5.14.2 In addition, delivery of any measures required by Natural England and/or Wokingham Borough Council to ensure that any small contribution to cumulative effects of recreational pressure on the Thames Basin Heaths SPA is avoided will be secured through a Section 106 agreement.

## 6 SUMMARY AND CONCLUSION

6.1 The site is located within 1.9km of the Thames Basin Heaths SPA. Current knowledge indicates that the proposed development of up to 48 dwellings could result in a small contribution towards a cumulative increase in recreational pressure in combination with other plans or projects. It is proposed that this is mitigated through the consented SANG located within the wider site and Strategic Access Management and Monitoring of the SPA in line with Wokingham Borough Council's guidance, to ensure no likely significant effect on this receptor arises as a result of the proposed development in combination with other plans and projects.

6.2 The proposed development area is dominated by agriculturally improved grassland habitat of negligible nature conservation importance in its own right. Where habitats of higher nature conservation interest are affected, these comprise small areas of scrub/tall ruderal vegetation. Loss of these areas are not considered to be significant in the local context. Opportunities for habitat creation, enhancement and management to maintain opportunities for wildlife at the site are described in *Section 5* above, most of which are already reflected on the emerging landscape proposals. Subject to securing these measures at the detailed design stage it is considered that development of the site would provide an opportunity to maintain and potentially enhance its long-term value for a range of wildlife.

6.3 In summary, subject to implementation of the recommended habitat creation, restoration and enhancement measures described above, and measures to avoid impacts on designated areas and locally recorded protected and notable species, no ecological constraints have been identified that would otherwise preclude the proposed development of the site. Furthermore, the development has the potential to provide new opportunities for locally recorded wildlife through the retention, creation, management and enhancement of habitats within the site. This is in keeping with planning policy and the 2006 NERC Act.

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**HDA Document Control and Quality Assurance Record**

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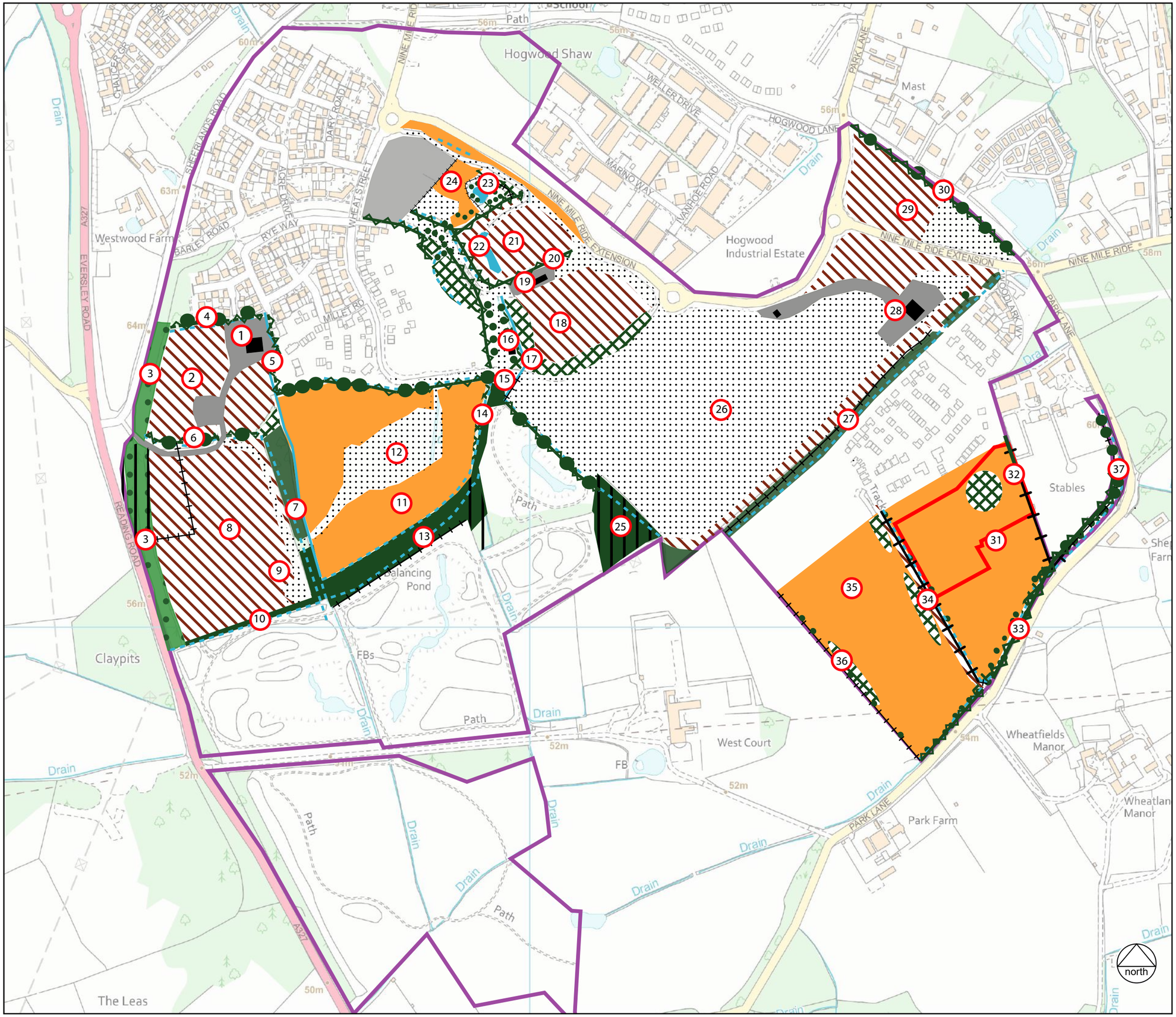
Project Reference: 868.1
Document Title: Ecological Assessment
Commissioning Party: CALA Homes Thames Ltd

| Issue | Description | Date of Issue | Approved for issue |
|---|---|---|---|
| 1 | Ecological Assessment | October 2024 | |
| 2 | Rev A | October 2024 | [redacted] |

| | Personnel | Position |
|---|---|---|
| Author | Clare Bird MCIEEM | Associate Ecologist |
| Revised by | Clare Bird MCIEEM | Associate Ecologist |
| Approved for issue | Sarah Thornton-Mills MCIEEM | Principal Ecologist |

**FIGURE 1**

**Phase 1 Habitat Plan and Target Notes**




## KEY

- Land South of P15 site boundary
- Wider site boundary
- Lowland mixed deciduous woodland (w1f)
- Other woodland - mixed - mainly broadleaved (w1h5)
- Other woodland - mixed - mainly broadleaved (w1h5)
- Scattered trees
- Native hedgerow (h2a)
- Non-native and ornamental hedgerow (h3b)
- Mixed scrub (h3h)
- Ruderal (81)
- Modified grassland (g4)
- Standing open water (r1)
- Wet ditch / dry ditch (50)
- Fence
- Building
- Developed land - sealed surface (u1b)
- 45 Target notes

CLIENT:
CALA Homes (Thames) Ltd

PROJECT:
Hogwood Farm, Finchampstead

TITLE:
Phase 1 Habitat Survey Plan - Land South of Parcel 15

SCALE AT A3:
NTS

DATE:
October 2024

868.1/96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**Target Notes – Arborfield**

1. Site yard comprised a hardstanding area with mobile cabins.

2. Relatively sparse ruderal vegetation dominated by Common Nettle *Urtica dioica*, Spear Thistle *Cirsium vulgare*, Common Ragwort *Senecio jacobaea*, Bristly Oxtongue *Helminthotheca echioides* and Common Dandelion *Taraxacum officinale*. Small areas of scattered bare ground/ recently disturbed ground are present. Field margins vary between 1 – 5m and are more densely vegetation with the above species with the inclusion of Annual Meadow Grass *Poa annua*, Red Fescue *Festuca rubra*, Cleavers *Galium aparine*, Broad-leaved Dock *Rumex obtusifolius*, Cut Leaved Cranes Bill *Geranium dissectum*, Field Forget-me-not *Geranium dissectum* and Scarlett Pimpernel *Anagallis arvensis*.

3. Mixed woodland along the western boundary with species including Ash *Fraxinus excelsior*, Larch *Larix decidua*, Scots Pine *Pinus sylvestris*, Beech *Fagus sylvatica*, Pedunculate Oak *Quercus robur* and Black Poplar *Populus nigra*. Some of the trees are mature and have suitable bat roosting features. The understorey is comprised of Elder *Sambucus nigra*, Hawthorn *Crataegus monogyna*, Holly *Ilex aquifolium*, Willow *Salix Sp.* and Hazel *Corylus avellana*. The ground layer is dominated by Bramble *Rubus fruticosus* and Common Nettle with Bracken *Pteridium aquilinum*, Ground Ivy *Glechoma hederacea*, Cleavers, Wood Avens *Geum urbanum*, Herb Robert *Geranium robertianium*, White Bryony *Bryonia dioica* and Black Bindweed *Fallopia convolvulus*. Part of the southern area of this woodland is listed on Natural England's Ancient Woodland Inventory; this area is especially dominated by Larch and other introduced coniferous species.

4. Native defunct hedgerow with trees comprising a hedgerow of Field Maple *Acer campestre*, Hazel, Blackthorn *Prunus spinosa* and Ash, with Ash and Oak mature trees and a dry ditch below.

5. Newly created culvert with a small area of standing water.

6. Treeline of mature Ash and Pedunculate Oak trees with relic species rich hedgerow of Hazel, Holly, Field Maple, Hawthorn and Blackthorn. Some of the mature trees have the potential to support roosting bats. The ground layer vegetation is sparse and mostly comprised of Bramble with occasional Cowslip *Primula veris* and Creeping Thistle *Cirsium arvense.*

7. Lowland mixed deciduous woodland comprised of Pedunculate Oak and coppiced Ash with Wild Cherry *Prunus avium*, Field Maple, Hazel, Hawthorn and Blackthorn. Mature trees are present, some of which have features of bat roosting potential. The ground layer includes Bramble, Cow Parsley *Anthriscus sylvestris*, Ground Ivy, Germander Speedwell *Anthriscus sylvestris*, Common Sorrel *Rumex acetosa* and Lords-and-ladies *Arum maculatum*. A dry ditch is present along the western boundary of the parcel and a ditch that was wet at the time of the survey along the eastern boundary.

8. A field of ruderal vegetation of varying height from 10cm to 50cm in height dominated by Spear Thistle, Common Nettle and Perennial Ryegrass and White Clover *Trifolium repens* with the occasional Creeping Buttercup *Ranunculus repens*, Common

Hogweed *Heracleum sphondylium*, Ragwort and Broad Leaved Dock and Cleavers. Small areas within the parcel are sparsely vegetated with areas of bare ground with occasional ruderal species mentioned above but include Scarlett Pimpernel and Bird Foot Trefoil *Lotus corniculatus*.

9. A small depression of bare ground that had standing water at the time of the survey with occasional Yellow Flag Iris present.

10. Plantation lowland mixed deciduous woodland comprised of White Poplar, Pedunculate Oak, Ash and Field Maple. Mature trees are present, some of which have features of bat roosting potential. Understorey comprised of Holly, Dog Rose *Rosa canina*, Common Nettle, Cow Parsley, Cleavers, Curled Dock *Rumex crispus*, Bramble and Ground Ivy. A dry ditch is present along the boundary along the southern boundary of the wooded strip.

11. Species poor modified grassland of varying sward length between 5cm – 40cm comprised of Perennial Ryegrass, Cocksfoot *Dactylis glomerata*, White Clover, Oxeye Daisy *Leucanthemum vulgare*, Creeping Buttercup with occasional Broad Leaved Dock, Dandelion and Scarlett Pimpernel. Field margins are approximately 4-6m wide and are comprised of Common Nettle, Spear Thistle, Common Vetch *Vicia sativa* and Cow Parsley.

12. Area of bare ground used for storage of construction materials.

13. Lowland mixed deciduous woodland comprised of Pedunculate Oak standards and coppiced Ash with Wild Cherry *Prunus avium*, White Poplar, Field Maple, Hazel, Willow, English Elm *Ulmus procera*, Holly, Hawthorn and Blackthorn. Mature trees are present, some of which have features of bat roosting potential. The ground layer includes Bramble, Wood Avens *Geum urbanum*, Herb Robert, Common Ivy, Wood Spurge *Euphorbia amygdaloides*, Violet *Viola sp.*, Greater Stitchwort *Stellaria holostea*, Common Nettle, Remote Sedge *Carex remota*, False Brome *Brachypodium sylvaticum* and Butcher's Broom *Ruscus aculeatus* present. Standing and fallen dead wood is present throughout the woodland area. The woodland becomes increasingly wet to the west where Willow becomes dominant and dry ditches border most of the woodland edges, a further dry ditch running centrally through the southern area of woodland is also present. The eastern area of this woodland is listed on Natural England's Ancient Woodland Inventory; here the dominant tree species is White Poplar in the south and Pedunculate Oak in the north. This area is demarcated in its western boundary by a small woodbank.

14. Mixed Scrub comprised of Bramble, Blackthorn, Dog Rose and Pendulate Oak samplings over a dry ditch.

[redacted]

16. A wooden bat barn set between treelines of Pendulate Oak, Ash and Hazel.

17. Mixed scrub comprised of Bramble, Elder and Holly with large amounts of deadwood above a steep-sided wet ditch. Towards the eastern end of the scrub parcel, Elder becomes the dominant species with the inclusion of ruderals in the ground layer including Common Nettle, Spear Thistle, Cleaver and Broad Leaved Dock.

18. Ruderal vegetation comprised of Perennial Rye Grass, Spear Thistle, Common poppy *Papaver rhoeas*, Cocks Foot, Rosebay Willowherb *Chamerion angustifolium*, Annual Sow Thistle *Sonchus oleraceus*, Common Nettle, and Curled Dock.

19. Listed building with multiple features with bat roost potential including lifted roof tiles and cracks in the brickwork. Situated on an area of concrete hardstanding. Surrounded by scaffolding at the time of the survey.

20. Species-rich native hedgerow comprised of Hawthorn, Hazel, Blackthorn, English Elm and Ash.

21. Ruderal vegetation similar to TN 20 with the inclusion of Oxeye Daisy at high densities and occasional Red Campion *Silene dioica*.

22. A SUDS pond within a parcel of ruderal vegetation described in TN21. Sloping earth banks with occasional Pendulous Sedge *Carex pendula*.

23. A shaded pond approximately 30cm in depth. Tussocks of Pendulous Sedge and patches of encroaching Bramble, Willow, Pedunculate Oak and Alder, border the edge of the pond. The pond area is enclosed by a chicken-wire fence.

24. Modified grassland with a short sward length of approximately 20cm in length comprised of Perennial Rye Grass, Cocks Foot, Red Fescue, Meadow Buttercup, Broadleaved Dock and Dandelion.

25. Lowland mixed deciduous woodland. Dominant species within the woodland include Ash, Pedunculate Oak and Alder with a Hawthorn and Field Maple understorey. The ground layer includes Bramble, Wood Avens, Herb Robert, Ground Ivy, and Hairy Brome *Bromopsis ramosa*. There are fallen wood and dead-wood piles throughout the woodland area and multiple trees with possible bat roosting potential. The woodland, in part, is listed on Natural England's Ancient Woodland Inventory.

26. Large parcel of bare ground with large spoil heaps. During the time of the survey, excavators were topping soil within the parcel. Field margins were sparsely vegetated with ruderal species including Bramble, Curly Dock, Spear Thistle, Ragwort and Common Nettle.

27. Lowland mixed deciduous woodland. A thin strip of broadleaved woodland plantation behind this comprised of Ash, Lombardy Poplar, Field Maple, White Willow, Grey Willow, Dogwood, Hazel, Hawthorn, Blackthorn and Bramble with Common Ivy and Cleavers dominating the ground layer. Some of the trees have features of possible bat roosting potential. A ditch that had small pools of standing water is present along the southern side of the wooded strip.

28. Site compound on hardstanding area.

29. Short ruderal vegetation within the northern end of the parcel similar in species composition to TN18 with the inclusion of Ribwort Plantain *Plantago lanceolata*, Timothy *Phleum pratense*, Musk Mallow *Malva moschata* and Bristly Oxtongue. Bare ground is present across the southern area of the parcel with small field margins

approximately 1m in width comprised of similar short ruderal species as the northern area.

30. A dense, intact, species-rich native hedgerow with trees comprising Pedunculate Oak, Beech, Ash, Goat Willow *Salix caprea*, Black Poplar *Populus nigra*, Field Maple, Dogwood, Hazel, Holly, Bramble and Common Broom *Sarothamnus scoparius*. The hedgerow is approximately 15 years old and tree guards are present on some individual plantings with some mature trees present along the roadside, especially within the southern section of the hedgerow.

31. Modified grassland with species including Yorkshire Fog, Perennial Rye-grass, False Oat-grass *Arrhenatherum elatius*, Cock's Foot, Red Fescue, Common Bent, Creeping Buttercup, White Clover, Doves-foot Cranesbill *Geranium molle*, Common Vetch, Common Mouse-ear *Cerastium fontanum*, Scentless Mayweed *Tripleurospermum inodorum*, Creeping Thistle, Spear Thistle, Common Sorrel, Ragwort, Greater Willowherb *Epilobium hirsutum*, Cleavers, Broad-leaved Dock, Common Knapweed *Centaurea nigra*, Meadow Vetchling *Lathyrus pratensis*, Forget-me-not sp., Fleabane *Pulicaria dysenterica* and Self-Heal *Prunella vulgaris*. Along the treeline to the south, Hemp Nettle *Galeopsis tetrahit*, Lady's Thumb *Persicaria maculosa*, Scentless Mayweed, Prickly Sow-Thistle and Clustered Dock with wet flushes of Sedge and Soft Rush. There are two soil bunds/soil storage piles with tall ruderals dominated by Spear Thistle, Common Nettle, Broadleaved Dock and Smooth Hawksbeard *Crepis capillaris* with large patches of scrub within the grassland with species including Bramble, Elder, Silver Birch and Dog-rose with Common Nettle. There are also piles of deadwood near and within the scrub.

32. Non-native and ornamental species-poor hedgerow comprising Cherry Laurel *Prunus laurocerasus*, Leylandii Cypress *Cupressus x leylandii* and Elder, broken by Bramble scrub on the north-eastern edge of the grassland field (TN 31). To the south of the hedgerow, continuing along the field boundary is a wooden post and electric wire fence which is overgrown with tall grasses and ruderal vegetation.

33. An outgrown, defunct native species-rich hedgerow with trees adjacent to Park Lane, with a dry ditch below. Species within the hedgerow include Pedunculate Oak, Black Poplar, Gorse (*Ulex europaeus*), Holly, Grey Willow, Blackthorn, Bracken and Bramble. A treeline of Pedunculate Oak is present approximately 5m into the field from the hedgerow.

34. A ditch that was dry at the time of survey with scattered Bramble scrub and trees including Willow and Pedunculate Oak, some of which have possible bat roosting potential. Behind the ditch is a fence and a dirt track, used as an access route into the site. A scrub line is present along the eastern side of the track and is 1-2m wide comprised of Grey Willow, Dog Rose, Oak and Bramble scrub. Track supports ephemeral vegetation including Scentless Mayweed, Cocks Foot, Smooth Hawksbeard, Common Yarrow, Hawthorn saplings, Common Bent and Spear Thistle.

35. Modified grassland field with a similar species composition to Target Note 31, with more Bent dominant in the north and False Oatgrass and Fescue sp. dominated to the south. Occasional species include Greater Plantain, Ribwort Plantain, Greater Birds-foot Trefoil, Common Hogweed, Cleavers, Meadow Vetchling, Mouse-ear, Common Vetch, Common Fleabane, Creeping Buttercup, Red Fescue and Soft Rush.

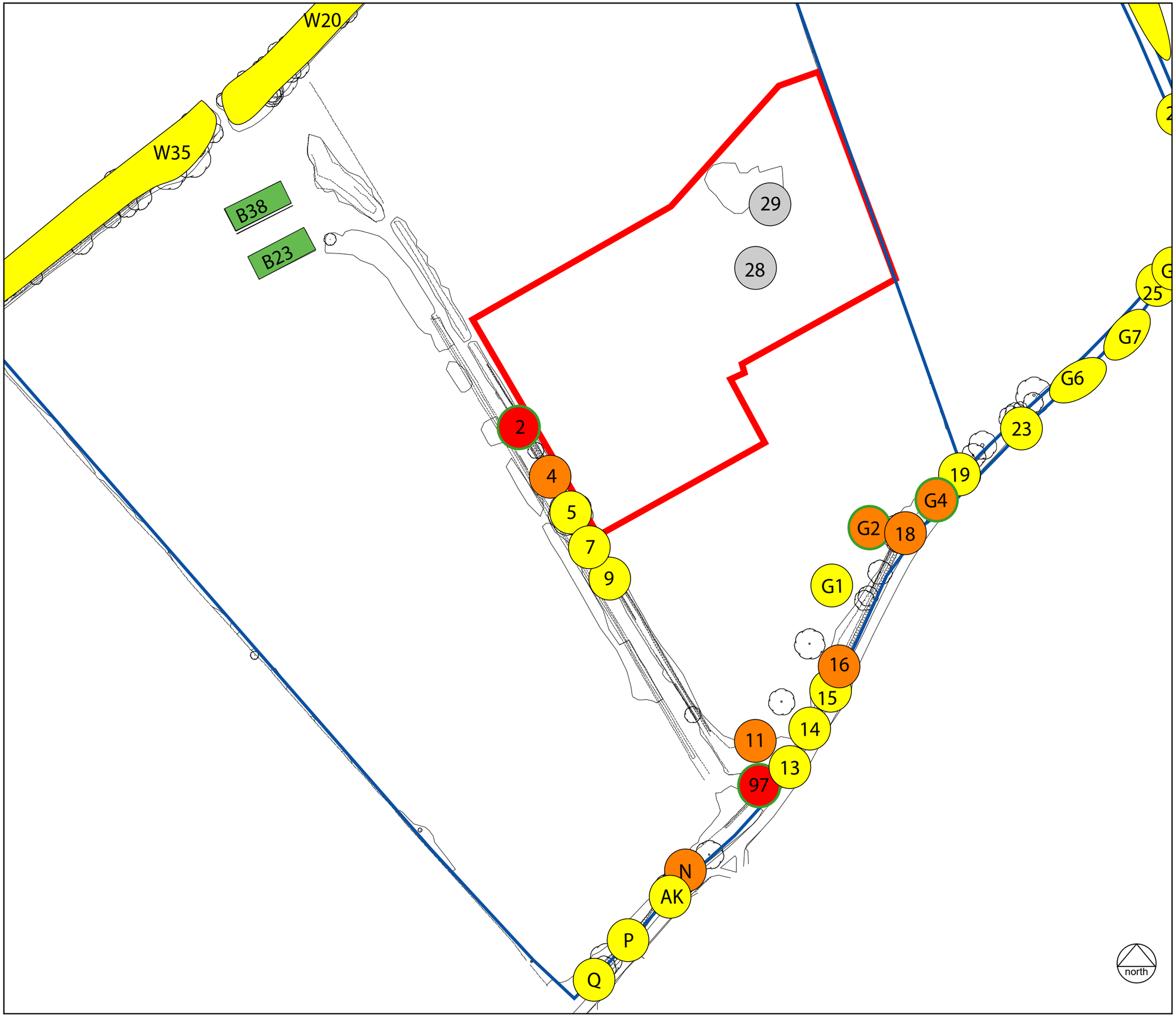
Bramble scrub is present along many of the field boundaries, with Common Nettle also present. A wet flush is present within the west of the field and contains Common Horsetail, Common Nettle, Sow Thistle, Soft Rush and occasional Hemp Nettle.

36. Scattered semi-mature trees and scattered areas of dense scrub along fence line. Species present include Oak, Ash, Blackthorn, Dog Rose, Bramble and Common Nettle.

37. A line of scrub and trees with a dry ditch bordering Park Lane.

**FIGURE 2**

**Bat Roost Survey Summary Plan – Land South of Parcel 15**




**KEY**

- Wider site boundary
- Land South of P15 site boundary
- Tree/building subject to emergence/ re-entry survey in 2022 by HDA

BUILDINGS

- Negligible bat roost potential

TREES

- High bat roosting potential
- Moderate bat roosting potential
- Low bat roosting potential
- Tree collapsed in 2023

The highest bat roosting potential recorded are shown for the groups(G)/woodlands(W).

All other trees/tree groups within the survey area are regarded as having 'Negligible' potential to support roosting bats.

Roosting categories relate to roost potential in accordance with the BCT 2016 guidelines.

CLIENT:
CALA Homes Thames Ltd.

PROJECT:
Hogwood Farm, Finchampstead

TITLE:
Bat Roost Survey Summary Plan - Land South of P15

SCALE AT A3: NTS

DATE: October 2024

868.1/97



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**FIGURE 3**

**Ecological Proposal Plan**


**KEY**

- Land South of P15 site boundary
- Proposed bat box location*
- Proposed bird box location*
- Proposed Hedgehog hole location*
- Proposed log and brash pile location*

* Position indicative

CLIENT:
CALA Homes Thames Ltd

PROJECT:
Hogwood Farm, Finchampstead

TITLE:
Land South of P15 Ecological Proposals Plan

SCALE AT A3:
NTS

DATE:
October 2024

868.1 / 104


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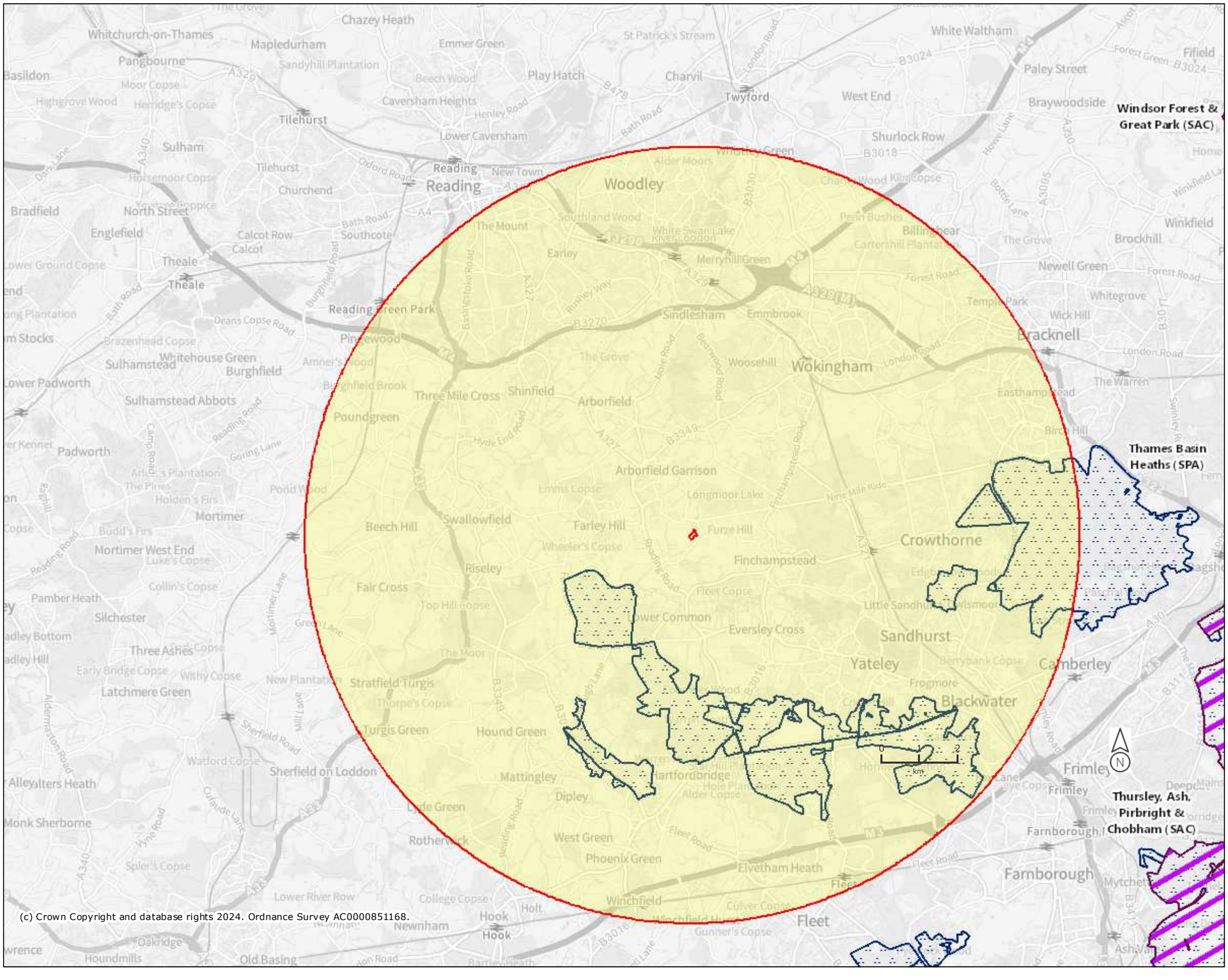
**APPENDIX A**

**Desk Study**

# 10km Statuatory Designated Areas

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## Legend

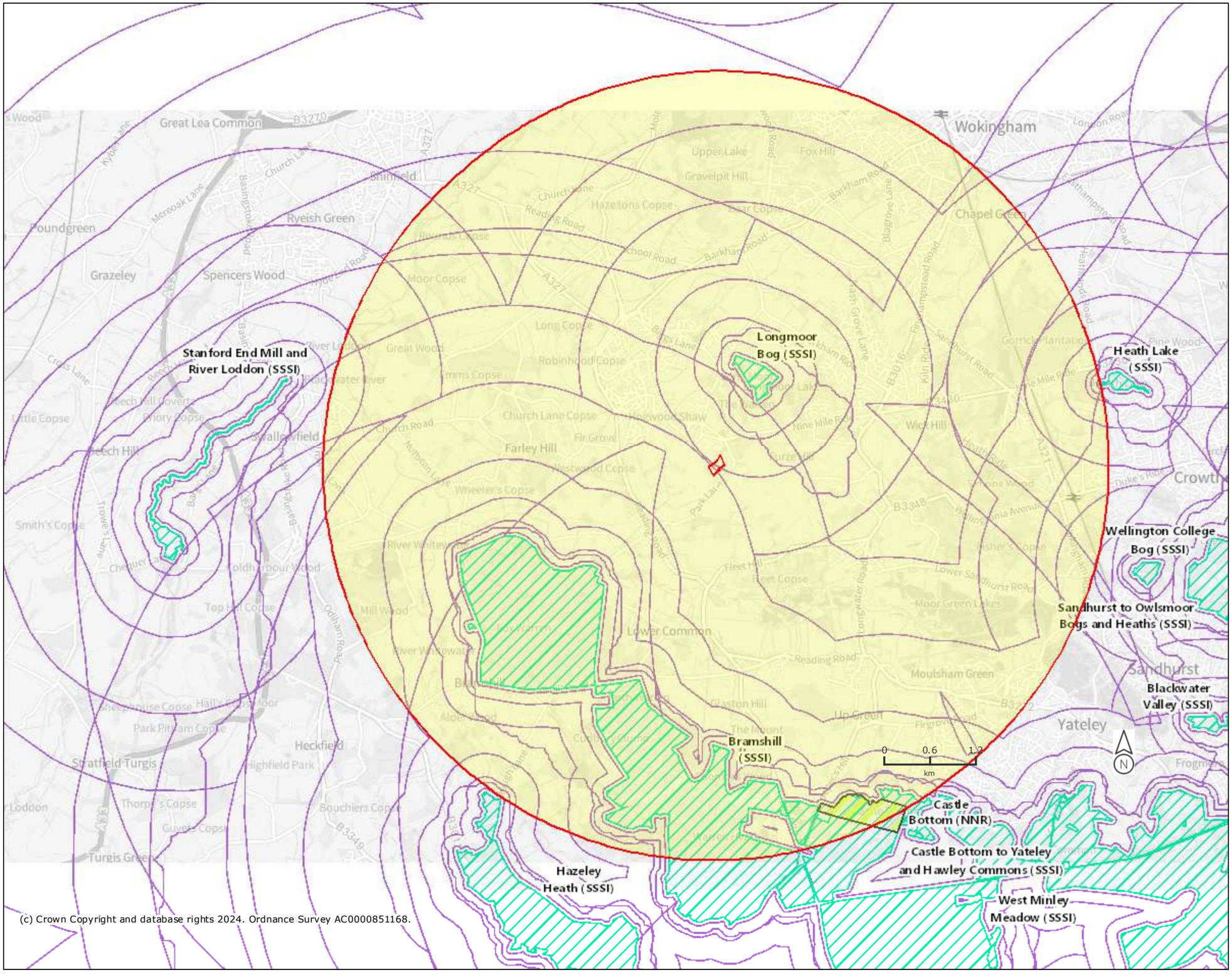
- Ramsar Sites (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Projection = OSGB36
xmin = 450400
ymin = 152800
xmax = 500800
ymax = 178100

0 2 4
km

Map produced by MAGIC on 11 September, 2024.

# 5km Nationally Designated Areas

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## Legend

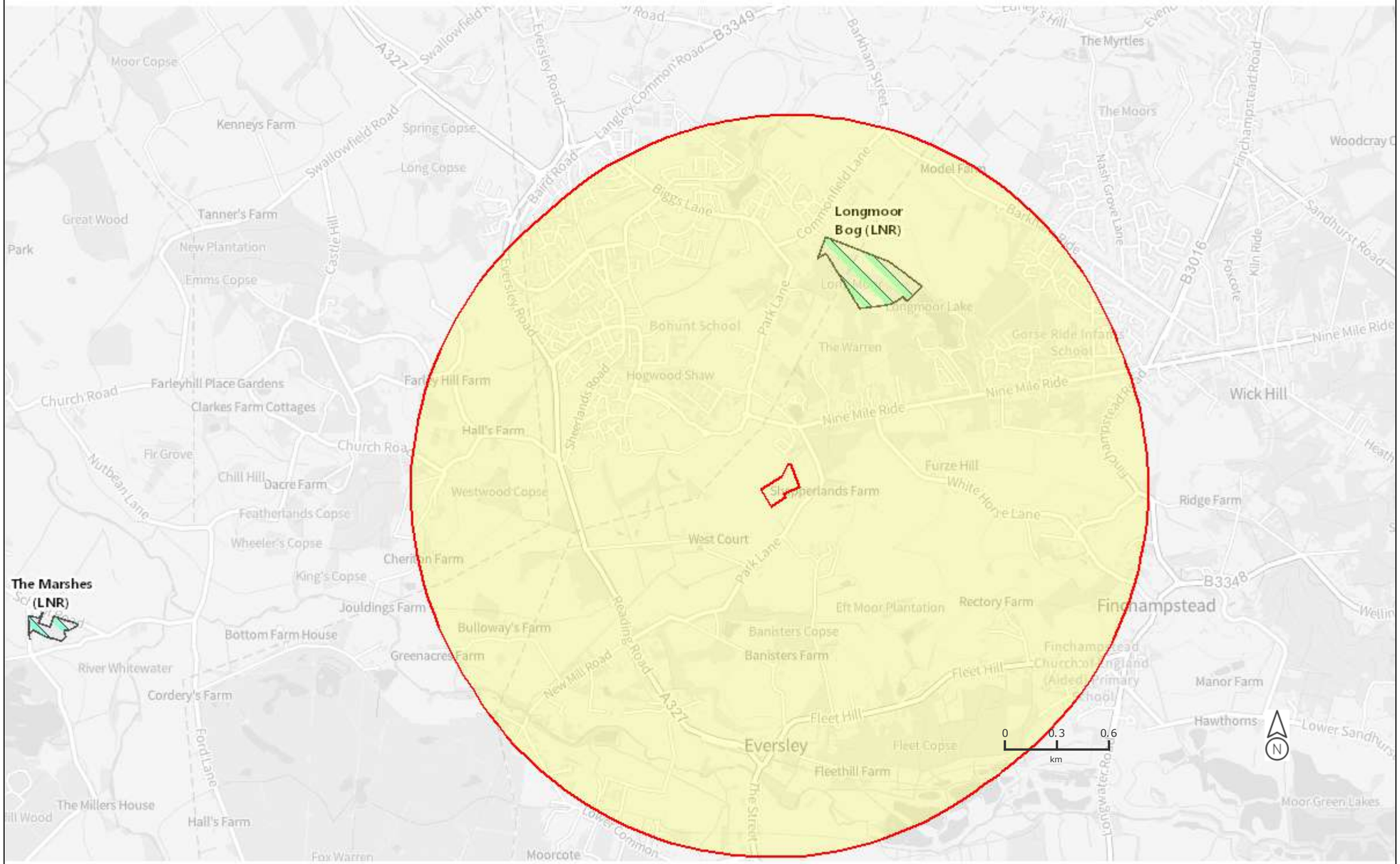
- National Nature Reserves (England)
- Sites of Special Scientific Interest (England)
- SSSI Impact Risk Zones - for LPAs to determine likely impacts on terrestrial SSSIs and when to consult Natural England

Projection = OSGB36
xmin = 466200
ymin = 159000
xmax = 486500
ymax = 168800

0 1 2
km

Map produced by MAGIC on 11 September, 2024.

# 2km Local Nature Reserve






## Legend

Local Nature Reserves (England)

Projection = OSGB36
xmin = 472100
ymin = 162000
xmax = 482300
ymax = 166900

0 0.5 1
km

Map produced by MAGIC on 11 September, 2024.

**County: Hampshire** **Site name: Bramshill**

**Status:** **Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 (as amended)**

**Local Planning Authority: Hampshire County Council, Hart District Council**

**National grid reference: SU774596**

**Ordnance survey sheet: 1:50,000: 186** **1:10,000: SU76 SE/SW, SU75 NE**

**Date notified (under 1981 Act): 1988, 1990** **Date of last revision: 20.10.2000**

**Area:** **671.99 ha** **Date of Confirmation: 17.7.2001**

**Reasons for Notification**

This site is notified for a series of shallow acid ponds and associated mire, which support a rich assemblage of dragonfly and damselfly, and rotationally felled conifer plantation, which provides habitat for internationally important populations of nightjar, woodlark and Dartford warbler.

**General Description**

Bramshill comprises extensive areas of conifer plantation together with a series of shallow acidic ponds within relic wet heathland and a small unimproved grassland area adjacent which provides habitat for the nationally rare small fleabane *Pulicaria vulgaris.*

Management of the pine plantations results in a sequence of clearings and young coniferous trees which are utilised by breeding nightjar *Caprimulgus europaeus,* woodlark *Lullula arborea* and Dartford warbler *Sylvia udnata*. The site also contains small breeding populations of hobby *Falco subbuteo* and little ringed plover *Charadrius dubius*

The pond areas differ in character, the northern and middle areas occupying former gravel workings, whilst the southern series occupies a damp valley and was formed by damming a small acidic stream. The areas of open water are dominated by bog pondweed *Potamogeton polygonifolius* and very large populations of the nationally scarce pillworth *Pilularia globulifera.* The shallow, often exposed margins have a rich flora dominated by soft rush *Juncus effuses,* compact rush *J. conglomerates,* lesser spearwort *Ranunculus flammula* and reedmace *Typha latifolia.* Nationally scarce plants occurring here include the needle spike rush *Elecharis acicularis*, six stamened waterwort *Elatine hexandra* and small water-pepper *Persicaria minor.*

Within the plantations there are a few small areas of wet heath dominated by purple moor-grass *Molinia caerulea*, wet heathland with cross leaved heath *Erica tetralix* and fragments of dry heathland with heather *Calluna vulgaris.* Locally uncommon plants present include petty whin *Genista anglica* and small cudweed *Filago minima,* together with stag's horn clubmoss *Lycopodium clavatum* at its only Hampshire location. Heath communities are present alongside forest tracks and briefly recolonise after forestry clearance operations, before the

tree cover closes over again following planting. Yellow bartisia *Parentucellia viscose* is found along some woodland rides.

The acidic ponds are fed by the surrounding heathland and are generally clear and free of pollution. At least 24 species of dragonfly and damselfly have been recorded breeding out of a total of 37 resident in Britain. The occurrence of the nationally scarce small red damselfly *Ceriagrion tenellum,* downy emerald *Cordulia aenea* and brilliant emerald *Somatochlora metallica* are of particular note. The open water and heathland areas are also important for other invertebrates, including the nationally scarce horsefly *Tabanus cordiger,* woodland grasshopper *Omocestrus rufipes* and a colony of the shortwinged conehead *Conocephalus dorsalis.*

Two umimproved grassland fields close to Springwater Farm lie adjacent to the northern plantation at Bramshill. Extensive grazing has created habitat for a population of the nationally rare small fleabane *Pulicaria vulgaris*, which is also vulnerable in a European context. This is the only site in Hampshire which supports this plant, outside the New Forest.

**Other Information**

1. This site incorporates two areas previously notified as Bramshill SSSI and Warren Heath Ponds SSSI with extensions to incorporate coniferous plantation which provide habitat for Annex I birds.

2. This site includes land which has been proposed for designation as a Special Protection Area under Directive 79/409/EEC on the Conservation of Wild Birds. Nightjar, woodlark and Dartford warbler are listed on Annex 1 of the Directive.

3. Woodlark and nightjar are priority species in the UK Biodiversity Action Plan.

4. Woodlark, Dartford warbler, hobby and little ringed plover are specially protected by being listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

5. Small fleabane is a Red Data book species listed on Schedule 8 of the Wildlife and Countryside Act.

**County:** Hampshire **Site name:** **Castle Bottom to Yateley and Hawley Commons**

**Status:** Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 (as amended after 1981)

**Local Planning Authorities:** Hampshire County Council, Hart District Council, Rushmoor Borough Council

**National grid reference:** SU834588

**Ordnance Survey sheet: 1:50,000:** 175,186 **1:10,000:** SU85 NW, SU85NE, SU86 SW, SU76 SE

**Date notified (under 1949 Act):** 1979 (Yateley Common)

**Date notified (under 1981 Act):** 1985, 1986, 1993

**Date of last revision:** 20 October 2000

**Area:** 921.41 ha

**Reasons for notification**

This site is notified for its heathland and young conifer plantation which supports an internationally important population of Dartford warbler and populations of two other internationally important species, woodlark and nightjar. The scrub/heathland interface supports a particularly rich invertebrate fauna including a number of nationally scarce species. It also supports an outstanding Dragonfly assemblage.

**General description**

Castle Bottom to Yateley and Hawley Commons is one of the largest remnants of lowland heathland in the Thames Basin. The majority of the site is on gently undulating plateau gravels; the valley bog at Castle Bottom is underlain by Bagshot Beds and Bracklesham Sands.

The dry heathland areas are dominated by heather *Calluna vulgaris,* bell heather *Erica cinerea* and dwarf gorse *(flex minor,* grading locally to humid heath dominated by heather, bell heather, cross-leaved heath *Erica tetralix and* purple moor-grass *Mohnia caerulea,* or acid grassland with dense bracken *Pteridium aquilinum.* Gorse *Ulex europaeus,* silver birch *Betula pendula* and pine Pinus sylvestris scrub form part of the mosaic. Small areas of grass heath are dominated by bristle-leaved bent grass *Agrostis curtisii,* here near the eastern limit of its distribution. The nationally scarce upright chickweed *Moenchia erecta* is found together with the largest Hampshire colony of the locally uncommon moonwort fern *Botrychium lunaria.* The locally uncommon meadow thistle *Cirsium dissectum* is found towards the south westerly end of the site.

Valley mire vegetation at the site is dominated by tussocky purple moor-grass and bog myrtle *Myrica gale.* The rich bog flora associated with the more open areas includes white

beak-sedge *Rhynchospora alba,* two species of sundew *Drosera rotundifolia* and *D. intermedia,* dodder *Cuscuta epithymum,* bog asphodel *Narthecium ossifragum* and bog pimpernel *Anagallis tenella.*

The site supports at least 19 species of dragonfly and*damselfly out of a total of 37 resident species in Britain. These include two nationally scarce species, the small red damselfly *Ceriagrion tenellum* and the downy emerald *Cordulia aenea,* both associated with bog. Heathland invertebrates include the nationally rare bee *Hyaeus gibbus* and a number of nationally scarce species including two native cockroaches, the dusky cockroach *Ectobius lapponicus* and lesser cockroach E. *panzeri,* and the silver-studded blue butterfly *Plebejus argus.* The nationally rare conopid fly *Myopa fasciata is* recorded from the scrub/heath interface.

The mosaic of open heath, young plantings and broad rides within coniferous plantation, and scrub provides habitat for a number of heathland birds. These include stonechat *Saxicola torquata* together with three highly vulnerable species of bird, woodlark *Lullula arborea,* nightjar *Caprimulgus europaeus* and Dartford warbler *Sylvia undata.* The site is also a regular feeding habitat for the hobby Falco *subbuteo.*

**Other information**

1. Part of this site is a Country Park and part is registered and confirmed common land.

2. This site includes land which has been proposed for designation as a Special Protection Area under Directive 79/409/EEC on the Conservation of Wild Birds. Nightjar, woodlark and Dartford warbler are listed on Annex 1 of the Directive.

3. Woodlark and Dartford warbler are specially protected by being listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

4. Woodlark, nightjar and hobby are priority species in the UK Biodiversity Action Plan.

5. Lowland heath is a priority habitat in the UK Biodiversity Action Plan.

**COUNTY:** BERKSHIRE **SITE NAME:** LONGMOOR BOG

**Status:** Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

**Local Planning Authorities:** Wokingham District Council, Berkshire County Council

**National Grid Reference:** SU782653

**Ordnance Survey Sheet 1:50,000:** **1:10,000:** SU76 NE/SE

**Date Notified (Under 1981 Act):** 1986 **Date of Last Revision:**

**Area:** 14.4 ha 35.5 ac

**Other information:** Part of the site is a Local Nature Reserve declared under Section 21 of the National Parks and Access to the Countryside Act 1949.

## Description and Reasons for Notification

Longmoor Bog is one of a few examples in Berkshire of a base-poor valley mire, its main features being a well-developed carr of alder *Alnus glutinosa*, grey willow *Salix cinerea*, downy birch *Betula pubescens* and alder buckthorn *Frangula alnus* and an area of wet heathland dominated by purple moor-grass *Molinia caerulea* and cross-leaved heath *Erica tetralix*. The remainder of the site is predominantly secondary mixed woodland.

Situated three miles south-west of Wokingham, Longmoor Bog lies in a shallow valley on sandy deposits of the Lower Bagshot beds. On higher ground there are free-draining acid soils, whilst in the valley bottom underlying clay has impeded the drainage and allowed peat to accumulate to a depth of over a metre. The peat provides a virtually unbroken pollen record for the last 7,500 years and cores taken from it have been used to demonstrate past changes in vegetation and landuse for the surrounding area. Studies suggest that some of the upper peat has been removed, possibly by medieval peat diggers.

A small stream arises from an outlet from Longmoor Lake and follows a straight course through the main area of carr woodland. The peaty soil remains waterlogged throughout the year, locally forming a 'ferruginous swamp' due to the presence of rust-coloured iron bacteria. The ground is carpeted by mosses, particularly the moderately shade-tolerant species *Sphagnum fimbriatum*, one of eight species of bog moss occurring. Other species, including the mosses *Orthotrichum lyelli* and *Ulota crispa*, grow on trees as do the liverworts *Lejeunea ulicina* and *Metzgeria fruticulosa*. Many of the mosses and liverworts occurring are uncommon or rare in east Berkshire.

Associated with the carr are a number of higher plants, particularly acid-tolerant species. Water horsetail *Equisetum fluviatile* and white sedge *Carex curta* are abundant and bottle sedge *C. rostrata* also occurs frequently. Other species include hard fern *Blechnum spicant*, narrow buckler fern *Dryopteris carthusiana*, bogbean *Menyanthes trifoliata*, common wintergreen *Pyrola minor*, marsh pennywort *Hydrocotyle vulgaris*, lesser skullcap *Scutellaria minor* and common spotted orchid *Dactylorhiza fuchsii*.

The wet heathland lies to the south of the stream and carr and is likewise characterised by the abundance of mosses, particularly *Sphagnum capillifolium, S. cuspidatum, S. recurvum* and other species of bog moss. Cross-leaved heath is the dominant dwarf shrub, but heather *Calluna vulgaris* and dwarf gorse *Ulex minor* also occur. Several species of rushes are found, including heath rush *Juncus squarrosus* and bulbous rush *J. kochii*. Common cotton-grass *Eriophorum angustifolium* and the insectivorous round-leaved sundew *Drosera rotundifolia* also occur locally.

The open heath and the carr merge into mixed woodland on the drier soils, consisting of abundant birch *Betula* spp. with pedunculate oak *Quercus robur*, Scots pine *Pinus sylvestris*, aspen *Populus tremula* and rowan *Sorbus aucuparia*. Honeysuckle *Lonicera periclymenum* is frequent and wavy hair-grass *Deschampsia flexuosa* locally abundant. Other

plants include pill sedge *Carex pilulifera*, slender rush *Juncus tenuis*, heath woodrush *Luzula multiflora*, sneezewort *Achillea ptarmica*, heath groundsel *Senecio sylvaticus*, heath spotted orchid *Dactylorhiza maculata* and broad-leaved helleborine *Epipactis helleborine*.

OVER/

The woodland and heathland support a variety of breeding birds including woodcock, great spotted and green woodpeckers, treecreeper and tree pipit.

Longmoor Bog is an important site for insects, especially species associated with the wet heathland, such as the bog bush cricket *Metrioptera brachyptera* and silver-studded blue butterfly *Plebejus argus*, a declining species in southern Britain. Dragonflies recorded include *Anax imperator, Aeshna cyanea, A. juncea, Cordulea aenea* and *Orthetrum cancellatum*. Waved black *Parascotia fuliginaria* and marbled white spot *Cithacodia pygarga* moths have been recorded and large nests of the wood ant *Formica rufa* are found in the drier parts of the woodland.

Fungi are well represented and include typical heathland and woodland species such as fly agaric *Amanita muscaria*, tawny grisette *A. fulva, Laccaria laccata, Lactarius tabidus, L. turpis* and *Tricholoma fulvum.*

**APPENDIX B**

**Summary of Parcels 14 and 15 Invasive Species Walkover Survey Findings**

**PROJECT:** **Hogwood Farm, Finchampstead**

**CLIENT:** **CALA Homes (Thames) Ltd**

**HDA ref:** **868.1**

**Date:** **8th February 2023**

## Summary of Parcels 14 and 15 Invasive Species Walkover Survey Findings

### 1 Introduction

1.1 This technical note summarises the findings of an updated Invasive Species Walkover Survey of Parcels 14 and 15 of the development land at Hogwood Farm, Finchampstead. The study was commissioned by CALA Homes (Thames) Ltd in March 2022. The extent of survey is shown on the accompanying *Invasive Species Survey Summary Plan*.

1.2 The purpose of the survey was to provide an updated assessment of the presence/likely absence of invasive plant species listed under Schedule 9 of the 1981 Wildlife and Countryside Act (as amended) within the Parcels 14 and 15 development area (hereinafter referred to as 'invasive plant species'). This updates a previous invasive species walkover survey carried out by HDA in December 2021 and has been carried out in accordance with the recommendations given in the *Non-native Invasive Species Management Plan – Parcels 14 and 15* (HDA, 2022) to update the survey prior to development commencing.

### 2 Background and legislation

2.1 A suite of ecological surveys has been carried out across the development land at Hogwood Farm, which included invasive species surveys and incidental observations on the presence of invasive plant species listed on Schedule 9 of the 1981 Wildlife and Countryside Act (as amended).

2.2 An unidentified Cotoneaster species was recorded in association with the Parcels 14 and 15 development area during the previous invasive species walkover survey conducted in December 2021. In addition, during consultation with Natural England Japanese Knotweed was identified in the wider area (Royal Haskoning, 2014) and during an updated Phase 1 habitat survey Variegated Yellow Archangel was recorded from the wider site boundary (HDA, 2018). Several species of Cotoneaster (including

Wall Cotoneaster *Cotoneaster horizontalis*, Entire-leaved Cotoneaster *Cotoneaster integrifolius*, Himalayan Cotoneaster *Cotoneaster simonsii*, Hollyberry Cotoneaster *Cotoneaster bullatus* and Small-leaved Cotoneaster *Cotoneaster microphyllus*), Rhododendron (*Rhododendron ponticum* and *Rhododendron ponticum x Rhododendron maximum*), Variegated Yellow Archangel *Lamiastrum galeobdolon* and Japanese Knotweed *Fallopia japonica* are all listed under Schedule 9 of the 1981 Wildlife and Countryside Act (as amended). It is an offence to release, plant or cause to grow in the wild any plant included on this schedule of the Act.

2.3 This updated walkover survey has been carried out to identify the presence, location and area covered by any non-native invasive species listed on Schedule 9 of the 1981 Wildlife and Countryside Act (as amended), not previously identified within Parcels 14 and 15.

## 3 Methodology

3.1 The survey took the form of a walkover survey of the Parcels 14 and 15 land. This involved a walked transect with regular stop samples to ensure that plant species present were not being overlooked. The survey was carried out by Nick Chambers of Hankinson Duckett Associates on the 2nd August 2022. Weather conditions were calm and dry.

*Limitations*

3.2 The optimal season for surveys of invasive plant species listed under Schedule 9 of the 1981 Wildlife and Countryside Act (as amended) is between May and August, with the updated August 2022 survey taking place at the end of this period. Although in combination with previous site work it is considered the walkover survey allows an indication of the likely presence/absence of invasive species within the Parcels 14 and 15 development area, the survey should not be regarded as confirmation of absence. Further certainty with regards to the presence/likely absence of invasive plant species could be achieved through multiple visits across the growing season.

## 4 Results

4.1 The Parcels 14 and 15 development area is dominated by fallow grassland with small areas of scrub at the time of the survey. The development areas are bordered by plantation woodland, hedgerows and ditches.

4.2 The survey confirmed the continued presence of a species of Cotoneaster plant identified during the previous survey within the hedgerow constituting the southern boundary of Parcel 15, adjacent to Park Lane (see *Invasive Species Survey Summary Plan*).

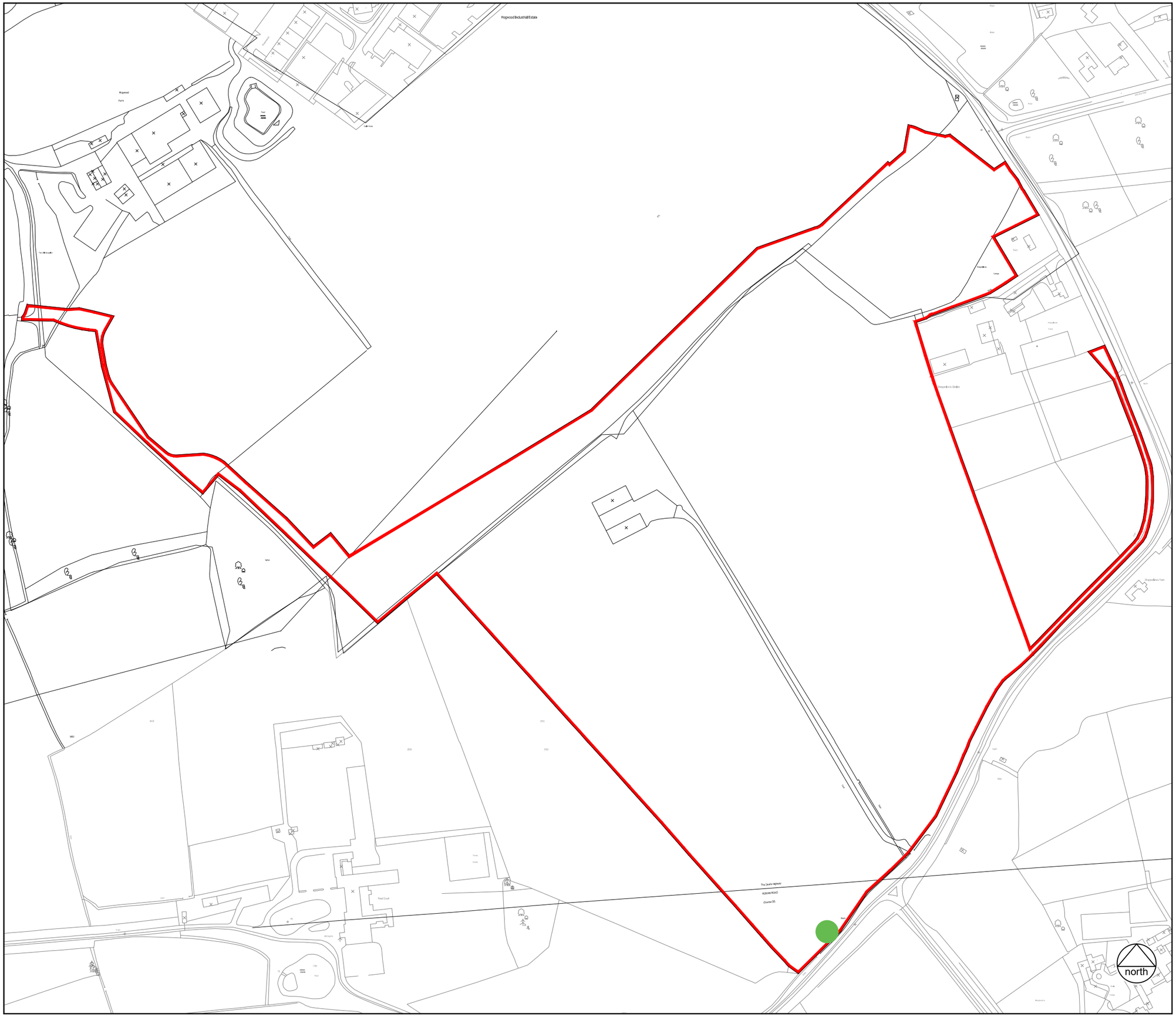
## 5 Recommendations and Conclusions

5.1 Cotoneasters can be notoriously difficult to identify to a species level, often requiring observation throughout the growing season to study flower and fruit morphology. Unless further survey confirms that only non-invasive forms of Cotoneaster are present at the site, management works within the site should include the necessary control of Cotoneaster to prevent its spread within or outside of the Parcels 14 and 15 development area. This should be carried out in accordance with the methodology prescribed by a suitably qualified contractor (to ensure an effective warranty) however control measures are likely to comprise either:

1. Physical excavation of the plants and surrounding soil to ensure all plant matter and seeds are removed. Material should be chipped or burnt on site or removed to licenced landfill as control waste; or
2. Herbicide applications in the summer (June-August).

Following either method, the area should be subject to annual checks to confirm the plant has been killed as re-growth from seeds can occur.

5.2 With due regard to the limitation set out in *Section 3.2* above, it is considered unlikely that any further invasive plant species listed under Schedule 9 of the 1981 Wildlife and Countryside Act (as amended) are currently present within the Parcels 14 and 15 development land.




**KEY**

Site boundary

Cotoneaster

CLIENT:
CALA Homes (Thames) Ltd

PROJECT:
Hogwood Farm, Finchampstead

TITLE:
Invasive Species Walkover Survey Plan

SCALE AT A3:
NTS

DATE:
February 2023

868.01 / 71



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**APPENDIX C**

**2022 Bat Survey Report**

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# HOGWOOD FARM, FINCHAMPSTEAD

# 2022 BAT SURVEY REPORT

**Prepared for CALA Homes (Thames) Ltd**

**by**

**Hankinson Duckett Associates**

**HDA ref: 868.1**

**February 2023**

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**APPENDICES**

# 1 INTRODUCTION

## 1.1 Site location and summary description

1.1.1 This report describes the results of a suite of updated bat surveys in relation to development of approximately 110ha of land at Hogwood Farm, Finchampstead hereinafter referred to as 'the site'. The area of the site subject to updated bat surveys related to approximately 58.5ha of land in the centre, east and west of the site, hereinafter referred to as 'the survey area'. The site centre is located by National Grid Reference SU 774 642. The study was commissioned by CALA Homes (Thames) Ltd in phases in February 2022 and June 2022.

1.1.2 The survey area is located to the north-west of the village of Finchampstead, Berkshire. In general terms, the survey area comprises a series of agricultural fields of mixed usage, including arable land and historically horse, cattle and sheep grazed fields bordered by mature species-rich hedgerows, treelines and ditches, some of which are currently fallow. Woodland shaws and copses are located in the south, west, east and central areas of the survey area, including mixed, broadleaved and broadleaved plantation woodland types, some of which are included on Natural England's Inventory of Ancient Woodland. Wetland habitats within the site include drainage ditches and small streams associated with the field boundaries and a pond is located within the centre of the survey area. Two buildings are located within the survey area and are comprised of two large barns in the east of the site. The survey area is bordered to the north by a construction site and the Hogwood Industrial Estate (associated with the site); to the east by Park Lane beyond which lie residential dwellings and park homes; to the south by Park Lane, farmland and the Suitable Alternative Natural Greenspace (SANG); and to the west by A327 Reading Road and Sheerlands Road beyond which lie farmland and woodland.

1.1.3 The survey area is part of a larger area covering a total of 110ha, hereinafter referred to as 'the site'. The site includes Phase 1 comprising residential dwellings and associated gardens in the north-west of the site, the Phase 2 and NMRE construction sites in the north-west and north of the site and a SANG in the south which comprises a mix of wetland, species-rich grassland, scrub and woodland habitats. The wider area is dominated by agricultural land interspersed with woodland and residential properties. The location and boundary of the survey area and site are shown in *Appendix A*.

1.1.4 Further information on the extent and composition of habitats across the survey area and site are provided in the *Phase 1 Habitat Survey and Target Notes* (HDA, 2018).

## 1.2 Legislative context

1.2.1 All UK bat species are 'European Protected Species' (EPS) protected under the 2017 Conservation of Habitats and Species Regulations (as amended). In relation to an EPS, the 2017 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS;
- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or to hibernate or migrate; (ii) affect significantly the local distribution or abundance of the species to which they belong;
- Damage or destroy a breeding site or resting place of such an animal; and/or
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

1.2.2 In addition, all UK bats are protected under the 1981 Wildlife and Countryside Act (as amended). All species are listed on Schedule 5 of the Act and are subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; and/or
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat.

1.2.3 If works are planned that are likely to constitute an offence under the current legislation, an application for a derogation licence should be made to Natural England.

1.2.4 Seven species of bat (Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe and Lesser Horseshoe) are also identified as Species of Principal Importance under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. This requires planning authorities to regard these species as a material consideration in the planning process.

## 1.3 Development proposals and context

1.3.1 Planning permission (O/2014/2179 and 140764) was granted in January 2017 for a hybrid application. This comprises:

- Outline permission for demolition of all existing buildings on site; up to 1,500 new dwellings; employment floor space; a Neighbourhood Centre; a primary school; sports pitches and associated pavilion building; highways infrastructure; associated landscaping, public realm, open/green space and sustainable urban drainage systems; and
- Full permission for a 29.7ha Suitable Alternative Natural Greenspace (SANG) in the south of the site.

The hybrid planning permission was subsequently amended by a Section 73 application (181194) which was approved in November 2018.

## 1.4 Scope and purpose of the report

1.4.1 Surveys of the site undertaken by Entec in 2008 and Amec in 2012 identified features suitable for roosting and foraging bats. During subsequent bat activity surveys, species recorded included Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, *Myotis* sp., Brown long-eared bat, Noctule and Serotine (Royal Haskoning DHV, 2014). Further survey work was carried out between 2017-2019 by HDA to assess the suitability of buildings and trees within the survey area and site to support roosting, foraging and commuting bats. This is further supplemented by a Phase 1 bat roost scoping survey and Phase 2 bat roost survey carried out Stantec in 2020 for the construction of the Nine Mile Ride Extension (NMRE) which included updated surveys of some trees and buildings within the survey area (Stantec, 2020).

1.4.2 In recognition of the potential of the survey area to support bats, the time that has elapsed since the original surveys were undertaken and within the legislative context set out in *Section 1.2*, a updated Phase 1 bat scoping survey was carried out across the survey area to assess the potential of buildings and trees to support roosting bats. In addition, Phase 2 bat roost surveys were carried out to determine the presence/probable absence of roosting bats within trees with bat roost potential identified as potentially being impacted by the proposed development of Parcels 14 and 15 in accordance with the recommendations in the *Detailed Bat Mitigation Strategy – Parcels 14 and 15* (HDA, 2022) prepared for the proposed development of that area of the site. Updated Phase 2 bat activity surveys were also carried out across the survey area to determine the importance of habitats present for foraging and commuting bats. This information was then used to identify the need for any avoidance, mitigation or licensing measures in relation to bats in the context of the proposed development. Specifically, the aims of the updated 2022 study are:

i) To identify potential bat roost sites provided by buildings and trees within the survey area;
ii) To determine the presence/likely absence of roosting bats within suitable features where affected by the proposed development in association with Parcels 14 and 15 and identify species and numbers present;
iii) To determine levels of bat foraging and commuting activity within habitats within the survey area;
iv) To determine the requirement, if any, for licensing in respect of bats associated with Parcels 14 and 15; and
v) To identify appropriate mitigation and/or enhancement measures to ensure that the development avoids adverse impacts on bats, and, where possible, provides enhancements to support the long-term favourable conservation status of bats in accordance with nature conservation legislation, planning policy and the 2006 NERC Act.

## 2 METHODOLOGY

### 2.1 Introduction

2.1.1 The methodology followed in relation to all bat survey work undertaken within the survey area is consistent with current legislation and good practice guidelines set out by the Bat Conservation Trust (BCT, 2016). The following sections detail the suite of surveys undertaken to inform the proposed development and the results of these surveys are provided in *Section 3*.

### 2.2 Phase 1 bat scoping survey

2.2.1 The survey area was initially subject to a Phase 1 bat scoping survey by Fiona Muir of HDA over 4 days on the 1st and 7th of April, 4th May and 29th July 2022. All buildings and trees within the survey area were assessed for their potential to support roosting bats and classified according to their potential.

*Phase 1 building survey*

2.2.2 All buildings within the survey area were inspected externally from ground level using binoculars and a powerful torch to identify and investigate any potential entry and exit points such as missing roof tiles, loose fascias and lifted lead flashing, and to look for evidence of entry/exit in the form of staining, discolouration and/or scratch marks.

2.2.3 Internally, buildings were searched exhaustively where possible, to look for evidence of current or former occupation by bats. A powerful torch was used to investigate any accessible cavities, crevices and recesses in each building.

2.2.4 In view of the findings of the internal/external inspections, the potential of the buildings to support roosting bats ('confirmed roost', 'high', 'moderate', 'low' or 'negligible') was assessed in accordance with current best practice guidelines (BCT, 2016). Assessment of bat roosting potential requires consideration of a number of criteria, including the design and construction of the building or structure, the size and location of potential features and access points, the position of the building or structure, aspect, geographical location, surrounding land use and adjacent landscape linkages.

*Phase 1 tree survey*

2.2.5 All trees within the survey area were inspected from ground-level with the aid of binoculars and a powerful torch to identify potential features suitable for use by roosting bats. Potential features include splits, cracks and cavities, peeling bark, woodpecker holes, broken branches and a covering of Ivy where this is of a sufficient age to provide a suitable microclimate between the tree and Ivy stem(s).

2.2.6 In accordance with current best practice guidelines (BCT, 2016), trees were placed into one of five categories. Categorisation was based on the nature, size, location and quality of features present in each tree:

- Negligible suitability - Trees with no or negligible features for roosting bats;
- Low suitability - Trees of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential;
- Moderate suitability - Trees with one or more potential roost sites that could be used by bats but are unlikely to support roost types of high conservation status;
- High suitability - Trees with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time; or
- Known or confirmed bat roost.

## 2.3 Phase 2 roost surveys

2.3.1 Phase 2 roost surveys, comprising dusk emergence and dawn re-entry surveys, were conducted wherever trees potentially affected by the proposed development of Parcels 14 and 15 had been identified as having potential to support roosting bats (HDA, 2022). Emergence/re-entry surveys were conducted to determine presence/probable absence and, where present, identify species and numbers. The level of survey effort conducted was determined with reference to the identified bat roosting potential of the feature in accordance with best practice guidelines.

2.3.2 Surveyors with electronic bat detectors[1] were positioned around each feature to record bats emerging from or entering the trees. For the more complex/dark locations, surveyors were supplemented by infrared camcorders[2] coupled with infrared lights to illuminate the possible roost features. Potential emergences/re-entries were analysed in real-time by an ecologist the following day. Surveyors and camcorders were positioned to provide adequate coverage of all potential emergence/re-entry points on each feature surveyed. The surveyors carrying out the surveys were all experienced at carrying out bat emergence/re-entry surveys. Dusk emergence surveys generally began 15 minutes before sunset, ending approximately 1.5 hours after sunset. Dawn re-entry surveys generally began approximately 1.5 hours before sunrise and ended at sunrise or shortly thereafter. Records were made of any emergences and re-entries, and incidental records were also made of bat commuting and foraging activity in the vicinity of each surveyor.

[1] Anabat Walkabout and Anabat Express with 'Analook' recording software.
[2] Canon XA40 4K camcorders with infrared capability.

**Table 1:** Details of Phase 2 roost surveys

| Tree ref | Date / Time | Sunset / Sunrise | Conditions |
|---|---|---|---|
| **2 & 97** | 04/05/2022 20.15-22.00 | 20.30 | 100% cloud cover, Beaufort Scale = 0, dry, 13-10ºC |
| | 01/07/2022 03.21-05.04 | 04.51 | 60% cloud cover, Beaufort Scale = 1, dry, 11ºC |
| | 20/07/2022 20.53-22.38 | 21.08 | 100% cloud cover, Beaufort Scale = 2, light rain showers between 21.30 - 22.15, 20ºC |
| **91 & 93** | 04/05/2022 20.15-22.00 | 20.30 | 100% cloud cover, Beaufort Scale = 0, dry, 13-10ºC |
| | 01/07/2022 03.21-05.04 | 04.51 | 60% cloud cover, Beaufort Scale = 1, dry, 11ºC |
| | 29/07/2022 20.43-22.28 | 20.58 | 80% cloud cover, Beaufort Scale = 0, dry, 24-21ºC |
| **G2** | 04/05/2022 20.15-22.00 | 20.30 | 100% cloud cover, Beaufort Scale = 0, dry, 13-10ºC |
| | 14/07/2022 21.00-22.45 | 21.15 | 5% cloud cover, Beaufort Scale = 1, dry, 20ºC |
| **G4 & AF** | 30/06/2022 21.09-22.54 | 21.24 | 90% cloud cover, Beaufort Scale = 1, dry, 19-16ºC |
| | 14/07/2022 21.00-22.45 | 21.15 | 5% cloud cover, Beaufort Scale = 1, dry, 20ºC |

## 2.4 Phase 2 bat activity survey

*Bat activity transects*

2.4.1 In order to provide an assessment of the importance of the survey area for foraging and commuting bats, dusk and dawn activity surveys were undertaken between May and September 2022. Due to the size of the survey area, the survey area was divided into two survey area transects. The two survey area transect locations are shown in *Appendix B*. Surveyors carrying hand-held bat detectors walked transects of the survey area, with listening stops at regular intervals for periods of up to 5 minutes. Visual observations of bats and bat call registrations were noted, recording time, location, activity and, where known, species. Recordings of foraging and/or commuting activity made using digital devices were subsequently analysed to determine the identity of any unconfirmed species recorded during the surveys. Times and dates of surveys are given in *Table 2* below, along with weather conditions.

**Table 2:** Details of bat activity surveys

| Date | Sunset / sunrise | Time | Weather conditions |
|---|---|---|---|
| 04/05/2022 (Transects 1 & 2) | 20.30 | 20.30 - 22.30 | 100% cloud cover, Beaufort Scale = 0, dry, 13-10ºC |
| 14/07/2022 (Transect 1) | 21:15 | 21.15 - 23.15 | 5% cloud cover, Beaufort Scale = 1, dry, 20ºC |
| 20/07/2022 (Transect 2) | 21.08 | 21.08 - 23.08 | 100% cloud cover, Beaufort Scale = 2, light rain showers between 21.30 - 22.15, 20ºC |

| Date | Sunset / sunrise | Time | Weather conditions |
|---|---|---|---|
| 13/09/2022 (Transects 1 & 2) | 06.35 | 04.35 - 06.35 | 80% cloud cover, Beaufort Scale = 1, dry, 15ºC |

*Automated surveys*

2.4.2 Automated surveys were carried out as a supplement to the activity transect surveys and to gain further information on the species and frequency of bat activity within the survey area. Two programmable electronic bat detectors[3] were positioned in suitable habitat and left in place on three occasions between May and October 2022. Automated bat detector deployment are provided in *Table 3* below and the location of each detector deployed is shown in *Appendix B.*

**Table 3**: Details of automated bat detector deployment

| Location | Deployment and collection date | Sunset / Sunrise | Temp. Max. / Min. (ºC) |
|---|---|---|---|
| **A & B*** | 04.04.2022 – 05.04.2022 | 19:42 / 06:30 | 13 / 9 |
| | 05.04.2022 – 06.04.2022 | 19:43 / 06:28 | 11/ 8. |
| | 06.04.2022 - 07.04.2022 | 19:45 / 06:26 | 9/ 7 |
| | 07.04.2022 - 08.04.2022 | 19:47 / 06:23 | 7 / 4 |
| | 08.04.2022 - 09.04.2022 | 19:48 / 06:21 | 8 / 2 |
| | 09.04.2022 - 10.04.2022 | 19:50 / 06:19 | 9 / 2 |
| **C & D** | 14.07.2022 - 15.07.2022 | 21:15 / 05:04 | 20 / 9 |
| | 15.07.2022 - 16.07.2022 | 21:14 / 05:05 | 21 / 11 |
| | 16.07.2022 - 17.07.2022 | 21:13 / 05:06 | 23 / 12 |
| | 17.07.2022 - 18.07.2022 | 21:12 / 05:08 | 24 / 14 |
| | 18.07.2022 - 19.07.2022 | 21:11 / 05:09 | 28/ 18 |
| **E & F** | 28.09.2022 - 29.09.2022 | 18:48 / 07:01 | 18 / 3 |
| | 29.09.2022 - 30.09.2022 | 18:46 / 07:02 | 15 / 4 |
| | 30.09.2022 - 01.10.2022 | 18:44 / 07:04 | 14 / 11 |
| | 01.10.2022 - 02.10.2022 | 18:41 / 07:05 | 16 / 12 |
| | 02.10.2022 – 03.10.2022 | 18:39 / 07:07 | 17 / 5 |

** The static at Location B recorded one less night than the static at Location A (i.e. until the 09.04.2022).*

2.4.3 The results of the updated bat activity transect and automated detector surveys have been used to support the earlier assessment of bat foraging and commuting activity made in the Ecology Chapter of the Environmental Assessment submitted in support of the planning application (Royal Haskoning, 2014) and previous bat activity surveys carried out in 2017 and 2018 by HDA.

[3] Anabat SD2 with remote microphone and 'Analook' software

## 2.5 Limitations of surveys

2.5.1 All surveys followed best practice guidelines (BCT, 2016) and were conducted at an appropriate time of year, under favourable weather conditions and with an appropriate level of survey effort both in terms of the number of surveyors used and number of survey visits undertaken. Although periods of rain were experienced on one of the bat emergence surveys and one of the activity surveys, this was not found to have affected levels of bat activity and is not considered a constraint to the findings of the Phase 2 surveys. The surveys are therefore considered sufficient to allow a robust assessment of the likely effects of the proposed development on bats and to inform the recommendations provided in *Section 5* of this report.

# 3 RESULTS

## 3.1 Phase 1 bat scoping survey

*Buildings*

3.2.1 All buildings within the survey area were inspected during the Phase 1 bat scoping survey. The results of the Phase 1 building survey are summarised in *Table 4* below and the location of the buildings are shown in *Appendix A*. Photograph references relate to the photographs provided in *Appendix C*.

**Table 4:** Results of Phase 1 bat scoping building survey[4]

| Building | Description | Findings | Bat Roost Potential |
|---|---|---|---|
| **B23** (Photo 1) | Farm shed with corrugated metal walls and a peaked corrugated metal roof. | **External:** No suitable features for roosting bats present. The building is of single-skinned, metal construction and is likely to fluctuate in temperature.<br><br>**Internal:** Internal survey not possible due to access constraints.<br><br>**Evidence of bat activity:** None recorded. | **Negligible** |
| **B38** (Photo 2) | Farm shed with corrugated metal walls and a peaked gable corrugated metal roof. | **External:** No suitable features for roosting bats present.<br><br>**Internal:** The building is open on one elevation, single-skinned, of metal construction and is likely to fluctuate in temperature.<br><br>**Evidence of bat activity:** None recorded. | **Negligible** |

[4] Buildings B1, B2, B3, B4, B11, B21, B22, B34, B35, B36 and B37 removed from site before 2022 survey.

| Building | Description | Findings | Bat Roost Potential |
|---|---|---|---|
| **B39**<br><br>(Photo 3) | Bat barn constructed of timber with a pitched tiled roof. | **External:**<br>Multiple entry points for bats within the walls and bat tiles present on the roof.<br><br>**Internal:**<br>No internal access due to access constraints.<br><br>**Evidence of bat activity:**<br>None recorded. | **High** |

*Trees*

3.2.2 All trees identified as having potential to support roosting bats within the survey area are described in *Table 5* below and their locations are given in *Appendix A*.

**Table 5:** Results of Phase I bat scoping tree survey

| Tree ref* | Species | Findings | Bat Roost Potential |
|---|---|---|---|
| **2** | Pedunculate Oak | Broken branch on northern aspect which appears hollow and has a cavity.<br>Two possible openings into trunk where large branches have torn away from main stem. | **High** |
| **4** | Pedunculate Oak | Two dead branches, one with large split and the other with a potential cavity on western aspect. | **Moderate** |
| **5** | Pedunculate Oak | Possible cavity on western aspect. | **Low** |
| **7** | Dead | Limited features of bat roosting potential including narrow cracks in branches and a hole in trunk of limited depth. | **Low** |
| **9** | Pedunculate Oak | Dead branch with a possible opening on western aspect. | **Low** |
| **11** | Oak | Cavity at base of trunk. | **Moderate** |
| **13** | Willow | Tree scar with possible narrow cavity on southern aspect. | **Low** |
| **14** | Oak | Long knot hole on branch but without obvious depth, upward facing cavity and occluded wood without obvious depth on eastern aspect. | **Low** |
| **15** | Poplar | Some stem decay on northern aspect with broken limb and split wood of limited potential on southern aspect. | **Low** |
| **16** | Poplar | Broken branch with deadwood on northern aspect and main crown is lost with potential hidden cavities.<br>Cavity at snapped branch leading into trunk. | **Moderate** |
| **18** | Oak | Mature Ivy coverage with Ivy plating that has lifted in places.<br>Branch cavity of possible depth on eastern aspect. | **Moderate** |
| **19** | Pedunculate Oak | Upward facing knot hole with possible depth on southern aspect. | **Low** |
| **23** | Pedunculate Oak | Dense Ivy coverage with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **25** | Birch | Section of occluded wood on southern aspect.<br>Ivy coverage may have obscured featured from ground. | **Low** |
| **26** | Pedunculate Oak | Knot hole with limited potential on western elevation with Ivy potentially obscuring further features from view. | **Low** |
| **28** | Hawthorn | Multiple holes and cavities with depth in trunk on southern, eastern and western aspects. | **High** |
| **29** | Silver Birch | Fallen tree that has re-rooted. At the fallen end the trunk is hollow with a hole at the end. | **High** |

| Tree ref* | Species | Findings | Bat Roost Potential |
|---|---|---|---|
| **30** | Pedunculate Oak | Hollowing at base of trunk.<br>Large Woodpecker hole on northern aspect.<br>Large knot hole with possible cavity and staining on trunk on eastern aspect.<br>Lifted bark with possible opening below and a further possible cavity in trunk, although view obscured by Ivy. | **High** |
| **31** | Pedunculate Oak | Deadwood with some cracks and splits in crown. | **Low** |
| **35** | Wild Apple | Trunk hollow with opening at base.<br>Large hole at 1.5m featuring scratch marks at entrance and further cavities within dead stem. | **High** |
| **47** | Pedunculate Oak | Mature tree with dense Ivy on main trunk, downward facing knot hole on branch to south and snapped branch with split wood to south-east with limited potential. | **Low** |
| **85** | Ash | Dense Ivy coverage with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **87** | Ash | Dense Ivy coverage with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **89** | Pedunculate Oak | Bat box present.<br>Some decay to base of trunk but no obvious access points, dead branches in crown, some with knot holes and occluded wood with possible but no obvious depth. | **High** |
| **90** | Field Maple | Dense Ivy coverage with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **91** | Pedunculate Oak | Bat box present.<br>Mature tree with some Ivy coverage. No suitable features identified from ground level, but suitable roosting features could be concealed. | **High** |
| **92** | Field Maple | Dense Ivy coverage with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **93** | Pedunculate Oak | Bat box present.<br>Branch with split on south-western aspect. | **High** |
| **94** | Pedunculate Oak | Dead branch with small opening on south-western aspect. | **Low** |
| **97** | Oak | Main trunk is partly hollow with cavities at base and at 1.5m.<br>Further branch cavities on south-eastern aspect. | **High** |
| **100** | Pedunculate Oak | Two branches with deadwood and cracks on northern aspect.<br>Branches with long knot holes and occluded wood on south-western aspect. | **Moderate** |
| **274** | Pedunculate Oak | Deadwood in crown, but no obvious features recorded. | **Low** |
| **322** | Ash | Branch with small upward facing holes on southern aspect. | **Low** |
| **327** | Field Maple | Small hole in dead stem. | **Low** |
| **331** | Ash | Downward facing knothole on branch on eastern aspect and some deadwood with shallow knotholes in crown. Features recorded have limited suitability to support roosting bats. | **Low** |
| **333** | Field Maple | Long wound and long cavity on partially hollow trunk on eastern and north-eastern aspects. | **Moderate** |
| **334** | Pedunculate Oak | Small holes in branches on southern aspect. | **Low** |
| **335** | Pedunculate Oak | Two snapped branches with split wood on western aspect of limited bat roost potential. | **Low** |
| **336** | Field Maple | Heavily Ivy clad tree with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |

| Tree ref* | Species | Findings | Bat Roost Potential |
|---|---|---|---|
| **337** | Field Maple | Heavily Ivy clad tree with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **338** | Pedunculate Oak | Broken branch resting on adjacent branch, with large opening where the break has occurred on northern aspect.<br>Numerous further broken and snapped branches supporting features including splits, cracks and cavities on all aspects. | **Confirmed roost for 1 Soprano Pipistrelle** |
| **339** | Ash | Heavily Ivy clad with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **340** | Field Maple | Heavily Ivy clad with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **353** | Ash | Upwards facing cavity on northern aspect. | **Low** |
| **355** | Ash | Upward facing cavity on south-eastern aspect. | **Low** |
| **356** | Pedunculate Oak | Heavily Ivy clad with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **357** | Ash | Heavily Ivy clad with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **362** | Pedunculate Oak | Loss of limb with split wood, deadwood and small, narrow crack. | **Low** |
| **363** | Field Maple | Trunk is hollow with opening at base on western aspect and tree is heavily Ivy clad. | **Moderate** |
| **364** | Field Maple | Hollow stem with opening at base, with dense Ivy covering trunk. | **Moderate** |
| **367** | Pedunculate Oak | Missing branch leaving split wood and deadwood in canopy, but no obvious features recorded. | **Low** |
| **368** | Oak | Trunk clad with old dead Ivy. Multiple branches with deadwood and small cracks. | **Low** |
| **372** | Oak | Deadwood in crown and peeling bark. | **Low** |
| **373** | Pedunculate Oak | Mature, dead Ivy on trunk. | **Low** |
| **374** | Pedunculate Oak | Mature tree with deadwood in canopy with no obvious features from ground level, but suitable roosting features could be concealed. | **Low** |
| **391** | Pedunculate Oak | Dead branch on south-western aspect. | **Low** |
| **392** | Ash | Multiple Woodpecker holes into a likely hollow trunk. Large upward facing hole on northern aspect. | **High** |
| **393** | Pedunculate Oak | Dead branches with shallow cracks and potential cavities on south-western aspect. | **Low** |
| **394** | Pedunculate Oak | Snapped branch on eastern aspect. | **Low** |
| **396** | Pedunculate Oak | Branch with split wood, crack and small hole of limited bat roost potential. | **Low** |
| **398** | Oak | Heavily Ivy clad, suitable roosting features could be concealed. | **Low** |
| **399** | Ash | Opening at base of trunk but does not appear to lead anywhere. | **Low** |
| **400** | Ash | Large Woodpecker holes on south-eastern aspect. Main trunk partially hollow with cavities on northern aspect. | **Moderate** |
| **405** | Pedunculate Oak | Dead branch on south-western aspect with small Woodpecker holes and deadwood within crown.<br>Two bat boxes present on tree. | **High** |
| **407** | Pedunculate Oak | Opening in trunk near ground level and trunk appears hollow. The rest of the trunk is heavily Ivy clad and further features could potentially be concealed. | **Probable roost of 1 silent bat** |
| **408** | Oak | Mostly dead tree with a few small cracks within | **Moderate** |

| Tree ref* | Species | Findings | Bat Roost Potential |
|---|---|---|---|
| | | deadwood.<br>Minor woodpecker hole. | |
| **410** | Oak | Deadwood in canopy. | **Low** |
| **417** | Oak | Deadwood in canopy. | **Confirmed roost (roost identified by Stantec in 2020)** |
| **419** | Ash | Dense Ivy coverage and deadwood in crown. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Confirmed roost (roost identified by Stantec in 2020)** |
| **426 (see 427 on plan)** | Ash | Large upward facing crack in branch of limited suitability for roosting bats. | **Low** |
| **427** | Ash | Knot hole with possible depth on southern aspect. | **Low** |
| **428 (see 427 on plan)** | Ash | Heavily Ivy clad with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **432** | Oak | Densely Ivy clad with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **436** | Ash | Large upward facing knothole with no obvious depth on western aspect. | **Low** |
| **438** | Pedunculate Oak | Bat boxes.<br>No obvious features of bat roost potential, but tree of an age where bat roosting features may be concealed. | **High** |
| **439** | Pedunculate Oak | A dead branch with a possible cavity and a snapped branch with a possible cavity on southern aspect.<br>Bat boxes. | **High** |
| **440** | Pedunculate Oak | Mature, dense Ivy with features possibly concealed and peeling bark present on all aspects. | **Low** |
| **441** | Ash | Mature, dense Ivy with features possibly concealed.<br>Dead branch with a hole of possible depth on eastern aspect.<br>Bat boxes on south-western aspect. | **High** |
| **445** | Pedunculate Oak | Large trunk cavity on north-western aspect.<br>Branch with deadwood and a shallow cavity on south-eastern aspect.<br>Small branch cavity on south-western aspect.<br>Dead branch with rot hole on eastern aspect.<br>Dead branch in the crown on north-eastern aspect. | **High** |
| **571** | Pedunculate Oak | Snapped branch in crown, branches with deadwood with some Ivy on trunk. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **578** | Pedunculate Oak | The tree is densely Ivy covered. No suitable features identified from ground level, but suitable roosting features could be concealed.<br>Branch on southern aspect has small knot hole. | **Low** |
| **579** | Ash | Knot hole with possible depth on northern aspect. | **Low** |
| **580** | Pedunculate Oak | Crack in main stem where branch has torn and a further branch has torn leaving a gap between trunk and branch on southern aspect.<br>Occluded wood on south-eastern aspect.<br>Branch with crack on northern aspect.<br>Dense Ivy on eastern aspect of trunk. | **Moderate** |
| **AA** | Oak | Densely Ivy clad tree with deadwood. No suitable | **Low** |

| Tree ref* | Species | Findings | Bat Roost Potential |
|---|---|---|---|
| | | features identified from ground level, but suitable roosting features could be concealed. | |
| **AB** | Maple | Possible trunk cavity. | **Low** |
| **AC** | Dead tree | Large and small trunk cavities on eastern aspect. | **Moderate** |
| **AE** | Ash | Tree cavities and woodpecker holes on southern aspect. Bat box present. | **High** |
| **AF** | Holly | Multi-stemmed Holly containing multiple trunk cavities. | **Moderate** |
| **AG** | Ash | Bat box present. | **High** |
| **AH** | Pedunculate Oak | Bird box on the southern aspect. | **High** |
| **AI** | Oak | Densely Ivy clad tree with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **AJ** | Oak | Densely Ivy clad tree with deadwood and missing crown. Large sections of peeling bark on southern aspect and a woodpecker hole on the western aspect. | **High** |
| **AK** | Ash | Heavily Ivy clad. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **F** | Pedunculate Oak | Densely Ivy clad tree with deadwood. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **G** | Dead tree | Collapsed tree | **Negligible** |
| **J** | Dead | Dead tree with limited features of bat potential including a branch with a crack. | **Low** |
| **K** | Hawthorn | Mature tree with two upward facing holes on trunk. | **Low** |
| **L** | Oak | Mature Oak with dense Ivy coverage. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **M** | Willow | Trunk leaning with a tear at base with possible opening. | **Low** |
| **N** | Oak | Many features on branches on all aspects including hollowing, knot holes, cavities and deadwood. The tree is covered with dense Ivy, some of which is mature. | **Moderate** |
| **P** | Poplar | Mature tree with dense Ivy coverage on main trunk, features could be concealed. | **Low** |
| **Q** | Oak | Dense Ivy coverage, features could be concealed. | **Low** |
| **R** | Wild Service Tree | Cavity at base of trunk and dense Ivy coverage. | **Moderate** |
| **S** | Oak | Some Ivy coverage with dead branches within crown. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **T** | Dead tree | Dead tree with long hollow split along trunk, lifted bark and Woodpecker holes. | **High** |
| **U** | Dead tree | Crown lost, trunk has mature, dead Ivy coverage, with some small plates of lifted bark and a small cavity. No further suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **V** | Ash | Hollow trunk. | **Moderate** |
| **W** | Poplar | Trunk cavity, knot hole with possible cavity and broken branches in crown. | **Moderate** |
| **X** | Dead tree | Broken and dead branch with an opening on eastern aspect. | **Moderate** |
| **Y** | White Poplar | Woodpecker hole with depth on eastern aspect. | **Moderate** |
| **Z** | Oak | Dense Ivy coverage, possible features could be concealed. | **Low** |
| **G1** | Oak x 2 | Deadwood with possible gap where two branches have fused together and small cavities in deadwood. | **Low** |
| **G2** | Oak x 2 | Cavity with depth and occluded wood on southern aspect, possible cavity where branch has been removed. | **Moderate** |
| **G4** | Oak x 2 | Scar with possible cavity and branch with deadwood and possible cavity. | **Moderate** |

| Tree ref* | Species | Findings | Bat Roost Potential |
|---|---|---|---|
| **G6** | Treeline | Treeline containing Holly and Birch. One Holly tree with an upwards facing limited crack and a Birch tree with a thick covering of Ivy. No further suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **G7** | Treeline | Treeline containing Holly and Birch. Small, shallow knot holes within Holly on southern aspect and Birch with a thick covering of Ivy. No further suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **G8** | Group of Holly trees | Group of Holly trees with shallow knot holes present on all aspects. | **Low** |
| **G9** | Group of Holly trees | Group of multi-stemmed Holly trees. Features include hollow branch on the southern aspect, trunk cavity with slight staining present on the southern aspect, branch cavity present on the western aspect and multiple small knot holes present on all aspects. | **Moderate** |
| **G10** | Group of Holly trees | Group of Holly trees forming part of treeline. Multiple trunk cavities leading into potentially hollow trunks. Some staining is present under several of the holes. | **Moderate-High** |
| **G11** | Treeline | Treeline containing Holly and Oak. A thick covering of Ivy where no suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **G575** | Ash | Small group of Ash, densely Ivy clad. No suitable features identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **W4** | Woodland | This area of woodland supports trees ranging from 'Negligible' to 'High' bat roosting potential. | **Negligible to High** |
| **W5** | Woodland | This woodland supports trees ranging from 'Low' to 'High' bat roosting potential. | **Low to High** |
| **W6** | Woodland | Many trees are heavily Ivy clad and a very mature Poplar tree within the woodland has further features including torn branches and split wood with a possible cavity hidden beneath Ivy on the southern aspect and should be considered as 'Moderate' bat roost potential. | **Low to Moderate** |
| **WA** | Woodland | Area of woodland supporting trees ranging from 'Negligible' to 'Moderate' bat roosting potential. | **Negligible to Moderate** |
| **WB** | Woodland | Woodland strip supporting Oak, Wild Service, Ash and Poplar trees ranging from 'Negligible' to 'High' bat roosting potential. In addition to individual trees marked, mature Oak trees are present along the southern woodland boundary. | **Negligible to High** |
| **W19** | Woodland band | A number of trees have Ivy coverage and deadwood. No suitable features were identified from ground level, but suitable roosting features could be concealed. | **Low** |
| **W20** | Woodland band | Some trees are heavily Ivy clad with a number of trees supporting features such as long knot holes on branches and deadwood. | **Low** |
| **W33** | Woodland | Woodland range from 'Negligible' to 'High' bat roost potential. | **Negligible to High** |
| **W35** | Woodland band | Mostly negligible woodland with occasional trees with dense Ivy coverage of no more than 'low' bat roosting potential. | **Negligible to Low** |
| **W90** | Woodland band | Band of woodland with trees of no more than 'Low' bat roosting potential. Only trees along the development edge (northern area) of this woodland were subject to survey. | **Low** |
| **W118** | Woodland strip | Woodland strip ranging from 'Negligible' to 'High' bat roost potential. | **Negligible to High** |

** Tree reference numbers relate to those used for the Tree Survey (RPS, 2017) except where additional information has been required to identify individual trees.*

3.2.3 All other trees within and immediately adjacent to the survey area were assessed as having negligible potential to support roosting bats.

### 3.3 Phase 2 roost surveys

3.3.1 In view of the findings of the updated Phase 1 bat scoping survey and the development proposals for Parcels 14 and 15, in accordance with current best practise guidelines (BCT, 2016) and the recommendations in the *Detailed Bat Mitigation Strategy – Parcels 14 and 15* (HDA, 2022); seven trees/tree groups were subject to Phase 2 emergence/re-entry surveys using an appropriate number of surveyors to ensure comprehensive coverage.

3.3.2 *Table 6* provides a summary of the results of the Phase 2 bat roost surveys of trees proposed to be impacted by works within Parcels 14 and 15.

**Table 6:** Results of Phase 2 roost surveys

| Tree/ Building ref | Date / Time | Results | Updated Roost Status |
|---|---|---|---|
| **2** | 04/05/2022 20.15-22.00 | No emergences/re-entries | **High** |
| | 01/07/2022 03.21-05.04 | No emergences/re-entries | |
| | 20/07/2022 20.53-22.38 | No emergences/re-entries | |
| **91** | 04/05/2022 20.15-22.00 | No emergences/re-entries | **High** |
| | 01/07/2022 03.21-05.04 | No emergences/re-entries | |
| | 29/07/2022 20.43-22.28 | No emergences/re-entries | |
| **93** | 04/05/2022 20.15-22.00 | No emergences/re-entries | **High** |
| | 01/07/2022 03.21-05.04 | No emergences/re-entries | |
| | 29/07/2022 20.43-22.28 | No emergences/re-entries | |
| **97** | 04/05/2022 20.15-22.00 | No emergences/re-entries | **High** |
| | 01/07/2022 03.21-05.04 | No emergences/re-entries | |
| | 20/07/2022 20.53-22.38 | No emergences/re-entries | |
| **G2** | 04/05/2022 20.15-22.00 | No emergences/re-entries | **Moderate** |
| | 14/07/2022 21.00-22.45 | No emergences/re-entries | |
| **G4** | 30/06/2022 21.09-22.54 | No emergences/re-entries | **Moderate** |
| | 14/07/2022 21.00-22.45 | No emergences/re-entries | |
| **AF** | 30/06/2022 21.09-22.54 | No emergences/re-entries | **Moderate** |
| | 14/07/2022 21.00-22.45 | No emergences/re-entries | |

* Reference numbers relate to the numbers given on the plans in *Appendix A*.

3.3.3 In addition to the trees/buildings subject to Phase 2 roost surveys, further high, moderate and low potential trees/groups of trees are located within the survey area. In line with current best practise guidelines (BCT, 2016), further surveys of these trees are not required at this stage, due to their retention within the scheme, their low potential to support roosting bats and/or their location within subsequent phases of the development and subsequently will be subject to Phase 2 roost surveys in future years as development progresses. However, in the event that the future retention of any of these trees is not possible, the appropriate approach to works is given in *Section 5* below.

3.3.4 All other trees and buildings within the survey area were identified as having 'negligible' potential to support roosting bats.

### 3.4 Phase 2 activity transect surveys

3.4.1 Details of the date and time of bat activity transect surveys, along with weather conditions and sunset/sunrise times, are provided in *Table 2*. The areas covered during each survey visit included all boundaries, hedgerows and woodland copses within the survey area.

3.4.2 A visual summary of bat foraging and commuting activity recorded during the surveys has been provided in *Appendix B*. In total, five species/species groups were recorded during the transect surveys: Common Pipistrelle, Soprano Pipistrelle, Noctule, Brown Long-eared bat and *Myotis* sp. bat. A summary of each species recorded, their activity and an estimation of numbers using the survey area during any one survey is provided in *Table 7* below.

**Table 7:** Summary of bat activity during transect surveys

| Species | Activity summary | Approx. number recorded* |
|---|---|---|
| Common Pipistrelle | Common Pipistrelle was the most frequently recorded species during the activity surveys. The majority of Common Pipistrelle activity was recorded along woodland edge habitats in the centre and north-west of the survey area. Common Pipistrelles were also recorded on a less frequent basis using hedgerows and woodlands bordering the grassland and arable fields in the remainder of the survey area.<br><br>It is expected that up to 4 Common Pipistrelle bats could have been using the survey area at any one time for foraging and commuting. | 4 |

| Species | Activity summary | Approx. number recorded* |
|---|---|---|
| Soprano Pipistrelle | Soprano Pipistrelle was the second most frequently recorded species during the activity surveys. The majority of Soprano Pipistrelle activity was recorded along woodland belt aligned east to west in the east of the survey area. Soprano Pipistrelles were also recorded on a less frequent basis scattered across the survey area, associated with the hedgerows and woodlands bordering the grassland and arable fields in the survey area.<br><br>It is expected that up to 3 Soprano Pipistrelle bats could have been using the survey area at any one time for foraging and commuting. | 3 |
| Noctule | Noctule activity was scattered across the survey area, with activity focused on the line of scrub aligned east-west in the north of the survey area. Noctules were also recorded on a less frequent basis using hedgerows and woodlands bordering the grassland and arable fields in the remainder of the survey area. The remainder of recordings were largely associated with high level passes by individuals crossing the survey area.<br><br>It is likely that the survey area was used by no more than 2 Noctule bat at any one time during the survey and that the survey area forms part of a much larger foraging range for a low number of individuals of this species. | 2 |
| Brown Long-eared bat | Brown Long-eared bat was recorded on two occasions foraging along hedgerows in the east and centre of the survey area.<br><br>It is likely that no more than 1 Brown Long-eared bat was using the survey area at any one time during the survey and that the survey area forms part of a much larger foraging range for a low number of this species. It should be noted however that Brown Long-eared bat calls are very quiet which means that they are less easily recorded by bat detectors. It is therefore possible (in particular in view of the known presence of a Brown Long-eared bat maternity roost within the site) that higher numbers of Brown Long-eared bats may have been using the survey area than were recorded. | 1+ |
| *Myotis* sp. | *Myotis sp.* bat have been recorded on one occasion foraging within a grassland field in the east of the survey area.<br><br>It is likely that no more than 1 *Myotis* sp. bat was using the survey area at any one time during the survey and that the survey area forms part of a much larger foraging range for individuals of this species group. | 1 |

**This is an approximation of the number of bats of any one species estimated to have been using the survey area during any one visit*.

### 3.5 Phase 2 automated activity surveys

3.5.1 The dates during which the automated detector was deployed, along with sunset/sunrise times and temperatures are provided in *Table 3*. The locations in which the automated bat detector was placed during each deployment are shown on the plan in *Appendix B*.

3.5.2 The automated detector was placed in six separate locations to give an indication of the species using different areas of the survey area and relative levels of activity throughout the night. A summary of bat activity recorded during the automated surveys in each location is provided below in *Table 8*. In total, five species/species groups were recorded during the automated surveys; Common Pipistrelle, Soprano Pipistrelle, Noctule, Brown Long-eared bat and *Myotis* sp. bat.

**Table 8:** Summary of bat activity recorded by the automated detector

| Location* | Activity summary |
|---|---|
| A | The automated detector at Location A recorded bat activity along a woodland belt aligned east-west in the east of the survey area.<br><br>A total of 336 bat passes were recorded over 6 nights; an average of 56 bat recordings per night.<br><br>Soprano Pipistrelle the most frequently recorded species (63.1% of the bat recordings), with occasional to regular foraging activity recorded during every night. Common Pipistrelle was the second most frequently recorded species (22.9% of the bat recordings), with occasional foraging activity recorded during every night.<br><br>Occasional passes by Noctule and *Myotis* sp. bat were also recorded (12.5% and 1.5% of passes, respectively). |
| B | The automated detector at Location B recorded bat activity associated with a woodland belt aligned north-south in the west of the survey area.<br><br>A total of 684 bat passes were recorded over 5 nights; an average of 137 bat recordings per night.<br><br>Common Pipistrelle was the most frequently recorded species (55.7% of the bat recordings), with occasional to regular foraging activity recorded during every night. Soprano Pipistrelle was the second most frequently recorded species (32.6% of the bat recordings) with occasional to regular foraging activity recorded during every night in which bats were recorded.<br><br>Occasional passes by Noctule, Brown Long-eared bat and *Myotis* sp. bat were also recorded (7.9%, 2.9% and 0.9% passes, respectively). |
| C | The automated detector at Location C recorded bat activity at the junction of a woodland belt and adjoining hedgerow in the east of the survey area.<br><br>A total of 609 bat passes were recorded over 5 nights; an average of 122 bat recordings per night.<br><br>Common Pipistrelle was the most frequently recorded species (80.8% of the bat recordings), with occasional to regular foraging activity recorded during most night. Soprano Pipistrelle was the second most frequently recorded species (17.7% of the bat recordings), with occasional foraging activity recorded during most nights.<br><br>Occasional passes by Brown Long-eared bat and *Myotis* sp. bat were also recorded (0.5% and 0.1% of passes, respectively). |

| Location* | Activity summary |
|---|---|
| D | The automated detector at Location D recorded bat activity along a woodland margin located in the centre of the survey area.<br><br>A total of 1194 bat passes were recorded over 5 nights; an average of 239 bat recordings per night.<br><br>Soprano Pipistrelle was the most frequently recorded species (69.3% of the bat recordings), with occasional to regular foraging activity recorded during most nights. Common Pipistrelle was the second most frequently recorded species (31.4% of the bat recordings), with occasional foraging activity recorded on all nights.<br><br>Occasional passes by Brown Long-eared bat, Noctule and *Myotis* sp. bat were also recorded (0.8%, 0.3% and 0.1% of passes, respectively). |
| E | The automated detector at Location E recorded bat activity associated with a tree group in the centre of the northern survey area boundary.<br><br>A total of 49 bat passes were recorded over 5 nights; an average of 10 bat recordings per night.<br><br>Common Pipistrelle and Soprano Pipistrelle were the most frequently recorded species (44.9 and 30.6% of the bat recordings), with occasional foraging activity recorded during most nights.<br><br>Occasional passes by Noctule and Brown Long-eared bat were also recorded (14.3% and 10.2% of passes, respectively). |
| F | The automated detector at Location F recorded bat activity associated with the treeline and hedgerow associated with the southern boundary of the survey area.<br><br>A total of 46 bat passes were recorded over 5 nights; an average of 9 bat recordings per night.<br><br>Common Pipistrelle was the most frequently recorded species (80.4% of the bat recordings) with occasional foraging activity recorded during every night. Soprano Pipistrelle being the second most frequent recorded species (17.4% of bat recordings) with occasional foraging activity recorded during most nights.<br><br>Occasional passes by *Myotis* sp. bat were also recorded (2.2% of passes). |

3.5.3 In summary, the static detectors recorded Common Pipistrelle and Soprano Pipistrelle at all locations the remote detectors were deployed. *Myotis* sp. bat were recorded at all locations except Location E. Noctule bats were recorded at all locations except from Locations C and F. Brown Long-eared bats were recorded at all locations except from Locations A and F.

3.5.4 The greatest number of bat recordings was recorded at Location D and the highest diversity of bat species was recorded at Location B and D. The fewest number of bat recordings per night and lowest diversity of bat species was recorded at Location F. Soprano Pipistrelle and Common Pipistrelle were the most frequently recorded species

relating to 47.8% and 46.7% of all bat passes recorded, respectively, with all locations being used by foraging bats of these species on at least an occasional basis on each night. Noctule, followed by Brown Long-eared bat and *Myotis* sp. bats, were the next most recorded bat species/species groups (3.6%, 1.4% and 0.5% of all bat recordings, respectively), with similar patterns of activity to the Soprano and Common Pipistrelle bats however at much lower numbers.

# 4 SUMMARY AND IMPACT ASSESSMENT

## 4.1 Bat roosting habitat

4.1.1 No bat roosts were recorded during the Phase 2 emergence/re-entry surveys of trees 2, 91, 93, 97, G2, G4 and AF and no buildings with potential to support roosting bats are located within the Parcels 14 and 15 development area. Current knowledge therefore suggests that no bat roosts will be lost or indirectly affected as a result of the proposed development of Parcels 14 and 15. Trees subsequently proposed for felling/trimming in association with the proposed development of Parcels 14 and 15 were subsequently carried out under ecological watching brief in July and August 2022.

4.1.2 There are further trees within subsequent parcels of the development which have not been subject to Phase 2 bat roost surveys. If any of these trees have to be trimmed/felled for any future works i.e. on the grounds of health and safety and/or to facilitate development of future development parcels, an appropriate approach to works is given in *Section 5* for measures to protect any bats that might be present and to maintain roosting opportunities at the site following works.

## 4.2 Foraging and commuting activity

4.2.1 At least five species of bat were recorded using the survey area for foraging and commuting, with varying levels of activity observed throughout the surveys. The plan in *Appendix B* provides an overview of bat activity recorded during the surveys.

4.2.2 Common Pipistrelle was the most frequently recorded species during the transect surveys, with up to 4 Common Pipistrelle bats considered to be using the survey area at any one time. The majority of Common Pipistrelle activity was recorded along woodland edge habitats in the centre and north-west of the survey area. Common Pipistrelles were also recorded on a less frequent basis using hedgerows and woodlands bordering the grassland and arable fields in the remainder of the survey area.

4.2.3 The second most frequent recorded bat species related to Soprano Pipistrelle bats, with up to 3 Soprano Pipistrelle bats considered to be using the survey area at any one time. Soprano Pipistrelle activity was scattered across the survey area and associated with the hedgerows and woodlands bordering the grassland and arable fields in the survey area.

Frequent activity relating to Noctule bats was also recorded in particular associated with hedgerows and treelines marking field boundaries in the centre and west of the site. In addition, Brown Long-eared bat and *Myotis* sp. bat were only recorded on an occasional basis during the activity surveys. Activity relating to Brown Long-eared bat and *Myotis* sp. bat consisted of brief passes by single bats foraging or commuting along hedgerows and woodland edges within and bordering the survey area, suggesting the site forms only a small part of a much wider foraging territory for individuals of these species/species groups.

4.2.4 Despite the number of species recorded and the overall number of bats expected to have been present within the survey area at any one time, overall the level of bat activity recorded was generally considered to be low, relative to the size of the survey area, and similar foraging and commuting opportunities are relatively widespread in the wider area. As a whole the survey area is therefore considered to be of no more than low local interest for foraging bats. This interest largely relates to habitats associated with the hedgerows and woodlands within and bordering the survey area, with the grassland and arable habitats dominating the survey area being of no more than site interest for foraging bats.

4.2.5 Notwithstanding the above, development proposals should seek to maintain and, where possible, enhance foraging and commuting opportunities for all species of bats using the site in accordance with nature conservation legislation, planning policy and the 2006 NERC Act. Recommendations to maintain and enhance the value of the survey area for foraging and commuting bats are provided in *Section 5* below.

## 5 SURVEY AREA OUTLINE RECOMMENDATIONS

5.1 This section identifies measures to be implemented during development of the survey area in order to avoid, mitigate and compensate potential impacts on bats, and to maintain the favourable conservation status of the local bat population. These measures will be implemented unless otherwise agreed with Natural England and/or the local planning authority. In addition, measures for long-term maintenance and enhancement of opportunities at the site for roosting, foraging and commuting bats are included in accordance with the 2021 National Planning Policy Framework (NPPF) and the 2006 NERC Act.

5.2 The recommendations given below will be reassessed during the production of the Detailed Bat Mitigation Strategies which will be produced for each phase of the development in accordance with Condition 24:

*Prior to or concurrent with the submission of a reserved matters application for any sub phase of the development a detailed bat mitigation strategy shall be submitted to and*

*approved in writing by the local planning authority for that sub phase of the development. Each detailed bat mitigation strategy shall include an appropriate detailed lighting scheme that maintains the dark corridors as set out in Appendix 1 Recommended Dark Corridor Locations Plan of the submitted Hogwood Garden Village Bat Activity Survey Report - Revision: 02/Final (Royal Haskoning DHV, 10th September 2015) and should be in accordance with the submitted Hogwood Garden Village Bat Activity Survey Report - Revision: 02/Final (Royal Haskoning DHV, 10th September 2015). The mitigation, contingency and enhancement measures contained within each of the submitted detailed bat mitigation strategies shall be implemented in accordance with the approved plan unless otherwise approved in writing by the local planning authority."*

5.3 The approach taken will depend on the extent, location and distribution of the habitat affected and the status of bats in any given area. Where appropriate the approach to be taken will be based on updated surveys where more than two years has passed since bat surveys were undertaken (or Phase 2 surveys have not been carried out) and/or the extent or character of habitat within any given area has undergone significant change. The advice of a suitably qualified ecologist will be sought on the approach to updating of survey work and the approach to be taken agreed with Wokingham Borough Council.

**5.4 Roosting bats**

*Parcels 14 and 15*

5.4.1 No bats roosts were recorded during the Phase 2 bat emergence/re-entry surveys of trees 2, 91, 93, 97, G2, G4 and AF and no buildings with potential to support roosting bats are located within the Parcels 14 and 15 development area. Current knowledge therefore suggested that no bat roosts would be lost or indirectly affected as a result of the proposed development of Parcels 14 and 15. Trees subsequently proposed for felling/trimming in association with the proposed development of Parcels 14 and 15 were subsequently carried out under ecological watching brief in July and August 2022.

*Other development parcels*

5.4.2 Where the future retention of trees identified as providing opportunities for roosting bats is not possible e.g. to allow development or on the grounds of health and safety, it is recommended that felling works are carried out in accordance with the following procedure, including where Phase 2 roost surveys have not identified a roost as being present:

1. In the event that future pruning or felling works for reasons of health and safety are required to a tree with a confirmed/probable roosts (Trees 39, 45, 104, 105, 106, 313, 315, 338, 407, 417, 419 and 561) such works have the potential to disturb or destroy any roosts present. If it is not possible to retain the roost site associated with the tree, a European Protected Species (EPS) licence would need to be obtained from Natural

England prior to the commencement of any works affecting the roost sites associated with these trees.

2. Other trees suitable for climbing inspections should first be climbed by a licensed bat worker to inspect potential roost sites for bats. In the event that no bats (or evidence of bats) are encountered during an exhaustive search then any features should be 'soft stopped' to prevent re-occupation prior to felling. In the event that a bat (or evidence of a bat) is encountered, then felling/works should be delayed until an EPS licence has been sought and obtained from Natural England. Where bat roosts are present within any tree subject to felling, the tree should be 'soft felled' in accordance with the methodology described under point 4 below.
3. Trees with 'moderate' or higher potential to support roosting bats, where an exhaustive climbed inspection is not possible or practical, should be subject to an appropriate number of emergence/re-entry surveys to confirm the absence of roosting bats prior to the commencement of any works affecting the tree.
4. 'Low' potential trees that are unsuitable for climbing inspections and have not been subject to an emergence/re-entry survey should be 'soft felled' under the supervision of a suitably qualified ecologist. Soft felling involves progressive removal of the tree, using ropes to gently lower sections of tree potentially supporting roosting bats to the ground for inspection by a suitably qualified ecologist. Where appropriate, features should be left on the ground overnight before clearing to allow any bats present to escape.

5.4.3 Where significant loss of future roosting opportunities arises, this should be offset through alternative roost provision elsewhere within the site.

5.4.4 In the event that a roosting bat is discovered during any of the above works (or works are proposed to Trees 39, 45, 104, 105, 106, 313, 315, 338, 407, 417, 419 and 561), trimming/felling works must cease and Natural England contacted to agree an appropriate course of action. A licence may need to be applied for, and approved, before works can continue.

**Further survey**

5.4.5 Bats may occupy roost sites on a seasonal or temporary basis and old roost sites may be abandoned and new roosts occupied within relatively short periods of time. In view of this, where appropriate, Phase 2 bat roost surveys of buildings and trees affected by the proposed development should be updated in advance of works commencing. The guidance of a suitably qualified ecologist should be sought to determine if and when surveys should be updated with regard to the development programme. This would ensure that up-to-date information is available to inform the extent of any mitigation and licensing requirements relating to bats.

**Maintenance of roosting opportunities**

5.4.6 The integrity of retained roosting opportunities within and adjacent to the survey area will be conserved through the maintenance of connections to commuting and foraging habitat and sensitive use of lighting throughout the construction and operational phases (see *Section 5.8* below). In addition, trees not supporting roosting bats at the time of survey have potential to support bats in the future and therefore, where possible, these trees will be retained and their ability to support roosting bats maintained.

## 5.7 Foraging and community bats

5.7.1 The survey area is considered as a whole to be of no more than low local importance for foraging bats. The survey area is expected to comprise a significant proportion of foraging habitat for low numbers of Soprano Pipistrelle and Common Pipistrelle bats and provides foraging habitat for low numbers of at least three other species/species groups on a more occasional or infrequent basis.

5.7.2 A number of the bat species identified at the survey area (Soprano Pipistrelle, Noctule and Brown Long-eared bat) are listed as Species of Principle Importance under Section 41 of the 2006 NERC Act and therefore the effects of development on foraging and commuting habitat are a material consideration in the planning process.

5.7.3 The *Habitat Connectivity Proposals Plan* shown in *Appendix B* of the Outline Site-wide Ecological Permeability Scheme (HDA, 2018) shows the retention of key habitat corridors within the survey area, focussing on:

- The site boundaries to allow movement of wildlife around the site and permeability between the site and the wider area. These habitats comprise hedgerows, treelines and areas of woodland including ancient woodland and Hogwood Shaw Local Wildlife Site (LWS);
- A corridor of open green space will cross the survey area from north to south, leading from treelines and Hogwood Shaw LWS in the north of the site to the proposed country-park SANG and open countryside to the south, east and west of the site. In addition to the provision of a corridor for wildlife and informal greenspace for public enjoyment, the green space provides protection to existing habitats of high ecological and landscape value including ancient woodland and watercourses together with creation of new habitats such as species-rich meadow grassland, wetland, orchard, woodland and scrub; and
- The country-park SANG in the site, will support a mosaic of woodland and parkland habitats, supporting a diverse range of species and connect to habitats in the wider area including the adjacent West Court SANG.