



THE
ENVIRONMENT
PARTNERSHIP



LAND AT MOLD ROAD AND STANSTY CHAIN ROAD WREXHAM, NORTH WALES ECOLOGICAL ASSESSMENT

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Executive Summary

1. TEP was originally commissioned in April 2018 by Russell Homes (UK) Ltd to carry out an Ecological Assessment of land off Stansty Chain Road in Wrexham, North Wales. This report is a further update of an original ecological assessment produced in 2017 (Report ref: 6358.002) and incorporates survey results from bat activity transects and static monitoring, breeding bird and reptile surveys plus an updated ground-based tree inspection and hedgerow assessment. This report is required to identify any potential ecological constraints to future development of the site to inform the masterplanning process.
2. The site predominantly comprises improved grassland with mature trees, hedgerows and ditches being the main ecological features of interest that have the greatest biodiversity value within the site.
3. The majority of trees across the site are being retained under the development proposals. The design of the development should take into account the long term setting of these trees and how they will relate to use of the area in the future.
4. Hedgerows are being retained within development proposals where feasible. It is accepted that some hedgerow loss is required for access throughout the site. An adequate habitat buffer should also be provided adjacent to retained hedgerows alongside a sensitive lighting scheme for the development. Hedgerow planting should be undertaken to replace, and preferably increase, the amount of species-rich native hedgerow present across the site.
5. It is known that there is a population of great crested newt (GCN) within 500m of the site, but the site lies only within distant ranging habitat of the breeding ponds (>250m). As the nearest known GCN pond is over 250m from the site boundaries it is not necessary to obtain a GCN mitigation licence from Natural Resources Wales (NRW) to allow development on site to proceed. All land falling between 250m and 500m of the GCN ponds will be cleared using Reasonable Avoidance Measures (RAMs). A Method Statement will be produced detailing the measures to be taken to ensure that, in the unlikely event of amphibians being present, they are not harmed by the works.
6. If development of the site does not commence within twelve months of the most recent site walkover (June 2019), a pre-construction check to ensure that badgers have not moved into the site or adjacent habitats in the intervening period is recommended.
7. The trees with bat potential are all being retained and protected on site. If any management works of these trees is needed or if any changes to the layout require any of them to be removed, further inspection will be required to confirm roost suitability or if a roost is present.
8. Direct lighting of retained trees and hedgerow habitat should be avoided to ensure no disturbance to potential foraging, commuting and potential roosting bats. It is recommended that a sensitive lighting scheme should be designed and implemented for the site.

1.0 Introduction

- 1.1 TEP was originally commissioned in April 2018 by Russell Homes (UK) Ltd to carry out an Ecological Assessment of land off Stansty Chain Road in Wrexham, North Wales. This report is a further update of an original ecological assessment produced in 2017 (Report ref: 6358.002) and incorporates survey results from bat activity transects and static monitoring, breeding bird and reptile surveys plus an updated ground-based tree inspection and hedgerow assessment. This report is required to identify any potential ecological constraints to future development of the site to inform the masterplanning process.
- 1.2 The ecological assessment comprises:
- Desktop study;
 - Extended Phase 1 habitat survey;
 - Bat roost and activity assessment;
 - Breeding bird surveys;
 - Reptile surveys;
 - Updated ground-based tree assessment; and
 - Hedgerow assessment.
- 1.3 This report has the following objectives;
- to describe the existing vegetation and give an updated overview of the habitats present on the site;
 - to identify whether there are any features of conservation value such as legally protected species or habitats of biodiversity importance;
 - to advise of further surveys or mitigation requirements that may be needed prior to development of the site; and
 - to outline opportunities to provide biodiversity enhancement within site proposals.

2.0 Site Description

- 2.1 The site is located northwest of Wrexham centre. The central grid reference is SJ 32344 51854. The survey area and site context is shown in Figure 1 and in Drawing G6358.001.

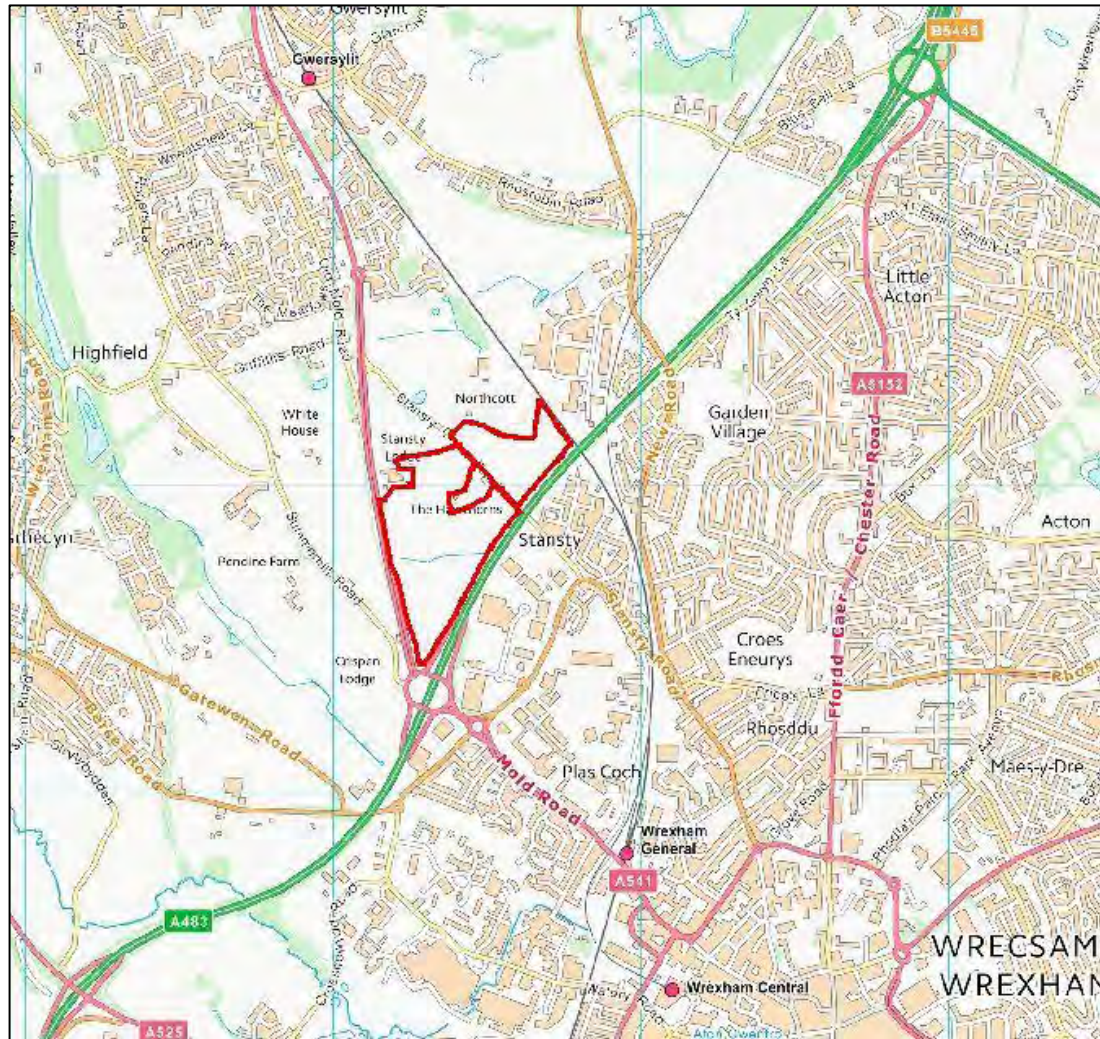


Figure 1: Site location and surrounding landscape

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- 2.2 The site comprises farmland dissected by a number of hedgerows and mature trees. Farmland surrounds the site to the north and west. Stansty Chain Road splits the northeastern end of the site while the A483 lies along the eastern boundary of the site (beyond which lies commercial and residential developments) and Mold Road (A541) lies along the western boundary of the site.

3.0 Methods

Consultation

- 3.1 Telephone and email discussions were held between TEP ecologist Kerry Stead and Wrexham County Borough Council (WCBC) ecologist Emma Broad, to determine the scope of surveys required for the site.

Desktop study

- 3.2 Information regarding historic species records and protected sites within a 1km radius of the site was requested/gathered from the sources listed in Table 1.

Table 1: Sources of ecological information

Source of Information	Nature of Information
Where's the Path	Satellite & OS imagery
DEFRA MAGIC Map	Designated sites & NERC priority habitats
Cofnod	Protected species records
Wrexham County Borough Council Unitary Development Plan (adopted February 2005)	Land allocations and relevant policies

Habitats & Flora

- 3.3 An extended Phase 1 habitat survey was carried out by TEP Ecologist Kim Gallaher (ACIEEM, FISC Level 5) on 10th April 2017. The survey was carried out in accordance with the Phase 1 habitat assessment methods (JNCC 2010¹) and Guidelines for Preliminary Ecological Appraisal (CIEEM 2017²). Additional site walkovers were completed by TEP Ecologist Dale Mortiboys (FISC Level 3) in May 2018 and June 2019 to note any changes to the original extended Phase 1 habitat survey.

Hedgerows

- 3.4 An assessment of hedgerows present on site was undertaken by TEP Ecologist Dale Mortiboys in June 2019. Following discussions with WCBC Ecologist Emma Broad a full assessment under the Hedgerow Regulations 1997 was not required in terms of ecology. The historic importance of hedgerows will be discussed within the Heritage Assessment for the site.

¹ JNCC 2010. Handbook for Phase 1 Habitat Survey: A technique for environmental audit.

² CIEEM 2017. Guidelines for Preliminary Ecological Appraisal.

Fauna

- 3.5 During the extended Phase 1 habitat survey, the habitats present were assessed for their potential to support species of conservation concern, particularly statutorily protected species or S7³ priority species.

Amphibians

- 3.6 There are no ponds within 250m of the site but five ponds between 250m and 500m of the site, some of which are known to support breeding great crested newt. Through discussions with Emma Broad at WCBC and Matthew Ellis, Senior Species Officer at Natural Resources Wales (NRW), it was agreed that great crested newt surveys were not required and that desktop data available from Cofnod should be referred to.

Bats

Ground Level Tree Assessment for Roosting Bats

- 3.7 A ground level inspection of all trees within the site, including those along the site boundaries, was undertaken by Licensed Bat Ecologist Dale Mortiboys (Natural England Class 2 licence registration no. 2016-15414-CLS-CLS) concurrently with the updated site walkover in June 2019, to assess their potential to support roosting bats. Binoculars were used to search for any field signs of bats or features with bat roosting potential.
- 3.8 In addition, the habitats within and surrounding the survey area were assessed for their potential to support foraging and commuting bats.
- 3.9 This assessment is used to inform the scope of any nocturnal surveys required. Nocturnal surveys may be needed to determine whether bat roosts are present and, if so, the species and status of each and to identify key foraging and commuting habitats. Following the daytime inspection, habitats were categorised based on the criteria listed within Table 2 below.

Table 2: Tree roost assessment criteria (from Table 4.1 of BCT Guidelines 2016)

Roost Suitability	Description of roosting habitat	Action required in respect of bat roosts in tree
Negligible	No PRF present.	No further action required.
Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground, or features seen with only very limited roosting potential (as per BS 8596:2015).	Precautionary measures may be appropriate during felling or pruning activities.

³ Section 7 of the Environment (Wales) Act 2016

Roost Suitability	Description of roosting habitat	Action required in respect of bat roosts in tree
Moderate	A tree with one or more PRF that could be used by bats due to their size, shelter, protection, conditions (i.e. temperature, light levels, humidity, height above ground or disturbance levels) and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, irrespective of species conservation status).	Presence/absence survey required. Subject to findings of presence/absence survey, roost characterisation surveys required.
High	A tree with one or more PRF that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	

Transect Surveys

- 3.10 Three transect surveys were undertaken by experienced ecologists Dale Mortiboys (bat licence ref: 2016-15414-CLA-CLS) and Mike Walker. The surveys were undertaken on 16th May 2018, 20th June 2018 and 10th October 2018.
- 3.11 One transect route was devised to cover the whole site, incorporating a variety of habitats with potential for bat foraging and commuting. The route included fifteen stops, which were spread across the route to sample a variety of habitats suitable for bat foraging, commuting and dispersal.

Static Monitoring

- 3.12 Two Anabat Express static detectors were positioned on site, at locations considered to be valuable foraging resources for bats. The statics were left for a period of five nights during favourable weather conditions and data was analysed.

Breeding Bird Survey

- 3.13 Three breeding bird surveys were undertaken by experienced ecologists Richard Castell and Mike Walker. The surveys were undertaken in the early morning on 25th April 2018, 22nd May 2018 and 19th June 2018.

Reptile Survey

- 3.14 Survey for presence / probable absence of reptiles was undertaken in May, early June and September 2018 by TEP Ecologists, Clare Gower and Annabel Walker-Evans. On 2nd May 2018, a total of 60 artificial cover objects (ACO's) were laid, in accordance with the recommended density in Froglife guidance (Foster, 1999).

- 3.15 ACO's, a mixture of roofing felts and corrugated bitumen roofing material, were laid in areas of most favourable habitat for reptiles. Suitable locations focused on the grassland and scrub/hedgerow borders adjacent to the railway line, providing good foraging, sheltering and basking habitat. Remnants of an old stone wall towards the centre of the survey area also offer good basking habitat for reptiles.
- 3.16 ACO's were placed on predominantly south-facing locations, which were exposed to a reasonable amount of sunlight. The refugia were searched on seven occasions (along with existing features likely to shelter reptiles) using a walked transect to observe basking/moving reptiles between ACO's. As discussed with the WCBC ecologist, only the part of the site to the northeast of Stansty Chain Road was subject to the reptile survey. This area offers the better habitat and has connectivity to the north where reptiles (common lizard) have been historically recorded.

4.0 Results

Desktop study

- 4.1 A summary of the results of the desktop study is set out below. Further details, including maps, are provided in Appendix A.

Designated sites

- 4.2 There are no internationally designated sites for nature conservation within 1km of the development boundary. The nearest internationally designated site is Midland Meres and Mosses Phase 2 Ramsar site, located approximately 3.5km northeast of the development site.
- 4.3 Midland Meres and Mosses Phase 2 Ramsar is mainly designated for its diverse range of habitats from open water to raised bog. It supports a number of rare species of plants associated with wetlands and an assemblage of invertebrates including several rare species.
- 4.4 One nationally designated site for nature conservation lies within 1km of the development boundary. This is Gatewen Marsh Site of Special Scientific Interest (SSSI), located approximately 320m southwest of the development site. The SSSI is primarily designated for its habitats and is one of three significant examples in the former county of Clwyd of the “southern mesotrophic mires” wetland type.
- 4.5 SSSI Impact Risk Zones (IRZ) apply to designated sites in England only, however, sites in Wales can still fall into these zones. The development site falls within the IRZ for the River Dee and Bala Lake SAC and River Dee SSSI, both of which are located approximately 8.6km east. The IRZs also cover the interest features and sensitivities of European sites, which are underpinned by the SSSI designations.
- 4.6 In regard to these designations, consultation with Natural England is required if the planning proposals fall under:
- Air Pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m²
 - Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
- 4.7 Residential development is not listed as a likely risk for the designated sites associated with these IRZ's.
- 4.8 There are three locally designated sites for nature conservation within 1km of the development boundary, these are Moss Valley Local Wildlife Site (LWS), approximately 580m west of the site, Berse Drelincourt LWS, approximately 950m southwest of the site and Woodlands and Fishpond Wood LWS, approximately 1km north of the site.

- 4.9 Moss Valley LWS is designated for its woodland valley habitats that support a diverse ground flora. The site also covers an area of unimproved calcareous grassland and semi-improved neutral grassland.
- 4.10 Berse Drelincourt LWS is designated for its mosaic of semi-natural habitats which include dense/continuous scrub, running water, semi-improved neutral grassland, semi-natural broad-leaved woodland and standing water.
- 4.11 Woodlands and Fishpond Wood LWS is designated for its mosaic of wetland and associated habitats which include a former dammed lake, swamp, scrub, semi-improved neutral grassland and semi-natural woodland.

Designated habitats

- 4.12 No habitats within the site are designated as a Section 7 Environment (Wales) Act 2016 habitat of principal importance.
- 4.13 Several parcels of habitats of principal importance occur in the wider landscape within 1km of the site. These habitats are identified as deciduous woodland, with the nearest occurring adjacent to the northern boundary of the site, and traditional orchard with the nearest occurring 630m southeast of the site. Development of the site will not impact upon any of these habitats of principal importance.

Protected species records

- 4.14 A number of species spread over a 1km search radius were identified through the Cofnod desktop search. Species include those listed under any of the following:
- European Protected Species (EPS);
 - Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
 - Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5);
 - Schedule 8 of the Wildlife and Countryside Act 1981, as amended (WCA8);
 - Species of principal importance under Section 7 of the Environment (Wales) Act 2016 (S7);
 - Protection of Badgers Act 1992 (PBA);
 - Red and Amber listed Birds of Conservation Concern (BoCC) UK species (BRd/BAm) (Eaton et al. 2015); and
 - Red and Amber listed Bird of Conservation Concern (BoCC) in Wales (Bam/ BRd – Wales) (RSPB, 2016).
- 4.15 In summary, notable species that occur in the last ten years include:

Amphibians

- Great crested newt *Triturus cristatus* (EPS, WCA5, S7).

Birds

- Barn owl *Tyto alba* (WCA1);
- Brambling *Fringilla montifringilla* (WCA1, BAm - Wales);
- Common gull *Larus canus* (BAm);
- Dunnock *Prunella modularis* (S7, BAm);
- Fieldfare *Turdus pilaris* (WCA1, BRd);

- Grasshopper warbler *Locustella naevia* (BRd);
- Green Sandpiper *Tringa ochropus* (BAm - Wales);
- Grey Wagtail *Motacilla cinerea* (BRd);
- Greylag Goose *Anser anser* (BAm);
- House martin *Delichon urbicum* (BAm);
- House sparrow *Passer domesticus* (S7, BRd);
- Kestrel *Falco tinnunculus* (BAm);
- Kingfisher *Alcedo atthis* (WCA1, BAm - Wales);
- Lapwing *Vanellus vanellus* (S7, BRd - Wales);
- Lesser black-backed gull *Larus fuscus* (BAm - Wales);
- Lesser redpoll *Acanthis cabaret* (BRd, BAm - Wales);
- Linnet *Linaria cannabina* (BRd - Wales);
- Mallard *Anas platyrhynchos* (BAm - Wales);
- Meadow Pipit *Anthus pratensis* (BAm - Wales);
- Mistle Thrush *Turdus viscivorus* (BRd, BAm - Wales);
- Mute Swan *Cygnus olor* (BAm);
- Oystercatcher *Haematopus ostralegus* (BAm);
- Redwing *Turdus iliacus* (WCA1, BRd, BAm - Wales);
- Reed Bunting *Emberiza schoeniclus* (BAm - Wales);
- Skylark *Alauda arvensis* (BRd, BAm - Wales);
- Snipe *Gallinago gallinago* (BAm - Wales);
- Song thrush *Turdus philomelos* (BRd, BAm - Wales);
- Spotted Flycatcher *Muscicapa striata* (BRd - Wales);
- Starling *Sturnus vulgaris* (S7, BRd - Wales);
- Stock Dove *Columba oenas* (BAm);
- Swift *Apus apus* (BAm - Wales);
- Tree Sparrow *Passer montanus* (BRd - Wales);
- Willow Warbler *Phylloscopus trochilus* (BRd - Wales, BAm);
- Woodcock *Scolopax rusticola* (BRd - Wales);
- Yellowhammer *Emberiza citrinella* (BRd - Wales).

Mammals

- Badger *Meles meles* (PBA);
- Common pipistrelle *Pipistrellus pipistrellus* (EPS, WCA5);
- Hedgehog *Erinaceus europaeus* (S7);
- Noctule *Nyctalus noctula* (EPS, WCA5, S7);
- Soprano pipistrelle *Pipistrellus pygmaeus* (EPS, WCA5, S7).

Reptiles

- Common lizard *Zootoca vivipara* (WCA5).

Other

- Bluebell *Hyacinthoides non-scripta* (WCA8).

Local plan

- 4.16 The site falls within the WCBC Unitary Development Plan, however, the Emerging Wrexham Local Plan is currently at an 'advanced' stage. In the emerging Local Plan, the entire site is identified as a housing allocation. Under the existing Unitary development Plan Policy numbers PS11, EC4 and EC6 also have relevance to the site. The Desk Based Ecology Appendix at Appendix A has further details of these policies.

Habitat Survey

- 4.17 The results of the Phase 1 habitat survey are illustrated in Drawing G6358.001. The habitats present within the development site or adjacent to the site are listed below and brief descriptions of these habitats are also given:

- Improved grassland;
- Hedgerows;
- Plantation broad-leaved woodland;
- Scattered broad-leaved trees;
- Standing water and ditches.

- 4.18 The main body of the site is roughly rectangular in shape and is split into six fields that comprise improved grassland. The grassland was not grazed at the time of the survey and had been recently muck-spread (**Figure 2**). These fields appeared to comprise abundant perennial ryegrass *Lolium perenne*, false oat-grass *Arrhenatherum elatius* and cocks-foot *Dactylis glomerata* with occasional creeping buttercup *Ranunculus repens*.



Figure 2: Improved grassland found across the fields north of Stansty Chain Road

- 4.19 The parcels of grassland are segregated by a number of generally well managed hedgerows and mature trees. The hedgerows range from species-poor to species-rich and some contain trees. The majority of the hedgerows north of Stansty Chain Road are species rich and contain a mix of hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, holly *Ilex aquifolium*, dog rose *Rosa canina*, blackthorn *Prunus spinosa* and hazel *Corylus avellana* (**Figure 3**). Tree species found within these hedgerows often include oak *Quercus robur* and ash *Fraxinus excelsior*.
- 4.20 Hedgerow groundflora comprised few woodland indicator species which included dog's mercury *Mercurialis perennis* and lords-and-ladies *Arum maculatum*. The majority of the hedgerows in this part of the site are planted on a stone wall.



Figure 3: Example of one of the hedgerows found within the proposed development site

- 4.21 The hedgerows within the land south of Stansty Chain Road are species-poor and are dominated by hawthorn *Crataegus monogyna*, with occasional blackthorn *Prunus spinosa*. Dog's mercury and lords-and-ladies were also identified amongst these hedgerows.
- 4.22 Two small pockets of plantation woodland occur along Stansty Chain Road. The northern site boundary along Stansty Lodge Lane largely comprises a double hedgerow that has become outgrown as the lane is disused. Species included hawthorn, elder, ash, holly, hazel and English oak. A patch of native bluebell was identified in this area amongst lesser celandine *Ficaria verna*, dog's mercury and lords-and-ladies.
- 4.23 The other area comprises plantation woodland. Species include sycamore *Acer pseudoplatanus*, blackthorn, ash and cherry. An understorey of bramble *Rubus fruticosus* agg scrub was also present.
- 4.24 The site is also bordered by an embankment of semi-mature broad-leaved plantation woodland associated with the A483. Species comprise hazel, ash, oak and sycamore.

- 4.25 A number of scattered mature trees are present across the site, particularly associated with the field boundaries (**Figure 4**). The main tree species include English oak and ash. A number of the oaks across the site are mature and have features characteristic of veteran trees. Features present include deadwood and decay, cavities, broken limbs, fallen limbs, basal hollowing, loose or lifted bark, rot holes and root damage. These trees are valuable to a range of species.



Figure 4: One of the mature oaks present within the site

- 4.26 The fields in the southern part of the site are dissected by a wet ditch that is approximately 2m wide which eventually terminates at the end of a small section of species poor hedgerow with two mature English oaks (**Figure 5**).



Figure 5: Wet ditch south of Stansty Chain Road

Hedgerows

- 4.27 Species lists were produced of all hedgerows present on, and bounding the, site. A hedgerow species list is presented in Appendix E and drawing G6258.016 shows the location of all hedgerows surveyed.
- 4.28 Hedgerows within the northern part of the site (north of Stansty Chain Road) are generally more species-rich than those in the southern part of the site. The only hedgerow where native bluebell *Hyacinthoides non-scripta* has been previously identified is within hedgerow H18 located along the northern site boundary.

Invasive and protected plant species

- 4.29 As noted above, the protected plant species native bluebell (Schedule 8 of the Wildlife and Countryside Act 1981 as amended) was identified within the outgrown hedgerow, H18, associated with Stansty Lodge Lane.
- 4.30 The invasive plant species Japanese knotweed *Fallopia japonica* and variegated yellow archangel *Lamiastrum galeobdolon subsp. Argentatum* (Schedule 9 of the Wildlife and Countryside Act 1981 as amended) were identified along the eastern boundary of the site.

Connectivity with the wider landscape

- 4.31 The site has connectivity to habitats within the wider landscape via the network of onsite hedgerows connecting to further hedgerows within the wider landscape to the north. The site has limited connectivity to the east, south and west due to substantial roads.

Fauna

Amphibians

- 4.32 No ponds are located on site and no desktop records of any amphibians were recorded within the site. There are records for great crested newt in ponds to the north, with the closest record lying approximately 220m north of the site.
- 4.33 The desktop data provided by Cofnod for the original Ecological Assessment, plus Cofnod GCN Monitoring Survey data has been collated and is provided in Table 3, below.

Table 3: GCN desktop data

Pond Number	Distance From Site	GCN Records	Date	Additional Information
N/A	221m NW	No detail of record	June 2006	No longer any evidence of a pond at this location
1	346m N	15 records	March 2002 - April 2005	Pond very shallow (only a few cm's water)
2	339m N	4 records	April 2005 - May 2006	Part of GCN mitigation created for a scheme to the north
3	392m N	No detail of record	2002	Part of GCN mitigation created for a scheme to the north
4	343m NE	14 records	2014	Located east of railway line
5	414m NE	1 record	2014	Located east of railway line
6	567m N	Maximum count of 26	2016, 2017 & 2018	A cluster of ponds known as "Mold Road" monitored as part of Wales GCN Monitoring Scheme.

- 4.34 There are five ponds within 500m of the site, some of which are known to support breeding great crested newt. Pond locations are shown on Drawing G6358.003. There are, however, no ponds within 250m of the site, a walkover was carried out in late-April 2018 by TEP ecologist Dale Mortiboys which confirmed this.
- 4.35 The site contains limited terrestrial habitat (improved grassland) for foraging amphibians. The hedgerows on site provide potential refuge opportunities and commuting habitat for amphibians. There is, however, no suitable breeding habitat on site.

Badger

- 4.36 The desktop study identified a record for badger approximately 710m southeast of the site. The record lies beyond the A483 with no connectivity to the site.
- 4.37 The grassland habitat within the development site provides potential foraging and commuting habitat for badger. During the survey no setts were identified within the site and no other signs of badger were observed.

Bats

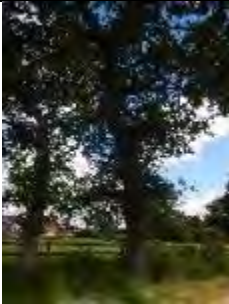
- 4.38 The desktop identified records of common pipistrelle, soprano pipistrelle and noctule bat within 1km of the site.

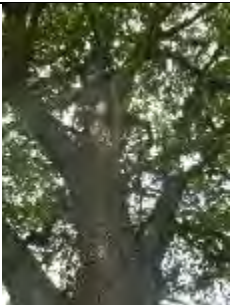
Ground-based assessment of trees

- 4.39 Several of the trees within the site contained potential roost features and therefore are considered to have suitability for roosting bats.
- 4.40 The following trees, shown on Drawing 6358.016 and in Table 4, below, were considered to have low - high suitability for roosting bats:

Table 4: Tree Descriptions

Tree #	Grid Reference	Description	Roosting Category	Photograph
1	SJ 32557 52084	Mature oak with single stem with trunk and branch cavities.	Moderate	
2	SJ 32419 52207	Mature oak with multiple branch splits including some with high potential	High	
3	SJ 32508 51972	Mature oak with large lower branch which is split. Tall vertical trunk split/cavity. Multiple other PRFs	High	

Tree #	Grid Reference	Description	Roosting Category	Photograph
4	SJ 32433 51927	Mature oak with branch wounds and splits. Squirrel hole showing staining on one limb on west.	High	
5	SJ 32397 51916	Mature oak with dead branch join	Low	
6	SJ 32397 51916	Mature oak next to tree 5. Loose bark on limbs to the west	Low	
7	SJ 32436 52043	Mature oak. limited access to the east. Dead limbs present on all aspects	Moderate	

Tree #	Grid Reference	Description	Roosting Category	Photograph
8	SJ 32375 52039	Mature oak with dense epicormics growth. Dead limbs on all aspects and a branch split on the southern side	High	
9	SJ 32325 52004	Mature oak with dead branches on all aspects and a branch cavity close to the central trunk	Moderate	
10	SJ 32350 52089	Mature oak with very suitable branch cavity close to the central stem	High	
11	SJ 32390 52125	Mature oak with dense epicormics growth and a trunk cavity on the south	Moderate	
12	offsite oak. Couldn't get access	Limited view of this oak. Couldn't properly assess its suitability		No Photo

Tree #	Grid Reference	Description	Roosting Category	Photograph
13	SJ 32296 52101	Offsite dead oak with lots of loose bark. Wood pecker holes present	High	
14	SJ 32289 52098	Offsite dead oak with lots of loose bark	Moderate	
15	SJ 32255 51747	Mature oak near brook with dense epicormic growth	Precautionary Moderate	
16	SJ 32271 51749	Mature oak near brook	High	

Tree #	Grid Reference	Description	Roosting Category	Photograph
17	SJ 32433 52030	Sycamore. Limited access to this tree. Possibly outside redline boundary.	High	

- 4.41 The surrounding habitats and adjacent trees provide opportunities for commuting and for foraging. The woodland, brook and arable fields in particular are moderate quality foraging habitat.

Transect and Static Monitoring Surveys

- 4.42 The bat assessment report is provided at Appendix B. This provides full details of the bat activity surveys undertaken on site and the results of these are summarised below. Drawing G6358.004 shows the transect route and static monitoring locations.
- 4.43 During the activity and static monitoring surveys at least five confirmed bat species were recorded including common pipistrelle, soprano pipistrelle, noctule, brown long-eared bat and unidentified Myotis species.
- 4.44 The transect and static monitoring surveys found common pipistrelle was the most commonly recorded species. Bat activity was concentrated around the north and west of the site associated with the hedgerow with trees, around the buildings off Mold Road and the hedgerow and woodland adjacent to Mold Road. Drawings G6358.008, G6358.009 and G6358.014 show the results of the bat transect surveys.

Birds

- 4.45 A number of records for WCA1, S7 and BRd/BAm (including for UK and for Wales specifically) bird species lie within 1km of the site. No records occurred within the proposed development site.
- 4.46 The hedgerows, tree lines and scattered trees provide suitable nesting habitat for a range of bird species. The grassland could also provide suitable nesting habitat for ground nesting species depending upon the level of management.

Breeding Bird Surveys

- 4.47 A breeding bird technical report is provided at Appendix C and the breeding bird survey results are illustrated on maps G6358.005, G6358.006 and G6358.007.

- 4.48 During the breeding bird surveys a total of 29 species were recorded within the site boundary and 100m buffer; 20 species in visit one, 23 species in visit two and 19 species in visit three. Of those recorded, there are no species listed under Schedule 1 of the Wildlife and Countryside Act 1981. Seven S7 species were recorded, five of which are also Red Listed Bird of Conservation Concern species (BRd) and three are also Amber Listed (BAm) species. One additional BRd species and two BAm species were also recorded that are not S7 species.
- 4.49 Six bird species were confirmed to be breeding within the site boundary and 100m buffer. These are blackbird, blue tit, carrion crow, greenfinch, long-tailed tit, and rook. With regards to notable bird species, a single pair of long-tailed tit were confirmed to breed within the site itself, and another single pair were confirmed to breed within the site buffer.
- 4.50 Eight probable breeding species were recorded within the site and 100m buffer during the breeding bird survey. None of these were notable species.

Otter and water vole

- 4.51 No records for otter or water vole were identified in the desktop search. The onsite ditch lacks connectivity to watercourses in the wider area and there appears to be no significant watercourses within 1km of the site that have connectivity to the proposed development site. It is considered highly unlikely water vole or otter would range into the site from the wider area. Water vole and otter are not considered further in this assessment.

Reptiles

Reptile suitability assessment

- 4.52 There is one record for common lizard approximately 625m north of the site. The land south of Stansty Chain Road is considered to be uniform in nature with poor quality habitat for reptiles. The site lacks a mosaic of different habitats and does not have any south facing banks or transitional habitat that is key to reptile habitat requirements. The site offers limited suitable sheltering habitat and foraging habitat for reptiles but inadequate basking opportunities, offering no real value for reptiles.
- 4.53 The land north of Stansty Chain Road contains potential, albeit limited, habitat suitable to support reptiles including stone walls amongst hedgerows (**Figure 6**) and a railway embankment adjacent to the northeastern boundary. The record for common lizard has connectivity to this part of the site via the uninterrupted habitat associated with the railway line.



Figure 6: Stone walls found across the site usually associated with hedgerows

Reptile survey

- 4.54 Results of the reptile survey are presented at Appendix D. Drawing G6358.011 shows the reptile survey area.
- 4.55 No evidence of reptiles was identified during the survey. One field vole was recorded under a reptile ACO on survey visit three with a wood mouse recorded on visits five and eight.

5.0 Conclusions

- 5.1 The current development proposals for the site are shown in drawing A106224_002 Rev. J Stansty Green, Wrexham Illustrative Masterplan. The application is being made in outline with all matters other than access reserved for consideration at a later date. As such, the submitted masterplan is purely illustrative at this stage.
- 5.2 The proposals include a large residential development scheme with swathes of green space, mainly to the eastern and southern boundaries, and retained hedgerows and trees.

Designated sites

- 5.3 The nationally designated site, Gatewen Marsh SSSI, is designated for its habitats and is located 320m southeast of the site. There is no connectivity between the site and the SSSI due to the presence of Mold Road which acts as a barrier between the two areas. No direct or indirect impacts are predicted on Gatewen Marsh SSSI from the development proposals.
- 5.4 The site falls within the SSSI Impact Risk Zone (IRZ) for the River Dee and Bala Lake SAC and River Dee SSSI. Current proposals are for residential development of the site. Residential development is not one of the proposals listed as a concern for potential impacts upon these site. No direct or indirect impacts are predicted on River Dee and Bala Lake SAC and River Dee SSSI from the development proposals.
- 5.5 The LWS's will not be directly affected by the development proposals. Additionally, a significant amount of green space is included within the development proposals, reducing the potential impact on existing public open space within the wider area. As such, no direct or indirect impacts are predicted from the development proposals.

Habitats

- 5.6 The grassland habitats within the site are poor quality and common and widespread in the area, so are of low intrinsic value. The loss of this habitat is not considered to be a significant impact. The hedgerows and mature trees are considered to offer the greatest biodiversity value within the site.
- 5.7 The site contains a mix of species-rich and species-poor hedgerows, all the hedgerow habitats form part of a network linking with the wider environment surrounding the site. It is the intention of Russell Homes to retain the majority of hedgerows across the site, however, they will need to sever these in places to create road access points and footpaths. Existing hedgerows on site will be enhanced and native species-rich hedgerows planted where suitable to mitigate for these losses. The development will be designed to retain as much hedgerow habitat as feasible in order to maintain connectivity across the site.
- 5.8 Under the existing proposals there are six points where hedgerows will need to be severed for roads and an additional five for footpaths. There will also be a requirement to remove a section of hedgerow alongside Stansty Chain Road for a visibility splay for road safety. There will be no net loss of hedgerows on site, hedgerow planting will be undertaken across the site to replace the losses, with an increase in species-rich native hedgerows anticipated.

- 5.9 Should there be any hedgerows on site which are considered important from a heritage perspective, it is considered that replacement for the small sections of these to be lost can be adequately provided on site.
- 5.10 There are several trees throughout the site that are very mature and of significant value to a range of species, providing a valuable habitat resource for wildlife. An Arboricultural Impact Assessment is required to fully assess the trees on site.
- 5.11 It is proposed that the majority of trees across the site will be retained given the ecological as well as aesthetic value that they contribute to a development. An appropriate habitat buffer will also be retained around these trees in order to protect the integrity of the trees. The root protection zone (RPZ) will form the basis of this buffer zone.
- 5.12 Appropriate tree protection measures will also need to be put in place to ensure an adequate habitat buffer from the trees is retained from the proposed development and during construction of the site.

Invasive and protected plant species

- 5.13 The protected plant species bluebell was identified within the site, along the northern boundary. The bluebells should be left in-situ and protected from any development works. If the bluebells will be disturbed by development proposals, it will be necessary to translocate them to suitable habitat that will remain undisturbed at an appropriate time of year.
- 5.14 The invasive species Japanese knotweed and variegated yellow archangel was identified within and adjacent to the site and may be affected by the development, including site clearance works. To avoid the offence of causing the spread of this species, an eradication and control plan would be required prior to commencement onsite.

Fauna

Amphibians

- 5.15 There are five ponds within 500m of the development site. Several of these ponds contain records for great crested newt.
- 5.16 Terrestrial habitat associated with the site falls within the distant ranging distance for great crested newt, however, there is no suitable breeding habitat on site and the terrestrial habitat on site is poor quality for great crested newts and other common amphibians. There are limited opportunities for foraging, refuge and hibernation, although there is some connectivity to the site along the railway line bordering the site to the east. As the presence of great crested newts is known to be within influencing distance of the site, there may be implications, albeit limited, for development of the site with regard to great crested newts.

Badger

- 5.17 There is no evidence of badgers utilising the site so there are currently no implications relating to badgers from the proposed development, however, the habitats present have potential to support badger setts in the future.

Bats

Ground-based Assessment of Trees

- 5.18 There are several trees on site which have features that could support roosting bats. These will be retained and protected within current proposals (Drawing ref: 12.07.19 Stansty Sketch Layout). Consideration will be needed to avoid disturbance of suitable bat roost habitats from external lighting and to maintaining connectivity and dark corridors around the site.

Transect and Static Monitoring Surveys

- 5.19 Wray *et al.* (2010⁴) was used to evaluate the sites importance for commuting and foraging bats. The site was assessed as of county importance for pipistrelle species (common and soprano) and local importance for noctule, brown long-eared and Myotis species. It must be acknowledged that the valuation for pipistrelle species is largely attributed to the high activity recorded at static location A, along the outgrown hedgerow present at the northern boundary, in May. The northern hedgerow (static location A) will not be directly impacted by the development. The activity recorded during the transect surveys was comparatively low across the rest of the site with activity generally focussed around the boundary features. Overall, considering the site location, small species assemblage and the wider landscape, the site is considered to be of local value to bats.
- 5.20 The boundary hedgerows were identified as important commuting and foraging habitats. The majority of the hedgerows will be retained within the development proposals (Drawing ref: 12.07.19 Stansty Sketch Layout). It is accepted there is some hedgerow loss to facilitate access to the site. A sensitive lighting scheme will be required to avoid any indirect impacts from external lighting on foraging and commuting bats.

Birds

- 5.21 The 29 bird species recorded during the 2018 breeding bird survey within the site and site buffer represents a low species diversity with the majority of species recorded being commonplace and widespread. One notable bird species was confirmed or likely to be nesting within the site itself. This being a single pair of long-tailed tit.
- 5.22 No significant breeding bird concentrations (i.e. 1% or more of the national breeding population) or nationally rare breeding bird species (i.e. between 1 and 1,000 breeding pairs) (Musgrove *et al.* 2013) were recorded during the survey.
- 5.23 The majority of bird species recorded during the survey are associated with nesting in trees, hedgerow and scrub, with the majority of birds noted during the survey recorded within the hedges along the site boundaries and the scattered broad-leaved trees. This includes all of the notable bird species recorded.

⁴ Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2011). Valuing bats in ecological impact assessment. In practice. pg. 23-27.

- 5.24 All UK birds are protected under the Wildlife and Countryside Act 1981 (as amended), therefore there will also be implications with regard to nesting birds and vegetation clearance of the site.

Reptiles

- 5.25 No evidence of reptiles were recorded during the course of the survey. There will be no implications to the development with regard to reptiles.

6.0 Recommendations

- 6.1 It is considered that the ecological features, both potential and present, within the site do not preclude development of the site for residential use; and there are opportunities for ecological enhancement. A number of measures to protect, maintain and enhance ecological features within the site are recommended to comply with current legislation and policy.

Habitats

- 6.2 The majority of trees across the site are being retained under the development proposals. The design of the development should take into account the long term setting of these trees and how they will relate to use of the area in the future.
- 6.3 Appropriate tree protection measures will also need to be put in place to ensure an adequate habitat buffer from the trees is retained from the proposed development and during construction of the site. This habitat buffer will largely be informed by Root Protection Areas (RPAs) as set out in an Arboricultural Impact Assessment but ideally a 5m buffer beyond the edge of the tree canopy, or whichever is greater, should be retained.
- 6.4 Physical protection of these trees should also be considered in the long term to further protect the trees from root compaction and other damage. This protection would also serve to protect people and properties that could be harmed in the event of a tree failure. Protection methods could utilise fencing or planting of hedgerows.
- 6.5 If at any time in the future these trees require management or pruning, it is recommended that a bespoke management strategy is undertaken and consultation with an ecologist will be required - see below for further recommendations relating to trees with bat potential.
- 6.6 All hedgerows are being retained within development proposals where feasible. It is accepted that some hedgerow loss is required for access throughout the site and for a visibility splay at the site entrance. An adequate habitat buffer should also be provided adjacent to retained hedgerows alongside a sensitive lighting scheme for the development. Hedgerow planting should be undertaken to replace, and preferably increase, the amount of species-rich native hedgerow present across the site.
- 6.7 Under current proposals it does not appear that bluebell will be affected by the proposals. However, if bluebell will be affected a bluebell protection method statement will be required to ensure the species is appropriately protected and handled. An invasive species eradication and control plan will also be required prior to works commencing on site due to the presence of Japanese knotweed and variegated yellow archangel.
- 6.8 A detailed planting plan should be produced identifying species to be used and should be agreed with the county ecologist. Areas of tree and shrub planting should incorporate a mix of native species of local provenance, to include a variety of berry and nectar bearing species that encourage insects. Increased insect abundance will, in turn, enhance foraging opportunities for bats, birds and other wildlife.

6.9 Grassland habitats can be enhanced by the inclusion of wildflower meadow buffers and wildflower bulbs within the proposals, to promote herbaceous diversity and pollinator opportunities. The National Pollinator Strategy recommends the following seasonal planting:

- Spring: primroses and crocuses
- Summer: lavenders, meadow cranesbill and ox-eye daisies
- Autumn: ivy and hebes; and
- Winter: mahonia shrubs and cyclamen.

6.10 Any other shrub or herb planting incorporated into the design should include the use of native or wildlife friendly species to enhance the biodiversity of the site. For example, trellising on any fencing or on the new build would offer additional habitat for nesting and foraging birds. Honeysuckle or ivy would be ideal species on trellising.

Amphibians

6.11 It is known that there is a population of great crested newt within 500m of the site, but the site lies only within distant ranging habitat of the breeding ponds (>250m). There are opportunities on site to enhance habitat as part of the housing scheme to increase the available range of the great crested newt population.

6.12 As the nearest known GCN pond is over 250m from the site boundaries it is not necessary to obtain a GCN mitigation licence from NRW to allow development on site to proceed. All land falling between 250m and 500m of the GCN ponds (see Drawing G6358.015) will be cleared using Reasonable Avoidance Measures (RAMs). A Method Statement will be produced detailing the measures to be taken to ensure that, in the unlikely event of amphibians being present, they are not harmed by the works.

6.13 The landscape design for the site will incorporate terrestrial habitat suitable for amphibians. This will allow all amphibians, including the GCN population to the north, to expand their ranging opportunities to the south along the railway line.

Badger

6.14 If development of the site does not commence within twelve months of the most recent site walkover (June 2019), a pre-construction check to ensure that badgers have not moved into the site or adjacent habitats in the intervening period is recommended.

Bats

6.15 The trees with bat potential (Drawing G6358.016) are all being retained and protected on site. If any management works of these trees is needed or if any changes to the layout require any of them to be removed, further inspection will be required to confirm roost suitability or if a roost is present.

6.16 Direct lighting of retained trees and hedgerow habitat should be avoided to ensure no disturbance to potential foraging, commuting and potential roosting bats. It is recommended that a sensitive lighting scheme should be designed and implemented for the site. The following should be considered when choosing luminaires:

- Use of unnecessary lighting will be avoided.
- Spatial spread of lighting – Column heights should be carefully considered to minimise light spill. Only luminaires with an upward light ratio of 0% and with good optical control should be used. Luminaires should always be mounted on the horizontal, i.e. no upward tilt. As a last resort, accessories such as baffles, cowls or louvres can be used to reduce light spill and direct it only to where it is needed. The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Timing and duration of lighting – timers and bespoke dimming regimes may be used to ensure that luminaires are reduced to 1-5 lux at times of predicted low use. Any external security lighting should be set on motion-sensors and short (1min) timers. These can also be set to change with the seasons and therefore reflect the shifting time of dusk and dawn throughout the year. Motion sensors provide further control to ensure that areas are illuminated only when required.
- Intensity and colour of lighting – light intensity will be as low as possible whilst meeting the objectives of the intended function. All luminaires should lack UV elements when manufactured LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.

Birds

- 6.17 The removal of sections of hedgerows will reduce the amount of breeding and nesting habitat available for these species and these will be retained or replaced wherever possible. If trees are to be replaced or new hedgerows planted, they should include a range of native species to create a varied vegetation structure and suit a wider range of breeding bird species. Fruiting tree and shrub species and/or species that are attractive to insects will also provide additional foraging resources for numerous bird species.
- 6.18 It is recommended that all vegetation clearance should be undertaken outside the bird nesting season (March to August inclusive). If this period cannot be avoided, a suitably qualified ecologist should carry out a nesting bird check a maximum of 24 hours in advance of vegetation clearance works. If nesting birds are found, an appropriate exclusion zone will need to be set up around any active nests until the young have fledged. The ecologist will carry out regular monitoring checks to advise when it is possible for clearance works to proceed. The size of the exclusion zone will depend on the species nesting.

- 6.19 A nest box scheme should be undertaken as part of the development, including small nest boxes with holes and open fronted nest boxes, which would provide additional nesting sites for a number of species such as blue tit and robin. House sparrow have been recorded to nest within surrounding habitat and therefore house sparrow terraces should be incorporated into the new development to encourage this notable bird species.

Other Opportunities for Biodiversity Enhancement

- 6.20 Enhancement for roosting bats and nesting birds could be delivered within the new site through the provision of bat and bird boxes. These can be situated on retained trees and incorporated within the properties on site.
- 6.21 During the site clearance works, consideration should be given to chipping or composting vegetation for re-use on the new habitats on site, or creation of brash and deadwood piles on the periphery of the site as a further aid to increasing the biodiversity of the site.
- 6.22 Hedgehogs are an S7 species of principal importance. One of the factors contributing to the decline of this species in the UK is habitat fragmentation, caused in part by garden boundaries becoming more secure. Consideration could be given to hedgehog-friendly features in the development through providing links between garden areas and provision of hedgehog boxes in retained habitats or public open space.

APPENDIX A: Desktop Study

Desk Based Ecology Assessment Stansty Chain Road, Wrexham Approximate Central Grid Reference: SJ 32472 51897

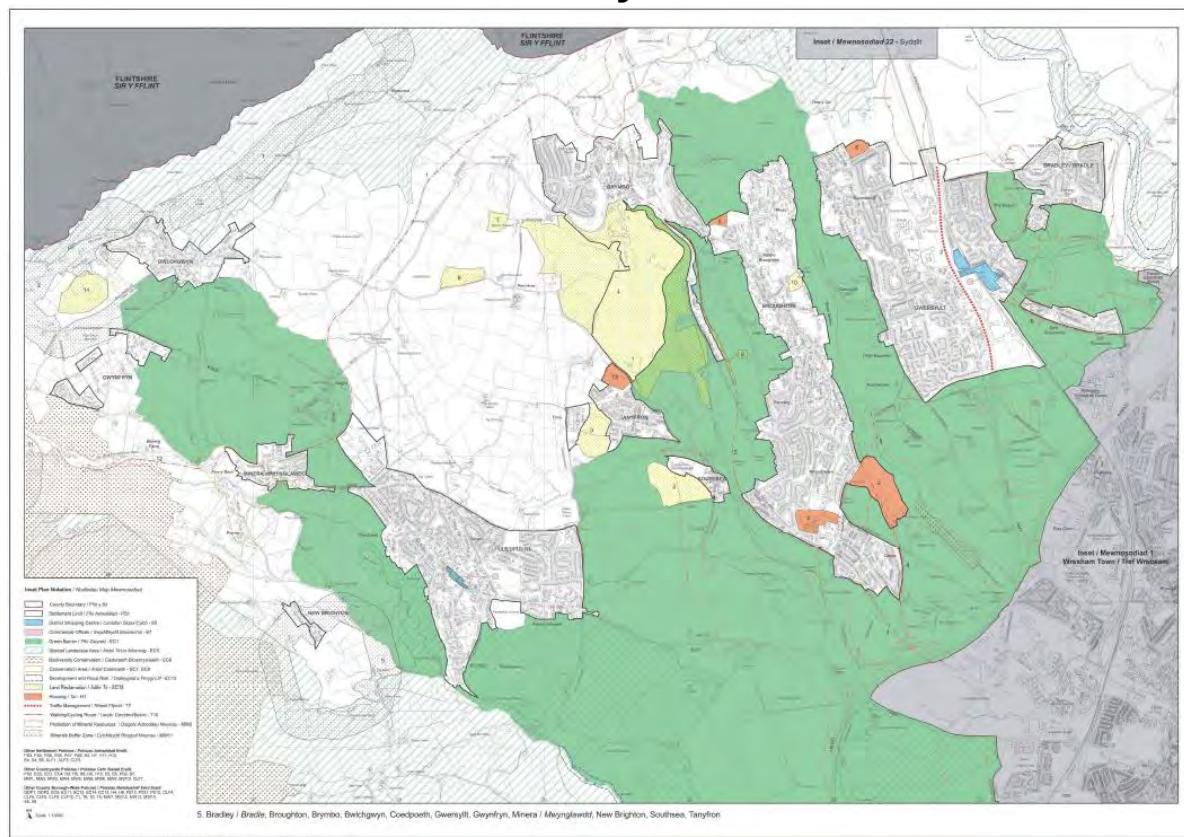
Contents

- **Site location plan**
- **Extract from local plan**
- **Extracts of relevant planning policies**
- **Local site designations**
- **Local species records**
- **National site designations**
- **Habitat inventory records**

Site location plan



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Extracts of relevant planning policies and supplementary planning guidance

BIODIVERSITY

Policy PS11 Encouragement will be given to proposals which improve the biodiversity value of sites and to the establishment of local nature reserves where the nature conservation and landscape interest of the land will be protected and enhanced.

Policy EC1 Within Green Barriers, development will only be granted planning permission if it is for agriculture, forestry, essential facilities for outdoor sport and recreation, cemeteries and other uses of land which maintain the openness of the Green Barrier and do not conflict with the purpose of including land within it.

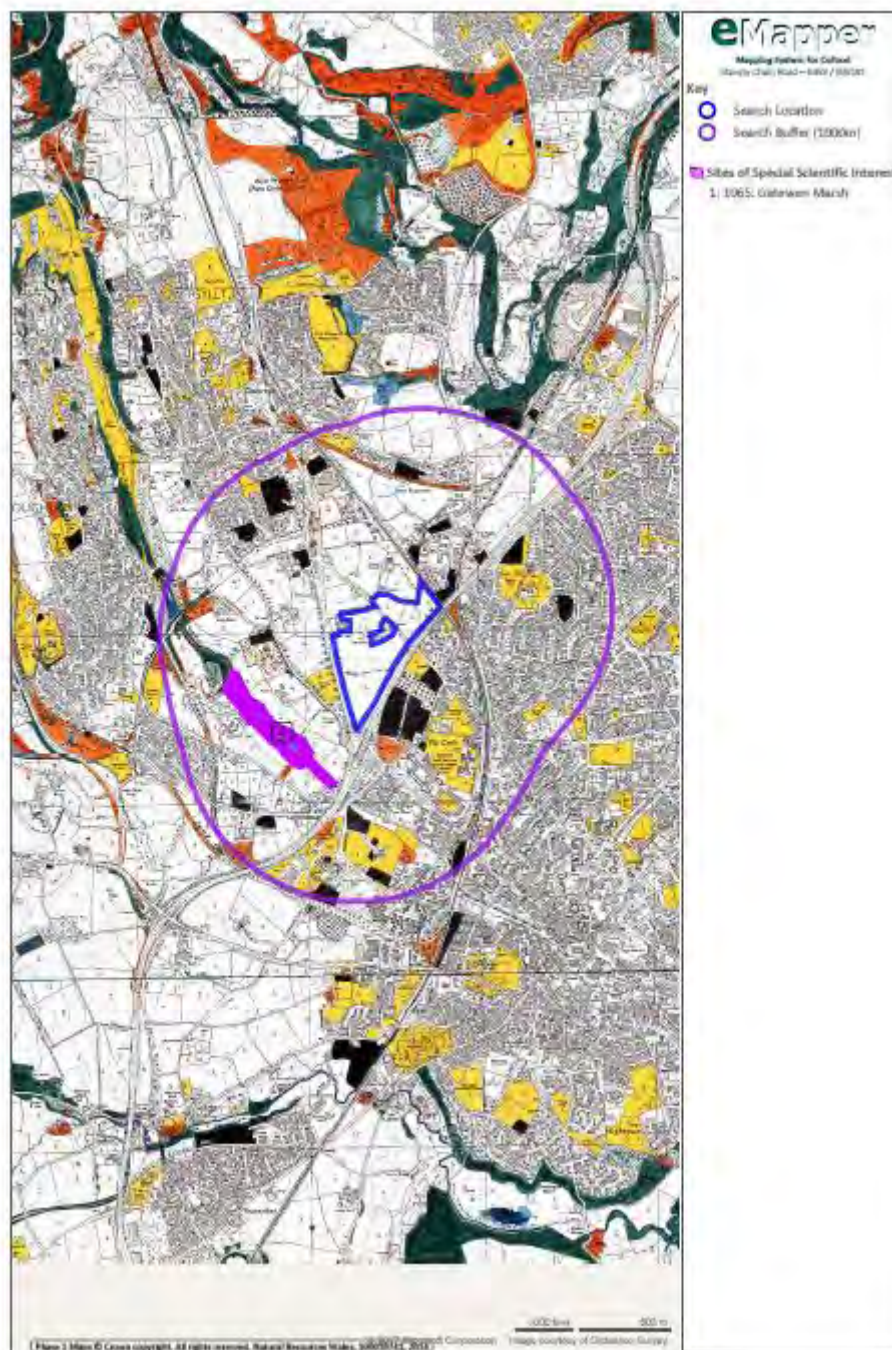
Policy EC4 Development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and other natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted.

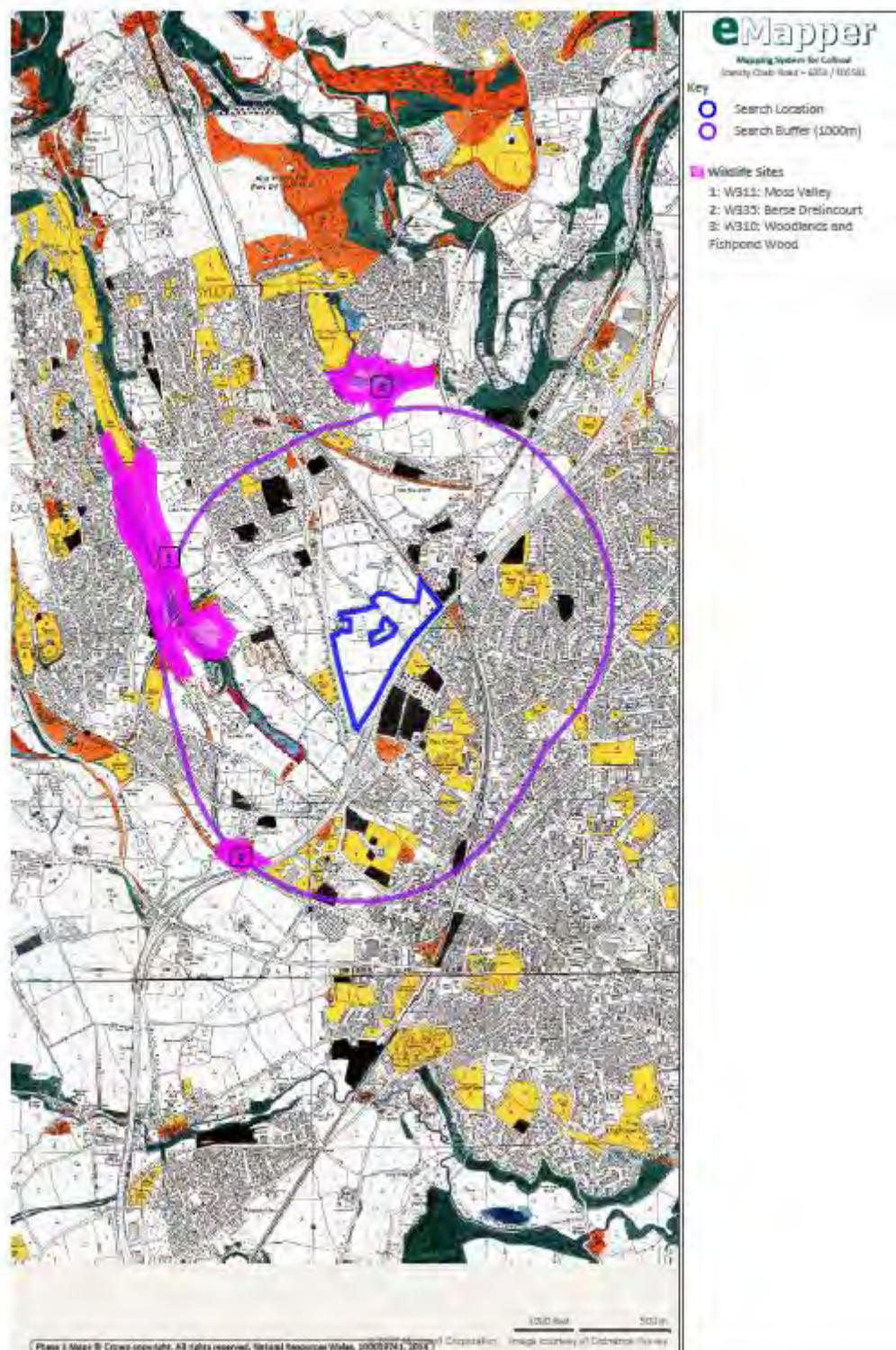
Policy EC5 Within Special Landscape Areas, priority will be given to the conservation and enhancement of the landscape. Development, other than for agriculture, small-scale farm-based and other rural enterprises, and essential operational development by utility service providers, will be strictly controlled. Development will be required to conform to a high standard of design and landscaping, and special attention will be paid to minimising its visual impact both from nearby and distant viewpoints.

Policy EC6 Development either within or close to sites of biodiversity interest will only be permitted where it can be clearly demonstrated that the need for the development outweighs the need to safeguard the intrinsic nature conservation value of the site. Where such development is permitted, damage should be kept to a minimum, and compensatory measures should be provided. Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported.

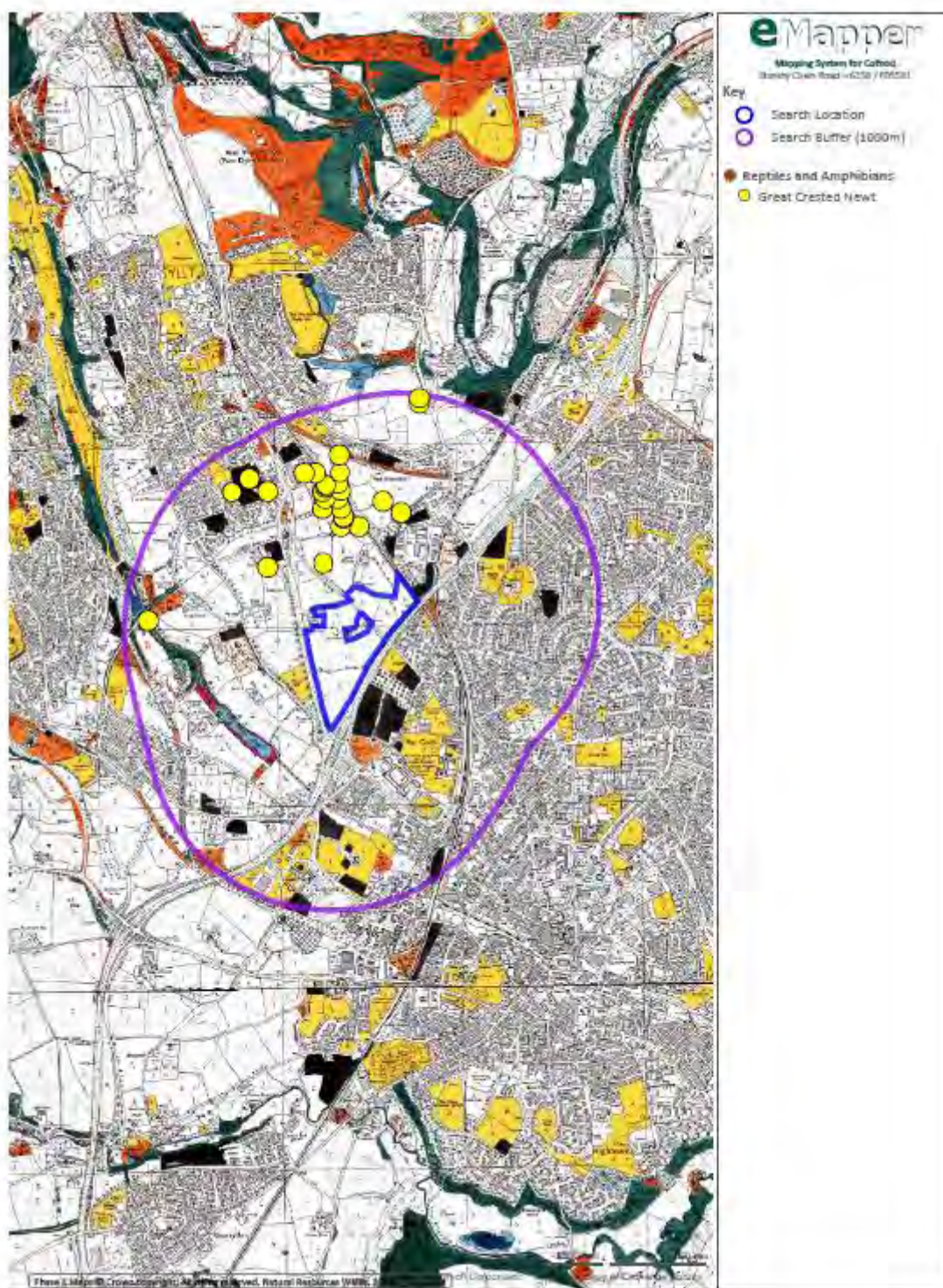
Policy EC7 Within, and in close proximity to, conservation areas, the priority will be to preserve and/or enhance those buildings, structures, streets, trees, open spaces, archaeological remains, views, and other elements which contribute to the unique character of the area. New buildings and alterations or additions to existing buildings in conservation areas, whether listed as of special architectural or historic interest or not, must reflect the design and character of the area as a whole and the form, scale, detailing and materials of existing buildings.

Map provided by Cofnod North Wales Environmental Information Services of site designations within 1km

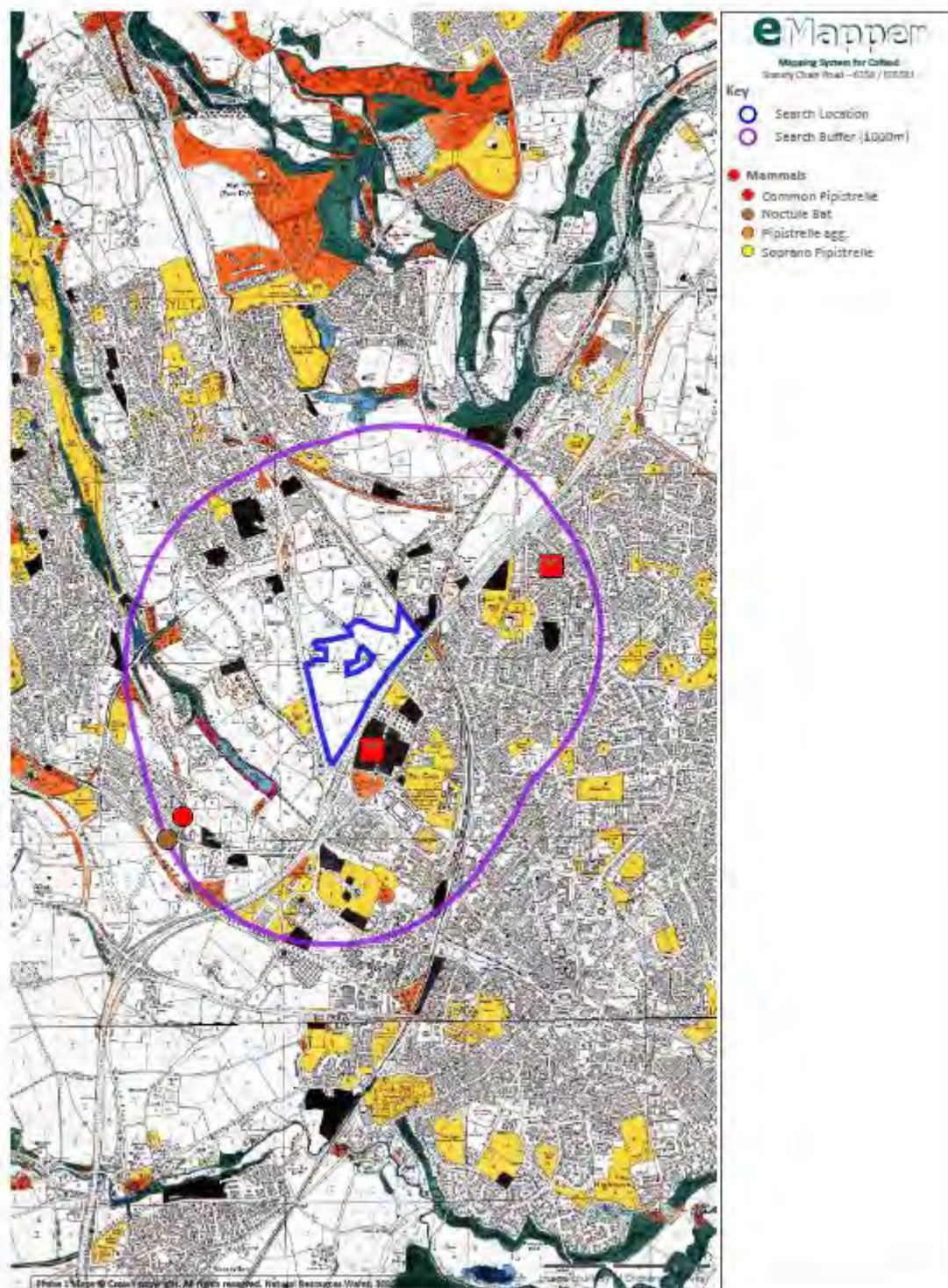




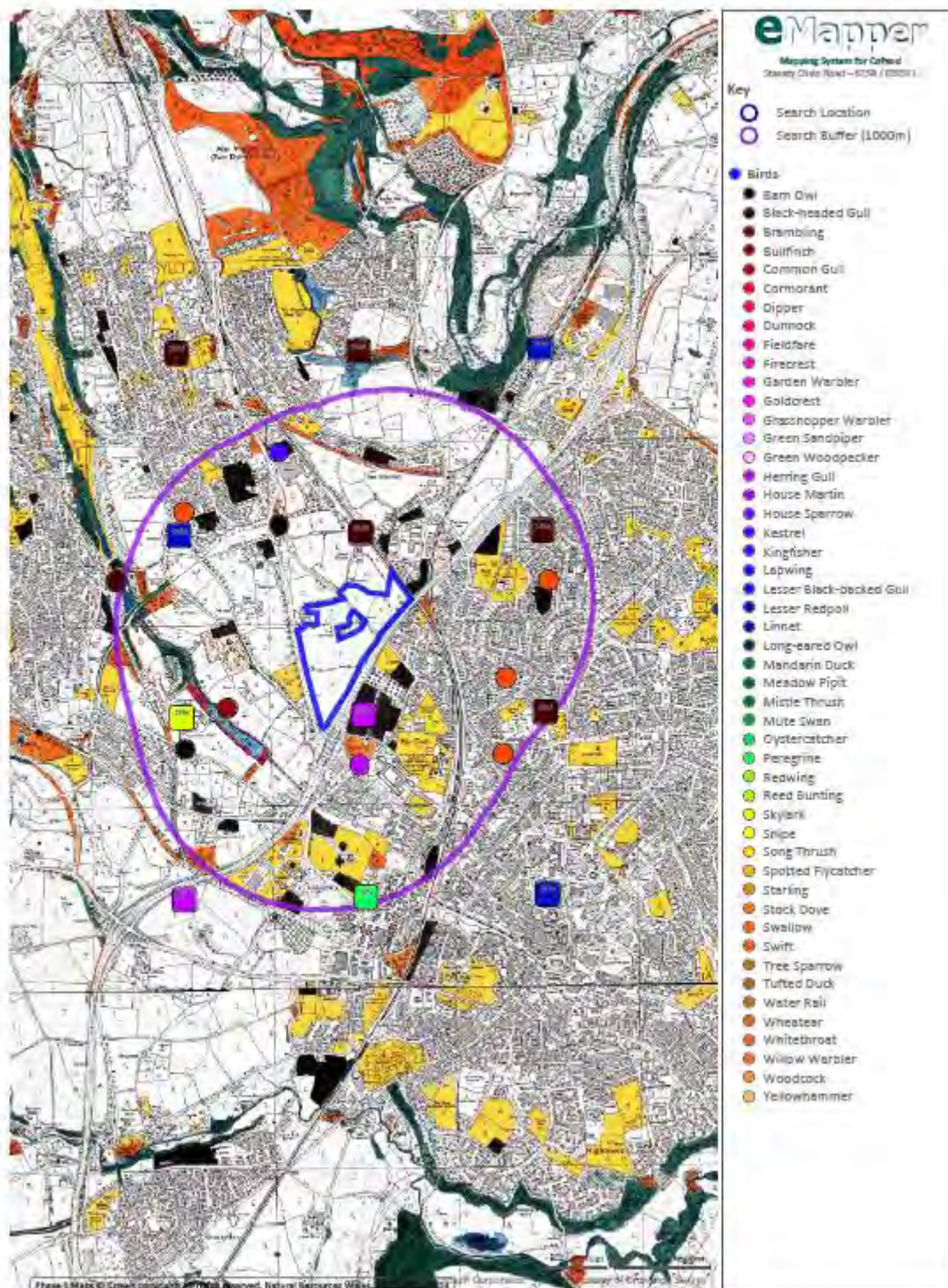
Extract of Amphibian species data provided by Cofnod North Wales Environmental Information Services within 1km



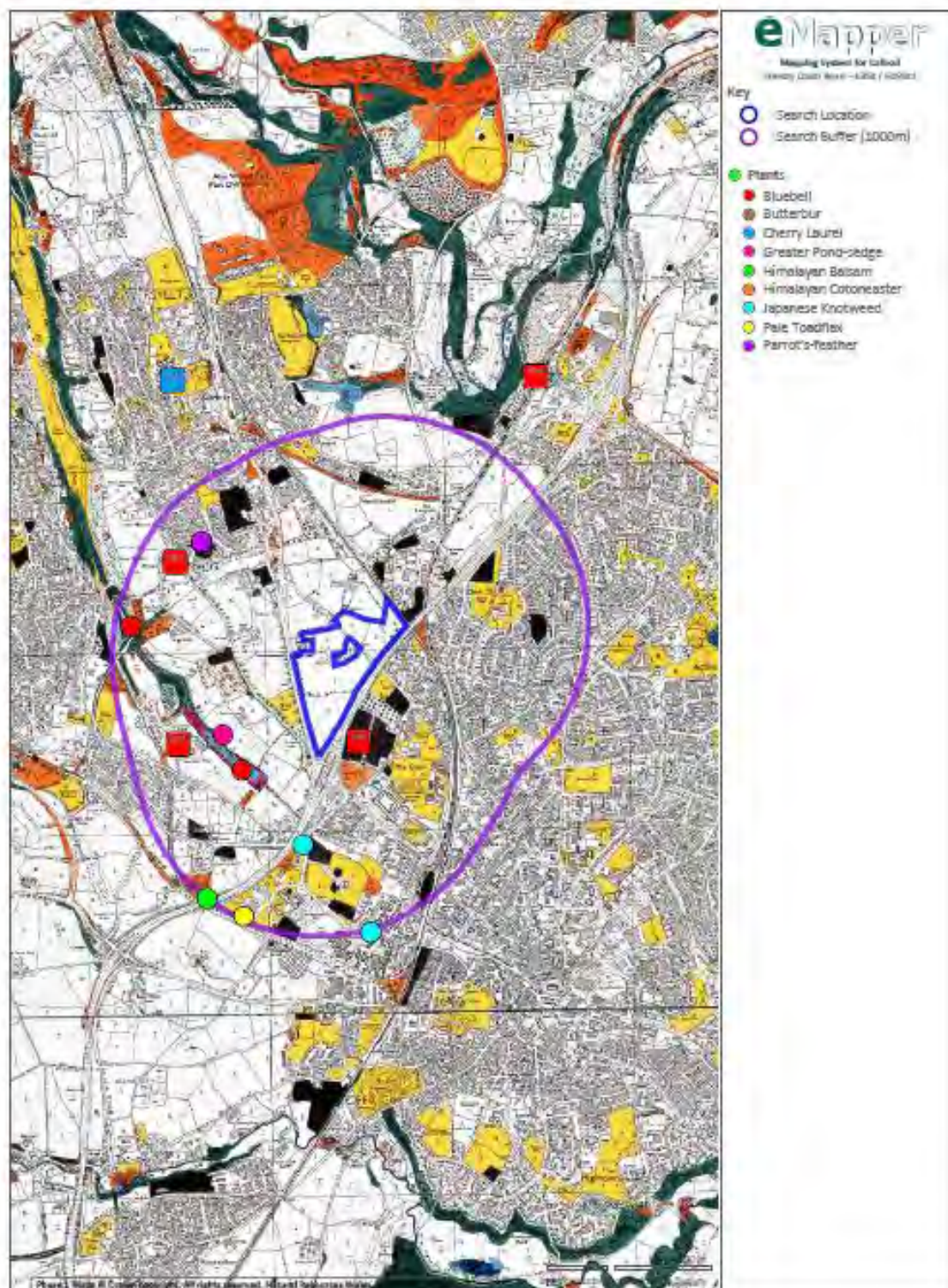
Extract of Bat species data provided by Cofnod North Wales Environmental Information Services within 1km



Extract of Bird species data provided by Cofnod North Wales Environmental Information Services within 1km



Extract of Flora species data provided by Cofnod North Wales Environmental Information Services within 1km

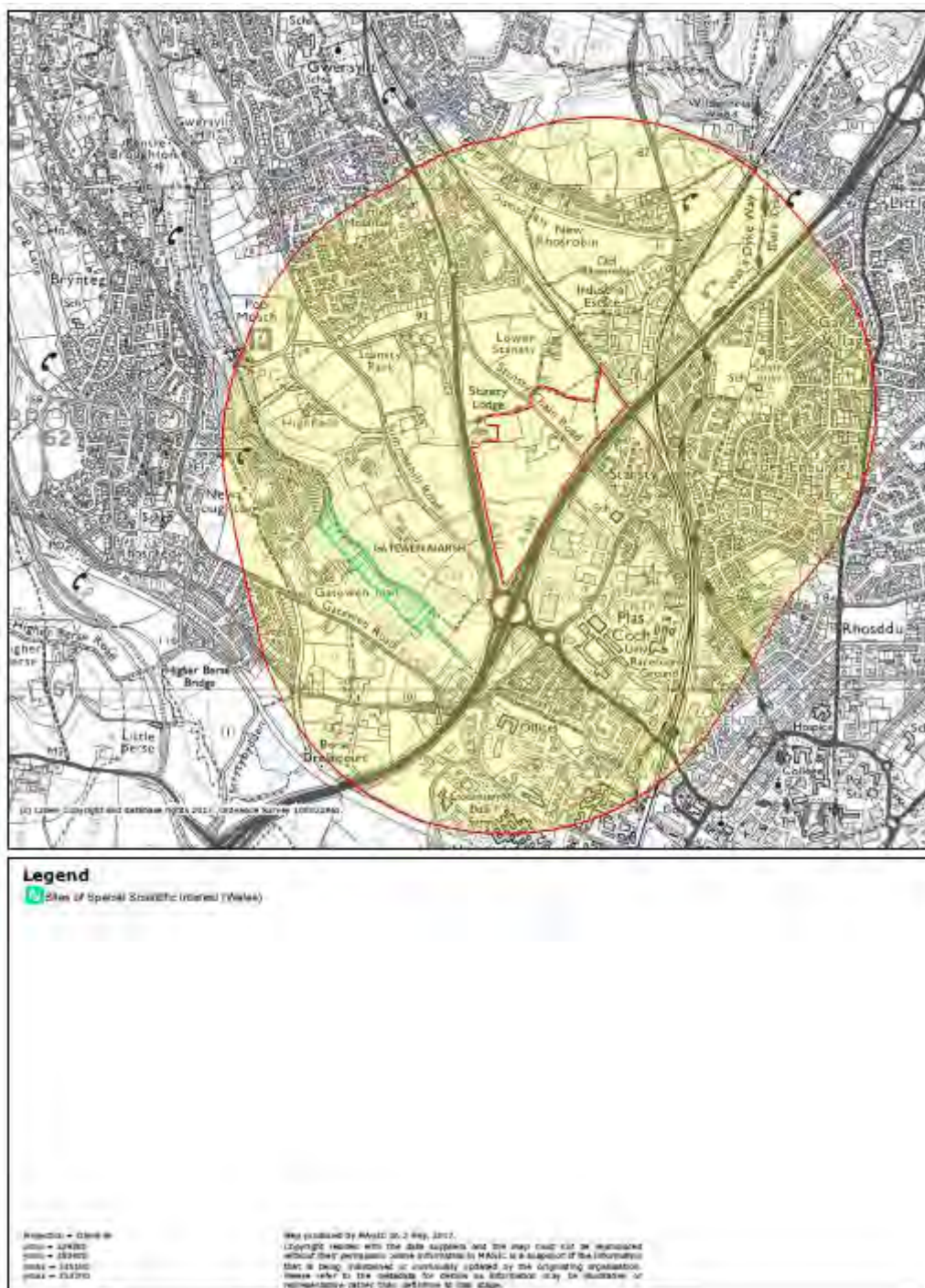


Extract of all species data provided by Cofnod North Wales Environmental Information Services within 1km

Scientific Name	English Name	Earliest Year	Latest Year	Total Records
<i>Acanthis cabaret</i>	Lesser Redpoll	2009	2013	9
<i>Aegithalos caudatus</i>	Long-tailed Tit	2008	2015	48
<i>Aix galericulata</i>	Mandarin Duck	2005	2008	3
<i>Alauda arvensis</i>	Skylark	2007	2007	3
<i>Alcedo atthis</i>	Kingfisher	2009	2015	5
<i>Anas platyrhynchos</i>	Mallard	2007	2015	47
<i>Anser anser</i>	Greylag Goose	2008	2008	1
<i>Anthus pratensis</i>	Meadow Pipit	2009	2009	3
<i>Apus apus</i>	Swift	2009	2015	41
<i>Asio otus</i>	Long-eared Owl	2009	2009	1
<i>Aythya fuligula</i>	Tufted Duck	2008	2008	2
<i>Branta canadensis</i>	Canada Goose	2007	2009	8
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	2008	2017	41
<i>Cinclus cinclus</i>	Dipper	2009	2009	3
<i>Columba oenas</i>	Stock Dove	2009	2013	6
<i>Cygnus olor</i>	Mute Swan	2007	2007	2
<i>Delichon urbicum</i>	House Martin	2004	2009	15
<i>Emberiza citrinella</i>	Yellowhammer	2007	2007	4
<i>Emberiza schoeniclus</i>	Reed Bunting	2008	2013	12
<i>Falco peregrinus</i>	Peregrine	2004	2015	21
<i>Falco tinnunculus</i>	Kestrel	2004	2013	22
<i>Fringilla montifringilla</i>	Brambling	2013	2013	4
<i>Gallinago gallinago</i>	Snipe	2009	2009	1
<i>Haematopus ostralegus</i>	Oystercatcher	2009	2009	1
<i>Hirundo rustica</i>	Swallow	2007	2013	27
<i>Larus argentatus</i>	Herring Gull	2009	2017	27
<i>Larus canus</i>	Common Gull	2009	2010	6
<i>Larus fuscus</i>	Lesser Black-backed Gull	2008	2010	11
<i>Linaria cannabina</i>	Linnet	2007	2009	2
<i>Locustella naevia</i>	Grasshopper Warbler	2008	2008	1
<i>Motacilla cinerea</i>	Grey Wagtail	2007	2015	23
<i>Muscicapa striata</i>	Spotted Flycatcher	2004	2009	4
<i>Oenanthe oenanthe</i>	Wheatear	2008	2008	1
<i>Passer domesticus</i>	House Sparrow	2009	2015	64
<i>Passer montanus</i>	Tree Sparrow	2013	2013	1
<i>Parus ater</i>	Coal Tit	2008	2015	24
<i>Phalacrocorax carbo</i>	Cormorant	2013	2013	2
<i>Phylloscopus trochilus</i>	Willow Warbler	2009	2011	6
<i>Picus viridis</i>	Green Woodpecker	2008	2010	8

Scientific Name	English Name	Earliest Year	Latest Year	Total Records
<i>Prunella modularis</i>	Dunnock	2009	2015	55
<i>Pyrrhula pyrrhula</i>	Bullfinch	2008	2017	26
<i>Rallus aquaticus</i>	Water Rail	2010	2013	8
<i>Regulus ignicapilla</i>	Firecrest	2008	2008	2
<i>Regulus regulus</i>	Goldcrest	2009	2013	18
<i>Scolopax rusticola</i>	Woodcock	2013	2013	1
<i>Sturnus vulgaris</i>	Starling	2008	2015	62
<i>Sylvia borin</i>	Garden Warbler	2007	2010	2
<i>Sylvia communis</i>	Whitethroat	2007	2009	5
<i>Tringa ochropus</i>	Green Sandpiper	2009	2009	1
<i>Turdus iliacus</i>	Redwing	2004	2013	16
<i>Turdus philomelos</i>	Song Thrush	2009	2015	42
<i>Turdus pilaris</i>	Fieldfare	2004	2010	9
<i>Turdus viscivorus</i>	Mistle Thrush	2009	2015	41
<i>Tyto alba</i>	Barn Owl	2009	2016	4
<i>Vanellus vanellus</i>	Lapwing	2008	2009	7
<i>Erinaceus europaeus</i>	Hedgehog	2009	2016	23
<i>Nyctalus noctula</i>	Noctule Bat	2015	2015	1
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	1989	2013	7
<i>Pipistrellus pipistrellus</i> agg.	Pipistrelle agg.	2013	2015	3
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	2013	2015	4
<i>Harmonia axyridis</i>	Harlequin Ladybird	2009	2010	5
<i>Carex riparia</i>	Greater Pond-sedge	2014	2015	2
<i>Cotoneaster simonsii</i>	Himalayan Cotoneaster	2014	2014	1
<i>Fallopia japonica</i>	Japanese Knotweed	2010	2015	3
<i>Hyacinthoides non-scripta</i>	Bluebell	2014	2015	6
<i>Impatiens glandulifera</i>	Himalayan Balsam	2007	2014	4
<i>Linaria repens</i>	Pale Toadflax	2014	2014	1
<i>Myriophyllum aquaticum</i>	Parrot's-feather	2008	2008	1
<i>Petasites hybridus</i>	Butterbur	2014	2014	2
<i>Prunus laurocerasus</i>	Cherry Laurel	2014	2014	1
<i>Valerianella locusta</i>	Common Cornsalad	2014	2014	1
<i>Lissotriton helveticus</i>	Palmate Newt	2014	2017	2
<i>Lissotriton vulgaris</i>	Smooth Newt	2002	2017	47
<i>Triturus cristatus</i>	Great Crested Newt	1992	2017	113
<i>Zootoca vivipara</i>	Common Lizard	2010	2010	1

MAGIC Map 1km search zone for designated wildlife sites – Map



MAGIC Map 1km search zone for designated wildlife sites - Report

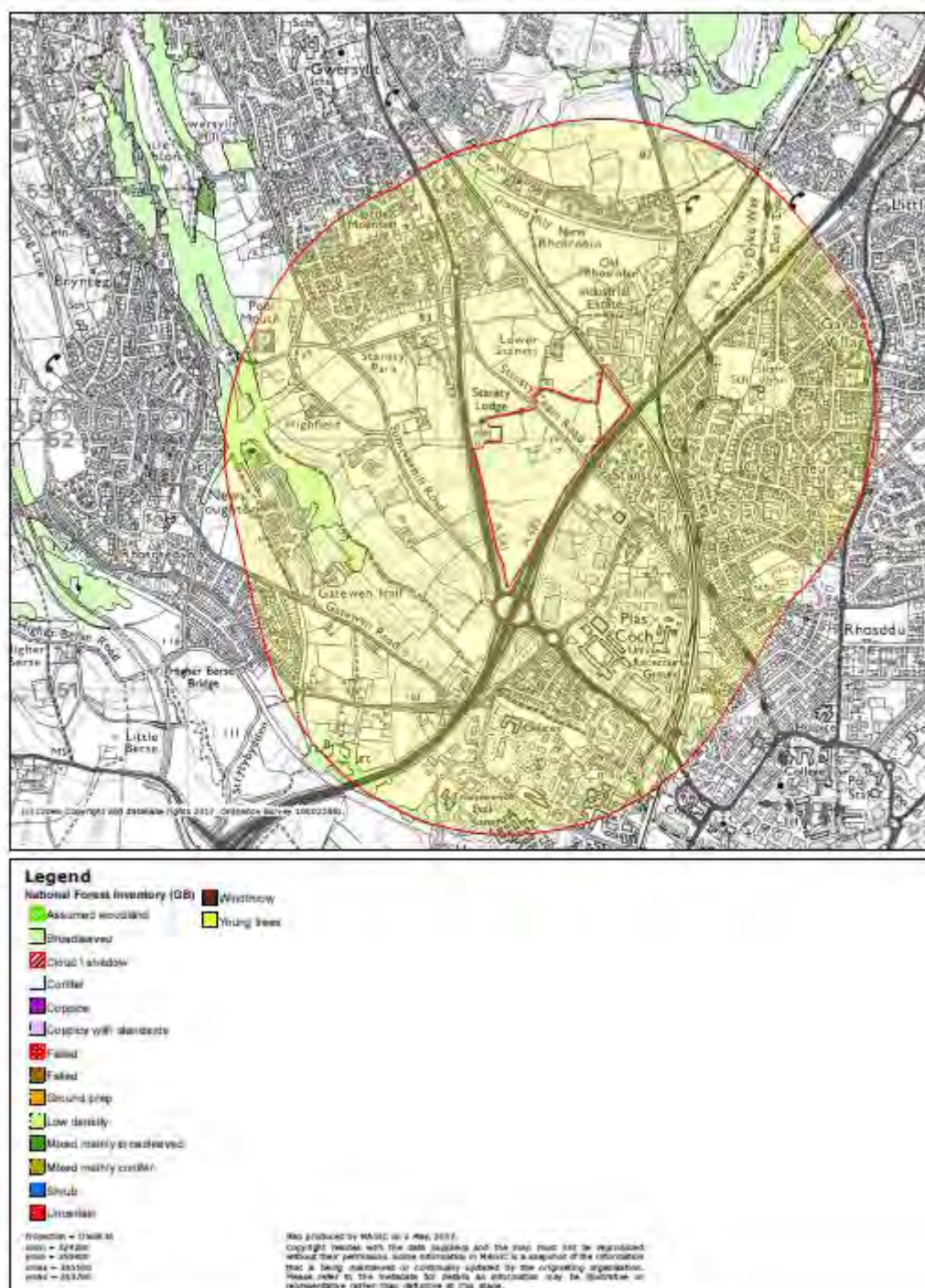
Sites of Special Scientific Interest (Wales) - points

Name
GATEWEN MARSH
SSSI Code
31WDL
First Notified
28/01/1986
Last Notified
Null
Confirmation Date
24/10/1986
Eastings
331846
Northings
351422
Cartesian Area (Ha)
4.550195

Sites of Special Scientific Interest (Wales)

Name
GATEWEN MARSH
SSSI Code
31WDL
First Notified
28/01/1986
Last Notified
Null
Confirmation Date
24/10/1986
Eastings
331846
Northings
351422
Cartesian Area (Ha)
4.550195

MAGIC Map 1km search zone for habitat inventory data



APPENDIX B: Bat Activity Surveys



THE
ENVIRONMENT
PARTNERSHIP



STANSTY CHAIN ROAD WREXHAM BAT ACTIVITY ASSESSMENT REPORT

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Document Title	Stansty Chain Road Bat Activity Assessment Report
Prepared for	Russell Homes (UK) Ltd
Prepared by	TEP - Warrington
Document Ref	6358.005

Author	Steph Davies
Date	October 2018
Checked	John Crowder
Approved	John Crowder

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DRAWINGS

G6358.004 Bat Transect Route and Static Locations
G6358.008 Bat Transect Survey Visit 1 16.05.2018
G6358.009 Bat Transect Survey Visit 2 20.06.2018
G6358.010 Bat Transect Survey Visit 3 10.10.2018

1.0 Introduction

- 1.1 TEP was commissioned by Russell Homes to undertake bat activity surveys at a potential residential development site off Stansty Chain Road in Wrexham, Wales. The bat activity surveys are required to inform a planning application for residential development (drawing A106224_002 Rev. J Stansty Green, Wrexham Illustrative Masterplan).
- 1.2 The objectives of this report are to:
- Identify if bats are using habitats on site for commuting and foraging;
 - Identify what bat species are present and what habitat features they are using;
 - Advise of mitigation requirements that may be needed prior to development of the site; and
 - Outline appropriate opportunities to provide biodiversity enhancement within site proposals.

Site Description

- 1.3 The site is located north west of Wrexham centre (at central grid reference SJ 32344 51854). The site comprises farmland dissected by a number of hedgerows and mature trees. Farmland surrounds the site to the north and west. Stansty Chain Road splits the northeastern end of the site while A483 lies along the eastern boundary of the site, beyond which lies commercial and residential developments. Mold Road (A541) lies along the western boundary of the site. The site context is shown in Figure 1 below and is identified by the solid redline boundary.

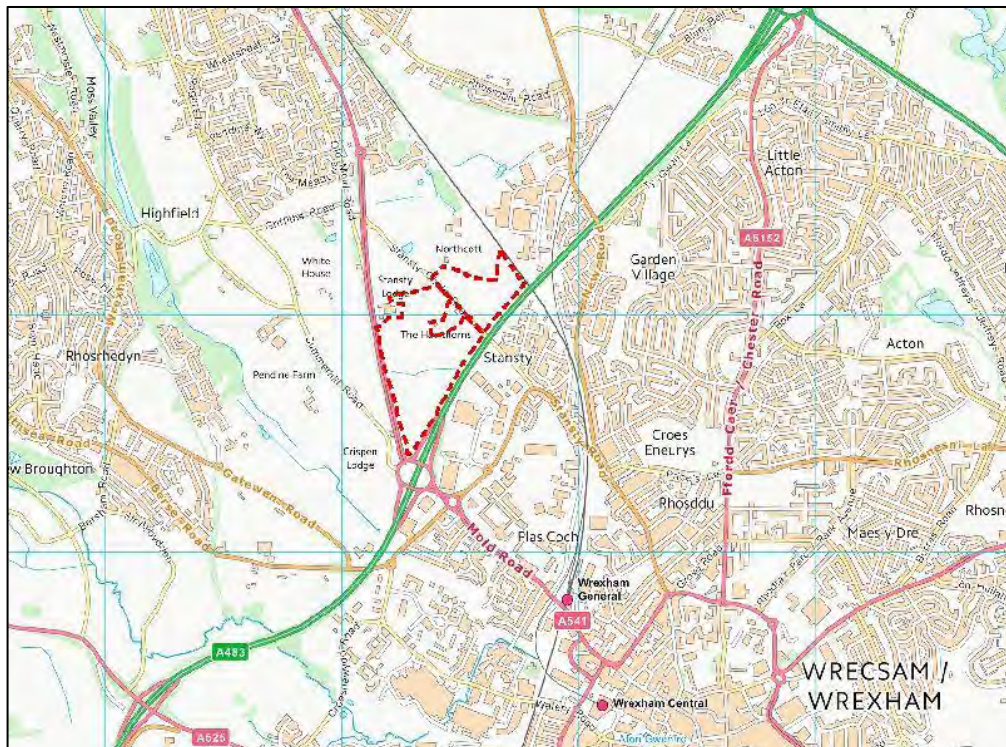


Figure 1: Site Location within Wider Landscape

(Contains Ordnance Survey data © Crown copyright and database right 2018)

2.0 Methods

Transect Surveys

- 2.1 The site was covered by one transect route. The transect route was devised to cover the whole working area, incorporating a variety of habitats suitable for bat foraging, commuting and dispersal. The transect route taken is shown in drawing G6358.004.
- 2.2 A pair of surveyors walked each route using heterodyne (Pettersson D230) and frequency division (Anabat) detectors. The surveys commenced at sunset and continued for at least 120 minutes after sunset in accordance with the Bat Conservation Trust (BCT) Guidance (Collins, 2016¹). Number of bat passes, species, behaviour and flight direction were noted at each pre-determined three-minute stop and the intervening walks.
- 2.3 Standardised methods of measuring and recording weather parameters were used e.g. cloud cover (oktas) and wind (Beaufort scale). Survey details for each visit is given in table 1 below:

Table 1: Transect survey details

Date	Visit	Sunset	Time		Temp °C		Rain		Cloud		Wind	
			Start	End	Start	End	Start	End	Start	End	Start	End
16/05/2018	1	21:06	21:06	23:08	12	11	0	0	4	0	1	1
20/06/2018	2	21:42	21:42	23:47	13	13	0	0	3	2	2	2
10/10/2018	3	18:29	18:27	20:30	18	16	0	0	0	0	0	0

Static Monitoring

- 2.4 The static detector locations are shown in Drawing G6358.004. These locations were chosen as the feature monitored (e.g. hedge with trees) was considered valuable foraging/commuting habitat for bats and is likely to be impacted by the proposals.
- 2.5 The statics were left for a minimum of five nights during favourable weather conditions to monitor bat activity (in line with the 2016 BCT guidance). Table 2 details each static monitoring period.

¹ Collins, J.(ed.) (2016) Bat surveys for professional ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust.

Table 2: Static monitoring details

Date	Visit	Comments	Rain
17/05/2018 - 21/05/2018	1	Weather conditions were good, no limitations	None
22/06/2018- 26/06/2018	2	Weather conditions were good, no limitations	None
10/10/2018- 14/10/2018	3	Weather conditions were good, no limitations	None

Sonogram Analysis

- 2.6 Recorded sonograms were analysed using Analook W4.2.4 software by Lindsey Roberts and Steph Davies.
- 2.7 For transect data, bat calls were manually verified. Calls were geo-referenced, automatically where possible, and digitally mapped using GIS. Each species is colour coded and flight direction is provided where this was observed.
- 2.8 The static monitoring data was scanned using an automated *Pipistrellus sp.* filter (developed by TEP) and all non-pipistrellus calls then manually verified. Data is presented as an activity index of average bat passes per night (total number of passes divided by the number of nights monitored).

Limitations

- 2.9 Brown long-eared bats *Plecotus auritus* were recorded during the surveys. This species can be relatively difficult to detect due to the low amplitude (i.e. quiet) calls. The activity of this species may therefore be underestimated. The conclusions and interpretation in this report takes this into consideration.
- 2.10 Bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor quality recordings (e.g. brief and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g. *Myotis*, *Myotis/Plecotus* and *Nyctalus/Eptesicus*) (Russ, 1999). Where call parameters are inconclusive the species has been labelled as 'unknown'. This ensures the dataset is interpreted accurately and transparently.
- 2.11 During the May transect survey (visit 1) no recordings were made and GPS was disabled due to equipment error. As such, bat activity during this visit was digitally mapped based on surveyor observations only. However, as transect surveys were successful in visits 2 and 3 and the May (visit 1) static monitoring was successful, it is considered that overall species assemblages and activity onsite has been identified effectively despite this limitation.

3.0 Results

Transect Surveys

- 3.1 The activity transects revealed at least five confirmed species of bat across the site;
- Common pipistrelle *Pipistrellus pipistrellus*;
 - Soprano pipistrelle *Pipistrellus pygmaeus*;
 - Pipistrelle species;
 - Noctule *Nyctalus noctula*;
 - Brown long-eared bat *Plecotus auritus*;
 - Unidentified *Myotis* species.
- 3.2 *Pipistrellus* species were the only identifiable species in May (visit 1). Foraging and commuting activity was concentrated around stop 10 which is located adjacent to a hedge with trees.
- 3.3 Common pipistrelle were the most commonly recorded species during June (visit 2) and October (visit 3). In June, foraging and commuting activity was associated with the hedge lines and trees at walk 9 and stop 6 and with scattered trees (walk 7). In October, common pipistrelle activity was recorded along the hedgerow with trees (walk 9), the hedgerow close to stop 1 and close to the buildings off Mold Road (walk 11).
- 3.4 Overall soprano pipistrelle activity across the site was low. In June, soprano pipistrelle were recorded along the hedge with trees (walk 9), scattered trees near to stop 9 and along the woodland edge along Mold Road (walk 12). In October, soprano pipistrelle were recorded near to the buildings off Mold Road (walk 11) and associated with the woodland edge (walk 12).
- 3.5 Noctule activity across the site was low. In June, noctules were recorded along the hedgerow associated with stop 6 and scattered trees associated with stop 9. In October, only one noctule pass was recorded along the northeast boundary associated with walk 1.
- 3.6 Brown long-eared was recorded in June only. One pass was recorded near to Stansty Chain Road associated with the woodland edge (walk 6).
- 3.7 *Myotis* species activity across the site was low. Both in June and October *Myotis* was recorded commuting and foraging along the hedge with trees (walk 9).

Static Monitoring

- 3.8 Pipistrelle species were the most predominantly recorded bats; sonograms that could be confidently identified to species level comprised common and soprano pipistrelle. Pipistrelle activity was generally highest at static location A, with the highest activity recorded in May (375.8ppn). Pipistrelle activity was reduced in June and October compared to that in May at both static locations.

- 3.9 Noctule activity was highest in May at static locations A (13ppn) and B (11.4ppn). Noctule activity reduced ten-fold in June at both static locations A (1.2ppn) and B (1.2ppn). No noctule activity was recorded in October at location A and only low activity was recorded at location B (0.2ppn).
- 3.10 Myotis species activity was highest in May at location A (13.2ppn), after which activity reduced at location A in June (2ppn) and October (0ppn). Myotis activity was generally low at static location B in May (3.4ppn), June (2ppn) and October (0.2ppn).
- 3.11 Brown long-eared bat activity was generally low being recorded only in October at location A (1.2ppn) and in June at location B (0.2ppn).
- 3.12 Figures 2 - 4 summarise the spatial distribution of bat activity recorded during static monitoring. Figure 5 - 7 summarise the temporal distribution of bat activity recording during static monitoring.

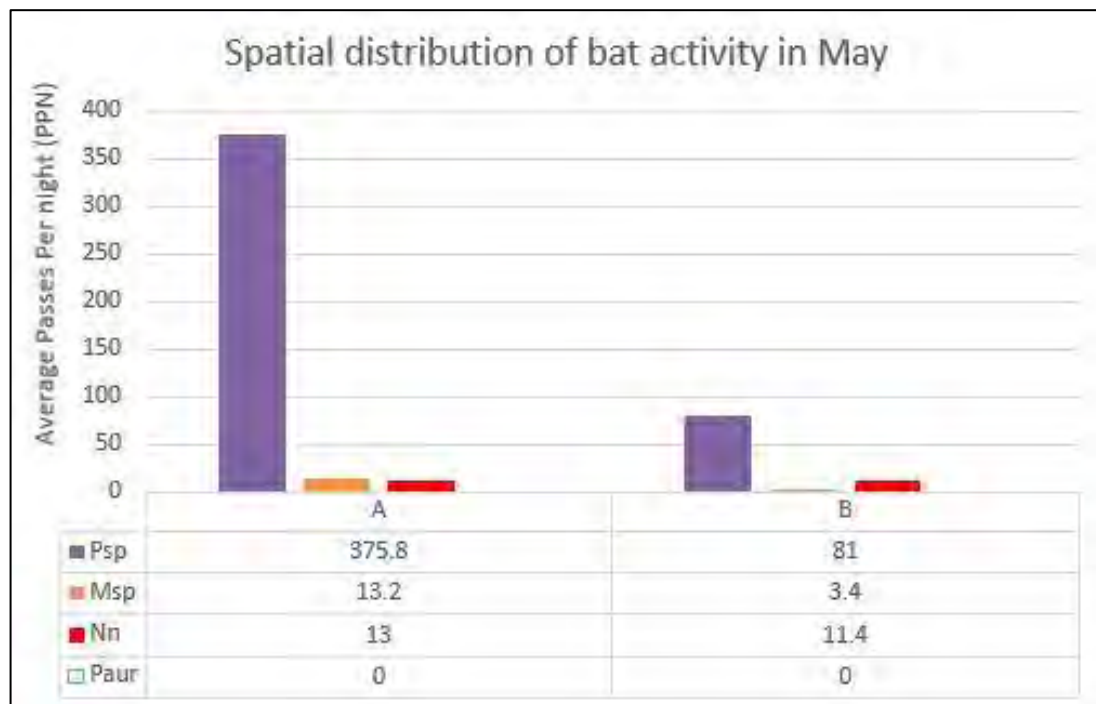


Figure 2: Comparison of average bat activity (PPN) in May

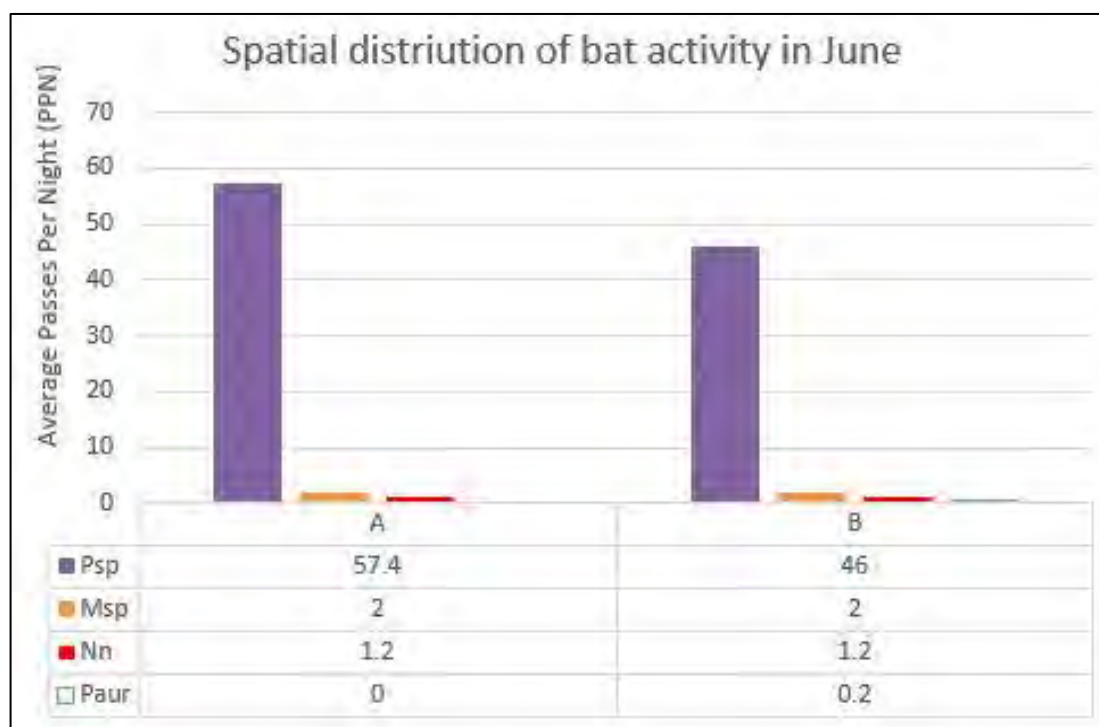


Figure 3: Comparison of average bat activity (PPN) in June

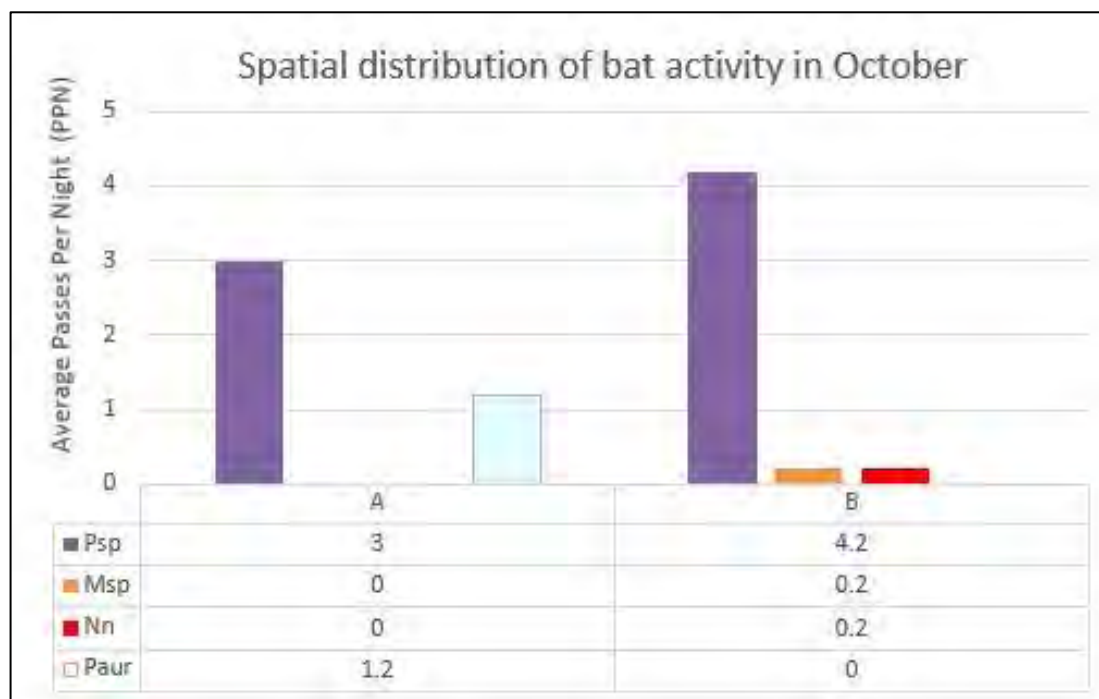


Figure 4: Comparison of average bat activity (PPN) in October

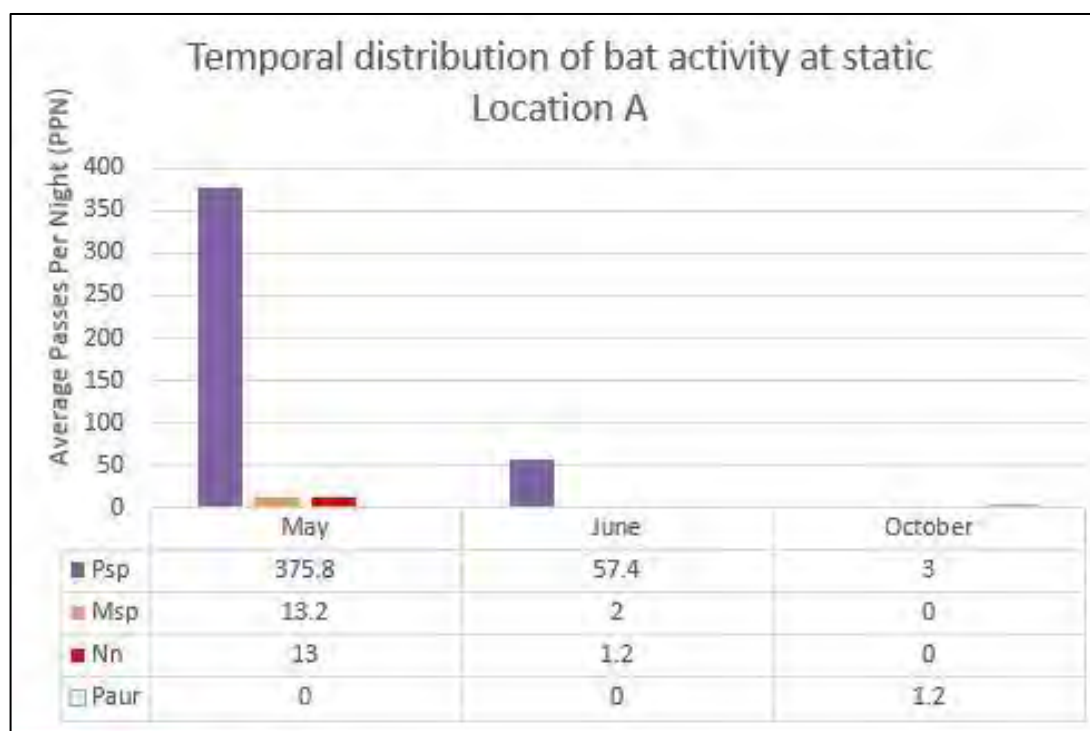


Figure 5: Comparison of bat activity (PPN) at monitoring Location A

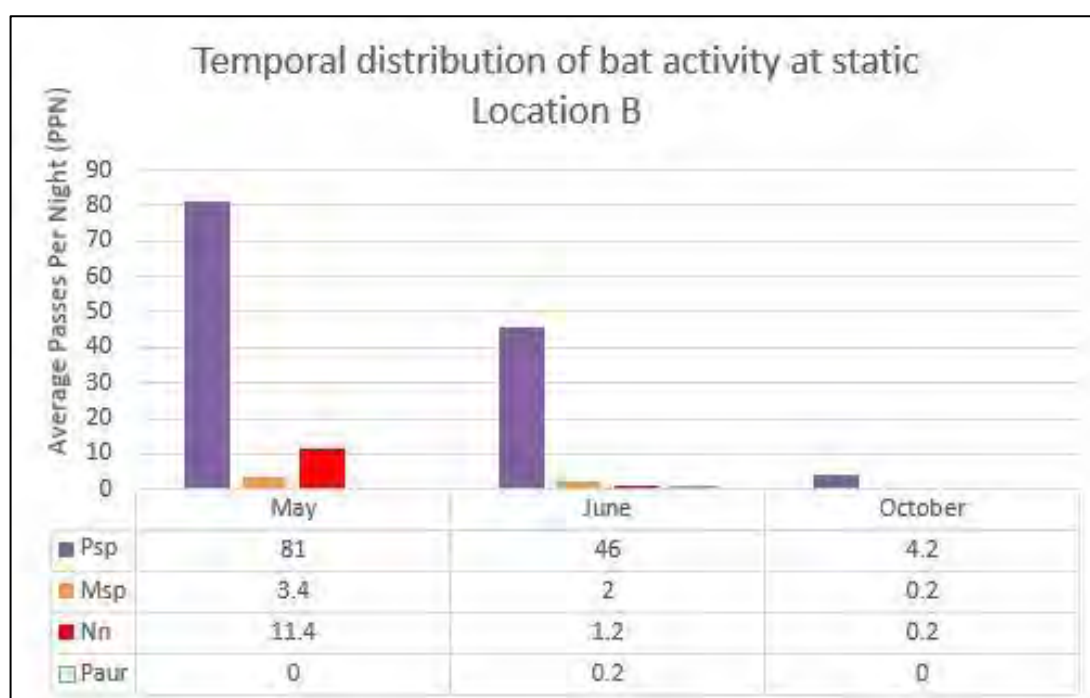


Figure 6: Comparison of bat activity (PPN) at monitoring Location B

4.0 Evaluation

- 4.1 Applying Wray *et. al.* (2010²), the site is valued as of county importance for pipistrelle species (common and soprano pipistrelle) and local importance for noctule, brown long-eared and Myotis species. Table 3 summarises the evaluation of the site for each species recorded.

Table 3: Site valuation of commuting and foraging importance for each species

Species	Number of bats	Roosts/ potential for roost suitability	Linear features		Foraging habitat	
			Character	Score	Character	Score
Pipistrelle species (2)	Large number of bats (20)	Small number (3)	Moderate field size, patchy tree lines & hedges (3)	28	Isolated woodland patches, less intensive, small towns & villages (3)	28
Noctule (5)	Individual bats (5)	Small number (3)	Moderate field size, patchy tree lines & hedges (3)	16	Isolated woodland patches, less intensive, small towns & villages (3)	16
Brown long-eared (2)	Individual bats (5)	Small number (3)	Moderate field size, patchy tree lines & hedges (3)	13	Isolated woodland patches, less intensive, small towns & villages (3)	13
Myotis species (5)	Individual bats (5)	Small number (3)	Moderate field size, patchy tree lines & hedges (3)	16	Isolated woodland patches, less intensive, small towns & villages (3)	16

- 4.2 It should be noted that, where available historic desktop data has been used, a precautionary approach has been applied in respect to numbers of bats and potential for roosts nearby.
- 4.3 Overall, considering the site location, small species assemblage and the wider landscape, the site is considered to be of local value to bats. As the development proposals are retaining all features of importance for bats it is considered that there will be no impact on the local bat population.

² Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2011). *Valuing bats in ecological impact assessment*. In practice. pg. 23-27.



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APPENDIX C: Breeding Bird Surveys



THE
ENVIRONMENT
PARTNERSHIP



STANSTY CHAIN ROAD, WREXHAM

BREEDING BIRD SURVEY 2018

TEP Technical Report September 2018

TEP

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[illegible]

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1.0 General Details

Central NGR	SJ 32472 51897
Site Location	Stansty Chain Road, Wrexham
Date(s)	Visit 1 = 25/04/2018 Visit 2 = 22/05/2018 Visit 3 = 19/06/2018
Surveyor(s)	Richard Castell, Mike Walker
Weather	1st visit - Dry, partly cloudy, very light breeze 2nd visit – Dry, partly cloudy, light breeze 3rd visit - Dry, partly cloudy, light breeze
Methods	Three morning survey visits using transect method, including a buffer extending 100m around the site boundary.
Seasonal Constraints	The survey was undertaken during the optimum breeding bird survey period. There are no constraints associated with the survey.
Drawing References	G6358.005 Breeding Bird Survey Visit 1 25.04.2018 G6358.006 Breeding Bird Survey Visit 2 22.05.2018 G6358.007 Breeding Bird Survey Visit 3 19.06.2018

2.0 Introduction

- 2.1 TEP was commissioned by Russell Homes (UK) Ltd in April 2017, to carry out a breeding bird survey of the potential residential development site off Stansty Chain Road in Wrexham, Wales, hereafter referred to as ‘the site’.
- 2.2 The breeding bird survey forms part of a suite of ecology services being undertaken to inform a future planning application for residential development.
- 2.3 The drawings for the breeding bird survey include two boundaries, the site boundary (S) and a 100m offset buffer (SBU). Drawings G6358.005 to G6358.007 illustrate these boundaries as well as the results of each visit of the survey.

Site Location and Description

- 2.4 The site is located northwest of Wrexham centre. The central grid reference is SJ 32344 51854. The site is immediately bounded by the A483 to the southeast, beyond this is Wrexham town. Arable land is to the north, beyond Stansty Chain Road which runs northwest to southeast through the northern part of the site. An abattoir lies beyond the northwest boundary. The east of the site is bounded by the A541 (Mold Road), this joins the A483 to a roundabout at the south of the site.
- 2.5 The site consists of a series of fields, with Stansty Chain Road dividing the site into a smaller northeastern section and a larger southern section. A wet ditch runs east to west in the southern section of the site. A thin strip of plantation broad-leaved woodland lies on the western border of the site in the southern section with a species-poor intact hedge running the length of this boundary. There are multiple oak trees in the northernmost part of the southern section. The northern section contains, and is bordered by, native species-rich intact hedge and some broad-leaved trees.
- 2.6 The surrounding landscape is a mixture of urban development and arable land.

Pre-existing Site Data

- 2.7 Desktop records of protected or notable bird species recorded within a 1km radius of the site were gathered from the Cofnod North Wales Environmental Information Services in May 2017. Bird species classed as notable are those listed on any of the following:
- Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1)
 - Species of principal importance under Section 7 of the Environment (Wales) Act 2016 (S7)
 - Red and Amber listed Bird of Conservation Concern (BoCC) UK species (BRd/ BAm) (Eaton *et al.* 2015)

- Red and Amber listed Bird of Conservation Concern (BoCC) in Wales (BAm/ BRd – Wales) (RSPB, 2016)

2.8 There are historical records of 42 notable bird species that have been recorded within 1 km of the site. The birds identified within these records are

- Barn Owl (WCA1)
- Black-headed Gull (S7, BAm, BRd - Wales)
- Bullfinch (S7, BAm, BRd -Wales)
- Common Gull (BAm, BRd -Wales)
- Cormorant (BAm - Wales)
- Dipper (BAm, BRd - Wales)
- Dunnock (S7, BAm)
- Firecrest (WCA1, BAm - Wales)
- Grasshopper Warbler (S7, BRd, BRd - Wales)
- Green Woodpecker (BAm - Wales)
- Grey Wagtail (BRd, BAm - Wales)
- Greylag Goose (WCA1 (pt2), BAm)
- Herring Gull (S7, BRd, BRd - Wales)
- House Martin (BAm)
- House Sparrow (S7, BRd, BAm - Wales)
- Kestrel (S7, BAm, BRd - Wales)
- Kingfisher (S1, BAm, BRd - Wales)
- Lapwing (S7, BRd, BRd - Wales)
- Lesser Black-backed Gull (BAm, BAm - Wales)
- Lesser Redpoll (S7, BRd, BAm - Wales)
- Linnet (S7, BRd, BRd - Wales)
- Long-eared Owl (BAm - Wales)
- Long-tailed Tit (BAm - Wales)
- Mallard (BAm, BAm - Wales)
- Meadow Pipit (BAm, BAm - Wales)
- Mistle Thrush (BRd, BAm - Wales)
- Mute Swan (BAm)
- Oystercatcher (BAm, BAm - Wales)
- Peregrine (WCA1)
- Reed Bunting (S7, BAm, BAm - Wales)
- Skylark (S7, BRd, BAm – Wales)
- Snipe (BAm, BAm - Wales)
- Song Thrush (S7, BRd, BAm - Wales)
- Spotted Flycatcher (S7, BRd, BRd - Wales)
- Starling (S7, BRd, BRd - Wales)
- Stock Dove (S7, BRd, BRd - Wales)
- Swift (BAm, BAm - Wales)
- Tree Sparrow (S7, BRd, BRd - Wales)
- Whitethroat (BRd - Wales)
- Willow Warbler (BAm, BRd - Wales)
- Woodcock (BRd, BRd - Wales)
- Yellowhammer (S7, BRd, BRd - Wales)

3.0 Method

- 3.1 The surveys were carried out applying methods based on the standard breeding bird survey and common bird census methods developed by the British Trust for Ornithology (Gilbert *et al.* 1998).
- 3.2 Visits were carried out in the morning period, starting at least half an hour after dawn. Each survey visit was carried out approximately 4 weeks apart, over the period May to June.
- 3.3 Bird species and activity patterns were recorded and mapped using standard BTO symbology.
- 3.4 Three survey visits were undertaken using pre-determined transect routes to cover the entire site.
- 3.5 Bird species within the 100m surrounding the site boundary were also recorded during the survey, as a proportion of the bird's foraging or nesting habitat is likely to be within the site.

4.0 Results

Visit	Date	Start Time	Finish Time
Visit 1	25/04/2018	06:00	07:30
Visit 2	22/05/2018	06:00	07:30
Visit 3	19/06/2018	06:30	08:00

Table 1: Counts of bird species recorded during the 2018 breeding bird season, including conservation and likely breeding status.

Species	Visit 1		Visit 2		Visit 3		Status	Likely Breeding Status (No. of pairs)	
	S	SB U	S	SB U	S	SB U		S	SBU
Blackbird	5	9	1	7	1	2		C (1)	C (1), Pr (3)
Blackcap				1		1		N	Pr (1)
Blue Tit	5	7		1	2	12		Pr (1)	C (2) Pr (1)
Bullfinch				2			S7, BAm, BRd - Wales	N	Po
Carrion Crow	24	28	3	5	77	5		C (1)	C (1) Pr (2)
Chaffinch		2						N	Po
Chiffchaff	1	2						Po	Po
Dunnock	3	5	1	4	3	5	S7, BAm	Pr (1)	Pr (3)
Goldfinch	2	5		1	2	16		Po	Po
Great Spotted Woodpecker				1				N	Po

Species	Visit 1		Visit 2		Visit 3		Status	Likely Breeding Status (No. of pairs)	
	S	SB U	S	SB U	S	SB U		S	SBU
Great Tit	3	2		2	1	2		Pr (1)	Pr (2)
Greenfinch	2	4		2	1	3		Pr (1)	C (1) Pr (1)
Herring Gull	2	2					S7, BRd, BRd - Wales	N	N
House Sparrow			3	3			S7, BRd, BAm - Wales	Po	Po
Jackdaw	1	6	1	2		2		N	Po
Lesser Black-backed Gull	1	2	4	17		2	BAm, BAm - Wales	N	N
Long-tailed Tit	2	4	1	1		1	BAm - Wales	C (1)	C (2)
Magpie	1	1		2	3	4		N	Po
Mistle Thrush			1	1		2	BRd, BAm - Wales	Po	Po
Nuthatch				1				N	Po
Pied Wagtail				1				N	Po
Robin	3	6	1	6	1	1		Pr (1)	Pr (6)
Rook	1	11	30	30				N	C (1 colony)
Song Thrush		1			1	1	S7, BRd,	Po	Pr (1)

Species	Visit 1		Visit 2		Visit 3		Status	Likely Breeding Status (No. of pairs)	
	S	SB U	S	SB U	S	SB U		S	SBU
							BAm - Wales		
Starling					1	10	S7, BRd, BRd - Wales	N	Po
Stock Dove	3	3					S7, BRd, BRd - Wales	N	Po
Swallow				2	2	1		N	Po
Wood Pigeon	7	15	8	12	11	14		Pr (4)	Pr (6)
Wren	3	10	2	9	3	10		Pr (1)	Pr (3)
Total Species	18	20	12	23	14	19			

S: Site; SBU: Site including 100m buffer

Status Key: WCA1 = Schedule 1, S7 = Section 7; BRd = BoCC Red List; BAm = BoCC Amber List.

Likely Breeding Status Key: C = Confirmed, Pr = probably breeding within site, Po = possibly breeding within site, N = not breeding within site.

Results Summary

- 4.1 The breeding bird survey has been conducted to identify areas of importance for birds and any constraints concerning birds for the proposed residential development. The results of the survey are shown in drawings G6358.005, G6358.006 and G6358.007.
- 4.2 There are historic records of 42 notable species (species classed as S7, BRd, BAm, BRd – Wales, BAm - Wales) that have been recorded within 1km of the site. Ten of these species, bullfinch, dunnock, herring gull, house sparrow, lesser black-backed gull, long-tailed tit, mistle thrush, song thrush, starling, and stock dove, were recorded within the site and/or 100m survey buffer during the 2018 breeding bird survey.
- 4.3 A total of 29 species were recorded within the site boundary and 100m buffer during the breeding bird survey; 20 species in visit one, 23 species in visit two and 19 species in visit three.

- 4.4 During the breeding bird survey, seven S7 species were recorded within the site buffer.
- 4.5 Six bird species were confirmed to be breeding within the site boundary and 100m buffer. These are blackbird, blue tit, carrion crow, greenfinch, long-tailed tit, and rook. With regards to notable bird species, a single pair of long-tailed tit were confirmed to breed within the site itself, and another single pair were confirmed to breed within the site buffer.
- 4.6 Eleven probable breeding species were recorded within the site and 100m buffer during the breeding bird survey. Only dunnock and song thrush were notable species.
- 4.7 The only notable bird species confirmed to breed or recorded to probably breed within the site itself (not including 100m buffer), were dunnock (1 pair) and long-tailed tit (1 pair).

5.0 Evaluation and Recommendations

- 5.1 The 29 bird species recorded during the 2018 breeding bird survey within the site and site buffer represents a low species diversity with the majority of species recorded being commonplace and widespread. One notable bird species was confirmed or likely to be nesting within the site itself. This being a single pair of long-tailed tit.
- 5.2 Fuller (1980) devised a method of classifying the ornithological interest of sites for conservation based on three site attributes: population size, rarity and diversity.
- 5.3 No significant breeding bird concentrations (i.e. 1% or more of the national breeding population) or nationally rare breeding bird species (i.e. between 1 and 1,000 breeding pairs) (Musgrove *et al.* 2013) were recorded during the survey.
- 5.4 The total number of confirmed, probable and possible breeding bird species recorded within a site also indicates its significance. Table 2 includes the breeding diversity criteria devised by Fuller.

Table 2: Significance of the total number of breeding species recorded at a site

Local	County	Regional	National
25-49	50-69	70-84	85+

- 5.5 Based on the above criteria, the 15 confirmed, probable and possible breeding bird species recorded within the site would indicate it is of less than local significance for breeding birds.
- 5.6 The majority of bird species recorded during the survey are associated with nesting in trees, hedgerow and scrub, with the majority of birds noted during the survey recorded within the hedges along the site boundaries and the scattered board-leaved trees. This includes all of the notable bird species recorded.
- 5.7 The removal of hedgerows and trees will reduce the amount of breeding and nesting habitat available for these species and hedgerows should be retained or replaced wherever possible. If trees are to be replaced or new hedgerows planted, they should include a range of native species to create a varied vegetation structure and suit a wider range of breeding bird species. Fruiting tree and shrub species and/or species that are attractive to insects will also provide additional foraging resources for numerous bird species.
- 5.8 A nest box scheme undertaken as part of the development, including small nest boxes with holes and open fronted nest boxes, would provide additional nesting sites for a number of species such as blue tit and robin. House sparrow have been recorded to nest within surrounding habitat and therefore house sparrow terraces should be incorporated into the new development to encourage this notable bird species.

- 5.9 All wild birds and their nests and eggs are protected under the *Wildlife and Countryside Act 1981*, as amended. It is recommended that all tree and vegetation clearance across site avoids the core breeding bird season, March to August inclusive; although bird nesting can take place outside this period. If vegetation clearance works are necessary during the core breeding bird season, or at any time when bird nesting is suspected, a nesting bird check of the affected area by an ecologist is required immediately prior to the clearance works taking place. Extensive clearance of potential bird nesting habitat is not always practical and development programmes should take this constraint into account.

6.0 References

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Musgrove, A., Aebischer, N., Eaton, M., Hearn, R., Newson, S., Noble, D., Parsons, M., Risely, K. and Stroud, D., 2013. Population estimates of birds in Great Britain and the United Kingdom. *British Birds*, 106, pp.64-100.



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APPENDIX D: Reptile Surveys



REPTILE SURVEY RECORD 2018

1.0 GENERAL DETAILS

Site Name	Stansty Chain Road, Wrexham		
Job Number	6358	Doc. Ref	6358.003
Site Location	Land East of Stantsy Chain Road, LL11 4YG		
Date(s)	30 th May 2018 to 4 th June 2018 & 7 th September 2018 to 17 th September 2018		
Surveyor(s)	Annabel Walker-Evans & Clare Gower		
Seasonal Constraints	The surveys were undertaken during the months May to early June and September. There were no seasonal constraints to the survey.		
Methods	Survey for presence / probable absence of reptiles was undertaken in May, early June and September 2018 by TEP Ecologists Clare Gower & Annabel Walker-Evans. On the 2nd May 2018, a total of 60 artificial cover objects (ACO's) were laid, in accordance with the recommended density in Froglife guidance (Foster, 1999). ACO's, a mixture of roofing felts and metal profile tins, were laid in areas of most favourable habitat for reptiles. Suitable locations focused on the semi-improved neutral grassland and scrub / hedgerow borders, providing good foraging, sheltering and basking habitat. Remnants of an old stone wall towards the centre of the survey area also offers good basking habitat for reptiles. ACO's were placed on predominatly south-facing locations, which were exposed to a reasonable amount of sunlight. The refugia were searched on eight occasions (along with existing features likely to shelter reptiles) using a walked transect to observe basking/moving reptiles between ACO's.		
Drawing Ref:	G6358.011 Reptile Mats Location		

2.0 PRE-EXISTING DATA FOR SITE

Source	Protected species	Distance from site	Direction from site
Cofnod North Wales Environmental Information Services	One record of Common Lizard <i>Zootoca vivipara</i> , was identified in 2010.	624m, Mold Rd	North

3.0 REPTILE SURVEY RESULTS

3.1 Survey Results

Date of visits (2013)	Weather	Grass snake	Common lizard	Slow worm	Adder	Other
30 th May	16.5°C 1/8 cloud cover Sunny	0	0	0	0	-
31 st May	17.6°C 1/8 cloud cover Very Sunny	0	0	0	0	-
1 st June	18.2°C 1/8 cloud cover Very Sunny	0	0	0	0	1x field vole
4 th June	17.3°C 1/8 cloud cover Light rain before survey.	0	0	0	0	-
7 th September	16 °C 4/8 cloud cover Intermittent sun	0	0	0	0	1 x wood mouse
12 th September	15 °C 4/8 cloud cover Overcast	0	0	0	0	-
13 th September	14 °C 3/8 cloud cover Sunny	0	0	0	0	-
17 th September	17 °C 1/8 cloud cover Very sunny	0	0	0	0	1 x wood mouse

3.2 Survey Evaluation

Pre-existing Data

There is one record from 2010 of common lizard located 624m north of site. There are no records of reptiles identified within the site itself.

Habitat Suitability

The site provides some suitable habitat for common and widespread reptile species, such as common lizard and slow worm *Anguis Fragilis*. Habitats recorded include presence of transitional habitats and basking areas, including the hedgerows. Rubble remains of an old stone wall can also provide basking areas for reptiles on site. The improved grassland, however, offers low quality foraging habitat.

Limitations

The initial reptile survey in May 2018 was interrupted with reptile tins removed from site. These were replaced in mid-May, given time to bed in and due to the late start in May the surveys then had to be completed in September.

As all surveys were completed within appropriate seasons and as such there were no significant limitations to the survey. All of the habitats suitable for reptiles were surveyed and the weather was dry and clear during each of the survey visits. All survey visits were conducted within the optimal reptile survey period.

Survey Results

No evidence of reptiles was identified during the survey. One field vole was recorded under a reptile ACO on survey visit three, and one wood mouse on each of survey visits five and eight.

4.0 SUMMARY

60 reptile refugia were placed in suitable microhabitats around the site, focusing on hedgerows crossing the site and the habitats along the site boundaries. The reptile tins were checked on four different occasions during May and June as well as on four occasions during September for the presence of reptiles in accordance with current guidelines.

One record of common lizard was revealed within 1km of the site. No reptiles were recorded during the course of the survey.

APPENDIX E: Hedgerow Species List

Target Notes Report

Stansty Chain Road, Wrexham

HEDGEROWS

Hedge H1

Native species-rich intact hedge separating two areas of improved grassland. Approximately 100m long, connected to hedges H2 and H3.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Prunus spinosa</i>	Blackthorn	A
<i>Ulmus glabra</i>	Wych Elm	F
<i>Corylus avellana</i>	Hazel	O
<i>Ilex aquifolium</i>	Holly	O
<i>Rosa canina</i> agg.	Dog Rose	O
<i>Sambucus nigra</i>	Elder	O

Hedge H2

Tall, native species-rich hedge and trees between two areas of improved grassland. Approximately 80m long, joined to hedgerows H1 and H3. Northern end adjacent to the railway line.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rosa canina</i> agg.	Dog Rose	A
<i>Sambucus nigra</i>	Elder	O
<i>Ulmus glabra</i>	Wych Elm	O

Hedge H3

Native species-rich intact hedge between two areas of improved grassland. Approximately 50m long, connected to hedgerows H1, H2, H4 and H5.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Prunus spinosa</i>	Blackthorn	A
<i>Sambucus nigra</i>	Elder	O
<i>Ulmus glabra</i>	Wych Elm	O
<i>Ilex aquifolium</i>	Holly	R

Hedge H4

Wide native species-rich intact hedge between two areas of improved grassland with an area to the Western end bordering a residential property. Approximately 100m long, connected to hedgerows H3, H5 and H6 with some scattered broad-leaved trees present.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rubus fruticosus</i> agg.	Bramble	A
<i>Corylus avellana</i>	Hazel	O
<i>Ulmus glabra</i>	Wych Elm	O
<i>Ilex aquifolium</i>	Holly	R
<i>Sambucus nigra</i>	Elder	R

Hedge H5

Low species-poor intact hedge between two areas of improved grassland with at least one break - used for vehicle access - and one broad-leaved tree with moderate bat potential. Approximately 110m long connected to hedgerows H3, H4 and H7.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Prunus spinosa</i>	Blackthorn	A
<i>Sambucus nigra</i>	Elder	F
<i>Corylus avellana</i>	Hazel	O
<i>Ulmus glabra</i>	Wych Elm	O

KEY - D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Hedge H6

Low native species-rich intact hedge between improved grassland and an unnamed road. One broad-leaved tree with high bat potential. Approximately 45m long, connected to hedgerows H4 and H7.

<i>Ulmus glabra</i>	Wych Elm	D
<i>Corylus avellana</i>	Hazel	F
<i>Rosa canina</i> agg.	Dog Rose	O
<i>Sambucus nigra</i>	Elder	O
<i>Acer</i> sp.	Maple species	R
<i>Ilex aquifolium</i>	Holly	R

Hedge H7

Native species-rich intact hedge bordering improved grassland to the North East and Stansty Chain Road to the South West. Approximately 160m long, connected to hedgerows H6 and H5.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Ulmus glabra</i>	Wych Elm	A
<i>Corylus avellana</i>	Hazel	F
<i>Acer pseudoplatanus</i>	Sycamore	O
<i>Sambucus nigra</i>	Elder	O
<i>Ilex aquifolium</i>	Holly	R
<i>Rosa canina</i> agg.	Dog Rose	R

Hedge H8

Native species-rich intact hedge bordering improved grassland to the South West, and Stansty Chain Road to the North East. Approximately 60m long, connected to hedgerows H17 and H18.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Ulmus glabra</i>	Wych Elm	A
<i>Corylus avellana</i>	Hazel	F
<i>Acer pseudoplatanus</i>	Sycamore	O
<i>Sambucus nigra</i>	Elder	O
<i>Acer</i> sp.	Maple species	R
<i>Fraxinus excelsior</i>	Ash	R
<i>Ilex aquifolium</i>	Holly	R
<i>Rosa canina</i> agg.	Dog Rose	R

Hedge H9

Species-poor intact hedge adjacent to improved grassland and an area of plantation broad-leaved woodland close to Stansty Chain Road. Variegated Yellow Archangel present in woodland. Approximately 80m long, connected to hedgerows H10 and H16.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Ulmus glabra</i>	Wych Elm	A
<i>Sambucus nigra</i>	Elder	F
<i>Corylus avellana</i>	Hazel	O
<i>Fraxinus excelsior</i>	Ash	O

Hedge H10

No Hedgerow present, only line of trees. Runs parallel with A483. Approximately 125m long, connected to hedgerows H9 and H11.

Hedge H11

Low hedge containing some areas of trees. Borders improved grassland and the A483. Approximately 300m long, connected to hedgerows H10 and H12.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rubus fruticosus</i> agg.	Bramble	A

KEY - D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

<i>Fraxinus excelsior</i>	Ash	O
<i>Ulmus glabra</i>	Wych Elm	O

Hedge H12

Species-poor intact hedge between improved grassland and the A541. Areas of plantation broad-leaved woodland and at least one break in the hedge used for access. Approximately 300m long, connected to hedgerows H11 and H14.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rubus fruticosus agg.</i>	Bramble	A
<i>Fraxinus excelsior</i>	Ash	O
<i>Ulmus glabra</i>	Wych Elm	O

Hedge H13

Species-poor intact hedge running along a dry ditch between two areas of improved grassland. Two broad-leaved trees with high bat potential present. Approximately 100m long.

<i>Prunus spinosa</i>	Blackthorn	D
<i>Fraxinus excelsior</i>	Ash	F
<i>Acer pseudoplatanus</i>	Sycamore	O
<i>Sambucus nigra</i>	Elder	O

Hedge H14

Species-poor intact hedge running through improved grassland, modified neutral grassland and plantation broad-leaved woodland next to the A541. Approximately 200m long, connected to hedgerow

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rubus fruticosus agg.</i>	Bramble	A
<i>Fraxinus excelsior</i>	Ash	O
<i>Ulmus glabra</i>	Wych Elm	O

Hedge H15

Species-poor hedge with a number of gaps running between areas of improved grassland and bordering a residential property. One broad-leaved tree with moderate bat potential present. Approximately 100m long, connected to hedgerows H16 and H17.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Rosa canina agg.</i>	Dog Rose	R
<i>Sambucus nigra</i>	Elder	R

Hedge H16

Non-hedge with at least 3 broad-leaved tree with high bat potential and one broad-leaved tree with moderate bat potential. Approximately 200m long, connected to hedgerows H9, H15 and H16.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Sambucus nigra</i>	Elder	O
<i>Fraxinus excelsior</i>	Ash	R

Hedge H17

Species-poor intact hedge bordering improved grassland and an unnamed road which is the driveway to a residential property. Contains one broad-leaved tree with moderate bat potential and one large damaged sycamore just inside hedge. Approximately 100m long, connected to hedgerow H8.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Sambucus nigra</i>	Elder	A

KEY - D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Hedge H18

Species-poor intact hedge between improved grassland and Stansty Lodge Lane. Contains at least 4 broad-leaved trees with high bat potential, with other broad-leaved trees present. 2 dead trees in the centre of the hedge and an area of native bluebell to the Eastern end. Approximately 150m long, connected to hedgerow H.

<i>Ilex aquifolium</i>	Holly	D
<i>Crataegus monogyna</i>	Hawthorn	F
<i>Sambucus nigra</i>	Elder	O
<i>Fraxinus excelsior</i>	Ash	R

Hedge H19

Species-poor intact hedge bordering an area of improved grassland and the railway line. Approximately 200m long, connected to hedgerow H2.

<i>Crataegus monogyna</i>	Hawthorn	D
<i>Rubus fruticosus agg.</i>	Bramble	A
<i>Sambucus nigra</i>	Elder	F
<i>Corylus avellana</i>	Hazel	O

DRAWINGS

G6358.001 Stansty Chain Road Phase 1 Habitat Plan

G6358.003 Pond Location Plan

G6358.004 Bat Transect Route and Static Locations

G6358.008 Bat Transect Survey Visit 1

G6358.009 Bat Transect Survey Visit 2

G6358.014 Bat Transect Survey Visit 3

G6358.005 Breeding Bird Survey Visit 1

G6358.006 Breeding Bird Survey Visit 2

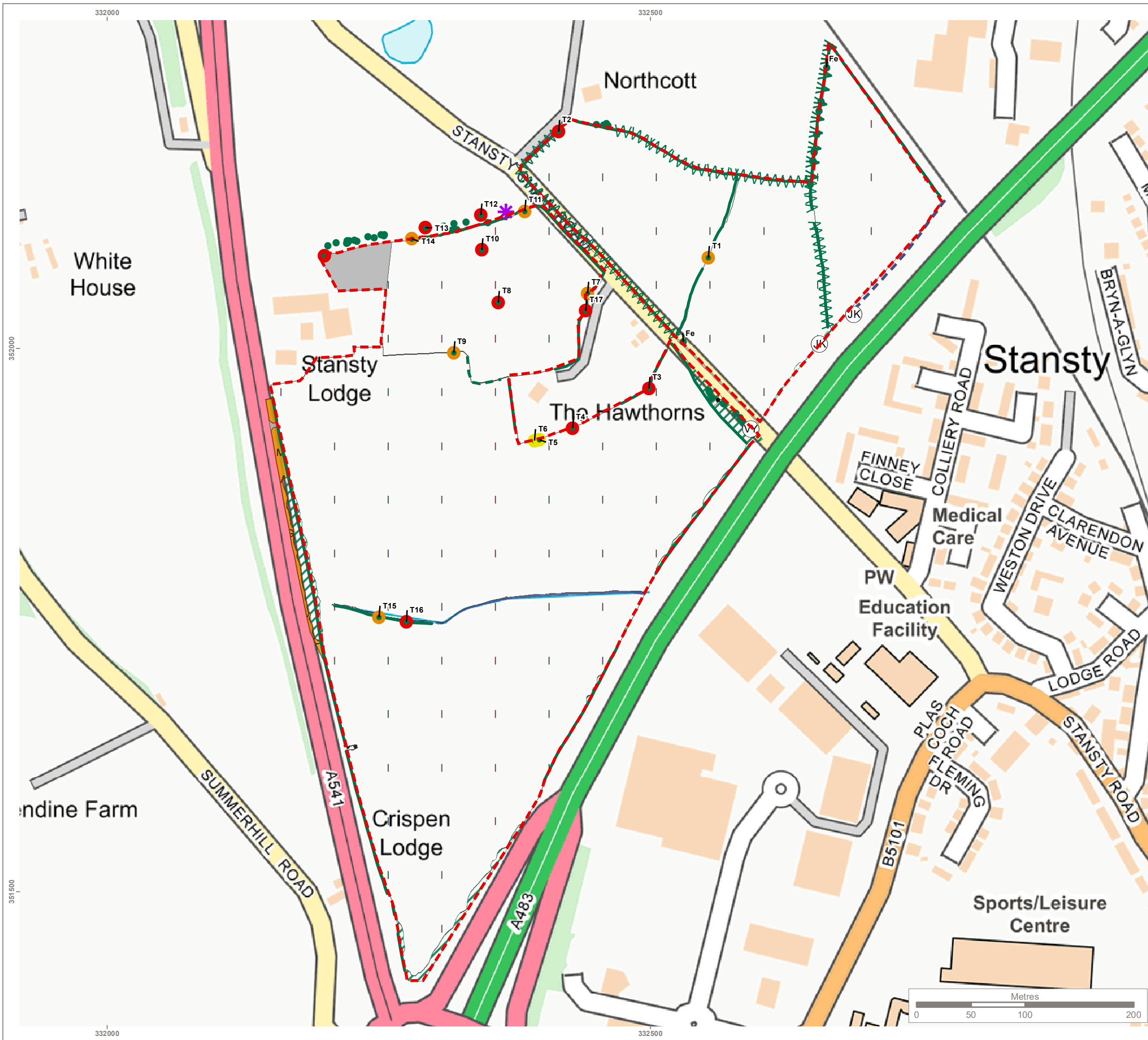
G6358.007 Breeding Bird Survey Visit 3

G6358.002 Reptile Survey Area

A106224_002 Rev. J Stansty Green, Wrexham Illustrative Masterplan

G6358.015 GCN Pond Buffers

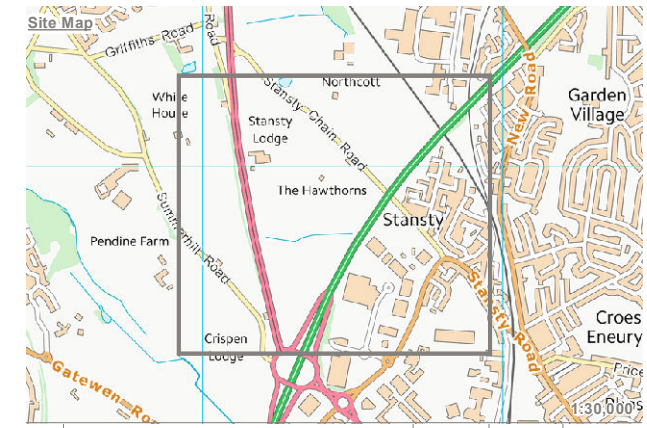
G6358.016 Bat Potential Trees and Hedgerow Locations



KEY

- Survey Boundary
- Native Bluebell
- Japanese Knotweed
- Variegated Yellow Archangel
- Scattered Broad-leaved Trees
- Broad-leaved Tree with Low Bat Potential
- Broad-leaved Tree with Moderate Bat Potential
- Broad-leaved Tree with High Bat Potential
- Native Species-rich Intact Hedge
- Species-poor Intact Hedge
- Species-poor Defunct Hedge
- Native Species-rich Hedge and Trees
- Dry Ditch
- Plantation Broad-leaved Woodland
- Modified Neutral Grassland
- Improved Grassland
- Standing Water
- Dry Ditch
- Bare Ground
- Hardstanding

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Rev	Description	Drawn	Approved	Date



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Project
Stansty Chain Road, Wrexham

Title
Phase 1 Habitat Survey

Drawing Number
G6358.001

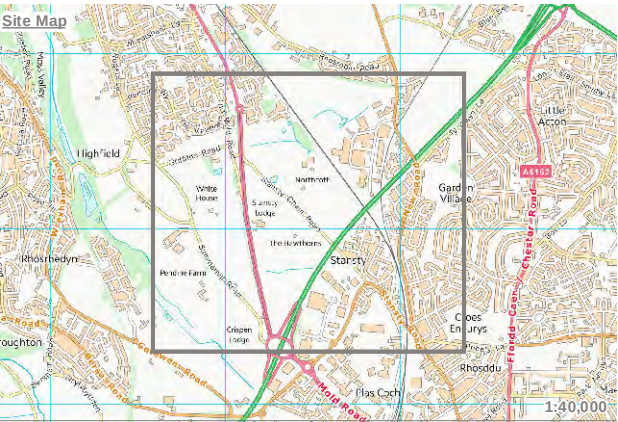
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KS	MW	MW	1:3,500 @ A3	11/12/2019



KEY

- Survey Boundary
- 250m site buffer
- 500m site buffer
- Ponds

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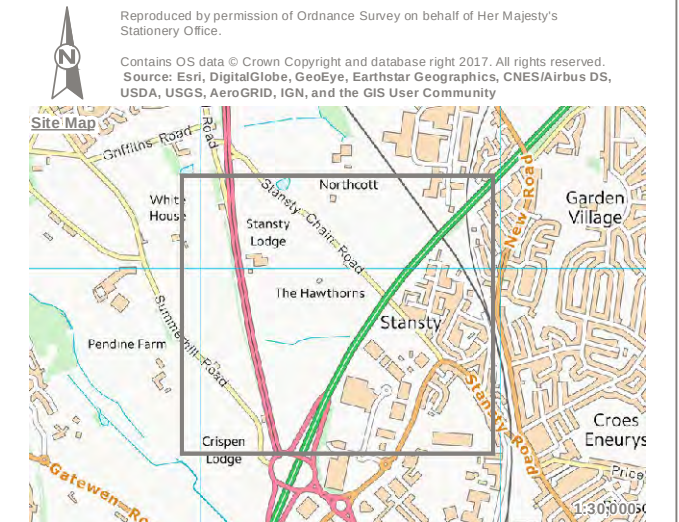
Title
Pond Location Plan

Drawing Number
G6358.003

Drawn	Checked	Approved	Scale	Date
KS	CG	LG	1:6,000 @ A3	22/10/2019



- KEY**
- Survey Boundary
 - Bat Activity Transect Stops
 - Bat Activity Transect Route
 - Static Locations



Rev	Description	Drawn	Approved	Date



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Project
Stansty Chain Road, Wrexham

Title
Bat Activity Transect Route

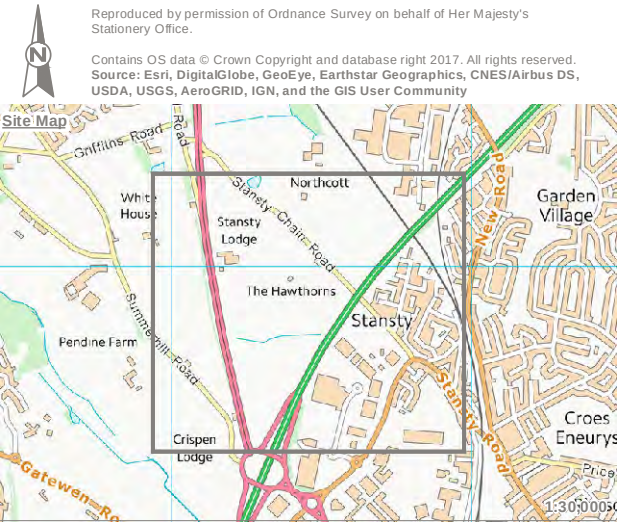
Drawing Number
G6358.004

Drawn	Checked	Approved	Scale	Date
JS	DM	KSt	1:3,500 @ A3	22/10/2019



KEY

- Survey Boundary
- Pipistrelle Species
- Bat Flightline (Colour Denotes Bat Species)



Rev	Description	Drawn	Approved	Date

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Project
Stansty Chain Road, Wrexham

Title
Bat Activity Transect Survey
Visit 1 - 16/05/2018

Drawing Number
G6358.008

Drawn	Checked	Approved	Scale	Date
RE	JS	LR	1:3,500 @ A3	22/10/2019



KEY

Survey Boundary

Myotis Species

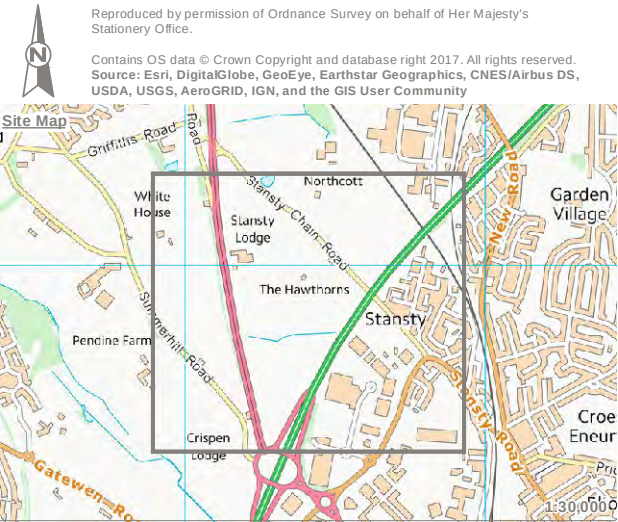
Noctule

Brown Long-Eared

Soprano Pipistrelle

Common Pipistrelle

Bat Flightline
(Colour Denotes Bat Species)



Rev	Description	Drawn	Approved	Date

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Project
Stansty Chain Road, Wrexham

Title
Bat Activity Transect Survey
Visit 2 - 20th June 2018

Drawing Number
G6358.009

Drawn	Checked	Approved	Scale	Date
CR	MK	LR	1:3,500 @ A3	22/10/2019



KEY

Survey Boundary

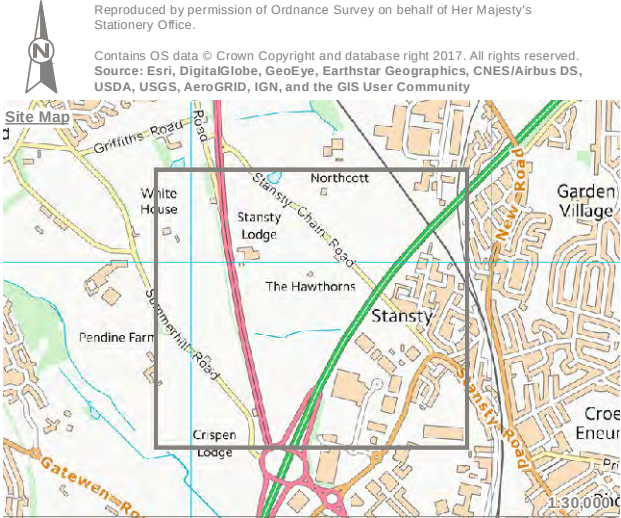
Myotis Species

Noctule

Soprano Pipistrelle

Common Pipistrelle

Bat Flightline (Colour Denotes Bat Species)



Rev	Description	Drawn	Approved	Date

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Project

Stansty Chain Road, Wrexham

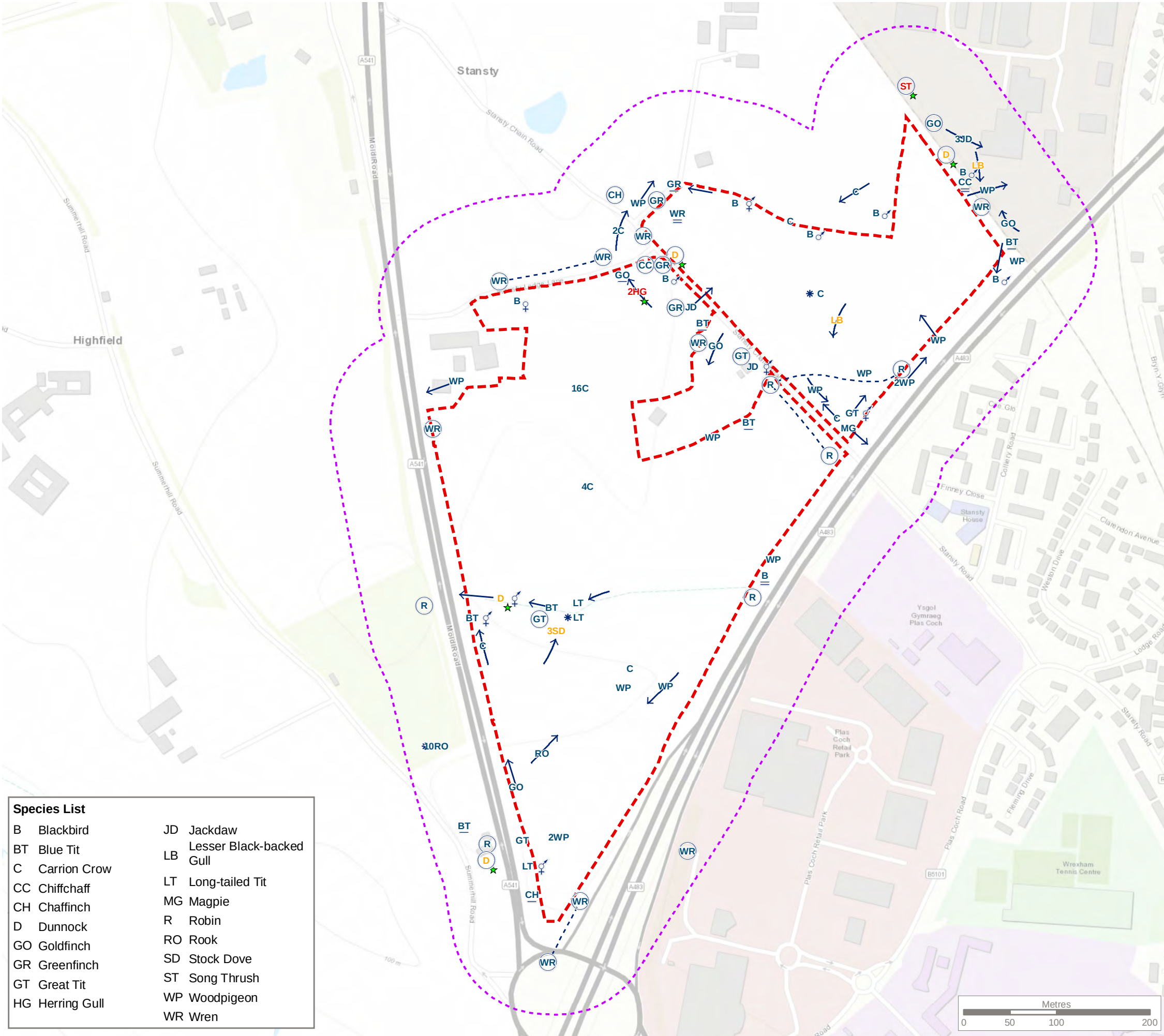
Title

Bat Activity Transect Survey
Visit 3 - 10th October 2018

Drawing Number

G6358.014

Drawn	Checked	Approved	Scale	Date
CR	MK	LR	1:3,500 @ A3	22/10/2019



Species List			
B	Blackbird	JD	Jackdaw
BT	Blue Tit	LB	Lesser Black-backed Gull
C	Carrian Crow	LT	Long-tailed Tit
CC	Chiffchaff	MG	Maggie
CH	Chaffinch	R	Robin
D	Dunnock	RO	Rook
GO	Goldfinch	SD	Stock Dove
GR	Greenfinch	ST	Song Thrush
GT	Great Tit	WP	Woodpigeon
HG	Herring Gull	WR	Wren

KEY

Survey Boundary

Site boundary - 100m offset

Section 7 species

A bird repeatedly giving alarm-calls/other vocalisations

A bird calling

A nest occupied with eggs/brood

A bird in song

Female

Male

Male and female pair

Directional flight line

Simultaneous registration (different birds)

Note:

Red

Red Listed Species

Amber

Amber Listed Species

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Site Map

Rev	Description	Drawn	Approved	Date

TEP

THE ENVIRONMENT PARTNERSHIP

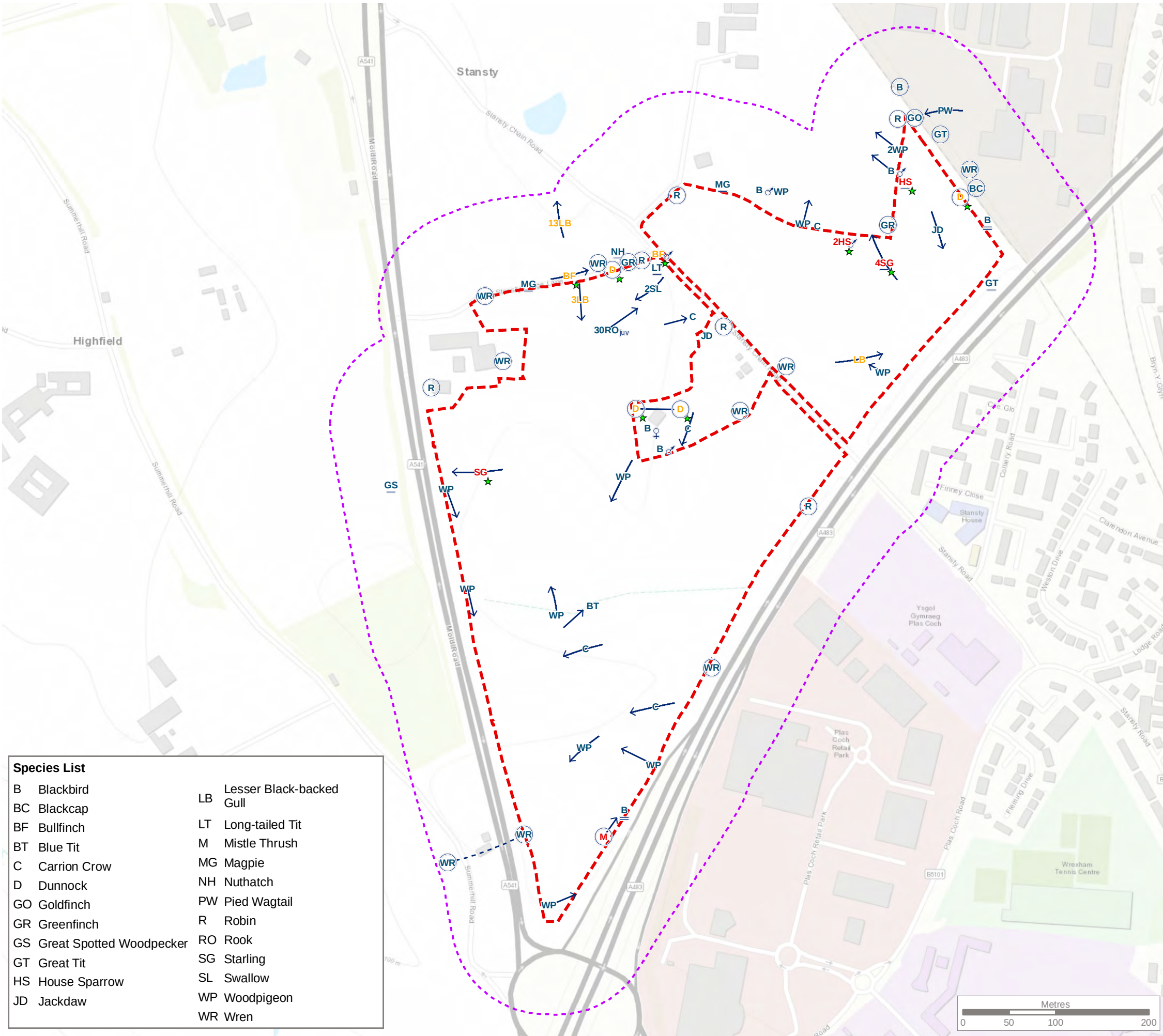
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Stansty Chain Road, Wrexham

Title
G6358.005

Drawing Number
Breeding Bird Survey
Visit 1 - 25th April 2018

Drawn	Checked	Approved	Scale	Date
AP	LJ	LJ	1:4,200 @ A3	22/10/2019



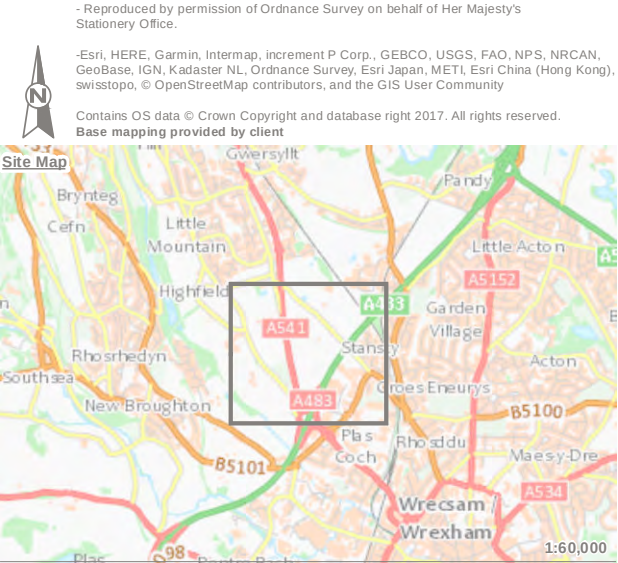
Species List			
B	Blackbird	LB	Lesser Black-backed Gull
BC	Blackcap	LT	Long-tailed Tit
BF	Bullfinch	M	Mistle Thrush
BT	Blue Tit	MG	Magpie
C	Carrion Crow	NH	Nuthatch
D	Dunnock	PW	Pied Wagtail
GO	Goldfinch	R	Robin
GR	Greenfinch	RO	Rook
GS	Great Spotted Woodpecker	SG	Starling
GT	Great Tit	SL	Swallow
HS	House Sparrow	WP	Woodpigeon
JD	Jackdaw	WR	Wren

KEY

- Survey Boundary
- Site boundary - 100m offset
- ★ Section 7 species
- = A bird repeatedly giving alarm-calls/other vocalisations
- A bird calling
- A bird in song
- ♀ Female
- juv Juvenile
- ♂ Male
- Directional flight line
- Same bird
- - - Simultaneous registration (different birds)

Note:

- Red Red Listed Species
- Amber Amber Listed Species



Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

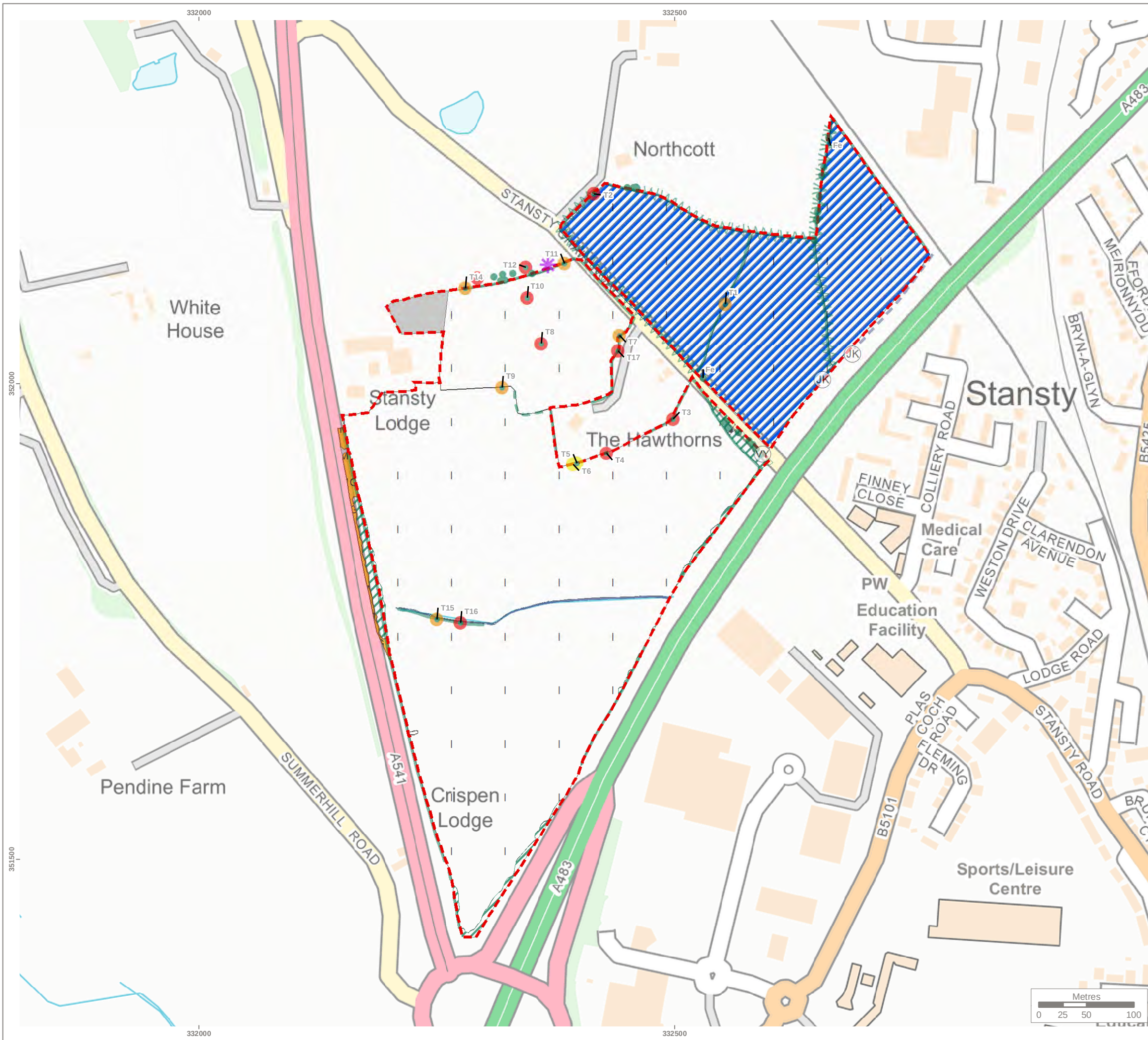
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Project
Stansty Chain Road, Wrexham

Title
G6358.006

Drawing Number
**Breeding Bird Survey
Visit 2 - 22th May 2018**

Drawn	Checked	Approved	Scale	Date
AP	LJ	LJ	1:4,200 @ A3	22/10/2019



KEY

- Survey Boundary
- Reptile Survey Area
- Native Bluebell
- Japanese Knotweed
- Variegated Yellow Archangel
- Plantation Broad-leaved Woodland
- Modified Neutral Grassland
- Improved Grassland
- Wet Ditch
- Dry Ditch
- Bare Ground
- Hardstanding

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Site Map

Rev	Description	Drawn	Approved	Date

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Project
Stansty Chain Road, Wrexham

Title
Reptile Survey Area

Drawing Number
G6358.002

Drawn	Checked	Approved	Scale	Date
RE	JS	KSt	1:4,000 @ A3	22/10/2019



NOTES
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REV	DESCRIPTION	DATE	AUTHOR	CHKD

KEY	Site Boundary
	Residential
	Private Garden
	Road
	Private Drive
	Path
	Public Open Space
	Play Space
	Ecology Pond/Swale
	Vegetation

- 1 Noise Bund with planted vegetation.
- 2 Retained Mature Trees.
- 3 Central Green Pocket within Development.
- 4 Tree Lined Avenue into Development.
- 5 Swale Features along Roads.
- 6 Locally Equipped Area of Children's Play Space.
- 7 Green Ecological Corridor with SUDS Features.
- 8 Frontage onto Open Space.
- 9 Large Areas of Public Open Space.
- 10 Proposed New Bus Stop
- 11 Site Access

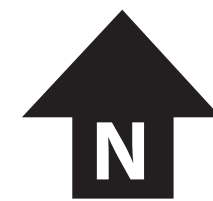


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PROJECT
Stansty Green
Wrexham
Russell Homes

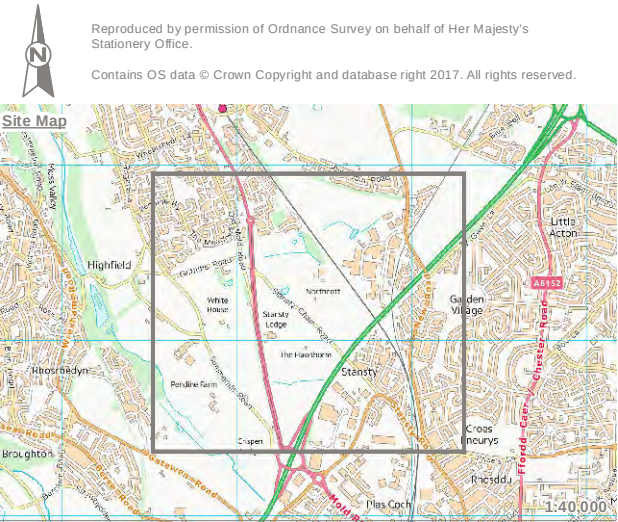
DRAWING
Illustrative Masterplan

SCALE	DATE	AUTHOR	CHKD
1:1000 @ A0	09/12/19	EF	AC
JOB NO.	DRAWING NO.	REV	
A106224	002	J	





- KEY**
- Survey Boundary
 - Ponds
 - GCN Ponds 50m Buffer
 - GCN Ponds 250m Buffer
 - GCN Ponds 500m Buffer



Rev	Description	Drawn	Approved	Date



THE ENVIRONMENT PARTNERSHIP

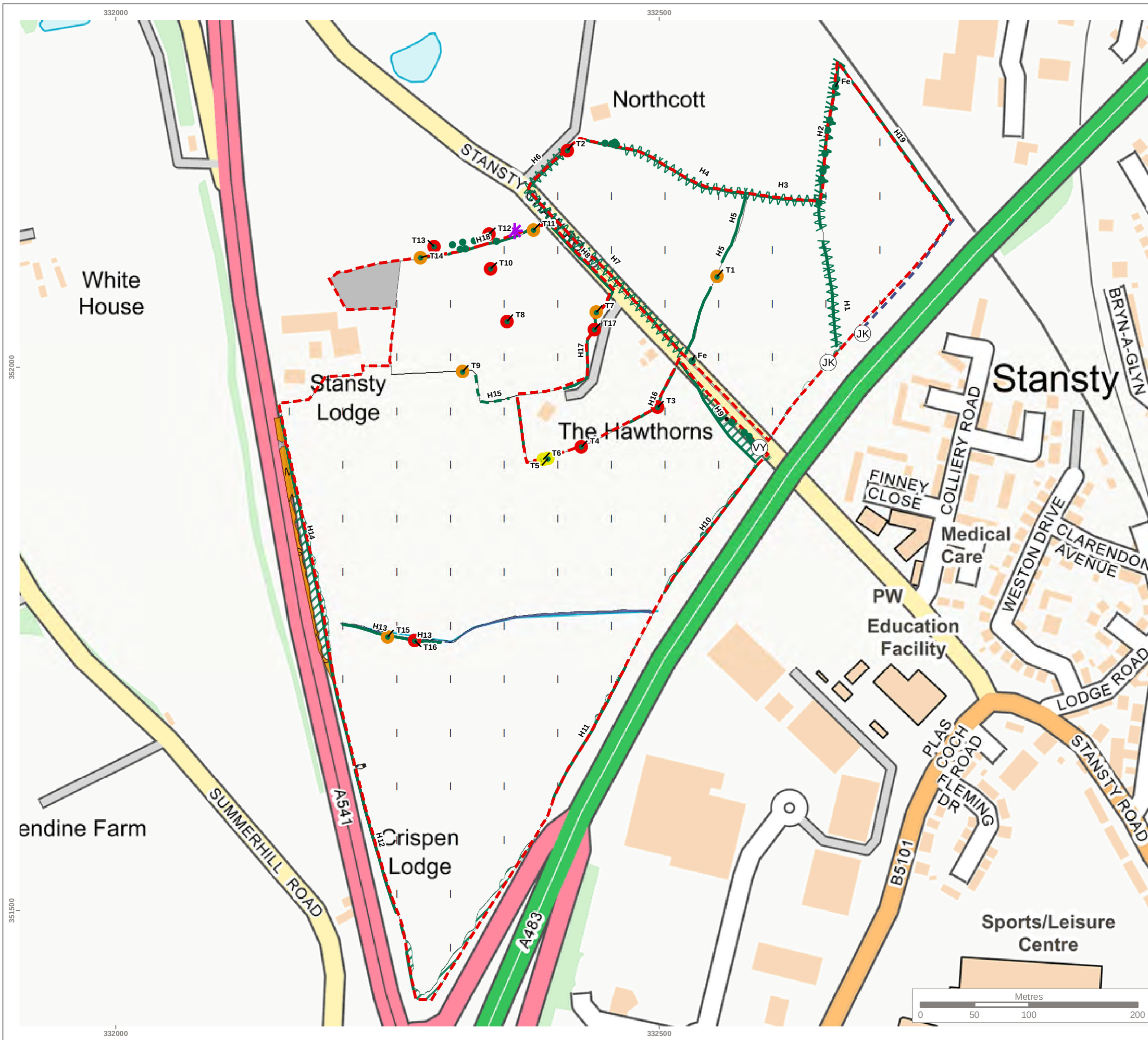
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Project
Stansty Chain Road, Wrexham

Title
GCN Pond Buffers

Drawing Number
G6358.015

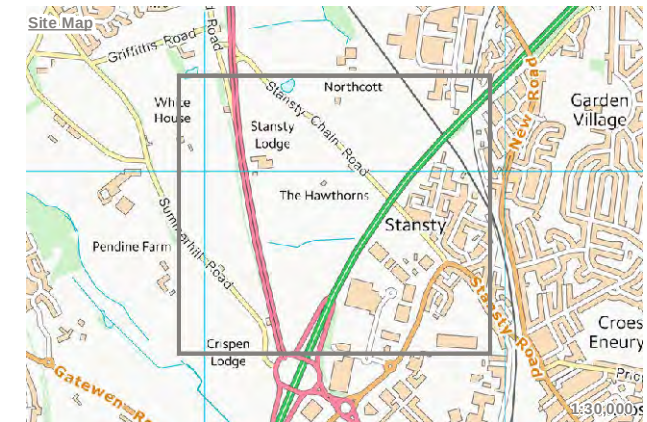
Drawn	Checked	Approved	Scale	Date
KS	CG	LG	1:6,000 @ A3	22/10/2019



KEY

- Survey Boundary
- Native Bluebell
- Japanese Knotweed
- Variegated Yellow Archangel
- Scattered Broad-leaved Trees
- Broad-leaved Tree with Low Bat Potential
- Broad-leaved Tree with Moderate Bat Potential
- Broad-leaved Tree with High Bat Potential
- Native Species-rich Intact Hedge
- Species-poor Intact Hedge
- Species-poor Defunct Hedge
- Native Species-rich Hedge and Trees
- Dry Ditch
- Plantation Broad-leaved Woodland
- Modified Neutral Grassland
- Improved Grassland
- Standing Water
- Dry Ditch
- Bare Ground
- Hardstanding

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Rev	Description	Drawn	Approved	Date

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Project
Stansty Chain Road, Wrexham

Title
Bat Potential Trees and Hedgerow Locations

Drawing Number
G6358.016

Drawn	Checked	Approved	Scale	Date
KS	KS	LG	1:3,500 @ A3	22/10/2019



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