TACP

OXFORDSHIRE COTSWOLDS GARDEN VILLAGE AND WEST EYNSHAM

Preliminary Ecological Impact Assessment

April 2019

WEST OXFORDSHIRE DISTRICT COUNCIL

West Oxfordshire District Council

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The final revision will be deemed as accepted by the client if no comments are received within two weeks of issue.

CONTENTS

1 INTRODUCTION

1.1 Background

1.1.1 TACP were commissioned by West Oxfordshire District Council in September 2018 to undertake a habitat survey and preliminary ecological impact assessment across the proposed sites for the Oxfordshire Cotswolds Garden Village and the West Eynsham Strategic Development Area (SDA).

1.1.2 This report provides an ecological overview of the sites including a description of potential ecological receptors and gives a preliminary ecological impact assessment in relation to the proposed Garden Village and SDA sites. This assessment includes details for mitigation and enhancement measures in relation to the potential impacts identified based on the available information. Proposed areas for retention and enhancement to benefit ecology and nature conservation have also been identified.

1.1.3 An ecological constraints and opportunities plan (ECOP) has also been produced as part of this assessment.

1.1.4 This preliminary ecological assessment will feed into the Council's proposed Area Action Plan (AAP) for the Garden Village and Supplementary Planning Document (SPD) for West Eynsham.

1.2 Site Description

1.2.1 The Oxfordshire Cotswolds Garden Village site covers approximately 215ha and is located to the north of the A40 to the north and north-west of Eynsham in West Oxfordshire (as shown on Figure 1.0). The site primarily consists of cattle and sheep grazed farmland divided by managed hedgerows and treelines with some areas of arable land to the eastern part of the site. A small number of public rights of way are present to the central and eastern sections of the proposed village area and along the western boundary.

1.2.2 The West Eynsham SDA covers approximately 88ha and is located to the south of the A40 to the west of Eynsham in West Oxfordshire (as shown on Figure 1.0). The site consists of arable farmland to the western section and unmanaged grasslands to the eastern section divided by semi-mature hedgerows and treelines. Once again there are a small number of public footpaths present across the site area, primarily to the southern section.

1.3 Proposed Works

1.3.1 The Oxfordshire Cotswolds Garden Village has been identified as part of the West Oxfordshire Local Plan 2031 to provide approximately 2,200 homes and 40ha of B-class business land along with supporting facilities such as education, infrastructure and green infrastructure. This area will be subject to an Area Action Plan (AAP) due to be submitted in 2019.

1.3.2 The West Eynsham SDA has also been identified as part of the draft Local Plan for a strategic urban extension including approximately 1,000 homes and supporting facilities including a new spine road and primary school. This area will be subject to a Supplementary Planning Document (SPD) in the form of a Development Framework.

1.3.3 The details for both sites will be guided by the contents of this and other reports.

1.3.4 Within the Garden Village site, there are a number of existing uses including an aggregate recycling site which is safeguarded as a strategic waste facility under the Oxfordshire Minerals and Waste Local Plan and also has permanent planning permission. It is anticipated that this will remain in situ. In addition, Oxfordshire County Council are currently progressing plans for a new park and ride site adjacent to the junction between Cuckoo Lane and the A40, to the west of the Woodland Trust site. The intention is to submit a planning application for the park and ride and associated works in 2019. For the purposes of this assessment, the location of the proposed park and ride site is taken as fixed.

1.3.5 Within the West Eynsham SDA site, there are two areas which already have planning permission for residential development – land to the west of Thornbury Road which is now under construction and land at the former Eynsham Plant Centre with construction anticipated to start shortly. For the purposes of this assessment, these proposed developments are taken as fixed. In addition, the proposed West Eynsham SDA allocation includes the provision of a new 'spine road' running through the development from the A40 in the north to the B4449 in the south. The route of the road as shown in the Local Plan is indicative only and could potentially change as further information becomes available.

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken, involving a data search for designated sites, protected species and existing habitat information within a 2km radius of the sites as shown on Figure 2.0. The Thames Valley Environmental Records Centre (TVERC) was the main source of information in this study; data supplied by TVERC comprised records of protected species, significant species and Biodiversity Action Plan (BAP) species.

2.2 Field Surveys

Phase 1 Habitat Survey

2.2.1 During October 2018 Samantha Shove, BSc (Joint Hons) MCIEEM CEnv, undertook a phase 1 habitat survey, to provide an initial assessment of the value of the habitats and their potential to support protected species. The surveys were conducted following the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines (2018) and methods outlined in the Joint Nature Conservation Committee (JNCC)'s '*Handbook for Phase 1 Habitat Survey-a Technique for Environmental Audit*' (2010). All habitats within the sites were classified and mapped. A habitat map was produced incorporating target notes to highlight features of ecological interest.

2.2.2 Given the potential importance of the boundary features across the two sites, they were mapped in accordance with the woodland and scrub habitat categories detailed within the Phase 1 Handbook. This permits a more comprehensive assessment of their value to be made in terms of habitat features, potential for protected species and in terms of their potential green infrastructure value.

2.2.3 During the survey, the habitats recorded were assessed for their potential qualification as BAP Priority Habitats.

2.2.4 The presence or potential presence, overall frequency and type of arable plant species (wild plants that grow in cultivated fields) was also recorded separately during the surveys where possible. These species are of importance as they are the fastest declining plant group in the U.K and their presence is indicative of species rich farmland where herbicides have not been used or used sparingly. Such areas have the potential to be of county, U.K and European importance.

2.2.5 Each of the hedgerows recorded were also reviewed for the presence of potential Hedgerow Regulations features, particularly species richness, presence of mature/standard trees and structural diversity and continuity.

Preliminary Protected Species Assessment

2.2.6 Habitats on both sites were also evaluated as far as possible for their potential to support rare and protected species. Attention was paid to the buildings, other structures and trees on the sites, for their potential to support roosting bats and scrub habitats for their potential to support reptiles. Bird species seen and heard on the day of the survey were noted.

2.2.7 The potential suitability of the sites for bats was considered in accordance with the preliminary appraisal guidelines included within the Bat Conservation Trust (BCT) Bat Surveys for Professional Ecologists: Good Practice Guidelines (2016). This categorises habitats based on the roosting, commuting and foraging habitats available, as summarised below:

a. **Negligible –** negligible habitat features unlikely to be used by roosting, commuting or foraging bats.
b. **Low –** a structure with one or more potential roost sites that could be used by individual bats opportunistically or a tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or with very limited potential. Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream but isolated. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or a patch of scrub.
c. **Medium –** a structure or tree with one or more potential roost sites that could be used by bats but unlikely to support a roost of high conservation status. Continuous habitat connected to the wider landscape that could be used by bats for commuting. Habitat that is connected to the wider landscape that could be used by bats for foraging.
d. **High –** a structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time. Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats. Site is close to and connected to known roosts.

2.2.8 The potential suitability of ponds and other waterbodies was considered in accordance with the Amphibian and Reptiles Groups of the United Kingdom Advice Note 5: Great Crested Newt Suitability Index (May 2010). This system was developed by Oldham et al (2000) to provide a numerical index to determine the potential suitability of a waterbody to support Great Crested Newt (*Triturus cristatus*) (GCN). This allows an evaluation of the general suitability of a waterbody for GCN, a comparison of waterbodies across different areas, evaluation of potential receptor sites and identification of habitat management priorities. The calculated index value can be categorised as below:

a. Excellent – HSI value above 0.8
b. Good – HSI values between 0.7 and 0.79
c. Average – HSI values between 0.6 and 0.69
d. Below Average – HSI values between 0.5 and 0.59
e. Poor – HSI values below 0.5

Green Infrastructure Review

2.2.9 The green infrastructure value or potential value of the habitat features present was also noted during the survey along with notes in relation to how this could be improved as part of future works. This has been assessed primarily in terms of the ecological and nature conservation requirements of green infrastructure. A comprehensive green infrastructure assessment is to be undertaken as a separate study.

2.3 Limitations

2.3.1 Due to programme constraints, the surveys were undertaken in early October, which is sub-optimal for the habitats present and reduces the likelihood of rare and protected floral species being identified and protected species evidence being present.

2.3.2 No species-specific surveys have been undertaken and as such the value of the sites in terms of protected species is based on the available desk study and records search data and professional judgement. Details of species-specific surveys likely to be required have been identified within the mitigation sections as appropriate.

2.3.3 The detailed proposals for the two sites have yet to be developed and agreed which limits the ability to identify and quantify their detailed ecological impacts at this stage. However, these proposals are to be guided by the recommendations within this assessment, which will help to reduce the potential negative impact of the proposals and increase the opportunity for positive impacts and ecological enhancements.

2.4 Site Assessment

2.4.1 Both the CIEEM Guidelines for Preliminary Ecological Appraisal (PEA) (December 2017) and the CIEEM Guidelines for Ecological Impact Assessment (EcoIA) in the U.K and Ireland (September 2018) have been used to undertake the impact assessment.

2.4.2 The PEA Guidelines (2017) provide the basis for identifying the presence of statutory and non-statutory designated sites, an initial assessment of the site habitats based on site surveys and an assessment of the likely presence of protected and priority species. This information is then used to identify likely constraints and mitigation, the need for further surveys and potential opportunities for ecological enhancement. These can then be used to inform the design and layout of proposals in advance of a formal planning application.

2.4.3 The EcoIA Guidelines (2018) provide the basis for more thorough surveys and assessments, which can be informed by a PEA report, and which is used to provide detailed mitigation requirements and ecological enhancement measures. This has been applied as far as possible to the Garden Village and West Eynsham sites to provide a more robust assessment and greater consideration within the proposals of the ecological features within the two sites and the wider area.

2.4.4 The wildlife value has been assessed using the Ratcliffe Criteria. This assesses an ecological feature in terms of:

a. Fragility
b. Rarity
c. Size (area of extent)
d. Diversity
e. Potential Value
f. Position within the Ecological/ Geographical Unit
g. Typicality
h. Recorded History
i. Naturalness
j. Intrinsic Appeal

2.4.5 The degree to which a feature can be replaced/substituted has also been taken into consideration. Guidance suggests that the loss of a feature of national value that is irreplaceable may be considered more significant than the loss of a feature that can be replaced or substituted.

2.4.6 The overall ecological value of the area has been considered in the context of the pattern of habitat and interdependencies between habitats, as well as the relative legislative value of any protected species, habitats or sites.

2.4.7 The value of the ecological features has been given, as far as possible, in terms of geographical context in accordance with CIEEM EcoIA guidance (2018), as shown below.

a. **International/European –** e.g. Natura 2000 sites, significant populations of European Protected Species (EPS), sites hosting significant populations under the Bonn Convention, non-designated international features such as large populations that are rare on an International/European scale.
b. **National (U.K) –** e.g. Sites of Special Scientific Interest, Geological Conservation Review sites, significant populations of U.K protected species, significant populations of Section 41 species (NERC Act).
c. **National (England) –** e.g. nationally important designations which can be reasonably substituted such as National Parks, medium populations of European or U.K protected species, significant populations of U.K or England 'Red List' of Birds of Conservation Concern or England Red Data List Species, medium to significant populations of Section 41 species (NERC Act).
d. **Regional –** e.g. regionally important designation which can be reasonably substituted such as Local Nature Reserves, important inventory site such as Ancient Woodland, small population of European or U.K protected species, medium population of Section 41 species, medium populations of U.K or England 'Red List' of Birds of Conservation Concern or England Red Data List Species
e. **County –** e.g. County Wildlife Sites or other county-wide designations, sites with Local Biodiversity Action Plan (LBAP) species, non-breeding individuals of European or U.K protected species, small populations of Section 41 species, small populations of U.K or England 'Red List' of Birds of Conservation Concern or England Red Data List Species
f. **River Basin District**
g. **Estuarine System/Coastal Cell**
h. **Local –** features of value within the site area, district, borough or parish only
i. **Zone of Influence –** this can include any of the above features and is determined by the extent/potential extent of impacts identified and can vary from feature to feature, particularly for mobile species.

2.4.8 The 2018 guidelines also identify the need to assess potential impacts on ecosystem services resulting from a project's ecological effects. Ecosystem services can be divided into four types, as detailed below.

a. **Supporting services –** services necessary for the production of all other ecosystem services, including soil formation, photosynthesis, primary production, nutrient cycling and water cycling.
b. **Provisioning services –** products obtained from ecosystems, including food, fibre, fuel, genetic resources, biochemical, natural medicines, pharmaceuticals and fresh water.

c. **Regulating services –** benefits obtained from the regulation of ecosystem processes, including air quality regulation, climate regulation, water regulation, erosion regulation, water purification, disease regulation, pest regulation, pollination and natural hazard regulation.
d. **Cultural services –** non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences thereby taking account of landscape values.

2.4.9 The assessment includes direct (resulting from direct interaction of an activity with the ecological feature), indirect (impacts produced away from or as a result of a complex indirect pathway), short-term, medium-term and long-term, secondary and cumulative impacts as far as possible. Both positive and negative impacts on the ecological baseline of the sites have also been assessed as far as possible.

2.4.10 The initial impact assessment has been made in the absence of any mitigation measures to ensure that all potential impacts are identified and that all necessary and suitable mitigation and enhancement measures can be identified.

2.4.11 The magnitude and significance of potential impacts cannot be assessed at present as more detailed survey information and detailed proposals would be required.

3 RESULTS

3.1 Desk Study

3.1.1 There are no internationally or nationally **designated sites** within the site boundaries. There are 13 statutory designated sites within 5km of the sites, as listed below:

a. Oxford Meadows Special Area of Conservation (SAC), located 2.5km to the east of the Garden Village site and 3.2km to the east of the West Eynsham site;
b. Cotswolds Area of Outstanding Natural Beauty (AONB), located 2.9km to the north of the Garden Village site;
c. Long Hanborough Gravel Pit Site of Special Scientific Interest (SSSI), located 2.2km to the north of the Garden Village site;
d. Cassington Meadows SSSI, located 2.5km to the east of the Garden Village site;
e. Pixey and Yarnton Meads SSSI, located 3.2km to the east of the Garden Village site;
f. Blenheim Park SSSI, located 3.3km to the north of the Garden Village site;
g. Sturt Copse SSSI, located 4.2km to the north west of the Garden Village site;
h. Wolvercote Meadows SSSI, located 4.8km to the east of the Garden Village site;
i. Holly Court Bank SSSI, located 4.9km to the north west of the Garden Village site;
j. Stonesfield Common, Bottoms and Banks SSSI, located 4.9km to the north of the Garden Village site;
k. Wytham Ditches and Flushes SSSI, located 2.4km to the east of the Garden Village site and 2.8km to the east of the West Eynsham site;
l. Wytham Woods SSSI, located 1.8km to the south east of the West Eynsham site;
m. Stanton Harcourt SSSI, located 3.5km to the south of the West Eynsham site.

3.1.2 There are two local Wildlife Sites (WS) along the northern boundary of the Garden Village, namely the City Farm and South Freeland Meadows. The former is designated for its arable flora of European importance, nesting Lapwing (*Vanellus vanellus*) and Skylark (*Alauda arvensis*) while the latter is designated for its lowland meadow habitat.

3.1.3 There are also several other locally designated sites within 2km of the sites, as listed below and shown on Figure 2.0:

a. West Woods, Eynsham Hall Park WS, located 2km to the west of the Garden Village site;
b. Pinsley Wood WS, located 1.6km to the north of the Garden Village site;
c. Cassington Gravel Pits South (Smiths Pits) WS, located 1.2km to the east of the Garden Village site;
d. Long Mead WS, located 0.9km to the south east of the West Eynsham site;
e. Swinford Farm Meadow WS, located 1.3km to the south east of the West Eynsham site;
f. Farmoor Reservoir WS, located 1.9km to the south east of the West Eynsham site;
g. Freeland East Lodge Local Geological Site, 1.3km to the north west of the Garden Village site.

3.1.4 There are three Conservation Target Areas, which identify some of the most important areas for wildlife conservation in Oxfordshire, within 2km of the sites, as listed below:

a. Wychwood and Lower Evenlode, located 1.6km to the north west of the Garden Village site;
b. Oxford Meadows and Farmoor, located 0.8km to the south east of the Garden Village site and 0.8km to the east of the West Eynsham site;
c. Wytham Hill, located 1.6km to the south east of the West Eynsham site.

3.1.5 There are seven Ancient Woodland sites, which identify ancient and semi-natural woodland and ancient replanted woodland sites, within 2km of the sites, as listed below:

a. Castle's Copse, ancient replanted, 0.7km to the north west of the Garden Village site;
b. Vincent's Wood, ancient and semi-natural, 0.5km to the north of the Garden Village site;
c. The Thrift, ancient and semi-natural, 1.1km to the north of the Garden Village site;
d. Pinsley Wood, ancient and semi-natural, 1.6km to the north of the Garden Village site;
e. Pinsley Wood, ancient replanted, 1.7km to the north of the Garden Village site;
f. Further Clay Hill, ancient replanted, 1.9km to the south east of the Garden Village site and 2.1km to the east of the West Eynsham site;
g. Strond Copse, ancient and semi-natural, 1.8km to the south east of the West Eynsham site.

3.1.6 Two **floral species** listed on Schedule 8 of the Wildlife and Countryside Act (WCA) 1981 (as amended) were found within the 2km search area, namely Bluebell (*Hyacinthoides non-scripta*) and Meadow Clary (*Salvia pratensis*). Three species listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 have also been recorded within the 2km search area, namely Annual Knawel (*Scleranthus annuus*), Cornflower (*Centaurea cyanus*) and Purple Ramping-fumitory (*Fumaria purpurea*). Thirteen U.K Red List species and 20 English Red List species along with nationally scare and rare species were also recorded as well as several additional records for species of local conservation concern (i.e. rare or scarce on a county level).

3.1.7 Surveys undertaken by Plantlife in 2016 on the City Farm land to the north eastern section of the Garden Village site identified a rich ensemble of arable plants, which based on their scoring system developed in collaboration with Natural England shows City Farm to be of European Importance for arable plants with an overall Important Arable Plant Area (IAPA) score of 90. A majority of the fields surveyed had IAPA scores (Byfield et al 2005) of 21-30 and 51-60, one field had a score of 1-10 while another was zero. Twenty-nine different arable plant species were recorded including seven species that are nationally scarce, near threatened, vulnerable or endangered. One species is also included on Section 41 of the NERC Act 2006, as species which are of principal importance for the conservation of biodiversity in England. These surveys also identified that the City Farm area has a number of wildflower-rich grassland some of which is included within the City Farm WS as noted above.

3.1.8 No **invasive non-native species** were identified as part of the species records search.

3.1.9 A summary table of the species identified and whether they are protected/priority species has been provided within Appendix A.

3.1.10 There are records from the sites and the wider area for **bats** including Brown Long-eared (*Plecotus auritus*), Common Pipistrelle (*Pipistrellus pipistrellus*), Daubenton's (*Myotis daubentonii*), Leisler's (*Nyctalus leisleri*), Natterer's (*Myotis nattereri*), Noctule (*Nyctalus*

noctula), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Pipistrelle (*Pipistrellus* sp.) and Whiskered (*Myotis mystacinus*) bats with numerous records for general bats (Chiroptera). Bats are European Protected Species (EPS) listed on Annex IV of the Habitats Directive 1992 which is transposed into U.K law by the Conservation (Natural Habitats &c) Regulations 1994 or "Habitats Regulations" and consolidated within The Conservation of Habitats and Species Regulations 2017. Bats are also protected through Schedules 5 and 6 of the Wildlife and Countryside Act (WCA) 1981 (as amended). Certain species are also listed in Section 41 of the NERC Act 2006, as species which are of principal importance for the conservation of biodiversity in England.

3.1.11 **European Otter** (*Lutra lutra*) has also been frequently recorded within the 2km search area around the 2 sites. Otters are an EPS listed on Annex IV of the Habitats Directive 1992 which is transposed into U.K law by the Conservation (Natural Habitats &c) Regulations 1994 or "Habitats Regulations" and consolidated within The Conservation of Habitats and Species Regulations 2017. Otters are also a Priority Biodiversity Action Plan (BAP) Species on the U.K BAP and listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Otters are also protected through Schedules 5 and 6 of the WCA 1981 (as amended), and The Bern Convention on the Conservation of European Wildlife and Natural Habitats.

3.1.12 **European Water Vole** (*Arvicola amphibious*) has been recorded within the 2km search area around the 2 sites. This species is protected under Schedule 5 of the WCA 1981 (as amended) and is listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Water Voles are also listed as a Priority BAP Species on the U.K BAP.

3.1.13 **Eurasian Badger** (*Meles meles*) has also been frequently recorded within the 2km search area around the 2 sites. Badgers are afforded full U.K protection under the Protection of Badgers Act 1992 which protects both the individual animals and their setts. However, habitats used for any other purpose are not afforded any form of protection under this or other legislation. This species is also listed on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) which outlaws certain methods of taking and killing when this is necessary.

3.1.14 **Polecat** (*Mustela putorius*) have also been recorded within the 2km search area around the 2 sites and are protected under Schedule 4 of the Habitats Regulations and Schedule 6 of the WCA 1981 (as amended). They are also listed as a Priority BAP Species on the U.K BAP.

3.1.15 There are also records for **European Hedgehog** (*Erinaceus europaeus*) within the 2km search area around the 2 sites. They are listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006 and is afforded protection under the Berne Convention.

3.1.16 A small number of records were also identified for **Harvest Mouse** (*Micromys minutus*) within the 2km search around the sites. They are listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006.

3.1.17 All **bird species**, including their eggs and nests, are protected from harm during the breeding season under the WCA 1981 to varying degrees. Within 2km of the sites, the Birds Directive Annex 1 species identified were Common Tern (*Sterna hirundo*), Golden Plover (*Pluvialis apricaria*), Kingfisher (*Alcedo atthis*), Little Egret (*Egretta garzetta*), Osprey (*Pandion*

haliaetus), Red Kite (*Milvus milvus*), Ruddy Shelduck (*Tadorna ferruginea*) and Ruff (*Calidris pugnax*). Some of these species are also included on Schedule 1 of the WCA 1981 (as amended) along with Barn Owl (*Tyto alba*), Fieldfare (*Turdus pilaris*), Goldeneye (*Bucephala clangula*), Hobby (*Falco subbuteo*), Pintail (*Anas acuta*) and Redwing (*Turdus iliacus*), which were also recorded within 2km of the 2 sites. Inclusion on this schedule makes it an offence to intentionally or recklessly disturb these birds at, on or near an 'active' nest.

3.1.18 A further 19 bird species listed as species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006 have also been recorded within 2km of the 2 sites, namely Bullfinch (*Pyrrhula pyrrhula*), Corn Bunting (*Emberiza calandra*), Cuckoo (*Cuculus canorus*), Curlew (*Numenius arquata*), Dunnock (*Prunella modularis*), Grasshopper Warbler (*Locustella naevia*), Grey Partridge (*Perdix perdix*), House Sparrow (*Passer domesticus*), Lapwing, Lesser Spotted Woodpecker (*Dendrocopos minor*), Linnet (*Linaria cannabina*), Marsh Tit (*Poecile palustris*), Reed Bunting (*Emberiza schoeniclus*), Skylark, Song Thrush (*Turdus philomelos*), Spotted Flycatcher (*Muscicapa striata*), Starling (*Sturnus vulgaris*), Tree Sparrow (*Passer montanus*) and Yellowhammer (*Emberiza citrinella*).

3.1.19 A further 5 Red List and 17 Amber List species were also recorded within 2km of the 2 sites. Red List species are those that are globally threatened according to the International Union for Conservation of Nature (IUCN) criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery. Amber List species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.

3.1.20 A large number of bird species have been recorded across the City Farm area, as noted within the Plantlife surveys with 90 different species recorded since 2010. This number is noted to be high for a single farm and considered to be the result of the variety of habitats found across the farm area. The numbers of Lapwing and Skylark are noted to be of particular importance, the latter of which are known to breed on the farm. The large winter flocks of Linnet, Goldfinch (*Carduelis carduelis*) and Yellowhammer that feed on the seeds produced by the arable plants are also noted to be of particular importance.

3.1.21 Adder (*Viperus berus*), Grass Snake (*Natrix helvetica*) and Slow worm (*Anguis fragilis*) have been recorded within the 2km search area around the 2 sites. All **reptiles** are protected against killing, injuring and sale under UK legislation through their inclusion in Appendix III of the Bern Convention (1979), Schedule 5 of the WCA 1981 (as amended) and Section 41 of the NERC Act 2006.

3.1.22 **GCN** is listed on Annex II and Annex IV of the Habitats Directive 1992 which is transposed into U.K law by the Habitats Regulations, and on Schedule 5 of the WCA 1981 (as amended). GCN are listed as a U.K BAP Priority and are also listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006.

3.1.23 **Common Toad** (*Bufo bufo*) has been recorded within 2km of the sites. This species is afforded protection under the Wildlife and Countryside Act (Schedule 5) and is also listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006 and as a U.K BAP Priority Species. It is also included within the Bern Convention (1979). **Common Frog** (*Rana temporaria*) has also been recorded within 2km of the sites. This

species is protected against killing, injuring and sale under U.K. legislation through their inclusion in Appendix III of the Bern Convention (1979), Schedule 5 of the WCA 1981 (as amended). Common Frog is also listed within the Habitats Directive (Annex V).

3.1.24 Three **invertebrates** listed under Schedule 5 of the WCA 1981 (as amended) have been recorded within 2km of the 2 sites, namely Black Hairstreak (*Satyrium pruni*), High Brown Fritillary (*Argynnis adippe*) and Wood White (*Leptidea sinapis*). A further 6 species listed as a species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006 were also recorded, namely Cinnabar moth (*Tyria jacobaeae*), Garden Tiger moth (*Arctia caja*), Small Heath butterfly (*Coenonympha pamphilus*), Small Square-spot moth (*Diarsia rubi*), Wall butterfly (*Lasiommata megera*) and White Admiral butterfly (*Limenitis camilla*). A small number of other invertebrates have also been recorded within 2km of the 2 sites, as listed below:

a. *Aleochara (Xenochara) kamila* (a beetle), notable species;
b. *Oulimnius major* (a beetle), nationally scarce species;
c. *Riolus cupreus* (a beetle), nationally scarce species;
d. *Sunius melanocephalus* (a beetle), notable species;
e. *Ischnodes sanguinicollis* (a beetle), notable species;
f. *Pseudotriphyllus suturalis* (a beetle), Red List species;
g. *Aphodius (Melinopterus) consputus* (a beetle), Red List species;
h. *Leptocerus lusitanicus* (a caddis fly), Red List species;
i. *Ribautodelphax pungens* (a true bug), notable species;
j. *Halticus saltator* (a true bug), notable species;
k. *Sialis nigripes* (an alderfly), notable species;
l. Sharp-collared Furrow Bee (*Lasioglossum (Evylaeus) malachurum*), notable species;
m. Variable Damselfly (*Coenagrion pulchellum*), Red List species.

3.1.25 One **fish species** listed on Annex V of the Habitats Directive 1992, transposed into U.K law by the Habitats Regulations, has been recorded within the 2km search area, namely Barbel (*Barbus barbus*). Two species listed on Annex II of the Habitats Directive 1992 have also been recorded within the search area, namely Brook Lamprey (*Lampetra planeri*) and Bullhead (*Cottus gobio*). Three species listed on Section 41 of the NERC Act 2006 have been identified within the 2km search area, namely Brown Trout (*Salmo trutta subsp. fario*), Brown/Sea Trout (*Salmo trutta*) and European Eel (*Anguilla anguilla*).

3.2 Field Surveys – Garden Village

Phase 1 Habitat Survey

3.2.1 The **Garden Village site** comprises of a variety of habitat types, as follows including the phase 1 habitat code (in brackets):

a. Semi-natural broad-leaved woodland (A.1.1.1);
b. Plantation broad-leaved woodland (A.1.1.2);
c. Plantation mixed woodland (A.1.3.2);
d. Dense/continuous scrub (A.2.1);
e. Scattered scrub (A.2.2);
f. Semi-improved neutral grassland (B.2.2);
g. Improved grassland (B.4);
h. Marsh/marshy grassland (B.5);
i. Tall ruderal (C.3.1);
j. Non-ruderal (C.3.2);
k. Standing water (G.1);
l. Running water (G.2);
m. Quarry (I.2.1);
n. Arable (J.1.1);
o. Amenity grassland (J.1.2);
p. Gardens (J.1.5);
q. Buildings (J.3.6);
r. Track (J.3.7);
s. Other habitat – mosaic.

3.2.2 The distribution of these habitats within the site are shown in Figures 3.0A to 3.0C and are described below. Target notes made during the surveys are provided in Appendix B.

3.2.3 The areas of semi-natural broad-leaved woodland are limited to the northern boundary of the Garden Village site, primarily to the eastern half of this boundary. These areas can be divided into three separate woodland areas with the most easterly dominated by Crack Willow (*Salix fragilis*) and Ash (*Fraxinus excelsior*) with a Stinging Nettle (*Urtica dioica*) dominated understorey. The central area is divided by a farm track and has a canopy dominated by Crack Willow with frequent Ash and occasional Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Goat Willow (*Salix caprea*). Common Oak (*Quercus robur*) is also present within the canopy while the Bramble (*Rubus fruticosus agg.*) and Stinging Nettle dominate the understorey vegetation. The canopy of the western area is dominated by Common Oak and Goat Willow with locally dominant Ash and Hawthorn. The understorey vegetation is again dominated by Bramble and Stinging Nettle. A small area of woodland dominated by Goat Willow with frequent Blackthorn was also recorded to the north western corner of the Garden Village site. This appears to be predominantly semi-mature and is likely to have developed naturally from an adjacent willow plantation.

3.2.4 A notable area of plantation broad-leaved woodland was recorded to the centre of the southern boundary of the Garden Village site. The area is owned and managed by the Woodland Trust and consists of a number of semi-mature woodland blocks with mixed density understoreys and grassed pathways between. The dominant species within these blocks varies between Goat Willow and Common Oak with Field Maple (*Acer campestre*), Blackthorn,

Sessile Oak (*Quercus petraea*), Hawthorn, Crack Willow, Ash, Hazel (*Corylus avellana*), Crab Apple (*Malus sylvestris*) and Silver Birch (*Betula pendula*). The understorey within these areas includes Bramble, Field Rose (*Rosa arvensis*), Stinging Nettle, Ground Ivy (*Glechoma hederacea*), Ivy (*Hedera helix*), Wood Avens (*Geum urbanum*), Red Fescue (*Festuca rubra*) and Red-stemmed Feather-moss (*Pleurozium schreberi*). The grassed paths between these areas are dominated by Red Fescue, Yorkshire Fog (*Holcus lanatus*), Wavy Hair Grass (*Deschampsia flexuosa*) and Clover (*Trifolium* sp.). The boundaries of this area consist of Field Maple, Common Oak, Hawthorn and Blackthorn.

3.2.5 A small area of Goat Willow plantation woodland was noted to the north western corner of the site. This area had very limited species diversity with little understorey consisting primarily of Bramble and Stinging Nettle. Another small area of plantation woodland was recorded at the entrance to a wooded track and footpath to the centre of the southern boundary of the site. This area is dominated by Downy Birch (*Betula pubescens*) with Hawthorn and an understorey of Bramble and Ivy. The eastern boundary of the mixed-use built area to the centre of the southern boundary is dominated by mature Hawthorn and Blackthorn through Field Maple, Crab Apple, Common Oak, Ash and Downy Birch plantation.

3.2.6 Two areas of semi-mature plantation mixed woodland were recorded to the north eastern corner of the site beside a tarmacked farm track. These areas appear to have been recently planted with guards and supporting stakes still in place and a grassland verge ground flora beneath. The northern area is dominated by Goat Willow and Hazel with Fir sp (*Abies* sp.), Common Oak and Silver Birch and Meadow Grass (*Poa* sp.) and Yorkshire Fog dominating the grass ground flora. The southern area has a similar canopy and ground flora composition with the addition of Crab Apple and Hornbeam (*Carpinus betulus*).

3.2.7 A small number of dense scrub areas were recorded along the southern boundary of the site beside the junction between the A40 and Cuckoo Lane and beside the bridleway to the eastern part of the site. The scrub area beside Cuckoo Lane is dominated by Bramble with Ash, Field Maple, Common Oak, Grey Willow (*Salix cinerea*) and Hawthorn saplings and Stinging Nettle, Rosebay Willowherb (*Chamaenerion angustifolium*) and Broad-leaved Dock (*Rumex obtusifolius*). The scrub area beside the bridleway is dominated by Hawthorn with semi-mature Field Maple and Sycamore (*Acer pseudoplatanus*).

3.2.8 A majority of the field boundaries across the Garden Village site consist of relatively frequently managed vegetation resulting in scrubbier growth (mapped as dense scrub) with some boundaries less frequently managed semi-mature and mature scrub and trees (mapped as plantation broad-leaved woodland). The scrub boundaries are generally dominated by Hawthorn with Blackthorn, Bramble and Field Rose with occasional mature Common Oak, Ash, Willow (*Salix* sp.) and Birch (*Betula* sp.) trees. A small number of these boundaries have become sparse and gappy (mapped as scattered scrub) with fences installed to provide the necessary stock proofing.

3.2.9 The mature boundary to the south western corner of the site is dominated by semi-mature and mature Crack Willow with Hawthorn, Crab Apple, Ash and Common Oak with a dense Bramble, Blackthorn and Hawthorn understorey. Also recorded within this south western area were a small number of Common Oak and Ash mature boundaries with Blackthorn and Hawthorn understories. A number of the boundaries to the northern part of the eastern section of the site have also matured into more substantial features dominated by mature Common Oak with Hawthorn and Blackthorn with a dense Bramble understorey. Further

features in this area consist of semi-mature and mature Hawthorn with frequent Goat Willow, Blackthorn, Holly (*Ilex aquifolium*) and Common Oak with a Stinging Nettle and Bramble understorey. The track/footpath to the southern section of the site has mature boundaries on both sides and along parts of the east-west footpath routes. These boundaries are dominated by Downy Birch, Blackthorn, Hawthorn, Ash, Beech (*Fagus sylvatica*), Hazel and Common Oak with a Bramble and Ivy understorey. Mature boundaries were also recorded along the southern edge of the quarry/aggregate recycling area and along the associated access track. These boundaries consist of Common Oak, Ash, Silver Birch, Hawthorn, Elder (*Sambucus nigra*) and Hazel with a Bramble dominated understorey.

3.2.10 On the whole the hedgerows across the Garden Village site have few hedgerow features with limited species and structural diversity, although a majority do have semi-mature and mature trees that increase the overall value of the boundaries. The most notable boundaries in terms of Hedgerow Regulations potential are those around the unmanaged grassland areas to the north western section of the site and the scrub/treelines either side of the footpath that runs northwards from the centre of the southern site boundary.

3.2.11 A majority of the Garden Village site consists of semi-improved neutral grassland of varying sward height depending on the current level of grazing. The grassland areas to the west of Cuckoo Lane are cattle grazed with a short sward where grazing has been undertaken more consistently or medium to tall swards where grazing levels are lower or where grazing has only recently been restarted. The swards within these areas are dominated by Red Fescue with Creeping Bent (*Agrostis stolonifera*), Yorkshire Fog and Perennial Rye Grass (*Lolium perenne*) with Meadow Buttercup (*Ranunculus acris*), Greater Plantain (*Plantago major*), Dandelion (*Taraxacum officinalis*), Daisy (*Bellis perennis*), Curled Dock (*Rumex crispus*) and Spear Thistle (*Cirsium vulgare*). Red-stemmed Feather-moss and Meadow Grass species were also recorded within those areas with a medium to tall sward. To the east of Cuckoo Lane, a majority of the grassland areas are both cattle and sheep grazed with horse grazing to the north eastern fields. These areas have short swards dominated by Perennial Rye Grass, Meadow Grass, Red Fescue, Crested Dogstail (*Cynosurus cristatus*), Timothy grass (*Phleum pratense*) and Yorkshire Fog with Clover, Spear Thistle, Meadow Buttercup, Stinging Nettle and Spear Thistle. Two fields to the northern section just to the east of Cuckoo Lane currently appear to be un-grazed with a tall sward dominated by Cocksfoot (*Dactylis glomerata*) with Wavy Hair Grass, Red Fescue and Soft Rush (*Juncus effusus*) with Stinging Nettle, Field Madder (*Sherardia arvensis*), Common Sorrel (*Rumex acetosa*), Common Field Speedwell (*Veronica persica*), Ground Ivy, Bramble, Hawthorn saplings and Blackthorn saplings.

3.2.12 One of the grazed fields to the centre of the eastern section of the Garden Village site appears to be more improved in nature with a medium length sward dominated by Perennial Rye Grass with frequent White Clover (*Trifolium repens*) and occasional Red Clover (*Trifolium pratense*). A small number of other species were also recorded including Daisy, Greater Plantain, Groundsel (*Senecio vulgaris*), Broad-leaved Dock, Meadow Buttercup, Yorkshire Fog and Selfheal (*Prunella vulgaris*).

3.2.13 One area of Soft Rush dominated marshy grassland was recorded to the northern boundary of the site immediately to the north of the watercourse and south of a pond within the adjacent field. These areas are located outside of the survey area but are worth noting given their potential ecological value.

3.2.14 One area of tall ruderal vegetation was noted to the south western corner of the site adjacent to a layby on the A40. This area appears to be a previously used access that has been left unmanaged and is now dominated by Bramble, Stinging Nettle and Rosebay Willowherb with Greater Plantain, Red-stemmed Feather-moss, Broad-leaved Dock, Yorkshire Fog, Clover species, Hedgerow Cranesbill (*Geranium pyrenaicum*) and Creeping Cinquefoil (*Potentilla reptans*).

3.2.15 Three areas of non-ruderal vegetation were recorded, also to the south western corner of the Garden Village site. The first area, associated with a ruined brick building within a cattle-grazed field, is dominated by Stinging Nettle and Bramble with some Cleavers (*Galium aparine*), Wild Teasel (*Dipsacus fullonum*), Spear Thistle and Goat Willow saplings. The other two areas were located either side of the previously used access adjacent to a layby on the A40 noted above. The western area is dominated by Spear Thistle with Common Hogweed (*Heracleum sphondylium*), Stinging Nettle, Wild Teasel and Rosebay Willowherb. The eastern area is dominated by Creeping Cinquefoil, Broad-leaved Dock and Red-stemmed Feather-moss with Hedgerow Cranesbill, Prickly Lettuce (*Lactuca serriola*) and Red Fescue.

3.2.16 A large pond was recorded to the south western corner of the mosaic habitat to the south western section of the Garden Village site with other areas of standing water and still ditches noted throughout the mosaic area. The pond areas and the larger ditches are dominated by Bulrush (*Typha latifolia*) with Pondweed (*Potamogeton* sp.) and Soft Rush while Pondweed was not recorded within the smaller ditches.

3.2.17 A number of ditches were recorded along a majority of the field boundaries during the surveys although most of these were dry at the time. A running watercourse was recorded to the northern boundary of the Garden Village site, running through the areas of woodland and grassland as detailed above. A majority of this watercourse has limited vegetation growth, particularly through the woodland areas where the dense canopy and understorey limits aquatic vegetation. The more open section of the watercourse that runs through the grassland is fenced from grazing and as a result has a different species composition including Hemlock Water Dropwort (*Oenanthe crocata*), Soft Rush, Yellow Flag Iris (*Iris pseudacorus*) and Meadowsweet (*Filipendula ulmaria*) within and along the lower banks. The higher banks include Stinging Nettle, Perennial Rye Grass, Bramble, Broad-leaved Dock, Yorkshire Fog, Hogweed, Sow-thistle (*Sonchus* sp.) and Field Bindweed (*Convolvulus arvensis*).

3.2.18 An aggregate recycling site is located to the north eastern section (mapped as quarry) within which vegetation is limited. The boundaries of this site have been built up with earth banks that have been allowed to re-vegetate naturally with a variety of scrub, ruderal and non-ruderal species including Bramble, Hogweed, Sow-thistle, Stinging Nettle, Cocksfoot, Spear Thistle, Cleavers, Butterfly Bush (*Buddleia davidii*) and Hedgerow Cranesbill.

3.2.19 A number of arable areas were recorded within the eastern half of the Garden Village site some of which have been recently ploughed and as such have limited vegetation. Those that have been ploughed previously have developed some vegetation cover including Germander Speedwell (*Veronica chamaedrys*), Broad-leaved Dock, Common Sorrel, Clover, Greater Plantain, Common Knotgrass (*Polygonum aviculare*), Saxifrage (*Saxifraga* sp.), Groundsel and Hedgerow Cranesbill. The larger area to the centre of the site consists of taller vegetation dominated by Spear Thistle with Broad-leaved Dock, Sow-thistle, Greater Plantain, Clover, Curled Dock, Hawkweed (*Hieracium* sp.), Dandelion and Ribwort Plantain (*Plantago lanceolata*). Two of the arable areas, one to the north of the site and the other to the south,

are dominated by Perennial Rye Grass with White and Red Clover and other improved grassland species throughout the winter stubble that has been left following crop removal.

3.2.20 No arable species were identified within any of the eight arable areas surveyed within the Garden Village site, although they are known to be present. This could be due to the time of survey.

3.2.21 A small area of amenity grassland was noted to the eastern section of the southern boundary of the site adjacent to a vehicle dealership. This area is well managed, consisting of a short sward dominated by Yorkshire Fog with Yarrow (*Achillea millefolium*), Meadow Grass (*Poa* sp.) and Red Fescue.

3.2.22 A number of buildings were recorded across the Garden Village area ranging from wood framed metal sheet animal and feed shelters to brick residential houses and associated gardens and commercial properties. The more substantial structures appeared to be well maintained and in good condition, although maintenance of some of the lighter, more temporary structures appeared to be less frequent.

3.2.23 There is only one public road that crosses the Garden Village site, Cuckoo Lane to the south western section, while the A40 runs along the southern boundary of the site. A small number of access tracks were recorded, primarily to the eastern and southern boundaries and a tarmac bridleway was recorded to the south eastern section.

3.2.24 A mosaic of grassland, ruderal, non-ruderal and wetter areas was recorded to the south western part of the site in an area that has been used for recreational off-road vehicles and motor-cross events. This area has a diverse mix of floral species including Red Fescue, Rough Meadow Grass (*Poa trivialis*), Broad-leaved Dock, Bulrush, Soft Rush, Thistle (*Cirsium* sp.), Wild Teasel, Prickly Lettuce, Red-stemmed Feather-moss, Creeping Bent, Common Birdsfoot Trefoil (*Lotus corniculatus*) and Bramble. A second area of mosaic habitat was recorded to the north west of the quarry/aggregate recycling site consisting of mixed grassland and non-ruderal vegetation including Red Fescue, Rough Meadow Grass, Stinging Nettle, Broad-leaved Dock, Wild Teasel, Hawkweed, Curled Dock, Coltsfoot (*Tussilago farfara*) and Rosebay Willowherb.

3.2.25 No floral protected species were recorded within the site during the surveys.

3.2.26 No invasive non-native species (INNS) as listed under Schedule 9 of the WCA 1981 (as amended) were recorded on site. Butterfly Bush was recorded around the quarry/aggregate recycling site to the north eastern section. This species is not included on Schedule 9 of the WCA, but it is a non-native species.

3.2.27 A number of potential Priority Habitat areas were identified during the survey, primarily in relation to the woodland and scrub hedgerow/boundary features with the addition of the pond and mosaic habitats to the south western corner, the plantation woodland managed by the Woodland Trust to the centre of the southern boundary, the broad-leaved woodland areas to the northern boundary and the small mosaic habitat beside the quarry/aggregate recycling area within the eastern part of the site. These areas are considered to be of at least **county importance**.

3.2.28 The key ecological features and the areas with the greatest potential for protected species have been identified on Figure 4.0A to 4.0C.

3.2.29 The Garden Village site has limited potential for the presence of **protected and priority floral species** given the level of management across much of the area. However, given the species identified within the desk study and records search there is the potential for important floral species within the mosaic, arable and unmanaged grassland habitats within the Garden Village area, in addition to that recorded during the surveys. The City Farm area to the north eastern section of the Garden Village site has been previously noted to be of European Importance for arable plants. In terms of the assessment guidelines detailed in Section 2.4 the potential value of these species could be as high as nationally (U.K) important should significant populations of Schedule 8 or Section 41 species be recorded on the sites. However, it is considered more likely that the species and size of the populations present across the whole area would be of **county importance**.

3.2.30 Nine different **bat species** have been identified through the desk study and records search including Daubenton's bat which is known for foraging over water and Brown-long Eared bat which are a more common woodland species. The Garden Village site has numerous boundary features, woodlands and scrub areas that provide potential foraging habitats for a variety of bat species along with the less intensively managed grassland and arable areas. The large pond and watercourses within the Garden Village site provide potential foraging habitats for Daubenton's and these features along with the numerous boundary features across the site provide potential commuting routes (routes frequently used by bats to travel between their roosts and foraging areas). None of the trees or buildings within the survey areas had any identifiable potential roost features (PRFs), although these can be difficult to identify, particularly in trees in leaf as such features are often hidden by the canopy. The Garden Village site is considered to be of medium potential for commuting and foraging bats given the habitats and habitat features present with low potential for roosting bats given the lack of PRFs recorded during the surveys. It is considered that the bat populations within the site would be of at least **regional importance** given their legal protection and habitat potential, on the assumption that only small populations of less sensitive species such as Common and Soprano Pipistrelle are present, although this could increase with larger populations and more sensitive species.

3.2.31 No evidence of **Otter or Water Vole** was found during the surveys. The Garden Village site contained a number of boundary ditches which were dry at the time of survey and have limited potential for these species. The watercourse to the northern boundary of the Garden Village site is unlikely to support Water Vole populations given the lack of suitable banks for burrow construction. However, this watercourse may be within the territory of Otters in the wider area and used for foraging purposes. Again, it is unlikely to be used for holts or resting up given the lack of suitable locations and cover. It is considered that there is potential for non-breeding individuals of both species with larger populations unlikely. As such the Otter and Water Vole populations would be of at least **county importance**.

3.2.32 No evidence of **Badger** setts or other activity was seen during the surveys and although there are woodland, scrub and hedgerow habitats present the potential is considered to be limited given the agricultural nature of the majority of the two sites. No setts were identified within the Garden Village site as part of the desk study, although a small number of field signs and

road casualties were also identified indicating that the site may be used for foraging purposes by individuals from setts in the wider area. As such the site is considered to be of at least **regional importance** for Badgers.

3.2.33 No evidence of **Polecats** was seen during the surveys and it is considered that the Garden Village site has limited potential for this species, which favours woodland, marshes and riverbanks. The small blocks of woodland and watercourses are limited in extent and vegetation cover and are unlikely to support significant populations, although it is possible that individual animals may use these areas infrequently. As such the site is considered to be of **local importance** for Polecats.

3.2.34 No evidence of **hedgehogs** was found during the surveys although it is considered that the habitats found across the Garden Village site has good potential for this species given the generalist nature of the species and the connectivity and cover available. It is considered likely that there are at least medium sized populations of hedgehogs across the site, which, in conjunction with their inclusion on Section 41 of the NERC Act, indicates populations of at least **regional importance**.

3.2.35 Although no evidence of **Harvest Mouse** was recorded during the surveys, the habitats present indicate that this species is likely to be present across the Garden Village site, although the limited extent of arable habitat limits the potential population size. It is considered likely that there are at least small populations of this species across the sites, which, in conjunction with their inclusion on Section 41 of the NERC Act, indicates populations of at least **county importance**.

3.2.36 No evidence of, or potential for, other protected or priority mammal species was recorded or identified during the surveys.

3.2.37 A small number of **birds** were recorded during the survey including a Red Kite (*Milvus milvus*) hunting over the A40 to the western end of the Garden Village site (in the area beside the motor-cross/off-road tracks). Other species were also recorded within the West Eynsham site, as discussed below. As Red Kite are a Schedule 1 listed species and the site provides potential nesting and foraging habitats for all bird species, including Priority and ground nesting species, the site is considered to be of at least **regional importance** for this species and birds in general.

3.2.38 No **reptiles** were seen during the surveys and no distinct breeding features such as compost piles were recorded during the surveys. Some areas of rubble and building ruins were identified in places such as the south western corner of the Garden Village site. These features provide potential refugia and hibernacula habitats for reptiles while the remaining habitat areas provide potential refugia, particularly within the woodland and scrub areas and boundaries, and foraging habitats. The level of management across much of the grassland areas reduces the reptile potential of the site although this would be partially offset by the level of connectivity across the site. Three reptile species were identified within the records search and it is considered likely that there are at least small breeding populations of all three across the site. As such it is considered that these populations are of at least **regional importance**.

3.2.39 Three **amphibian** species were identified within the records search including Great Crested Newt. The potential for amphibians across the Garden Village site is limited due to the lack of slow or standing water and damp habitats. Both Common Frog and Common Toad were

identified which are known to utilise a wider variety of habitats than Great Crested Newt and as such are likely to be present across a majority of the site, particularly those areas connected by the drainage ditches. The pond to the south west corner of the Garden Village site has an HSI assessment of 0.83, which indicates an excellent level of GCN suitability. GCN have been recorded in the wider area as well as within this pond and adjacent ditches within the motor-cross area as recently as 2012. The relatively recent record of GCN within the Garden Village site and presence of other amphibian species indicates that this site is of at least **county importance**.

3.2.40 The variety of habitats across the Garden Village site and the variety of species identified within the records search suggest that the site is of at least **local importance** for **invertebrates**. A small number of species protected under Schedule 5 of the WCA were also identified within the records search, which may increase this importance should they be present on the site.

3.2.41 A number of **fish** species were identified within the records search, primarily within the River Evenlode to the east of the Garden Village site. The watercourses found within the site has limited potential for the species identified due to their limited capacity, shallow beds and risk of drying. However, Bullhead were recorded within the stream to the northern boundary of the Garden Village site in 2013 indicating that this site could be of at least **county importance**.

Ecosystem Services

3.2.42 The Garden Village site provides a number of ecosystems services beyond the use of much of these areas for agricultural purposes, as follows:

a. **Supporting services –** photosynthesis, nutrient cycling and water cycling.
b. **Provisioning services –** none applicable for this site.
c. **Regulating services –** air quality regulation, water regulation, pollination regulation.
d. **Cultural services –** opportunities for spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences through the use of public rights of way and the landscape value of the woodland, hedgerow and treeline features.

3.3 Field Surveys – West Eynsham SDA

Phase 1 Habitat Survey

3.3.1 The **West Eynsham SDA site** also comprises of a variety of habitat types, as follows including the phase 1 habitat code (in brackets):

a. Semi-natural broad-leaved woodland (A.1.1.1);
b. Plantation broad-leaved woodland (A.1.1.2);
c. Plantation mixed woodland (A.1.3.2);
d. Dense/continuous scrub (A.2.1);
e. Mixed parkland/scattered trees (A.3.3);
f. Semi-improved neutral grassland (B.2.2);
g. Improved grassland (B.4);
h. Tall ruderal (C.3.1);
i. Non-ruderal (C.3.2);
j. Inundation vegetation (F.2.2);
k. Running water (G.2);
l. Arable (J.1.1);
m. Amenity grassland (J.1.2);
n. Gardens (J.1.5);
o. Buildings (J.3.6);
p. Track (J.3.7);
q. Bare ground (J.4);
r. Not accessed.

3.3.2 The distribution of these habitats within the site are shown in Figures 3.0A and 3.0D and are described below. Target notes made during the surveys are provided in Appendix B.

3.3.3 Three areas of semi-natural broad-leaved woodland were recorded within the north eastern corner of the West Eynsham site, two of which run along a watercourse and the third located to the east of these behind a residential area. The two woodland areas along the watercourse have a similar species composition with the canopy vegetation dominated by Crack Willow with Hawthorn, Goat Willow and Ivy and a Stinging Nettle and Bramble dominated understorey. The most northerly of these two areas is more open than the southern section and the watercourse is dry through this section becoming wetter through the southern woodland block. The area of woodland behind the residential area has a very dense Stinging Nettle and Bramble understorey which limited survey access. However, the areas that could be accessed were dominated by Hawthorn with Blackthorn, Ash and Elder.

3.3.4 Two small areas of plantation broad-leaved woodland were recorded to the southern boundary of the site. The first area is located to the eastern boundary of the large semi-improved neutral grassland and is dominated by Crack Willow with Hawthorn and Ivy and a Bramble understorey. The second area is located to the southern boundary of the same grassland area and is dominated by Hawthorn with Common Oak, Elder and Blackthorn with a Stinging Nettle and Bramble understorey.

3.3.5 One area of dense scrub not associated with a boundary feature was recorded to the north eastern corner of the site between two areas of broad-leaved woodland. This area consisted

of dense Hawthorn and Stinging Nettle with Crack Willow scrub and semi-mature trees, Field Rose, Red-stemmed Feather-moss and Petasites (*Petasites* sp.).

3.3.6 A small area of mixed parkland/scattered trees was recorded to the northern part of the site with the canopy consisting of Crack Willow and Common Oak with conifer species and Goat Willow. The ground flora consists of maintained grassland with a short sward dominated by Perennial Rye Grass and Meadow Grass.

3.3.7 The boundary features across the West Eynsham area consist of both mature broad-leaved woodlands and dense scrub. The western boundary of the site that runs along the watercourse consists of dense and mature scrub with some mature trees, dominated by Hawthorn and Bramble with Stinging Nettle, Yellow Flag Iris, Hemlock Water Dropwort, Cocksfoot grass, Ash, Common Oak and Dogwood. A majority of the boundary features within the northern half of the site consist of mature woodland/treelines dominated by Hawthorn and Ash with Field Maple, Common Oak, Blackthorn, Goat Willow, Beech, Downy Birch and Crack Willow. These features generally have a Bramble dominated understorey with Ivy, Stinging Nettle, Field Rose and saplings. The boundaries to the southern half of the site generally consist of dense scrub and semi-mature trees dominated by Hawthorn with Ash and Blackthorn and occasional Crack Willow and Elder. Bramble, Stinging Nettle and Ivy were frequently recorded within these boundaries. Part of the south eastern boundary of the site consists of plantation mixed woodland dominated by Hawthorn with Ash, Spruce, Elder, Crack Willow and Silver Birch.

3.3.8 The hedgerows across the West Eynsham site have few hedgerow features with limited species and structural diversity, although a majority do have semi-mature and mature trees that increase the overall value of the boundaries. The most notable boundaries in terms of Hedgerow Regulations potential are those along the western boundary and those through the grassland areas to the south eastern part of the site.

3.3.9 The southern half of the site is dominated by semi-improved neutral grassland that appears to be generally unmanaged with tall swards becoming rank in places. These areas are dominated by Cocksfoot grass and Rough Meadow Grass with Yorkshire Fog, Meadow Buttercup, Stinging Nettle, Greater Plantain, Clover, Ribwort Plantain, Corn Spurry (*Spergula arvensis*), Meadowsweet, Field Madder, Ground Ivy and Speedwell. The areas to the south eastern section are wetter than the rest of the site with Sharp-flowered Rush (*Juncus acutiflorus*) and Bulrush also recorded.

3.3.10 Three improved grassland fields, used for horse grazing, were recorded to the northern part of the site. These areas have a short to medium sward dominated by Yorkshire Fog and Perennial Rye Grass with Hedgerow Cranesbill, Common Vetch (*Vicia sativa*), Meadow Grass, Cleavers, Broad-leaved Dock, Curled Dock, Meadow Buttercup, Greater Plantain, Dandelion and Spear Thistle.

3.3.11 Two areas of tall ruderal vegetation were recorded to the southern part of the site. Both of these areas were dominated by Rosebay Willowherb. Spear Thistle, Stinging Nettle, Common Reed (*Phragmites australis*), Cocksfoot, Yorkshire Fog and Dead-Nettle (*Lamium* sp.) were also recorded within the western most area.

3.3.12 Three areas of non-ruderal vegetation were recorded across the site, two were located within the horse grazed improved grassland to the northern part of the site and were dominated by

Stinging Nettle. The third area was located along the northern verge of Chilbridge Road towards the eastern boundary of the site. This area was also dominated by Stinging Nettle with Rosebay Willowherb, Broad-leaved Dock, Perennial Rye Grass and Yorkshire Fog.

3.3.13 Six areas of inundation vegetation were recorded during the survey, five along the top of the banks associated with the watercourse to the western boundary of the site and the sixth at the top of the bank of the same watercourse to the south east corner of the field to the centre of the site. All of these areas consist of dense Common Reed.

3.3.14 Two running watercourses were recorded within the survey area, one to the western boundary of the site, associated with the scrub and inundation vegetation detailed above, and the second within semi-improved neutral grassland to the south eastern part of the site. This second watercourse is relatively shallow with vegetated banks consisting of Common Reed, Meadowsweet, Stinging Nettle, Field Madder and Hawthorn saplings and scrub. A number of other ditches were also recorded along the field boundaries, although these were generally dry or damp at the time of survey.

3.3.15 The western part of the site was dominated by arable areas with varying vegetation cover depending on ploughing times. The fields to the south western area have been recently ploughed and consist of bare soil only, while the large field to the north of this has winter stubble remaining with some vegetation encroachment including Yarrow, Sow-thistle, False Oat Grass (*Arrhenatherum elatius*), Common Knapweed (*Centaurea nigra*), Red Fescue, Corn Spurry, Clover and Ox-eye Daisy (*Leucanthemum vulgare*). The northern most arable fields are largely similar with the exception of the southern section which consists of taller vegetation including Common Knapweed, Sow-thistle, False Oat Grass, Timothy grass, Crested Dogstail and Sharp-flowered Rush.

3.3.16 Only one arable species was recorded within two of the four arable areas surveyed within the West Eynsham site with Corn Spurry identified in both areas. This species was also recorded within some of the semi-improved grassland areas to the southern part of the site. Given the floral diversity noted within the arable areas it is considered likely that other arable species are present.

3.3.17 The main area of amenity grassland within this area was recorded to the north eastern boundary of the site. This area is used as a sports field and consists of a short sward dominated by Perennial Rye Grass and Meadow Grass with Dandelion, Daisy, Meadow Buttercup, Ground Ivy, Greater Plantain and Clover. Two small amenity grassland areas were noted around the new office buildings to the centre of the site, these could not be fully accessed at the time of survey.

3.3.18 A small number of buildings were recorded across the West Eynsham area ranging from small animal and feed shelters to brick residential houses and associated gardens and commercial properties. The more substantial structures appeared to be well maintained and in good condition, although maintenance of some of the lighter, more temporary structures appeared to be less frequent.

3.3.19 There is only one public road that crosses the West Eynsham site, Chilbridge Road that runs from the centre of the eastern boundary south westwards to the south west corner of the area, while the A40 runs along the northern boundary of the site. Few other tracks were present within the survey area, primarily off the A40 to the northern boundary and to the

centre of the site to the north side of Chilbridge Road. A small area of parking was recorded to the south eastern corner of the site.

3.3.20 An area of bare ground was recorded to the southern part of the site where works are proceeding to construct commercial parking associated with the small industrial units located outside the south eastern boundary of the site.

3.3.21 There were two areas within the West Eynsham site that could not be accessed as part of the surveys, one to the northern part of the site and one to the eastern boundary of the site, both of which have existing planning permissions for housing. It was also not possible to survey these from afar due to the density of the boundary vegetation and presence of tall close-board fences.

3.3.22 No protected species of flora were recorded within the site during the surveys. Corn Spurry was recorded in some locations and although this species is not legally protected it has declined significantly due to increasing agricultural management and control and as such is listed as a Vulnerable Species on the U.K and England Red Lists and is considered to be of at least **county importance**.

3.3.23 No invasive non-native species (INNS) as listed under Schedule 9 of the Wildlife and Countryside Act (1981) as amended were recorded on site.

3.3.24 A number of potential Priority Habitat areas were identified during the survey, primarily in relation to the woodland and scrub hedgerow/boundary features with the addition of the broad-leaved woodland areas to the north eastern corner of the site and the tall arable margin along the central field to the western part of the site. These areas are considered to be of at least **county importance**.

Preliminary Protected Species Assessment

3.3.25 The key ecological features and the areas with the greatest potential for protected species have been identified on Figure 4.0A and 4.0D.

3.3.26 The West Eynsham site has limited potential for the presence of **protected and priority floral species** given the level of management across much of their area. However, given the species identified within the desk study and records search there is the potential for important floral species across the arable and unmanaged grassland within the West Eynsham site, in addition to that recorded during the surveys. The broad-leaved woodland habitats within the West Eynsham site also have potential to support important floral species. The potential value of these species could be as high as nationally (U.K) important should significant populations of Schedule 8 or Section 41 species be recorded on the site. However, it is considered more likely that the species and size of the populations present would be of **county importance**.

3.3.27 Nine different **bat species** have been identified through the desk study and records search including Daubenton's bat which is known for foraging over water and Brown-long Eared bat which are a more common woodland species. The West Eynsham site has numerous boundary features, woodlands and scrub areas that provide potential foraging habitats for a variety of bat species along with the less intensively managed grassland and arable areas. The watercourses within the West Eynsham site provide potential foraging habitats for Daubenton's and these features along with the numerous boundary features across the site

provides potential commuting routes (routes frequently used by bats to travel between their roosts and foraging areas). None of the trees or buildings within the survey areas had any identifiable potential roost features (PRFs), although these can be difficult to identify, particularly in trees in leaf as such features are often hidden by the canopy. The site is considered to be of medium potential for commuting and foraging bats given the habitats and habitat features present with low potential for roosting bats given the lack of PRFs recorded during the surveys. It is considered that the bat populations within the site would be of at least **regional importance** given their legal protection and habitat potential, on the assumption that only small populations of less sensitive species such as Common and Soprano Pipistrelle are present, although this could increase with larger populations and more sensitive species.

3.3.28 No evidence of **Otter or Water Vole** was found during the surveys. The West Eynsham site contained a number of boundary ditches which were dry at the time of survey and have limited potential for these species. The watercourse to the western boundary of the West Eynsham site has more substantial banks which appear to be suitable for Water Vole burrow construction, although none were visible at the time of survey. This watercourse could also support foraging Otters and the vegetation along the banks provides potential resting up locations, although potential holt sites were limited. It is considered that there is potential for non-breeding individuals of both species with larger populations unlikely. As such the Otter and Water Vole populations would be of at least **county importance**.

3.3.29 No evidence of **Badger** setts or other activity was seen during the surveys and although there are woodland, scrub and hedgerow habitats present the potential of the West Eynsham site is considered to be limited given the agricultural nature of the majority of the site. The desk study identified two setts within the West Eynsham site from 2010 and 2015 although these were not visible during the 2018 survey. A small number of additional field signs and road casualties were also identified indicating that the site may be used for foraging purposes by individuals from setts in the wider area. As such the site is considered to be of at least **regional importance** for Badgers.

3.3.30 No evidence of **Polecats** was seen during the surveys and it is considered that the site has limited potential for this species, which favours woodland, marshes and riverbanks. The small blocks of woodland and watercourses are limited in extent and vegetation cover and are unlikely to support significant populations, although it is possible that individual animals may use these areas infrequently. As such the site is considered to be of **local importance** for Polecats.

3.3.31 No evidence of **hedgehogs** was found during the surveys although it is considered that the habitats found across the West Eynsham site have good potential for this species given the generalist nature of the species and the connectivity and cover available. It is considered likely that there are at least medium sized populations of hedgehogs across the site, which, in conjunction with their inclusion on Section 41 of the NERC Act, indicates populations of at least **regional importance**.

3.3.32 Although no evidence of **Harvest Mouse** was recorded during the surveys, the habitats present indicate that this species is likely to be present across the site particularly across the West Eynsham site where there is a greater proportion of the arable habitats. It is considered likely that there are at least small populations of this species across the site, which, in

conjunction with their inclusion on Section 41 of the NERC Act, indicates populations of at least **county importance**.

3.3.33 No evidence of, or potential for, other protected or priority mammal species was recorded or identified during the surveys.

3.3.34 A small number of **birds** were recorded during the survey including a Jay (*Garrulus glandarius*) flying southwards across the large unmanaged grassland area to the southern boundary of the West Eynsham site and two female pheasants (*Phasianus colchicus*), one within the plantation woodland boundary between large arable field and bare arable fields to the south western section of the site and the other within the grassland to the south eastern corner of the site. A Red Kite was also recorded foraging over the A40 to the northern boundary of the site. As Red Kite are a Schedule 1 listed species and the site provides potential nesting and foraging habitats for all bird species, including Priority and ground nesting species, they are considered to be of at least **regional importance** for this species and birds in general.

3.3.35 No **reptiles** were seen during the surveys and no distinct breeding features such as compost piles were recorded during the surveys. Some areas of rubble and building ruins were identified in places including within the broad-leaved woodland and scrub areas to the north eastern section of the West Eynsham site. These features provide potential refugia and hibernacula habitats for reptiles while the remaining habitat areas provide potential refugia, particularly within the woodland and scrub areas and boundaries, and foraging habitats. The level of management across much of the grassland areas reduces the reptile potential of the the site although this would be partially offset by the level of connectivity across the site. Three reptile species were identified within the records search and it is considered likely that there are at least small breeding populations of all three across the site. As such it is considered that these populations are of at least **regional importance**.

3.3.36 Three **amphibian** species were identified within the records search including Great Crested Newt. The potential for amphibians across the West Eynsham site is limited due to the lack of slow or standing water and damp habitats. Both Common Frog and Common Toad were identified which are known to utilise a wider variety of habitats than Great Crested Newt and as such are likely to be present across a majority of the site, particularly those areas connected by the drainage ditches. As noted above an assessment of the pond to the south west corner of the Garden Village site indicates an excellent level of GCN suitability with confirmed recorded within this pond, the adjacent ditches and the wider area. However, the lack of records and limited habitat potential across the West Eynsham site suggests that this site is of **local importance** for amphibians only, although the proximity of GCN must be considered as part of any future works.

3.3.37 The variety of habitats across the site and the variety of species identified within the records search suggest that the West Eynsham site is of at least **local importance** for **invertebrates**. A small number of species protected under Schedule 5 of the WCA were also identified within the records search, which may increase this importance should they be present on the site.

3.3.38 A number of **fish** species were identified within the records search, primarily within the River Thames to the south east of the West Eynsham site and the River Evenlode to the east of both sites. The watercourses found within the West Eynsham site have limited potential for the species identified due to their limited capacity, shallow beds and risk of drying with the site likely to be of **local importance** only.

Ecosystem Services

3.3.39 The West Eynsham SDA site provides a number of ecosystems services beyond the use of much of these areas for agricultural purposes, as follows:

a. **Supporting services –** photosynthesis, nutrient cycling and water cycling.
b. **Provisioning services –** none applicable for this site.
c. **Regulating services –** air quality regulation, water regulation particularly across the flood area to the west, pollination regulation.
d. **Cultural services –** opportunities for spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences through the use of public rights of way and the landscape value of the woodland, hedgerow and treeline features.

3.4 Green Infrastructure Review

Garden Village

3.4.1 The Garden Village site has a small number of hedgerow and boundary features that already provide good habitat connectivity and visual/landscape features as well as being used for public amenity purposes. The wooded public footpath to the centre of the site is of particular significance and was noted to be well used at the time of survey. The watercourse along the northern boundary of the Garden Village site also provides good habitat connectivity and visual/landscape features and could be further enhanced to improve their value in these terms and provide additional amenity and recreational value.

3.4.2 The woodland block to the southern boundary of the Garden Village site also has green infrastructure value as a habitat island and connectivity area as well as providing significant recreational, amenity, education and health benefits to local communities.

3.4.3 The site also has a significant number of other boundary features and habitat areas that provide varied connectivity and landscape features. These features are not as significant in terms of green infrastructure as those described above due to a greater frequency of gaps, more intensive management resulting in 'leggy' growth and in some cases a lack of management resulting in maturing vegetation with a limited understorey. However, it was noted that these could be enhanced to provide habitat connectivity/habitat islands and landscape features as well as visual screening, health and amenity benefits.

3.4.4 A majority of the grassland and arable areas are of limited benefit in terms of habitat connectivity due to the level of management within these areas.

West Eynsham SDA

3.4.5 The West Eynsham site has a small number of hedgerow and boundary features that already provide good habitat connectivity and visual/landscape features as well as being used for public amenity purposes. The watercourse along the western boundary of the West Eynsham site provides good habitat connectivity and visual/landscape features and these could be further enhanced to improve its value in these terms and provide additional amenity and recreational value.

3.4.6 The site also has a significant number of other boundary features and habitat areas that provide varied connectivity and landscape features. These features are not as significant in terms of green infrastructure as those described above due to a greater frequency of gaps, more intensive management resulting in 'leggy' growth and in some cases a lack of management resulting in maturing vegetation with a limited understorey. However, it was noted that these could be enhanced to provide habitat connectivity/habitat islands and landscape features as well as visual screening, health and amenity benefits.

3.4.7 A majority of the grassland and arable areas are of limited benefit in terms of habitat connectivity due to the level of management within these areas.

Site Connectivity

3.4.8 While the two sites are divided by the A40, this carriageway has boundary features along its northern and southern edges. These features connect to the two sites and provide some connectivity between the two sites, although this is fragmented further to the eastern half of the Garden Village site where the village of Eynsham also acts as a barrier between the two sites.

3.4.9 The western half of the Garden Village site is better connected to the northern section of the West Eynsham site through the boundary features along the A40 which reduce the barrier effect of the road, particularly for mobile species such as bats, birds and larger mammals.

4 POTENTIAL IMPACTS

4.1 Construction Impacts

4.1.1 Potential impacts during construction vary between individual ecological receptors depending on their extent and sensitivity and on the timing of works. However, the potential impacts of the proposals fall into several discrete types.

4.1.2 Potential direct impacts in the absence of any and all mitigation include:

a. Loss of habitats through vegetation clearance – these impacts would be long-term and negative with overall reductions in total habitat and habitat types across the two sites;
b. Loss of habitats through topsoil stripping and subsequent earthworks – these impacts would also be long-term and negative with overall reductions in total habitat and habitat types across the two sites;
c. Loss of potential bat roosts through building demolition and tree removal – these impacts would be medium to long-term and negative as the number of potential roosts are reduced across the area. Other potential roosts may naturally develop in the long-term although this would depend on the overall extent of building and tree removal across the two sites. Works with impacts on such features would require an EPS licence from Natural England;
d. Loss of potential Otter holts and resting up sites and potential Water Vole burrows – these impacts are unlikely but would be medium to long-term and negative. Works with impacts on such features would require an EPS licences from Natural England;
e. Loss of potential breeding bird habitats – these impacts would be medium to long-term and negative. It should be noted that active nests must not be affected and no licence is available to permit the removal of such nests;
f. Loss of potential reptile and amphibian refugia and hibernacula features – these impacts would be short to medium-term and negative. Potential refugia and hibernacula features are likely to develop naturally over time and reptiles are known to make use of gardens and road verges;
g. Loss of potential amphibian waterbodies and terrestrial habitats including potential GCN habitats – these impacts would be long-term and negative with potential permanent effects on amphibian populations in the area as potential breeding sites are lost. Works that result in the loss of potential GCN habitat would require an EPS licence from Natural England;
h. Loss of aquatic habitat during watercourse diversion or drainage ditch loss/realignment – these impacts would be long-term and negative assuming an engineered solution to the diversions/realignments;
i. Injury or mortality of key species if present at the time of habitat removal – these impacts would be negative medium to long-term depending on the number of individuals affected with potential implications for local populations;
j. Severance of retained habitats around the two sites, particularly for less mobile species – these impacts would be negative and potentially long-term.

4.1.3 Potential indirect impacts in the absence of any and all mitigation include:

a. Damage to and disturbance of retained habitats adjacent to the development areas during construction – these impacts would be negative and short to medium-term depending on the duration of the construction works. There is also potential for cumulative impacts should works be undertaken across the two sites simultaneously;
b. Disruptions in hydrology caused by earthworks during construction – these impacts would be negative and short to medium-term depending on the duration of the construction works. There is also potential for cumulative impacts should works be undertaken across the two sites simultaneously;
c. Disturbance to individuals of key species which are resident within retained habitats adjacent to development works (e.g. through noise, lighting etc.) – these impacts would be negative and short to medium-term depending on the duration of the construction works. There is also potential for cumulative impacts should works be undertaken across the two sites simultaneously;
d. Reduced breeding success or survival due to increased disturbance of key species within retained habitats – these impacts would be negative and short to medium-term depending on the duration of the construction works. There is also potential for cumulative impacts should works be undertaken across the two sites simultaneously;
e. Potential pollution events affecting watercourses within the development areas and habitats downstream of the pollution incidents – these impacts would be negative and short to medium-term depending on the duration of the construction works. There is also potential for cumulative impacts should works be undertaken across the two sites simultaneously, especially for those watercourses that feed into the same downstream system.

4.2 Operational Impacts

4.2.1 Potential impacts during operation also vary between individual ecological receptors depending on their extent and sensitivity but again fall into several discrete types.

4.2.2 Potential direct impacts in the absence of any and all mitigation include:

a. The risk of mortality for a number of species when attempting to cross roads associated with the development (e.g. bats, birds, hedgehogs) – these impacts would be negative and long-term;
b. Increased risk of mortality where verges provide habitat for species which are subsequently at risk from road traffic collisions or from routine management (e.g. birds, reptiles, amphibians) – these impacts would be negative and long-term;
c. Risk of mortality within public and amenity areas that provide habitat for species which are subsequently at risk from routine management (e.g. birds, reptiles, hedgehogs) – these impacts would be negative and long-term;
d. Risk of increased predation by pets, particularly on bird and small mammal species including hedgehogs – these impacts would be negative and long-term;
e. Increased biosecurity risks as residents introduce invasive and/or non-native species and diseases into the area – these impacts would be negative and long-term.

4.2.3 Potential indirect impacts in the absence of any and all mitigation include:

a. Increased risk of adverse effects from pollution incidents entering watercourses and affecting downstream habitats – these impacts would be negative and long-term;
b. Risk of increased noise and light pollution causing disturbance to key species such as bats and otters, in retained habitats close to the development areas – these impacts would be negative and long-term;
c. Increased risk of disturbance impacts from increased human activity – these impacts would be negative and long-term;
d. Potential creation of a physical or psychological barrier to key species and resultant fragmentation of populations – these impacts would be negative and long-term.

4.3 Ecosystem Services

4.3.1 Both sites provide various ecosystem services which are likely to be impacted by the proposals, both negatively and positively, as summarised below:

a. **Photosynthesis** rates across both sites are likely to be permanently reduced as vegetated areas are lost in favour of development;
b. **Nutrient cycling** rates across both sites are also likely to be permanently reduced as vegetated areas are lost;
c. **Water cycling and water regulation** may be temporarily and permanently interrupted and altered as habitats including flood areas are lost, drainage regimes are altered and run-off potentially increased;
d. **Air quality regulation** may be temporarily and permanently reduced through the loss of habitats with the potential for additional impacts on air quality through increased human activity and vehicle movements;
e. **Pollination regulation** may be negatively and permanently affected through the loss of habitats, particularly field margins, unmanaged areas and boundary features;
f. **Cultural services** have the potential to be affected both negatively and positively with potential loss of public access and landscape and visual features. However, there is also potential for increased public access across the two sites as the residential areas are developed.

4.4 Green Infrastructure

4.4.1 In the absence of mitigation, the current green infrastructure features noted across both sites are likely to be negatively affected by the proposals as habitats and boundary features will be lost with indirect impacts on habitat connectivity and the visual and landscape value of the area. There is also potential for the loss and disruption to existing public footpaths, which will also reduce the green infrastructure value of the two sites.

4.4.2 This will be assessed in full in the separate green infrastructure study.

5 POTENTIAL MITIGATION AND ENHANCEMENT MEASURES

5.1 Habitats

Both Garden Village and West Eynsham SDA sites

5.1.1 No designated sites will be directly affected by the proposals and indirect impacts both through construction and operation would be managed through construction best practice and appropriate scheme design. Impacts in relation to mobile species associated with these sites would be mitigated through the measures detailed in the section below.

5.1.2 The majority of the habitats likely to be lost as part of the proposals consist of semi-improved neutral and improved grassland and arable land that are of negligible ecological and nature conservation value. However, the extent of the loss of these habitats should be reduced as far as possible within the scheme designs for the two sites through careful and considered development layout and design.

5.1.3 Retained grassland habitat areas should be subject to more ecologically friendly management regimes and ecological enhancement measures, such as:

a. Low pressure grazing regimes;
b. Infrequent cutting regimes using low ground pressure machines and removal of arisings;
c. Turf removal and seeding with wildflower mixes sourced from nearby species rich grassland sites or bought mixes suitable to the area;
d. Creation of micro-topography including scrapes and small earth-banks within retained grassland and scrub areas;
e. Inclusion of species specific enhancement measures as detailed in Section 5.2.

5.1.4 The woodland and scrub boundary features are of greater ecological value and their loss should be minimised as far as possible through appropriate scheme design, particularly the more substantial boundaries to the northern and western boundaries of the two sites (as shown on Figure 5.0A to 5.0D). Again, careful and considered development layout and design should be applied to reduce the overall loss of boundary features. Where losses cannot be avoided, development should be designed to avoid fragmentation and isolation of boundary features. This approach should be applied to all boundary features regardless of their current ecological and green infrastructure value as enhancement measures could also be applied as detailed below.

5.1.5 All retained boundary features should also be subject to more ecologically friendly management regimes and ecological enhancement measures, such as:

a. Winter cuts using appropriate equipment to reduce branch splitting and minimise risks to key species using these features;
b. Widening of retained features through additional planting;
c. Selective winter felling within more mature boundary features to encourage greater structural diversity;
d. Laying of mature hedges;
e. Creation of dead wood and brash corridors within the vegetation to provide further structural diversity and habitat features;

f. Inclusion of other species-specific measures as detailed in Section 5.2 below.

5.1.6 The streams along the northern boundary of the Garden Village site and along the western boundary of the West Eynsham site should be retained as noted above and subject to potential ecological enhancements, such as:

a. Slackening of sections of the banks and/or creating shelved banks to create a greater variety of aquatic and semi-aquatic habitats and to encourage natural meanders and wetland/marshy areas along the banks of the streams;
b. Creation of meanders along the watercourses;
c. Widening of some sections of the stream bed and banks to encourage natural pools and slow-moving sections;
d. Where the above is not possible, small meanders can be created within the existing channel through the installation of marginal berms along the channel;
e. Riffles can also be created within existing channels by excavating the stream bed and using an angular gravel mix, generally in conjunction with the creation of in channel berms;
f. New/reformed banks and stream edges and marginal berms can be planted with native riparian vegetation, preferably locally sourced;
g. Reduction of tree and scrub cover in places, particularly where the watercourses are, or are becoming, slower moving, to encourage more aquatic, semi-aquatic and marginal vegetation to develop.

5.1.7 New boundary features created within and around the proposed development areas should consist of area appropriate, locally sourced native species with a diverse species and age mix included within each feature. Boundaries should be designed to connect to other similar features and reconnect severed and fragmented existing boundary features as far as possible. They should be managed in an ecologically sensitive manner to encourage a dense structure and minimise risks to key species that may utilise such features. Consideration should also be given to laying new boundary vegetation once it is sufficiently established to do so.

5.1.8 Where possible, the boundary features to be lost should be reviewed for potential translocation as this provides more immediate and often more effective mitigation as well as maintaining the seed bank and ensuring planting is suitable to the area.

5.1.9 The overall and detailed designs of the two sites should also include areas of wildflower seeding and native scrub and woodland areas connected to others within the sites and the wider area by boundary features and habitat corridors. Carefully designed Sustainable Urban Drainage Systems (SUDS) should also be used wherever possible to provide additional habitat features as well as drainage provision.

5.1.10 The indirect construction impacts should be addressed through best practice measures including the following:

a. Restrictions to night-time working;
b. Use of directional and low-level lighting to reduce light spill into adjacent habitats;
c. Careful placement of compounds, storage areas etc. and use of noise barrier fencing to reduce noise impacts within retained habitats;
d. Avoidance of re-fuelling and parking of vehicles close to watercourses wherever possible;

e. Avoidance of machinery use within watercourses as far as possible;
f. Production and implementation of a suitable pollution and sediment management plan;
g. Provision of spill kits close to high risk areas for rapid deployment in the event of a pollution event;
h. Use of dust suppression measures as and when appropriate;
i. Involvement of an Ecological/Environmental Clerk of Works on the sites during construction to identify and address other risks as and when they arise.

5.1.11 The indirect impacts of operation can be addressed through sensitive design of the proposals in terms of overall layout, lighting requirements, placement of high activity areas and drainage design. New landscape planting can also be designed to minimise indirect impacts such as from lighting.

5.1.12 The overall development layout and design should aim to provide full connectivity across all retained, created and enhanced habitats and with the wider countryside with wide corridors (a minimum of c10m) of varied habitats including woodland or scrub around and through both sites. These will ensure habitat connectivity and should be designed to provide dark corridors in accordance with the Bats and Artificial Lighting in the UK guidance note 08/18 (published by the Institution of Lighting Professionals (ILP) and Bat Conservation Trust) for nocturnal species such as bats, dormice and GCN. This guidance aims to balance the need for reduced lighting to appropriate levels for ecological features and species while achieving the required lighting objectives. Such designs may need to include dark buffer zones to separate habitats and/or features from lighting and/or close board fencing, with appropriate gaps at ground level, with vegetation between and/or linear brash windrows should the lighting design be insufficient to avoid light spill into these areas. This would be guided on a location by location basis depending on the species present and the habitat value for those species.

Garden Village

5.1.13 The Woodland Trust site to the southern boundary of the Garden Village site should be retained given the ecological value of this area. Measures should also be included to ensure that this remains connected to the wider area either through the retention of the existing boundary network or through the creation of new connectivity features.

5.1.14 As much of the City Farm area should be retained as possible, particularly those fields with the higher IAPA scores identified during the 2016 Plantlife surveys. Where it is not possible to retain these areas, the top layer of soil that includes the seedbank should be stripped and reused within the Garden Village site to ensure that the arable plant populations present are not lost. These areas would require specific management with regular soil disturbance using a medium-fine tilth, particularly during the spring, and avoidance of herbicide and fertiliser use. Should pernicious weeds require control, the use of targeting gramnicides or herbicides at the appropriate time of year can be applied.

5.1.15 The area of mosaic habitats and the large pond to the south western corner of the Garden Village site should be retained given the ecological value of this area. The adjacent ruderal and non-ruderal vegetation should also be retained as these also provide some ecological benefits as well as increasing that of the area as a whole. The current level of habitat connectivity should either be retained or recreated as part of the proposals to ensure that these areas do not become isolated. These areas could be enhanced with appropriate light

management regimes to maintain species and habitat diversity and through the species-specific measures as detailed in Section 5.2 below.

5.1.16 The woodland and scrub boundary features are of greater ecological value and their loss should be minimised as far as possible through appropriate scheme design, particularly the more substantial boundaries to the north western corner and within the southern section of the Garden Village Site (as shown on Figure 5.0A to 5.0C).

West Eynsham SDA

5.1.17 The woodland and scrub boundary features are of greater ecological value and their loss should be minimised as far as possible through appropriate scheme design, particularly the more substantial boundaries to the western and eastern boundaries and within the south eastern section of the West Eynsham site (as shown on Figure 5.0A and 5.0D).

5.2 Protected Species

Both Garden Village and West Eynsham SDA sites

5.2.1 A majority of the potential protected species impacts during both construction and operation would be addressed through the measures detailed above, particularly those for retaining habitats and habitat connectivity and reducing indirect impacts during both construction and operation.

5.2.2 It is recommended that a bat landscape approach is considered and applied across the two sites to ensure that the different bat habitat uses are retained and enhanced, particularly foraging and infrequent commuting behaviour which are more difficult to survey and mitigate for. Such an approach ties-in with green infrastructure requirements as it reviews the landscape as a whole ensuring habitat features such as hedgerows and treelines are retained and remain connected to the wider area by at least two points. This approach also reconnects severed, fragmented and isolated habitat features through habitat recreation and enhancement and appropriate new planting as well as through the creation of potential foraging features such as watercourses, wetland areas and species rich grassland and woodland edge habitats. As part of this approach it is also necessary to review the wider area and ensure that works within the sites tie-in to features outside the site boundaries and also have resilience should features outside the site boundaries be lost or fragmented.

5.2.3 The loss of species specific habitat features should be addressed through the provision of similar features or better within the scheme designs. This could include the provision of bat tree roost boxes and the incorporation of bat roost bricks, cavities or similar within building designs (the specifics would depend on the affected roost type, species and EPS licence requirements).

5.2.4 Artificial Otter holts could be installed in appropriate locations along the watercourses within the two sites along with bank mitigation and enhancement work, designed to incorporate potential resting up sites and Water Vole burrow locations, as detailed in the sections below.

5.2.5 Watercourse crossings should be avoided as far as possible. However, where they are necessary they should be designed with consideration for protected species such as Otters and Water Voles by ensuring that they and other species are able to continue using the

watercourses and are not forced to cross carriageways or other built areas. Ideally this would be achieved through the use of widespan bridges to retain the watercourse and its banks, although oversized box culverts can be designed in a similar manner, although these often result in a lack of vegetation beneath the structure. Connectivity features, such as dead hedges or brash windrows, can be used in such circumstances. Any culverts incorporated should be at least 1.0m square/diameter although certain bat species prefer larger culverts (at least 1.8m) and consideration would need to be given to installing mammal ledges should these be liable to flooding (based on 1 in 100 year levels).

5.2.6 Reptile and amphibian refugia and hibernacula could be created within retained and new habitat areas along with adjusted management regimes to encourage the development of these, such as reducing dead wood removal or piling of such material within specified areas rather than removal from the sites. The creation of micro-topography features such as scrapes, depressions, gravel banks and exposed rubble areas would also benefit these species, particularly if these are created as part of site-wide habitat corridors to permit the movement of these species across the sites.

5.2.7 All of the above could be incorporated as potential enhancement measures as well as for mitigation purposes.

5.2.8 During construction, in addition to the measures described above, the following measures should also be applied to avoid species specific impacts:

a. Works causing high noise levels should be considered in terms of potential bat roosts on the sites as bats are particularly sensitive to noise disturbance. It may be necessary to limit the timing of such works to periods when nearby roosts are not in use (such as the hibernation season when bats often relocate to specific hibernation roosts);
b. Temporary connectivity measures may be required should any bat commuting routes be identified within either of the sites. These can take the form of moveable barriers or fencing that can be removed and replaced on a daily basis or dead hedges/brash corridors that are either removed at the end of construction or left to naturally decompose. These would also benefit other mobile species affected by habitat severance and fragmentation such as small mammals and reptiles;
c. Works causing vibration should be limited to non-sensitive times of year, such as outside the nesting season or fish migration periods as applicable;
d. Inclusion of safe crossing and connectivity points across the transport infrastructure associated with the scheme including the use of reptile/amphibian tunnels and mammal underpasses as appropriate.

5.2.9 Exclusion and translocation works including the installation of exclusion fencing may be necessary across some or all of the two sites depending on the results of further surveys. This is particularly likely within the south western section of the Garden Village site where GCN have been recorded previously. Such works would require an EPS licence and should be carefully programmed and undertaken in accordance with the GCN mitigation guidelines, as detailed in the Garden Village section below. An assessment will need to be undertaken for all works across both sites to ensure that all potential GCN impacts are identified and addressed appropriately.

5.2.10 Operational impacts to protected species should also largely be addressed by the measures detailed above in terms of habitat retention, mitigation and enhancement. These should be

designed to reduce the risk of protected species presence within areas that will be subject to high levels of human activity/disturbance or that will need more intensive management regimes.

5.2.11 The management of these areas should be undertaken with consideration for protected species as far as possible including reducing the number of vegetation cuts undertaken per year, increasing the retained height of grassland verges to a minimum of 75mm to reduce the risk to reptiles and amphibians and undertaking winter management works as standard to avoid more sensitive breeding periods during the spring and summer months.

5.2.12 Increased predation and biosecurity risks during operation are difficult to manage but these can be reduced through careful scheme design keeping key mitigation and enhancement areas away from residential properties, incorporating physical barriers such as dense thorny hedges and/or fencing between such areas and through educational and public information boards to inform local communities of the risks and how these can be reduced.

Garden Village

5.2.13 Watercourse embankment mitigation and enhancement work, designed to incorporate potential Otter resting up sites and Water Vole burrow locations could be undertaken along the watercourse to the northern boundary of the Garden Village site. This could include the creation of steep banks created using a substrate suitable for burrowing with some shallower and/or shelved banks for greater vegetation diversity. Appropriate seeding and planting works could also be undertaken to enhance the vegetation cover and foraging potential.

5.2.14 Exclusion and translocation works including the installation of exclusion fencing within the western section of the Garden Village site is likely to require a GCN EPS licence to be obtained prior to works. This application would need to include a detailed impact assessment in the absence of mitigation and a detailed mitigation strategy and construction details. Applications require the identification of a Licence Holder, usually a senior member of the client team, and a Named Ecologist, usually the Project Ecologist if appropriately licenced and experienced and need to allow a minimum of 30 working days (6 weeks) to be processed once submitted to the licensing authority (in this case Natural England).

5.2.15 As part of the above licence application, a number of details will be required including but not limited to:

a. Perimeter and compartment exclusion fencing layout including access points and watercourse crossings – this would need to remain in-situ and maintained for the duration of construction works and must include temporary use areas;
b. Trap type and number;
c. Receptor site location – a GCN population assessment may be required if this is considered to be off-site;
d. Impact avoidance measures;
e. Timing restrictions for trapping, mitigation and construction works as appropriate;
f. Habitat replacement and creation works;
g. Habitat enhancement works;
h. Receptor site enhancement works if GCN already present;
i. Construction programme and justification.

5.2.16 Watercourse embankment mitigation and enhancement work could be undertaken along the West Eynsham watercourse to increase the potential vegetation cover and foraging availability for Water Voles. This could be addressed through appropriate seeding and planting works and reprofiling some of the banks to create bank shelves or shallower sloping banks to encourage a greater diversity of vegetation.

5.3 Ecosystem Services

5.3.1 The measures detailed above, particularly in relation to the habitat retention, mitigation and enhancement works and considered scheme design should partially address the identified impacts in relation to ecosystem services.

5.3.2 Additional measures may be necessary in relation to specific services, including water cycling and regulation, particularly within the West Eynsham site as works within this area will affect a known flood area.

5.3.3 Cultural services should also be addressed through the measures detailed within the green infrastructure assessment being undertaken separately from this report.

5.4 Green Infrastructure Review

5.4.1 The potential impacts to green infrastructure in ecological terms should be largely addressed by the measures detailed above, particularly the use of habitat corridors and a bat landscape approach.

5.4.2 A specific green infrastructure assessment is being undertaken that should identify the non-ecological mitigation and enhancement requirements. These should be merged with the above measures to provide comprehensive and efficient mitigation that addresses every ecological aspect of the green infrastructure found across the two sites.

6 RECOMMENDED FURTHER SURVEYS

6.1 Habitats

6.1.1 It is recommended that extended phase 1 habitat surveys are undertaken across both sites during the optimal period (May to September, depending on the habitat) with areas of potentially higher ecological value subject to more detailed National Vegetation Classification (NVC) and detailed botanical surveys.

6.1.2 Hedgerow Regulations surveys should also be undertaken during the optimal period (April to May inclusive), including a review of the available historic data.

6.1.3 These should be undertaken prior to detailed scheme design and impact assessment to provide an up to date and accurate baseline from which the necessary assessment can be undertaken, and suitable mitigation and enhancement measures identified.

6.1.4 These could be undertaken either as one exercise across both sites in their entirety or in a phased approach depending on the development programme, although a phased approach should acknowledge potential impacts outside the development area and cumulative impacts from phased works.

6.1.5 These surveys should be undertaken by suitably experienced ecologists.

6.2 Protected Species

6.2.1 A number of species specific surveys should be undertaken prior to detailed scheme design and impact assessment. These should include:

a. Bat activity surveys;
b. Potential bat roost inspections and emergence/re-entry surveys;
c. Otter and Water Vole presence/absence surveys;
d. Badger presence/absence surveys;
e. Other mammal surveys, could be limited to habitat potential only if appropriate;
f. Breeding bird surveys, including ground nesting birds;
g. Reptile presence/absence and population assessment surveys;
h. Amphibian surveys including GCN;
i. Invertebrate surveys, specialist advice should be sought with regard to number and extent;
j. Fish surveys within affected watercourses, if applicable, again specialist advice should be sought.

6.2.2 These surveys should be undertaken by suitably experienced and appropriately licenced ecologists.

6.2.3 Further surveys may be necessary depending on the results of the above, the scheme designs and habitat changes across the sites in the interim period.

7 SUMMARY

7.1.1 TACP were commissioned by West Oxfordshire District Council in September 2018 to undertake a habitat survey and preliminary ecological impact assessment across the proposed sites for the Oxfordshire Cotswolds Garden Village and the West Eynsham Strategic Development Area (SDA). This report provides an ecological overview of the sites including a description of potential ecological receptors, a preliminary ecological impact assessment, potential mitigation and enhancement measures and potential areas for retention and enhancement.

7.1.2 The Oxfordshire Cotswolds Garden Village site is located to the north of the A40 and to the north and north-west of Eynsham in West Oxfordshire and primarily consists of grazed farmland divided by managed hedgerows and treelines. The West Eynsham SDA is located to the south of the A40 to the west of Eynsham in West Oxfordshire and consists of arable farmland and unmanaged grasslands divided by semi-mature hedgerows and treelines.

7.1.3 The Oxfordshire Cotswolds Garden Village has been identified as part of the West Oxfordshire Local Plan 2031 to provide approximately 2,200 homes and 40ha of B-class business land along with supporting facilities such as education, infrastructure and green infrastructure. The West Eynsham SDA has also been identified as part of the draft Local Plan for urban expansion including approximately 1,000 homes and supporting facilities including a new spine road and primary school.

7.1.4 A desk study and site surveys, including a phase 1 habitat survey and initial assessment of the value of the habitats and their potential to support protected species, including arable species, were carried out by TACP in October 2018. The habitats recorded were also assessed for their potential qualification as BAP Priority Habitats, the presence of potential Hedgerow Regulations features and their green infrastructure value or potential value.

7.1.5 Thirteen statutory designated sites were recorded within 5km and 9 locally designated sites, 3 Conservation Target Areas and 7 Ancient Woodland sites were recorded within 2km of the sites. Numerous rare and protected species records were also identified as part of the desk study. The site surveys identified a number of actual and potential ecological features as well as confirming the presence and potential presence of various protected species including some arable species and Schedule 1 bird species.

7.1.6 The preliminary impact assessment identified a range of potential direct and indirect impacts that may occur during construction or operation along with a variety of potential mitigation and enhancement measures, as summarised below and indicated on Figure 5.0A to 5.0D:

a. Reduction in habitat loss through appropriate and sensitive scheme design;
b. Retention of key areas of ecological value;
c. Implementation of ecologically friendly management regimes within retained habitats;
d. Implementation of ecological enhancement measures within low ecological value areas;
e. Implementation of ecological enhancement measures along retained watercourses;
f. Creation of new replacement habitats of a greater ecological value than those lost;
g. Translocation of existing ecological features wherever possible;

h. Management of works and scheme design to reduce indirect construction and operation impacts;
i. Installation/creation of species-specific mitigation and enhancement measures;
j. Implementation of appropriate exclusion and translocation works for affected species;
k. Implementation of ecologically friendly management regimes across new habitats including those used for amenity and public purposes.

7.1.7 A number of further surveys would also be required as proposals are drafted and finalised.

8 REFERENCES

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APPENDICES

APPENDIX A

Protected and Priority Species Desk Study Summary List

The table below shows a summary of the species recorded by the biological records search, excluding floral species, and notes whether the species is European or UK protected, included within Section 41 of the NERC Act 2006 or is listed as a species for conservation concern elsewhere.

Species Name	Common Name	Protected	Priority
Rana temporaria	Common Frog	EU	N/A
Bufo bufo	Common Toad	UK	Section 41
Triturus cristatus	Great Crested Newt	EU	Section 41
Normandia nitens	Riffle beetles	N/A	Red List
Tyto alba	Barn Owl	UK	N/A
Chroicocephalus ridibundus	Black-headed Gull	N/A	Amber List
Pyrrhula pyrrhula	Bullfinch	N/A	Section 41
Actitis hypoleucos	Common Sandpiper	N/A	Amber List
Sterna hirundo	Common Tern	EU	Amber List
Emberiza calandra	Corn Bunting	N/A	Section 41
Cuculus canorus	Cuckoo	N/A	Section 41
Numenius arquata	Curlew	N/A	Section 41
Calidris alpina	Dunlin	N/A	Amber List
Prunella modularis	Dunnock	N/A	Section 41
Turdus pilaris	Fieldfare	UK	Red List
Pluvialis apricaria	Golden Plover	EU	N/A
Bucephala clangula	Goldeneye	UK	Amber List
Locustella naevia	Grasshopper Warbler	N/A	Section 41
Perdix perdix	Grey Partridge	N/A	Section 41
Motacilla cinerea	Grey Wagtail	N/A	Red List
Anser anser	Greylag Goose	N/A	Amber List
Falco subbuteo	Hobby	UK	N/A
Delichon urbicum	House Martin	N/A	Amber List
Passer domesticus	House Sparrow	N/A	Section 41
Falco tinnunculus	Kestrel	N/A	Amber List
Alcedo atthis	Kingfisher	EU	Amber List
Rissa tridactyla	Kittiwake	N/A	Red List
Vanellus vanellus	Lapwing	N/A	Section 41
Larus fuscus	Lesser Black-backed Gull	N/A	Amber List
Dendrocopos minor	Lesser Spotted Woodpecker	N/A	Section 41
Linaria cannabina	Linnet	N/A	Section 41
Egretta garzetta	Little Egret	EU	N/A
Anas platyrhynchos	Mallard	N/A	Amber List
Poecile palustris	Marsh Tit	N/A	Section 41
Anthus pratensis	Meadow Pipit	N/A	Amber List
Turdus viscivorus	Mistle Thrush	N/A	Red List
Cygnus olor	Mute Swan	N/A	Amber List
Pandion haliaetus	Osprey	EU	Amber List
Anas acuta	Pintail	UK	Amber List
Aythya ferina	Pochard	N/A	Red List
Milvus milvus	Red Kite	EU	Red List
Tringa totanus	Redshank	N/A	Amber List
Turdus iliacus	Redwing	UK	Red List
Emberiza schoeniclus	Reed Bunting	N/A	Section 41

Species Name	Common Name	Protected	Priority
Tadorna ferruginea	Ruddy Shelduck	EU	N/A
Calidris pugnax	Ruff	EU	Red List
Alauda arvensis	Skylark	N/A	Section 41
Gallinago gallinago	Snipe	N/A	Amber List
Turdus philomelos	Song Thrush	N/A	Section 41
Muscicapa striata	Spotted Flycatcher	N/A	Section 41
Sturnus vulgaris	Starling	N/A	Section 41
Columba oenas	Stock Dove	N/A	Amber List
Apus apus	Swift	N/A	Amber List
Strix aluco	Tawny Owl	N/A	Amber List
Anas crecca	Teal	N/A	Amber List
Passer montanus	Tree Sparrow	N/A	Section 41
Phylloscopus trochilus	Willow Warbler	N/A	Amber List
Scolopax rusticola	Woodcock	N/A	Red List
Emberiza citrinella	Yellowhammer	N/A	Section 41
Lophopus crystallinus	Crystal Moss-animal	N/A	Section 41
Barbus barbus	Barbel	EU	N/A
Lampetra planeri	Brook Lamprey	EU	N/A
Salmo trutta subsp. fario	Brown Trout	N/A	Section 41
Salmo trutta	Brown/Sea Trout	N/A	Section 41
Cottus gobio	Bullhead	EU	N/A
Anguilla anguilla	European Eel	N/A	Section 41
Aleochara (Xenochara) kamila	A Beetle	N/A	Notable
Oulimnius major	A Beetle	N/A	Nationally Scarce
Riolus cupreus	A Beetle	N/A	Nationally Scarce
Sunius melanocephalus	A Beetle	N/A	Notable
Ischnodes sanguinicollis	A Beetle	N/A	Notable
Pseudotriphyllus suturalis	A Beetle	N/A	Red List
Aphodius (Melinopterus) consputus	A Beetle	N/A	Red List
Leptocerus lusitanicus	A Caddis Fly	N/A	Red List
Ribautodelphax pungens	A True Bug	N/A	Notable
Halticus saltator	A True Bug	N/A	Notable
Sialis nigripes	An Alderfly	N/A	Notable
Satyrium pruni	Black Hairstreak	UK	Red List
Tyria jacobaeae	Cinnabar	N/A	Section 41
Arctia caja	Garden Tiger	N/A	Section 41
Argynnis adippe	High Brown Fritillary	UK	Section 41
Lasioglossum (Evylaeus) malachurum	Sharp-collared Furrow Bee	N/A	Notable
Coenonympha pamphilus	Small Heath	N/A	Section 41
Diarsia rubi	Small Square-spot	N/A	Section 41
Coenagrion pulchellum	Variable Damselfly	N/A	Red List
Agrostis canina	Velvet Bent	N/A	County Scarce
Lasiommata megera	Wall	N/A	Section 41
Limenitis camilla	White Admiral	N/A	Section 41
Leptidea sinapis	Wood White	UK	Section 41
Pseudanodonta complanata	Depressed (or Compressed) River Mussel	N/A	Section 41
Pisidium tenuilineatum	Fine-lined Pea Mussel	N/A	Section 41
Gyraulus (Gyraulus) acronicus	Thames Ramshorn	N/A	Section 41

Species Name	Common Name	Protected	Priority
Scleranthus annuus	Annual Knawel	N/A	Section 41
Anagallis arvensis subsp. foemina	Blue Pimpernel	N/A	County Scarce
Hyacinthoides non-scripta	Bluebell	UK	N/A
Persicaria bistorta	Common Bistort	N/A	County Rare
Gomphus vulgatissimus	Common Club-tail	N/A	Red List
Fumaria muralis	Common Ramping-fumitory	N/A	County Rare
Valeriana officinalis	Common Valerian	N/A	Red List
Vicia sativa subsp. sativa	Common Vetch	N/A	County Rare
Glebionis segetum	Corn Marigold	N/A	Red List
Mentha arvensis	Corn Mint	N/A	Red List
Spergula arvensis	Corn Spurrey	N/A	Red List
Centaurea cyanus	Cornflower	N/A	Section 41
Succisa pratensis	Devil's-bit Scabious	N/A	Red List
Euphorbia exigua	Dwarf Spurge	N/A	Red List
Salix aurita	Eared Willow	N/A	County Rare
Sorbus anglica	English Whitebeam	N/A	Red List
Lepidium campestre	Field Pepperwort	N/A	Red List
Knautia arvensis	Field Scabious	N/A	Red List
Stachys arvensis	Field Woundwort	N/A	Red List
Stachys arvensis	Field Woundwort	N/A	Red List
Chenopodium bonus-henricus	Good-King-Henry	N/A	Red List
Bunium bulbocastanum	Great Pignut	N/A	Nationally Rare
Ranunculus lingua	Greater Spearwort	N/A	County Scarce
Anacamptis morio	Green-winged Orchid	N/A	Red List
Schoenoplectus tabernaemontani	Grey Club-rush	N/A	County Rare
Blechnum spicant	Hard-fern	N/A	County Scarce
Plantago media	Hoary Plantain	N/A	Red List
Tilia platyphyllos	Large-leaved Lime	N/A	Nationally Scarce
Ranunculus flammula	Lesser Spearwort	N/A	Red List
Chenopodium hybridum	Maple-leaved Goosefoot	N/A	County Rare
Triglochin palustre	Marsh Arrowgrass	N/A	Red List
Senecio aquaticus	Marsh Ragwort	N/A	Red List
Salvia pratensis	Meadow Clary	UK	Red List
Colchicum autumnale	Meadow Saffron	N/A	Red List
Chenopodium murale	Nettle-leaved Goosefoot	N/A	Red List
Silene noctiflora	Night-flowering Catchfly	N/A	Red List
Bidens cernua	Nodding Bur-marigold	N/A	County Rare
Fumaria purpurea	Purple Ramping-fumitory	N/A	Section 41
Briza media	Quaking-grass	N/A	Red List
Silene flos-cuculi	Ragged-Robin	N/A	Red List
Sanicula europaea	Sanicle	N/A	Red List
Eleocharis uniglumis	Slender Spike-rush	N/A	County Scarce
Carex strigosa	Thin-spiked Wood-sedge	N/A	County Scarce
Potentilla erecta	Tormentil	N/A	Red List
Erysimum cheiranthoides	Treacle-mustard	N/A	Red List
Catabrosa aquatica	Whorl-grass	N/A	Red List
Brassica oleracea	Wild Cabbage	N/A	Nationally Scarce
Apium graveolens	Wild Celery	N/A	County Rare

Species Name	Common Name	Protected	Priority
Salvia verbenaca	Wild Clary	N/A	Red List
Viola tricolor	Wild Pansy	N/A	Red List
Fragaria vesca	Wild Strawberry	N/A	Red List
Oxalis acetosella	Wood-sorrel	N/A	Red List
Vipera berus	Adder	UK	Section 41
Natrix helvetica	Grass Snake	UK	Section 41
Anguis fragilis	Slow-worm	UK	Section 41
Chiroptera	Bats	EU	Section 41
Lepus europaeus	Brown Hare	N/A	Section 41
Plecotus auritus	Brown Long-eared Bat	EU	Section 41
Pipistrellus pipistrellus	Common Pipistrelle	EU	N/A
Myotis daubentonii	Daubenton's Bat	EU	N/A
Meles meles	Eurasian Badger	UK	N/A
Lutra lutra	European Otter	EU	Section 41
Arvicola amphibius	European Water Vole	UK	Section 41
Micromys minutus	Harvest Mouse	N/A	Section 41
Nyctalus leisleri	Lesser Noctule	EU	N/A
Myotis nattereri	Natterer's Bat	EU	N/A
Nyctalus noctula	Noctule Bat	EU	Section 41
Pipistrellus	Pipistrelle Bat species	EU	Section 41
Mustela putorius	Polecat	EU	Section 41
Pipistrellus pygmaeus	Soprano Pipistrelle	EU	Section 41
Myotis	Unidentified Bat	EU	Section 41
Erinaceus europaeus	West European Hedgehog	N/A	Section 41
Myotis mystacinus	Whiskered Bat	EU	N/A

APPENDIX B

Phase 1 Habitat Survey Target Notes

The abundances of the individual species provided are based on the DAFOR scale where D = Dominant, cD = Co-dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare. Where species are locally more abundant within the sward than overall L is added to the scale above to denote local dominance, abundance, frequent etc.

These abundances are not representative of the wider distribution of the species but a reflection of their extent and relative abundance within the habitat sward.

Garden Village

Target Note 1

Area of semi-natural broad-leaved woodland to the north eastern boundary of the Garden Village site dominated by Crack Willow (*Salix fragilis*) and Ash (*Fraxinus excelsior*) with a grassland understorey dominated by Stinging Nettle (*Urtica dioica*).

Species Name	Common Name	Abundance
Canopy		
Fraxinus excelsior	Ash	cD
Salix fragilis	Crack Willow	cD
Understorey		
Holcus lanatus	Yorkshire Fog	A
Lolium perenne	Perennial Rye Grass	O
Poa sp	Meadow Grass	O
Potentilla reptans	Creeping Cinquefoil	O/LA
Rumex obtusifolius	Broad-leaved Dock	O
Sherardia arvensis	Field Madder	O
Sonchus sp.	Sow-thistle	F/LA
Urtica dioica	Stinging Nettle	D

Target Note 2

Semi-natural broad-leaved woodland and associated watercourse along the northern boundary of the Garden Village site, dominated by Crack Willow with frequent Ash and occasional Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Goat Willow (*Salix caprea*) with a Stinging Nettle and Bramble (*Rubus fruticosus agg.*) understorey. The watercourse along this boundary is shallow and narrow with evidence of localised flooding in places.

Species Name	Common Name	Abundance
Canopy		
Crataegus monogyna	Hawthorn	O
Fraxinus excelsior	Ash	F
Prunus spinosa	Blackthorn	O
Quercus robur	Common Oak	R
Salix caprea	Goat Willow	O
Salix fragilis	Crack Willow	D
Understorey		
Chamaenerion angustifolium	Rosebay Willowherb	O
Convolvulus arvensis	Field Bindweed	R/LF
Rubus fruticosus agg.	Bramble	cD

Species Name	Common Name	Abundance
Rumex obtusifolius	Broad-leaved Dock	F
Urtica dioica	Stinging Nettle	cD

Target Note 3

Arable fields within the City Farm area to the north eastern section of the Garden Village site. This area is known to support populations of a number of arable species, making it a site of European Importance for arable plants (Plantlife Report 2016), although these were not evident at the time of survey due to the sub-optimal time of year.

Species Name	Common Name	Abundance
Geranium pyrenaicum	Hedgerow Cranesbill	R
Plantago major	Greater Plantain	O
Polygonum aviculare	Common Knotgrass	R/LF
Rumex acetosa	Common Sorrel	F
Rumex obtusifolius	Broad-leaved Dock	R
Saxifraga sp.	Saxifrage	R
Senecio vulgaris	Groundsel	R
Sonchus sp.	Sow-thistle	R
Trifolium sp.	Clover sp.	R
Veronica chamaedrys	Germander Speedwell	R

Target Note 4

Area of semi-natural broad-leaved woodland to the northern boundary of the Garden Village site, dominated by Common Oak (*Quercus robur*) and Goat Willow with a Stinging Nettle and Bramble understorey. The watercourse noted under Target Note 2 continues through this area, remaining narrow banked and shallow with occasional evidence of localised flooding.

Species Name	Common Name	Abundance
Canopy		
Crataegus monogyna	Hawthorn	LcD
Fraxinus excelsior	Ash	LcD
Quercus robur	Common Oak	cD
Salix caprea	Goat Willow	cD
Understorey		
Chamaenerion angustifolium	Rosebay Willowherb	O
Convolvulus arvensis	Field Bindweed	R/LF
Rubus fruticosus agg.	Bramble	cD
Rumex obtusifolius	Broad-leaved Dock	F
Urtica dioica	Stinging Nettle	cD

Target Note 5

Area of arable land to the northern boundary of the Garden Village site currently left to winter stubble with some establishment of natural vegetation recorded.

Species Name	Common Name	Abundance
Achillea millefolium	Yarrow	R
Conopodium majus	Pignut	O
Geranium pyrenaicum	Hedgerow Cranesbill	R
Plantago major	Greater Plantain	O
Polygonum aviculare	Common Knotgrass	R/LF
Rumex acetosa	Common Sorrel	F
Rumex obtusifolius	Broad-leaved Dock	R
Saxifraga sp.	Saxifrage	R
Senecio vulgaris	Groundsel	R
Sonchus sp.	Sow-thistle	R
Trifolium sp	Clover	R
Tussilago farfara	Coltsfoot	R/LO
Veronica chamaedrys	Germander Speedwell	R

Target Note 6

Small area of semi-improved neutral grassland to the corner of an arable area that has not been ploughed/cut and appears to be relatively unmanaged with a medium to tall sward dominated by Perennial Rye Grass (*Lolium perenne*).

Species Name	Common Name	Abundance
Cirsium vulgare	Spear Thistle	R/LF
Cynosurus cristatus	Crested Dogstail	R
Festuca rubra	Red Fescue	O
Holcus lanatus	Yorkshire Fog	O
Lolium perenne	Perennial Rye Grass	D
Phleum pratense	Timothy	O
Poa sp.	Meadow Grass	F
Ranunculus acris	Meadow Buttercup	R
Trifolium sp.	Clover	R/LF
Urtica dioica	Stinging Nettle	R

Target Note 7

Open section along the northern boundary watercourse of the Garden Village site. This section has been fenced off from the surrounding agricultural land and appears to be mechanically managed with steeper uniform banks and cut vegetation. Some aquatic and semi-aquatic vegetation was recorded, although water flow was limited at the time of survey.

Species Name	Common Name	Abundance
Chamaenerion angustifolium	Rosebay Willowherb	R/LF
Convolvulus arvensis	Field Bindweed	R/LO
Filipendula ulmaria	Meadowsweet	R/LF
Fraxinus excelsior	Ash	R
Heracleum sphondylium	Hogweed	R
Holcus lanatus	Yorkshire Fog	O
Iris pseudacorus	Yellow Flag Iris	O/LA
Juncus effusus	Soft Rush	O

Species Name	Common Name	Abundance
Lolium perenne	Perennial Rye Grass	F
Oenanthe crocata	Hemlock Water Dropwort	O/LA
Rubus fruticosus agg.	Bramble	R/LF
Rumex obtusifolius	Broad-leaved Dock	O
Sonchus sp.	Sow-thistle	R
Urtica dioica	Stinging Nettle	R

Target Note 8

Dense scrub boundary vegetation along the north western boundary of the Garden Village site dominated by Hawthorn with frequent Blackthorn, occasional Bramble and Stinging Nettle and rare Grey Willow (*Salix cinerea*).

Target Note 9

Mature plantation woodland/boundary vegetation between the fields to the north western corner and to the northern boundary of the Garden Village site, dominated by Common Oak with a dense Bramble understorey.

Species Name	Common Name	Abundance
Canopy		
Quercus robur	Common Oak	D
Salix caprea	Goat Willow	R
Salix fragilis	Crack Willow	R
Understorey		
Rubus fruticosus agg.	Bramble	D
Prunus spinosa	Blackthorn	F
Crataegus monogyna	Hawthorn	F
Urtica dioica	Stinging Nettle	O

Target Note 10

Large un-grazed area of semi-improved neutral grassland to the northern section of the Garden Village site consisting of a tall sward dominated by Cocksfoot (*Dactylis glomerata*) with frequent Wavy Hair Grass (*Deschampsia flexuosa*) and Red Fescue (*Festuca rubra*).

Species Name	Common Name	Abundance
Cirsium sp	Thistle	R/LO
Dactylis glomerata	Cocksfoot	D
Deschampsia flexuosa	Wavy Hair Grass	F
Festuca rubra	Red Fescue	F
Glechoma hederacea	Ground Ivy	R
Rubus fruticosus agg.	Bramble	R/LF
Rumex acetosa	Common Sorrel	R
Sherardia arvensis	Field Madder	R
Urtica dioica	Stinging Nettle	R/LO
Veronica sp.	Speedwell	R

Target Note 11

Small area of semi-improved neutral grassland with a different species composition to the adjacent field area dominated by Red Fescue and Cocksfoot with some scrub encroachment by Willow (Salix sp), Blackthorn and Hawthorn.

Species Name	Common Name	Abundance
Crataegus monogyna	Hawthorn	R
Dactylis glomerata	Cocksfoot	cD
Festuca rubra	Red Fescue	cD
Fraxinus excelsior	Ash	R
Heracleum sphondylium	Hogweed	R
Prunus spinosa	Blackthorn	R
Rumex obtusifolius	Broad-leaved Dock	R
Salix sp.	Willow	O
Urtica dioica	Stinging Nettle	O

Target Note 12

Location of a quarry/aggregate recycling facility with grassed earth banks and a small area of mosaic habitats including disturbed grassland and non-ruderal vegetation.

Species Name	Common Name	Abundance
Agrostis stolonifera	Creeping Bent	R/LF
Chamaenerion angustifolium	Rosebay Willowherb	R
Cirsium sp.	Thistle	R/LA
Dactylis glomerata	Cocksfoot	O
Dipsacus fullonum	Wild Teasel	O/LF
Festuca rubra	Red Fescue	D
Hieracium sp	Hawkweed	R/O
Holcus lanatus	Yorkshire Fog	O
Hypericum sp.	St John's Wort	R
Lactuca serriola	Prickly Lettuce	O/LF
Leucanthemum vulgare	Ox-eye Daisy	R
Lotus corniculatus	Common Birdsfoot Trefoil	R/LO
Phleum pratense	Timothy	R
Plantago major	Greater Plantain	R
Poa trivialis	Rough Meadow Grass	F
Ranunculus acris	Meadow Buttercup	O
Rubus fruticosus agg.	Bramble	R/LF
Rumex crispus	Curled Dock	LO
Rumex obtusifolius	Broad-leaved Dock	R/LA
Salix caprea	Goat Willow	R
Trifolium sp.	Clover	O
Tussilago farfara	Coltsfoot	R

Target Note 13

Small area of semi-improved neutral grassland to the south west corner of an improved grassland area with a tall sward dominated by Red Fescue and Cocksfoot with some scrub encroachment by Willow, Blackthorn and Hawthorn.

Species Name	Common Name	Abundance
Crataegus monogyna	Hawthorn	R
Dactylis glomerata	Cocksfoot	cD
Festuca rubra	Red Fescue	cD
Fraxinus excelsior	Ash	R
Heracleum sphondylium	Hogweed	R
Prunus spinosa	Blackthorn	R
Rumex obtusifolius	Broad-leaved Dock	R
Salix sp.	Willow	O
Urtica dioica	Stinging Nettle	O

Target Note 14

Broad-leaved plantation woodland and dense scrub boundary habitat along a public footpath between grazed fields with a drainage ditch running along the base.

Species Name	Common Name	Abundance
Canopy		
Acer campestre	Field Maple	R
Betula pubescens	Downy Birch	LF
Corylus avellana	Hazel	R
Crataegus monogyna	Hawthorn	O/LA
Fagus sylvatica	Beech	R
Fraxinus excelsior	Ash	O/LD
Prunus spinosa	Blackthorn	F
Quercus robur	Common Oak	R
Rubus fruticosus agg.	Bramble	LA
Sambucus nigra	Elder	R
Understorey		
Crataegus monogyna	Hawthorn	D
Dactylis glomerata	Cocksfoot	R
Ficaria verna	Lesser Celandine	LF
Geranium robertianum	Herb Robert	R/LO
Glechoma hederacea	Ground Ivy	R
Hedera helix	Ivy	R/LF
Heracleum sphondylium	Hogweed	R
Holcus lanatus	Yorkshire Fog	LO
Plantago major	Greater Plantain	LF
Rosa arvensis	Field Rose	O
Rubus fruticosus agg.	Bramble	F
Rumex crispus	Curled Dock	O
Rumex obtusifolius	Broad-leaved Dock	R
Urtica dioica	Stinging Nettle	O

Target Note 15

Tarmacked public bridleway to the south east corner of the Garden Village site with wooded boundaries either side and areas of dense scrub to the south western end adjacent to the A40.

Species Name	Common Name	Abundance
Acer campestre	Field Maple	R
Acer pseudoplatanus	Sycamore	R
Cirsium vulgare	Spear Thistle	R
Cornus sanguinea	Dogwood	R
Corylus avellana	Hazel	O
Crataegus monogyna	Hawthorn	D
Fraxinus excelsior	Ash	A
Glechoma hederacea	Ground Ivy	R/LO
Hedera helix	Ivy	F/LD
Prunus spinosa	Blackthorn	F
Rubus fruticosus agg.	Bramble	R/LF/LA
Sambucus nigra	Elder	R
Tilia × europaea	Common Lime	R
Urtica dioica	Stinging Nettle	O/F

Target Note 16

Area of broad-leaved plantation beside mixed residential and office buildings to the southern boundary of the Garden Village site dominated by Hawthorn with frequent Blackthorn and Field Maple (*Acer campestre*). The understorey is patchy, dense in places with more open areas between.

Species Name	Common Name	Abundance
Canopy		
Acer campestre	Field Maple	O
Betula pubescens	Downy Birch	R
Crataegus monogyna	Hawthorn	D
Fraxinus excelsior	Ash	R
Malus sylvestris	Crab Apple	R
Prunus spinosa	Blackthorn	F
Quercus robur	Common Oak	R
Understorey		
Cirsium vulgare	Spear Thistle	R
Pleurozium schreberi	Red-stemmed Feather-moss	O
Rosa arvensis	Field Rose	R
Rubus fruticosus agg.	Bramble	R/LF
Urtica dioica	Stinging Nettle	R/LF

Target Note 17

An area of unmanaged semi-improved neutral grassland with a tall tussocky sward and frequent anthills dominated by Cocksfoot with Wavy Hair Grass and Red Fescue.

Species Name	Common Name	Abundance
Cirsium sp.	Thistle	R/LO
Dactylis glomerata	Cocksfoot	D

Species Name	Common Name	Abundance
Deschampsia flexuosa	Wavy Hair Grass	F
Festuca rubra	Red Fescue	F
Glechoma hederacea	Ground Ivy	R
Rubus fruticosus agg.	Bramble	R
Rumex acetosa	Common Sorrel	R
Sherardia arvensis	Field Madder	R
Urtica dioica	Stinging Nettle	R/LO
Veronica sp.	Speedwell	R

Target Note 18

Broad-leaved plantation woodland either side of a grassed public footpath that joins to the footpaths along the A40 to the south and the footpaths to the north, east and west. These areas consist largely of semi-mature and mature Ash with other woody species including some mature Beech (*Fagus sylvatica*) and Common Oak. The understorey is moderate in density with some more open sections.

Species Name	Common Name	Abundance
Canopy		
Betula pubescens	Downy Birch	LF
Prunus spinosa	Blackthorn	F
Fraxinus excelsior	Ash	D
Crataegus monogyna	Hawthorn	O
Fagus sylvatica	Beech	R
Corylus avellana	Hazel	R
Quercus robur	Common Oak	R
Understorey		
Ficaria verna	Lesser Celandine	LF
Geranium robertianum	Herb Robert	LO
Hedera helix	Ivy	F
Plantago major	Greater Plantain	LF
Rosa arvensis	Field Rose	O
Rubus fruticosus agg.	Bramble	F
Rumex crispus	Curled Dock	O
Urtica dioica	Stinging Nettle	O

Target Note 19

Broad-leaved plantation woodlands managed by the Woodland Trust with grassy paths between that are open to the public. Much of the woodland blocks are of uniform age although the blocks appears to be of varied ages, the understorey within each is generally sparse with greater densities to the woodland edges where there is more light.

Plantation Woodlands:

Species Name	Common Name	Abundance
Canopy		
Acer campestre	Field Maple	O
Betula pendula	Silver Birch	LO
Corylus avellana	Hazel	LF

Species Name	Common Name	Abundance
Crataegus monogyna	Hawthorn	A
Fraxinus excelsior	Ash	LF
Malus sylvestris	Crab Apple	R
Prunus spinosa	Blackthorn	F
Quercus petraea	Sessile Oak	R
Quercus robur	Common Oak	LD
Rosa arvensis	Field Rose	O
Salix caprea	Goat Willow	LD
Salix fragilis	Crack Willow	R
Understorey		
Cirsium vulgare	Spear Thistle	R
Festuca rubra	Red Fescue	LO
Geum urbanum	Wood Avens	R
Glechoma hederacea	Ground Ivy	R
Hedera helix	Ivy	R
Pleurozium schreberi	Red-stemmed Feather-moss	O
Rubus fruticosus agg.	Bramble	LD
Urtica dioica	Stinging Nettle	F

Grassland Paths:

Species Name	Common Name	Abundance
Agrostis stolonifera	Creeping Bent	O
Chamaenerion angustifolium	Rosebay Willowherb	LA
Deschampsia flexuosa	Wavy Hair Grass	LF
Dipsacus fullonum	Wild Teasel	R
Festuca rubra	Red Fescue	F
Geranium pyrenaicum	Hedgerow Cranesbill	R
Glechoma hederacea	Ground Ivy	R
Holcus lanatus	Yorkshire Fog	O/LF
Plantago major	Greater Plantain	R
Pleurozium schreberi	Red-stemmed Feather-moss	O
Primula vulgaris	Primrose	R
Ranunculus acris	Meadow Buttercup	R
Rumex obtusifolius	Broad-leaved Dock	R
Senecio vulgaris	Groundsel	R
Trifolium sp.	Clover	LF
Urtica dioica	Stinging Nettle	R

Target Note 20

Small area of unmanaged ruderal and non-ruderal vegetation around a disused access from the layby on the A40 to the south.

Ruderal Vegetation:

Species Name	Common Name	Abundance
Chamaenerion angustifolium	Rosebay Willowherb	F/LD
Cirsium vulgare	Spear Thistle	R
Deschampsia cespitosa	Tufted Hair Grass	R/LO

Species Name	Common Name	Abundance
Dipsacus fullonum	Wild Teasel	R
Fraxinus excelsior	Ash	R
Geranium pyrenaicum	Hedgerow Cranesbill	O/LF
Heracleum sphondylium	Hogweed	O
Holcus lanatus	Yorkshire Fog	F
Hypericum sp.	St John's Wort	R
Lactuca serriola	Prickly Lettuce	R
Plantago major	Greater Plantain	O/LF
Pleurozium schreberi	Red-stemmed Feather-moss	O/LA
Poa sp	Meadow Grass	O
Potentilla reptans	Creeping Cinquefoil	R/LA
Rubus fruticosus agg.	Bramble	A
Rumex acetosa	Common Sorrel	O
Rumex obtusifolius	Broad-leaved Dock	F
Taraxacum officinalis	Dandelion	R
Trifolium sp.	Clover	F
Urtica dioica	Stinging Nettle	A
Verbascum sp.	Mullein	R

Non-ruderal Vegetation:

Species Name	Common Name	Abundance
(Fuligo septica)	Slime Mould	R
Agrostis stolonifera	Creeping Bent	R
Chamaenerion angustifolium	Rosebay Willowherb	LO
Cirsium vulgare	Spear Thistle	R/LD
Dactylis glomerata	Cocksfoot	R/LO
Dipsacus fullonum	Wild Teasel	R/LO
Festuca rubra	Red Fescue	LO
Geranium pyrenaicum	Hedgerow Cranesbill	O
Geranium robertianum	Herb Robert	R
Heracleum sphondylium	Hogweed	F
Hieracium sp.	Hawkweed	R
Holcus lanatus	Yorkshire Fog	R
Lactuca serriola	Prickly Lettuce	O
Pleurozium schreberi	Red-stemmed Feather-moss	LD
Potentilla reptans	Creeping Cinquefoil	LD
Ranunculus acris	Meadow Buttercup	R
Rubus fruticosus agg.	Bramble	O
Rumex crispus	Curled Dock	R
Rumex obtusifolius	Broad-leaved Dock	R/LD
Senecio vulgaris	Groundsel	R
Urtica dioica	Stinging Nettle	R/LF
Verbascum sp.	Mullein	R

Target Note 21

Large area of mosaic habitats across old motor-cross and off-road vehicle tracks and ramps with a mix of ruderal, non-ruderal and grassland habitats and aquatic and semi-aquatic vegetation along ditches and in wetter areas.

Species Name	Common Name	Abundance
Agrostis stolonifera	Creeping Bent	R/LF
Chamaenerion angustifolium	Rosebay Willowherb	R
Cirsium sp.	Thistle	R/LA
Dactylis glomerata	Cocksfoot	O
Dipsacus fullonum	Wild Teasel	O/LF
Festuca rubra	Red Fescue	D
Hieracium sp.	Hawkweed	R/O
Holcus lanatus	Yorkshire Fog	O
Hypericum sp.	St John's Wort	R
Juncus effusus	Soft Rush	LF
Lactuca serriola	Prickly Lettuce	O/LF
Leucanthemum vulgare	Ox-eye Daisy	R
Lotus corniculatus	Common Birdsfoot Trefoil	R/LO
Phleum pratense	Timothy	R
Plantago major	Greater Plantain	R
Pleurozium schreberi	Red-stemmed Feather-moss	R/LF
Poa trivialis	Rough Meadow Grass	F
Prunus spinosa	Blackthorn	R
Ranunculus acris	Meadow Buttercup	O
Rubus fruticosus agg.	Bramble	R/LF
Rumex crispus	Curled Dock	LO
Rumex obtusifolius	Broad-leaved Dock	R/LA
Salix caprea	Goat Willow	R
Trifolium sp	Clover	O
Tussilago farfara	Coltsfoot	R
Typha latifolia	Bulrush	LD

Target Note 22

Large pond to the south west corner of the disused motor-cross area with dense Bulrush (*Typha latifolia*) and Pondweed (*Potamogeton sp.*).

Species Name	Common Name	Abundance
Juncus effusus	Soft Rush	R
Potamogeton sp.	Pondweed	O
Rubus fruticosus agg.	Bramble	LD
Salix caprea	Goat Willow	R
Typha latifolia	Bulrush	D

This pond has been assessed as having excellent suitability for GCN, as shown below.

Habitat Suitability Index	Pond 1		
		Field Score	SI value
SI1. Map location	**A/B/C**	A	1
SI2. Surface area	**rectangle/ellipse/irregular**		
	length (m)		
	width (m)		
	OR estimate (m2) if irregular		
	area (m2) =	*1467*	0.85
SI3. Dessication rate	**never/rarely/sometimes/frequently**	Never	0.9
SI4. Water quality	**good/moderate/poor/bad**	moderate	0.67
SI5. Shade	% of margin shaded 1m from bank	30	1
SI6. Waterfowl	**absent/minor/major**	minor	0.67
SI7. Fish population	**absent/possible/minor/major**	Absent	1
SI8. Pond density	Ponds/km^2	6	1
SI9. Terrestrial habitat	**good/moderate/poor/none**	Poor/mod	0.5
SI10. Macrophyte cover	%	90	0.9
***Note** : Guidance in undertaking the HSI is available at www.narrs.org.uk.*		**HSI score =**	**0.83**
HSI calculation formulae adapted from Rob Oldham		**Pond suitability =**	**Excellent**

Target Note 23

Wide broad-leaved plantation woodland along the south western boundary of the Garden Village site dominated by Crack Willow with a dense Bramble, Hawthorn and Blackthorn understorey.

Species Name	Common Name	Abundance
Canopy		
Crataegus monogyna	Hawthorn	O
Fraxinus excelsior	Ash	O
Malus sylvestris	Crab Apple	R
Quercus robur	Common Oak	R
Salix fragilis	Crack Willow	D
Understorey		
Cirsium vulgare	Spear Thistle	R
Convolvulus arvensis	Field Bindweed	O
Crataegus monogyna	Hawthorn	F
Prunus spinosa	Blackthorn	O
Rubus fruticosus agg.	Bramble	D
Urtica dioica	Stinging Nettle	F

West Eynsham SDA

Target Note 24

Arable fields to the north western section of the West Eynsham site, harvested to winter stubble with areas of natural vegetation encroachment, including one arable wildflower species Corn Spurry (*Spergula arvensis*) and a tall sward across the southern section.

Northern half:

Species Name	Common Name	Abundance
Achillea millefolium	Yarrow	F/LA
Bellis perennis	Daisy	R
Centaurea nigra	Common Knapweed	R/LF
Festuca rubra	Red Fescue	F
Holcus lanatus	Yorkshire Fog	R
Phleum pratense	Timothy	R
Plantago lanceolata	Ribwort Plantain	R
Potentilla erecta	Tormentil	R
Senecio vulgaris	Groundsel	R
Spergula arvensis	Corn Spurry	A
Trifolium sp.	Clover	R/LO

Southern section:

Species Name	Common Name	Abundance
Arrhenatherum elatius	False Oat Grass	A
Centaurea nigra	Common Knapweed	F
Cynosurus cristatus	Crested Dogstail	R
Juncus acutiflorus	Sharp-flowered Rush	O
Phleum pratense	Timothy	R
Phragmites australis	Common Reed	vLF
Plantago lanceolata	Ribwort Plantain	O
Rumex obtusifolius	Broad-leaved Dock	O
Sonchus sp.	Sow-thistle	F

Target Note 25

Dense scrub with semi-mature and mature trees and grassland vegetation along the banks of the watercourse running along the western boundary of the West Eynsham site. Four areas of inundation vegetation consisting of dense Common Reed were recorded although the stream itself was running shallow at the time of survey.

Species Name	Common Name	Abundance
Alnus glutinosa	Alder	R/LO
Centaurea nigra	Common Knapweed	R/LO
Cirsium vulgare	Spear Thistle	R
Cornus sanguinea	Dogwood	R
Crataegus monogyna	Hawthorn	A
Dactylis glomerata	Cocksfoot	R/LF
Dipsacus fullonum	Wild Teasel	R
Fraxinus excelsior	Ash	R
Galium aparine	Cleavers	R
Heracleum sphondylium	Hogweed	R
Iris pseudacorus	Yellow Flag Iris	R/LF

Species Name	Common Name	Abundance
Oenanthe crocata	Hemlock Water Dropwort	R/LF
Phragmites australis	Common Reed	R/LD
Prunus spinosa	Blackthorn	O
Quercus robur	Common Oak	R
Rosa arvensis	Field Rose	R
Rubus fruticosus agg.	Bramble	D
Urtica dioica	Stinging Nettle	F

Target Note 26

Arable field margin consisting of taller vegetation consisting of False Oat Grass (*Arrhenatherum elatius*), Common Knapweed (*Centaurea nigra*) and Sow-thistle (*Sonchus* sp).

Species Name	Common Name	Abundance
Arrhenatherum elatius	False Oat Grass	A
Centaurea nigra	Common Knapweed	F
Cynosurus cristatus	Crested Dogstail	R
Juncus acutiflorus	Sharp-flowered Rush	O
Phleum pratense	Timothy	R
Plantago lanceolata	Ribwort Plantain	O
Rumex obtusifolius	Broad-leaved Dock	O
Sonchus sp.	Sow-thistle	F

Target Note 27

Large arable field within the West Eynsham site turned over to winter stubble with some natural vegetation encroachment including Corn Spurry. Approximately 25 beehives were noted to the western field boundary.

Species Name	Common Name	Abundance
Achillea millefolium	Yarrow	F/LA
Arrhenatherum elatius	False Oat Grass	A
Bellis perennis	Daisy	R
Centaurea nigra	Common Knapweed	F
Cynosurus cristatus	Crested Dogstail	R
Festuca rubra	Red Fescue	F
Holcus lanatus	Yorkshire Fog	R
Juncus acutiflorus	Sharp-flowered Rush	O
Leucanthemum vulgare	Ox-eye Daisy	R
Phleum pratense	Timothy	R
Phragmites australis	Common Reed	vLF
Plantago lanceolata	Ribwort Plantain	O
Potentilla erecta	Tormentil	R
Rumex obtusifolius	Broad-leaved Dock	O
Senecio vulgaris	Groundsel	R
Sonchus sp.	Sow-thistle	F
Spergula arvensis	Corn Spurry	A
Trifolium sp.	Clover	R/LO

Target Note 28

Area of semi-natural broad-leaved woodland and dense scrub to the north eastern corner of the West Eynsham site, located behind residential areas. A full survey of these areas was not possible due to the density of the understorey vegetation and lack of pathways through. Standing and fallen dead wood noted along with a ruined stone wall/rubble along the accessible boundary between the woodland and scrub areas.

Semi-natural Broad-leaved Woodland:

Species Name	Common Name	Abundance
Canopy		
Crataegus monogyna	Hawthorn	F
Fraxinus excelsior	Ash	R
Hedera helix	Ivy	LA
Prunus spinosa	Blackthorn	F
Sambucus nigra	Elder	R
Understorey		
Galium aparine	Cleavers	R
Pleurozium schreberi	Red-stemmed Feather-moss	O
Rubus fruticosus agg.	Bramble	F
Urtica dioica	Stinging Nettle	A

Dense scrub:

Species Name	Common Name	Abundance
Crataegus monogyna	Hawthorn	F
Petasites sp.	Petasites	R/LF
Pleurozium schreberi	Red-stemmed Feather-moss	F
Rosa arvensis	Field Rose	R
Salix fragilis	Crack Willow	F
Urtica dioica	Stinging Nettle	A

Target Note 29

Semi-natural broad-leaved woodland along a small watercourse, which was partially wet at the time of survey. The woodland itself is of mixed age with signs of natural regeneration and self-seeding.

Species Name	Common Name	Abundance
Canopy		
Crataegus monogyna	Hawthorn	F
Hedera helix	Ivy	LF
Salix caprea	Goat Willow	O
Salix fragilis	Crack Willow	D
Understorey		
Cirsium vulgare	Spear Thistle	R
Convolvulus arvensis	Field Bindweed	O
Dactylis glomerata	Cocksfoot	R
Geranium robertianum	Herb Robert	O
Geum urbanum	Wood Avens	R

Species Name	Common Name	Abundance
Hedera helix	Ivy	O
Rubus fruticosus agg.	Bramble	F
Rumex obtusifolius	Broad-leaved Dock	O
Urtica dioica	Stinging Nettle	A
Veronica chamaedrys	Germander Speedwell	R/LF

Target Note 30

Large area of unmanaged semi-improved neutral grassland to the southern section of the West Eynsham site consisting of a very tall sward with scrub encroachment along all boundaries. A triple line of fencing was noted through the middle of the area with scattered Hawthorn along and within.

Species Name	Common Name	Abundance
Achillea millefolium	Yarrow	R
Arrhenatherum elatius	False Oat Grass	R
Centaurea nigra	Common Knapweed	R
Cirsium vulgare	Spear Thistle	R
Crataegus monogyna	Hawthorn	R
Dactylis glomerata	Cocksfoot	CD
Filipendula ulmaria	Meadowsweet	R/LO
Heracleum sphondylium	Hogweed	R
Holcus lanatus	Yorkshire Fog	F
Phleum pratense	Timothy	R
Plantago lanceolata	Ribwort Plantain	O
Plantago major	Greater Plantain	R
Poa trivialis	Rough Meadow Grass	CD
Prunus spinosa	Blackthorn	R
Ranunculus acris	Meadow Buttercup	O
Rubus fruticosus agg.	Bramble	O
Rumex acetosa	Common Sorrel	R
Rumex obtusifolius	Broad-leaved Dock	R
Sonchus sp.	Sow-thistle	R
Spergula arvensis	Corn Spurry	O
Trifolium sp.	Clover	O
Urtica dioica	Stinging Nettle	O

Target Note 31

Broad-leaved plantation woodland to the south eastern section of the West Eynsham site between areas of unmanaged grassland. A small dry ditch runs through the boundary woodland and an area of Rosebay Willowherb (*Chamaenerion angustifolium*) dominated ruderal vegetation was noted along the western side of this boundary.

Plantation Woodland:

Species Name	Common Name	Abundance
Canopy		
Crataegus monogyna	Hawthorn	F
Hedera helix	Ivy	O/LA

Species Name	Common Name	Abundance
Salix fragilis	Crack Willow	D
Understorey		
Geranium robertianum	Herb Robert	R
Geum urbanum	Wood Avens	O
Heracleum sphondylium	Hogweed	R
Phragmites australis	Common Reed	R
Rubus fruticosus agg.	Bramble	F
Urtica dioica	Stinging Nettle	F

Ruderal Vegetation:

Species Name	Common Name	Abundance
Chamaenerion angustifolium	Rosebay Willowherb	D
Cirsium vulgare	Spear Thistle	O
Dactylis glomerata	Cocksfoot	O
Holcus lanatus	Yorkshire Fog	O
Lamium sp.	Dead-nettle	R
Phragmites australis	Common Reed	F
Urtica dioica	Stinging Nettle	F

Target Note 32

Semi-mature broad-leaved planation woodland boundary located to the eastern section of the West Eynsham site, dominated by Hawthorn with a small number of mature trees. Some gaps were noted in places with encroachment into the adjacent grassland areas noted in others.

Species Name	Common Name	Abundance
Crataegus monogyna	Hawthorn	D
Fraxinus excelsior	Ash	R
Hedera helix	Ivy	O/LA
Prunus spinosa	Blackthorn	F
Rubus fruticosus agg.	Bramble	F
Salix fragilis	Crack Willow	R
Urtica dioica	Stinging Nettle	LA

Target Note 33

Semi-mature broad-leaved planation woodland boundary located to the eastern section of the West Eynsham site, dominated by Hawthorn with a small number of mature trees, similar to Target Note 32 without the gaps although areas of encroachment were again recorded.

Species Name	Common Name	Abundance
Crataegus monogyna	Hawthorn	D
Fraxinus excelsior	Ash	R
Hedera helix	Ivy	O/LA
Prunus spinosa	Blackthorn	F
Rubus fruticosus agg.	Bramble	F
Urtica dioica	Stinging Nettle	LA

Target Note 34

Area of unmanaged semi-improved neutral grassland to the southern boundary of the West Eynsham site that consists of a very tall sward with scrub and ruderal vegetation encroaching. A public footpath runs along the southern field edge with a fence separating this from the rest of the field area.

Species Name	Common Name	Abundance
Achillea millefolium	Yarrow	R
Arrhenatherum elatius	False Oat Grass	R
Centaurea nigra	Common Knapweed	R
Cirsium vulgare	Spear Thistle	R
Crataegus monogyna	Hawthorn	R
Dactylis glomerata	Cocksfoot	CD
Filipendula ulmaria	Meadowsweet	R/LO
Heracleum sphondylium	Hogweed	R
Holcus lanatus	Yorkshire Fog	F
Phleum pratense	Timothy	R
Plantago lanceolata	Ribwort Plantain	O
Plantago major	Greater Plantain	R
Poa trivialis	Rough Meadow Grass	CD
Prunus spinosa	Blackthorn	R
Ranunculus acris	Meadow Buttercup	O
Rubus fruticosus agg.	Bramble	O
Rumex acetosa	Common Sorrel	R
Rumex obtusifolius	Broad-leaved Dock	R
Sonchus sp.	Sow-thistle	R
Spergula arvensis	Corn Spurry	O
Trifolium sp.	Clover	O
Urtica dioica	Stinging Nettle	O

Target Note 35

Small watercourse running through the centre of the grassland area to the south eastern corner of the West Eynsham area, running at the time of survey with vegetated banks consisting of abundant Common Reed, occasional Meadowsweet (*Filipendula ulmaria*) and rare Stinging Nettle, Hawthorn and Field Madder (*Sherardia arvensis*).

Target Note 36

Area of unmanaged semi-improved neutral grassland to the south eastern corner of the West Eynsham site to the north of the watercourse detailed in Target Note 35. This area has a tall, rank sward with piles of dead wood to the south western corner, a small area of Ash saplings within the eastern section and a large dense patch of Bulrush to the north western half.

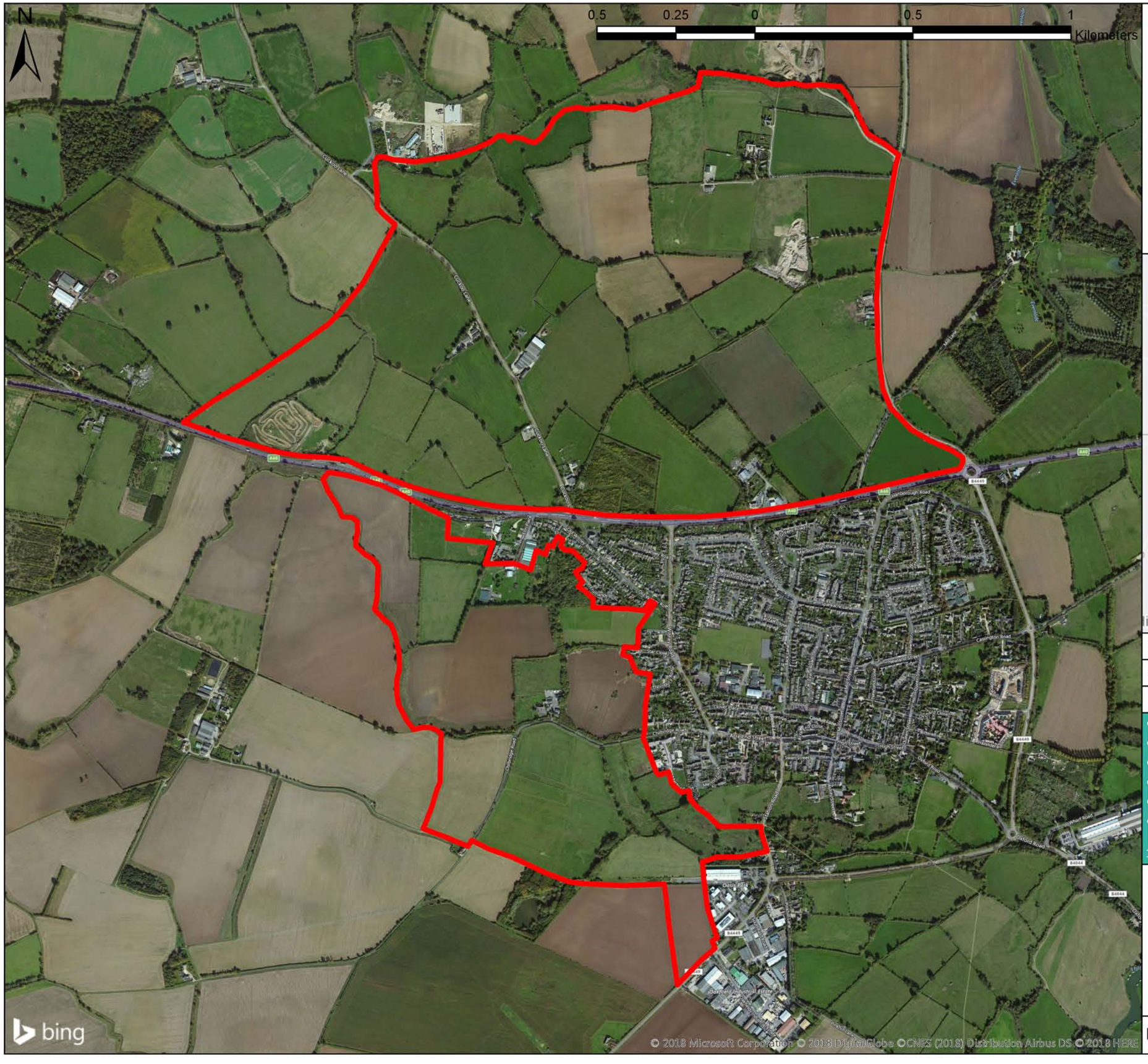
Species Name	Common Name	Abundance
Centaurea nigra	Common Knapweed	R
Cirsium vulgare	Spear Thistle	R/LO
Crataegus monogyna	Hawthorn	R
Dactylis glomerata	Cocksfoot	A
Deschampsia flexuosa	Wavy Hair Grass	O/LF

Species Name	Common Name	Abundance
Filipendula ulmaria	Meadowsweet	A/LD
Fraxinus excelsior	Ash	R/LA
Galium aparine	Cleavers	F
Glechoma hederacea	Ground Ivy	R
Holcus lanatus	Yorkshire Fog	O
Juncus acutiflorus	Sharp-flowered Rush	R/LF
Prunus spinosa	Blackthorn	R
Ranunculus acris	Meadow Buttercup	R
Rubus fruticosus agg.	Bramble	O/LA
Rumex acetosa	Common Sorrel	R
Sherardia arvensis	Field Madder	F/LA
Sonchus sp	Sow-thistle	R
Spergula arvensis	Corn Spurry	O
Stellaria media	Common Chickweed	R
Typha latifolia	Bulrush	R/LD
Urtica dioica	Stinging Nettle	F/LA
Veronica sp.	Speedwell	R/LO

FIGURES

FIGURE 1.0

Site Location



Site Boundary

V.	S.	Date	Description	B.	C.	A.
P2	FI	14/12/2018	Final	TW	SS	PMc
P1	S0	15/11/18	WIP	TW		

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- Landscape Architects
- Landscape Managers
- Urban Designers
- Ecologists

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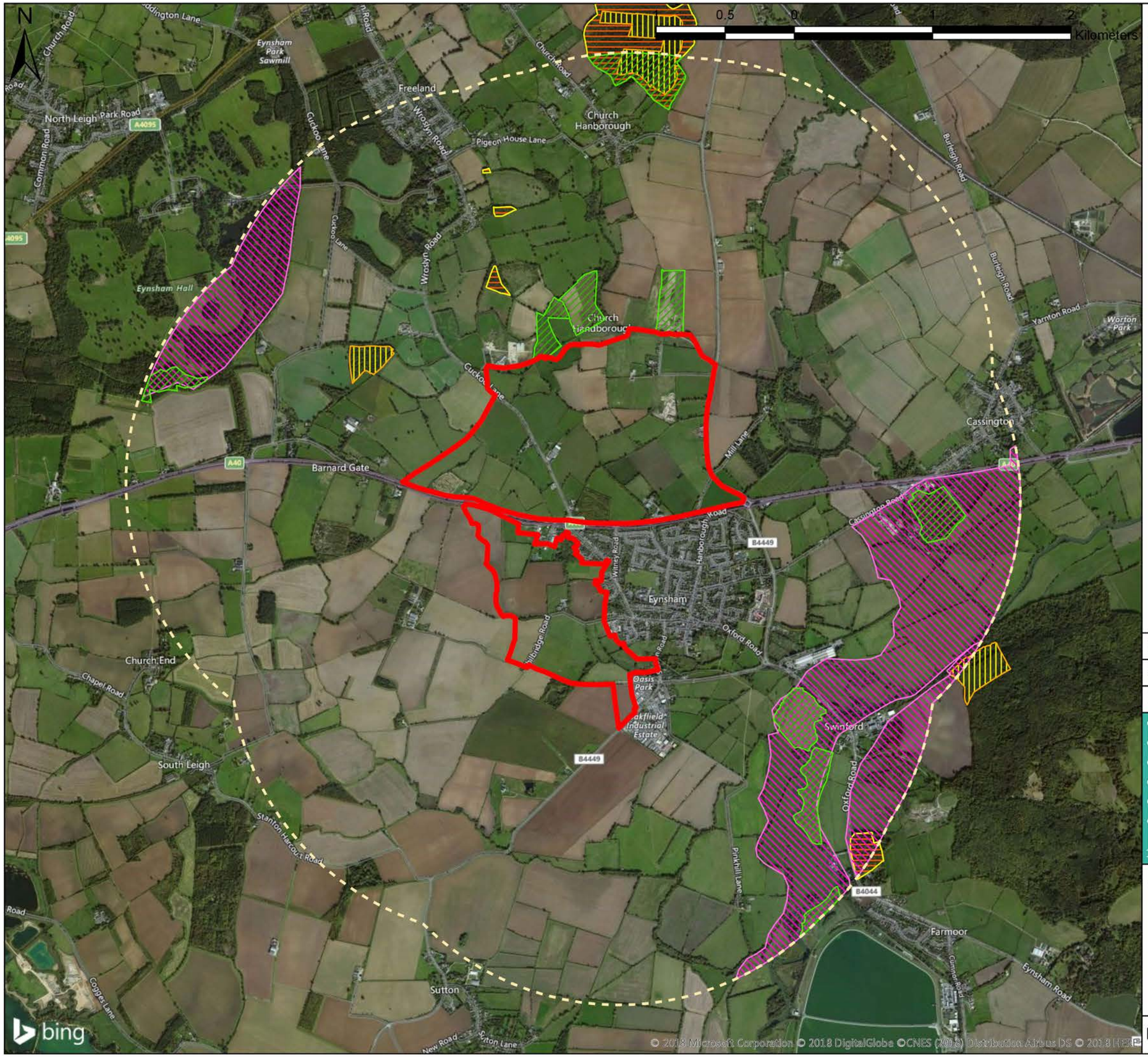
Figure 1 - Location Plan

Drawing no.:	2282_DWG_LocationPlan

FIGURES 2.0

Locally Designated Sites



V.	S.	Date	Description	B.	C.	A.
P2	FI	13/12/18	Final	TW	SS	PMc
P1	S0	15/11/18	WIP	TW		

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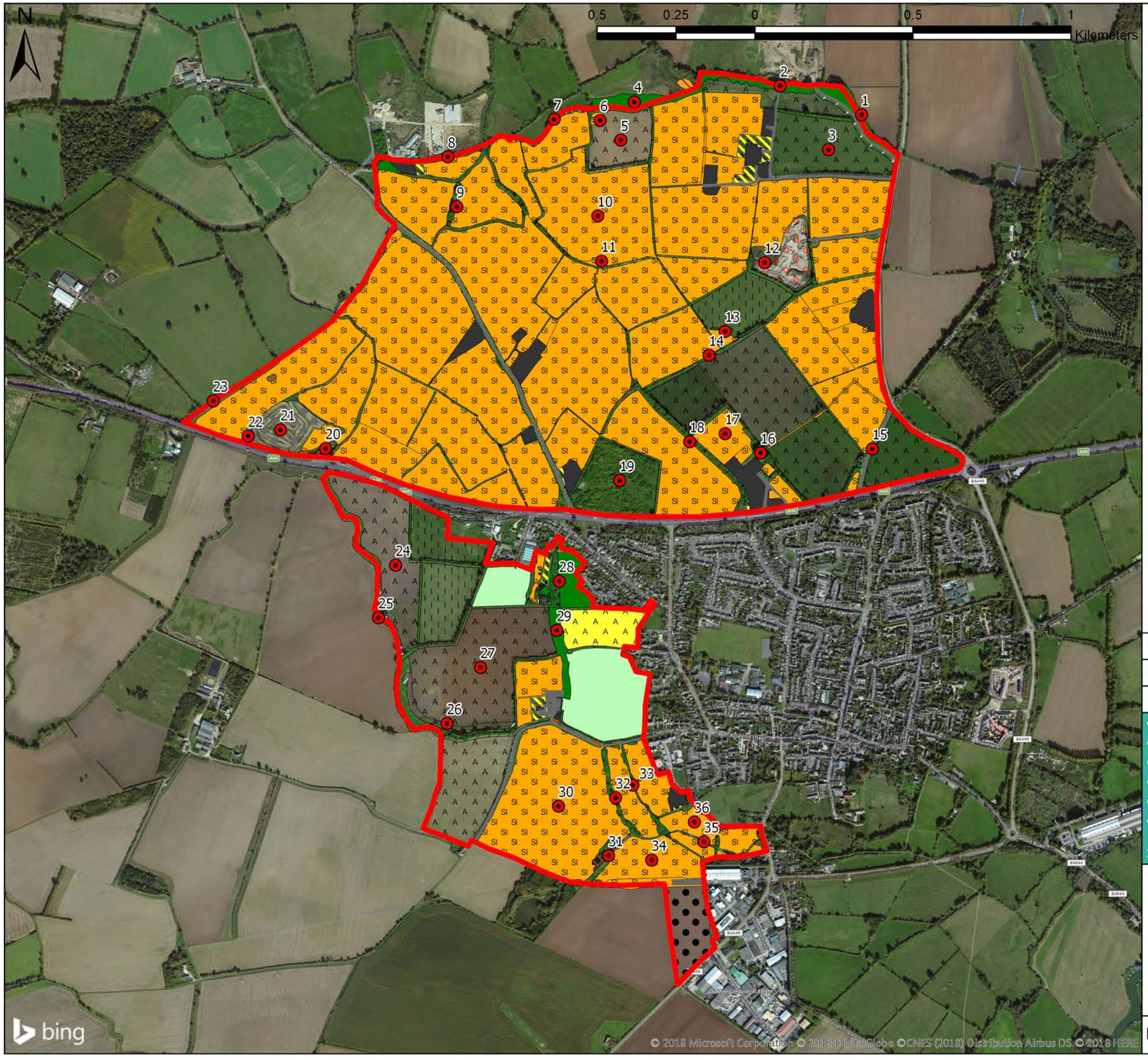
Figure 2 - Local Sites

Drawing no.: 2282_DWG_LocalSites

FIGURE 3.0A – 3.0D

Phase 1 Habitat Survey



- Target Notes
- Site Boundary

Habitat

- A1.1.1 - Broadleaved woodland - semi-natural
- A1.1.2 - Broadleaved woodland - plantation
- A1.3.2 - Mixed woodland - plantation
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- A3.3 - Mixed Parkland/scattered trees
- B2.2 - Neutral grassland - semi-improved
- B4 - Improved grassland
- B5 - Marsh/marshy grassland
- C3.1 - Other tall herb and fern - ruderal
- C3.2 - Other tall herb and fern - non ruderal
- F2.2 - Marginal and inundation - inundation vegetation
- G1 - Standing water
- G2 - Running water
- I2.1 - Quarry
- J1.1 - Cultivated/disturbed land - arable
- J1.2 - Cultivated/disturbed land - amenity grassland
- J1.5 (Gardens)
- J3.6 - Buildings
- J3.7 (Track)
- J4 - Bare ground
- J5 (Mosaic)
- NA - Not accessed land

P2	FI	14/12/2018	Final	TW	SS	PMc
P1	S0	15/11/18	WIP	TW		
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

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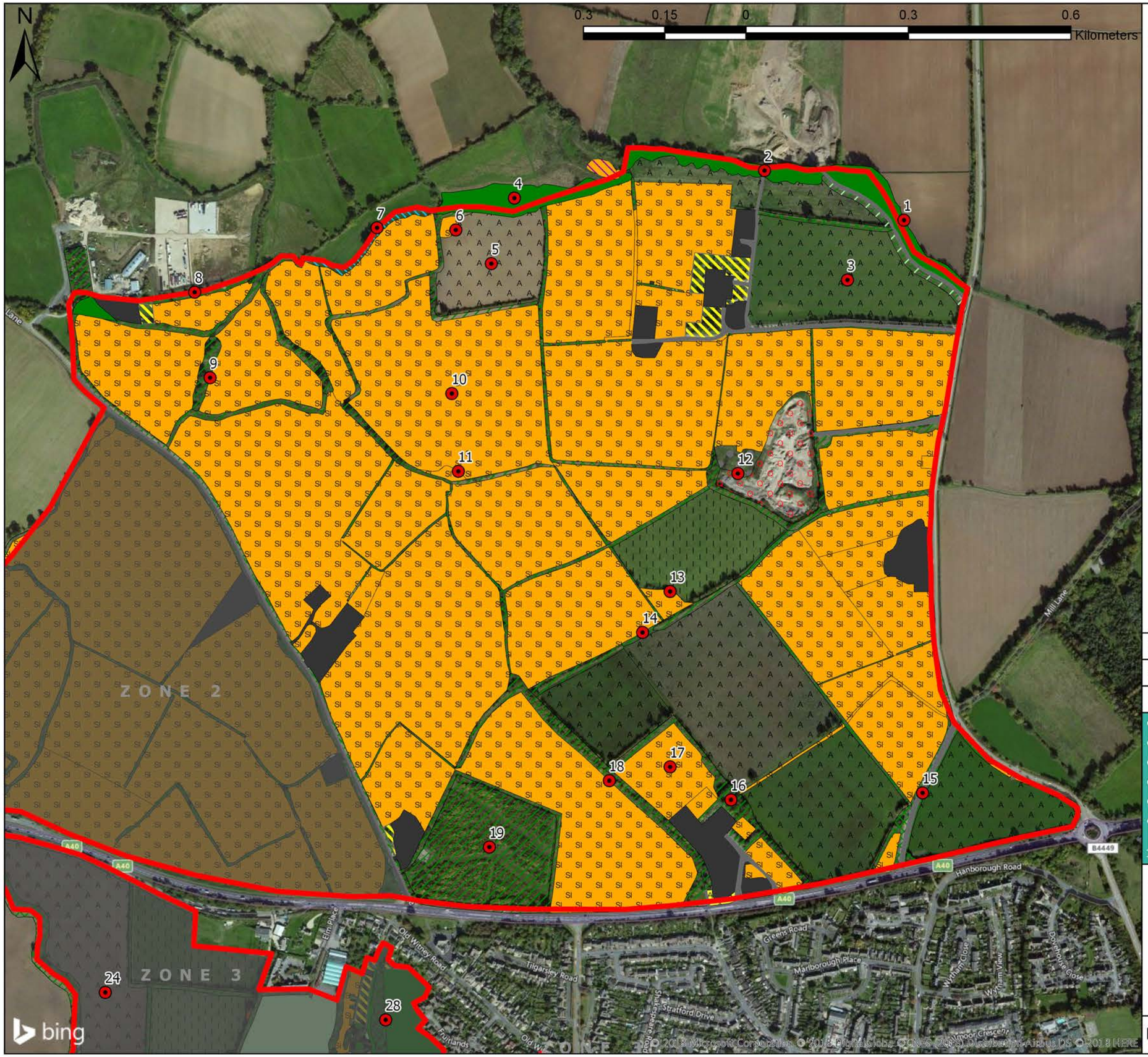
Figure 3A - Habitat Survey

Drawing no.:	2282_DWG_HabitatSurveyA



- Target Notes
- Site Boundary

Habitat Survey

Habitat

- A1.1.1 - Broadleaved woodland - semi-natural
- A1.1.2 - Broadleaved woodland - plantation
- A1.3.2 - Mixed woodland - plantation
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- B2.2 - Neutral grassland - semi-improved
- B4 - Improved grassland
- I2.1 - Quarry
- J1.1 - Cultivated/disturbed land - arable
- J1.2 - Cultivated/disturbed land - amenity grassland
- J1.5 (Gardens)
- J3.6 - Buildings
- J3.7 (Track)
- J5 (Mosaic)

V.	S.	Date	Description	B.	C.	A.
P2	FI	14/12/2018	Final	TW	SS	PMc
P1	S0	15/11/18	WIP	TW		

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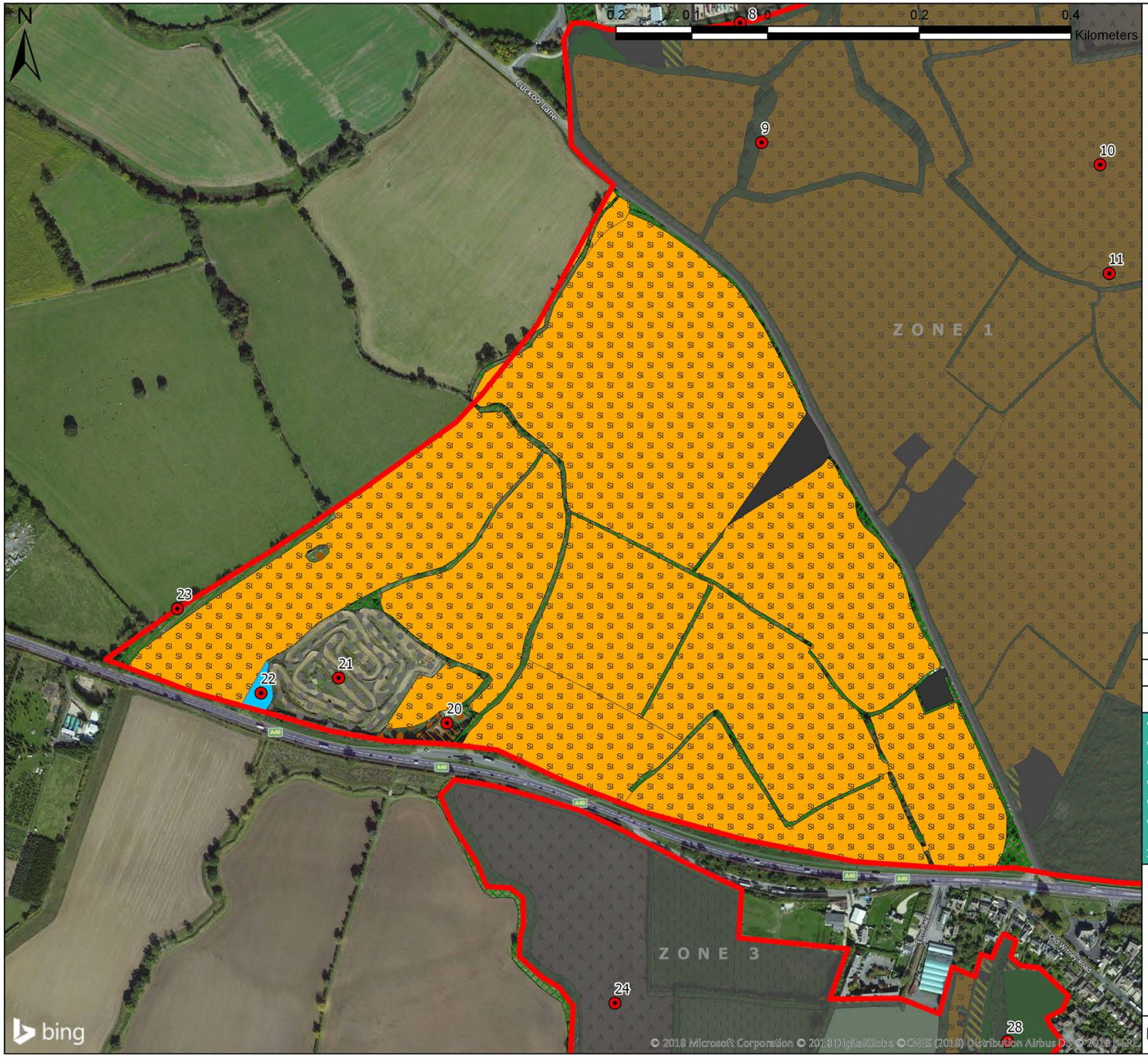
Figure 3B - Habitat Survey (Zone 1)

Drawing no.:	2282_DWG_HabitatSurveyB



- Target Notes
- Site Boundary

Habitat Survey

Habitat

- A1.1.2 - Broadleaved woodland - plantation
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- B2.2 - Neutral grassland - semi-improved
- C3.1 - Other tall herb and fern - ruderal
- C3.2 - Other tall herb and fern - non ruderal
- G1 - Standing water
- J1.5 (Gardens)
- J3.6 - Buildings
- J3.7 (Track)
- J5 (Mosaic)

V.	S.	Date	Description	B.	C.	A.
P2	FI	14/12/2018	Final	TW	SS	PMc
P1	S0	15/11/18	WIP	TW		

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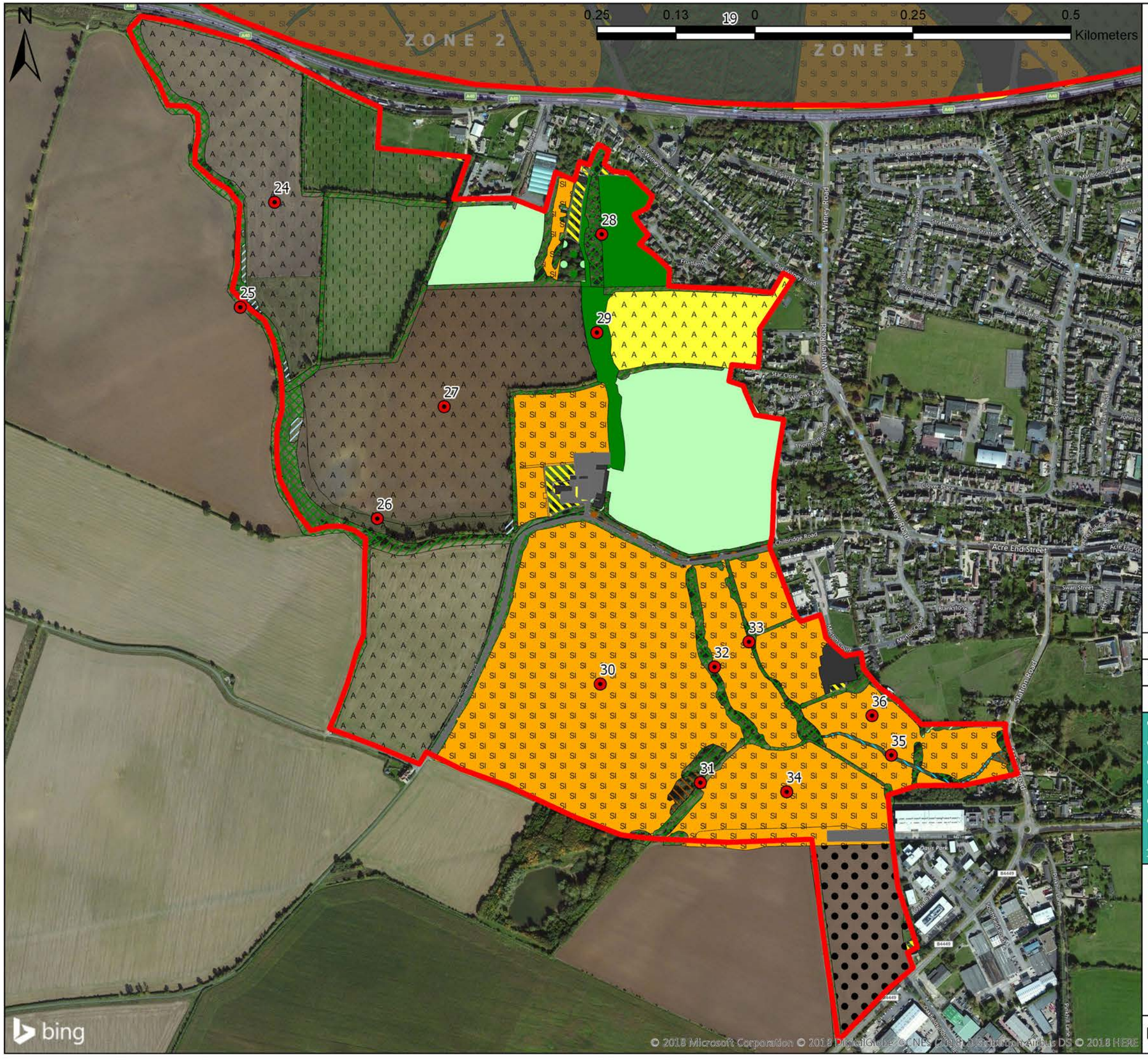
Figure 3C - Habitat Survey (Zone 2)

Drawing no.:	2282_DWG_HabitatSurveyC



Target Notes

Site Boundary

Habitat Survey

Habitat

- A1.1.1 - Broadleaved woodland - semi-natural
- A1.1.2 - Broadleaved woodland - plantation
- A1.3.2 - Mixed woodland - plantation
- A2.1 - Scrub - dense/continuous
- A3.3 - Mixed Parkland/scattered trees
- B2.2 - Neutral grassland - semi-improved
- B4 - Improved grassland
- C3.1 - Other tall herb and fern - ruderal
- C3.2 - Other tall herb and fern - non ruderal
- F2.2 - Marginal and inundation - inundation vegetation
- G2 - Running water
- J1.1 - Cultivated/disturbed land - arable
- J1.2 - Cultivated/disturbed land - amenity grassland
- J1.5 (Gardens)
- J3.6 - Buildings
- J3.7 (Track)
- J4 - Bare ground
- NA - Not accessed land

V.	S.	Date	Description	B.	C.	A.
P2	FI	14/12/2018	Final	TW	SS	PMc
P1	S0	15/11/18	WIP	TW		

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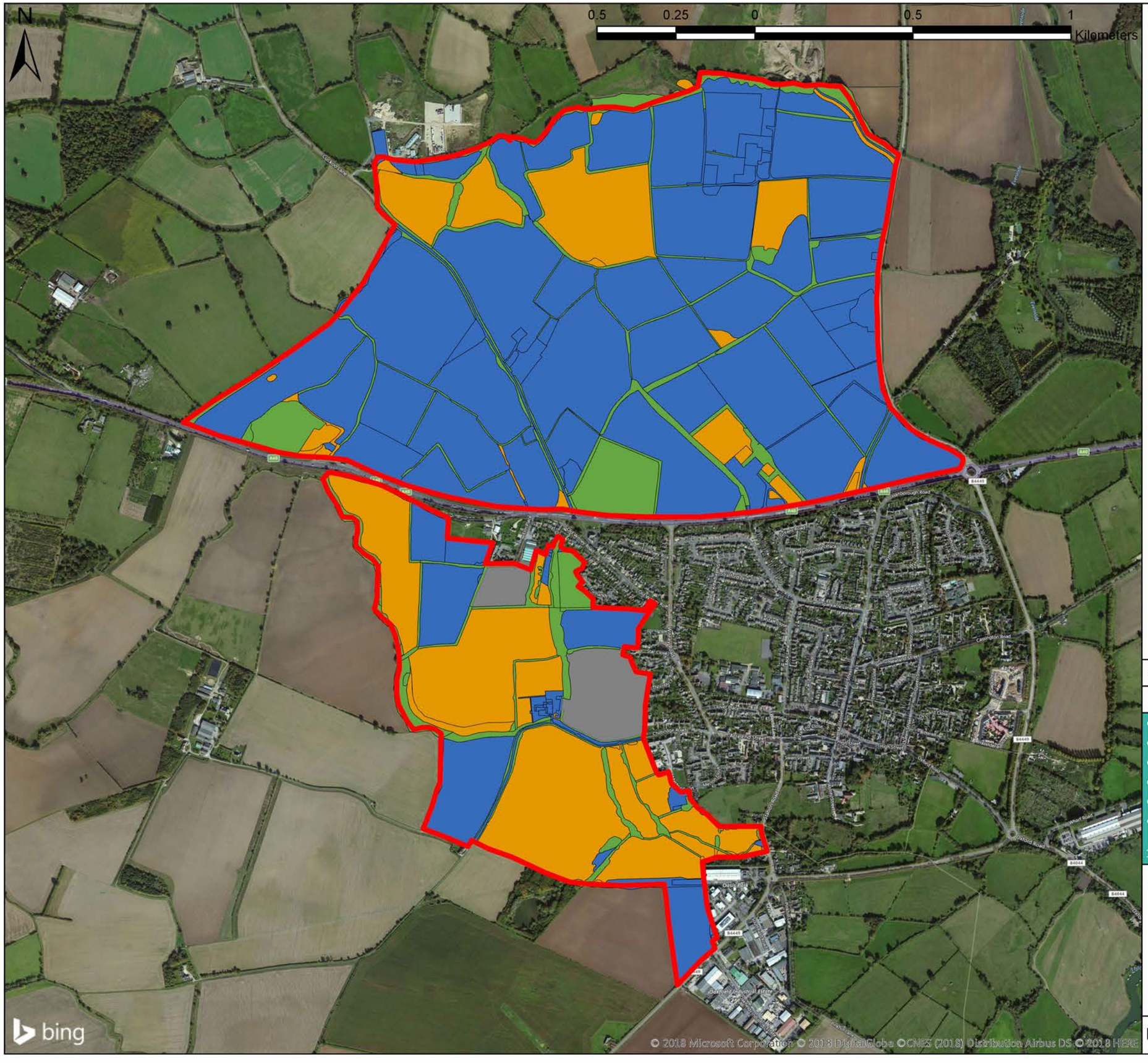
Figure 3D - Habitat Survey (Zone 3)

Drawing no.: 2282_DWG_HabitatSurveyD

FIGURE 4.0A – 4.0D

Key Ecological Features



P1	FI	14/12/18	Final	TW	SS	PMc
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

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Figure 4A - Key Ecological Features

Drawing no.:	2282_DWG_KeyEcoFeaturesA

N

0.3 0.15 0 0.3 0.6
Kilometers

Site Boundary

Ecological Feature?

- no
- potential
- yes
- other

ZONE 2

ZONE 3

A40

B4449

Hanborough Road

Mill Lane

Elm Place

Old Witney Road

Tilgarsley Road

Greens Road

Marlborough Place

Wyndham Close

Wyndham View

Dovehouse Close

Shakespeare Road

Stratford Drive

Linnor Crescent

Purlands

bing

V.	S.	Date	Description	B.	C.	A.
P1	FI	14/12/18	Final	TW	SS	PMc

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Figure 4B - Key Ecological Features (Zone 1)

Drawing no.:	2282_DWG_KeyEcoFeaturesB

Site Boundary

Ecological Feature?

- no
- potential
- yes
- other

V.	S.	Date	Description	B.	C.	A.
P1	FI	14/12/18	Final	TW	SS	PMc

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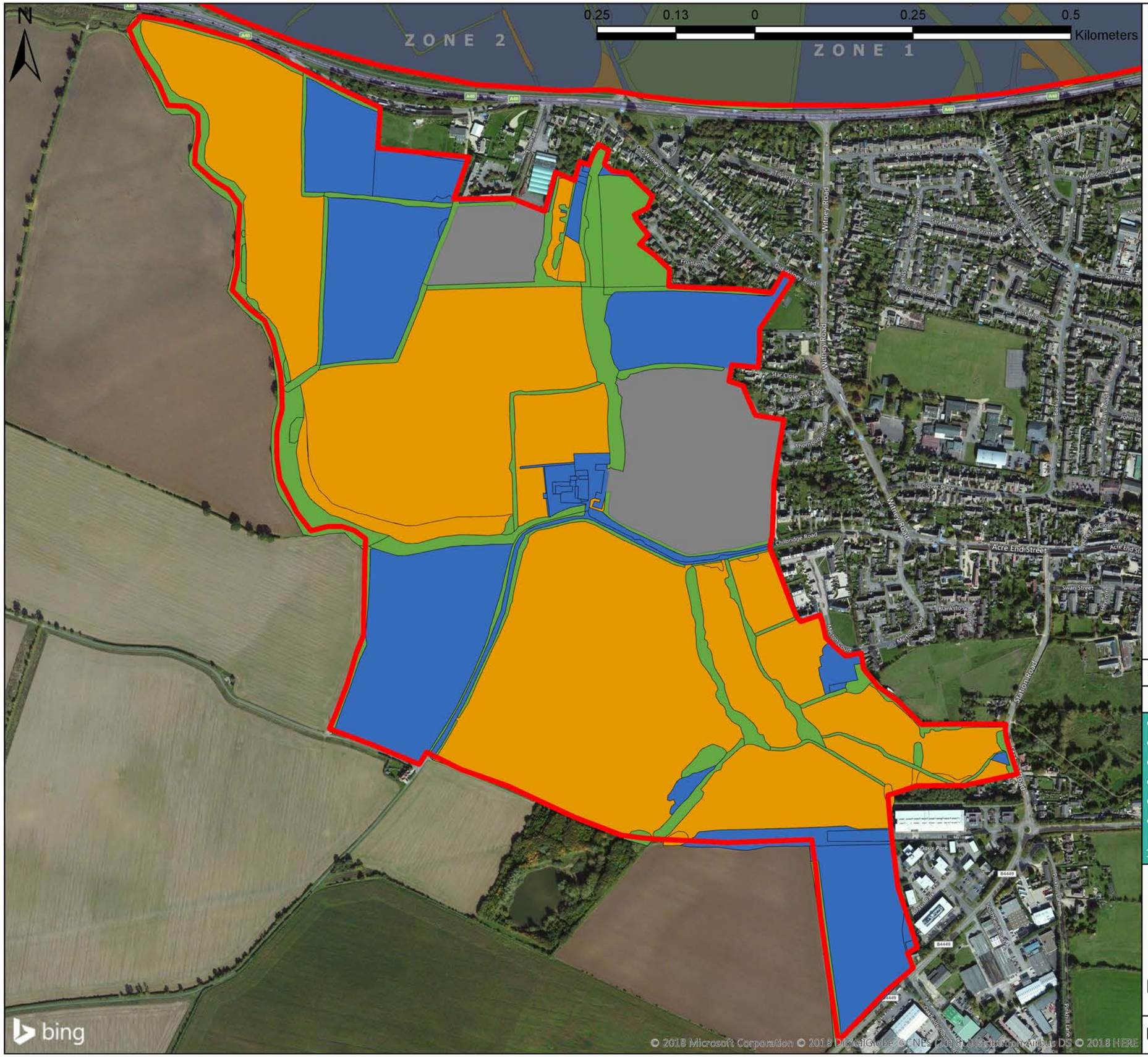
Figure 4C - Key Ecological Features (Zone 2)

Drawing no.:	2282_DWG_KeyEcoFeaturesC



P1	FI	14/12/18	Final	TW	SS	PMc
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

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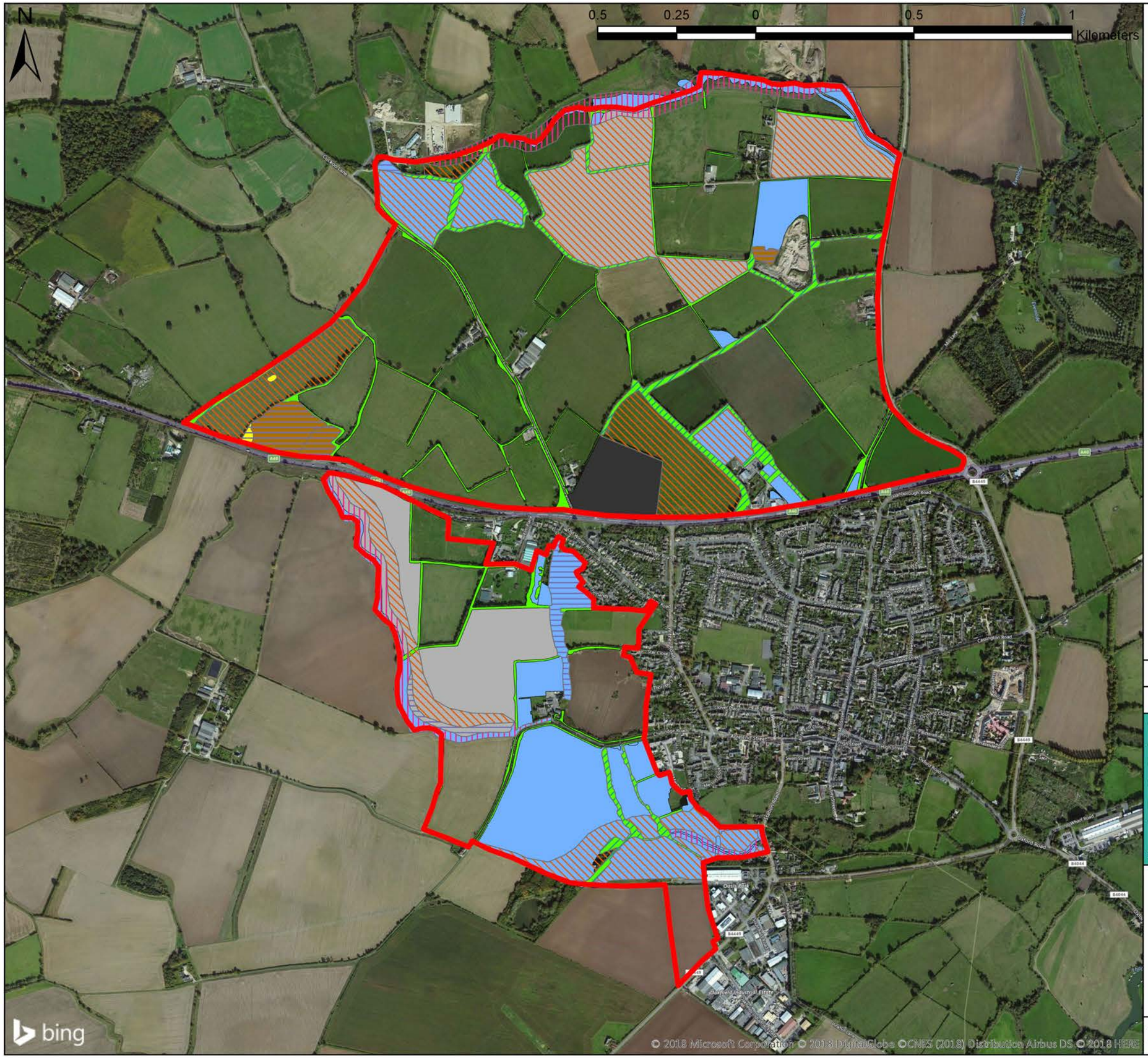
Figure 4D - Key Ecological Features (Zone 3)

Drawing no.:	2282_DWG_KeyEcoFeaturesD

FIGURE 5.0A – 5.0D

Constraints and Opportunities Plan

(Confidential)



Site Boundary

Opportunities

- Boundary creation/enhancement
- Grassland enhancement
- Other habitat enhancements
- Watercourse enhancement

Constraints

- Arable features
- Boundary features - retain where possible
- Mosaic habitats
- Features of specific species value
- Ecologically valuable habitats
- Woodland Trust

P1	FI	14/12/18	Final	TW	SS	PMc
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

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• Ecologists

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Oxfordshire Garden Village and Strategic Development Area

Figure 5A - ECOP

Drawing no.:	2282_DWG_ECOPA

Site Boundary

Opportunities

- Boundary creation/enhancement
- Grassland enhancement
- Other habitat enhancements
- Watercourse enhancement

Constraints

- Arable features
- Boundary features - retain where possible
- Mosaic habitats
- Features of specific species value
- Ecologically valuable habitats
- Woodland Trust

P1	FI	14/12/18	Final	TW	SS	PMc
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

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Figure 5B - ECOP (Zone 1)

Drawing no.:	2282_DWG_ECOPB

Site Boundary

Opportunities

- Boundary creation/enhancement
- Grassland enhancement
- Other habitat enhancements
- Watercourse enhancement

Constraints

- Arable features
- Boundary features - retain where possible
- Mosaic habitats
- Features of specific species value
- Ecologically valuable habitats
- Woodland Trust

P1	FI	14/12/18	Final	TW	SS	PMc
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

• Environmental Consultants
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• Landscape Managers
• Urban Designers
• Ecologists

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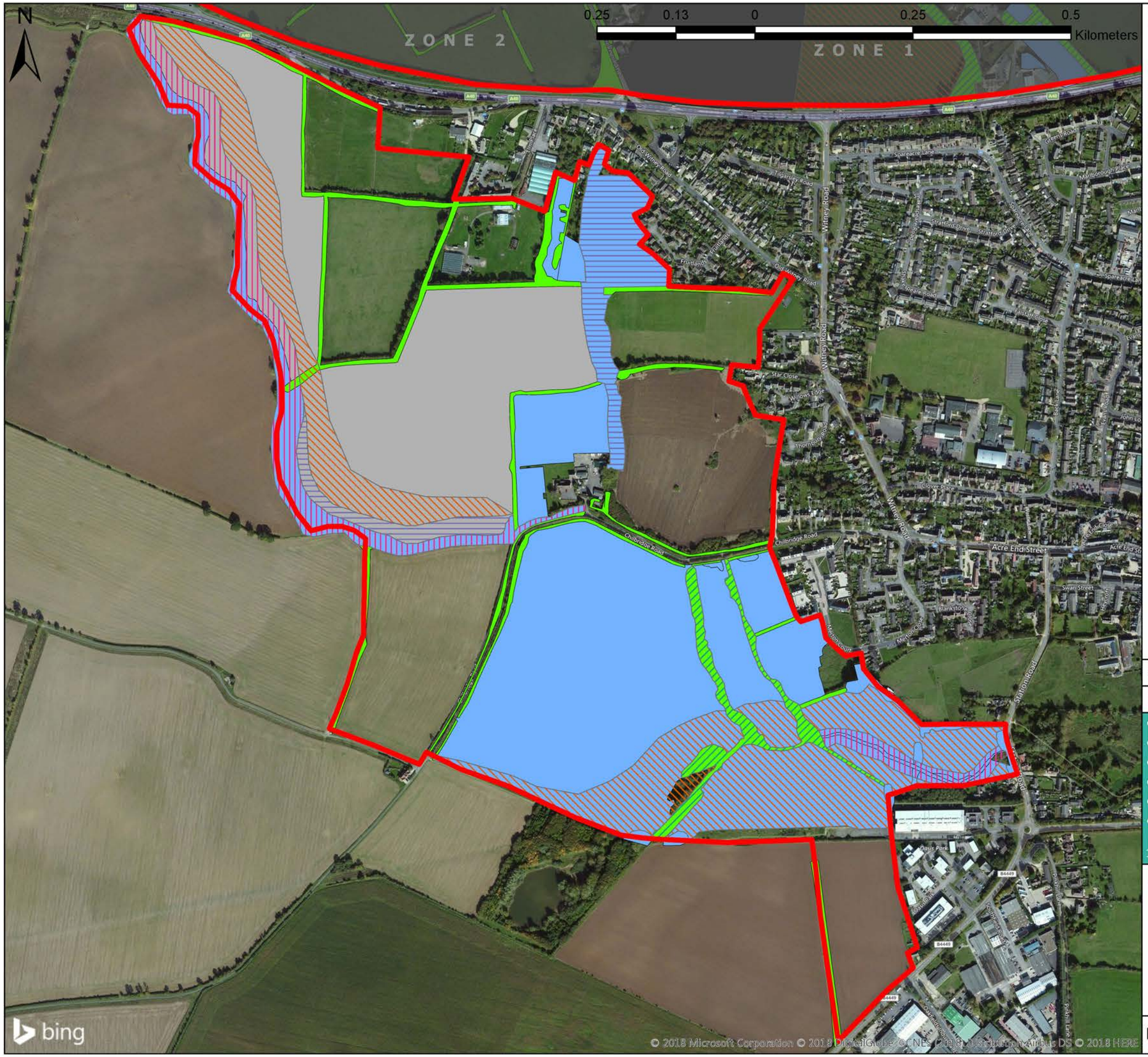
Figure 5C - ECOP (Zone 2)

Drawing no.:	2282_DWG_ECOPC



Site Boundary

Opportunities

- Boundary creation/enhancement
- Grassland enhancement
- Other habitat enhancements
- Watercourse enhancement

Constraints

- Arable features
- Boundary features - retain where possible
- Mosaic habitats
- Features of specific species value
- Ecologically valuable habitats
- Woodland Trust

P1	FI	14/12/18	Final	TW	SS	PMc
V.	**S.**	**Date**	**Description**	**B.**	**C.**	**A.**

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Figure 5D - ECOP (Zone 3)

Drawing no.:	2282_DWG_ECOPD

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