



Preliminary Ecological Appraisal Report

Refresco Site, Spectrum Business
Park, Wrexham, Clwyd

Prepared on behalf of
Craig Foster Architects



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QUALITY MANAGEMENT

Quality Management Approved prior to Issue			
Report Ref:	SE0861-01_H01b_PEA_BP		
Site Address:	Refresco, Spectrum Business Park, Wrexham, Clwyd, LL13 9QA		
Doc Title:	Spectrum Business Park, Wrexham – Preliminary Ecological Appraisal Report		
Issue Date:	8 th November 2018	Revision No:	1b
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This report has been prepared with all reasonable skill, care and diligence, within the terms of the contract with the client. This report is confidential to the Client. Biora Limited accepts no responsibility of whatever nature to third parties to whom this report may be made known.

This report is based on survey data gathered in October 2018 at this site at Refresco, Spectrum Business Park, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9QA.

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1.0 SUMMARY

- 1.1 Biora was commissioned in October 2018 by Craig Foster Architects to undertake a Preliminary Ecological Appraisal (PEA) survey of the land at Refresco, Spectrum Business Park, Wrexham, Clwyd, LL13 9QA. Survey was commissioned to identify any ecological constraints and to support a proposed planning application for the development of this industrial site. The proposed development is to build a new cold store, extend the hardstanding area of industrial premises for the ease of HGV manoeuvrability and to create a new route for forklift trucks.
- 1.2 Measuring approximately 4,060 m² and situated within the county of Clwyd, Wales, this small survey (planning application) area sits around 4.5 km south-east of the town of Wrexham. The site is associated with an industrial-use building, immediately to the north and east of the application boundary. It comprises hardstanding areas used for operations, which are set within areas of grassland and partly bound by fencing to the south, west and east. There is no direct access into this survey area from the wider landscape, as the whole Refresco site is bounded by fencing.
- 1.3 The wider landscape is predominantly industrial to the north, and rural to the south with solar farm plots and scattered residential areas. The site is centred on OS grid reference [SJ 38295 49008](#).
- 1.4 PEA survey was conducted on 24th October 2018 by Dr David Hackett (Director) and Bethany Phythian (Graduate Ecologist) of Biora. Survey used Extended Phase 1 Habitat Survey methodology, modified in line with the British Standard for Biodiversity¹. Survey involved a walkover of all accessible land within and adjacent to the site. Broad habitat-compartments were mapped and the potential of each to support protected and notable species assessed. Target notes and photographs were taken of any points of ecological interest, including potential habitat for protected species.
- 1.5 It should be noted that, throughout this report, a distinction is made between:
- the survey (planning application area) – this is the area marked within the red-line boundary at Plan 1 and Figure 2 and is almost entirely bounded by either building or the tall perimeter fence; and
 - the wider Refresco site – this is the area marked within the blue-line boundary at Plan 1 and Figure 2 and is generally bound by a lower-level fence. This wider Refresco site is to be unaffected by the proposed development. It was included in the survey as it includes an area of scrub and woodland immediately adjacent the survey (planning application) area.
- 1.6 The combined results of desktop survey and field surveys at this site in February 2018 are as follows:

SITE CHARACTERISTICS AND SURROUNDINGS

Statutory designated sites within 2 km	0
Non-statutory designated wildlife sites within 1 km	3
Non-statutory designated wildlife sites within application boundary	0
Protected habitats within application boundary	None
Buildings within application boundary	0 however 1 immediately adjacent, forming site boundary
Waterbodies within application boundary	0
Waterbodies within 500 m of application boundary	7 including 1 approximately 50m west.

PROTECTED SPECIES RECORDED

	Within 1km of site (identified by desk survey)	On or immediately adjacent site (identified by field survey)
Great crested newt	Yes	No (but suitable terrestrial habitat on site)
Bats	Yes	No
Otter	Yes	No
Water Vole	No	No
Badger	Yes	Yes, 2 latrines and paths found nearby, in wider Refresco site but outside survey (planning application) area
Reptiles	Yes	No (but some limited suitable habitat on site)

¹ BS:42020 (2013) Biodiversity. Code of practice for planning and development

Breeding birds	Multiple notable species	No (but some limited suitable habitat on site)
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- 1.7 Survey at this site determined that the survey (planning application) area currently has very low ecological value. This is primarily due to its small size and the very limited extent of species-poor grassland and hardstanding it comprises.
- 1.8 Despite this limited ecological value, survey found that the survey (planning application) area sits within a much more ecologically valuable landscape. Badger activity was recorded (latrine, paths, gaps beneath fences) in land immediately adjacent the survey area, within the wider Refresco site, however no badger sett was recorded. A GCN breeding pond was also identified approximately 50m west of this site and unseparated from it by any barrier to amphibian dispersal. The wider landscape includes nearby woodland, a number of ponds and a stream running approximately beyond the site to the south. All this landscape offers habitat suitable to support further protected species, including Otters, reptiles, bats, breeding birds and invertebrates. Some of these protected species could potentially be present within the survey (planning application) area, including GCNs, reptiles and breeding birds.
- 1.9 Both the British Standard for Biodiversity² and the Chartered Institute of Ecology and Environmental Management's Guidelines for Ecological Impact Assessment³ highlight the need for **proportionality** in assessing ecological impacts of any proposed development:
- "Scoping (Chapter 2) should be proportionate to potential effects on ecological features. Professional ecologists need to 'use their knowledge and experience to judge the resources required to complete an adequate and effective EclA.'"*⁴
- Clearly this proposed development does not require a full Ecological Impact Assessment, however the Preliminary Ecological Appraisal process follows the same core principles.
- 1.10 Using the CIEEM Ecological Impact Assessment guidelines (2018), the survey area has been assessed a 'value score' showing its importance for each protected species/ species group at each relevant geographical scale (these scores range from Negligible to High). The table below sets out a summary of the expected impacts of the proposed development at each level. Any species assigned a Negligible value is scoped out of the need for further assessment. Any species assigned Low value or above is submitted to further assessment, where the proposed development works and 'zone of influence' are cross-referenced with the likelihood of the species being present on site.

SPECIES	LOCAL	COUNTY-WIDE	REGIONAL	NATIONAL	INTER-NATIONAL
Breeding Birds					
Badger	Low				
Bats					
Reptiles	Low				
GCN	Moderate				
Otter					
Water Vole					

KEY: Blue fill represents scale at which value/potential value of species is relevant. Unshaded box represents negligible value.

- 1.11 Subsequently, a small number of precautionary measures are proposed at this site to ensure that the proposed development does not result in a wildlife offence/ a net loss in biodiversity value. These recommendations are deemed appropriate by the Biora professional ecology team given:
- the small size of the proposed development site;
 - the low level of development works proposed; and
 - the wider landscape context – which offers many more favourable opportunities for bats, badgers, otters, GCNs, reptiles and breeding birds.
- 1.12 The following ecological mitigation measures are recommended:

² BS:42020 (2013) Biodiversity. Code of practice for planning and development.

³ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.

⁴ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.

FURTHER ACTIONS REQUIRED – ECOLOGICAL MITIGATION

Great crested newt	A Reasonable Avoidance Methodology (RAMs) should be employed to ensure that the proposed development works do not cause harm to Great crested newts.
Bats	No external lighting should be directed towards the woodland edge after dusk during the site clearance/ construction phases.
Badger	No more than a week before site clearance/ construction works begin, the survey area should be checked by a qualified and experienced ecologist to ensure that no badgers have either moved into this survey area or excavated new setts within 30m of the edge of works.
Reptiles	A Reasonable Avoidance Methodology (RAMs) should be employed to ensure that the proposed development works do not cause harm to reptiles.
Breeding birds	Wherever possible, all vegetation clearance within the survey area should take place outside the core bird breeding season (ie March-August inclusive). Where this is not possible, no more than a week before site clearance/ construction works begin, the survey area should be checked by a qualified and experienced ecologist to ensure that no active birds' nests will be affected by the works.
Protected Invertebrates	To mitigate for the loss of grassland areas and to enhance this small site's current very low ecological value, a small number of host species for protected invertebrates should be planted. Species included should be a variety from the Rosaceae family such as Agrimony <i>Agrimonia eupatoria</i> , Creeping Cinquefoil <i>Potentilla reptans</i> and Wild Strawberry <i>Fragaria vesca</i> .

- 1.13 Provided the above ecological recommendations are followed in full, the proposed development is unlikely to impact negatively on protected habitats or species. By planting host species for protected invertebrates on completion of the works, the proposed development is likely to result in a net gain in the overall biodiversity value of this small site.
- 1.14 For further information on this survey report, contact:
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 Phone 01565 755337
 Email d.hackett@bioragroup.com

2.0 INTRODUCTION

2.1 Background and Scope of Survey

- 2.1.1 Biora was commissioned in October 2018 by Craig Foster Architects to undertake a Preliminary Ecological Appraisal (PEA) survey of the land at Refresco, Spectrum Business Park, Wrexham, Clwyd, LL13 9QA. Survey was commissioned to identify any ecological constraints and to support a proposed planning application for the development of this industrial site. The proposed development is to build a new cold store, extend the hardstanding area of industrial premises for the ease of HGV manoeuvrability and to create a new route for forklift trucks.

2.2 Proposed Development Works and Expected Zone of Influence

- 2.2.1 A plan of the proposed re-development works was supplied to the Biora ecology team prior to writing this report; it is reproduced at [Plan 3](#) below. The proposed development involves the removal of grassland to extend the hardstanding area in the southern portion of the site to create a safer turning area for HGVs, and a new forklift truck service route at the rear of the building.
- 2.2.2 The expected zone of influence for this development is largely confined to the survey (planning application) itself. However given the potential presence of protected species in land immediately adjacent, some influence is likely to fall on immediately adjacent land.

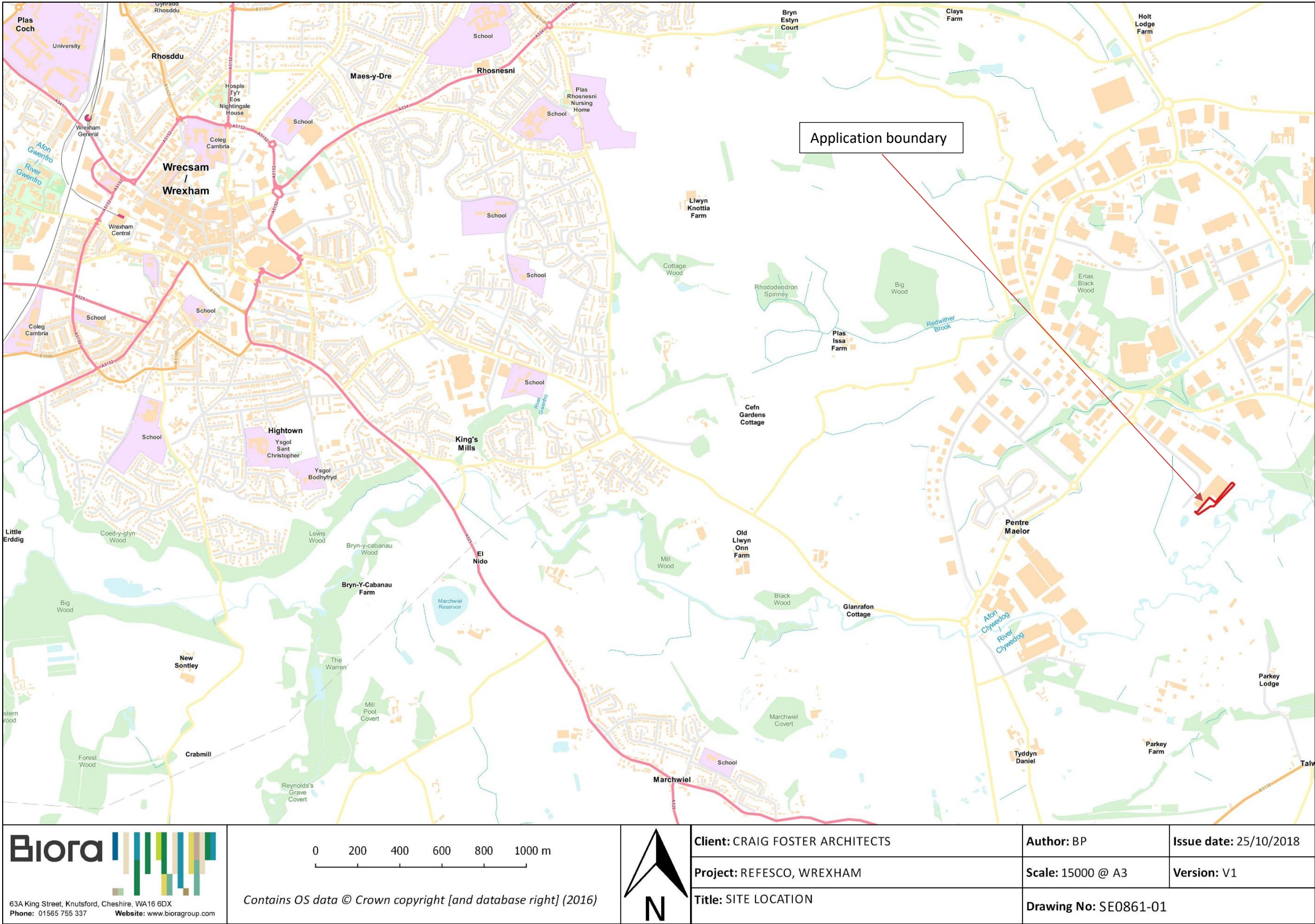
2.3 Aims of the Survey

- 2.3.1 Preliminary ecological appraisal survey and report at this site aimed to:
- Determine the potential of the site to support protected habitats or species;
 - Assess the current ecological value of the site;
 - Assess the likely impacts of development on protected habitats and species; and
 - Advise on the requirement for further survey, mitigation, compensation, or licensing should the proposed re-development be considered likely to result in adverse impacts on biodiversity or fail compliance with current ecological legislation and/or planning policies.

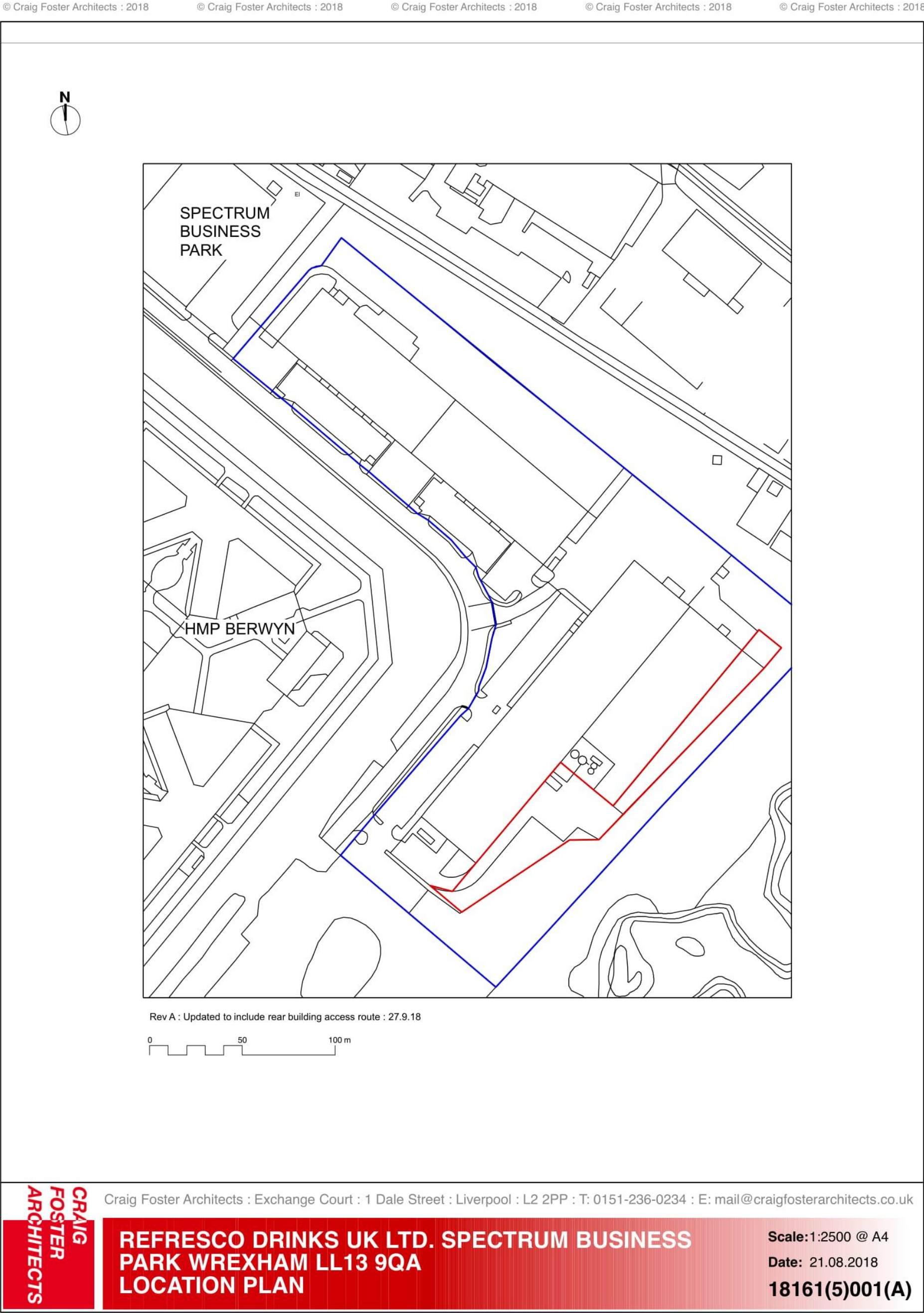
2.4 Site Description and Context

- 2.4.1 Measuring approximately 4,060 m² and situated within the county of Clwyd, Wales, this small survey (planning application) area sits around 4.5 km south-east of the town of Wrexham. The site is associated with an industrial-use building, immediately to the north and east of the application boundary. It comprises hardstanding areas used for operations, which are set within areas of grassland and partly bound by fencing to the south, west and east. There is no direct access into this survey area from the wider landscape, as the whole Refresco site is bounded by fencing. The wider landscape is predominantly industrial to the north, and rural to the south with solar farm plots and scattered residential areas. The site is centred on OS grid reference [SJ 38295 49008](#).
- 2.4.2 The location of the site within the wider landscape is presented in [Plan 1](#); the application boundary is presented as a red line at [Plan 2](#).

Plan 1: Site Location (not to scale)

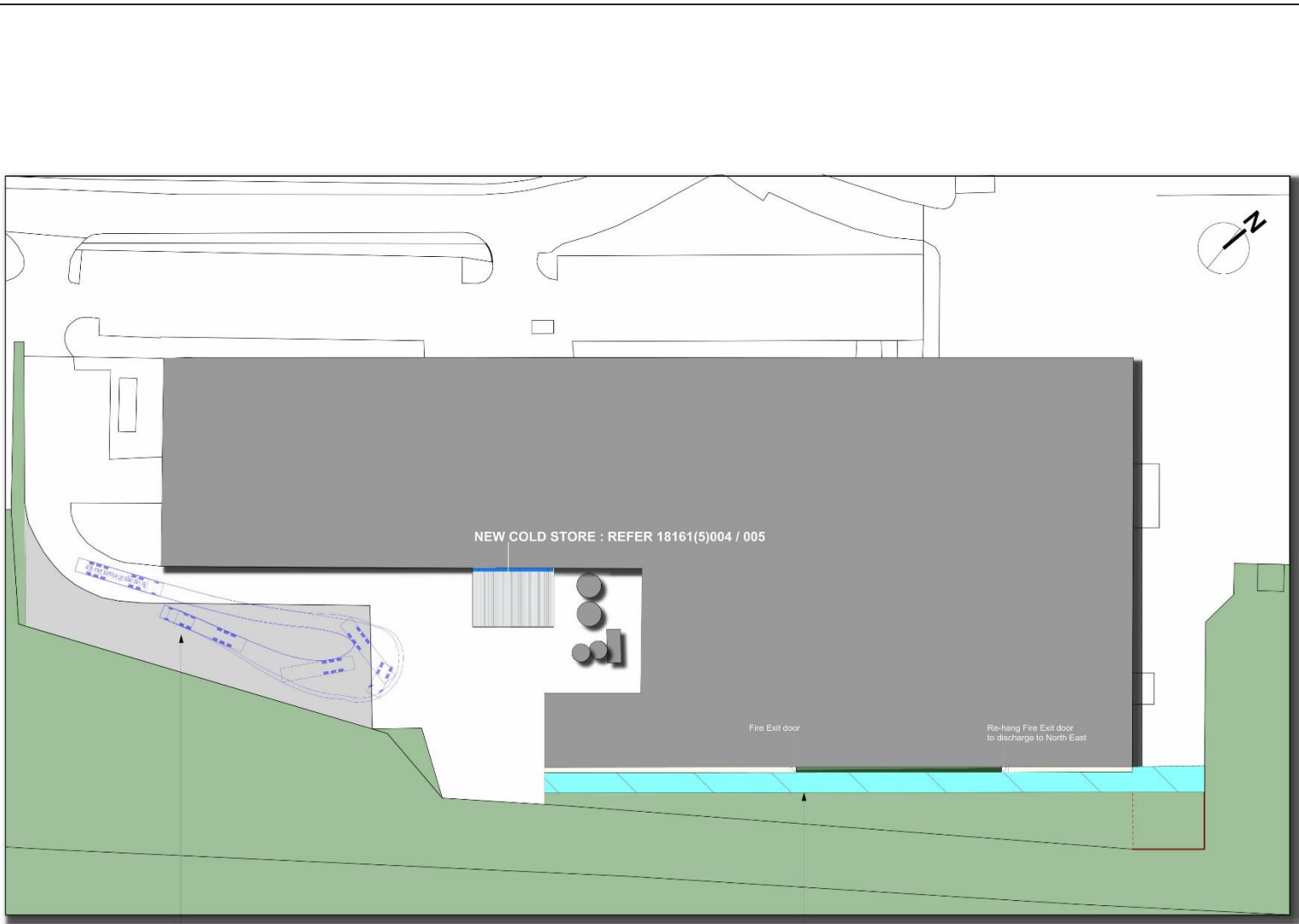


Plan 2: Site survey boundary, showing survey (planning application) area as red-line boundary, wider Refresco site as blue-line boundary (supplied by client, not to scale)



Plan 3: Proposed development (supplied by client, not to scale)

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EXTENDED HARDSTANDING AREA

HGVs servicing the rear areas have to make multiple turns to exit the site in forward gear.

The hardstanding is to be extended to create a safer turning area.

Surface water will drain into the existing hardstanding drainage systems with oil interceptor.

Air entrained concrete to provide HGV area

FORKLIFT TRUCK SERVICE ROUTE

Forklift trucks currently run around the front of the building across the carpark.

A new rear forklift truck service route is to be created as drawn

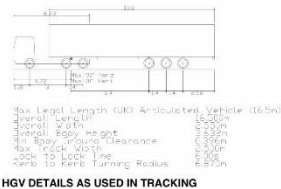
- Fence line : relocate existing fencing to this line / install new to match existing
- Compacted gravel pedestrian fire exit route / building protection zone
- Air entrained concrete to provide fork lift truck route



Rear of building where forklift truck route to run



Existing fencing to be relocated and / or replaced to match existing



HGV DETAILS AS USED IN TRACKING

PLANNING APPLICATION

REQUEST IMMEDIATELY CONSTRUCTION ISSUE FROM ARCHITECT IF THIS DRAWING IS ON SITE

Copyright of this drawing and all designs and detail on it remains the property of Craig Foster Architects and has not been released to any other party unless specifically documented in writing.

Do not scale this drawing.

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Report any discrepancies before proceeding.



job title :

**SPECTRUM BUSINESS PARK
WREXHAM
LL13 9QA**

dwg. title :

**PROPOSED NEW
EXTERNAL WORKS**

**CRAIG
FOSTER
ARCHITECTS**

date : 27.09.2018	dwg no. 18161(5)003	rev
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3.0 SURVEY AND EVALUATION METHODOLOGIES

3.1 Pre-survey Data Search

- 3.1.1 Prior to field survey, and in accordance with the British Standard for Biodiversity, desk study was carried out to identify any nearby sites of national or local nature conservation designation, and a request for details of any legally protected or notable⁵ species local to the site made to the local ecological records centre.
- 3.1.2 The Multi-agency Geographic Information for the Countryside (MAGIC) website was interrogated in March 2018 to identify any statutory designated nature conservation sites within 2 km of the application boundary. Details of all non-statutory designated sites and protected or notable species recorded within a 1 km of the application boundary over the past decade were also acquired from Cofnod Environmental Records Centre.
- 3.1.3 Desk study also included an examination of OS base maps and on-line satellite imagery to identify any potential great crested newt *Triturus cristatus* breeding sites, i.e. standing or slow-flowing water, within a search area that encompassed the site and all land within 250 m of its boundary. Additionally, any potentially significant barriers to newt dispersal that exist between these potential breeding locations and the site were noted.

3.2 Field Survey

- 3.2.1 PEA survey was conducted on 24th October 2018 by Dr David Hackett (Director) and Bethany Phythian (Graduate Ecologist) and employed Extended Phase 1 Habitat Survey methodology, modified in line with the British Standard for Biodiversity⁶. Survey involved a walkover of all accessible land within the survey (the planning application) area – see the red-line boundary at Plan 2 and at Figure 2.
- 3.2.2 Given the value of land immediately adjacent this survey (planning application) area, surveyors also surveyed land within the wider ownership of the client where this was deemed relevant (eg in relation to Badgers or GCNs). This area is illustrated by the blue-line boundary at Plan 2 and Figure 2. Throughout this report and in the Extended Phase One Habitat Plan, distinctions are made between the survey (planning application) area – shown within the red-line boundary – and the wider Refresco site – shown within the blue-line boundary.
- 3.2.3 Phase 1 Habitat Survey followed guidance outlined in the *Handbook for Phase 1 Habitat Survey* (JNCC 2010). Every parcel of land within and immediately adjacent to the application boundary was classified, described, and mapped in accordance with a list of ninety specified habitat types using standard colour codes to allow rapid visual assessment of the extent and distribution of different habitat types. As broad habitat compartments were mapped, the potential was assessed of each to support protected and notable species. Target notes and photographs were taken of any points of ecological interest, including the presence of invasive or injurious species. Further details of survey methodology are given at 3.5 below.
- 3.2.4 Full details of field survey are given at Table 1 below.

Table 1: Survey dates, surveyors, weather conditions and equipment used

Date & Time of Survey	Personnel	Weather Conditions	Survey Equipment
Date: 24/10/2018 Start time: 12.00	D. Hackett B. Pythian	Air temperature: 13° C Wind speed: 6 km/h Wind direction: W Cloud cover: 50% cloud cover Precipitation: Dry	Binoculars Digital camera Garmin GPS unit

3.3 Survey Personnel

- 3.3.1 **Dr David Hackett BSc MLD PhD MCIEEM CEnv** has been a Director and Senior Ecological Project Manager at Biora for the past ten years. David is a highly-experienced ecologist, project manager and landscape architect with over 20 years' professional experience, who regularly project manages and co-ordinates teams of ecologists conducting surveys for multiple protected species to inform planning applications, Environmental Impact Statements, Natural England and Scottish Natural Heritage licences and conditions discharge. David is a full member of the Chartered Institute of Ecology and Environmental Management, a Chartered Environmentalist and a member of Cheshire Bat Group. He is highly experienced in designing and conducting bat surveys and in preparing bat mitigation packages for licence applications.

⁵ Subject of a Species Action Plan under UK or Local Biodiversity Action Plan, or a species listed in Section 41 of the NERC Act (2006) as one of "principal importance for the conservation of biodiversity".

⁶ BS:42020 (2013) Biodiversity. Code of practice for planning and development

- 3.3.2 **Bethany Pythian BSc (Hons) GradCIEEM** is a Graduate Ecologist at Biora and has over two years' experience in conducting ecological surveys.

3.4 Survey Limitations

- 3.4.1 Although surveyors had permission to enter all land within the blue-line boundary of the client's ownership (see Plan 2), surveyors did not have permission to enter areas beyond this, including the land supporting GCN ponds. Wherever possible land beyond this blue-line boundary was assessed at a distance from either the client's or publicly-accessible land, using binoculars where necessary.

3.5 Field Survey Methodologies by Species

- 3.5.1 **Great Crested Newt:** Survey followed best-practice methodologies set out by Froglife and Natural Resources Wales. An assessment was made of terrestrial habitat within and immediately adjacent to the application site to provide shelter, dispersal, and foraging opportunities for GCN and other amphibians. During terrestrial habitat assessment, any suitable refugia that could be lifted were also examined for amphibians.
- 3.5.2 The suitability of any waterbody within the survey area to support great crested newt (GCN) was assessed using selected indices of the Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000). An HSI is a numerical index, between 0 and 1. 0 indicates unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors thought to affect great crested newts. HSI is not a substitute for GCN presence/absence survey but can assist in determining the requirement for further survey effort.
- 3.5.3 **Bats:** The potential for buildings and trees to support roosting bats, and the potential value of the site for foraging and commuting, was categorised as **NEGLIGIBLE, LOW, MODERATE, or HIGH** based on the presence of suitable habitat features outlined in The Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (2016).
- 3.5.4 **Otter:** The suitability of land within the survey area to support Otter *Lutra lutra* was based on the presence of habitat features along or around any watercourses or waterbodies that could provide a place of shelter for this species. Factors that could affect the potential foraging value of these water features to otter, e.g. water quality and the likely presence of fish, and the connectivity of watercourses to the wider environment were also used to determine the potential for otter using land within the survey area.
- 3.5.5 **Water Vole:** Assessment of the suitability of watercourses and waterbodies within the survey area to support water vole *Arvicola amphibius* was based on guidance presented in third edition of *The Water Vole Conservation Handbook* (Strachan *et al.* 2011). Assessment of habitat suitability was guided by the presence of habitat conditions considered to influence the presence of water vole, i.e. water depth and flow, bankside cover, suitable food plants, bank gradient and suitable burrowing substrate, the presence of predators and/or competitors, e.g. brown rat, and the connectivity of the site to the wider environment.
- 3.5.6 **Badger:** If badger *Meles meles* is or has been present within a survey area then signs of activity, e.g. setts, paths, latrines, foraging, etc., are usually evident. In addition to these field signs, an assessment of the suitability of the habitats within the survey area to support badger was made based on topography, substrate, land use and the quality of available foraging habitat.
- 3.5.7 **Reptiles:** The presence of habitat features outlined in the *Herpetofauna Workers' Manual* (JNCC 2003) as those favoured by reptiles, i.e. dry, species-rich undisturbed open ground with a mix of sparse and dense vegetation, sunny banks, gullies and hollows and south-facing banks with mammal burrows suitable for hibernation, was used to assess the suitability of land within the survey area to support this species group. The habitat conditions of the surrounding landscape, including the presence of both potential habitat corridors that might provide connectivity with the site and potential barriers to dispersal, e.g. busy roads, were also considered in the overall assessment.
- 3.5.8 **Breeding and Wintering Birds:** The habitats within the survey area were assessed for their potential to support breeding birds based on surveyor experience and species breeding habitat requirements described in *A Field Guide to Monitoring Nests* (Ferguson-Lees *et al.* 2011).

3.6 Ecological Impact Assessment Methodology

- 3.6.1 Following the collection of all desk and field survey data, the CIEEM Ecological Impact Assessment guidelines (2016) were used to determine the likely impacts of the proposed development on each species.
- 3.6.2 During this process, the survey area is assigned a 'value score' showing its importance for each protected species/ species group at each relevant geographical scale. Value scores range from Negligible to High and the geographical scale ranges

from Local to International. Any species assigned a Negligible value is scoped out of the need for further assessment. Any species assigned Low value or above is then submitted to further assessment, where the proposed development works and 'zone of influence' are cross-referenced with the likelihood of the species being present on site to determine a likely impact assessment. This impact assessment in turn informs the need for any avoidance/ mitigation/ compensation measures that should be adopted throughout the development – often these measures will either be required prior to receiving planning consent or will be a condition of the consent itself.

4.0 SURVEY RESULTS

4.1 Desk Study

4.1.1 Designated sites

4.1.1.1 The MAGIC website returned no results of statutory designated sites within 2 km of the survey area.

4.1.1.2 The records search from Cofnod found three non-statutory designated sites within 1 km of the application boundary. These are listed in [Table 2](#) below.

Table 2: Non-statutory designated sites within 1 km of application site

Site Name	Designation	Description	Approx. distance from Site
Wrexham Industrial Estate	Wildlife Site	A series of sites within the industrial estate, covering 27.7 ha. Sites on Bryn Road unmanaged grassland, Cefn Park land and ancient broadleaved woodland, Erlas Black Wood.	255 m NWW
33412: Ancient Semi Natural Woodland	Ancient Woodland Site	None acquired	845 m
33342: Ancient Semi Natural Woodland	Ancient Woodland Site	None acquired	987m

4.1.2 Protected and notable species

4.1.2.1 The ecological data interrogation from the Cofnod also returned records of several protected species which are detailed in [Table 3](#) below. More bird species are detailed in the subsequent relevant section of this report, however the most significant are also outlined in the table below.

Table 3: Results of Ecological Data Request for Protected Species

Common name	Scientific name	Taxonomic group	Designation	Total records	c. Distance	Latest year recorded
Cuckoo	<i>Cuculus canorus</i>	Bird	S42, BRd [RSPB], IUCN VuI, UKBAP, WCA1	2	74 m S, 264 m S	2007
House Sparrow	<i>Passer domesticus</i>	Bird	BRd [RSPB], UKBAP, WCA1, S42	9	935 m NW	2016
Skylark	<i>Alauda arvensis</i>	Bird	BRd [RSPB], S42,	6	348 m W, 548 m N, 935 m NW, 944 m SW	2012
Linnet	<i>Linaria cannabina</i>	Bird	BRd [RSPB], WCA1, UKBAP, S42	7	548 m SSE, 935 m NW	2013
Slow worm	<i>Anguis fragilis</i>	Reptile	S42, UKBAP, WCA9	3	249 m W, 532 m NNE	2009
Badger	<i>Meles meles</i>	Mammal	BAct, WCA5	7	1.3 km SEE	2007
Common Pipistrelle	<i>Triturus cristatus</i>	Mammal	HabRegs S42	4	686 m NNW, 733 m NNE	2016
Great Crested Newt	<i>Triturus cristatus</i>	Amphibian	S42, HabRegs, WCA9	99	173 m SW and present in locations all over	2018

Common name	Scientific name	Taxonomic group	Designation	Total records	c. Distance	Latest year recorded
Grizzled Skipper	<i>Pyrgus malvae</i>	Butterfly	UKBAP, S42	121	74 m SW and present in locations all over	2018
Dingy Skipper	<i>Erynnis tages</i>	Butterfly	UKBAP, S42	90	74 m SW and present in locations all over	2018
Myotis Bat	<i>Myotis sp.</i>	Mammal	HabRegs	1	686 m N	2016
Noctule Bat	<i>Nyctalus noctula</i>	Mammal	HabRegs, S42	3	686 m NNW, 733 m NNE	2016
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Mammal	HabRegs, S42	1	733 m NNE	2016
Adder	<i>Vipera berus</i>	Reptile	S42, WCA9	3	249 m W, 532 m NNE	2009
Otter	<i>Lutra lutra</i>	Mammal	HabRegs, S42, IUCN NT, UKBAP	6	662 m NNW, 659 m NNW	2017

4.1.3 Standing water inside 500 m search area

4.1.3.1 Desk study identified seven waterbodies within the 250 m search area, none of which occurred on site. The search area around the site and waterbodies within it are illustrated at [Figure 1](#).

4.1.4 Relevant historical ecological surveys in local area

4.1.4.1 Previous ecological surveys have taken place immediately adjacent to this site, for the newly built Wrexham Prison development at the previous Firestone site in 2013. Information from this report can be found at the Planning Department at Wrexham Borough Council and the Environmental Impact Assessment report was evaluated as part of this desktop survey.

4.2 Field survey: Phase 1 Habitat Survey

4.2.1 Site context and connectivity

4.2.1.1 The site is set within the southern boundary of Wrexham Industrial Estate, which is part of the North Wales National Trust Living Landscape Scheme. The site is located to the north of an expanse of rural fields, and a local wildlife site to the west.

4.2.2 Habitat compartments – within and immediately beyond survey (application) area

4.2.2.1 A total of five habitat types were recorded within or immediately adjacent the survey area. Details of these habitats, including any recognised conservation value at the local or national scale, are provided in [Table 4](#). More detailed descriptions of each of the habitats with accompanying photographs follow in this section. The extent and distribution of these habitats within the survey area and adjacent land are presented in the [Extended Phase 1 Habitat Plan](#) at [Figure 2](#).

Table 4: JNCC Phase 1 habitats recorded by survey

Code	Habitat Type	Within survey (planning application) area or beyond?	Size (where within survey area)	Designation
J1.2	Amenity grassland	Within survey area	1972 m ²	None
J2.4	Fence	Within and beyond survey area	335 m	None
J4	Bare Ground	Within survey area	2192 m ²	None
J3.6	Building	Beyond survey area (forms boundary)	N/a	None
A1.1.2	Broadleaved plantation woodland	Beyond survey area	N/a	None

J1.2: Amenity grassland - within survey (planning application) area

- 4.2.2.2 This habitat type comprises a well-maintained sward, approximately 10 cm high, with Bents *Agrostis* spp and Ryegrass *Lolium perenne* as the dominant species, but including weed species, such as Dandelion *Taraxicum officinale*, Daisy *Bellis perennis*, Creeping Buttercup *Ranunculus repens*, Yarrow *Achillea millefolium* and Red and White Clover *Trifolium pratense* and *T. perenne* common throughout. The grassland observed is illustrated at P1 below.

P1: Amenity grassland within the survey area**J2.4: Fence - within and beyond survey (planning application) area**

- 4.2.2.3 A tall (approximately 2m high) fence forms most of the boundary of this site, to the south-west, south-east and north-east. This fence has concrete posts to the west and metal posts to the east (see Photograph P2 below). No gaps were recorded in this fenceline.
- 4.2.2.4 This fenceline would provide sufficient barrier at present to otters entering the survey area. However, it is likely that badgers could gain access to the site easily and quickly by digging beneath this fence; there was no evidence that this had happened at the time of survey. This fenceline would not provide a sufficient barrier to amphibians or reptiles entering the survey area from surrounding suitable habitat.
- 4.2.2.5 Beyond the red-line application boundary, a further, lower line of chain-link fencing was noted, marking the edge of the client's site (see the blue-line boundary in Plan 2 and Figure 1). This lower fence (approximately 1m high) runs along the bottom of the slope to the south. Gaps large enough for badgers were noted within this lower fenceline.

P2: Fence forming red-line boundary (ie within survey [planning application] area



P3: Gap beneath fence forming blue-line boundary (ie beyond survey [planning application] area



J4: Bare ground - within survey (planning application) area

4.2.2.6 An area of concrete slab was noted on site, currently in use as an informal storage area; also, areas of gravel and existing tarmacked access. The concrete slab storage area is illustrated at [Photograph P4](#).

P4: One of the patches of bare ground within survey area



J3.6: Building – beyond survey (planning application) area

- 4.2.2.7 Although a number of industrial buildings sit within the wider Refresco site, none are within the application boundary. One building does however form the northern boundary of the site and is assessed at [Table 5](#).

Table 5: Description of buildings within survey area including Bat Roost Potential (BRP) assessment

No.	Photograph	Description inc Bat Roost Potential Assessment
B01	Photograph P5: Building B01 	Large industrial unit; brick built to the first storey, with breeze block and corrugated metal cladding over the majority of the three-storey structure. The building represents the northern boundary of the eastern extent of the application area. No suitable features for bats and no evidence of bats observed. BRP: NEGLIGBLE

A1.1.2: Broadleaved plantation woodland - beyond survey (planning application) area

- 4.2.2.8 An area of young plantation woodland lies between the red and blue lines illustrated at Plan 2 and Figure 1. This comprises largely native broadleaved species, including Ash *Fraxinus excelsior*, Birch *Betula pubescens* and Hawthorn *Crataegus monogyna*, although with a small range of non-native broadleaved species, including Norway Maple *Acer platanoides* and Sweet Chestnut *Castanea sativa*. Much of the ground within the plantation was bare at the time of survey, however the scattered understorey comprised mainly Bramble *Rubus fruticosus* agg and Nettle *Urtica dioica*. Illustrations of this area are provided at [Photographs P5](#) and [P6](#).

P6: Broadleaved plantation woodland beyond survey [planning application] area**P7: Understorey of this broadleaved plantation woodland**

4.2.3 Target Notes

4.2.3.1 Details of features target-noted on the *Extended Phase 1 Habitat Plan* presented at *Figure 2* are described in *Table 6* below.

Table 6: Target notes

Ref:	Photograph	Description
TN01	<i>P8: TN01 Evidence of badger latrine in wider Refresco site</i> 	Evidence found of at least one badger latrine beyond survey (planning application) area but immediately adjacent in land under client's ownership. Badgers had been feeding primarily on fruit, with evidence of cherry stones in the faeces.
TN02	<i>P9: Gap under fence used by badgers in wider Refresco site</i> 	Well-used entrance/exits were noted in the lower chain-link fence denoting the client's ownership (blue-line boundary). Badgers likely to have excavated these gaps and be using them to enter land between the red- and blue-line boundaries. See also <i>Photograph P6</i> above.
TN03	<i>P10: Badger path noted in wider Refresco site</i> 	Badger path recorded in same area, in land between the red- and blue-line boundaries. Path clearly connected with gaps in fences and with badger latrine.

Ref:	Photograph	Description
TN04	<i>P11: Potential reptile/ amphibian refugia in wider Refresco site</i> 	Felled wood pile noted in same area, in land between the red- and blue-line boundaries. Would provide suitable refugia for any reptiles if present within the wider landscape.
TN05	<i>P12: Woodland edge with potential to support roosting bats in wider Refresco site</i> 	Edge of mature woodland, some of the trees will have potential to support bat roosts, given their age, size, maturity and species. Within same area, in land between the red- and blue-line boundaries.

4.3 Field survey: species and species groups

4.3.1 Plants

4.3.1.1 None of the flora recorded during survey was of conservation concern or listed under any Schedule of the WCA 1981 for their value.

4.3.1.2 No invasive species listed under Schedule 9 of the Wildlife and Countryside Act (WCA9) were noted within the survey area.

4.3.2 Great Crested Newt

4.3.2.1 Desk study returned 99 records of GCNs in the 1km search area (see [Figure 1](#) at the end of this report).

4.3.2.2 No waterbodies occurred within the survey area, however a significant number of ponds lie within a 500m radius of the application boundary. A number of these ponds lie very close to the survey (planning application) area, with the closest approximately 50m due west of the survey area (see [Figure 1](#)).

4.3.2.3 Terrestrial habitat at this site was of some value for GCN; very little foraging habitat was noted however some cracks were present in the hard-standing concrete areas within the survey (planning application) area. The small wood piles noted could act as valuable places to hibernate during winter months, however these were beyond the planning application area and so would be unaffected by the proposed development. The woodland plantation beyond this survey area to the south offers commuting routes for amphibians into the wider landscape, including some connectivity with confirmed and potential GCN breeding ponds in this area.

4.3.2.4 From the information above, despite the apparent lack of foraging habitat for GCNs on site, the presence of potential hibernacula within the survey area, combined with confirmed GCN records from ponds close by, all indicate the potential for GCN to be present on site. The site therefore represents **Moderate** value for this species at the **local** scale.

4.3.3 Bats

4.3.3.1 The ecological data request returned several records of bat species such as Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula* and *Myotis spp* within 1km of the site.

4.3.3.2 Based on construction style, setting, use and the presence of features considered suitable for bats, the single building immediately adjacent this survey area was assessed as having negligible potential to support roosting bats (see [Table 5](#) above). Generally, the habitats present within the survey (planning application) area - amenity grassland, fence and hardstanding – provide negligible value for foraging and commuting bats and no opportunities for roosting

4.3.3.3 No trees were located within the survey area, however the primarily broadleaved tree plantation beyond the southern boundary of the survey area, within the client's ownership (the blue-line boundary) has some value to bats. Trees in this plantation were generally young or of medium maturity, with no features such as hollows or cracks that would provide potential roosting opportunities for bats. However, this woodland does represent potential foraging and commuting habitat for bats.

4.3.3.4 Most of the higher quality foraging habitat for bats is located well beyond the red- and blue-line boundaries, within the Ancient Woodland habitats that lie around 1km from the survey area, and in the mature trees around River Clywedog to the south, which provide good foraging habitat for Soprano and Myotis species. Overall, the site would be assessed as having **Negligible** value for bats, and bat species are subsequently scoped out of further assessment. However, it would be best practice to ensure that, during the proposed development works and on their completion, external lighting is not directed towards this woodland edge, as this could result in negative impacts on bat habitats beyond the site boundary.

4.3.4 Otter

4.3.4.1 Desktop survey returned a record of Otter *Lutra lutra* approximately 600 m from the survey area within the past ten years.

4.3.4.2 Field survey identified no evidence of Otter using any part of the site and failed to find any habitat suitable for this species. Although the adjacent stream (approximately 100 m from the survey area), did represent potential foraging habitat for otters, the intervening fences, the lighting and human activity around the Refresco site are likely to discourage otters from entering the survey area. For this reason, the value of the site for Otter is assessed as **Negligible**, and this species is therefore **scoped out of further assessment**.

4.3.5 Water Vole

4.3.5.1 The ecological data request did not return any records of Water Vole *Arvicola amphibius* within the search area over the last ten years.

4.3.5.2 Field survey identified no evidence of Water Vole activity and no habitat with the potential to support this species within the site. Water Voles typically require well vegetated riparian habitat around streams and rivers with steep banks where they can forage and construct burrows. There are no such features within or adjacent to the application site, and therefore the value of the site for this species is considered to be **Negligible**, and this species is therefore **scoped out of further assessment**.

4.3.6 Badger

4.3.6.1 The ecological data request returned one record of Badger within the search area over the past ten years, although this was from around 1.3 km distant and from 2007.

4.3.6.2 Field survey did, however, identify evidence of Badger activity immediately beyond the survey (planning application) area but within the client's ownership. However, no evidence was found of any badger sett or other protected feature. Land within this survey area has some potential value for foraging, but at present it is separated from more valuable adjacent habitat by the perimeter fence. It should be noted that Badgers could potentially excavate beneath this fence and move into the site in the future.

4.3.6.3 Land beyond the red- and blue-line boundaries immediately south of the site, including a wooded, south-facing bank, has good potential to support badger setts. Examination of the land immediately to the south and east of the site showed no evidence of badger setts. Further evidence of badger activity was also noted in scrub to the west of the site; unfortunately, surveyors had only limited view into this dense habitat and did not have permission to enter adjacent land.

4.3.6.4 In terms of opportunities to enter the site from the surrounding landscape, badgers could commute from any direction as there are no significant barriers to dispersal, with several gaps noted beneath the outer security fence (forming the blue-line boundary of the client's ownership) and plentiful open fields bound by hedgerows and trees. Therefore, despite the lack of Badger presence at the time of survey, the site must be considered to hold **Low** value for this species at the **local** scale.

4.3.7 Reptiles

4.3.7.1 Desk study returned some records of Slow Worm *Anguis fragilis* and Adder *Vipera berus* within the 1km search area over the past ten years.

4.3.7.2 The survey area has little value to reptiles, however adjacent scrub and woodland habitat with opened-up patches containing log piles, contribute to a heterogeneous landscape which provides potential foraging, basking and refugia opportunities. This is likely relevant to Slow Worm *Anguis fragilis* in particular, which is the most widespread reptile found in the UK typically associated with these habitats.

4.3.7.3 The surrounding landscape is relatively open, but also provides dense hedgerows with trees and pockets of woodland, potential cover and foraging habitat for reptiles such as Slow Worm. The surrounding local area, however, does provide resources with similar value to those found on site, and so the application site is only a small fraction of potential Slow Worm habitat available. Overall, the site would therefore be considered **Low** value to reptiles at the **local** scale.

4.3.8 Breeding birds

4.3.8.1 The ecological data request returned several records of significant bird sightings within the search area over the past ten years, including species of conservation concern, including House Sparrow and Linnet.

4.3.8.2 The survey area represents low value habitat for breeding and wintering birds, comprising primarily amenity grassland and some hardstanding areas. Areas surrounding this site, including scrub and woodland within the blue-line boundary and other areas of the Wrexham Industrial Estate Wildlife Site provides more suitable potential cover for breeding and wintering birds.

4.3.8.3 Due to the absence of valuable habitats on site, it must be considered that there is **Negligible** value for nesting birds and this class is therefore **scoped out of further assessment in terms of loss of habitat. However, the proximity of nesting habitat would raise concern for the disturbance of nesting birds**, where any vegetation clearance works are carried out during the breeding season.

4.3.9 Other notable species recorded by survey

4.3.9.1 A variety of Lepidoptera was also found at the site from desktop records. Species include Grizzled Skipper *Pyrgus malvae*, Dingy Skipper *Erynnis tages*, Small Heath *Coenonympha pamphilus*, White Letter Hairstreak *Satyrrium w-album*, which are all UK BAP species recorded on or near this site. These species are listed under Section 41 as a species of principal importance under the NERC Act in England, Section 42 species of principal importance under the NERC Act in Wales and is a UK BAP: Priority Species. Grizzled Skipper in particular was recorded historically using the site, according to desktop

records received from Cofnod. While none of its food plants (a variety of plants from the *Rosaceae* family) were noted within the vegetation on site, a number of suitable species were recorded in habitats immediately adjacent this site. These included Agrimony *Agrimonia eupatoria*, Creeping Cinquefoil *Potentilla reptans* and Wild Strawberry *Fragaria vesca*, Barren Strawberry *P. sterilis*, Tormenitil *P. erecta*, Salad Burnet *Sanguisorba minor*, Bramble *Rubus fruticosus* agg, Dog-rose *Rosa canina*, and Wood Avens *Geum urbanum*).

5.0 EVALUATION AND ASSESSMENT

5.1 Designated Sites

- 5.1.1 All statutory sites revealed by desk study within 2 km are situated well beyond the proposed development's zone of influence and, subsequently, will not be impacted by the proposed works. The closest Local Wildlife Site Wrexham Industrial Estate, approximately 250 m from this survey area and again, will not be impacted by the proposed works.

5.2 Habitats

- 5.2.1 The woodlands, stream and lowland meadow immediately south of this survey area are all UK Biodiversity Action Plan Priority habitat types and, subsequently, are of conservation concern. However, the amenity grassland and hardstanding habitats with the survey area have little conservation value. Habitats outside the survey area will not be impacted by the proposed works.

5.3 Species and Species Groups

5.3.1 Great Crested Newt

- 5.3.1.1 The Great Crested Newt *Triturus cristatus* is a European Protected Species (EPS) and is fully protected under Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under the legislation, it is an offence to intentionally capture, kill, disturb, or injure a GCN; to damage or destroy a breeding or resting place used by this species; to obstruct access to their resting or sheltering places; or to possess, sell, control or transport live or dead GCNs, or parts of a GCN.
- 5.3.1.2 Desk study returned records of high numbers of GCN within 1 km of the application site over its recording history and confirmed the presence of GCN in a pond less than 100 m away in 2018. Seven waterbodies were located by desk study within 250 m of this site's boundaries, indicating that terrestrial habitats within the proposed development site are likely to be used by populations of newts using nearby waterbodies for breeding each Spring.
- 5.3.1.3 The proposed development involves construction of new hardstanding areas in the place of existing amenity grassland. Whilst the disturbance and potential damage to potential GCN habitats resulting from their construction is likely to lower than for larger developments there is still a chance that any GCNs present in terrestrial habitats at this site would be disturbed and their habitat damaged by the proposed development.
- 5.3.1.4 Wrexham County Borough Council operate a policy of GCN mitigation measures that is determined by the location (in relation to GCN habitat), nature and extent of the proposed development. This proposed development would comply with the criteria for **Minor Developments** of up to 10 dwellings, subsequently Policy B1 'Adjacent to and up to 250 m from known GCN breeding ponds' would apply. The relevant ecological mitigation prescription for Minor Developments under this policy is to "undertake **Reasonable Avoidance Measures (RAMs) to prevent harm to GCN**".
- 5.3.1.5 Subsequently, **Reasonable Avoidance Methodology (RAMs) for GCNs should be drawn up by a suitably qualified ecologist and employed throughout the site clearance and construction phases, to safeguard any GCNs which might be present within the survey area.**

5.3.2 Bats

- 5.3.2.1 All British bats are European Protected Species (EPS) and are fully protected under Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under the legislation, it is an offence to intentionally capture, kill, disturb, or injure a bat; to damage or destroy a breeding or resting place (whether in use or not); to obstruct access to their resting or sheltering places; or to possess, sell, control or transport live or dead bats, or parts of a bat.
- 5.3.2.2 All species of British bat are also the subject of a UK-wide Biodiversity Action Plan (BAP); Noctule *Nyctalus noctula*, Soprano pipistrelle *Pipistrellus pygmaeus*, and Brown long-eared *Plecotus auritus* bats are also listed under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act.
- 5.3.2.3 As stated previously, there is little habitat and negligible opportunities for bats to roost at this site. However, there is some potential for bats foraging and commuting along the woodland edge beyond the southern boundary. We understand that no trees are to be removed as part of the proposed development and, subsequently, no surveys for bat roosts are required at this site.

- 5.3.2.4 Given the potential of proposed works to disturb bats beyond the survey area's boundaries, **restrictions on external lighting are appropriate for this development.**

5.3.3 Badger

- 5.3.3.1 It is an offence under the Badger Act 1992 to intentionally or recklessly destroy, damage, disturb or interfere with a badger sett that is in use.
- 5.3.3.2 One record of Badger was returned from desk study, although this was around 1 km distant, indicating that the territory of the clan this Badger belonged to is likely to lie out of range of the application site. Furthermore, this record was from 2008 so would not be considered up to date, as Badgers will frequently construct new setts in light of disturbance or other pressures.
- 5.3.3.3 No evidence of Badger was recorded during the survey (planning application) area, however evidence of Badgers was present immediately beyond the survey area and within the wider Refresco site (the blue-line boundary on Plan 2 and Figure 1). As badgers have already excavated beneath small fences lying beyond the survey area, it is possible that badgers could excavate beneath the survey area's perimeter fence and enter this site prior to construction works beginning. As soils across the survey area appeared too thin and poorly-drained to support sett construction, any such activity is likely to be limited to foraging and/or commuting to more suitable land beyond the site's boundaries.
- 5.3.3.4 At this stage, the proposed development is unlikely to impact negatively on badgers. However, as a precautionary measure it is **recommended that this site is checked by a suitably qualified ecologist for evidence of badgers immediately before site clearance and preparation works begin.**

5.3.4 Reptiles

- 5.3.4.1 Desk study returned records of both Slow Worm and Adder within 10km of this site over the past ten years.
- 5.3.4.2 The site holds some potential value to some species of reptile, such as Slow Worm. Whilst some construction activity could potentially disturb this species, it is unlikely that there would be long-term impacts from development.
- 5.3.4.3 To ensure that no reptiles are harmed by the proposed development, **Reasonable Avoidance Methodology (RAMs) for reptiles should be drawn up by a suitably qualified ecologist and employed throughout the site clearance and construction phases, to safeguard any reptiles which might be present within the survey area.**

5.3.5 Breeding birds

- 5.3.5.1 All wild British bird species and their nests are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence under the Act to intentionally or recklessly destroy any active bird nest or to remove its contents. Any development activity within the survey area, including the clearance of vegetation or the demolition of buildings, conducted within the core breeding season (March-August inclusive) has the potential to damage or destroy bird nests and so breach legislation. Any site clearance activity should, therefore, be timetabled outwith this period. Where this is not possible, development works should be preceded by a sufficiently licensed professional ecologist who can confirm the presence/absence of breeding birds on site immediately before works begin.
- 5.3.5.2 Trees and scrub/woodland represent value for breeding birds, as they provide significant nesting space for a variety of species, some of conservation concern. Buildings on site also provide value for nesting birds. The main body of woodland will remain unaffected by works, however patches of scrub and some of the buildings will be removed/converted. If carried out during the core British bird breeding season of March to August inclusive, such activities have a high chance of destroying active nests, which would constitute an offence under the Wildlife & Countryside Act.
- 5.3.5.3 **Subsequently all building work adjacent to the woodland to the south of the site should be timed outwith this core bird breeding season period (March – August inclusive) to avoid breaching legislation.** Where such works cannot realistically be carried out during this period, any vegetation and all building structures to be affected must be checked by a suitably experienced ecologist for the presence of birds' nests immediately before the habitat is removed. This is explained further in the **Recommendations**

5.3.6 Other Species

- 5.3.6.1 Although there was no evidence for significant numbers of the host plant for Grizzled Skipper within the proposed development site, there are suitable species in proximity to the proposed development. It is recommended, therefore, that suitable **host species are provided where there is compensatory planting** for the loss of the grassed areas.

5.3.7 Summary of Expected Impacts of the Proposed Development on Protected/ Notable Species

5.3.7.1 Table 7 below sets out a summary of the expected impacts of the proposed development at each level (see 3.5 for impact assessment methodology).

Table 7: Value summary table of protected/notable species

Species	Local	County-wide	Regional	National	International
Breeding Birds					
Badger	Low				
Bats					
Reptiles	Low				
GCN	Moderate				
Otter					
Water Vole					

KEY: Blue fill represents scale at which value/potential value of species is relevant. Unshaded boxes represent negligible value impacts.

6.0 CONCLUSION

- 6.1 Survey at this site determined that the survey (planning application) area currently has very low ecological value. This is primarily due to its small size and the very limited extent of species-poor grassland and hardstanding it comprises.
- 6.2 Despite this limited ecological value, survey found that the survey (planning application) area sits within a much more ecologically valuable landscape.
- 6.3 While there was no evidence of badger setts or other resting places within the survey area, there was evidence of badgers foraging in the Refresco site on land immediately adjacent to the site; the latter also held potential for the creation of setts (south-facing bank on a woodland edge overlooking meadows). Setts can be created overnight in suitable ground, so even where there is currently no evidence of setts, it is possible for setts to be created in the period between the application and the commencement of work immediately adjacent to the site, raising the possibility of disturbance. This in turn, has licensing implications, as any works taking place within 30m of a badger sett are likely to require a licence from Natural Resources Wales. To avoid this, within a week of site clearance/ construction works beginning on site, the survey area and land immediately adjacent should be checked by a qualified and experienced ecologist to ensure that no new badger setts have been created. Should new badger setts be observed, works may need to be delayed until the NRW licence can be obtained to allow work to continue lawfully.
- 6.4 Great crested newts and reptiles are both known to be within the wider survey area and a GCN breeding pond is located within 250 m of the site. Because of the 'minor' nature of the work, RAMs should be applied to avoid potential harm to these species at this location.
- 6.5 While there is no nesting habitat on site, there is nesting habitat immediately adjacent to the site. Potential disturbance of nesting birds needs to be avoided, ideally by carrying out all site clearance/ construction works outside of the main bird nesting season (March to August inclusive).
- 6.6 There is potential for any feeding and commuting bats using the adjacent woodland to be disturbed from lighting during these works, and from potential lightspill from any new external lighting installed in the new operational area. For this reason, no lights should be directed at the woodland edge during the construction works, and only bat-friendly external lighting should be used within and around the completed operational area (see Appendix 7 for further details).
- 6.7 The proposed development will result in some loss of ecological habitat, albeit of low value. This could be compensated easily and economically by enhancing remaining planted areas. Additional planting should include host species for priority invertebrates known to be present within the local area.
- 6.8 Provided that all of the ecological recommendations in 7.0 are followed in full, the proposed development is unlikely to impact negatively on protected habitats or species. By planting host species for protected invertebrates on completion of the works, the proposed development is likely to result in a net gain in the overall biodiversity value of this small site.

7.0 RECOMMENDATIONS

FURTHER ACTIONS REQUIRED – ECOLOGICAL MITIGATION

Great crested newt	A Reasonable Avoidance Methodology (RAMs) should be employed to ensure that the proposed development works do not cause harm to Great crested newts.
Bats	No external lighting should be directed towards the woodland edge after dusk during the site clearance/ construction phases.
Badger	No more than a week before site clearance/ construction works begin, the survey area should be checked by a qualified and experienced ecologist to ensure that no badgers have either moved into this survey area or excavated new setts within 30m of the edge of works.
Reptiles	A Reasonable Avoidance Methodology (RAMs) should be employed to ensure that the proposed development works do not cause harm to reptiles.
Breeding birds	Wherever possible, all vegetation clearance within the survey area should take place outside the core bird breeding season (ie March-August inclusive). Where this is not possible, no more than a week before site clearance/ construction works begin, the survey area should be checked by a qualified and experienced ecologist to ensure that no active birds' nests will be affected by the works.
Protected Invertebrates	To mitigate for the loss of grassland areas and to enhance this small site's current very low ecological value, a small number of host species for protected invertebrates should be planted. Species included should be a variety from the Rosaceae family such as Agrimony <i>Agrimonia eupatoria</i> , Creeping Cinquefoil <i>Potentilla reptans</i> and Wild Strawberry <i>Fragaria vesca</i> .

FIGURE 1: Distribution of Waterbodies Within 250 m Desk Study Search Area *(not to scale)*

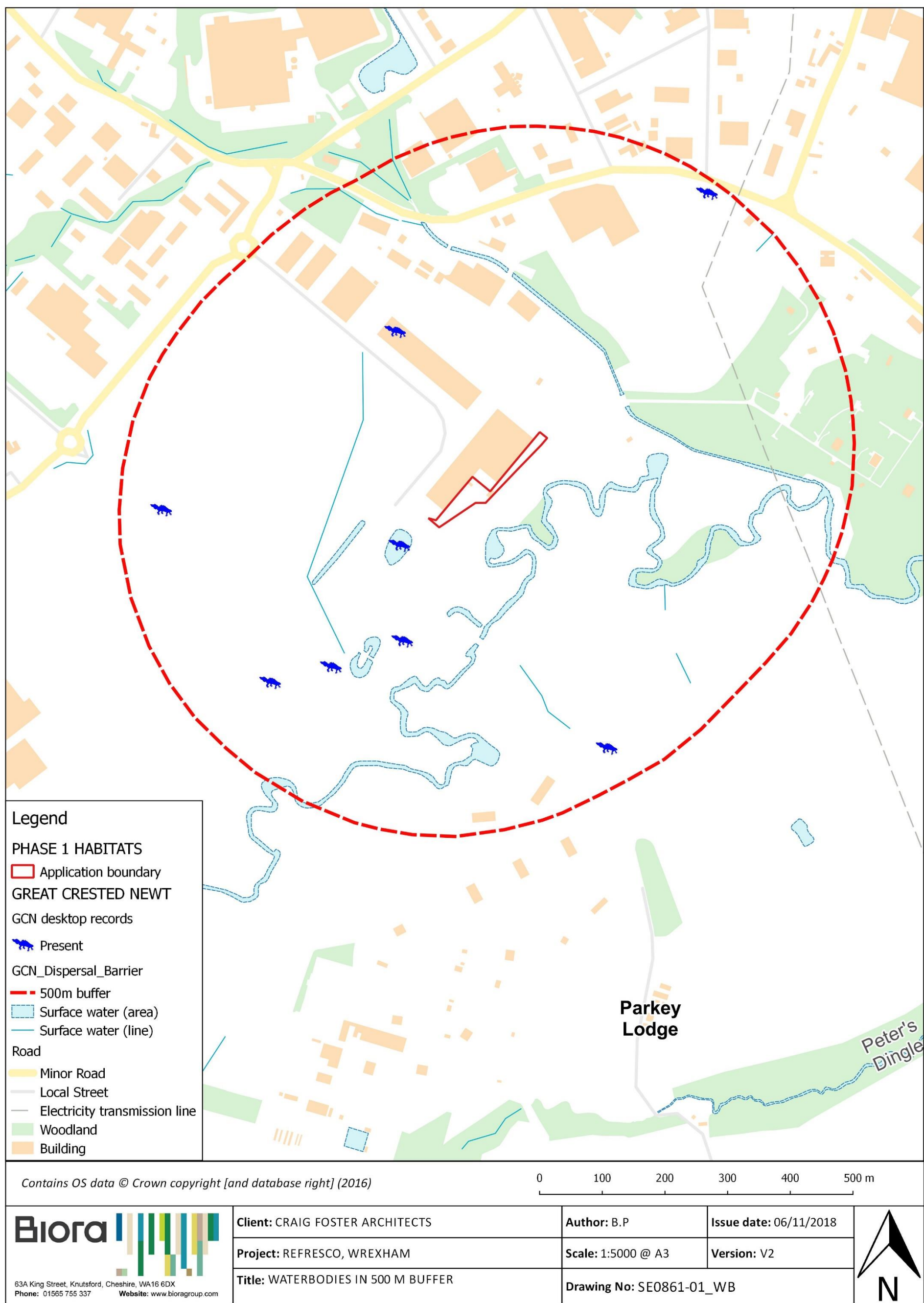
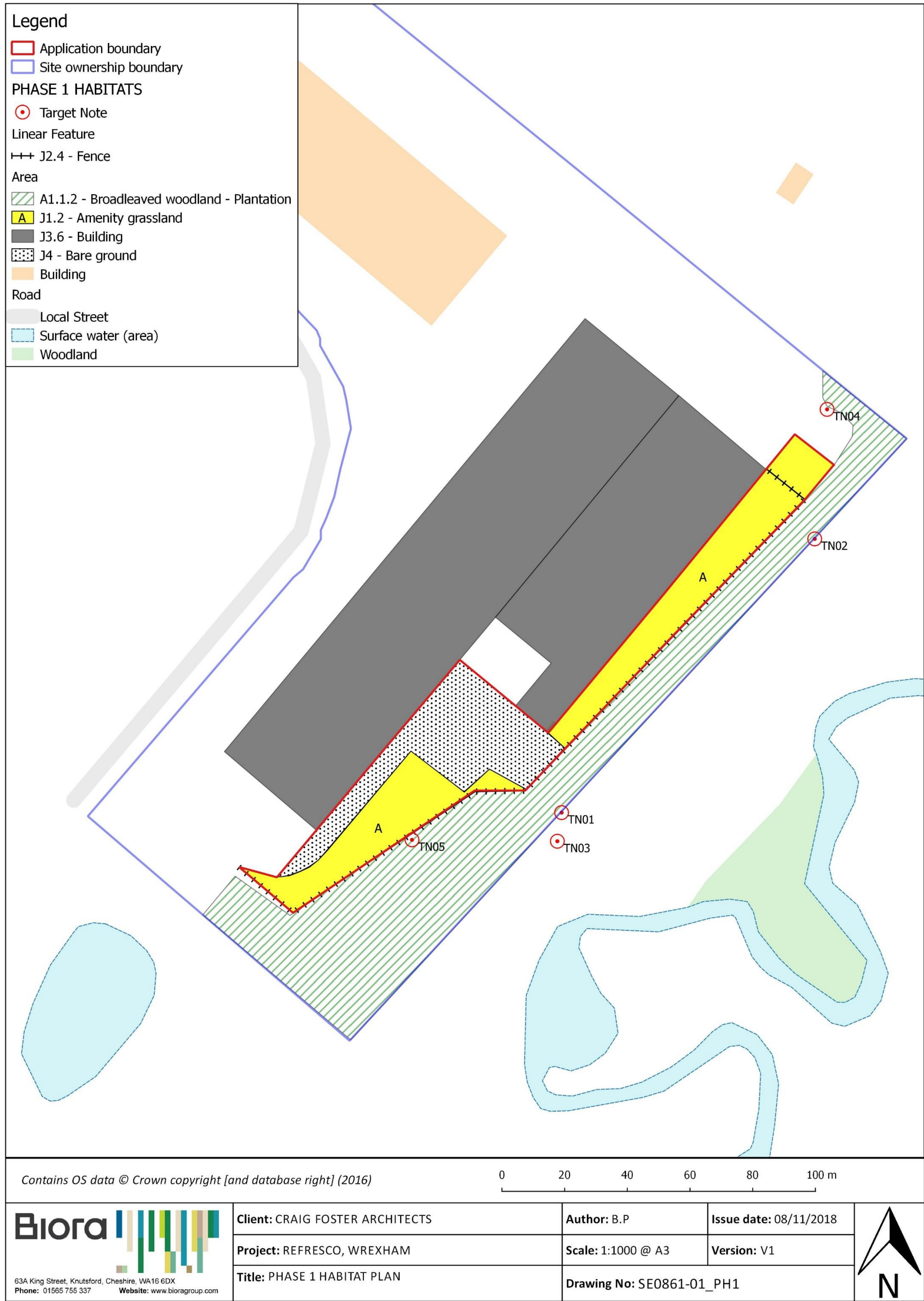


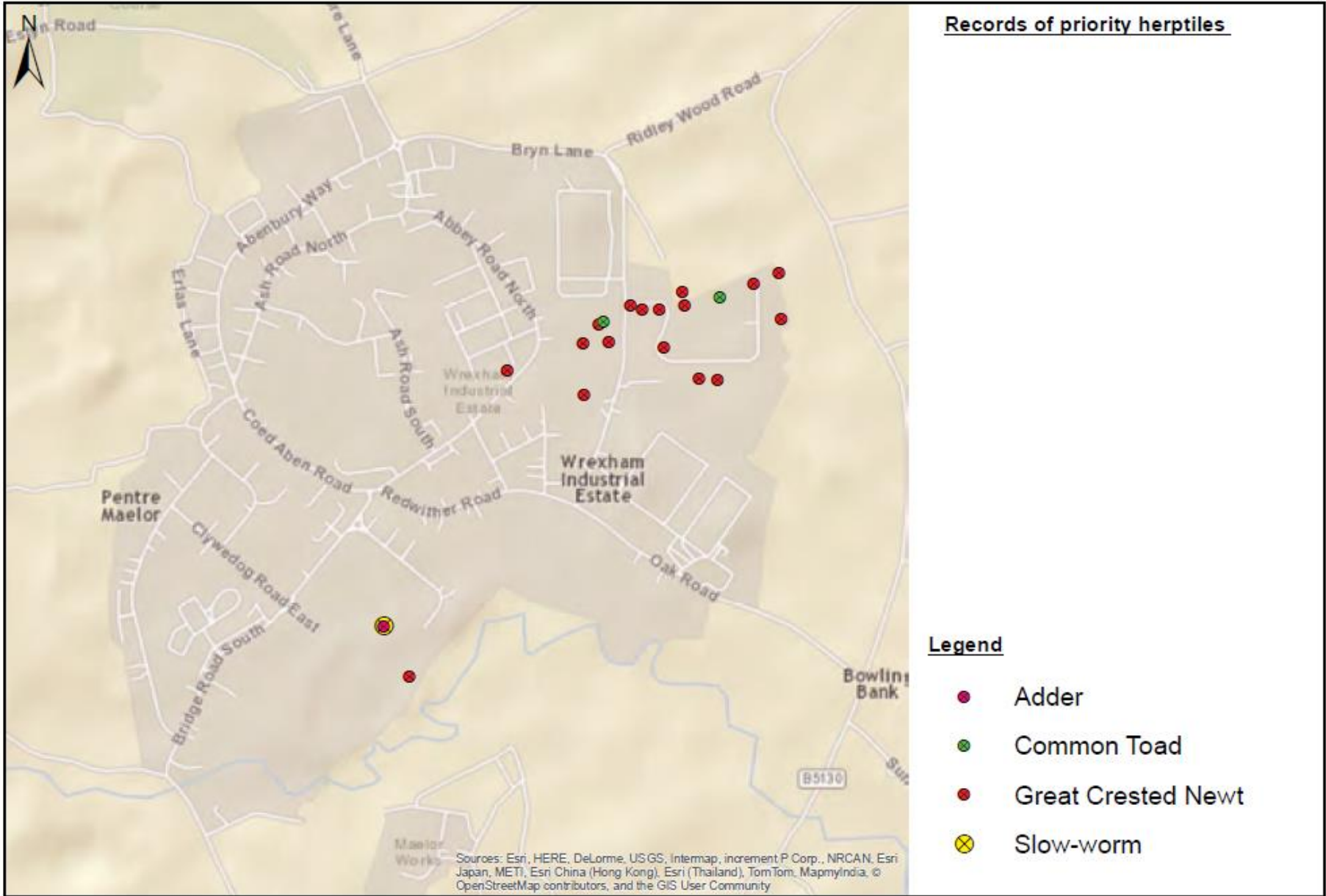
FIGURE 2: Extended Phase One Habitat Plan (not to scale)



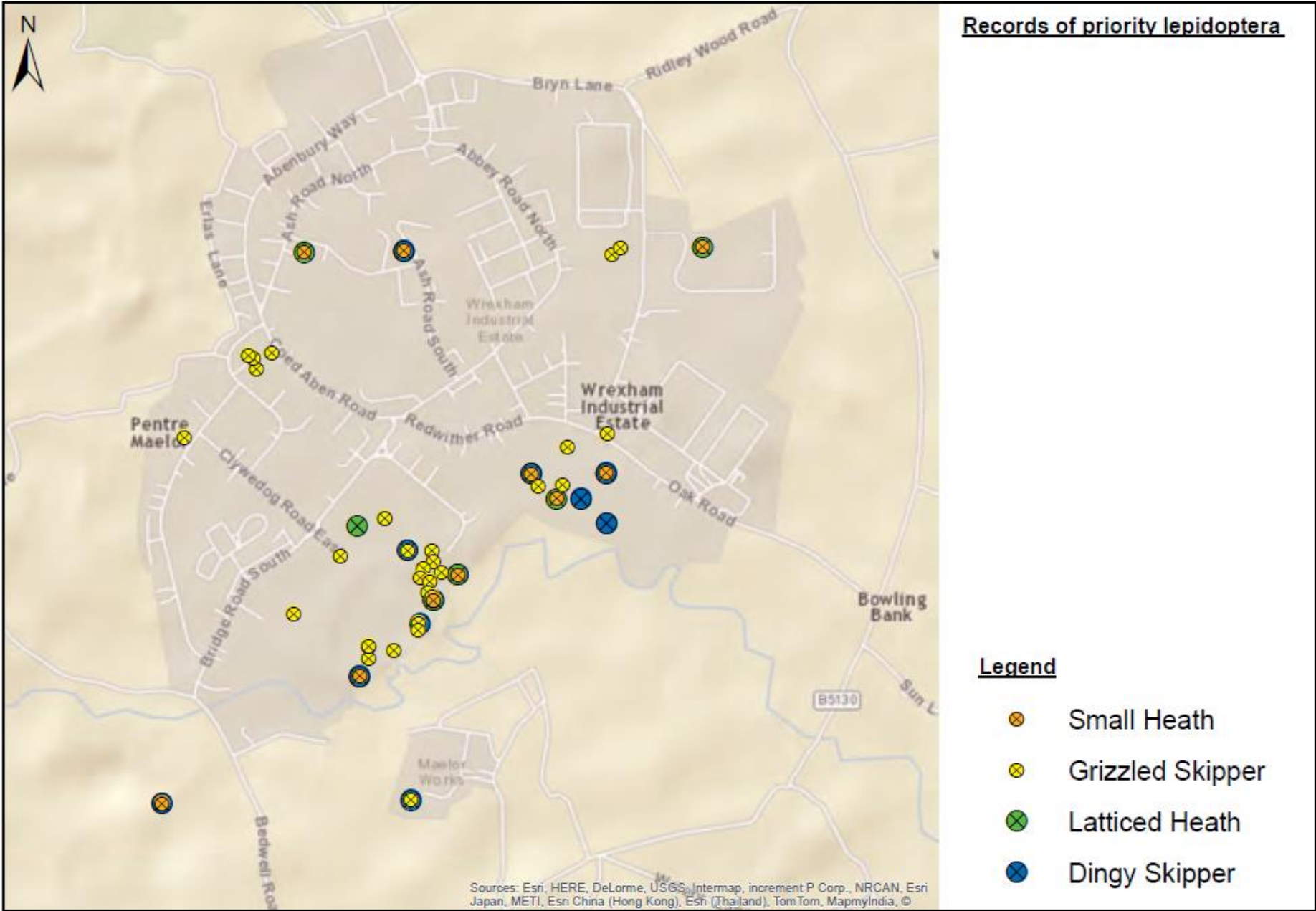
APPENDIX 1: List of Bird Species Found In the 1km Desktop Search Area

Species	Scientific Name
Long-tailed Tit	Aegithalos caudatus
Mandarin Duck	Aix galericulata
Skylark	Alauda arvensis
Mallard	Anas platyrhynchos
Swift	Apus apus
Canada Goose	Branta canadensis
Cetti's Warbler	Cettia cetti
Cuckoo	Cuculus canorus
Mute Swan	Cygnus olor
House Martin	Delichon urbicum
Reed Bunting	Emberiza schoeniclus
Kestrel	Falco tinnunculus
Snipe	Gallinago gallinago
Swallow	Hirundo rustica
Herring Gull	Larus argentatus
Lesser Black-backed Gull	Larus fuscus
Linnet	Linaria cannabina
Grasshopper Warbler	Locustella naevia
Spotted Flycatcher	Muscicapa striata
House Sparrow	Passer domesticus
Grey Partridge	Perdix perdix
Coal Tit	Periparus ater
Willow Warbler	Phylloscopus trochilus
Green Woodpecker	Picus viridis
Dunnock	Prunella modularis
Bullfinch	Pyrrhula pyrrhula
Goldcrest	Regulus regulus
Woodcock	Scolopax rusticola
Starling	Sturnus vulgaris
Whitethroat	Sylvia communis
Redwing	Turdus iliacus
Song Thrush	Turdus philomelos
Fieldfare	Turdus pilaris
Barn Owl	Tyto alba
Lapwing	Vanellus vanellus

APPENDIX 2: Records of Priority Herptiles Taken from Wrexham Industrial Estate Towards a Living Landscape, North Wales Wildlife Trust (2015)



APPENDIX 3: Records of Priority Lepidoptera Taken from Wrexham Industrial Estate Towards a Living Landscape, North Wales Wildlife Trust (2015)



APPENDIX 4: UK Legal Protection and Planning Guidance

A1 National Planning Policy Framework (NPPF)

The NPPF came into force in March 2012. It sets out the Government's planning policies for England and how these are expected to be applied. It gives guidance to local planning authorities on the content of their local plans but is also a material consideration in determining planning applications. **The NPPF states that the planning system should provide a net gain for biodiversity wherever possible.** The NPPF replaces much of the previous planning policy guidance, including PPS9: Biodiversity and Geological Conservation. However, the Government Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System (which accompanied PPS9) remains valid.

A2 Biodiversity Action Plans

UK Biodiversity Action Plans: The **UK Biodiversity Action Plan (UKBAP)** was established in response to the **Convention on Biological Diversity 1992**, signed by 150 members at the Rio Earth Summit, which aimed to promote sustainable development amongst all signatories. Specific action plans have been prepared for highly protected species. As well as a national Biodiversity Action Plan, local Biodiversity Action Plans identify species of note at local level throughout the UK.

A3 Priority Habitats and Species

Under the terms of the Natural Environment and Rural Communities Act 2006, all public bodies are required to have regard to the conservation of biodiversity when carrying out their activities. This means that efforts must be made to consider priority and protected species and habitats in particular. There would be a presumption in the land-use planning process against any development that would result in loss to an area of priority habitat or harm to the population of any priority species.

A4 Statutory and Non-statutory Designated Sites

Sites with Statutory designations receive varying degrees of legal protection under UK law and European Directives. A number of statutory designations are used for sites of high conservation value in the UK dependent on the importance of the site at a local, regional, national and international level. These designations are: Special Area of Conservation (SACs), Special Protection Areas (SPAs), Ramsar Sites, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR).

Non-statutory sites are afforded no statutory legal protection but are in most cases recognised by local planning authorities and statutory agencies as being of local conservation value. The protection of these sites is usually afforded through Local Plan Policies (county, district and Unitary Development Plans) and these sites will in most cases be taken into account as a material consideration by the local authority when deciding planning applications. These sites are designated by the local authority (usually in consultation with the local Wildlife Trust and other agencies).

A5 Vegetation

The Wildlife and Countryside Act 1981 (as amended) lists plants which are statutorily protected. In relation to development these plants are rare and are not often encountered. The bluebell is scheduled, with commercial bulb-picking from the wild being prohibited. There is also a category of plants which it is an offence to introduce to the wild. This category includes Japanese knotweed, which is often found on brownfield sites. Care is needed to avoid spreading the species around the site during earthworks, and to ensure that any removal of infested soils off-site is to a licensed tip. Giant hogweed and Himalayan balsam are also listed in this category of invasive alien plant species. In addition, the Ragwort Control Act came into force on 20 February 2004 and enables the Secretary of State to make a Code of practice to prevent the spread of common ragwort.

A6 Hedgerows

As a priority habitat for conservation concern, hedgerows also receive further protection under the Hedgerow Regulations 1997. Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. Local planning authority permission is normally required before removing hedges that are at least 20 metres (66 feet) in length, more than 30 years old and contain certain plant species. The authority will assess the importance of the hedgerow using criteria set out in the regulations. The local planning authority is also the enforcement body for offences created by the Regulations. If a hedgerow is removed without permission, there may be an unlimited fine and the hedgerow may have to be replaced.

A7 Great crested newt

A European Protected Species (EPS) and fully protected under the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). Under the legislation it is an offence to:

- *Intentionally or deliberately capture, kill or injure great crested newts (GCNs).*
- *Intentionally or recklessly disturb them in a place used for shelter or protection.*
- *Damage or destroy a breeding site or resting place.*
- *Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.*
- *Possess a great crested newt, or any part of it, unless acquired legally.*
- *Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.*

Offences under Section 9 carry a maximum penalty of a fine up to £5000, imprisonment for up to six months, or both, for each animal in respect of which an offence is committed.

Where Great crested newts (GCNs) are present at a proposed development site it is usually possible to continue with the project, re-locating the animals in advance of development, but only upon receipt of a site-specific licence from Natural Resources Wales. The licence application process can be complex and can only be conducted by a suitably qualified GCN-specialist ecologist. Each licence application must be supported by:

- Full optimal-season great crested newt survey results and analysis;
- A suitable mitigation strategy that ensures that the favourable conservation status of the GCN population will be maintained (this usually involves the provision by the developer of additional land with ponds as compensation for loss of habitat and breeding sites). This mitigation strategy should usually be agreed by the ecologist through liaison with Natural Resources Wales; and
- A method statement explaining how GCNs will be accommodated legally if found during the development process.

A8 Bats

All species of bats are European Protected Species and their breeding and nesting sites (roosts) are given a high degree of legal protection under the terms of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. In addition, all bats are the subject of a UK-wide Biodiversity Action Plan (BAP). This combined legislation offers bats, their roost sites and resting places strict protection from intentional or reckless disturbance (see wording of GCN legislation above). It should be noted that, under the legislation, a bat roost is defined as any structure or place which is used by bats to shelter, breed or perch whilst feeding. As bats tend to reuse the same roosts, the roost is legally protected, whether the bats are present at the time or not.

Where bats are present at a proposed development site it is usually possible to continue with the proposed project, but only upon receipt of a site-specific licence from Natural Resources Wales. The licence application process can be complex and can only be conducted by a suitably qualified bat-specialist ecologist. Each licence application must be supported by:

- Full optimal-season bat survey results and analysis;
- A suitable mitigation strategy that ensures that the favourable conservation status of the bat population will be maintained (this usually involves the provision by the developer of replacement permanent bat roosts, additional bat boxes and both bat-friendly planting and lighting within the development site). This mitigation strategy should usually be agreed by the ecologist through liaison with Natural Resources Wales; and
- A method statement explaining how bats will be accommodated legally if found during the development process.

A9 Otter

Otters are a European Protected Species (EPS) and fully protected under the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). Otters and their resting places are fully protected, it is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It is also an offence to disturb otters in their breeding or resting places.

Where otters are present at a proposed development site it is usually possible to continue with the proposed project, but only upon receipt of a site-specific licence from Natural Resources Wales. The licence application process can be complex and can only be conducted by a suitably qualified otter-specialist ecologist. Each licence application must be supported by:

- Full optimal-season otter survey results and analysis;
- A suitable mitigation strategy that ensures that the favourable conservation status of the otter population will be maintained (this usually involves the provision by the developer of replacement waterbodies and holts within the development site). This mitigation strategy should usually be agreed by the ecologist through liaison with Natural Resources Wales and;
- A method statement explaining how otters will be accommodated legally if found during the development process.

A10 Badger

All badgers are protected from harm under the Protection of Badgers Act (1992) and are also included on Schedule 6 of the Wildlife and Countryside Act 1981, and Appendix III of the Bern Convention. Under this act it is an offence:

- To kill, injure or take a badger, or to attempt to do so;
- To use badger tongs in the course of killing or taking, or attempting to kill or take, any badger;
- To kill or take a badger with a firearm which does not fall within the specifications laid down in the Act;
- To dig for a badger;
- To cruelly ill-treat a badger;
- To possess or control a live badger;
- To sell or offer for sale a live badger;
- To mark, or attach any ring, tag or marking device to a badger;
- To possess or control any dead badger, any part of one, or anything derived from one;
- To interfere with a badger sett by (a) damaging a sett or any part of one; (b) destroying a sett; (c) obstructing access to or any entrance of a sett; (d) causing a dog to enter a sett; or (e) disturbing a badger when it is occupying a sett.

Where badgers are present at a proposed development site, it is usually possible to continue with the proposed project, but only upon receipt of a site-specific licence from Natural Resources Wales. A licence is always required to shut down a badger sett or for works within 30m of a badger sett. The licence application process can be complex and can only be conducted by a suitably qualified badger-specialist ecologist. Each licence application must be supported by:

- Full optimal-season badger survey results and analysis;
- A suitable mitigation strategy that ensures that the favourable conservation status of the badger population will be maintained (this usually involves the provision by the developer of replacement artificial setts, planting of suitable fruit-bearing shrubs, erection of badger gates and underpasses within the development site). This mitigation strategy should usually be agreed by the ecologist through liaison with Natural Resources Wales; and
- A method statement explaining how badgers will be accommodated legally if found during the development process.

A11 Water vole

From 6th April 2008, water voles and their resting places gained full protection under the Wildlife and Countryside Act (1981). It is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It continues to be an offence to disturb them in their breeding or resting places.

Where water voles are present at a proposed development site it is usually possible to continue with the project, re-locating the animals in advance of development, but only upon receipt of a site-specific licence from Natural Resources Wales. The licence application process can be complex and can only be conducted by a suitably qualified water vole-specialist ecologist.

Each licence application must be supported by:

- Full optimal-season water vole survey results and analysis;
- A suitable mitigation strategy that ensures that the favourable conservation status of the water vole population will be maintained (this usually involves the provision by the developer of additional land with ponds as compensation for loss of habitat and breeding sites). This mitigation strategy should usually be agreed by the ecologist through liaison with Natural Resources Wales; and
- A method statement explaining how water voles will be accommodated legally if found during the development process.

A12 Reptiles

All species of reptile in the UK are all protected under the terms of the Wildlife and Countryside Act 1981. The Sand Lizard and the Smooth Snake are afforded a higher degree of protection under Regulation 41 of The Conservation of Habitats and Species Regulations 2010 which prohibits the intentional killing and injuring and trade of these reptiles. Where a survey identifies potential habitat for reptiles at a development site, a reptile survey may be needed prior to submission of a planning application and mitigation may be required by Natural Resources Wales for any loss of reptile habitat as a result of a site's re-development.

A13 Breeding birds

All wild birds, their nests and their eggs are protected by the Wildlife & Countryside Act 1981 (as amended). It is an offence (with certain exceptions), to intentionally or recklessly kill, injure or take any wild bird (this includes chicks); to take, damage or destroy any wild bird's nest while it is use or being built; and to take or destroy the egg of any wild bird. The definition of a wild bird is 'any bird of a kind which is resident in or a visitor to Great Britain in a wild state'.

Species named in Schedule 1 of the Act are given special protection and it is an offence to disturb these species at the nest or while they are caring for dependant young. The RSPB and the UK's leading bird conservation organisations work together to regularly review the status of birds within the UK. A total of 246 species are assessed against a set of objective criteria

to place each on one of three lists - green, amber and red – indicating an increasing level of conservation concern. These lists provide a tool for guiding conservation actions for birds in the UK and for setting priorities for action on individual species. The last review of these lists was completed in May 2009.

For certain species, eg Feral Pigeon, general licences are available for an authorised person to lawfully carry out the actions outlined above providing that it is in the overriding interest of public health or air safety and that all other attempts to prevent the problem caused by the species have failed.

The Barn Owl has seen significant declines in recent history primarily due to habitat loss and the destruction, removal or renovation of traditional nesting sites. It is currently included in the amber-list of species of medium conservation concern, having been classified as a Species of European Conservation Concern (SPEC). In Great Britain it is listed on Schedule 1 of the Wildlife & Countryside Act (1981) as amended. It is an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is at, on or near a nest containing eggs or young; or disturbs dependent young of such a bird. Note that if any of the above resulted from a person being reckless, even if they had no intention of committing the offence, their action would still be considered an offence. A person is not guilty of an offence if it can be shown that the act was 'the incidental result of a lawful operation and could not have been reasonably avoided'; only a court can decide what is 'reasonable' in any set of circumstances.

APPENDIX 5: Definition of designation abbreviations

BAct	Protection of Badgers Act 1992
HabRegs2	Conservation (Habs and Sp) Regulations 2010 - Schedule 2
HabRegs4	Conservation (Habs and Sp) Regulations 2010 - Schedule 4
HabRegs5	Conservation (Habs and Sp) Regulations 2010 - Schedule 5
S41	NERC S41
S42	NERC S42
UKBAP	UK BAP Priority Species
WCA1	Wildlife and Countryside Act - Schedule 1
WCA5	Wildlife and Countryside Act - Schedule 5
WCA8	Wildlife and Countryside Act - Schedule 8
WCA9	Wildlife and Countryside Act Schedule 9
BAm [RSPB]	Birds of Conservation Concern [RSPB] - Amber
BRd [RSPB]	Birds of Conservation Concern [RSPB] - Red
IR	Internationally Rare
IUCN CE	IUCN Global Red List - Critically Endangered
IUCN En	IUCN Global Red List - Endangered
IUCN Ex	IUCN Global Red List - Extinct
IUCN ExW	IUCN Global Red List - Extinct in the wild
IUCN LC	IUCN Global Red List - Least Concern
IUCN NT	IUCN Global Red List - Near Threatened
IUCN Vul	IUCN Global Red List - Vulnerable
NR	Nationally Rare
NR Marine	Nationally Rare - Marine Species
NS	Nationally Scarce
NS Marine	Nationally Scarce Marine
INNS	Invasive Non-Native Species
LBAP	Local Biodiversity Action Plan Species
LRaSc	Locally Rare and Scare

APPENDIX 6: BCT Guidelines for Assessing the Potential Suitability of Buildings at Proposed Development Sites for Bats

POTENTIAL	ROOSTING HABITATS	COMMUTING AND FORAGING HABITATS
NEGLECTIBLE	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by foraging and commuting bats.
LOW	A structure with one or more potential roost sites that could be used by individual bats opportunistically. These potential roost sites do not, however, provide enough space, shelter, protection, appropriate conditions¹ and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or unvegetated stream, but is isolated, i.e. not very well connected to the surrounding landscape by other habitats. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
MODERATE	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
HIGH	A structure or tree with one or more potential roost sites that are obviously suitable for use by large 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.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

APPENDIX 7: BCT Guidelines for Bat-Friendly Lighting

GENERAL

Type of lamp (light source)

The impact on bats can be minimised using low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Luminaire and light spill accessories

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned to form a barrier.

Lighting column

The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below three lux at ground level. The acceptable level of lighting may vary dependent upon the surroundings and on the species of bat affected.

Predicting where the light cone and light spill will occur

There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels

The light should be as low as guidelines permit. If lighting is not needed, don't light.

Timing of lighting

The times during which the lighting is on should be limited to provide some dark periods. Roads or trackways in areas important for foraging bats should contain stretches left unlit to avoid isolation of bat colonies. These unlit stretches should be 10 metres in length either side of commuting route.

SECURITY LIGHTING

Power

It is rarely necessary to use a lamp of greater than 2000 lumens (150 W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.

Movement sensors

Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor can be separately aimed.

Timers

If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.

Aim of light

The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any bats' roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.

Alternatives

It may be a better solution for security lighting on domestic properties to use a porch light.

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