

RYDON HOMES



ECOLOGYSOLUTIONS

Part of the ES Group

LAND EAST OF ALBION
ROAD & NORTH OF COPPER
LANE, MARDEN

ECOLOGICAL ASSESSMENT

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1. INTRODUCTION

1.1. Background & Proposals

- 1.1.1. Ecology Solutions was commissioned by Rydon Homes Ltd in January 2022 to undertake an Ecological Assessment at land to the east of Albion Road and the north of Copper Lane, Marden (hereafter referred to as 'the site').
- 1.1.2. The proposals for the site are for the erection of up to 120 dwellings alongside a new access, landscape and other associated works. (see Appendix 1).

1.2. Site Characteristics

- 1.2.1. The site is an operational plum and apple orchard situated on the south-east side of the village of Marden in Maidstone Borough. The orchard is bounded by hedgerows and trees with a large area of scrub within the northwest of the site and a series of ponds fringed by grassland in the south. The site is bordered to the north by a new development site (for 124 dwellings planning ref MA/17/504754/FUL) with further existing residential development beyond Stanley Road. To the east are a small number of existing properties and associated gardens with open countryside beyond. Albion Road lies to the west with existing residential development beyond (including recent developments at Stanley Farms MA/13/1585 and The Parsonage MA/13/0693). The site is bordered to the south by Copper Lane with open countryside beyond.

1.3. Ecological Assessment

- 1.3.1. This document assesses the ecological interest of the site. The importance of the habitats within the site is evaluated with due consideration given to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹.
- 1.3.2. Where necessary mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site. Specific enhancement opportunities that are available for habitats and wildlife within the site are detailed where appropriate, with reference to the 'UK Post-2010 Biodiversity Framework'². Finally, conclusions are drawn.

¹ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

² JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012) *UK Post-2010 Biodiversity Framework*. July 2012. <http://jncc.defra.gov.uk/page-6189>

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile up to date background information on the site and its immediate surroundings, Ecology Solutions contacted the Kent and Medway Biological Records Centre (KMBRC). Where appropriate this information is included within this report, although much of it is cited as confidential and can only be made available upon request under the records centre terms and conditions.

2.2.2. Further information on designated sites was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)³ database, which utilises data provided by Natural England. This information is reproduced, where appropriate, on Plan ECO1 and at Appendix 2.

2.3. Habitat Survey Methodology

2.3.1. Surveys were carried out by Ecology Solutions over a number of visits between May 2019 and July 2023 in order to ascertain the general ecological value of the land contained within the boundaries of the site and to identify the main habitats and associated plant species, with notes made on fauna utilising these areas.

2.3.2. The site was subject to a detailed survey based around an extended Phase 1 survey methodology⁴, as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent at different seasons. Surveys were conducted during the optimal botanical survey period and across a number of years, therefore it is considered that an accurate and robust assessment has been made.

³ <https://magic.defra.gov.uk>

⁴ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

2.4. Faunal Survey

2.4.1. General faunal activity observed during the course of the surveys was recorded, whether visually or by call. Specific attention was paid to the potential presence of any protected, rare, notable or priority species. In addition, specific surveys were undertaken for bats, Badgers *Meles meles*, Great Crested Newts *Triturus cristatus* and reptiles.

2.4.2. **Bats.** Field surveys were undertaken with regard to best practice guidelines issued by Natural England⁵, the Joint Nature Conservation Committee⁶ and the Bat Conservation Trust⁷.

Tree Assessment

2.4.3. In May 2019, March 2022 and July 2023, all trees within and immediately adjacent to the site were assessed for their potential use by bats. Ladders, binoculars and an endoscope were used where necessary.

2.4.4. For a tree to be classified as having some potential for roosting bats it must usually have one or more of the following characteristics:

- Obvious holes, e.g. rot holes and old woodpecker holes;
- Dark staining on the tree below a hole;
- Tiny scratch marks around a hole from bats' claws;
- Cavities, splits and / or loose bark from broken or fallen branches, lightning strikes etc; and / or
- Very dense covering of mature Ivy *Hedera helix* over the trunk.

Activity Surveys and Automated Surveys

2.4.5. An assessment of the habitats present was undertaken with regard to bat foraging and commuting opportunities. The habitat is considered to provide low suitable habitat for foraging and commuting bats.

2.4.6. Bat activity surveys were undertaken within the site in May, July and September 2021 and May 2023 using Echo Meter Touch 2 Pro bat detectors to record the data. SongMeter4-FS (SM4) bat detectors were also strategically located within the site to record for a minimum of five nights in May, July and September 2021 and May 2023. The detector locations are shown on Plan ECO8.

2.4.7. All data was subsequently analysed using Kaleidoscope Pro bat sound analysis software.

2.4.8. This survey method aimed to identify the level of foraging, and the species present foraging and commuting within the site and any area of potentially high importance for foraging / commuting bats.

⁵ Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

⁶ Mitchell-Jones, A.J. & McLeish, A.P. (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.

⁷ Bat Conservation Trust (2016). *Bat Surveys for Professional Ecologist – Good Practice Guidelines 3rd Edition*. Bat Conservation Trust, London.

- 2.4.9. **Badgers.** Specific surveys were undertaken within the site, to search for evidence of Badgers between May 2019 and July 2023. Such surveys comprise two main elements. The first of these is a thorough search for evidence of Badger setts. If any setts are encountered each sett entrance is noted and plotted even if the entrance appeared disused. The following information is recorded:
- i) The number and location of any well used or very active entrances; these are clear from any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
 - ii) The number and location of any inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.
 - iii) The number of any disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.
- 2.4.10. Secondly, Badger activity such as well-worn paths and run-throughs, snagged hair, footprints, latrines and foraging signs are recorded so as to build up a picture of the use of the site, if any, by Badgers.
- 2.4.11. **Great Crested Newts.** The land within and surrounding the site was assessed in terms of its habitat quality and its ability to support Great Crested Newts.
- 2.4.12. There are five ponds (P1-P5) within the site itself and OS maps indicate that there are ten ponds (P6-P11, P16, P17, P25 and P26) within 250m of the site, and a further 16 ponds within 500m of the site (see Plan ECO2).
- 2.4.13. Pond P6 is separated from the site by hedgerows and open land, P7 is separated from the site by Copper Lane. Ponds P8, P9, P25 and P26 are separated from the site by open land and existing development and ponds P10 and P11 are separated from the site by hedgerow H7. Ponds P16 and P17 are separated from the site by Albion Road and existing development.
- 2.4.14. In 2021 Ecology Solutions requested access to survey ponds P6-P11, P25 and P26. Access was not requested for ponds P16 and P17 as the existing development and main road are considered to be a significant dispersal barrier. Access was granted for ponds P6, and P8-11, however access was denied for ponds P7, P25 and P26.
- 2.4.15. In 2023 Ecology Solutions requested access to survey ponds P6-P11, P25 and P26. Access was granted for ponds P8 and P9 but denied for all other ponds.
- 2.4.16. Previous surveys for Great Crested Newts in surrounding ponds have been completed for previous planning applications. Further to this Ecology

Solutions surveyed ponds P1-P4 in 2019, ponds P1-P4, P6, and P8-P11 in 2021, pond P5 in 2022 and ponds P1-P5 and P8 and P9 in 2023.

Habitat Suitability Index (HSI) Survey

- 2.4.17. Ponds P1-P4, P6 and P8-P11 were also subject to a HSI survey in 2021. Pond P5 was also subject to a HSI survey in 2022 and ponds P1-P5 and P9 were subject in 2023.
- 2.4.18. An HSI survey is a quantitative measure of habitat quality for Great Crested Newts and is utilised as part of the assessment for a European Protected Species licence application.
- 2.4.19. An HSI survey is based on ten suitability indices that include:
- Location;
 - Pond area;
 - Pond drying;
 - Water quality;
 - Shade;
 - Fowl;
 - Fish;
 - Ponds;
 - Terrestrial habitat; and
 - Macrophytes cover.
- 2.4.20. Scores are attributed to each index and are then converted to suitability index scores on a scale from 0.01 to 1 (1 represents optimal habitat). The ten scores are multiplied together and the tenth root of this number is then calculated to give the overall HSI score.

eDNA Survey

- 2.4.21. A specific eDNA sample survey was undertaken in May 2019 for ponds P1-P4, in April 2021 for ponds P1-P4, P6, and P8-11 and in May 2023 for ponds P1-P5, P8 and P9.
- 2.4.22. The eDNA survey involves collecting 15-20 samples of 40ml of pond water at equally spaced locations around the perimeter of a pond. These 15-20 samples are then mixed together in a plastic sample bag to form a single amalgamated sample of the water in the pond. The amalgamated sample is mixed thoroughly to ensure any DNA present does not collect at the base of the sample bag.
- 2.4.23. 15ml of water is taken from the amalgamated sample and added to 35ml of ethanol within a sample tube, to preserve any DNA present. The sample tubes are then shaken vigorously to mix the water sample and ethanol thoroughly and prevent degradation of any DNA. This technique is repeated six times, using water from the amalgamated sample, such that six sample tubes are filled.
- 2.4.24. The six sample tubes are then sent off to SureScreen to be analysed using polymerase chain reaction amplification techniques. The analysis

involves producing DNA sequences that verify the taxonomic assignment of amplified DNA signals.

- 2.4.25. Terrestrial habitats within the site itself (and in areas surrounding ponds surveyed) were also searched for Great Crested Newts. This involved searching under logs, rocks and rubbish, which are favoured hiding places.

Aquatic Survey

- 2.4.26. After returning a positive eDNA result, pond P9 was subsequently surveyed over six visits between mid-May and mid-June 2021 and 2023, however access to P10 to undergo further surveys after the positive GCN result was denied. As pond P5 was inaccessible during surveys in 2021 and was not subject to an eDNA survey, the pond was surveyed over 4 visits between late March and late April 2022. These surveys were undertaken in suitable weather conditions using three methods per visit (torch survey, bottle-trapping, netting and/or egg-searching) in accordance with the Natural England (published under English Nature) guidance⁸ to establish the population size of Great Crested Newts within these ponds.
- 2.4.27. Suitable survey weather conditions are deemed to be those nights when the night-time air temperature is more than 5°C, with little or no wind, and no rain, and surveys were conducted during such conditions.
- 2.4.28. Torch counting involved the use of high-powered torches to find and, if possible, count the number of adults of each amphibian species. As recommended by Natural England the entire margin of the ponds was walked once, slowly checking for Great Crested Newts.
- 2.4.29. Bottle-trapping involved setting traps made from 2-litre plastic bottles around the pond margin, and leaving the traps set overnight before checking them the following morning. A density of one trap per two metres of shoreline was utilised, where possible, as recommended by Natural England.

Reptiles

- 2.4.30. The site provides some suitable habitat for reptiles in the form of taller grass field margins although the majority of the site supports a short sward grassland due to regular cutting management.
- 2.4.31. Specific surveys for reptiles were carried out between June and September 2021 within the site. The methodology utilised principally derived from guidance given in the Herpetofauna Workers Manual⁹. Areas of suitable habitat were surveyed for the presence of reptiles using artificial refugia ("tins"). In total 60 0.5m x 0.5m roofing felt tins were placed within suitable habitat within the site. The tins were positioned in the site in late May 2021 to allow two weeks bedding / settling in, before the surveys commenced in June 2021.

⁸ Great Crested Newt Mitigation Guidelines, English Nature, August 2001.

⁹ Gent, T and Gibson, S. JNCC. (2003). Herpetofauna Workers Manual. Peterborough

- 2.4.32. The tins provide shelter and heat up quicker than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold-blooded), reptiles use them to bask under and raise their body temperature which allows them to forage earlier and later in the day.
- 2.4.33. To determine presence / absence the tins were checked for reptile activity over seven visits at appropriate times of the day (avoiding the middle of the day when the ambient air temperature is at its highest) in accordance with Natural England guidance. Optimum weather conditions for reptile surveying are temperatures between 10°C and 17°C, intermittent or hazy sunshine and little or no wind.

3. ECOLOGICAL FEATURES

3.1. The site was surveyed over a number of visits between May 2019 and July 2023. The following main habitat / vegetation types were identified:

- Orchard (commercial/intensive not traditional);
- Species Poor, Semi-improved Grassland;
- Hedgerows and Trees;
- Ponds;
- Scrub;
- Spoil Mound; and
- Buildings.

3.2. The location of these habitats is shown on Plan ECO3.

3.3. Each habitat present is described below with an account of the representative plant species present.

3.4. Orchard (commercial/intensive not traditional)

3.4.1. The majority of the site comprises a commercial Plum *Prunus* sp. and Apple *Malus* sp. orchard which is intensively cultivated. This limits its ecological value due to application of herbicides and pesticides, e.g. the area beneath the tree rows is subject to frequent herbicide treatments to create bare ground and prevent colonisation of grasses and other plants that would compete with the fruit trees. The herbicide strips beneath the fruit trees are being colonised in parts by species such as White Clover *Trifolium repens*, Broad-leaved Willowherb *Epilobium montanum*, Spear Thistle *Cirsium vulgare*, Bristly Oxtongue *Helminthotheca echinoides* and Hairy Bittercress *Cardamine hirsuta*. There are occasional gaps in the rows where trees have evidently died and been removed but not replaced.

3.5. Species-Poor, Semi-improved Grassland

3.5.1. Areas of species-poor, semi-improved grassland are present between the rows of fruit trees which allow access to 'service' the fruit trees. These grassland strips are subject to frequent mowing and are generally kept to a short-sward with the arisings left on site. The margins to small parts of the site are less intensively cut.

3.5.2. This habitat is of limited intrinsic ecological value in terms of its species content comprising abundant Perennial Rye-grass *Lolium perenne* and other grasses such as Meadow Foxtail *Alopecurus pratensis*, Yorkshire Fog *Holcus lanatus*, Creeping Bent *Agrostis stolonifera*, Soft Brome *Bromus hordeaceus*, Annual Meadow-grass *Poa annua* and Cocksfoot *Dactylis glomerata*. Herb species are generally limited and include species such as Creeping Buttercup *Ranunculus repens*, White Clover, Red Clover *Trifolium pratense*, Common Mouse-ear *Cerastium fontanum*, Dandelion *Taraxacum officinale*, Creeping Thistle *Cirsium arvense*, Field Speedwell *Veronica persica*, Common Ragwort *Senecio jacobaea*, Broad-leaved Dock *Rumex obtusifolius*, Cow Parsley *Anthriscus sylvestris*, Common Vetch *Vicia sativa*, Common Nettle *Urtica dioica*, Field Bindweed *Convolvulus arvensis* rarely found Birds-foot Trefoil *Lotus corniculatus*.

3.6. Hedgerows, Tree Belt and Trees

- 3.6.1. Hedgerow H1 is a 5-6m tall hedgerow, comprising almost exclusively Field Maple with very occasional Hawthorn *Crataegus monogyna* and *Prunus* species and a standard Oak tree towards its southern end. The hedgerow is more heavily cut back than others on site and as a result is frequently gappy towards the base. The ground is also more disturbed (no true margin is present) resulting in larger patches of ruderal vegetation such as Common Nettle, Broad-leaved Dock, Cleavers *Galium aparine* and Garlic Mustard *Alliaria petiolata*.
- 3.6.2. Hedgerow H2 is of similar dimensions to H1 but is evidently cut along its top and face. Just off-site to the north-east there are a number of Field Maple trees overhanging the site from an area around a telephone mast. The hedgerow comprises almost exclusively Field Maple *Acer campestre* with Bramble *Rubus fruticosus* trailing through and very rarely found Dog Rose *Rosa canina* and seedling Oak. The ground flora is more limited to the very base of the hedgerow (i.e. a very limited margin into the adjacent orchard) and comprises Cow Parsley, Common Vetch, Hogweed *Heracleum mantegazzianum*, Cleavers, Cocksfoot, Field Bindweed, patches of Common Nettle and very rarely found Birds-foot Trefoil.
- 3.6.3. Hedgerow H3 is similar in composition to H1 with a dry ditch present along the northern side. It is dominated by Hawthorn, with Hazel *Corylus avellana*, Ash, Black Bryony, and Oak present and Bramble, Dog Rose, and Hops trailing through. The ground flora includes Cleavers, Hogweed, Cow Parsley, Common Nettle, and Broad-leaved Dock.
- 3.6.4. Hedgerow H4 is unmanaged with evidence of previous box cutting and is around 3m in height and 1m in width with a ditch down the western side. It is dominated by Hawthorn, with Blackthorn, Field Maple, Oak and Elder *Sambucus nigra* also present. The ground flora includes Burdock, Lords and Ladies *Arum maculatum*, Garlic Mustard, and Broad-leaved Dock.
- 3.6.5. Hedgerow H5 is a tall narrow, face managed hedge with a wet ditch that runs along the road side. It is dominated by Hawthorn and Blackthorn with Oak trees present. This hedge turns into a line of Oak trees in the east.
- 3.6.6. Hedgerow H6 is managed by box cutting and is 1-2m in height. It is dominated by Hawthorn and Blackthorn with Oak and Ash trees present and Ivy trailing through.
- 3.6.7. Hedgerow H7 is similar in structure and composition to H3 and H2, comprising almost exclusively Field Maple with areas of Oak trees present. Species present within the ground flora include Cleavers, Garlic Mustard, and Ivy.
- 3.6.8. Hedgerow H8 is a 5-6m tall hedgerow which is faced on its western (site) side. It is relatively narrow (1.5m) and has a dry ditch on its eastern (off-site) side. Hawthorn and coppiced Hazel are broadly co-dominant with Ash, Elder, Holly *Ilex aquifolium*, Dog Rose, and Field Maple also recorded and with Bramble trailing through. There is a rougher grass margin to the orchard adjacent to this hedgerow where the ground flora includes Bluebell *Hyacinthoides non-scripta*, Cleavers, Cow Parsley,

Greater Stitchwort *Stellaria holostea*, Hogweed, Common Nettle, Broad-leaved Dock, and Germander Speedwell *Veronica chamaedrys*.

- 3.6.9. Hedgerow H9 is a very short section of hedgerow (less than 30m) located on the western boundary (adjacent to Albion Road). It is a 1.5m box-cut hedgerow set on a bank. It is dominated by Field Maple with Ash, Elder and Hawthorn. The ground flora includes Cleavers, Cow Parsley, Dandelion, Common Nettle and Stinking Iris *Iris foetidissima*.
- 3.6.10. Tree belt 1 (TB1) is a line of semi-mature Silver Birch *Betula pendula* trees planted as a wind break for the orchard. The ground beneath these trees is mown and its composition is as per the grassland described above with very occasional Ash *Fraxinus excelsior* and Oak *Quercus* sp. seedlings noted at the base of some trees. present along the eastern boundary. The trees include Cherry, Willow, Hazel, Oak, Elder, Hawthorn, Blackthorn, and Dog Wood with Bramble scrub.
- 3.6.11. TB2 is present along the eastern boundary. The trees include Cherry, Willow, Hazel, Oak, Elder, Hawthorn, Blackthorn, and Dog Wood with Bramble scrub.

3.7. Ponds

- 3.7.1. There are five ponds (P1-P5) within the site. Ponds P1-P4 are located along the southern boundary, while pond P5 is located in the northwest of the site along hedgerow H6.
- 3.7.2. Pond P1 is a small pond surrounded by species-poor, semi-improved grassland with areas of Hawthorn and Bramble scrub and Bulrush *Typha orientalis* present around the banks. 3-spined stickle and Marsh Frogs back were noted within this pond.
- 3.7.3. Pond P2 is a small pond at the base of hedgerow H4 with Bramble, Spear Thistle, and Bulrush present around the banks. 3-spined Stickleback and Marsh Frogs were also noted within this pond.
- 3.7.4. Pond P3 is a large fishing pond in the south of the site. Species present at the margins include Marsh Marigold *Caltha palustris*, Sedge *Carex* sp., Birdsfoot Trefoil *Lotus corniculatus*, Soft Brome *Bromus hordeaceus*, Meadow Vetchling *Lathyrus pratensis*, Ash. 3-spined Stickleback and Marsh Frogs were also noted within this pond.
- 3.7.5. Pond P4 is also a fishing pond located in the southeast corner of the site. Species present within/at the margins include Pendulous Sedge *Carex pendula*, Bulrush, Water Mint *Mentha aquatica*, Willowherb *Epilobium* sp., *Potamogeton* sp., Willow and Alder *Alnus* sp. 3-spined Stickleback and Marsh Frogs were also noted within this pond.
- 3.7.6. Pond P5 is a small pond in a natural depression along hedgerow H6 and almost completely shaded by an Ash tree and Bramble scrub. This pond was recorded as dry during surveys undertaken in July 2023.

3.8. Scrub

- 3.8.1. The northwest of the site comprises an area of overgrown scrub dominated by Bramble. Other species present include Hawthorn, Blackthorn, Ash, Lords and Ladies, Garlic Mustard, Common Nettle, Elder, Spanish Bluebell *Hyacinthoides hispanica*, Native Bluebell, Ivy, Hogweed, Dogs Mercury *Mercurialis perennis*, Daffodil *Narcissus* sp. and Cow Parsley. Small areas of the invasive species Japanese Knotweed *Reynoutria japonica* were also identified within the scrub (locations can be seen on Plan ECO4). Some pathways through the scrub have been created to allow access through this area (e.g. to the buildings and pond P5).

3.9. Spoil Mound

- 3.9.1. A spoil mound is present within the east of the site next to pond P1. The mound has been recolonised by ruderal vegetation and scrub. Species present include Bramble, Spear Thistle, Bristly Oxtongue, Common Nettle, Teasel *Dipsacus* sp., Common Fleabane *Pulicaria dysenterica*, Hairy Willowherb *Epilobium hirsutum*, Ragwort, Hawthorn, Brown Knapweed *Centaurea jacea* and Common Evening Primrose *Oenothera biennis*.

3.10. Buildings

- 3.10.1. Building B1 is an open metal structure with plaster board and corrugated metal walls and all glass has been removed from the windows.
- 3.10.2. Building B2 is a corrugated structure that has collapsed and is now overgrown with Bramble scrub.

3.11. Background Records

- 3.11.1. KMBRC returned no records of notable plant species from within the site itself. However, records were returned in 2018 from the 1km grid square that also contains the site including the Schedule 8 (sale only) species Bluebell and invasive species Three-cornered Garlic *Allium triquetrum* and New Zealand Pygmyweed *Crassula helmsii*. Bluebell was noted within the site (within H2 and the northwest of the site) during the surveys conducted but the protection afforded to this species is from 'sale only'. No other notable plant species were recorded in the surveys conducted.

4. WILDLIFE USE OF THE SITE

- 4.1. During the surveys undertaken between May 2019 and July 2023 general observations were made of any faunal use of the site, with specific attention paid to the potential presence of protected or notable species. In addition, specific surveys were undertaken with regard to bats, Badgers, Great Crested Newts and Reptiles.

Bats

Tree Surveys

- 4.2. No trees within the site were recorded as having developed features with potential to support roosting bats.

Bat Activity Transect Surveys

- 4.3. Evening bat activity transect surveys were carried out across the site in May, July and September 2021 and May 2023. The results of these surveys are discussed below and are illustrated on Plans ECO5-ECO8. The weather conditions for these surveys can be seen at Appendix 3.
- 4.4. The walked transects covered the orchard rows as well as the boundary features to help establish if bats are foraging around these features. It should be noted that the bat detectors utilised can record registrations some metres away and therefore registration locations detailed on Plans ECO5-ECO8 are broadly indicative locations. In addition, due to the nature of the survey (at night), it is not always possible to visually identify the location of the bat when a registration is recorded.
- 4.5. **May 2021.** During the survey carried out on 28th May 2021, low levels of bat activity were recorded within the site. The vast majority of activity was recorded from Common Pipistrelle *Pipistrellus pipistrellus* bats (a total of 112 registrations) and Soprano Pipistrelle *Pipistrellus pygmaeus* (a total of 54 registrations), with occasional registrations from *Nyctalus* sp. (a total of 6 registrations), *Myotis* sp. (a total of 3 registrations) and Nathusius' Pipistrelle *Pipistrellus nathusii* (a total of 3 registrations). The bat activity was generally associated with hedgerows H5, H7 and H8 with a large amount of the activity recorded around the ponds within the south of the site. The results of this survey can be seen on Plan ECO5.
- 4.6. **July 2020.** During the survey carried out on 12th July 2021, slightly higher levels of bat activity were recorded within the site than in May. The vast majority of activity was again recorded from Common Pipistrelle bats (a total of 202 registrations), with only occasional activity recorded from Soprano Pipistrelle (a total of 33 registrations), Nathusius' Pipistrelle (a total of 13 registrations) and *Nyctalus* sp. (a total of 7 registrations) and *Myotis* sp. (a total of 2 registrations), with a single registration recorded from Serotine. The bat activity recorded during this survey was generally associated with hedgerow H7 and tree lines TL1 and TL2. The results of this survey can be seen on Plan ECO6.
- 4.7. **September 2021.** During the survey carried out on 14th September 2021, low levels of bat activity were recorded within the site. The vast majority of activity was again recorded from Common Pipistrelle bats (a total of 61 registrations)

and Soprano Pipistrelle (a total of 28 registrations) and very occasionally activity recorded from Nathusius' Pipistrelle and *Myotis* sp. (each with a total of 2 registrations) and a single registration was recorded from *Nyctalus* sp. The bat activity recorded during this survey was again generally associated with hedgerow H7 and tree line TL1, with clusters of activity also recorded along hedgerows H2 and H8. The results of this survey can be seen on Plan ECO7.

- 4.8. **May 2022.** During the survey carried out on 24th May 2023, low levels of bat activity were recorded within the site. The majority of the activity was recorded from Common Pipistrelle (a total of 55 registrations) and Soprano Pipistrelle (a total of 23 registrations). Occasional activity was recorded from *Myotis* sp. (a total of 7 registrations) and only a single registration was recorded from Nathusius' Pipistrelle. The bat activity recorded during this survey was mainly associated with the ponds in the south of the site. The results of this survey can be seen on Plan ECO8.
- 4.9. **Activity Summary.** Overall, the majority of the activity recorded from the activity surveys was from Common Pipistrelle and Soprano Pipistrelle with more occasional registrations by other species. The activity surveys suggest that boundary features were utilised mainly with very limited use of the central orchard rows but some usage around the ponds. Hedgerows H5 and H7 and TL2, and to a lesser degree hedgerow H8 and TL1, appear to have relatively greater usage by bats but further evaluation can be gleaned from the automated surveys (see below).

Static/Automated Bat Surveys

- 4.10. Automated bat detectors were left out for a minimum of five consecutive nights within the site, in May, July and September 2021 and May 2023. The locations where the automated detectors were placed can be seen on Plan ECO9, while the weather conditions for these surveys can be seen at Appendix 3. The detectors were located on the hedgerows and tree belts, which were the features deemed most likely to be utilised by foraging and commuting bats (and as evidenced by the activity surveys). The detailed automated bat survey results can be seen at Appendix 4.
- 4.11. **Static/Automated Summary.** Overall, the vast majority of activity recorded on the automated detectors was from Common Pipistrelle bats with more occasional registrations by other species. Overall bat activity recorded is generally low to moderate for Common Pipistrelle and low for other species with peaks on certain nights.
- 4.12. **Background Records.** KMBRC returned no records of any bats from within the site. The closest records returned was for a Common Pipistrelle *Pipistrellus pipistrellus* roost and Brown Long-eared *Plecotus auritus* roost located approximately 0.3km northeast of the site in 2011. In addition, a Serotine *Eptesicus serotinus* record was returned approximately 0.3km northwest of the site in 2017 and Whiskered *Myotis mystacinus* bat located approximately 0.35km northwest of the site in 2016.

Badgers

- 4.13. During surveys in March 2022, a total of 12 entrances were found within the scrub area in the northwest of the site. Badger hair was found at 3 of these entrances. Three latrine pits were also found within the northwest of the site near hedgerow H3 (see Plan ECO4).
- 4.14. Four trail cameras were set up on the entrances between the 15th and 26th April 2022.
- 4.15. The cameras recorded a maximum of 1 male and 1 female Badger entering entrance 6, 1 male and 1 female entering entrance 12, 1 Badger entering entrance 5 and 1 male and 1 female Badger entering entrance 3. Mating and nesting behaviours were also recorded throughout the survey period.
- 4.16. During surveys undertaken in July 2023, the area was too overgrown with scrub to see the entrances, however trails of bedding were seen around the area, indicating that the sett is still active.
- 4.17. **Background Records.** KMBRC returned no specific records of any Badger from within the site itself, the closest record of Badger returned was located approximately 0.9km west of the site in 2009. No information was provided about the record type.

Other Mammal

- 4.18. No evidence of any other notable or protected mammals was recorded during the surveys undertaken, although it is considered that the grassland, scrub and hedgerows offer suitable habitat for a range of small mammals.
- 4.19. **Background Information.** The closest notable mammal record returned was for the priority species Hedgehog *Erinaceus europaeus* located approximately 0.4km northwest of the site in 2014.

Birds

- 4.20. Species recorded within the site during the surveys undertaken include Wren *Troglodytes troglodytes*, Blackbird *Turdus merula*, Robin *Erithacus rubecula*, Dunnock *Prunella modularis*, Pied Wagtail *Motacilla alba*, and House Sparrow *Passer domesticus* (UK Priority Species & Red List¹⁰). These species would not be considered as reliant upon the site given the extent of similar habitat in the vicinity.
- 4.21. Nonetheless, the site offers some opportunities for nesting and foraging birds in terms of the hedgerows and trees.
- 4.22. **Background Records.** KMBRC returned no records of notable birds from within the site itself. A number of notable bird records were returned from the 1km grid square that also contains the site, including the Priority Species Bullfinch *Pyrrhula pyrrhula* in 2015, Red List and Priority Species Song Thrush *Turdus philomelos* in 2006, Red List species Mistle Thrush *Turdus viscivorus* in

¹⁰ Red list species are those that are globally threatened, whose population or range has declined rapidly in recent years (i.e. by more than 50% in 25 years), or which have declined historically and not recovered.

2006 and Schedule 1, Red List and Priority Species Lesser Spotted Woodpecker *Dendrocopus minor* in 2006.

- 4.23. During the public consultation it was raised that one of the main colonies of the Red List species Turtle Dove *Streptopelia turtur* are present within Marden and a local ecologist relayed that they had recorded evidence of them nesting along the eastern boundary (TL2) of the site. However, given the surrounding habitats it is not considered that this species would be reliant on the site. This boundary tree line and the vast majority of hedgerows on the site are to be retained within the proposed development.

Great Crested Newts

- 4.24. There are 5 ponds within the site itself (P1-P5) and there are a further ten ponds (P6-P11, P16, P17, P25 and P26) within 250m of the site (see Plan ECO2).
- 4.25. Although it is known that Great Crested Newts can disperse up to 500m through suitable terrestrial habitat from their breeding pond, it is widely accepted that they tend to utilise suitable terrestrial habitat within a much closer distance. Activity is usually concentrated within 100m of breeding ponds and key habitat is located within 50m (termed by Natural England as core habitat).
- 4.26. Indeed, English Nature Research Report Number 576 (An assessment of the efficiency of capture techniques and the value of different habitats for the Great Crested Newt *Triturus cristatus* by Warren Cresswell and Rhiannon Whitworth) states:

“The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate.”

- 4.27. Therefore only ponds within 250m of the site were surveyed. Access was granted for ponds P1-P6, and P8-P11 but denied for ponds P7, P25 and P26 in 2021. Access was granted for ponds P1-P5 and P8 and P9 but denied for ponds P6, P7, P11, P25 and P26 in 2023. Access was not requested for ponds P16 and P17 as the existing development and main road are considered a significant dispersal barrier.

HSI Survey

- 4.28. The HSI score for a pond lies between 0 and 1, with 0 indicating unsuitable habitat and 1 indicating optimal habitat. A score of <0.5 indicates poor habitat, 0.5-0.59 indicates below average habitat, 0.6-0.69 indicates average habitat, 0.7-0.79 indicates good habitat and >0.8 indicates excellent habitat. Table 1 below sets out the HSI scores for the ponds accessed.
- 4.29. Pond P1 is located in the south west of the site and is a small pond in a natural depression. The HSI score for this pond has been calculated at 0.41 indicating this pond offers poor habitat for Great Crested Newts.

- 4.30. Pond P2 is in the south of the site at the base of hedgerow H4 and is a small pond in a natural depression. The HSI score for this pond has been calculated at 0.39 indicating this pond offers poor habitat for Great Crested Newts.
- 4.31. Pond P3 is a large fishing pond in the south of the site. The HSI score for this pond has been calculated at 0.5, indicating this pond offers below average habitat for Great Crested Newts.
- 4.32. Pond P4 is also a fishing pond in the south east of the site. The HSI score for this pond has been calculated at 0.49, indicating this pond offers poor habitat for Great Crested Newts.
- 4.33. Pond P5 is in the north west of the site along hedgerow H6 and is a small pond in a natural depression. The HSI score for this pond has been calculated at 0.54, indicating this pond offers below average habitat for Great Crested Newts.
- 4.34. Pond P9 is located approximately 180m northeast of the site and is a small garden pond. The HSI score for this pond has been calculated at 0.68, indicating that this pond provides average habitat for Great Crested Newts.
- 4.35. Pond P10 is located approximately 5m west of the site and is a small pond in a natural depression. The HSI score for this pond has been calculated at 0.53, indicating this pond offers below average habitat for Great Crested Newts.
- 4.36. Pond P11 is also located approximately 5m west of the site along hedgerow H7. The HSI score for this pond has been calculated at 0.48, indicating this pond offers poor habitat for Great Crested Newts

Table 1. HSI Results Table.

Pond	P1	P2	P3	P4	P5	P9	P10	P11
Location	1	1	1	1	1	1	1	1
Pond area	0.4	0.1	0.9	0.8	0.1	0.2	0.1	0.1
Pond drying	0.5	1	0.9	0.9	0.5	1	0.5	0.5
Water quality	0.33	0.33	0.33	0.33	0.33	0.67	0.33	0.33
Shade	1	1	1	1	0.4	1	1	0.4
Fowl	1	1	1	1	1	0.67	1	1
Fish	0.01	0.01	0.01	0.01	1	1	1	1
Ponds	1	1	1	1	1	1	1	1
Terr'l habitat	0.67	0.67	0.67	0.67	1	0.67	0.33	0.33
Macrophytes	0.3	0.4	0.5	0.5	0.3	0.35	0.3	0.3
HSI Score	0.41	0.39	0.50	0.49	0.54	0.68	0.53	0.48

eDNA Survey

- 4.37. Access was granted for ponds P1-P4 in 2019, for ponds P1-P4, P6, and P8-P11 but denied for ponds P7, P16, P17, P25 and P26 in 2021 and for ponds P1-P5 and P8 and P9 but denied for all other ponds in 2023. Pond P5 was inaccessible due to dense, overgrown scrub concealing this pond during surveys undertaken in 2019 and 2021.

- 4.38. In 2019, 2021, 2023 ponds P1-P4 returned negative eDNA results suggesting Great Crested Newts are not present within these ponds. 3-spined Stickleback were noted in all 4 of these ponds and Carp were seen in pond P3 and presence of these fish populations is likely why the ponds are not utilised by Great Crested Newts. No Great Crested Newts were recorded when lifting incidental refuges within/in close proximity to the site, e.g. log piles around Ponds P1-P4.
- 4.39. In 2023 pond P5 returned a negative eDNA result suggesting Great Crested Newts are not present within this pond.
- 4.40. In 2021 ponds P6, P8 and P11 returned negative eDNA results suggesting Great Crested Newts are not present within these ponds.
- 4.41. In 2023 pond P8 returned a negative eDNA results suggesting Great Crested Newts are not present within this pond.
- 4.42. In 2021, Pond P10 was recorded to have 3 positive replicates out of 12 through eDNA survey. This is a low positive and therefore does not alone conclusively confirm the presence of Great Crested Newts, however access for further surveys was denied.
- 4.43. Pond P9 was recorded to have 8 positive replicates out of 12 through eDNA survey. This would indicate a greater likelihood of presence of Great Crested Newts within this pond. However, a negative result was returned in 2023.

Aquatic Survey

- 4.44. Aquatic surveys of P9 were undertaken in May and June 2021 (with access to P10 being denied for further surveys following the positive eDNA result). Aquatic surveys of P5 were undertaken in March and April 2022.
- 4.45. As can be seen from Table 2 below, pond P9 was recorded as having a small population of Great Crested Newts with a maximum count of 9 females and 3 males, and a small population of Smooth Newts with a maximum count of 2 males.
- 4.46. As can be seen from Table 3 below, pond P5 was recorded as having no Great Crested Newts for all 4 surveys.
- 4.47. As can be seen from Table 4 below, pond P9 was recorded as having a small population of Great Crested Newts with a maximum count of 1 female and 1 male.

Table 2. Great Crested Newt survey results 2021.

Survey no	Date of Survey	Temp	Pond no.	Great Crested Newt		Smooth Newt		Palmate Newt	
				Male	Female	Male	Female	Male	Female
1	11.5.21	13	9	3	9	0	1	0	0
2	14.5.21	10	9	1	9	2	0	0	0
3	28.5.21	13	9	3	6	0	0	0	0
4	11.6.21	18	9	1	0	0	0	0	0
5	14.6.21	20	9	1	0	0	0	0	0
6	17.6.21	17	9	1	2	0	0	0	0

Table 3. Great Crested Newt survey results 2022.

Survey no	Date of Survey	Temp	Pond no.	Great Crested Newt		Smooth Newt		Palmate Newt	
				Male	Female	Male	Female	Male	Female
1	15.3.22	10	5	0	0	0	0	0	0
2	30.3.22	3	5	0	0	0	0	0	0
3	28.5.21	7	5	0	0	0	0	0	0
4	11.6.21	7	5	0	0	0	0	0	0

Table 4. Great Crested Newt survey results 2023.

Survey no	Date of Survey	Temp	Pond no.	Great Crested Newt		Smooth Newt		Palmate Newt	
				Male	Female	Male	Female	Male	Female
1	9.5.23	14	9	0	0	0	0	0	0
2	11.5.23	13	9	1	0	0	0	0	0
3	16.5.23	15	9	0	0	0	0	0	0
4	1.6.23	15	9	0	0	0	0	0	0
5	6.6.23	16	9	1	0	0	0	0	0
6	16.6.23	22	9	0	1	0	0	0	0

4.48. **Background Records.** KMBRC returned no records of Great Crested Newts within the site itself. The closest record of Great Crested Newt returned was located 0.2km northeast of the site in 2009.

- 4.49. Based on past surveys cited in ecology reports used to support other planning applications in the local area the following ponds have been recorded as supporting Great Crested Newts:
- **P10** – peak count of 1 (low population class) in 2016 survey for MA/17/504754/FUL
 - **P8** - peak count of 1 (low population class) in 2016 survey for MA/17/504754/FUL
 - **P9** - peak count of 36 (medium population class) in 2016 survey for MA/17/504754/FUL; peak count of 89 (medium population class) in 2013 survey for MA/13/1291
 - **P25** - peak count of 12 (medium population class) in 2013 survey for MA/13/1291
 - **P26** - peak count of 8 (low population class) in 2013 survey for MA/13/1291
 - **P30** - peak count of 10 (low population class) in 2013 survey for MA/13/1291
- 4.50. Ponds **P8**, **P9**, **P25** and **P26** are within 250m of the site and are separated from the site by open land and existing development. Pond **P10** is within 250m of the site and is separated by hedgerow H7. Pond **P30** is not within 250m of the site and is separated from the site by open land and existing development.
- 4.51. Great Crested Newts were also recorded as present in ponds **P18**, **P19**, **P20**, **P21**, **P22**, **P23** and **P27** which are all over 250m from the site. Ponds **P18**, **P19**, **P20**, **P21**, **P22** and **P27** are separated from the site by Albion Road and existing development which is considered to be a dispersal barrier. Pond **P23** is separated from the site by existing development, main roads and the railway track which is considered to be a significant dispersal barrier.
- 4.52. Appendix 2 illustrates that a number of amphibian licences have been sought in Marden (i.e. Great Crested Newts).
- 4.53. Great Crested Newts were recorded as absent from surveys of the following ponds:
- **P6** – in 2013 survey for MA/13/1291
 - **P1 - P4 inclusive** – in 2016 survey for MA/17/504754/FUL
 - **P16** – in 2014 survey for MA/13/1585
 - **P17** – in 2014 survey for MA/13/1585 (fish recorded)
- 4.54. Ponds **P1-P4** are within the site. Pond **P6** is within 250m from the site and separated by open land. Ponds **P16** and **P17** are within 250m of the site and are separated by existing development and Albion Road.
- 4.55. Marsh Frog *Pelophylax ridibundus* was noted as present during the surveys of ponds P1-P4 in 2019. Marsh Frogs are not native to the UK and were introduced to the Walland Marsh in Kent in 1935, from Hungary. This species is included on Schedule 9 of the Wildlife and Countryside Act, which makes it illegal to distribute or allow its release into the wild. However, currently there is no requirement to manage the population of Marsh Frog in the UK.

- 4.56. The closest records of other amphibian were Common Frog *Rana temporaria* and Smooth Newt *Lissotriton vulgaris* located approximately 100m northwest of the site in 2009.

Reptiles

- 4.57. Surveys for reptiles were carried out between June and September 2021 along the taller grassland field margins. During these surveys, a peak count of seven Grass Snakes, seven Common Lizards, and two Slow Worms were recorded on any one survey. The results of these surveys can be seen on Plan ECO4 and in Table 5 below, along with the weather conditions for these surveys.

Table 5 Reptile survey conditions 2021.

Survey no.	Date	Weather conditions	Temp. °C	Reptiles Recorded
1	11.6.21	Overcast and dry	20	7 Unsexed Grass Snake, 7 Unsexed Common Lizard, 2 Male Slow Worm
2	14.6.20	Overcast and dry	21	Male Common Lizard and Juvenile Grass Snake
3	16.6.20	Overcast and dry	23	Male Slow Worm
4	22.6.21	Overcast and dry	14	3 Juvenile Grass Snake, Female Grass Snake, Male Grass Snake, Male Slow Worm
5	12.7.21	Overcast and dry	16	2 Unsexed Grass Snake, 2 Male Grass Snake, Male Slow Worm
6	03.9.21	Overcast and dry	17	Unsexed Grass Snake
7	14.9.21	Overcast and dry	18	2 Juvenile Common Lizard, 2 Juvenile Grass Snake, 2 Female Slow Worm, Juvenile Slow Worm

- 4.58. **Background Records.** KMBRC returned no records of reptiles from within the site itself. The closest record returned was a Grass Snake located approximately 100m north of the site in 2005. In addition, records were returned of Common Lizard located approximately 0.4km north of the site in 2015 and Slow Worm located approximately 0.8km west of the site in 2016.
- 4.59. The majority of the grassland within the site is not currently considered to have potential to support reptile species on account of its short sward. Surveys indicate that a low populations of Grass Snakes, Slow Worms and Common Lizards utilise the grassland margins, based on the Froglife Advice Sheet 10¹¹.

¹¹ Froglife (1999). An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife, Halesworth.

Invertebrates

- 4.60. It is considered that the site is likely to support a range of common invertebrate species. However, the intensive management of the majority of the site (herbicides and pesticides utilised on the existing commercial orchard) is likely to preclude the presence of any notable assemblage.
- 4.61. **Background Records.** KMBRC returned no records of any notable invertebrate species within the site itself. The closest record was of the Red List species Large Black Slug *Arion ater* located approximately 0.85km southwest of the site in 2007. This species is widespread throughout most of Britain and feeds on a wide range of plant species, fungi and decaying organic matter. It is considered that this species could potentially utilise the site, although they would not be solely dependent on it given the surrounding habitat.

Other Species

- 4.62. Given the habitats present and records from the local area, there is no evidence from site surveys or desk study to suggest that any other protected or notable species would be present within the site or affected by the proposed development.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Site Evaluation

- 5.1.1. The latest guidelines for ecological evaluation produced by CIEEM¹² proposes an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe¹³. These are broadly used across the United Kingdom to rank Sites, so priorities for nature conservation can be attained. For example, current Site of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England may be of importance at its northern limits, say in the border country.
- 5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP).
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the International level.
- 5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

¹² CIEEM (September 2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester

¹³ Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of Sites of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

Habitat Evaluation

5.2. Designated Sites

- 5.2.1. **European Sites.** The nearest European Protected Site is the North Downs Woodlands Special Area of Conservation (SAC) located just under 15km north of the site. The SAC is also designated as part of the wider Wouldham to Detling Escarpment Site of Special Scientific Interest (SSSI).
- 5.2.2. The SAC is designated as supporting the Annex I habitats *Asperulo-Fagetum* Beech forests and Yew *Taxus baccata* woods on steep slopes as a primary reason for selection and also semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia* including important orchid sites) as a qualifying feature, but not a primary reason for selection.
- 5.2.3. The SAC is well separated from the site by major and minor roads, a mainline railway line, existing residential development and swathes of open countryside. As such, together with the small-scale nature of any proposed development at the site it is not considered likely that there would be any adverse impacts from any development proposals at the site on the North Downs Woodlands SAC either alone or in combination with other plans or projects.
- 5.2.4. **Other Statutory Sites.** The nearest statutory designated site is Marden Meadows SSSI, which lies just under 1km east of the site. This SSSI is designated for its unimproved neutral grassland (one of the best remaining examples in Kent) and forms part of a wider Kent Wildlife Trust Reserve (see Plan ECO1).
- 5.2.5. The SSSI Impact Risk Zones (IRZ) for the eastern half of the site identifies that residential development of 100 units or more (or residential development of 50 units or more where this is located outside existing settlements/urban areas) may result in potential adverse effects on the SSSI. The IRZ for the western half of the sites identifies that residential development of 100 units or more where this is located outside existing settlements/urban areas may result in potential adverse effects on the SSSI. The IRZ for the western half of the sites is not relevant as the proposed residential development would be located on the edge of the existing settlement of Marden (i.e. located within an existing settlement/urban area). The site in total would accommodate up to 120 units. Given the IRZ relating to 100 residential units or more potentially having an effect on the SSSI only applies to the eastern half of the site, the number of units within this IRZ distance would be circa half that for the whole site, i.e. 50% of 120 = 60 units. As such, this would not trigger the relevant threshold for the IRZ. As such, any adverse effects (direct or indirect) on the SSSI are unlikely to arise from development of the site. Indeed, this SSSI is well separated from the sites by roads, agricultural land and existing residential development. Further, the adjacent development to the north of 124 units at Stanley Road was not deemed to have any adverse effects on this SSSI.
- 5.2.6. **Non-Statutory Sites.** There are no non-statutory sites of nature conservation interest within the site. The nearest non-statutory site is MA38 Ponds and Pasture, Wanshurst Green Local Wildlife Site (LWS),

which is located approximately 880km northeast of the site (see Plan ECO1). This LWS is designated for its semi-improved/unimproved neutral grassland, ponds, relict shaws, copses, hedgerows, and small ancient woodland.

- 5.2.7. As with the statutory sites in the locality, this LWS is well separated from the site (including a mainline railway) and given the small-scale of any development at the site any adverse effects (either direct or indirect) are considered unlikely

5.3. Habitats within the Site

The habitats within the site are generally not considered to be of any particular intrinsic ecological importance being dominated by intensive orchard and species-poor grassland. Notwithstanding, the hedgerows and trees therein are of some relatively greater ecological value in the context of the site.

Orchard (Not Traditional)

- 5.3.1. The orchard is of limited ecological value due to the herbicides and pesticides used within its management. However, it is considered that the orchard does offer suitable seasonal foraging and very limited nesting (due to operational management) opportunities for birds, seasonal foraging opportunities for Badgers, and foraging and navigational resources for bats.
- 5.3.2. The orchard is to be lost to the proposed development with the exception of a couple of areas in the south which are to be retained and ecologically enhanced.
- 5.3.3. **Mitigation and Enhancements.** Although Traditional Orchards are a Priority Habitat, as listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (England), the area of orchard within the site is not listed on the Traditional Orchard Inventory for England and would not meet the UK Priority Habitat definition due to the close spacing of trees and intensive management. As such, its loss is of limited significance in ecology terms and could be offset through the planting of other native trees (including fruiting varieties to maintain seasonal foraging resources for a range of wildlife) as part of any landscape proposals.
- 5.3.4. Small areas of traditional orchard are to be created as part of the development proposals at the site through the planting of species rich grassland using a seed mix such as Emorsgate EM2 (or similar) and the improved management of retained sections of the existing orchard through pruning in order to achieve an ecological enhancement.

Species-poor, Semi-improved Grassland

- 5.3.5. The grassland within the site is of limited ecological value as it comprises common, widespread species and is subject to frequent mowing.
- 5.3.6. The majority of the grassland in the south will be retained and enhanced (to species-rich grassland/wildflower meadow) as part of the proposals but the grassland beneath the intensive orchard areas will be largely lost.

- 5.3.7. **Mitigation and Enhancements.** To offset the loss of the existing grasslands in the orchard areas and increase the ecological value of the site, areas of open space will be sown/over-sown with a species-rich seed mixture (such as Emorsgate's Standard General Purpose Meadow Mixture EM2) and subject to a suitable management regime to enhance the floristic diversity of the site accordingly. The management of the species-rich grassland will create a tussocky grassland with a long sward to provide suitable habitat for foraging bats and to provide suitable habitat for reptiles.
- 5.3.8. The proposed development also includes the creation of attenuation features. The attenuation features will be created with a species-rich wildflower grassland seed mix suitable for damp conditions (such as Emorsgate's meadow Mixture for Wetland EM8) wherever the feature is not permanently wet and designed to maximise wildlife benefits (e.g. gently sloping sides to allow wildlife to access these attenuation features). This in turn would also create new opportunities for other faunal groups, such as amphibians, within the site.
- 5.3.9. To achieve further enhancement, these features could also be planted with native aquatic vegetation where there is permanent water.

Ponds

- 5.3.10. The ponds within the site are of greater ecological value in the context of the site.
- 5.3.11. The ponds are to be retained within the proposed development.
- 5.3.12. **Mitigation and Enhancements.** To achieve enhancement of these ponds the banks and surrounding areas could be sown with a species-rich wildflower grassland seed mix suitable for damp conditions (such as Emorsgate's meadow Mixture for Wetland EM8) and planted with native aquatic vegetation, where appropriate.

Scrub

- 5.3.13. The dense scrub is of very limited ecological value, comprising only common and widespread species, as well as invasive species. However, these habitats offer some suitable foraging and nesting opportunities for birds and small mammals as well as terrestrial habitat for amphibians and reptiles and the dense scrub provides foraging and navigational opportunities for bats (see below).
- 5.3.14. The dense scrub is to be lost to the proposed development.
- 5.3.15. **Mitigation and Enhancements.** There will be new, extensive areas of native hedgerow, tree and scrub planting as part of the proposed development which will more than offset losses to these habitats.
- 5.3.16. It is recommended that the new native hedgerows, tree and scrub planting comprises a mixture of native species or those of benefit to wildlife, wherever possible, or species of benefit to wildlife. If possible, the new planting should include fruit-bearing trees / shrubs which will provide

seasonal foraging opportunities for a range of wildlife including birds and small mammals.

Hedgerows, Tree Belts and Trees

- 5.3.17. The hedgerows and trees within the site are of relatively greater ecological value in the context of the site. The hedgerows offer suitable nesting opportunities for birds, foraging and navigational opportunities for bats, and potentially suitable terrestrial habitat for amphibians.
- 5.3.18. The vast majority of the hedgerows and trees are to be retained and safeguarded within the proposed development. Although small sections of hedgerow H1 and tree line TL1 will be lost to facilitate a new access road.
- 5.3.19. **Mitigation and Enhancements.** In general, the retained hedgerows and tree lines will be well buffered from any built form by gardens and public open space within the proposed development. A significant amount of new hedgerow planting will be undertaken throughout the site within the areas of open space.
- 5.3.20. New hedgerow planting of a length / area greater than that lost is to be included within the proposed development is proposed. The new hedgerow planting will be based around native species of local provenance. Gaps in existing hedgerows will also be infilled using new planting and hedgerows within open spaces will be subject to management to enhance their structure (e.g. avoid regular, intensive box-cutting) and maximise wildlife benefits. New trees will also be included within the landscape proposals, which will be based around native species of local provenance.
- 5.3.21. Measures will be put in place to ensure that retained sections of hedgerows and trees / tree lines are safeguarded from direct impacts during the construction phase, e.g. fenced-off during construction to prevent encroachment into these areas by construction machinery. No construction machinery or materials will be stored within these areas at any point during the development.

Buildings

- 5.3.22. The buildings have limited ecological value and are to be lost to the proposed development.
- 5.3.23. **Mitigation and Enhancement.** No mitigation required.

Faunal Evaluation

Bats

- 5.3.24. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”)¹⁴. These include provisions making it an offence to:

¹⁴ On 1st January 2021 The Habitats Regulations were replaced by the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019, however this does not materially alter the provisions of the Regulations

- Deliberately kill, injure or take (capture) bats;
 - Deliberately disturb bats in such a way as to be likely to significantly affect:-
 - (i) the ability of any significant group of bats to survive, breed or rear or nurture their young; or to hibernate; or
 - (ii) to affect significantly the local distribution or abundance of the species concerned;
 - Damage or destroy any breeding or resting place used by bats;
 - Intentionally or recklessly obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).
- 5.3.25. While the legislation is deemed to apply even when bats are not in residence, Natural England guidance suggests that certain activities such as re-roofing can be completed outside sensitive periods when bats are not in residence provided these do not damage or destroy the roost.
- 5.3.26. The words 'deliberately' and 'intentionally' include actions where a court can infer that the defendant knew 'the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.
- 5.3.27. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
- 5.3.28. Licences can be granted for development purposes by an 'appropriate authority' under Regulation 55 (e) of the Habitats Regulations. In England, the 'appropriate authority' is Natural England (the government's statutory advisors on nature conservation). European Protected Species licences permit activities that would otherwise be considered an offence.
- 5.3.29. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:
1. The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
 2. There must be no satisfactory alternative; and
 3. The favourable conservation status of the species concerned must be maintained.
- 5.3.30. Licences can usually only be granted if the development is in receipt of full planning permission (and relevant conditions, if any, discharged).
- 5.3.31. Seven species of bat are Priority Species, these are Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe and Lesser Horseshoe.
- 5.3.32. **Site usage.** No trees or buildings within the site are considered to have developed features suitable to support roosting bats.

and this assessment. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

- 5.3.33. Overall, from the bat activity and automated survey results the vast majority of activity recorded was from Common Pipistrelle and Soprano Pipistrelle with more occasional registrations by other species.
- 5.3.34. Hedgerows H5 and H7 and tree line TL2 were observed to be of greater value to bats within the site and all of these features are to be retained.
- 5.3.35. Indeed, the vast majority of the hedgerow network and trees are to be retained within the proposed development, with only minor losses to facilitate new access roads. The dense scrub will also be lost as part of the proposed development.
- 5.3.36. **Mitigation and Enhancements.** New planting of hedgerows and native scrub and the creation of species rich grassland would provide new and enhanced foraging opportunities for bats. While the retained hedgerows and trees and enhancement of orchard areas will maintain existing navigational and foraging opportunities.
- 5.3.37. Where lighting is necessary during construction, any potential light spillage will be reduced by directing light below the horizontal plane, preferably at an angle less than 70 degrees away from features that offer suitable foraging opportunities for bats, e.g. the trees.
- 5.3.38. If deemed necessary, a sympathetic lighting regime associated with any proposals would also minimise light spillage into key areas, such as retained hedgerows, which would maintain foraging and navigational opportunities in these areas in the form of 'dark corridors'. Such a strategy can involve the use of warm white LED lights, which produce less light spillage than other types of lighting and have low / no UV content, or UV-filtered lights. In addition, the spillage of the light can be reduced further through use of low-level lights and the employment of lighting 'hoods' (again to direct light below the horizontal plane, preferably at an angle less than 70 degrees).
- 5.3.39. As an enhancement, new bat boxes (see Appendix 5) for suitable examples) for species recorded within the site will also be provided on retained trees.

Badgers

- 5.3.40. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain, with particularly high populations in the southwest.
- 5.3.41. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "any structure or place which displays signs indicating current use by a Badger"¹⁵. "Current use" of a Badger sett is defined by Natural England as "how long it takes the signs to disappear", or more precisely, to appear so old as to not indicate "current

¹⁵ Protection of Badgers Act 1992 (as amended). Guidance on 'Current Use' in the definition of a Badger Sett
<http://www.naturalengland.org.uk/ourwork/regulation/wildlife>

use”.

- 5.3.42. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting ‘cruel ill treatment’ of a Badger.
- 5.3.43. **Site Usage.** A total of 12 entrances are located within the northwest of the site with Badger hairs found on 3 entrances and at least one breeding pair utilising the sett in April 2022. This could represent a small main sett or a lower status sett (e.g. subsidiary – there are no obvious paths linking to another sett but these sett types have variable numbers of entrances and can be used for rearing cubs).
- 5.3.44. **Mitigation and Enhancements.** As the development will result in loss of the Badger sett, a Natural England licence will be required to close the sett prior to any development within the site. If necessary, an artificial sett will be provided in open space as part of the licensing process.
- 5.3.45. A number of safeguards to protect Badger from accidental harm during construction are also recommended. Any trenches or deep pits that are to be left open overnight should be provided with a means of escape should a Badger enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
- 5.3.46. Any trenches/pits should be inspected each morning to ensure no Badgers have become trapped overnight. Should a Badger get stuck in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett. Should a trapped Badger be encountered, Ecology Solutions should be contacted immediately for further advice.
- 5.3.47. The storage of topsoil or other ‘soft’ building materials within the site should be given careful consideration. Badgers will readily adopt such mounds as setts, which would then be afforded the same protection as established setts. So as to avoid the adoption of any mounds, they should be subject to daily inspections (or nightly patrols if 24 hour security is present on site) or consideration given to fencing them with Badger proof fencing.
- 5.3.48. During the development, the storage of any chemicals required for the building construction should be well away from any Badger activity and contained in such a way that they cannot be accessed or knocked over by any roaming Badgers.
- 5.3.49. The inclusion of new landscape planting and extensive open space as part of the development proposals would maintain foraging opportunities for badger. The enhancement of areas of orchard, the planting of native scrub and use of berry / fruit bearing species in the landscape planting scheme would provide seasonal foraging resources for Badgers.

Birds

- 5.3.50. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1

lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.

- 5.3.51. **Site Usage.** It is considered that the hedgerows, trees and scrub offer suitable nesting and foraging opportunities for a range of common and notable birds (including Turtle Dove), while the grasslands also offer some limited suitable foraging opportunities. The vast majority of the hedgerow network and trees are to be retained within the proposed development but the grassland beneath the intensive orchard is to be lost or converted to other habitat types within proposed open spaces. The grassland around the ponds in the south of the site is to be retained and enhanced.
- 5.3.52. **Mitigation and Enhancements.** The development proposals will retain the majority of existing foraging and nesting opportunities for birds, through the retention of the hedgerows and trees within the site, although small sections of hedgerow and tree line are to be lost to facilitate access and infrastructure. The provision of new hedgerows and landscape planting will offset any losses and provide additional opportunities for a range of bird species, and the provision of berry/fruit-bearing species would provide seasonal foraging resources for birds. Implementation of management to improve the structure of retained/new hedgerows and maximise fruiting (i.e. avoid intensively managed/regularly cut box hedges) would serve to enhance their value to nesting and foraging birds.
- 5.3.53. To help protect local Turtle Dove populations, native scrub planting along the eastern boundary of prickly vegetation will help deter cats away and maintain current nesting opportunities while new native hedgerow and scrub planting will provide new and enhanced nesting opportunities for this species.
- 5.3.54. It is recommended that clearance of any suitable nesting vegetation, including tree felling (and habitat for ground nesting species), be undertaken outside the bird nesting season (March to August inclusive) to avoid any potential offence. Should the above timing constraints conflict with any timetabled works, it is recommended that works commence only after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. If nesting birds are found to be present during checks then clearance would need to be delayed until young have fledged.
- 5.3.55. Simple enhancement measures could ensure the ornithological interest at the site is increased. For example, the erection of nest boxes on suitable retained trees. Using nest boxes of varying designs would maximise the species complement attracted to the site and, where possible, these could be tailored to provide opportunities for Red Listed / Priority Species known from the local area (see Appendix 6 for suitable examples).

Great Crested Newts

- 5.3.56. **Legislation.** The legislative and licensing provisions outlined above with regard to bats also applies to Great Crested Newts.
- 5.3.57. **Site Usage.** The majority of the site represents suboptimal terrestrial habitat for Great Crested Newts. Ponds P1-P4 returned negative eDNA results and surveys of pond P5 recorded no Great Crested Newts. No Great Crested Newts were recorded when lifting incidental refuges

within/in close proximity, e.g. the log piles around the ponds, or during the reptile surveys.

- 5.3.58. However, records of Great Crested Newts are known from ponds in the local area (see Plan ECO2).
- 5.3.59. Therefore, whilst there are no ponds supporting Great Crested Newts within the site, consideration needs to be given to the presence of a populations of newts in ponds within 250m of the site.
- 5.3.60. The site is within 250m distance of ponds supporting Great Crested Newts. However, the habitats on site are considered to be suboptimal terrestrial habitat and the hedgerows and grassland around the ponds, which would represent suitable habitat, are to be retained and enhanced within the development proposals. As such, any development at the site is not considered likely to adversely impact Great Crested Newts using ponds to the east of the site.
- 5.3.61. As pond P10 (in which a peak count of a single Great Crested Newt has been recorded) is in close proximity to the site (to the west), based on current available data it is known that a Natural England licence may likely be required for any proposed development works within the site.
- 5.3.62. **Mitigation and Enhancements.** Based on the above, whilst there are no ponds within the site itself consideration needs to be given to the presence of a medium population of newts in ponds within 250m to the east of the site and the presence of a very low population (peak count of a single Great Crested Newt) within pond P10 to the west. Regard also needs to be had for the fact that a new pond is to be constructed within the Stanley Road development adjacent to the north of the site.
- 5.3.63. To facilitate development, any mitigation strategy for Great Crested Newts should seek to ensure that there is no net loss in available aquatic habitat, together with ensuring adequate terrestrial habitat is provided within the site relative to existing extent and quality of habitats for this species.
- 5.3.64. As no ponds would be lost to the proposals the inclusion of a pond could represent an enhancement for Great Crested Newts. Attenuation features included within the proposed development could provide aquatic habitat for this species if designed to be permanently wet and a range of native aquatic and marginal vegetation of local provenance included.
- 5.3.65. It is recommended that, wherever possible, any new waterbodies are linked by green corridors of rough grassland and hedgerows, which will create terrestrial dispersal routes for amphibians between waterbodies, and to off-site habitats.
- 5.3.66. In general, a number of other enhancements such as the provision of log piles/refuges and hibernacula could also be included adjacent to newly created habitat (aquatic and terrestrial).
- 5.3.67. As such, it is evident that an appropriate mitigation strategy that enhances habitat quality (including provision of new aquatic habitat that doesn't currently exist on site) and improves connectivity between the local

metapopulation of Great Crested Newts can be delivered at the site as part of any development.

- 5.3.68. If deemed necessary, a District Level Licence for Great Crested Newts could be obtained through Natural England.

Reptiles

- 5.3.69. **Legislation.** All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance.

- 5.3.70. Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis* receive 'full protection' under the Wildlife and Countryside Act 1981 as well as protection under the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations"). These receive protection from:

- Killing, injuring, taking;
- Possession or control (of live or dead animals, their parts or derivatives);
- Damage to, destruction of, obstruction of access to any structure or place used for shelter or protection;
- Disturbance of any animal occupying such a structure or place;
- Selling, offering for sale, possession or transport for purposes of sale (live or dead animal, part or derivative).

- 5.3.71. Common Lizard, Grass Snake *Natrix helvetica*, Slow Worms and Adder are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended) and as such only receive protection from:

- Deliberate killing and injuring;
- Being sold or other forms of trading.

- 5.3.72. The legislation relevant to common reptiles therefore protects the species, but not their habitat and any works that avoid killing or injuring any of these species, should ensure that an offence is avoided.

- 5.3.73. **Site Usage.** The grassland provides limited suitable habitat for reptiles and surveys between June and September 2021 recorded maximum count of 7 Grass Snakes, 7 Common Lizards, and 2 Slow Worms, indicating that there is a small population of Grass Snake, Common Lizard, and Slow Worm within the site.

- 5.3.74. **Mitigation and Enhancements.** The majority of the suitable reptile habitat is to be retained as open space. The provision of new areas of species-rich grassland, and scrub will provide enhanced opportunities for reptiles within the site post-development.

- 5.3.75. A full translocation exercise is not deemed to be merited for any minor loss of suitable reptile habitat. Instead, it is recommended that a habitat manipulation exercise be undertaken as a precautionary measure prior to any removal of suitable reptile habitat within the site, if required. Habitat manipulation involves controlled cutting in a directional manner to persuading reptiles present to move towards suitable retained habitat or

suitable off-site habitats. This would ensure no reptiles (if present in working areas) are injured or killed during works.

- 5.3.76. As a precaution, it is recommended that the removal of any scrub or hedgerows within the site is undertaken outside of the reptile hibernation period (October to March inclusive) and the roots of the scrub/hedgerows should be pulled slowly from the ground and overseen by a suitably qualified ecologist, to ensure reptiles resting within the hedgerows are not impacted.
- 5.3.77. The proposed species-rich grassland within the site will be managed as tussocky grassland to provide enhanced opportunities for reptiles post-development. The tussocky grassland should be left uncut or only cut infrequently on a rotational basis to prevent dominance of scrub, and the grassland will be cut in October.
- 5.3.78. It is also recommended that refuges, such as log piles are created within areas of open space to provide additional shelter and hibernation opportunities for reptiles. Log piles should be included along the boundary hedgerows to enhance these areas for reptiles. The above would represent significant enhancements for this group and allow a potentially significant expansion in range across the site post-development.

5.4. Invertebrates

- 5.4.1. **Site usage.** Given the habitats present it is likely an assemblage of common invertebrate species would be present within the site, although there is no evidence to suggest any notable / protected invertebrates would be present, particularly given the intensive management (including pesticides) for the existing orchard which dominates the site.
- 5.4.2. **Mitigation and Enhancements.** The retention of the majority of the hedgerows together with the creation of new areas of species-rich grassland and the planting of new native trees/hedges/scrub and creation of attenuation features would provide new and enhanced opportunities for a range of invertebrates.
- 5.4.3. The retention and creation of log piles would provide suitable opportunities for saproxylic invertebrates. The implementation of other potential enhancement measures recommended above would also likely provide knock-on benefits for invertebrates.

6. PLANNING POLICY CONTEXT

- 6.1. The planning policy framework that relates to nature conservation at the site is issued nationally through the National Planning Policy Framework (NPPF) and locally through the Maidstone Borough Local Plan, Marden Neighbourhood Plan, Maidstone Borough Council Biodiversity Strategy and Kent Environment Strategy. The proposed development will be judged in relation to the policies contained within these documents.

6.2. National Policy

National Planning Policy Framework July 2021

- 6.2.1. Guidance on national policy for biodiversity and geological conservation is provided by the NPPF, published in March 2012, revised on 24 July 2018, February 2019 and again on 20 July 2021. It is noted that the NPPF continues to refer to further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system provided by Circular 06/05 (DEFRA / ODPM, 2005) accompanying the now-defunct Planning Policy Statement 9 (PPS9).
- 6.2.2. The key element of the NPPF is that there should be “*a presumption in favour of sustainable development*” (paragraphs 10 to 11). It is important to note that this presumption “*does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site*” (paragraph 182). ‘Habitats site’ has the same meaning as the term ‘European site’ as used in the Habitats Regulations¹⁶.
- 6.2.3. Hence the direction of Government policy is clear; that is, the presumption in favour of sustainable development is to apply in circumstances where there is potential for an effect on a European site, if it has been shown that there will be no adverse effect on that designated site as a result of the development in prospect.
- 6.2.4. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 174).
- 6.2.5. The NPPF also considers the strategic approach that Local Authorities should adopt with regard to the protection, maintenance and enhancement of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.
- 6.2.6. Paragraphs 179 to 181 of the NPPF comprise a number of principles that Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites

¹⁶ As noted earlier, on 1st January 2021 The 2017 version of the Habitats Regulations were replaced by the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019,

identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats – unless there are 'wholly exceptional reasons' (for instance, infrastructure projects where the public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.

- 6.2.7. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.3. Local Policy

Maidstone Borough Local Plan

- 6.3.1. The Maidstone Borough Local Plan was adopted in October 2017 and sets out the framework for development in the Brough until 2031. There are two policies that relate in whole or in part to nature conservation, Policy **DM1** which relates to the protection and enhancement of biodiversity and Policy **DM3** which relates to the protection of priority habitats and biodiversity

Marden Neighbourhood Plan (2017 – 2031)

- 6.3.2. The Marden Neighbourhood Plan was adopted in 2019 with aims to ensure future sustainable development. There are four policies within this document that relates in whole or in part to nature conservation, Policy **NE2** which relates to water quality, Policy **NE3** which relates to the conservation and enhancement of the landscape through native hedgerow planting and sensitive artificial lighting systems, Policy **NE4** which relates to the protection of priority habitats and achieving a biodiversity net gain, and Policy **NE5** which relates to the planting of native species.

Maidstone Borough Council Biodiversity Strategy 2020

- 6.3.3. The Maidstone Borough Council Biodiversity Strategy was published in 2020 details the protection and enhancements of biodiversity.

Kent Environment Strategy 2016

- 6.3.4. The Kent Environmental Strategy (published March 2016) details the protection and enhancement of biodiversity and the conservation of wildlife sites.

6.4. Discussion

- 6.4.1. With the implementation of recommendations made in this report, the development proposals will have no adverse effects on any statutory or non-statutory designated sites and recommendations have been made which would enhance the site in ecological terms over the existing situation. As such, it is considered that the development proposals fully accord with the Local Plan, Neighbourhood Plan, and the Biodiversity Strategy and Environment Strategy.

- 6.4.2. In conclusion, implementation of the measures set out in this report would enable development of the site to accord with national and local policy.

7. SUMMARY AND CONCLUSIONS

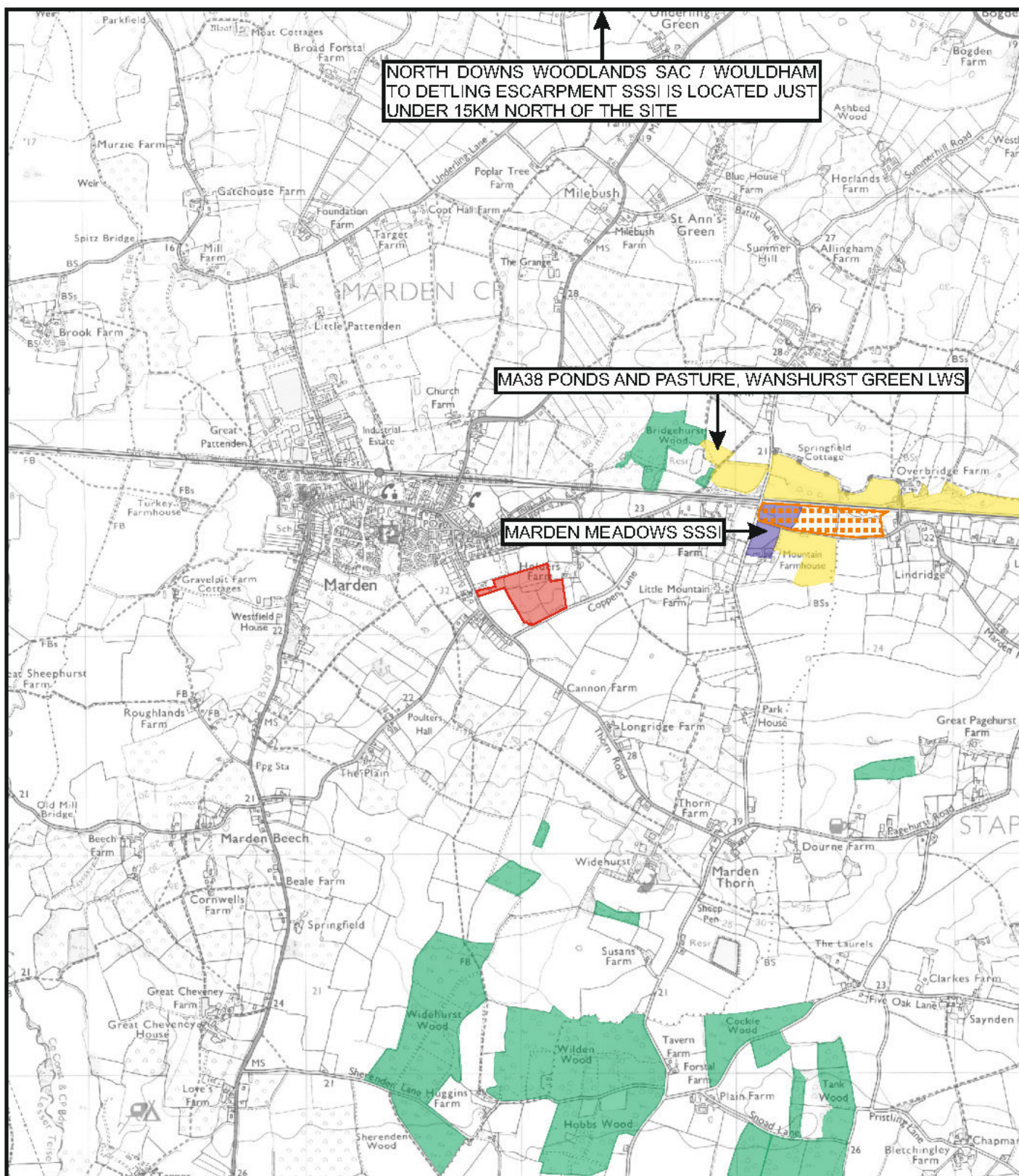
- 7.1. Ecology Solutions was commissioned by Rydon Homes in January 2022 to undertake an Ecological Assessment at land to the east of Albion Road and the north of Copper Lane, Marden.
- 7.2. The proposals for the site are for the erection of up to 120 dwellings alongside a new access, landscape and other associated works.
- 7.3. The site was surveyed based around extended Phase 1 survey methodology, as recommended by Natural England, with a number of visits conducted between May 2019 and July 2023. In addition, specific surveys were undertaken within the site in respect to bats, Badgers, Great Crested Newts and reptiles.
- 7.4. There are not considered to be any significant adverse effects on any other statutory and non-statutory sites of nature conservation interest from the development proposals.
- 7.5. No trees or buildings within the site were observed to have features to support roosting bats. The retention of the vast majority of hedgerows and tree lines, and the recommended new areas of species-rich grassland and native shrub planting would provide new and enhanced foraging and navigational opportunities for bats. The inclusion of bat boxes within the site will provide new roosting opportunities for bats.
- 7.6. The Badger sett will be closed under a Natural England Licence before works commence and all contractors should be briefed regarding the presence of Badgers and of the types of activities that would not be permissible on site.
- 7.7. The retention of the majority of existing habitats and the recommended creation of new species-rich grassland and native shrub would provide enhanced opportunities for birds, while the erection of bird boxes within the site will also provide new nesting opportunities for birds.
- 7.8. The majority of the site comprises suboptimal terrestrial habitat for Great Crested Newts and surveys of pond on site found no presence of Great Crested Newts. However, populations are present within the wider area and therefor a Natural England licence may be required. The creation of attenuation features, native scrub, wildflower grassland and long piles will provide new and enhanced habitat for Great Crested Newts. If deemed necessary a District Level Licence could be obtained from Natural England.
- 7.9. The grassland provide limited suitable habitat for reptiles and surveys between June and September 2021 recorded maximum count of 7 Grass Snakes, 7 Common Lizards, and 2 Slow Worms, indicating that there is a small population of Grass Snake, Common Lizard, and Slow Worm within the site. The majority of the suitable reptile habitat is to be retained as open space. A full translocation exercise is not deemed to be merited for any minor loss of suitable reptile habitat. Instead, it is recommended that a habitat manipulation exercise be undertaken as a precautionary measure prior to any removal of suitable reptile habitat within the site, if required. The provision of new areas of species-rich grassland and scrub will provide enhanced opportunities for reptiles within the site post-development.

- 7.10. Given the habitats present it is likely an assemblage of common invertebrate species would be present within the site, although there is no evidence to suggest any notable / protected invertebrates would be present. The retention of the majority of the hedgerows together with the creation of new areas of species-rich grassland, the creation of new attenuation features and the planting of new native trees/hedges/scrub would provide new and enhanced opportunities for a range of invertebrates.
- 7.11. In conclusion, through the implementation of the safeguards and recommendations set out within this report it is considered that the proposals accord with planning policy with regard to nature conservation at all administrative levels. In addition, it is considered that the recommendations outlined would create a net enhancement to biodiversity post development.

PLANS

PLAN ECO1

Site Location & Ecological Designations



KEY:

- APPLICATION SITE
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- LOCAL WILDLIFE SITE (LWS)
- ANCIENT SEMI-NATURAL WOODLAND
- KENT WILDLIFE TRUST RESERVE



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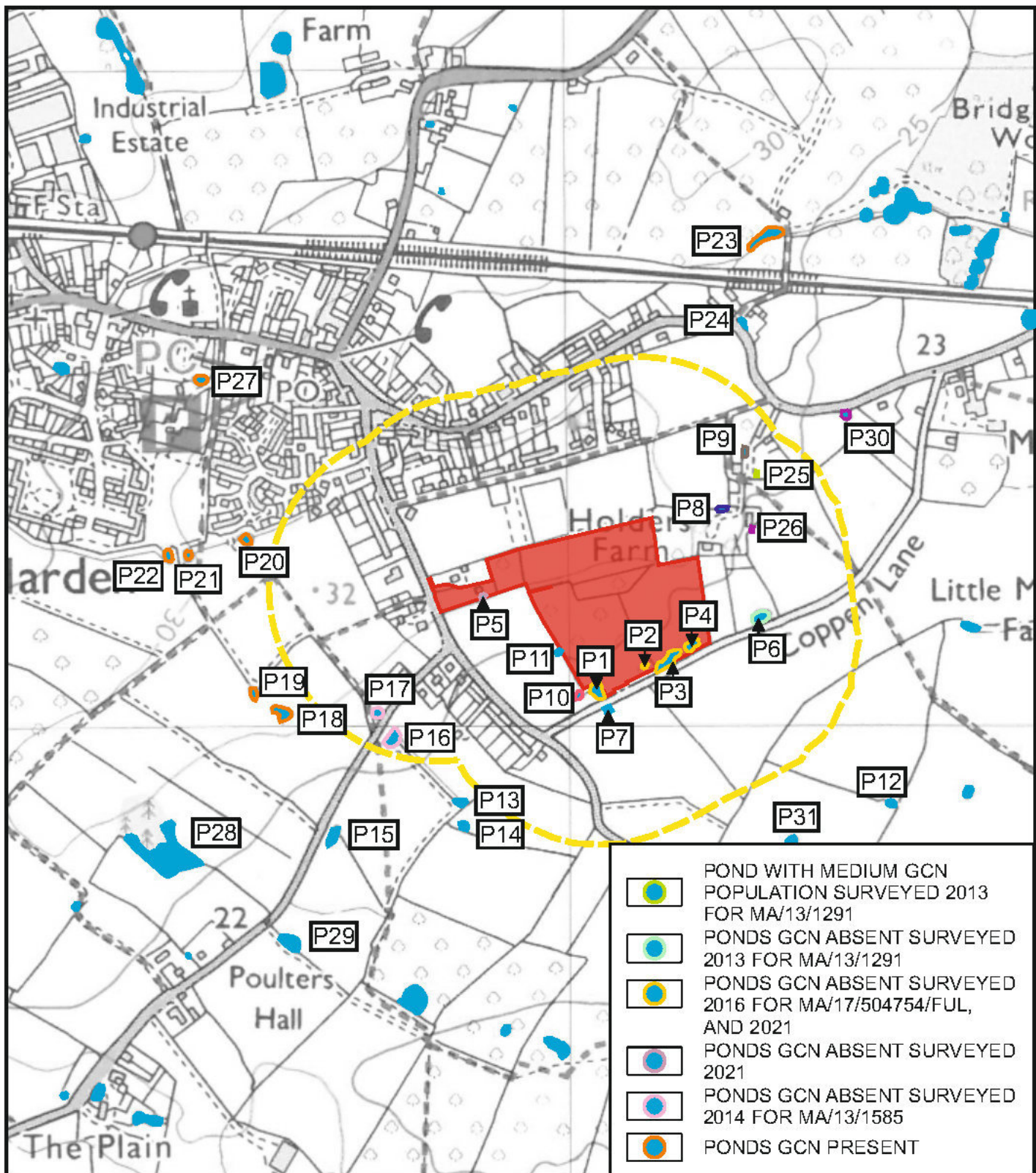
**8372: LAND EAST OF ALBION ROAD
& LAND NORTH OF COPPER LANE,
MARDEN**

**PLAN ECO1: SITE LOCATION AND
ECOLOGICAL DESIGNATIONS**

Rev: A
Nov 2022

PLAN ECO2

Pond Location Plan



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8372: LAND EAST OF ALBION ROAD
& LAND NORTH OF COPPER LANE,
MARDEN

PLAN ECO2:
POND PLAN

Rev: A
Nov 2022

PLAN ECO3

Ecological Features



KEY:

- SITE BOUNDARY
- COMMERCIAL ORCHARD
- DENSE SCRUB
- SPECIES POOR SEMI-IMPROVED GRASSLAND
- SPOIL MOUND
- HEDGEROW
- TREE LINE
- TREE
- POND
- BUILDING



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8372: LAND EAST OF ALBION ROAD &
LAND NORTH OF COPPER LANE,
MARDEN

PLAN ECO3:
ECOLOGICAL FEATURES

Rev: A
Nov
2022

PLAN ECO4

Protected Species

	SITE BOUNDARY
	COMMERCIAL ORCHARD
	DENSE SCRUB
	SPECIES POOR SEMI-IMPROVED GRASSLAND
	SPOIL MOUND
	HEDGEROW
	TREE LINE
	TREE
	POND
	BUILDING
	GRASS SNAKE LOCATION
	SLOW WORM LOCATION
	COMMON LIZARD
	JAPANESE KNOTWEED

Badger evidence redacted for confidentiality



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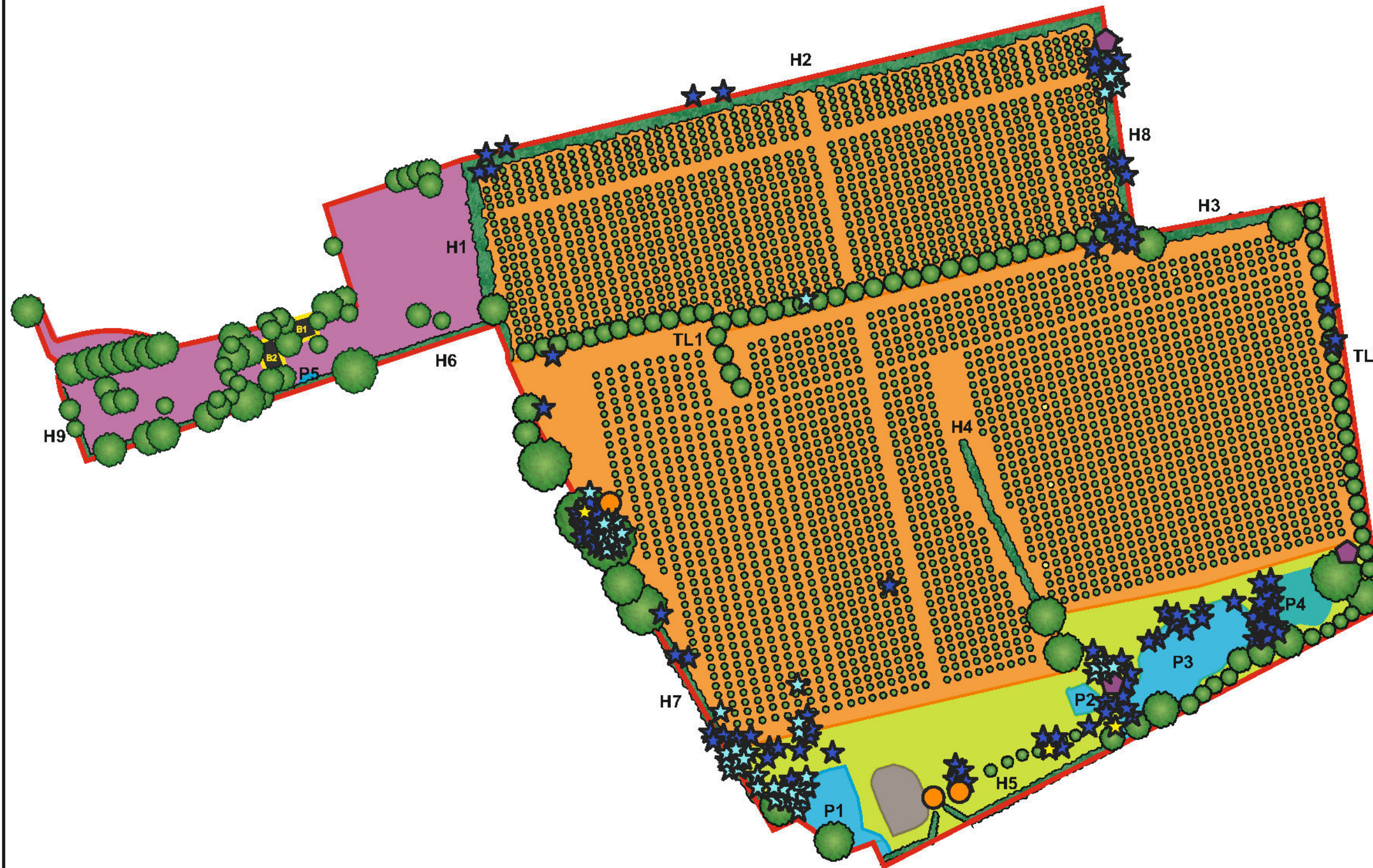
8372: LAND EAST OF ALBION ROAD &
LAND NORTH OF COPPER LANE,
MARDEN

PLAN ECO4: PROTECTED SPECIES (PUBLIC VERSION)

Rev: A
Nov
2022

PLAN ECO5

May 2021 Bat Activity Survey Results



KEY:

- SITE BOUNDARY
- COMMERCIAL ORCHARD
- DENSE SCRUB
- SPECIES POOR SEMI-IMPROVED GRASSLAND
- SPOIL MOUND
- HEDGEROW
- TREE LINE
- TREE
- POND
- BUILDING
- COMMON PIPISTRELLE REGISTRATION
- SOPRANO PIPISTRELLE REGISTRATION
- NATHUSIUS' PIPISTRELLE REGISTRATION
- MYOTIS SP. REGISTRATION
- NYCTALUS SP. REGISTRATION



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MARDEN

PLAN ECO5: MAY 2021 BAT
ACTIVITY SURVEY RESULTS

Rev: A
Aug
2022

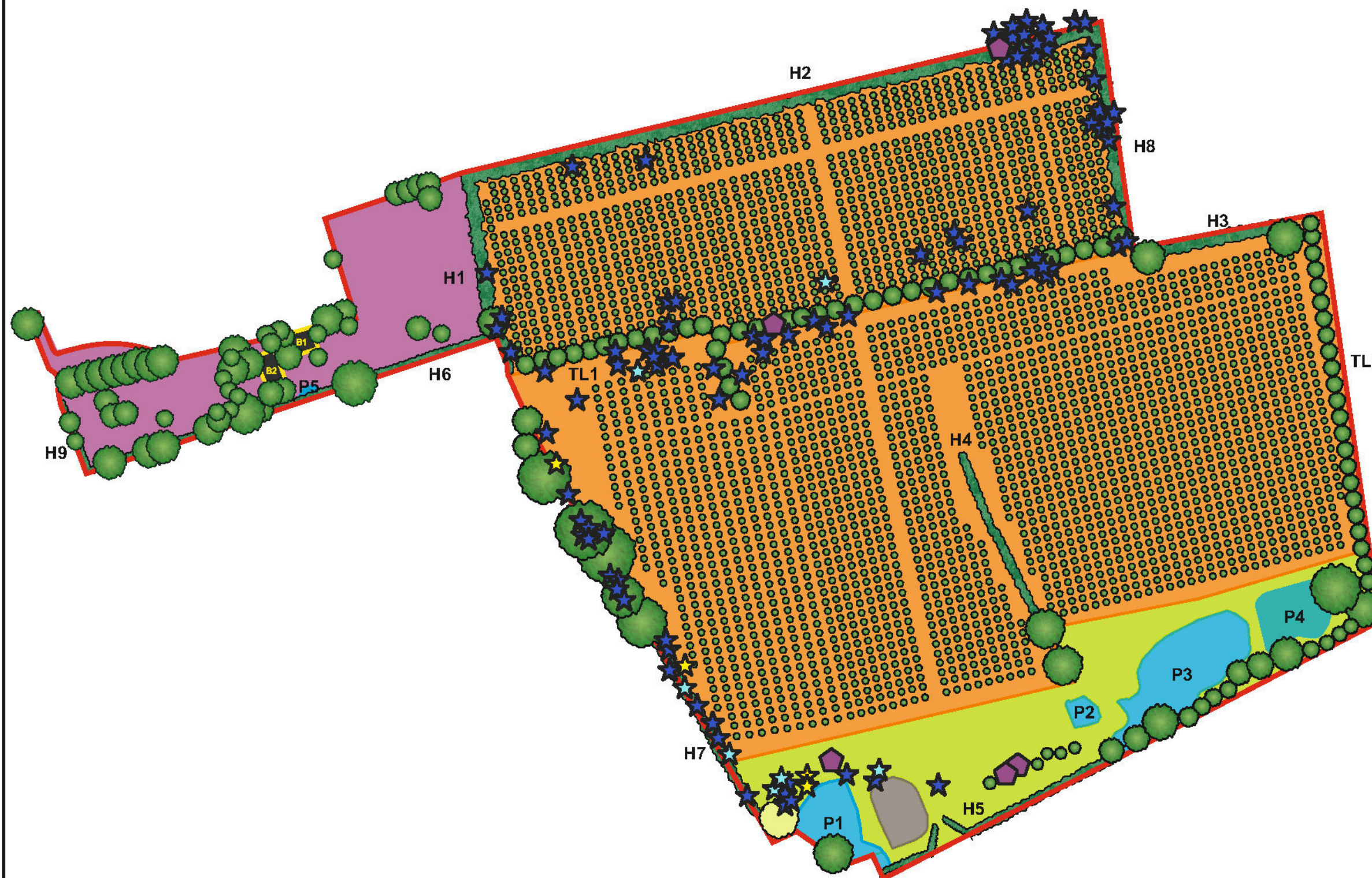
PLAN ECO6

July 2021 Bat Activity Survey Results



PLAN ECO7

September 2021 Bat Activity Survey Results



KEY:

-  SITE BOUNDARY
-  COMMERCIAL ORCHARD
-  DENSE SCRUB
-  SPECIES POOR SEMI-IMPROVED GRASSLAND
-  SPOIL MOUND
-  HEDGEROW
-  TREE LINE
-  TREE
-  POND
-  BUILDING
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  NATHUSIUS' PIPISTRELLE REGISTRATION
-  MYOTIS SP. REGISTRATION



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MARDEN

PLAN ECO7: SEPTEMBER
2021 BAT ACTIVITY SURVEY
RESULTS

Rev: A
Aug
2022

PLAN ECO8

May 2023 Bat Activity Survey Results

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- KEY:**
- SITE BOUNDARY
 - COMMERCIAL ORCHARD
 - DENSE SCRUB
 - SPECIES POOR SEMI-IMPROVED GRASSLAND
 - SPOIL MOUND
 - HEDGEROW
 - TREE LINE
 - TREE
 - POND
 - BUILDING
 - COMMON PIPISTRELLE REGISTRATION
 - SOPRANO PIPISTRELLE REGISTRATION
 - NATHUSIUS' PIPISTRELLE REGISTRATION
 - MYOTIS SP. REGISTRATION



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LAND NORTH OF COPPER LANE,
MARDEN

PLAN ECO8: MAY 2023 BAT ACTIVITY SURVEY RESULTS	Rev: A Aug 2023
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PLAN ECO9

Automatic Detector Locations

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- KEY:**
- SITE BOUNDARY
 - COMMERCIAL ORCHARD
 - DENSE SCRUB
 - SPECIES POOR SEMI-IMPROVED GRASSLAND
 - SPOIL MOUND
 - HEDGEROW
 - TREE LINE
 - TREE
 - POND
 - BUILDING
 - MAY 2021 STATIC DETECTOR LOCATIONS
 - JULY 2021 STATIC DETECTOR LOCATIONS
 - SEPTEMBER 2021 & MAY 2023 STATIC DETECTOR LOCATIONS



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8372: LAND EAST OF ALBION ROAD &
LAND NORTH OF COPPER LANE,
MARDEN

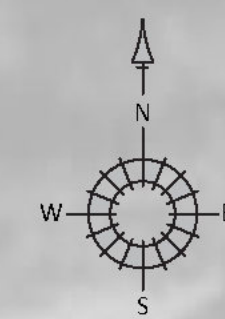
PLAN ECO9: AUTOMATIC
DETECTOR LOCATIONS

Rev: A
Aug
2023

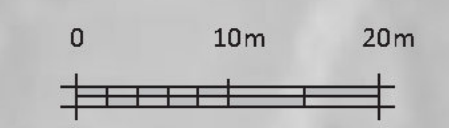
APPENDICES

APPENDIX 1

Site Layout



- KEY**
- Site boundary
 - Site access
 - Affordable Homes
 - Focal Building
 - Gateway Building
 - LAP Local Area of Play
 - SS Sub Station
 - Car Barn
 - Brickwork Walls



Coloured Site Layout
Land East of Albion Road
& North of Copper Lane, Marden

22037 / SK25H
Scale 1:500 @ A0 August 2023

APPENDIX 2

Information Obtained from MAGIC



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Legend

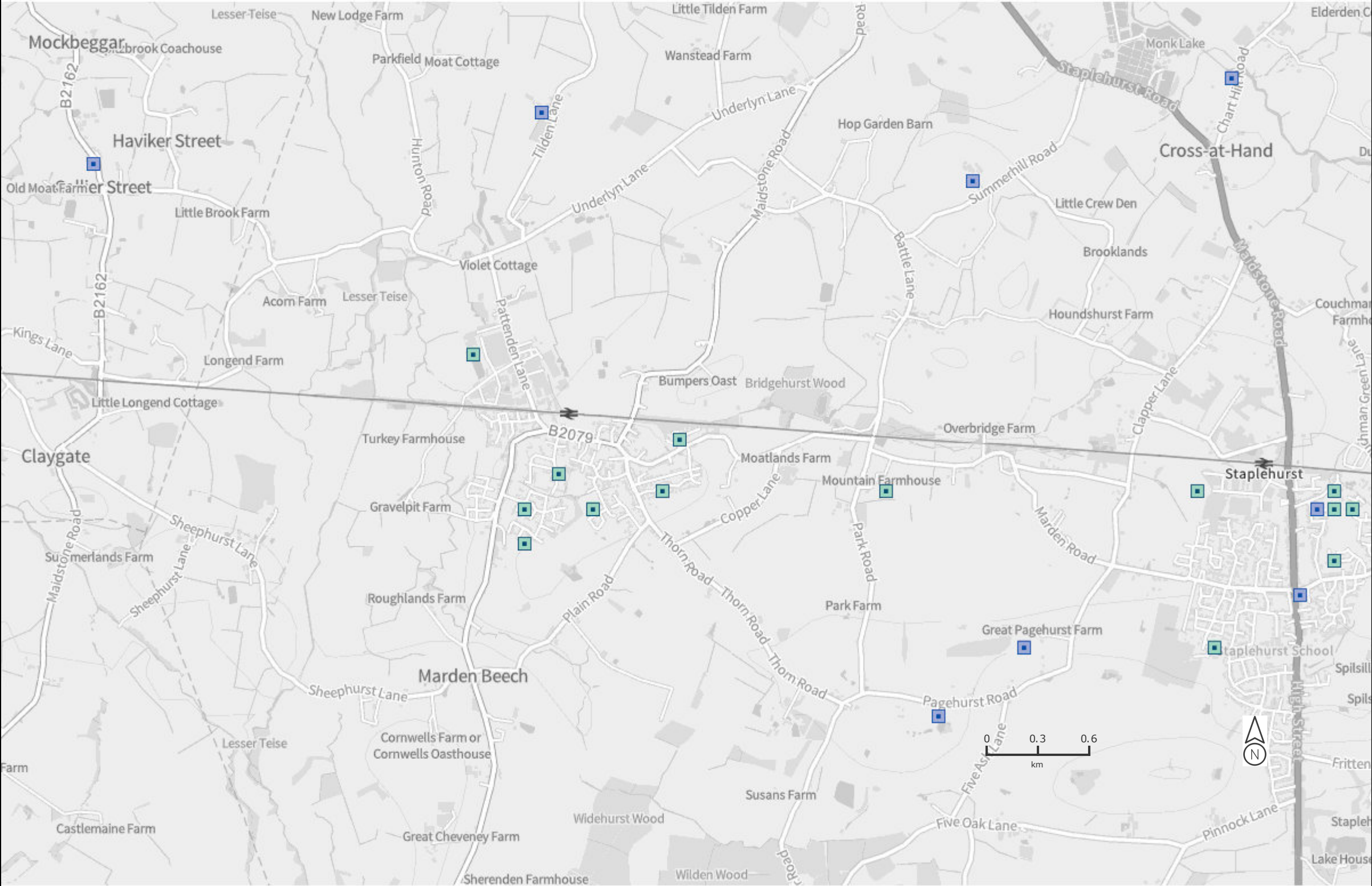
- National Nature Reserves (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland

Projection = OSGB36
xmin = 570300
ymin = 142000
xmax = 579700
ymax = 147100

Map produced by MAGIC on 24 November, 2022.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.



Legend
Granted European
Protected Species
Applications
(England)

- Amphibian
- Bat
- Cetacean
- Invertebrate
- Other Mammal
- Plant
- Reptile

Projection = OSGB36
xmin = 570300
ymin = 142000
xmax = 579700
ymax = 147100

Map produced by MAGIC on 24 November, 2022.
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APPENDIX 3

Bat Survey Weather Conditions

BAT SURVEY WEATHER CONDITIONS

Date	Weather Conditions	Sunset Temp. (°C)	Minimum night Temp. (°C)	Sunset Wind Speed (km/h)
MAY / JUNE 2021				
28.05.21	Cloudy	15	13	3
29.05.22	Cloudy	13	8	6
30.05.23	Fair	12	7	10
31.05.24	Fair	15	11	6
01.06.21	Fair	16	12	8
02.06.21	Cloudy	19	15	2
Jul-21				
12.06.21	Cloudy	17	15	6
13.06.21	Cloudy	17	14	7
14.06.21	Fair	16	14	7
15.06.21	Fair and Cloudy	15	12	6
16.06.21	Cloudy	20	15	6
17.06.21	Fair	20	16	3
18.06.21	Fair	22	17	2
Sep-21				
08.09.21	Cloudy	14	14	2
09.09.21	Fair	13	12	4
10.09.21	Cloudy	14	11	4
11.09.21	Fair and Cloudy	15	13	5
12.09.21	Fair and Cloudy	19	14	3
13.09.21	Cloudy and Rain	14	14	7
MAY / JUNE 2023				
24.05.23	Cloudy	14	10	8
25.05.23	Cloudy	14	10	6
26.05.23	Fair	10	8	4
27.05.23	Fair	15	12	7
28.05.23	Fair	11	11	11
29.05.23	Cloudy	12	11	11
30.05.23	Cloudy	13	9	15
31.05.23	Cloudy	13	8	6
01.06.23	Fair	15	11	12
02.06.23	Fair	10	9	12
03.06.23	Fair	13	13	13
04.06.23	Cloudy	11	10	11
05.06.23	Fair	11	10	11
06.06.23	Cloudy	11	9	12

APPENDIX 4

Detailed Automated Bat Survey Results

1. The automated detector located in location 1 along hedgerow H4 recorded the most registrations from Common Pipistrelle with less registrations recorded on the 30th May and peaks recorded on the 28th May and 1st June. Higher levels of registrations were also recorded from Soprano Pipistrelle with peaks on the 31st May. Fewer registrations were recorded from *Myotis* sp., Brown Long-eared (with registrations on five of the six recording nights), *Nyctalus* sp. (with registrations recorded on four of the six recording nights), and Serotine (with registrations recorded on three of the six recording nights) (see table 1 below).

Table 1. 28th May – 2nd June 2021. Automated detector results – Location 1.

Species	Number of registrations - Location 1					
	28.05.21	29.05.21	30.05.21	31.05.21	01.06.21	02.06.21
Common Pipistrelle	300	150	20	139	287	262
Soprano Pipistrelle	15	121	2	236	27	25
Nathusius' Pipistrelle	1	2	2	12	21	33
<i>Nyctalus</i> sp.	5	0	0	1	3	5
<i>Myotis</i> sp.	5	1	1	5	11	5
Serotine	0	1	0	1	0	0
Brown Long-eared	3	3	0	5	5	2

2. The automated detector located in location 2 along hedgerow H2 recorded fewer registrations than that at location 1. The most registrations were again recorded from Common Pipistrelle with peaks recorded on the 28th and 31st May. Fewer registrations were recorded from Soprano Pipistrelle, *Myotis* sp., *Nyctalus* sp. (with registrations recorded on four of the six recording nights), and Nathusius' Pipistrelle and Serotine (with registrations recorded on three of the six recording nights) (see table 2 below).

Table 2. 28th May – 2nd June 2021. Automated detector results – Location 2.

Species	Number of registrations - Location 2					
	28.05.21	29.05.21	30.05.21	31.05.21	01.06.21	02.06.21
Common Pipistrelle	96	53	42	90	56	66
Soprano Pipistrelle	2	6	2	6	5	3
Nathusius' Pipistrelle	0	1	0	1	1	0
<i>Nyctalus</i> sp.	1	0	0	2	2	5
<i>Myotis</i> sp.	1	1	5	4	2	7
Serotine	1	0	0	1	0	1

3. The automatic detector located at location 1 along tree line TL1 failed after a single recording night. The most registrations were collected from Nathusius' Pipistrelle with fewer registrations recorded from *Nyctalus* sp. and Serotine, with only a single registration recorded from *Myotis* sp. (see table 3 below).

Table 3. 12th July 2021. Automated detector results – Location 1.

Species	Number of registrations - Location 1
	12.07.21
Nathusius' Pipistrelle	78
<i>Nyctalus sp.</i>	3
<i>Myotis sp.</i>	1
Serotine	2

4. The automated detector located at location 2 along hedgerow H7 recorded relatively higher levels of bat activity. The most registrations were recorded from Common Pipistrelle, followed by Soprano Pipistrelle. Lower levels of registrations were recorded from Nathusius' Pipistrelle and *Myotis sp.* (with peak registrations on the 15th July). Low number of registrations from *Nyctalus sp.* were recorded on five of the seven recording nights, and from Serotine on two of the seven recording nights (see table 4 below).

Table 4. 12th – 18th July 2021. Automated detector results – Location 2.

Species	Number of registrations - Location 2						
	12.07.21	13.07.21	14.07.21	15.07.21	16.07.21	17.07.21	18.07.21
Common Pipistrelle	327	610	564	640	662	806	301
Soprano Pipistrelle	24	89	90	53	46	66	55
Nathusius' Pipistrelle	14	17	11	8	22	28	16
<i>Nyctalus sp.</i>	4	0	1	1	0	1	3
<i>Myotis sp.</i>	1	0	8	62	3	5	4
Serotine	0	0	0	1	0	0	7

5. The automated detector located at location 1 along hedgerow H1 recorded low levels of bat activity with the most registrations again recorded from Common Pipistrelle, followed by Soprano Pipistrelle. Fewer registrations were recorded from *Myotis sp.* and *Nyctalus sp.* and a single registration was recorded from Brown Long-eared on a single night (see table 5 below).

Table 5. 8th – 13th September 2021. Automated detector results – Location 1.

Species	Number of registrations - Location 1					
	08.09.21	09.09.21	10.09.21	11.09.21	12.09.21	13.09.21
Common Pipistrelle	82	59	128	43	43	92
Soprano Pipistrelle	16	24	21	20	22	15
<i>Myotis sp.</i>	7	6	4	12	7	3
<i>Nyctalus sp.</i>	6	1	2	0	0	2
Brown Long-eared	0	0	0	1	0	0

6. The automated detector located at location 2 along tree line TL2 recorded relatively higher levels of bat activity than recorded at location 1. Again the most registrations were recorded from Common Pipistrelle and Soprano Pipistrelle, with fewer registrations recorded from Nathusius' Pipistrelle, *Myotis* sp. and *Nyctalus* sp. Very occasional registrations were also recorded from Brown Long-eared on three of the seven recording nights (see table 6 below).

Table 6. 8th – 13th September 2021. Automated detector results – Location 2.

Species	Number of registrations - Location 2					
	08.09.21	09.09.21	10.09.21	11.09.21	12.09.21	13.09.21
Common Pipistrelle	40	158	286	46	303	220
Soprano Pipistrelle	11	46	213	30	84	121
Nathusius' Pipistrelle	7	11	18	3	4	4
<i>Myotis</i> sp.	5	6	9	2	33	12
<i>Nyctalus</i> sp.	12	10	11	3	3	6
Brown Long-eared	0	0	0	3	3	1

7. The automated detector located at location 1 along hedgerow H1 recorded low levels of bat activity. Again the most registrations were recorded from Common Pipistrelle, with fewer registrations recorded from Soprano Pipistrelle, Nathusius' Pipistrelle, *Myotis* sp. and *Nyctalus* sp. A single registration also recorded from Brown Long-eared (see table 7 below).

8.

Table 7. 24th – 29th May 2023. Automated detector results – Location 2.

Species	Number of registrations - Location 1					
	24.05.23	25.05.23	26.05.23	27.05.23	28.05.23	29.05.23
Common Pipistrelle	32	11	4	82	5	472
Soprano Pipistrelle	6	1	0	7	0	42
Nathusius' Pipistrelle	1	0	1	1	0	8
<i>Myotis</i> sp.	0	1	0	4	0	37
<i>Nyctalus</i> sp.	0	0	0	0	1	0
Brown Long-eared	1	0	0	0	0	0

9. The automated detector located at location 2 along tree line TL2 recorded higher levels of bat activity than recorded at location 1. Again the most registrations were recorded from Common Pipistrelle and Soprano Pipistrelle, with fewer registrations recorded from Nathusius' Pipistrelle, *Myotis* sp. and *Nyctalus* sp. (see table 8 below).

10.

Table 8. 29th May – 5th June 2023. Automated detector results – Location 2.

Species	Number of registrations - Location 2							
	29.05.23	30.05.23	31.05.23	01.06.23	02.06.23	03.06.23	04.06.23	05.06.23
Common Pipistrelle	233	879	717	754	992	787	382	638
Soprano Pipistrelle	68	70	107	59	67	17	109	80
Nathusius' Pipistrelle	1	12	10	5	5	22	6	16
<i>Myotis</i> sp.	5	34	12	29	11	14	8	13
<i>Nyctalus</i> sp.	0	1	0	0	4	0	0	0

APPENDIX 5

Suitable Examples of Bat Boxes

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.



1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 27cm

Height: 43cm

Weight: 8.3kg



2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

Woodcrete construction, 16cm diameter, height 33cm.

APPENDIX 6

Suitable Examples of Bird Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to spotted flycatcher and black redstarts.

Best sited on the walls of buildings with the entrance on one side.



2M Bird Box

A free-hanging box offering greater protection from predators. Supplied complete with hanger which loops and fastens around a branch.





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