara*), grass snake (*Natrix natrix*) and adder (*Vipera berus*), smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*), which are afforded varying degrees of protection under UK and European legislation.

Slow-worm, viviparous lizard, adder and grass snake are protected under Schedule 5, Section 9 (1 and 5) of the Wildlife and Countryside Act 1981 (as amended) and the Countryside & Rights of Way Act 2000 against deliberate or reckless killing and injuring and sale.

Otters

Great Otters are fully protected under the Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Damage or destruction of a breeding site or resting place
- Deliberate disturbance of otters as:
    - to impair their ability:
    - to survive, breed, or reproduce, or to rear or nurture young;
    - to hibernate or migrate
    - to affect significantly the local distribution or abundance of the species

Otters are also currently protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Annex 2 – Plans, Figures and Photographs.

Figure 1 - Approximate location of the site (red outline). Image taken from Google Earth.

Figure 2 - Approximate location of the site (red shape) within the wider landscape. Image taken from Google Earth.

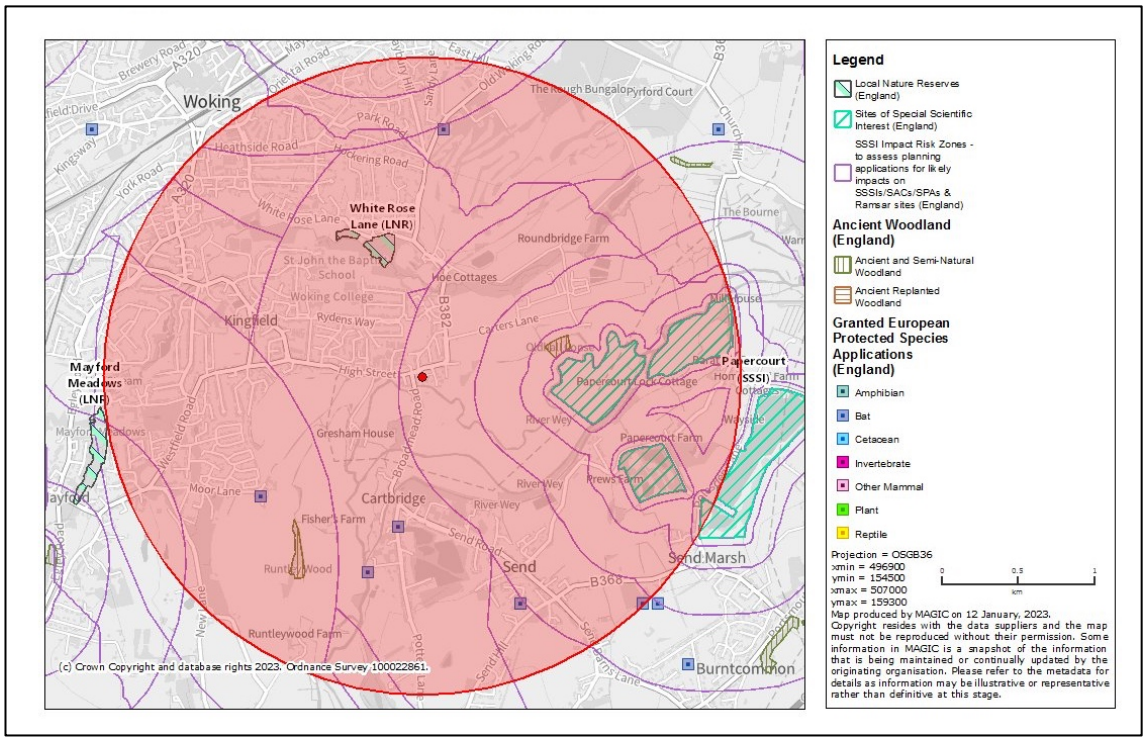

Figure 3 – Approximate location of the site (red oval) within the wider landscape. Image taken from Google Earth.

Figure 4 – Red outline boundary of the site.

Figure 5 - Modified site plan, showing the main habitats on site: hardstanding – dark grey, trees – green circles, slanted green hatching – tall ruderal bramble thicket, horizontal green hatching – tall ruderal bramble thicket, concrete rubble – brown check. Target Note 1 (TN-1) - mature sycamore tree with ivy.

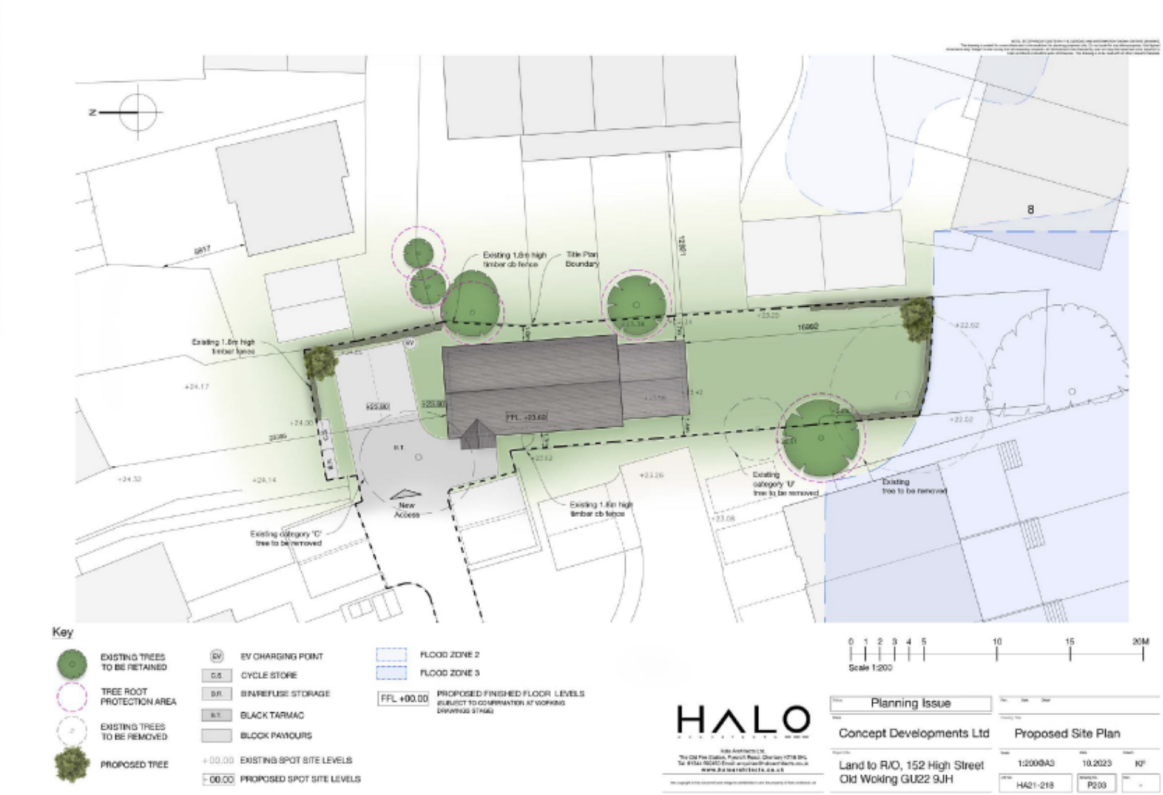

Figure 6 – Proposed site layout.

Photographs

Photograph 1 – The entrance to at the northern end of the plot with a temporary structure on an area of hardstanding.

Photograph 2 – Looking south from northern end of the plot.

Photograph 3 – Looking north with a pile of old concrete rubble in the middle of the plot (red circle).

Photograph 4 – Looking at the southern end of the plot covered in cleared tall ruderal and ground ivy. There is another small area behind the fence fill with tall ruderal. A fox run come though the gap in the fence into the plot (red line)

	
Photograph 5 – The mature, ivy covered sycamore tree (TN 1, Figure 5).	**Photograph 6**– The northern end of the plot showing an immature sycamore tree.

Annex 3 – Lighting guidance - the impact of artificial light on bats

The following basic set of guidelines is summarized from the latest Guidance Note (08/18)[21] provides a concise checklist of points to consider with any lighting scheme:

- *Use professional lighting design engineers to model and predict light spill so that it can be avoided.*
- *Reduce light levels to the minimum necessary to meet legal and safety requirements.*
- *Reduce horizontal and upward/downward light spillage to the minimum achievable. The use of cowling, masks, louvers etc. and limiting the height of lighting columns may be important depending on the design of the lighting units. No bare bulbs. Lighting should only light the target area.*
- *Use non-reflective surfaces within the area to be lit to minimise indirect (reflected) spillage of light. The use of planting or other structures to add screening.*
- *Reduce the duration of lighting. The use of lighting 'curfews' can also be helpful - especially in the vicinity of bats roosts. For example, the emergence of bats, typically within the hour after sunset, may be disrupted (delayed) by raised light levels and this may result in a loss of feeding opportunities.*
- *Consider the type of light to be used and whether a different type or design may reduce potential impacts on bats and other wildlife. Narrow spectrum lighting with minimal UV emission should be used.*
- *Use 'screen planting' to limit light spill into dark areas*.
- *Use narrow spectrum light sources* to lower the range of species affected by lighting, as research has shown that spectral composition does impact biodiversity.
- *Use light sources that emit minimal ultra-violet light*
- *Avoid white and blue wavelengths of the light spectrum* to reduce insect attraction and where white light sources are required in order to manage the blue short wave length content they should be of a warm / neutral colour temperature <4,200 kelvin.

For more details, please refer to:

https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

http://www.bats.org.uk/pages/bats_and_lighting.html

http://www.batsandlighting.co.uk/index.html

[21] https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

Annex 4 – Gardening for bats.

GARDENING FOR BATS

All sixteen species of bats in the UK eat insects, and need a good supply of these from spring through to the autumn. By growing flowers attractive to a range of insects, our gardens can become important feeding stations for bats, birds and other wildlife.

Many plants depend on insects

We grow flowers in our gardens for our own enjoyment. But colour and perfume are really the plants' way of advertising themselves to insects. Sweet nectar and protein-rich pollen are bait to encourage insects to visit. In return, pollen is carried from one flower to another on their bodies so the flowers are fertilised.

Bats need insects

Flying uses a lot of energy, so bats have huge appetites. All our UK bats eat insects. Five species, including the long-eared bat, prefer moths, but most bats rely more heavily on flies as food than any other insect group. Especially important are craneflies, and a range of midge families and their relatives. Pipistrelles, the bats most likely to visit your garden, depend on catching very large numbers of tiny insects, some of which are pests.

Flower shape and insect tongues

Flowers with long narrow petal tubes, such as evening primrose and honeysuckle, are visited by moths and butterflies. Only their long tongues can reach deep down to the hidden nectar.
Short-tongued insects include many families of flies and some moths. They can only reach nectar in flowers with short florets.
By planting a mixture of flowering plants, vegetables, trees and shrubs, you can encourage a diversity of insects to drop in and refuel.

Follow these general rules

? Plant flowers varying not only in colour and fragrance, but also in shape.
? Daisies and daisy-like flowers are open with a mass of shallow florets.
? Pale flowers are more easily seen in poor light.
? Single flowers have more nectar than double varieties
? Native wild flowers or those closely related are most useful
? Flowers with landing platforms and short florets such as daisy or carrot family attract many insects.
? Many flowering vegetables such as beans and courgettes are also good for insects.

Plant trees and shrubs

These are important in providing

- food for insect larvae
- food for adult insects
- shelter for flying insects
- roosting opportunities for bats.

In a small garden, choose trees that can be coppiced – cut down to the ground every few years - to allow new shoots to spring from the base. Young shoots and leaves will support leaf-eating insects, even if they do not produce flowers. Hawthorn and elder are useful small trees.

Create a wet area

A pond, a marshy area, even a half-tub made into a mini-pond can attract insects. Many of the tiny flies favoured by bats start life in water as aquatic larvae.

Say NO to insecticides

Chemical pesticides kill natural predators and so may do more harm than good. They reduce bats' insect prey, and surviving insects carry traces of poison.

Encourage natural predators

Hoverflies, wasps, ladybirds, lacewings, ground beetles and centipedes are the gardener's friends. As natural predators they help keep the balance, eating many pests.
? Allow some weeds to grow to provide ground cover for natural predators
? Grow favourites of hoverflies and other predators close to the flowers and vegetables that tend to become infested.
? Leave hollow-stemmed plants to overwinter as shelter for ladybirds.
? Leave heaps of dead leaves and brushwood undisturbed for hedgehogs.
? Most garden birds are effective predators. Provide them with regular food and water.

Prevent a CATastrophe

Many bats and other small mammals fall prey to Britain's most dangerous four-legged predator, the domestic cat. Cats do not need to stay out all night. Bring you cat in an hour before sunset so bats can emerge undisturbed.
(Send for our special leaflet on cats and bats.)

The Bat Conservation Trust, 15 Cloisters House
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enquiries@bats.org.uk www.bats.org.uk
Registered Charity no 1012361 Company limited by guarantee, registered in England no 271282

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Gardening for bats

Aim at having flowers in bloom through the year, including both annuals and herbaceous perennials.
Below are some suggestions, but this is by no means an exhaustive list. See what grows well in YOUR garden, and what seems most attractive to insects.
Flowering times are approximate, varying in different areas. Regular dead-heading extends flowering period in many flowers. A=annual, HA=hardy annual, HHA=half-hardy annual, P=perennial, W=wild flower.

Flowers for borders			
St John's Wort	*Hypericum*	P	March-
marigolds	*Calendula*	H/A	March – Oct.
aubretia	*a. deltoidea*	P	March-June
honesty	*Lunaria redva*	HB	March
forget-me-not	*Myosotis sp.*	A/P	March - May
elephant ears	*Bergenia*	P	April
Wallflowers	*Erysimum*	B	April - June
Cranesbills	*Geranium sp*	P	May – Sept.
Yarrow	*Achillea*	P	May -
Poppies	*Papaver sp.*	A	May - July
Dames violet	*Hesperis matronalis*	P	May - August
Red Valerian	*Centranthus ruber*	P	May – Sept.
Poached egg plant	*Limnanthes*	HA	June – Aug.
Knapweed	*Centaurea nigra*	P	June- Sept.
Phacelia		HA	June – Sept.
Ox-eye daisy	*Leucanthemum vulgare*	P	June – Aug.
Evening primrose	*Oenothera biennis*	B	June-Sept.
Candytuft	*Iberis umbellata*	HA	June – Sept.
Sweet William	*Dianthus barbatus*	B	June - July
Blanket flowers	*Gaillardia*	P	June -
Verbena	*V.bonariensis*	HHA	June – Oct.
Scabious	*knautia arvensis*	P	July-Aug.
Night-scented stock	*matticla bicornis*	HA	July-Aug
Pincushion flower	*Scabious sp.*	A/P	July – Sept.
Cherry pie	*heliotrope*	HHA	July – Oct.
Mexican aster	*Cosmos sp.*	A/P	July – Oct.
Cone flower	*Rudbeckia sp.*	A/P	August-Nov.
Mallow	*lavatera sp.*	P	August-Oct.
Michaelmas daisy	*Aster sp.*	P	August-Sept.
Ice plant 'Pink lady'	*Sedum spectabile*	P	Sept.
Herbs – both leaves and flowers are fragrant			
Fennel	*Foeniculum vulgare*		July – Sept.
Bergamot	*Monarda didyma*		June - Sept
Sweet Cicely	*Myrrhis odorata*		April - June
Hyssop	*Hyssopus officinalis*		July - Sept
Feverfew	*Tanacetum parthenium*		June – Sept.
Borage	*Borago officinalis*		May – Sept.

Rosemary	*Rosemary officinalis*	March - May
Lemon balm	*Melissa officinalis*	
Coriander	*Coprianum sativum*	June - August
Lavenders	*Lavendula sp.*	
Marjoram	*Origanum sp*	

Trees, shrubs and climbers important to insects		
Oak	*Quercus sp.*	large gardens only
Silver birch	*Betula pendula*	
Common alder	*Alnus glutinosa*	Suitable for coppicing
Hazel	*Corylus avellana*	Suitable for coppicing
Elder	*Sambucus nigra*	Small
Pussy willow	*Salix caprea*	Suitable for coppicing
Hawthorn	*Crataegus monogyna*	Suitable for coppicing
Honeysuckle	*Lonicera sp.*	grow a variety for succession.
Dog rose	*Rosa canina*	Climber
Bramble	*Rubus fruticosus*	Climber
Ivy	*hedera helix*	Climber
Buddleia	*Buddleia davidii*	shrub
Guelder rose	*Viburnum opulus*	shrub
Gorse	*Ulex sp.*	shrub

Plants for pond edges and marshy areas			
Purple loosestrife	*Lythrum salicaria*	W	June – Aug.
Meadow sweet	*Filipendula ulmaria*	W	June – Sept.
Lady's smock	*Cardamine pratensis*	W	April - June
Water mint	*mentha aquatica*	W	July – Sept.
Angelica	*Angelica sylvestris*	W	July – Sept
Hemp agrimony	*Eupatorium cannabinum*	W	July – Sept.
Marsh marigold	*Caltha palustris*	W	March – May
Creeping Jenny	*Lysimachia nummularia*	W	May - August
Fringed water lily	*Nymphoides peltata*	W	June – Sept.
Water forget-me-not	*Myosotis scorpioides*	W	June – Sept.

Allow part of your lawn to grow long in summer and cut in autumn, removing the clippings. Avoid using fertilizers.
Compost heaps are good producers of insects too.

Add a seat to watch your garden come to life!

Native Plant Species Recommended

Hedging/shrubs (60cm whips)	
Blackthorn	*Prunus spinosa*
Hawthorn	*Crataegus monogyna*
Common Dogwood	*Cornus sanguinea*
Guelder Rose	*Viburnum opulus*
Holly	*Ilex aquifolium*
Elder	*Sambucus nigra*
Field Maple	*Acer campestre*
Hazel	*Corylus avellana*
Spindle	*Euonymus europaeus*
Trees (regular standard size)	
Apple	*Malus spp.*
Cherry	*Prunus spp.*
Field Maple	Acer campestre
Hornbeam	*Carpinus betulus*
Rowan	*Sorbus aucuparia*
Wild Service	*Sorbus torminalis*
English Oak	*Quercus robur*
Shrubs/Herbacous plants (formal beds)	
Use species attractive to pollinators e.g bees, butterflies, moths. See this selection of RHS plants for pollinators: http://www.rhs.org.uk/Gardening/Sustainable-gardening/Plants-for-pollinators (see Appendix 4)	
Note – all specimens should be of British native stock from reputable suppliers.	